Expeditionary Advanced Base Operations in the India-Pacific Command Area of Responsibility

A Monograph

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14. ABSTRACT

The evolution of Anti-Access/Area Denial (A2/AD) capabilities has brought an end to the era of persistent multi-domain superiority for the United States and its coalition partners. Improved long-range precision fires, maritime assets, and other comparable adversary military capabilities will require US forces to fight to attain access to a given Area of Operations (AO) and conduct a campaign within it. The India-Pacific Command (INDOPACOM) Area of Responsibility (AOR) is one region where A2/AD challenges are most prevalent. The deployment of capabilities by China and Russia represent significant obstacles to the conduct of military operations within the theater. Despite the established challenges, a capability is emerging that will enable the Joint Force to overcome the A2/AD strategies and achieve desired objectives. Expeditionary Advanced Base (EAB) operations will provide the means to penetrate enemy defenses and conduct operations within a designated AO. Should a conflict arise with China, Russia, or another adversary on the Asian continent, EAB operations will be essential to support the execution of the approach to the campaign. As the premier amphibious and expeditionary force for the United States, the Marine Corps will serve as the foundation for the conduct of EAB operations. Understanding the considerations associated with the planning and execution of EAB operations is critical to ensure they are successfully integrated into the conduct of future joint force operations in the INDOPACOM AOR.

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Abstract

Expeditionary Advanced Base Operations in the India-Pacific Command Area of Responsibility, by Maj David S. Rainey, US Marine Corps, 40 Pages.

The evolution of Anti-Access/Area Denial (A2/AD) capabilities has brought an end to the era of persistent multi-domain superiority for the United States and its coalition partners. Improved long-range precision fires, maritime assets, and other comparable adversary military capabilities will require US forces to fight to attain access to a given Area of Operations (AO) and conduct a campaign within it. The India-Pacific Command (INDOPACOM) Area of Responsibility (AOR) is one region where A2/AD challenges are most prevalent. The deployment of capabilities by China and Russia represent significant obstacles to the conduct of military operations within the theater. Despite the established challenges, a capability is emerging that will enable the Joint Force to overcome the A2/AD strategies and achieve desired objectives. Expeditionary Advanced Base (EAB) operations will provide the means to penetrate enemy defenses and conduct operations within a designated AO. Should a conflict arise with China, Russia, or another adversary on the Asian continent, EAB operations will be essential to support the execution of the approach to the campaign. As the premier amphibious and expeditionary force for the United States, the Marine Corps will serve as the foundation for the conduct of EAB operations. Understanding the considerations associated with the planning and execution of EAB operations is critical to ensure they are successfully integrated into the conduct of future joint force operations in the INDOPACOM AOR.

Contents

Acronyms

A2/AD	Anti-Access/Area Denial
ABF	Advance Base Force
ADA	Air Defense Artillery
AO	Area of Operations
AOR	Area of Responsibility
ASCM	Anti-Ship Cruise Missile
ASM	Anti-Ship Missile
ASuW	Anti-Surface Warfare
CSG	Carrier Strike Group
DoN	Department of the Navy
EAB	Expeditionary Advanced Base
EABO	Expeditionary Advanced Base Operations
GATOR	Ground/Air Task Oriented Radar
IADS	Integrated Air Defense System
INDOPACOM	India-Pacific Command
IRBM	Intermediate Range Ballistic Missile
JAM-GC	Joint Concept for Access and Maneuver in the Global Commons
JCIDS	Joint Capabilities Integration and Development System
JOAC	Joint Operational Access Concept
LAAD	Low Altitude Air Defense
LOCE	Littoral Operations in a Contested Environment
MOC	Marine Operating Concept
NSS	National Security Strategy
PLA	People's Liberation Army

PLAN	People’s Liberation Army Navy
PLARF	People’s Liberation Army Rocket Force
SAM	Surface-to-Air Missile
SRBM	Short-Range Ballistic Missile
SSM	Surface-to-Surface Missile
TLAM	Tomahawk Land Attack Missile
TPI	Third Party Intervention

Illustrations

Tables

Introduction

Advanced base operations are not a new concept for US naval services. As early as 1903, the US Department of the Navy (DoN) directed the development of a capability to seize forward locations to support sustainment requirements for deployed naval vessels.[1] The Marine Corps assumed the task, organized, and trained an Advanced Base Force (ABF) to meet the Navy's demands. Despite interventions in the Caribbean and Central America, the Marine Corps continued to develop ABF capabilities throughout the early twentieth century. The efforts culminated with the establishment of the Advanced Base Force Brigade in 1913.[2] During subsequent experimental landings and other training exercises, the Marine Corps refined its ability to execute ABF concepts in support of naval operations around the world.

After participating in World War I, the Marine Corps returned from Europe and refocused on the development of amphibious capabilities to support maritime objectives. In 1921, Lieutenant Colonel (LtCol) E. H. Ellis wrote *Advanced Base Operations in Micronesia*, which foretold of an impending conflict with the Empire of Japan.[3] As his warnings went unheeded, Japan occupied territory and established its dominance across the Pacific. Once the United States declared war in 1941, the Marine Corps answered the call to push back Japan's defensive perimeter and reclaim occupied territories within the region.[4] Marines recaptured designated islands, established forward bases, and facilitated the conduct of air and naval operations through a series of offensive amphibious actions. Marine Corps operations in the Pacific were

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[1] James O. Muschett, ed. *USMC: A Complete History* (New York: Universe Publishing, 2002), 113.

[2] Jon T. Hoffman, "Fighting Far From Home," *Naval History Magazine*, February 2013, accessed November 15, 2018, https://www.usni.org/magazines/navalhistory/2013-01/fighting-far-home

[3] Headquarters US Marine Corps, *Fleet Marine Force Reference Publication (FMFRP) 12-46, Advanced Base Operations in Micronesia* (Washington, DC: Headquarters US Marine Corps, August 21, 1992), i.

[4] Muschett, ed. *USMC: A Complete History*, 263.

instrumental in enabling allied forces to penetrate enemy defenses, levy pressure against the Japanese home islands, and force its unconditional surrender.

More than 75 years after the end of World War II, the United States again faces an emerging threat in the Pacific. Adversarial nations on the Asian continent have engaged in a series of provocative actions designed to limit US influence in the theater. Their development and employment of military capabilities has the potential to deny the United States the ability to access and conduct operations within the region. As tensions continue to rise, the United States must be prepared to apply military force in response to the aggressive activities of potential adversaries. The Joint Force created and assigned to complete the mission must be able to prosecute a campaign against an enemy on the Asian continent. Given the nature of the environment in the Pacific, maritime forces will be a critical component to overcome challenges to access and maneuver within the theater. As the land component of the DoN, the Marine Corps will serve as the foundation of the force employed to enable operational success.

Prominent military theorists have identified the role of the maritime domain in pursuit of national objectives, as well as the importance of controlling it during a conflict.[5] Expeditionary Advanced Base (EAB) operations are the activities that will enable the Joint Force to attain sea control during a campaign against an adversary on the Asian continent. National, Department of Defense (DoD), Joint Force, and other service publications identified the potential threats the Marine Corps can use to develop capabilities to defeat the most likely opponents. The relative immaturity of EAB operations provides opportunities for further improvement of concepts associated with their employment. Outlining the dynamics of a potential conflict in the Pacific reveals additional implications for the development of ideas related to the employment of EABs. Understanding the requirements, threats, characteristics, and other considerations associated with

[5] Alfred T. Mahan, "The Influence of Sea Power Upon History" in *Roots of Strategy: Book 4*, ed. David Jablonsky (Mechanicsburg, PA: Stackpole Books, 1999), 48.

EAB operations enables the Marine Corps to improve its ability to support the joint force during a campaign in the India-Pacific Command (INDOPACOM) Area of Responsibility (AOR).

Establishing the Requirements

Various strategic, DoD, Joint Force, and service level publications outline the requirements for the development of capabilities to overcome impending access and maneuver challenges. The *National Security Strategy* (NSS) identified the most prevalent strategic concerns for the United States and the threats associated with them.[6] The Chairman of the Joint Chiefs of Staff (CJCS) published a concept to highlight forthcoming challenges to the Joint Force's ability to operate within the contested spaces of various domains during a future conflict.[7] The DoN developed a concept to establish the requirements for naval forces to mitigate challenges to operations in disputed areas of the maritime domain.[8] The Marine Corps released a concept to identify its responsibility to support joint force access and maneuver within a theater writ large.[9] The considerations outlined in the various security publications created the impetus for EAB operations and established the urgency for the development of concepts associated with their employment.

National Security Strategy

The *NSS* outlines the United States' approach to confront the strategic security concerns of the nation. The 2017 *NSS* identified China and Russia as the most pressing threats to US national security.[10] Their size and disruptive activities across the Pacific have a direct influence

[6] Donald J. Trump, *The National Security Strategy of the United States of America* (Washington, DC: The White House, 2017), 2.

[7] Chairman of the Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)* (Washington, DC: Department of Defense, January 17, 2012).

[8] US Department of the Navy, *Littoral Operations in a Contested Environment* (Washington, DC: US Department of Defense, 2017), 4.

[9] Headquarters US Marine Corps, *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters US Marine Corps, September, 2016), 4.

[10] Trump, *The National Security Strategy of the United States of America*, 2.

on the manner in which the United States employs its elements of national power within the region. The 2017 *NSS* emphasized recent Chinese and Russian antagonistic actions and the threat they pose to operations in the Pacific. China continues to construct islands in the South China Sea, equipping them with military capabilities to disrupt maritime operations and prevent access to its proclaimed territories.[11] Russia's military incursions on its western border extended its influence to the Black Sea and generated apprehension amongst US allies throughout the Caucus Region.[12] The 2017 *NSS* highlighted the growing potential for a conflict in the Pacific, which requires the United States to be prepared to respond to assist its allies with maintaining stability in the region.[13] The *NSS* acknowledged the potential for the United States to encounter significant challenges as it attempts to reach the Asian continent and conduct operations ashore.[14] Identifying China and Russia as the most likely adversaries in the Pacific, enables the US military to implement provisions to overcome the threats it may encounter during a conflict.

Joint Concept for Access & Maneuver in the Global Commons

The global commons are the areas of the air, sea, space, and cyberspace domains that do not belong to any one sovereign nation.[15] Traditionally, these areas provided the United States with the ability to project power anywhere around the world. In 2017, the CJCS published the *Joint Concept for Access and Maneuver in the Global Commons* (*JAM-GC*) and directed the services to develop capabilities to mitigate impending challenges to access and maneuver in each respective domain.[16] The challenges are exacerbated in the INDOPACOM AOR, due to the vast

[11] Trump, *The National Security Strategy of the United States of America*, 46.

[12] Jim Nichol, *Russian Political, Economic, and Security Issues and US Interests*, CRS Report for Congress RL33407 (Washington, DC: Congressional Research Service, March 31, 2014), 48.

[13] Trump, *The National Security Strategy of the United States of America*, 46.

[14] Ibid., 27.

[15] Chairman of the Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, 1.

[16] Michael E. Hutchens, William D. Dries, Jason C. Perdew, Vincent D. Bryant, and Kerry E. Moores, "Joint Concept for Access and Maneuver in the Global Commons: A New Joint Operational Concept," *Joint Force Quarterly* 84, no. 1 (October 2016), 139.

expanses of the air and maritime domains, which will cause the Joint Force to operate over much greater distances. The concept identified a need for organizations that are distributable, resilient, tailorable, and employed in sufficient scale to achieve success in contested domains.[17] The Joint Force must be prepared to organize, train, equip, and employ integrated capabilities to support the successful prosecution of a campaign in the INDOPACOM AOR. Each service must take the necessary steps to develop capabilities to overcome access and maneuver challenges in the air and maritime domains during a potential conflict with China or Russia.

Littoral Operations in a Contested Environment

In the maritime spaces of the global commons, the air and surface zones of the littorals are the primary areas where naval forces will operate. The littoral zone consists of the space between the seaward and landward areas that extend from the beginning of the open ocean to inland positions that can be supported from the sea.[18] In 2017, the DoN published a concept to highlight considerations for the conduct of Littoral Operations in a Contested Environment (LOCE). It identified the challenges maritime forces will encounter as they support joint force operations near an adversary's shores.[19] In the INDOPACOM AOR, the littoral zone is critical to facilitate access to the Asian continent and maneuver forces using the maritime domain. The Navy and Marine Corps are responsible for establishing sea control to enable the Joint Force to achieve its designated objectives. Currently, neither service possesses the organizations or capabilities necessary to overcome the challenges expected during a future conflict. *LOCE* provides the guidance required to create the capabilities needed to enable the successful conduct of a campaign against China or Russia.

[17] Hutchens, "Joint Concept for Access and Maneuver in the Global Commons: A New Joint Operational Concept," 137.

[18] US Department of the Navy, *Littoral Operations in a Contested Environment*, 4.

[19] Ibid., 3.

The Marine Operating Concept

Realizing a shortfall in required capabilities, the Marine Corps published the *Marine Operating Concept* (*MOC*) in 2016. It outlined the philosophy for the development of the organizational, training, equipment, and other considerations to enable the Marine Corps to support future Joint Force operations.[20] The *MOC* identified EAB operations as one of the fundamental activities the Marine Corps will conduct to enable the execution of maritime operations.[21] It will serve as the nucleus for the force organized to execute EAB operations, enable the Joint Force to overcome enemy defenses, and conduct decisive operations ashore. The *MOC* acknowledged a current lack of preparedness and highlighted a need for the development of additional capabilities to facilitate the conduct of EAB operations.[22] The Marine Corps must refine the concepts associated with EAB operations to enable the maritime component to achieve its objectives and support a joint force campaign.

Acknowledging the Requirements

The Joint Force must be prepared to overcome the challenges expected during a conflict in the INDOPACOM AOR. The 2017 *NSS* identified China and Russia as potential adversaries, which enables the US military to prepare to meet them in a possible conflict.[23] The CJCS published *JAM-GC* to identify prospective challenges in the global commons and direct the development of capabilities to mitigate disruption to access and maneuver in each domain. The DoN developed *LOCE* to establish the requirements for naval forces to facilitate operations across the littoral zones. In the *MOC*, the Marine Corps identified EAB operations as a critical

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[20] Headquarters US Marine Corps, *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters US Marine Corps, September, 2016), 4.

[21] Ibid., 10.

[22] Ibid., 8.

[23] Trump, *The National Security Strategy of the United States of America*, 46.

component for future maritime operations and designated itself as the organization around which they will be structured. The *NSS*, *JAM-GC*, *LOCE*, and the *MOC* established the requirements for EAB operations and generated an impetus for the Marine Corps to prepare to conduct them during operations in the Pacific theater.

Identifying the Threats

China and Russia are the United States' most likely adversaries in the INDOPACOM AOR. They are developing capabilities to deny US forces the ability to operate near their shores. Anti-Access/Area Denial (A2/AD) capabilities are devices or strategies a force employs to prevent an adversary from occupying or traversing a designated domain inside a given AO.[24] Within the last decade, China and Russia have adjusted their military strategies to include the implementation of A2/AD defenses in the various domains near their territories.[25] An inability to establish air superiority will prevent the application of the full potential of US air power. A lack of superiority in the maritime domain will reduce the Joint Force's ability to project power within the theater. Identifying the hazards associated with Chinese and Russian A2/AD capabilities is essential to facilitate the development of measures to mitigate their effectiveness and enable the conduct of operations in the theater.

The Environment

One of the most notable hazards to joint force operations in the INDOPACOM AOR is the environment. The Pacific theater consists of more than 60 million square miles and is primarily comprised of water.[26] The scarce number of islands dispersed across the region limits the amount of land available to stage and project forces during a campaign. China's island chain

[24] Chairman of the Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, i.

[25] Trump, *The National Security Strategy of the United States of America*, 27.

[26] Central Intelligence Agency, "The World Factbook: Pacific Ocean," accessed December 01, 2018, https://www.cia.gov/library/publications/the-world-factbook/geos/zn.html.

strategy, as depicted in Figure 1, further reduces the number of available basing locations by pushing the A2/AD perimeter to the Philippines.[27] US bases in Korea, Japan, and Guam offer viable locations to initiate operations, but their proximity to the Asian continent puts them at risk to compromise by adversary capabilities. The INDOPACOM HQ in Hawaii also offers a viable staging location, but is an impractical solution due to being approximately 8000 kilometers (km) from the Asian continent.[28] The distances and limited amount of available land will require the Joint Force to employ measures to increase its operational reach using the air and maritime domains during a conflict.

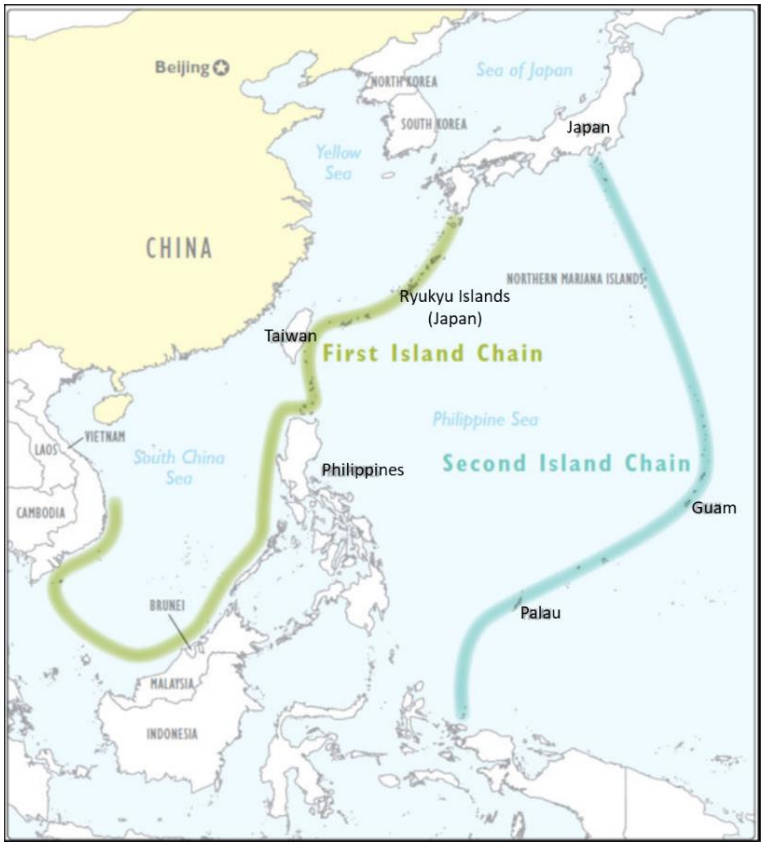

Figure 1. China's Island Chain Strategy. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2010* (Washington, DC: Department of Defense, 2010), 22.

[27] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2010* (Washington, DC: Department of Defense, 2010), 22.

[28] Stephen Georg, "Distance.to," accessed December 10, 2018, https://www.distance.to/Shanghai/Honolulu.

Ballistic Missile Threats

Chinese and Russian ballistic missiles are one of the most substantial threats to joint force operations in the Pacific. Ballistic missiles are projectiles that travel along a parabolic trajectory to deliver ordnance on a predetermined target.[29] They represent a formidable long-range precision fires capability that can target and destroy command and control (C2) nodes, supply bases, or other types of fixed positions. Their high altitudes, long ranges, and large payloads make them a significant hazard for ground forces conducting sustained operations ashore. Short and Intermediate Range Ballistic Missiles (SRBM/IRBM) present the most prominent threats to joint force operations, given their ability to travel between 500 km and 5000 km, respectively.[30] Recognizing the capabilities and limitations of Chinese and Russian ballistic missiles is essential to understand the extent of the danger posed by their employment.

China's Ballistic Missile Capabilities

The primary SRBMs employed by China are the Dong Feng (DF) 11 and 15 series missiles, which have ranges between 300-600 km.[31] They can reach designated targets in Taiwan, Japan, and South Korea from as far away as the Chinese mainland. China's predominant IRBMs are the DF-21 and DF-26, which can achieve ranges of 3000-4000 km.[32] They have the ability to target positions as far away as Guam and the Philippines when employed from the Chinese mainland. They can also range the entirety of disputed territories within the South China Sea. China's ballistic missiles are highly mobile land-based capabilities, which makes them incredibly difficult to locate and target. During a conflict, Chinese SRBMs and IRBMs will present a significant threat to ground forces operating near the first and second island chains.

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[29] Congressional Research Service Report for Congress, *Missile Survey: Ballistic and Cruise Missiles of Select Foreign Countries* (Washington, DC: The Library of Congress, July 26, 2005).

[30] Ibid., 7.

[31] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018* (Washington, DC: Department of Defense, 2018), 36.

[32] Ibid., 71.

Russia's Ballistic Missile Capabilities

The primary SRBM employed by Russia is the Iskander-M missile, with a maximum effective range of approximately 500 km.[33] It has the ability to reach portions of the Sea of Japan, the northern areas of the Japanese home islands, the Bering Sea, and the western territories of Alaska when employed from the eastern regions of Russian territory. The Iskander-M can be employed from mobile land-based platforms, making them as difficult to target as China's ballistic missile platforms. Russia does not possess an IRBM, as it was previously prohibited from developing them per the restrictions imposed by the 1987 Intermediated-Range Nuclear Force (INF) treaty.[34] Though the lack of IRBMs reduces the long-range hazards for US ground forces, Russia's SRBMs still represent a significant threat within their respective effective ranges.

SRBM/IRBM Impact

Should a conflict occur in the Pacific, the Joint Force must be prepared to mitigate the hazards posed by Chinese and Russian ballistic missile capabilities. China's SRBMs and IRBMs can reach strategic US staging bases in Japan and Guam. When employed from positions closer to the first island chain, they can reach targets beyond islands in the Philippines. Russia's SRBMs can reach parts of the US homeland, in Alaska, as well as the northern regions of Japan. When employed in mass, it would be difficult for a force to avoid the destructive potential of adversary missiles during operations ashore. The accessibility, accuracy, and destructiveness of Chinese and Russian ballistic missiles present substantial threats for US forces executing a campaign in the Pacific.

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[33] Amy F. Woolf, *Russian Compliance with Intermediate Range Nuclear Forces (INF) Treaty: Background and Issues for Congress*, CRS Report for Congress R43832 (Washington, DC: Congressional Research Service, December 7, 2018), 2.

[34] Ibid., 3.

Anti-Ship Cruise Missiles (ASCM)

Anti-Ship Cruise Missiles (ASCMs) are another considerable threat for maritime forces operating in the INDOPACOM AOR. They are classified as guided projectiles that travel at sustained rates, of supersonic or hypersonic speeds, to deliver ordnance against surface vessels operating on the sea.[35] They exponentially increase an adversary's maritime deterrence capabilities, without the requirement to create additional surface combatants or aviation assets. Their speed and destructive power are able to disrupt maritime operations by targeting or destroying warships and other types of surface vessels. China and Russia possess ASCMs that can be delivered from a variety of platforms. Identifying their principal ASCM capabilities are essential to prepare maritime forces to mitigate potential effects.

Chinese ASCM Capabilities

The primary ASCM used by China is the YJ-83, which can travel up to 120 km.[36] It can be employed from aircraft, surface combatants, or land-based platforms within the theater.[37] China's construction and militarization of islands in the South China Sea created ideal locations for the employment of land-based ASCMs. The perimeter established within the first island chain provides substantial space for Chinese aircraft to employ ASCMs from virtually anywhere inside the established defenses. The reach of the YJ-83 can be extended by employing it from the fringes of an aircraft's combat radius. ASCMs enable China to establish a barrier and deter adversary surface vessels from accessing the South China Sea or East China Sea.

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[35] Andrew Feickert, *Cruise Missile Proliferation*, CRS Report for Congress RS 21252 (Washington, DC: The Library of Congress, July 28, 2005), 3-5.

[36] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018*, 64.

[37] Ibid., 64.

Russian Anti-Ship Cruise Missile (ASCM) Capabilities

The principle ASCM employed by Russia is the PJ-10 "Brahmos", which has a range of approximately 500 km.[38] Russia's ASCMs can be employed from a variety of naval assets, to include: surface vessels, submarines, and aircraft.[39] The various platforms afford Russia's ASCM capabilities a high degree of mobility and allow their deployment anywhere within the maritime domain. When employed from aircraft, the PJ-10 can be employed against surface vessels attempting to maneuver within the plane's effective range. Employment from surface combatants facilitates an expansion of the defensive perimeter as Russian naval forces extend their operational reach. ASCMs employed from submarines are afforded a significant degree of stealth and are difficult to detect or engage prior to reaching their terminal attack heading. Russia's ASCMs present a substantial threat to US maritime assets attempting to operate in the Northwest areas of the Pacific.

Significance of the ASCM Threat

The loss of a surface combatant poses a significant risk to the conduct of maritime operations. When employed in large numbers from long distances, ASCMs have the ability to overwhelm the maritime component's decision cycle, pierce its defenses, and potentially destroy high value surface assets.[40] China's land-based and aircraft launched ASCMs provide a defense against an adversary's intrusion to the waters inside the first island chain. Russia's ability to employ ASCMs from various naval platforms provides it with an offensive anti-ship capability that can leverage stealth and mobility. Mitigating the Chinese and Russian ASCM threats is

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[38] Missile Defense Project, "BrahMos," *Missile Threat*, Center for Strategic and International Studies, published August 11, 2016, last modified June 15, 2018, accessed November 19, 2018, https://missilethreat.csis.org/missile/brahmos/.

[39] Ibid.

[40] John R. Boyd, *"Patterns of Conflict"* (Defense and the National Interest, Washington, DC, January 2007), PowerPoint Presentation.

imperative to ensure the protection and survivability of surface combatants or other maritime assets.

Integrated Air Defense Systems

Air power theorists identified the importance of incorporating air interdiction, close air support, and other types of aviation operations within the conduct of a campaign.[41] The proliferation of Integrated Air Defense Systems (IADS) across the INDOPACOM AOR threatens the Joint Force's ability to conduct any type of air operations within the theater. IADS consist of a combination of anti-air detection capabilities and anti-air weapons systems, working under a common C2 network, to limit an adversary's use of the air domain.[42] IADS identify enemy aircraft or missiles using a combination of radars, sensors, and other detection capabilities. Once acquired, a layered application of aircraft, surface-to-air missiles (SAM), and Air Defense Artillery (ADA) can be used to neutralize the respective threat. IADS will disrupt the Joint Force's ability to attack objectives, maneuver forces, and conduct other types of operations using aircraft. Understanding the capabilities of Chinese and Russian IADS is essential to enable the use of the air domain during the prosecution of a campaign.

Chinese IADS Capabilities

The IADS employed by China consist of a combination of radars, aircraft, and SAMs that can engage targets at a range of approximately 500 km.[43] The People's Liberation Army (PLA) and PLA Navy (PLAN) can deploy IADS, with the HQ-9 SAM, from land-based platforms or the Vertical Launch Systems (VLS) of PLAN destroyers.[44] The range at which the land-based HQ-9

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[41] Billy Mitchell, "Winged Defense" in *Roots of Strategy: Book 4*, ed. David Jablonsky (Mechanicsburg, PA: Stackpole Books, 1999), 509.

[42] John T. Sophie, "China's Anti-Access/Area-Denial Strategy and Implications for Special Operations Forces Air Mobility" (Monograph, School of Advanced Military Studies, 2014), 24.

[43] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018*, 61.

[44] Office of Naval Intelligence, *The People's Liberation Army Navy: A Modern Navy with Chinese Characteristics* (Washington, DC: Department of the Navy, August 2009), 18.

is able to intercept aircraft, missiles, or other air assets is significantly increased when they are positioned on the man-made islands in the South China Sea. The employment of the HQ-9 from the VLS of PLAN surface vessels provides an umbrella of air defense coverage that can easily be repositioned to support operations in different parts of a theater. Mitigating China's IADS capabilities are critical to protect aircraft and allow the conduct of operations in the skies across the theater.

Russian IADS Capabilities

Russia's IADS use the S-400 Triumph anti-aircraft system, which has an effective range of up to 400 km.[45] It can be employed from land-based platforms or Russian naval vessels, significantly increasing the standoff required for the employment of aircraft.[46] To ensure their survivability, US ship-based aircraft must be launched and recovered further outside Russia's air defense umbrella. The resultant decrease in operational reach limits the maritime component's ability to strike targets deep in the theater. Russia's IADS pose a significant threat to Joint Force fighter, strike, and surveillance aircraft operating in the Pacific.

Implications of the IADS Threat

IADS are the most significant threat to air operations in the INDOPACOM AOR. They inhibit the ability for aircraft to penetrate the perimeter defenses and conduct decisive operations deeper in the theater, which is imperative for a successful campaign.[47] China and Russia possess sufficient quantities of capable air defense systems, which will threaten Joint Force aircraft during a conflict. The uncertainty created by the mobility of HQ-9s employed from Chinese vessels will disrupt maritime component strike and surveillance operations. The increased aircraft launch and

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[45] Missile Defense Project, "S-400 Triumf," *Missile Threat*, Center for Strategic and International Studies, published May 4, 2017, last modified June 15, 2018, accessed November 19, 2018, https://missilethreat.csis.org/defsys/s-400-triumf/.

[46] Ibid.

[47] Georgii S. Isserson, "The Evolution of Operational Art," trans. Bruce W. Menning (Fort Leavenworth, KS: School of Advanced Military Studies (SAMS) Theoretical Special Edition, 2005), 105.

recovery distances imposed by Russia's S-400 system will expand the risks associated with the employment of maritime air assets. Overcoming the Chinese and Russian IADS capabilities is essential to ensure Joint Force air and maritime components can effectively use the air domain to support operations during a conflict.

Enemy Maritime Capabilities

Adversary naval forces are one of the most significant threats to operations in the Pacific. Within the AOR, the employment of naval assets is especially important given the vast expanse of water and limited amount of available land. China and Russia possess navies that can conduct offensive and defensive operations in the air and surface areas of the maritime domain. They will disrupt Air Lines of Communication (ALOC) and Sea Lines of Communication (SLOC) that are critical to enable a joint force to successfully prosecute a campaign.[48] Each country employs surface combatants, submarines, aviation assets, and a nominal naval ground force to conduct operations within the theater. Defeating Chinese and Russian maritime component capabilities is essential to succeed during a conflict in the Pacific.

The PLAN

China's maritime component is organized within the PLAN, which is tasked to defend the Chinese mainland and other territorial claims in the region.[49] The PLAN fulfills a critical role in China's A2/AD strategy, given its ability to integrate multiple facets of the network in the maritime domain. Its three fleets consist of small missile attack craft, patrol boats, frigates, and destroyers that can employ ASCMs or conduct Anti-Submarine Warfare (ASW) operations.[50] The

[48] Julian S. Corbett, "Some Principles of Maritime Strategy" in *Roots of Strategy: Book 4*, ed. David Jablonsky (Mechanicsburg, PA: Stackpole Books, 1999), 232.

[49] Ronald O'Rourke, *China Naval Modernization: Implications for US Navy Capabilities – Background and Issues for Congress*, CRS Report for Congress RL33153 (Washington, DC: Congressional Research Service, August 1, 2018), 5-6.

[50] Ronald O'Rourke, *China Naval Modernization: Implications for US Navy Capabilities – Background and Issues for Congress*, 10.

PLAN contains a moderate air service, submarine force, and a small contingent of Naval Landing Forces capable of conducting amphibious landings.[51] Each element of China's maritime component works in concert to deny an adversary's ability to access and maneuver in the maritime domain near its borders. Opposing naval forces will be required to position beyond the first island chain to operate outside China's A2/AD defenses. Implementing the means to penetrate the perimeter established by the PLAN surface combatants, submarines, and air forces is imperative to succeed in a campaign against China.

The Russian Navy

The purpose of the Russian Navy is to establish and maintain control of the sea within a designated theater of operations.[52] Russia's Pacific Fleet, headquartered in Vladivostok, possesses a robust set of offensive naval capabilities: corvettes, frigates, destroyers, cruisers, and submarines.[53] Through the integrated employment of ASCMs and IADS, Russian surface combatants and submarines can reduce an adversary's ability to use the waters near its territory. Maritime elements of the Joint Force must mitigate the capabilities of the Russian Navy prior to any attempts to conduct decisive operations ashore. During a conflict, the employment of assets to neutralize the effectiveness of Russia's Pacific Fleet are imperative to enable the Joint Force to accomplish its objectives.

Adversary Maritime Threats

The Chinese and Russian Navies present significant threats to US operations in the Pacific. Their size, composition, and integrated capabilities require substantial adjustments to the US operational approach used during the previous era of maritime supremacy. China's employment of surface combatants, submarines, and land-based aircraft to deliver ASCMs and

[51] Conrad Waters, ed., *Navies in the 21st Century* (Great Britain: Seaforth Publishing, 2016), 96.

[52] Ibid., 86.

[53] Ibid., 86.

conduct ASW will severely restrict maneuverability inside the first island chain. Russia's use of surface combatants and submarines, with integrated anti-ship and anti-air capabilities, will inhibit the Joint Force's ability to leverage the maritime spaces near its borders. Should a conflict occur in the Pacific, the maritime component must overcome the capabilities of the PLAN or Russian Navy to reach the Asian continent and conduct a campaign ashore.

Appreciating the A2/AD Challenges

The Joint Force will face a variety of threats during a conflict in the INDOPACOM AOR, as depicted in Table 1. Chinese and Russian A2/AD strategies are designed to enable them to establish, maintain, and operate along interior lines during a conflict.[54] The vast distances, limited available land, and other environmental factors will stress the operational reach of US maritime forces. Chinese and Russian ballistic missiles will present a substantial hazard for ground forces operating from fixed positions ashore. Chinese YJ-83, Russian PJ-10, and other types of ASCMs will disrupt the operations of surface combatants near the Asian continent. The HQ-9, S-400, and other Chinese and Russian IADS will restrict the conduct of air operations in the theater. The PLAN and Russian Navy sea control strategies will inhibit Joint Force maritime operations. The mitigation of Chinese and Russian ballistic missile, ASCM, IADS, maritime, and other A2/AD capabilities is essential to enable Joint Force success during a conflict in the Pacific.

Table 1. Adversary Threat Capabilities in the INDOPACOM AOR

Adversary Threat Capabilities			
Country	**Capability**	**Variant**	**Range**
China	Anti-Ship Cruise Missile (ASCM)	YJ-83	120 km
Russia	ASCM	PJ-10 Brahmos	500 km
China	Integrated Air-Defense System (IADS)	IADS (w/ HQ-9)	500 km
Russia	IADS	S-400 Triumph	400 km
China	Short-Range Ballistic Missile (SRBM)	Dong Feng (DF) - 11	300 km
China	SRBM	DF-15	600 km
Russia	SRBM	Iskander-M	500 km
China	Intermediate Range Ballistic Missile (IRBM)	DF-21	3000 km
China	IRBM	DF-26	4000 km

Source: Missile Defense Project, *Missile Threat*, Center for Strategic and International Studies, published June 14, 2018, last modified June 15, 2018, accessed November 19, 2018, https://missilethreat.csis.org/.

[54] Henri A. Jomini, *The Art of War*, trans. G. H. Mendell and W. P. Craighill (Philadelphia: J. B. Lippencott & Co., 1862), 102.

EAB Operations

EAB operations are the activities that will enable the Joint Force to overcome Chinese and Russian A2/AD strategies during a conflict. They consist of the capabilities, systems, and other efforts that will allow the conduct of operations inside an adversary's defenses.[55] Various security publications identified the requirement for EAB operations, yet they remain a relatively immature concept within the Joint Force. In May 2018, the Marine Corps published a handbook outlining considerations to aid with the advancement of concepts for EAB operations.[56] The concept provided information to codify the principles associated with the successful employment of EABs in the future. Identifying the characteristics of EAB operations facilitates a better understanding of their requirements and supports the development of additional concepts related to their employment.

Principles and Characteristics

Commanders organize EABs in accordance with certain principles to ensure they can support joint force operations across a given theater. EABs must avoid adversary threats, while minimizing the requirement to receive assistance from external sources. Individual EABs operate independently, outside the direct control of higher and adjacent headquarters, but must maintain the ability to provide coordinated effects on desired objectives. The principles of EAB operations offer insight into the manner in which they should be organized and employed to accomplish operational objectives.

[55] Arthur Corbett, *Expeditionary Advanced Base Operations (EABO) Handbook: Considerations for Force Development and Employment* (Washington, DC: Headquarters US Marine Corps, May 9, 2018), 3.

[56] Ibid., 1.

Mobility

Mobility consists of a force's ability to move from place to place, while retaining the capacity to fulfill its primary mission.[57] Conducting EAB operations within an A2/AD perimeter places employed forces inside the range of an adversary's ballistic missile, aircraft, or other types of long-range precision fires capabilities. Chinese SRBMs and IRBMs can target Joint Force assets operating within a 300 km to 4000 km range, respectively.[58] Russian SRBMs can engage forces operating ashore, up to 500 km away.[59] EAB operations must possess the mobility required to displace their positions and avoid the targeting cycle of adversary fire support capabilities.

Sustainability

Sustainability involves the maintenance of the requisite level and duration of operational capabilities to achieve military objectives.[60] EABs must be organized in a manner that enables them to be self-sufficient during periods in which resupply may not be feasible. The PLAN is employed to defend the Chinese mainland and deny an adversary access to its occupied territories within a region.[61] The Russian Navy's Pacific Fleet is employed to establish and maintain control of the sea in the areas of the North Pacific.[62] The activities of adversary navies will disrupt joint force SLOCs and degrade the resupply of elements operating ashore. Ensuring the self-sustainability of EABs is critical to safeguard the viability of their designated functions in the absence of support from higher or adjacent units.

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[57] US Department of Defense, *Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: Department of Defense, February 15, 2016), 156.

[58] Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018*, 125.

[59] Amy F. Woolf, *Russian Compliance with Intermediate Range Nuclear Forces (INF) Treaty: Background and Issues for Congress*, 2.

[60] Department of Defense, *Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms*, 230.

[61] Ronald O'Rourke, *China Naval Modernization: Implications for US Navy Capabilities – Background and Issues for Congress*, 5-6.

[62] Conrad Waters, ed., *Navies in the 21st Century*, 86.

Dispersion

Dispersion includes the separation of troops, materiel, or other capabilities over a wide area to reduce vulnerabilities, which is another important characteristic for EAB operations.[63] Operating inside an adversary's threat radius exposes EABs to enemy aircraft and ballistic missile capabilities. Dispersing EABs across the battlespace increases the number of potential target locations for strike assets and will limit the ability to mass fires on an objective. Dispersion forces China and Russia to employ a large number of resources to destroy a set of targets, which requires commanders to assess the benefits of an engagement against the prospective costs.

Decentralization

Dispersing EABs across an AOR demands a decentralized and flexible command structure to ensure capabilities are available when required. While the planning for EAB operations should be centralized to maximize their effects, EABs must be employed in a decentralized manner to enable flexibility.[64] Decentralization consists of the delegation of execution authority to subordinate commanders.[65] Each EAB is designed to operate independently, but must also be mutually supportive of one another. Chinese and Russian disruption of SLOCs will stress the maritime component's ability to execute C2, sustainment, and other support functions for EABs in a given battlespace. Imbuing commanders with the authority to operate independently will enable the timely application of initiative, ingenuity, and allow the completion of the warfighting functions for respective EABs.

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[63] Department of Defense, *Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms,* 69.

[64] Daniel J. Hughes, *Moltke on the Art of War: Selected Writings* (Novato, CA: Presidio Press, 1995), 132.

[65] Department of Defense, *Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms,* 60.

Understanding EAB Characteristics

The purpose of the characteristics of EAB operations is to ensure they are organized and employed in a manner that maintains their viability and ensures the application of the designated function, when required. Mobility ensures EABs are able to occupy and displace positions before they can be targeted by enemy fire support capabilities. The employment of self-sustaining EABs will allow the execution of the designated functions, despite a lack of support from higher or adjacent elements. The use of dispersion will distribute EAB capabilities across an AOR and decrease an adversary's ability to mass effects on them. The characteristics of EAB operations are designed to ensure the Joint Force can operate inside the range of enemy threats and continue to achieve its objectives during a conflict.

Types of EABs

EAB operations consist of the integration of the capabilities attained through the employment of various types of individual EABs.[66] They enable the Joint Force to overcome an adversary's A2/AD strategies and conduct operations within range of enemy threats. All EABs will be organized with the capabilities required to sustain their operations, but each one will possess specific assets to support the Joint Force's operational approach. Identifying the capabilities required for different types of EABs provides insight into their potential employment during a conflict.

Fire Support EABs

Fire support includes the use of weapons systems to create lethal and non-lethal effects on a designated target.[67] Within the INDOPACOM AOR, adversary capabilities threaten the Joint Force's ability to achieve and maintain control of the maritime domain. Chinese ships equipped

[66] Arthur Corbett, *Expeditionary Advanced Base Operations (EABO) Handbook: Considerations for Force Development and Employment*, 16.

[67] Headquarters US Marine Corps, *Marine Corps Warfighting Publication (MCWP) 5-10, Marine Corps Planning Process* (Washington DC: Headquarters US Marine Corps, May 2, 2016), B-1.

with ASCMs and ASW capabilities, can attack US naval vessels operating within a range of 120 km.[68] Russia's sophisticated IADS can disrupt air operations inside a 400 km radius.[69] EABs equipped with Surface-to-Surface Missiles (SSM) or variants of Anti-Ship Missiles (ASM) will complement surface combatant, strike aircraft, and other capabilities to disrupt Chinese and Russian naval operations. Once the maritime threat is mitigated, the Joint Force will be able to penetrate the A2/AD defenses and conduct decisive operations against objectives ashore.

Aviation Support EABs

Aviation support EABs are organized with the assets required to fuel, arm, and conduct critical maintenance on aircraft. The perimeter established by Chinese and Russian air defense capabilities will require US aircraft to operate at the extent of their maximum effective ranges. Russia's land-based and surface launched IADS provide a dynamic air defense capability that can engage aircraft at a range of 400 km.[70] PLAN vessels with ASCMs and SAMs will force US naval surface and air assets to operate outside a 500 km defensive perimeter.[71] Establishing intermediate aircraft arming, refueling, or maintenance locations inside the adversary's defenses will increase operational reach and extend available time on-station. Aviation support EABs are critical to support Joint Force air operations and sustain maritime air assets during a conflict.

Logistics Support EABs

Logistics consists of the collection of activities required to move and sustain a military force.[72] At the tactical level, it includes the integration of six functions: supply, maintenance,

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[68] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2017* (Washington, DC: Department of Defense, 2017), 25.

[69] Missile Defense Project, "S-400 Triumf," *Missile Threat*, Center for Strategic and International Studies, published May 4, 2017, last modified June 15, 2018, accessed November 19, 2018, https://missilethreat.csis.org/defsys/s-400-triumf/.

[70] Ibid.

[71] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018*, 61.

[72] Headquarters US Marine Corps, *Marine Corps Doctrinal Publication (MCDP) 4, Logistics* (Washington, DC: Headquarters US Marine Corps, February 21, 1997), 12.

health services, general engineering, transportation, administration.[73] EABs designed to support the logistics requirements of adjacent EABs, maritime forces, or other components are important to ensure the continuity of operations. PLAN operations will enhance China's A2/AD strategy and limit opportunities to maneuver near its borders.[74] The sea control strategy of Russia's Pacific Fleet will inhibit the ability for maritime elements to access the waters near its territory.[75] The disruption of ALOCs and SLOCs, as well as the persistent challenges imposed by the environment, will cause delays in the sustainment of forces operating within the AOR. EABs organized with supply, maintenance, medical, and other capabilities will provide critical logistics support in a given AO and save valuable time, reducing exposure to unnecessary risk.

Command & Control (C2) EABs

C2 is the exercise of authority and direction over assigned or attached forces to accomplish a designated mission.[76] During a conflict, Chinese and Russian operations will disrupt the C2 capabilities of the Joint Force and its subordinate components. China's use of the PLAN to bolster its A2/AD efforts will inhibit the ability to complete C2 requirements inside the first island chain.[77] The sea control strategy of Russia's Pacific Fleet will impede the Joint Force's ability to control elements operating inside the Sea of Japan or the Sea of Okhotsk.[78] During a campaign, suitable locations for the establishment of C2 positions will exponentially decrease as the Joint Force progresses west. An EAB designed to support C2 requirements will provide the

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[73] Headquarters US Marine Corps, *Marine Corps Tactical Publication (MCTP) 3-40B, Tactical-Level Logistics* (Washington, DC: Headquarters US Marine Corps, May 6, 2016), 1-8.

[74] Ronald O'Rourke, *China Naval Modernization: Implications for US Navy Capabilities – Background and Issues for Congress*, 5-6.

[75] Conrad Waters, ed., *Navies in the 21st Century*, 86.

[76] US Department of Defense, *Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms,* 40.

[77] Ronald O'Rourke, *China Naval Modernization: Implications for US Navy Capabilities – Background and Issues for Congress*, 5-6.

[78] Conrad Waters, ed., *Navies in the 21st Century*, 86.

Joint Force, or subordinate commander, with a secure location to direct a specific part or step of an operational phase.

Recognizing the Types of EABs

Each EAB is organized and employed to satisfy specific requirements for the Joint Force or a subordinate component. Fire support EABs deliver SSM, SAM, or air and missile defense capabilities within a designated AO. The efforts of aviation support EABs extend operational reach by providing refueling, rearming, and maintenance support for aircraft. Logistics support EABs offer supply, maintenance, health services, or other support needed to sustain the conduct of ground or maritime operations. C2 EABs provide critical communication support to enable the direction of operations from shore-based positions deeper inside the AOR. Recognizing the requirements for the various types of EABs is important to facilitate their integration within the Joint Force's concept of operations.

The Dynamics of EAB Operations

The synchronized employment of multiple EABs, with various capabilities, across the AOR, will enable the Joint Force to overcome adversary A2/AD defenses and leverage the sea as maneuver space.[79] To do so, maritime services must continue to capitalize on opportunities to advance the concepts associated with the conduct of EAB operations. Understanding the characteristics of EAB operations is essential to ensure they are organized and employed to support the efforts of the Joint Force and maintain the viability of other employed elements. Appreciating the requirements for different types of EABs, as well as how they support the achievement of objectives, ensures the effective integration within a commander's operational approach. The continued development of EAB operations is essential to enable a joint force to succeed in a conflict against China or Russia in the Pacific.

[79] Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Military Theory* (Portland, OR: Frank Cass, 1997), 221.

EAB Operations During a Conflict in the Pacific

EAB operations are a joint force capability, employed by the maritime component, that provide the means to overcome an adversary's A2/AD strategies. During a conflict, the various types of EABs are employed to facilitate the accomplishment of designated objectives. Outlining the progression of a possible conflict in the INDOPACOM AOR reveals opportunities for the employment of EABs. Assessing the incorporation of EAB operations within a potential future conflict exposes current shortfalls and limitations, while presenting other implications related to their employment. The following is an examination of a speculative, future invasion of Taiwan by the People's Republic of China (PRC).

A Potential Conflict in the Pacific

One of the most probable scenarios for a conflict in the INDOPACOM AOR will occur as a consequence of China's reaction to Taiwan's independence efforts. Currently, China recognizes Taiwan as part of its sovereign territory and has communicated a preparedness to use force to prevent attempts for liberation.[80] China's response will begin with diplomatic efforts and quickly progress to show of force activities to compel an end to independence efforts. Coercive actions will evolve into comprehensive military operations on Taiwan to return it to Chinese control. The invasion of the island will be supported by the combined efforts of the PLA, the PLA Air Force (PLAAF), PLAN, and PLA Rocket Force (PLARF) to prevent intervention by the United States or other outside party. Once occupied, China will establish a defensive perimeter around the first island chain and impose a new paradigm for international relations in the region. Evaluating China's likely shaping, decisive, and sustaining operations will provide insight into considerations for the employment of EAB operations during the conflict.

[80] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018*, 93.

PLA Shaping Operations

Shaping operations are comprised of efforts to achieve designated effects on an enemy or the environment to set conditions for the conduct of decisive operations.[81] During the conflict, China's shaping operations will attempt to compel Taiwan to return to Chinese control and establish a new status quo in the region. Operations will begin when the components of the PLA mobilize and occupy positions to facilitate an invasion of Taiwan. The PLARF will employ SRBMs against ports, airfields, and other military targets to neutralize the island's defenses and limit its ability to repel the invasion. The PLAN will move to positions in the East and South China Seas to block the seaward approaches within the first island chain. The PLA will increase the number of IADS and other A2/AD capabilities on Chinese outposts in the disputed Spratly, Paracel, and Ryukyu Island territories. Shaping operations will conclude when Taiwan's defenses are reduced, the PLA has established air and maritime dominance, and forces are postured to commence the invasion.

PLA Decisive Operations

Decisive operations consist of activities designed to directly accomplish a prescribed mission.[82] PLA decisive operations will secure Taiwan and enable the Chinese government to assume control over the administration of the island. Decisive operations will begin once China implements the A2/AD strategy around Taiwan and measures are in place to prevent Third Party Intervention (TPI).[83] The PLA will conduct the invasion via amphibious landings on Taiwan and its surrounding islands. The invasion will be followed by a rapid buildup of combat power to support an ensuing occupation. The PLA and PLARF will deploy ballistic missiles, ASCMs, IADS, and other capabilities across the island to extend the A2/AD perimeter beyond the first

[81] US Department of the Army, *Army Doctrinal Reference Publication (ADRP) 3-0, Operations* (Washington, DC: Government Printing Office, 2016) 4-7.

[82] Ibid.

[83] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2016* (Washington, DC: Department of Defense, 2016), 59.

island chain. PLAN surface combatants, submarines, and aircraft will reinforce defenses in the air and maritime approaches to continue to prevent TPI. Decisive operations will conclude once the PLA has occupied Taiwan, secured designated objectives, and is postured to conduct stability operations on the island.

PLA Sustaining and Security Operations

Sustaining operations are supporting efforts that enable a force to generate and maintain combat power.[84] During the conflict, China's sustaining and security operations will include the establishment of garrisons in designated areas to impose and enforce the new system of government on Taiwan. Ballistic missiles, land-based ASCMs, and IADS will be redistributed across Taiwan and the neighboring islands to establish an enduring defensive perimeter beyond the first island chain. The PLAN will maintain its positions around Taiwan to prevent foreign incursions and provide time for the new government to take root. The campaign will conclude with the end of combat operations, a return of stability, the establishment of a new government, and the implementation of a new balance of power around the Taiwan Strait.

The China Conflict Scenario

The above scenario outlines China's conduct of a possible quick and decisive campaign to seize control of Taiwan before external forces can intervene.[85] Diplomatic efforts will precede the conflict, but will likely mask activities designed to prepare for the invasion. Shaping operations will coerce a return to Chinese control and posture forces to invade the island. The ensuing decisive operations will include the invasion, seizure of designated objectives, and isolation of Taiwan from outside assistance.[86] Once the PLA has established control over the island, sustaining and security operations will enable the installation of a new government. The

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[84] US Army, *ADRP 3-0* (2016), 4-7.

[85] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018*, 10.

[86] Ibid., 94.

approach during the campaign against Taiwan presents opportunities for the conduct of EAB operations in support of the Joint Force response to Chinese aggression.

EAB Operations During a Campaign Against China

The provisions of the Taiwan Relations Act require the United States to defend Taiwan from external threats.[87] Should China initiate a conflict, the United States will likely employ a Joint Force to respond and return stability to the region. The resultant campaign will consist of an operational approach that includes EAB operations to facilitate a successful resolution. During the initial phase of the operation, the Joint Force will use positions near the second island chain to stage forces in preparation for its response. The second phase of the campaign will involve the employment of EABs from locations in the Ryukyu Islands, Spratly Islands, and the Philippines to mitigate China's A2/AD capabilities. The third phase of the operation will include the use of EABs to support decisive operations across multiple domains, in effort to compel Chinese forces to capitulate. Recognizing opportunities for the employment of various types of EABs is essential to ensure the planning and execution of an effective campaign.

Air Defense Fire Support EABs

Throughout the conflict, fire support EABs will be essential to protect joint force assets from enemy missile and aircraft threats. During the campaign, a Carrier Strike Group (CSG) will use the Ryukyu Islands to screen its approach to Taiwan. Once the PLA becomes aware of the force's movements, PLAAF and PLAN bombers will deploy from North Sea Fleet bases near Qingdao and East Sea Fleet bases near Ningbo to interdict the approach of the CSG. As PLAN attack aircraft fly near the Ryukyu Islands, EABs equipped with anti-aircraft systems will detect them. EABs with air defense capabilities, operating in concert with ship-based radars, will enable the Joint Force to pinpoint the location of PLAN aircraft. EABs equipped with SAMs will launch

[87] Taiwan Relations Act of 1979, 22 U.S.C. §§ 3301 (1979).

their ordnance to destroy PLAN aircraft and provide time for other maritime component assets to maneuver away from the threat.

Anti-Surface Warfare (ASuW) Fire Support EABs

As the CSG reaches the southern portion of the Ryukyu Islands, the PLAN will attempt to engage it with anti-ship capabilities. PLAN destroyers, corvettes, and missile boats will establish positions to employ ASCMs against naval assets before they can reach the South China Sea. Using naval surface, air, and submarine assets, the maritime component will identify the locations of PLAN vessels and relay their positions to EABs armed with ASMs. The Anti-Surface Warfare (ASuW) commander will then prioritize targets and coordinate the employment of ASMs against the PLAN to enable freedom of maneuver for the maritime component.

Aviation Support EABs

Aviation support EABs are critical to enable the Joint Force to mitigate the threats posed by the environment and enemy IADS in the Pacific. During the campaign, the CSG will deploy aircraft from the southern region of the Ryukyu Islands to strike targets on or near Taiwan. Once cleared, the CSG will egress the area to avoid PLAN detection and reposition outside ASCM range. The aircraft will have to fly approximately 450 km to Taiwan to attack designated objectives near the island. EABs organized with refueling, rearming, and maintenance capabilities will be established in the Babuyan Islands, in the Philippines, to receive aircraft and provide the required support. The aviation support EABs will provide aircraft with enough fuel to complete the trip to the CSG or reach a safe distance and altitude to rendezvous with aerial refueling assets outside the range of the Chinese IADS threat.

Logistics Support EABs

Logistics support EABs are essential to facilitate various support functions during the campaign against China. Fire support, aviation support, and other types of EABs operating near the Luzon Islands in the Philippines will require a resupply of ordnance, fuel, or other logistics as

they expend them during the campaign. As operations progress, logistics support EABs stationed near Manila will travel north to meet with other EABs requiring resupply. Once the requisite replenishment is delivered, the logistics support EAB will return to the southern portion of the Philippines and await relief from another EAB or resupply via supporting air or maritime assets.

Assessing the Impact of EAB Operations

The campaign against China will involve a multi-phased operation to liberate Taiwan and return stability to the region. It will include the employment of EABs to facilitate the conduct of air and maritime operations. Fire support EABs equipped with anti-air radars and SAM systems will offer protection from PLAN, PLAAF, and PLARF air or missile threats. EABs armed with ASMs will enable the disruption of PLAN operations and generate opportunities to maneuver in the maritime domain. Aviation support EABs will provide critical support to mitigate the threats posed by the environment and Chinese anti-air capabilities to enable the success of operations using the air domain. The sustainment provided by logistics support EABs will maintain momentum and create opportunities to increase the tempo of maritime operations. EABs will support Joint Force efforts across multiple domains, enabling operational success throughout each phase of a campaign against China in the Pacific.

Implications

Analyzing the speculative campaign against China provides insight into potential shortfalls related to the conduct of EAB operations. The Joint Capabilities Integration and Development System (JCIDS) process offers a framework to assist with the identification and development of solutions for operational deficiencies. It consists of an assessment of seven different categories to facilitate an evaluation of a prospective capability: doctrine, organization, training, materiel, leadership, personnel, and facilities.[88] The campaign against China highlighted

[88] Chairman of the Joint Chiefs of Staff, *Manual for the Operation of the Joint Capabilities and Integration Development System* (Washington, DC: Department of Defense, August 31, 2018), B-G-F-2.

organizational, personnel, and equipment requirements as the most significant considerations currently affecting the employment of EABs. Identifying the organizational and materiel shortfalls associated with EAB operations is essential to enable the Marine Corps to correct deficiencies and allow the employment of EABs in the future.

Organizational Shortfalls

Organizational considerations include the manner in which forces are arranged to conduct operations.[89] The China conflict scenario presented a number of considerations related to the employment of individual and collective EABs. Individual EABs require the capabilities necessary to coordinate and sustain their respective functions. When employing multiple EABs, an organizational hierarchy is vital to facilitate their integrated application within a given AO. Determining the organizational considerations required to employ individual and collective EABs is important to enable the successful conduct of EAB operations.

Individual EAB Organization

Each EAB must be organized with the fires, logistics, and other capabilities needed to ensure it can complete its designated function. Intelligence, security, and other enabling skillsets are imperative to safeguard the EAB and protect its personnel and equipment. C2 capabilities are essential to facilitate internal coordination, as well as with a higher headquarters. Each EAB must possess organic logistics capabilities to be self-sustaining in austere conditions. Organizing individual EABs with protection, C2, logistics, and other enabling war-fighting functions will ensure they are prepared to support Joint Force operations when required.

Organizational Hierarchy for EAB Operations

Currently, no organizational construct exists to support the conduct of EAB operations. The employment of multiple EABs requires an organizational structure to facilitate their

[89] Chairman of the Joint Chiefs of Staff, *Manual for the Operation of the Joint Capabilities and Integration Development System* (Washington, DC: Department of Defense, August 31, 2018), B-G-F-2.

collective success. Numerous EABs employed on the same island will operate in a decentralized manner, but must be structured under the purview of a single commander to coordinate the accomplishment of designated objectives. Groups of EABs, dispersed over multiple positions within an island nation, must operate under a single commander with the authority to engage host nation leadership and reposition critical assets as required. Collections of EABs, employed across multiple island nations, within a given region, require a commander with the authority to coordinate with the maritime, designated component, or Joint Force commander. Creating the organizational structure to support the comprehensive employment of multiple EABs is essential to enable the successful conduct of Operations.

Recognizing the Organizational Shortfalls

Establishing the organizations for individual and collective EABs is critical to provide the Joint Force with the means to mitigate A2/AD threats in the Pacific. Individual EABs must possess the capabilities needed to ensure their survivability and effective employment in austere conditions. Collective EABs must operate under an organizational structure that facilitates support to multiple entities across a large AO. The Marine Corps must develop, equip, and train the organizations required for EAB operations to satisfy its desire to serve as the foundation for this essential enabling function during a campaign in the INDOPACOM AOR.

Materiel Shortfalls

Materiel considerations are those that relate to the weapons, equipment, or other capabilities necessary to enable the conduct of operations.[90] The China conflict scenario highlighted shortfalls associated with the equipment needed for EAB operations. Fire support EABs require capabilities to enable the detection of enemy surface, aircraft, and missile threats. Once detected, EABs must also possess the means to engage, destroy, or neutralize the identified

[90] Chairman of the Joint Chiefs of Staff, *Manual for the Operation of the Joint Capabilities and Integration Development System*, B-G-F-3.

hazards. An evaluation of the equipment required to conduct EAB operations reveals current shortfalls and potential capability gaps.

Threat Detection Requirements

The scenario highlighted a shortfall in the ability to detect enemy air threats. The Marine Corps currently lacks a mobile asset with the capability to identify enemy aircraft or missiles approaching from long ranges. The recently acquired AN/TPS Ground/Air Task Oriented Radar (GATOR) is capable of detecting enemy aircraft and missiles approaching from up to 70 km away, but only a limited number were procured.[91] China's ability to employ ASCMs from ranges of up to 120 km results in a potential 50 km detection gap. The US Army employs the AN/MPQ-65, which can track targets from as far as 200 km away, but it has no interoperability with Marine Corps systems. The Marine Corps must increase the range of the GATOR system, incorporate the AN/MPQ-65, or acquire a separate radar with a longer detection range to mitigate the threats posed to Joint Force air and maritime assets.

ASM Requirements

Another shortfall revealed in the China conflict scenario is a gap in current fire support capabilities. ASuW EABs must possess the means to engage and defeat an adversary's surface combatants and other types of ships. Current US capabilities do not include a land-based, surface-to-surface, ASM. As an immediate solution, the US Army and Marine Corps are working to modify the truck-mounted Army Tactical Missile System (ATACMS) to fill the void. The US Navy currently employs the Harpoon missile and an anti-ship variant of the Tomahawk Land Attack Missile (TLAM), but they can only be employed from ship-based platforms. The Marine Corps must acquire a land-based, mobile, anti-ship rocket or missile to provide the fire support required to disrupt enemy maritime operations.

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[91] Headquarters US Marine Corps, *MAGTF Staff Training Program (MSTP) Pamphlet 5-0.3, MAGTF Planner's Reference Manual* (Quantico, VA: MAGTF Staff Training Program Division, May 11, 2017), IV-22.

Anti-Air Defense Requirements

Fire support EABs also require the ability to engaging enemy aircraft and missile threats. The Marine Corps does not possess a long-range, high-altitude, air-defense asset capable of engaging Chinese aircraft or missiles. The Low-Altitude Air Defense (LAAD) battalions possess stinger missile systems, but they are only capable of defeating targets closer than eight km.[92] PLAN aircraft can operate out to ranges of 500 km and surface combatants can employ ASCMs from as far as 120 km away.[93] The limitations of the LAAD systems enable Chinese aircraft and surface combatants to attack Joint Force assets well outside a defensible radius. The Marine Corps must acquire a SAM or other missile defense capability with the range to engage and destroy Chinese aircraft and missile threats closer to the point of employment.

Acknowledging the Materiel Shortfalls

The Marine Corps must address the critical materiel shortfalls to successfully conduct EAB operations during a conflict. It must acquire a radar that can detect targets as far as 120 km to facilitate the identification of Chinese air and missile threats, before they can impede Joint Force operations. The Marine Corps must develop and procure a land-based ASM system to engage surface combatants and disrupt an adversary's maritime operations. Additionally, a SAM or other defense system is essential to mitigate the threat posed by Chinese aircraft and missile capabilities. The satisfaction of the radar, ASM, and air defense requirements is essential to enable EABs to protect Joint Force air and maritime assets during a conflict in the Pacific.

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[92] Richard Chait, John Lyons, and Duncan Long, "Critical Technology Events in the Development of the Stinger and Javelin Missile Systems: Project Hindsight Revisited," *Defense and Technology Paper* (Washington, DC: Center for Technology and National Security Policy, July 2006), 7.

[93] US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the Peoples Republic of China 2018*, 64.

Evaluating the Implications

The elements of the JCIDS process serve as a mechanism to evaluate the conduct of EAB operations, while revealing a number of potential organizational and materiel shortfalls. The China conflict scenario highlighted the need for a framework to support the employment of individual and collective EABs. The Marine Corps must create the task organizations needed to support the operational and sustainment functions for the continued viability of EAB operations in the Pacific. The scenario also highlighted several capability gaps associated with the employment of EABs. Radars, ASMs, and other capabilities are required to provide the means to engage enemy maritime, air, and missile threats to protect the Joint Force during a conflict. Satisfying the organizational and materiel deficiencies is critical to enable the Marine Corps to successfully conduct EAB operations during a conflict in the INDOPACOM AOR.

Conclusion

The *NSS*, *JAM-GC*, *LOCE*, and *MOC* identified enemy A2/AD strategies as one of the most likely obstructions to future joint force operations in the Pacific. The vast expanse of water and limited available land will require EAB operations to mitigate ballistic missile, IADS, ASCM, and other maritime threats inside the first island chain. The integration of fire support, aviation support, logistics support, and C2 EABs within a campaign's operational approach will facilitate the penetration of A2/AD defenses and the achievement of objectives within a theater. The employment of EABs in accordance with the principles of mobility, sustainability, decentralization and other essential characteristics will ensure they remain available to support the Joint Force when required. The continued development of concepts associated with the conduct of EAB operations is essential to facilitate a successful campaign against China or Russia in the Pacific.

Outlining a potential conflict in the Pacific provides an opportunity to explore EAB operations against a peer adversary. During a prospective conflict with China, as a result of

aggression towards Taiwan, shaping operations postured forces to initiate an invasion. They were followed by decisive operations to invade the island and position PLAAF, PLAN, and PLARF elements to isolate it from TPI. Subsequent sustaining and security operations established a permanent military presence on Taiwan and implemented a new Chinese controlled government. The Joint Force response employed EABs to facilitate the conduct of air and maritime operations during the campaign. Fire support EABs provided protection from air and missile threats, while also enabling the employment of ASMs to disrupt PLAN operations. Aviation support EABs provided critical refueling and rearming support to extend the operational reach of aircraft. Logistics support EABs provided vital sustainment capabilities that allowed the Joint Force to maintain operational tempo. During each phase of the notional campaign, EAB operations enabled the mitigation of threats imposed by China's A2/AD capabilities.

The notional conflict exposed a number of existing shortfalls related to the conduct of EAB operations. The Marine Corps requires an organizational structure to support the employment of individual and collective EABs within a given AO. The current airborne threat detection assets are insufficient to identify enemy aircraft and missile threats employed from distances greater than 70 km. Gaps in the existing SAM, missile defense, and ASM capabilities inhibit the engagement of adversary air and maritime threats approaching from long ranges. The Marine Corps must develop the means to mitigate the identified organizational and materiel deficiencies to successfully conduct EAB operations during a conflict in the Pacific.

EAB operations are one the most important capabilities required to facilitate a successful campaign in the Pacific. Chinese and Russian A2/AD strategies will attempt to disrupt operations in each domain within the theater. The coordinated employment of various types of EABs will enable the Joint Force to mitigate Chinese and Russian ballistic missiles, IADS, ASCM, and other defensive capabilities. The Marine Corps will serve as the foundation upon which EAB operations will be formed. Unfortunately, due to existing organizational and materiel shortfalls, it is not currently capable or prepared to satisfy all of the required responsibilities. The Marine

Corps must continue to improve its ability to plan and conduct EAB operations to facilitate the success of the Joint Force during a future conflict in the INDOPACOM AOR.

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