



C H I N A A E R O S P A C E
S T U D I E S I N S T I T U T E

**Charting the Course: How the PLA's Expected
Regional and Global Strategies Should Influence the
U.S. Air Force's Lines of Efforts**



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China Aerospace Studies Institute

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EXECUTIVE SUMMARY

This report provides an analysis of the geopolitical dynamics between the United States and China, focusing on military and strategic considerations. It emphasizes that the United States, once unmatched in its military and economic prowess compared to China, now faces a more competitive environment both regionally and globally. Under the guise of a quiet countenance, China has been systematically working towards closing the power gap by enhancing its regional military capabilities, economic influence, and international standing. This shift has led China to challenge U.S. dominance both regionally and globally in an effort to alter the existing rules-based order.

The report highlights China's strategic focus on undermining U.S. power through regional and international order-building efforts, leveraging its growing soft and hard power tools. It further ties the People's Liberation Army's (PLA) regional strategies and global ambitions with the Chinese Communist Party's (CCP) regional and international efforts to shift the balance of power. It underscores the importance of the United States adapting its military strategies and technologies to maintain its influence and counter China's rising capabilities, especially in the Indo-Pacific region. The document stresses the need for the U.S. Air Force to innovate and focus on long-range, resilient military capabilities along with attritable platforms and integrating advanced technologies to address the evolving threat landscape.

Key Findings

Strategic Realignment: China views the U.S. as its primary security concern and aims to displace American influence through strategic power-building. The PLA's recent transformations and military developments are optimizing CCP's regional goals of expelling U.S. influence from the region paving the way for Chinese dominance in Asia. The PLAN and PLAAF's investments in power projection capabilities align with the CCP's global ambitions of altering the global balance of power, setting the stage for China to expand influence other regions which could potentially lead to a notably illiberal global order.

Reemergence of Conventional Deterrence: The 2022 Ukraine invasion highlights a shift towards conventional force for territorial ambitions, especially by non-nuclear states. China's military views echo this trend, emphasizing conventional deterrence over nuclear. As U.S.-China conventional capabilities converge, strategic risks to U.S. forces increase, prompting a need to rebalance investments to build stronger conventional deterrence capabilities.

Operational Shifts: China's robust counter-intervention force puts traditional U.S. military force projection in the Indo-Pacific at risk, as well as U.S. allies and partners, necessitating a reevaluation of traditional military approaches. The U.S. Air Force needs to adapt its concepts of air superiority in the 21st Century and develop new weapons and systems optimized for modern warfare while also developing long-range air-to-air and air-to-ground strike capabilities to counter China's anti-access and area denial strategies before conducting stand-in attacks.

Resilient Joint Fires Network: Building a digital Joint Fires Network (JFN) to enhance long-range military operations by leveraging advanced technologies like edge computing and low-Earth orbit satellites is a must. Rapid engagement in dynamic environments, leveraging networks for fast, coordinated attacks without relying solely on organic sensors is required on the future battlefield. The integration of allies' systems, redundant systems, and high processing capacity is crucial for maintaining operational superiority and resilience against disruptions.

Cheap, Attritable, and Asymmetric: The U.S. Air Force must rethink how it achieves "mass" by focusing on affordable, precise, long-range weapons, and leveraging integrated Joint Fires Networks (JFN). Emphasis on low-cost drones and supersonic cruise missiles over hypersonic missiles is crucial for modern conflict, reducing reliance on costly aircraft while countering advanced defenses.

Degrading Adversary Sensing Grids: The PLA relies on integrated sensors for air and sea superiority, leveraging informatized systems for tracking and targeting. To counter this, the U.S. must disrupt the sensing grid across land, sea, air, and space undermining China's network-centric warfare.

Air Base Defense: U.S. Air Force bases are vulnerable to PLA long-range missiles, drones, and hypersonics, especially in Japan. Collaboration with Japan on missile defenses and integrated C4ISR systems is crucial. Enhanced, multi-layered defensive strategies, including F-16s, short-, medium-, and long-range defense systems, and disruption of adversary mid-course guidance are needed to counter PLA threats and protect operations.

Operational Resiliency: To enhance base resiliency, the U.S. Air Force must harden, bury, and disperse key facilities to complicate PLA targeting and improve sustainability. Developing a distributed, concealed command-and-control network, akin to the U.S. Air Force's Agile Combat Employment (ACE) concept, is crucial for maintaining operational control amid missile threats and extensive ranges in the Pacific.

Technological Advancements: The U.S. must focus on emerging technologies such as quantum encryption, quantum compass, blockchain, and others to build more resilient military communication, navigation, and defense systems.

The document concludes that to be more competitive, it is important for the United States to adapt its military strategies and technologies to maintain its influence and counter China's rising capabilities, especially in the Indo-Pacific region. Therefore, the U.S. Air Force needs to innovate and focus on long-range, resilient military capabilities, attritable platforms, and integrating advanced technologies to address the evolving threat landscape.

INTRODUCTION

The United States, once unmatched in military and economic prowess, now faces a more competitive environment both regionally and globally as the geopolitical dynamics between the U.S. and China deteriorate. China, once under a quiet demeanor, systematically worked to close the power gap by enhancing its regional military capabilities, economic influence, and international standing. China's strategic focus has led it to challenge U.S. dominance, aiming to expel U.S. influence from the Asia Pacific region and alter the existing rules-based order. This paper seeks to develop an understanding of the CCP's and PLA's regional and global strategies and chart a way forward for the U.S. Air Force.

Section 1 describes the PRC's historical viewpoint that the U.S. is a significant threat due to its military and economic dominance and describes China's strategic focus which includes regional hegemonism and reshaping the international balance of power. At the regional level, China has evolved from a defensive posture to a more assertive power which seeks to establish dominance in East Asia through political, economic, and military means. The Taiwan issue remains a potential flashpoint with the U.S. as China pursues unification. Globally, China aims to revise international norms to align with its interests, as evidenced by its involvement in international bodies and ambitions for a new world order. These strategies reflect China's long-term goals to replace U.S. influence and establish itself as a central global power.

Section II describes the PLA's regional strategies and ways to achieve unification with Taiwan as well as its global ambitions and how both fit with the CCP's regional and international efforts to shift the balance of power. It is further broken down by PLA branches that will pose the biggest threat to U.S. Air Force regional and global operations, namely the PLA Air Force (PLAAF), PLA Rocket Force (PLARF), PLA Navy (PLAN), PLA Strategic Support Force (PLASSF), and the PLA Army (PLAA) aviation branch, concluding with regional and global challenges. The information in this section will serve as a guide for recommended lines of effort for the Air Force to strengthen its position against a regional and future global PLA threat.

Section III highlights the changing character of air warfare in relation to future conflict with a threat whose regional focus is currently on high intensity combat operations within Asia. It points to increased risks for U.S. forces operating within the region against a formidable counter-intervention force, putting traditional force projection potentially outside the realm of possibility. Through understanding the PLA's counter-intervention strategy, the section concludes with recommended lines of effort the Air Force should focus on in order to contend with a dominant regional threat in the Pacific.

SECTION I: Crisis on the Horizon

“The Tiananmen Square protests reminded Beijing of the American ideological threat, the swift Gulf War victory reminded it of the American military threat, and loss of the shared Soviet adversary reminded it of the American geopolitical threat. In short order, the United States quickly replaced the Soviet Union as China's primary security concern, that in turn led to a new grand strategy, and a thirty-year struggle to displace American power was born.”¹

Rush Doshi

Realism, in regards to international relations theory, suggests rising powers like China make strategic decisions based on whether a perceived external hegemon, or simply a more powerful country with the ability to exert external influence, poses a threat to the rising power's growth and whether the relative comprehensive national power gap between the weaker state and the stronger state is high or low. If the threat from an external force, or hegemon, is high and the perceived power gap is high between the two nations, the weaker state is often inclined to “pursue defensive military capabilities to deter the hegemon from regional intervention while eschewing capabilities that would alarm the rising state's neighbors and trigger encirclement.”² As the relative power gap between the hegemon and the weaker state begins to close, the weaker state could start to pursue “capabilities that allow for coercion, intervention, power projection, and control (rather than denial) of the land, air, and sea.”³

During much of the People's Republic of China's (PRC) history, the United States (U.S.) has maintained an uncontested economic and military advantage when compared to China. Today, however, that is no longer the case. Over time, China has closed the gap with the U.S. through efforts focused on blunting U.S. power followed by regional order and international order-building efforts. China now boasts a strong regional military, a large economy, and significant international influence, as well as growing soft and hard instruments of power at its disposal. Since approximately 2008 and the global financial crisis, China has increasingly viewed the U.S.'s role in the world as diminishing and that an era of multipolarity has arrived. This has led China to gradually adjust its strategies in an effort to further erode U.S. capabilities with the intended purpose of eventually supplanting U.S. leadership.

A Brief History: The U.S. as the PRC's Pacing Threat

The mid-1800s to mid-1900s marked China's "Century of Humiliation," during which Western powers and Japan exploited China's military weaknesses by engaging in “unfair” trade practices, seizing territories, and fomenting conflicts within China. This period instilled in China a popular determination to never forget or allow such subjugation again, shaping its quest for military prowess, regional dominance, and global leadership. Despite moderate trade relations with the U.S. in the 1800s, support for China's territorial integrity since World War I, and material assistance in fighting imperial Japan in World War II, Chinese leaders believe the U.S. has been trying to dominate China for more than 150 years, and that American “imperialists” seek the subjugation of China.⁴ Since the 1960s, U.S. policymakers had been led to believe that China was a backward nation, not militarily active, and not focused on the U.S. as a military threat.⁵ However, China has consistently focused on the U.S. since the PRC's inception in 1949

and has considered the U.S. its most enduring pacing threat despite two and a half decades of tension with the Soviet Union.

During the early 1950s, Chinese armed forces focused on low-tech ground force combat missions during the Korean War.⁶ China's military mindset, however, shifted in 1956 with the adoption of "Active Defense." This strategy was designed to inflict "sufficient casualties" on an enemy, namely the U.S., to "create conditions for the transition at the strategic level from defense to offense."⁷ While active defense can be seen as defensive initially with a transition to offensive operations, it has been molded in contemporary times to include potentially offensive operations prior to being attacked, otherwise known as pre-emptive strike. China's strategic direction would shift during Mao's rule, and in 1980, under Deng Xiaoping's leadership, China officially reverted back to the Active Defense strategy.⁸ Supported by collaboration with the U.S., China focused on resisting the Soviets in the 1970s and 1980s and emphasized forward defenses anchored around positional warfare.⁹ China's concept of Active Defense has thus maintained relevance and continues to influence China's military strategy today as evidenced by China's 2015 defense white paper which dedicated an entire section to this approach.¹⁰

On the heels of improved U.S.-China relations, the Central Military Commission (CMC) approved military force reductions in 1980 and 1982 in an attempt to improve quality and effectiveness and focus efforts towards combined arms operations in light of the People's Liberation Army's (PLA) poor performance in 1979 against Vietnam.¹¹ By 1985, Deng "declared that there was no longer a threat of imminent ground or nuclear war with the Soviet Union"¹² and judged that China would likely not face a major war in the next decade or two and should primarily focus on economic efforts. This led to a third force reduction in 1985 and a more temporary, but gradual, focus on naval affairs and maritime territorial conflicts, allowing the PLA Navy (PLAN) to shift its strategy from "Coastal Defense," also known as "near-coast defense," to "Offshore Defense," also known as "near-seas defense."^{13,14}

Starting in 1989, a major shift in Chinese strategy began. The "traumatic trifecta of Tiananmen Square, the Gulf War, and the Soviet collapse" led to an increase in Beijing's concern of a U.S. threat¹⁵ and U.S. warfighting capabilities.¹⁶ Under new strategic guidance proposed by Deng Xiaoping in 1989, "China chose not to build the foundations for Asian hegemony because it feared doing so would unsettle the United States and its own neighbors. It avoided major investments in aircraft carriers, ambitious international organizations, and regional schemes and instead pursued blunting."¹⁷ This would become the basis for what Rush Doshi calls China's "first strategy of displacement"¹⁸ wherein China would implement Deng's "hide and bide" (韬光养晦) strategy and focus on asymmetric "assassin's mace" (杀手锏) weapons in order to counter U.S. power projection in the skies and waters around China until China's power increased.¹⁸ This guidance led to a shift from a "sea control" strategy which focused on holding distant maritime territory and resolving maritime territorial disputes, towards a "sea denial" strategy focused on denying the U.S. military from "traversing, controlling, or intervening in the waters near China."¹⁹ Due to the challenges brought about by this shift, "Beijing declared it would 'catch up

ⁱ Strategies of Displacement refer to China's Grand Strategy to displace U.S. leadership in both the region and world. There are three strategies of displacement that Doshi describes.

in some areas and not others' and vowed to build 'whatever the enemy fears' to accomplish it-- ultimately delaying the acquisition of costly and vulnerable vessels like aircraft carriers and instead investing in cheaper asymmetric denial weapons."²⁰

Influenced by the first Gulf War, CMC Chairman Jiang Zemin advocated in 1993 that the PLA "prepare for military struggle and winning local wars that might occur under modern, especially high-technology conditions," further supporting Deng's 1989 strategic guidance and the paradigm-shift that prioritized advanced counter-intervention weaponry.²¹ Rather than focusing on countering an invasion of the Chinese mainland, however, this strategy emphasized "how to wage wars over limited aims that would be characterized by new ways of fighting" to "defend national territorial sovereignty and maritime rights and interests" as well as "safeguard the reunification of the motherland," referring to Taiwan.²² In parallel with this strategy, PLA reformers argued for comprehensive changes to the military's structure due to endemic corruption as well as the changing nature of warfare.

PLA reformers asserted that corruption within the military regions led to high ranking PLA officials amassing too much power with poor supervision resulting in inefficiencies and financial waste that raised questions about the PLA's combat readiness.²³ Additionally, Deng pushed post-Tiananmen efforts to solidify party control over the PLA and secure "absolute loyalty" due to insubordination during the Tiananmen riots.²⁴ Coupled with the need to stamp out corruption, the trend of modern warfare toward joint operations in the maritime and aerospace domains forced a rebalancing from the army to the navy and air force, supported by a joint command and control (C2) structure that could integrate all of the services and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) capabilities.²⁵

Along these lines, the PLA's 1999 joint campaign outline identified the PLA's primary campaigns as "island blockade, island assault, border area counterattack, counter-air raid, and anti-landing campaigns."²⁶ To successfully project regional power, though, China first had to develop sea-denial capabilities to reduce the potential for the U.S. to get involved in the region. Therefore, prior to rapidly expanding navy and air force capabilities, Beijing continued to focus efforts on asymmetric capabilities to deny U.S. power projection.²⁷ Deng's 1989 guidance and Jiang's 1993 guidelines led Beijing to build the world's largest mine arsenal, the world's first anti-ship ballistic missile (ASBM), and a sizeable submarine fleet throughout the 1990s and early 2000s with the explicit purpose to undermine the U.S.'s military power projection capabilities in the region so that China could achieve its regional goals.²⁸

In 2004, using the 1999 Kosovo War and 2003 Iraq War as case studies, China updated its 1993 guidelines to incorporate informatization and shifted towards "winning local wars under informatized conditions"²⁹ with a focus on island assault (Taiwan), island blockade (Taiwan), and border area counterattack (India).³⁰ The 2004 guidelines also shifted from "joint operations" to "integrated joint operations" wherein the military services would move from simply coordinating (joint operations) with one another during a campaign, to unified operations (integrated joint operations) under a single command-and-control network supported by informatization.³¹ To China, the U.S.-led NATO intervention in Kosovo, as well as U.S.-led

coalition invasion in Iraq, suggested that the U.S. may be willing to intervene on behalf of Taiwan in the event of an invasion. Therefore, to avoid highlighting itself as a rising military power, China would remain a quiet participant in global affairs under the “hide and bide” strategy proposed by Deng until 2008.

After the 2008 financial crisis, however, China began a “second strategy of displacement” based on the belief that U.S. power was diminishing.³² This emboldened China to take a more confident approach towards regional and global affairs, while not completely abandoning its “hide and bide” strategy. During this time, China sought to subtly build the foundation for regional hegemony through peripheral diplomacyⁱⁱ in Asia and by expanding its far seas military capabilities and vowing in 2012 to build “powerful armed forces that are commensurate with China’s international standing.”³³ This would lead to an increase in maritime capabilities like the development of multiple “aircraft carriers, more capable surface vessels, amphibious units, overseas facilities, and a variety of capabilities it had once neglected,” all of which allowed China to seize or “hold distant islands and waters, safeguard sea lines of communications, intervene in the affairs of its neighbors, or provide public security goods.”³⁴ During this time, China exerted its influence on Asian nations as it sought to secure its superiority within its own neighborhood while continuing to shape and mold the PLA.

Driven by Xi Jinping’s concerns of weakening party leadership over the PLA, rampant corruption within the PLA, and a desire to increase the efficacy of wartime capabilities, the PLA embarked on wide-ranging reform efforts in late 2015 to enhance joint operations and capabilities.³⁵ As early as 2013, Xi stated that “deep-rooted contradictions” within the PLA had yet to be resolved, the “leadership and management system is unscientific,” and “the command system for joint operations is unsound.”³⁶ Somewhat modeled after the U.S. military force structure and those of other advanced militaries, the PLA created five joint Theater Commands (TC) (Eastern, Southern, Western, Northern, and Central) aligned against regional threats. Within each TC, commanders are now able to develop joint force packages from the service components within their theaters, while the service headquarters primarily focus on organizing, training, and equipping, which the PLA calls “force construction.” This restructuring also saw the creation of the PLASSF, now disbanded, and the PLA Joint Logistics Support Force (JLSF), the latter which provides logistics support to units across the theaters.³⁷ In addition to building advanced U.S.-blunting capabilities, the move from a Military Region (MR) system, which were ground force organizations, to a Theater Command system was the “culmination of a longstanding goal of PLA reformers to gradually transition” towards emphasizing joint operations since 1998.³⁸

Following the 2016 U.S. elections and the coronavirus pandemic, China entered the “third strategy of displacement” which persists to this day. Within this strategy, China is seeking to expand “its blunting and building efforts worldwide to displace the U.S. as the global leader.”³⁹ China continues to develop long-range blunting and power projection capabilities with the PLAAF, the PLARF, and the PLAN to secure China’s national interests overseas. The PLAN has become the largest navy in the world in terms of quantity, with deep-water ports accessible in

ⁱⁱ Foreign affairs activities to advance a country’s interests in a region that include deepening economic integration, engaging neighboring powers, and using coercion to achieve its strategic goals.

Africa, the Middle East, South America, and the Indo-Pacific. The PLAAF's ability to project power beyond the shores of the mainland are nascent, but progressing. As China's international influence grows, China's ability to secure overseas bases or dual-use logistical accommodations and become a world-spanning military is a reality with which the U.S. military will need to contend.

Regional Hegemonism

China's quest for regional hegemony refers to China's attempt to dominate East Asia by exerting its power over neighboring countries. China's efforts involve the use of its political, economic, military, and cultural power to shape the region's dynamics in ways that align with its own interests and priorities. By leveraging its economic power, sheer size, and military dominance, China seeks to influence regional stability, economic development, and security arrangements, which have led to tensions with neighboring countries and other global powers.

In 2000, Chi Haotian, former Vice Chairman of the CMC, met with newly appointed Russian president, Vladimir Putin, and came to a consensus about regional security. Together, they agreed that the Shanghai Fiveⁱⁱⁱ needed to be upgraded to a formal institution focused on regional security concerns. The Shanghai Cooperation Organization (SCO) was born from this consensus. The stated goal between Chi Haotian and Putin was the need for “opposing hegemonism, safeguarding world peace, opposing human rights interference, opposing missile defense, and other issues,” all of which were clear concerns regarding the U.S.-led liberal world order.⁴⁰ This agreement would support China's efforts to blunt U.S. security activity in Asia by denying U.S. observer status in the SCO as well as prohibiting the U.S. from viewing military exercises affiliated with the SCO's Counterterrorism Center. With China's military rise, there has been a shift from a blunting-only strategy to also including a focus on setting the terms for regional order in Asia, asserting itself more openly through a combination of its instruments of powers.

During the second strategy of displacement in which China sought to build regional order centered around itself, China effectively used the SCO “as a platform from which China [could] deflect, frustrate, and neutralize America's influence”⁴¹ in the region as well as “show the international community that Russia and China have the necessary resources to ensure stability and security in the region.”⁴² Touting a “peaceful rise” narrative, China focused its efforts on peripheral diplomacy and pushed a “Community of Common Destiny”^{iv} in the region as it sought

ⁱⁱⁱ The Shanghai Five pre-dated the Shanghai Cooperation Organization and was a group created 26 April 1996 between the heads of states of China, Kazakhstan, Kyrgyzstan, Russia and Tajikistan who signed the Treaty on Deepening Military Trust in Border Regions.

^{iv} The phrase "community of common destiny for mankind" is central to "Xi Jinping Thought on Diplomacy," which defines Chinese foreign policy in the "New Era." Although it suggests a focus on shared values and goals in international relations, similar to ideas behind the European Union, it also incorporates traditional Chinese foreign policy elements that emphasize a state-centered approach to human rights, prioritizing national interest over individual rights. The phrase has been translated in various ways, including "community of shared destiny" and "community of shared future." The latter translation, introduced around 2017, aims to avoid negative associations with expansionist ideas outside China. (Stella Chen, “Community of Common Destiny for Mankind,” *China Media*

to create a system of interdependence between Asian nations purporting that the other nations could benefit from China's rise.⁴³ Since then, China has made many inroads with neighboring countries through infrastructure projects connecting them with China.

Accompanying the narrative of a "Community of Common Destiny" is China's push to build a "New Asian Security Construct."⁴⁴ China's desire to keep the U.S. and Western influence out of the region was clearly conveyed when Xi asserted "it is for the people of Asia to run the affairs of Asia, solve the problems of Asia, and uphold the security of Asia."⁴⁵ However, as time progressed through the 2010s and early 2020s, China has been inclined to utilize the PLA to shape the region to benefit itself without regard for, or in spite of, neighboring countries' interests. China's disregard for international norms has led it to build and militarize islands in the SCS,⁴⁶ use its Coast Guard to conduct hostile acts against smaller nations on its periphery,⁴⁷ conduct economic coercion against smaller countries,⁴⁸ and escalate skirmishes with India along the Line of Actual Control (LAC). However, these actions pale in comparison to China's increasingly assertive military coercion and display of military power against Taiwan.

Taiwan has played a pivotal role in China's contemporary strategic security since 1949 when the Chinese Communist Party (CCP) ousted the Nationalist Party known as the Kuomintang (KMT), from the mainland. China sees Taiwan's de facto independence as the last remaining vestige of the civil war and the island as the final sovereign territory that must be "reunified" with the mainland. To this end, the CCP seeks unification, preferably by peaceful means, but also by military force, if needed. This stance creates a potential scenario for conflict with the U.S. or a U.S.-led coalition if diplomatic efforts fail to stave off Chinese aggression against the democratically-governed, economically-significant, island of Taiwan. As China's aggressive rhetoric and military activities around Taiwan intensify, tensions between the U.S. and China continue to escalate. China's unification efforts are seen by Japan, South Korea, the Philippines, the U.S., and other Western powers as a significant factor in the regional balance of power with the potential to reshape East Asian geopolitics. The U.S. continues to prepare for a situation involving forceful attempts by the PLA to compel unification of Taiwan, as well as the evolving dynamics of the regional balance of power.

Due to economic headwinds in China, however, some experts suggest that PRC authorities might be tempted to pursue forceful unification sooner rather than later. Scholar Michael Beckley suggests that the CCP fears that China's "moment in the sun is about to end, that its strategic window of opportunity is starting to close, and that its regime will not be able to deliver the goods that it has promised the people, can incite aggression and expansion that a nation more optimistic about its economic prospects might avoid."⁴⁹ This theory places China in the bin of "rising powers" and suggests that as China's economic situation begins to peak, China may start to lash out violently in an effort to secure historical claims or lash out at countries that it views as intending to encircle and contain its rise.

This "strategic window of opportunity," Beckley posits, where the U.S. is pre-occupied with other geopolitical requirements provides China an opportunity to take Taiwan by force as

Project, August 25, 2021, https://chinamediaproject.org/the_ccp_dictionary/community-of-common-destiny-for-mankind/.)

well as secure territorial disputes in the South China Sea (SCS) and East China Sea (ECS). Combined with the “peaking power” prospect, history also suggests that Beijing is willing to use military force to disrupt balancing efforts or outright containment should it feel threatened, as seen in 1979 when Beijing elected to attack Vietnam in an effort to disrupt Soviet-Vietnamese relations for fear of encirclement.^{50,51} Indeed, Zhang Yunling, who helped shape China’s multilateral strategy to blunt U.S. soft power in Asia, in the 1990s, stated that “the most dangerous situation is the formation of many countries united together to counter China, to carry out the encirclement and containment of China.”⁵²

While China’s other territorial disputes take a back seat when compared to its efforts towards unification with Taiwan, China continues to aggressively assert military influence regarding disputed territories. China’s claims to all of the SCS and portions of the ECS challenge claims by Japan, Taiwan, Brunei, Vietnam, the Philippines, and Malaysia. In 2009, Hu Jintao stated that China needed to make “offensive moves” on territorial issues saying that China “must resolutely fight against the violations of China’s rights and interests by the countries concerned and defend [its] core interests.”⁵³ Furthermore, regions along the border with India and Russia remain unresolved. While China seeks to move forward in its efforts to solve these disputes, Taiwan remains the top priority.

It is increasingly apparent that PRC ambitions don’t stop at regional hegemony. China views a compliant periphery as an important external prerequisite to its global ambitions. If China’s neighboring countries pay deference to China, then China can more easily project its influence and military outward. However, China’s increasing military assertiveness has prompted Washington to seek closer security ties with Asian nations which China perceives as efforts designed to offset China’s growing influence in the region. Closer trilateral cooperation between the U.S., Japan, and the Republic of Korea,⁵⁴ increasing security relationships with the Philippines,⁵⁵ increasing security cooperation with ASEAN,⁵⁶ growing relations with Vietnam,⁵⁷ and enhancing security cooperation with the Quad^{58v} could potentially drive unpredictable behavior⁵⁹ as “China fights, not when it is rising, but when its security is deteriorating and its bargaining strength is declining.”⁶⁰

International Balance of Power

Whereas China's primary focus revolves around regional hegemony in the near term, China maintains long-term goals to reshape the international balance of power. Utilizing its instruments of national power, China seeks shape the international rules and norms in ways that align with its own global interests and priorities. By working through international bodies such as the United Nations (U.N.), World Trade Organization (WTO), and other international

^v "The Quad, officially the Quadrilateral Security Dialogue, is a group of four countries: the United States, Australia, India, and Japan. As of 2021, leaders in all four countries have become more aligned in their shared concerns about China’s increasingly assertive behavior in the region and are more willing to define a constructive agenda of cooperation." Sheila Smith, “The Quad in the Indo-Pacific: What to Know,” *Council on Foreign Relations*, May 27, 2021, <https://www.cfr.org/in-brief/quad-indo-pacific-what-know>.

organizations, China seeks to influence international policy in human rights, technology, trade, security, and overall global governance.

Henry Kissinger's eloquent statement on China in his 2014 book, *World Order*, can be seen taking shape today:

“China's participation in aspects of the Westphalian structure carried with it an ambivalence born of the history that brought it to enter into the international state system. China has not forgotten that it was originally forced to engage with the existing international order in a manner utterly at odds with its historical image of itself or, for that matter, with the avowed principles of the Westphalian system. When urged to adhere to the international system's ‘rules of the game’ and ‘responsibilities,’ the visceral reaction of many Chinese, including senior leaders, has been profoundly affected by the awareness that China has not participated in making the rules of the system. They are asked, and, as a matter of prudence, have agreed, to adhere to rules they had had no part in making. But they expect, and sooner or later will act on this expectation, the international order to evolve in a way that enables China to become centrally involved in further international rule making, even to the point of revising some of the rules that prevail.”⁶¹

Evidence suggests “China has sought to displace the United States from [existing] orders and to create its own equivalent,” leading to deliberate attempts to blunt U.S. soft and hard power, fostering a difficult geopolitical atmosphere regarding cooperation between the two nations during China's “peaceful rise.”⁶² As early as 2004 when Hu Jintao replaced Jiang Zemin as CMC chairman, China recognized a need for it to secure its national interests abroad. China expects the PLA to “play an important role in maintaining world peace and promoting common development” due to China's growing integration with other regions and the desire for stability within those regions.⁶³ This guiding principle culminated in 2017 when China moved from regional order-building to global order-building.⁶⁴ China's “great changes unseen in a century” mentality has driven China to declare the decline of the U.S. and the rise of China as the country with legitimate authority to lead the development of a new world order and global security.

Within pursuit of its global ambitions, China does not necessarily seek only to “restore [its] national status” and “bear a responsibility for the world” in the current liberal system that promotes liberal and transparent trade practices, human rights protection, religious freedom, and the promotion of equality.⁶⁵ Instead it seeks a revamp of the global governance system. Xi has stated that “the world needs a new order” and that China should “lead the reform of the global governance system.” Transitioning from the regionally-based “community of common destiny,” China now seeks “the development of the international political and economic order in a more just and reasonable direction” wherein China will substitute the existing order with “a new type of international relations and build a community with a shared future for mankind” that will likely resemble its communist domestic order.⁶⁶ In line with China's desire for global governance, China has identified a need for a global military presence to safeguard key overseas interests and sea lines of communications (SLOC). This global military presence will be vital to protecting China's foreign trade and energy imports and is evident in Chinese writings.

While China claims to have a “peaceful foreign policy and a defensive national defense policy,” China’s 2020 *Science of Military Strategy* states “today's world is facing unprecedented changes. Our country is developing rapidly from large to strong, and overseas interests are expanding. The military must resolutely fulfill the mission and tasks of the new era, and further strengthen the planning and guidance of the overseas use of military forces, and contribute to safeguarding the country's overseas interests and promoting regional stability and the maintenance of world peace.”⁶⁷

To safeguard China’s overseas interests, China intends to utilize its military for “international peacekeeping, international rescue, maritime escort, overseas evacuation, international joint military exercises and joint training, naval and air strategic cruises, open sea training, military assistance, warship visits, international counter-terrorism, etc.”⁶⁸ As globalization and the international rules based order continue to fracture, however, it is possible to imagine a confrontation between China’s overseas military presence and Western overseas military presence wherein each side is providing direct and indirect military assistance for opposing sides of a dispute, similar to the U.S.-Russian situation in Syria in the mid-2010s or the Russian invasion of Ukraine in 2022.

A potential outcome of a fully-realized Chinese vision of the future could see the eventual withdrawal of U.S. military forces from Japan and Korea, the termination of American regional alliances around the world, the effective reduction of the U.S. Navy's presence in the Western Pacific, deference to PRC interests from China's neighboring countries, unification of Taiwan, and the resolution of territorial disputes in China’s favor in the ECS and SCS, as well as along the border with India. In this potential future, a diminishing liberal order in both the region and the globe would make way for a Chinese order that is likely to be more coercive than the current one, characterized by consensus that primarily benefits connected elites at the expense of the general public whose voices would likely be silenced.⁶⁹ It would be considered legitimate by only a select few who directly benefit from it. China would implement this order in ways that undermine liberal values and foster stronger authoritarian influences across the region and the world.⁷⁰

China's approach to order-building would be notably illiberal when compared to the Western approach, fostering a world that ignores human rights violations, religious oppression and persecution, market manipulation, predatory and opaque trade practices, violation of international commitments, unprovoked economic coercion, outright theft of intellectual property, forced technology transfers, suppression of individual will and free thought, operational state-owned concentration camps, territorial conquest, biological and chemical weapons usage, nuclear proliferation, cultural and human genocide, and a Leninist control of truth. States too small to defend themselves, economically or militarily, against China’s hierarchical world order would succumb to expansionary aggression, coercion, and consensual inducements.^{vi} Given Russia’s PRC-supported predations against Ukraine and PRC intentions towards Taiwan, PRC global hegemony likely means nations of the world would sit in silence as 17th and 18th century

^{vi} Oxford Academic defines Consensual inducements as involving the ability to incentivize or even “bribe” cooperation through mutually beneficial bargains or enticements.

style conquest reemerges. The world would become fractured as globalization devolves into two major camps, creating regionalization.

However, with a concerted effort from Western societies, this future can be avoided. As China commenced its globally-focused third strategy of displacement, its regionally focused-second strategy of displacement is faltering, forcing China to backtrack and refocus efforts regionally while simultaneously attempting to advance its global ambitions. Although the potential for war over leadership of the world order may seem unavoidable, there are movements and existing forces that are attempting to stabilize relations. Diplomacy, dialogue, and other instruments of power remain viable options to diffuse a dangerous clash of civilizations, reign in any future conflict, and culminate in a peaceful resolution. While China contends with the U.S. on the world stage, China's military to date remains largely self-relegated to its own region as world-wide power projection remains a weakness for the PLA. Nevertheless, the U.S. Air Force needs to be prepared for conflict with what the PLA aspires to be, not necessarily what its current capabilities are.

SECTION II: PLA's Regional and Global Strategy

*"China is not an enemy, and our challenge is to keep it that way."*⁷¹

Colin L. Powell

Being that the PLA is the armed wing of the CCP, the PLA will be used to help the CCP achieve its regional and global strategies. This section describes how the PLA's regional strategy and global ambitions fit within the CCP's regional and international efforts to shift the balance of power. This section then concludes with the PLA's regional and global challenges that stand in the way of achieving the shift in power. The information in this section will serve as a guide for recommended lines of effort for the Air Force to strengthen its position against a regional and future global PLA threat.

PLA's Regional Strategy

China's regional military footprint has continued to grow since the 1990s when it had no ability to conduct near-seas defense operations. As the PLA modernized, the CCP has sought to lay physical hold on territorial waters it claims within the infamous "Nine-Dash Line."^{vii} China's regionally expanding military activity has led the CCP to demand of the PLA, tasking it with defending maritime claims such as that described by the Nine-Dash Line in the SCS, defending the integrity of mainland China including by seizing and holding territory along the LAC, maintaining border integrity with other neighboring countries, conducting maritime patrols and exercises extending into the west Pacific, disaster relief, and more, all while seeking to unify Taiwan by force if called upon to do so.

Despite the proliferation of regional mission requirements for the PLA, unification with Taiwan remains the PLA's top priority. Due to recent statements by Xi and CCP setbacks regarding its "gradualist economic-absorption"^{viii} approach to unification, some analysts suggest that the PLA will be ready by 2027 for "potential military operations against Taiwan" and some argue that China may possess the "capability to initiate an attack on Taiwan by 2025."^{72,73} Other analysts, like those in CASI, suggest that the 2027 modernization target date isn't the culmination of the modernization process; instead, it serves as an assessment point along the modernization timeline and that Xi is not necessarily targeting 2027 as an invasion for Taiwan. Regardless of timeline speculation, the reality remains that China has the ability to attack Taiwan now depending on the CCP's desired level of operational risk acceptance.

The community of professional China watchers often discuss four strategic options the PLA might use to bring Taiwan to heel. Three of the four strategic options, joint firepower strike campaign, joint blockade campaign, or small island seizure, provide China with immediate options that do not require landing forces on Taiwan.⁷⁴ The other option, joint island landing

^{vii} The nine-dash line encompasses the majority of the South China Sea wherein the CCP makes sovereignty and maritime claims as well as sovereign rights claims to fishing and other resources.

^{viii} Economic-absorption refers to the CCP's desire to "seduce Taiwan into political reunification through long-term economic dependency and eventual political absorption." Kevin Rudd, *The Avoidable War*, First (New York, NY: PublicAffairs, 2022), 96.

campaign, appears to be an option China is ill-prepared to carry out in the near-term without significant losses. Each strategy carries with it its own rewards and risks which China likely evaluates routinely.

A joint firepower strike campaign wherein China conducts multi-domain missile strikes against key military targets, Taiwanese leadership, C4ISR systems, and other key targets precludes the need to mobilize a force for landing. This campaign inflicts severe damage on Taiwan's military, and possibly civil, infrastructure in an effort to force Taiwan to concede its independent status. This campaign is the easiest to conduct and leverages China's intelligence collection over time as well as the current capabilities of the PLARF and the other PLA services expected to participate in any joint firepower strike campaign. However, as seen with Russia's invasion of Ukraine, international condemnation of China's actions is likely with corresponding retaliation via economic sanctions and increased international support for Taiwan defense efforts. Additionally, civilian casualties will likely not be tolerated, except by those closely aligned with China's interests, and Taiwanese defiance could potentially grow.⁷⁵

A less violent near-term option for China is a joint blockade campaign. This would require the mobilization of the PLAN in order to surround and restrict the flow of goods to and from Taiwan. The PLAAF would likely play a strong role in gaining and maintaining air superiority around the island, enforcing a no-fly zone on the island, and attempting to block intervening foreign forces. This leverages China's large navy and coast guard and would likely be portrayed as a "law enforcement action" or enhanced customs protocol.⁷⁶ However, since Taiwan is a key global trading partner, this action would likely also draw international condemnation as it effects nations who are reliant on Taiwan's exports. Additionally, in the event that a blockade does not work and China elects to use more violent means, the length of time the blockade is being conducted allows foreign forces, namely the U.S., to flow forces into theater should it choose to intervene.

The third near-term option, small island seizure, pits China's forces against one of the small Taiwan-administered islands within view of the Chinese coast. While such a PLA action would be mostly indefensible by Taiwan, it could "force Taiwan to decide between committing, and probably losing, much of its military in a futile effort to save the offshore islands, or watching as a slice of its territory is swallowed by Beijing."⁷⁷ This action would bring up difficult decisions by U.S. leaders as to whether it is willing to "fight China over some strategically meaningless specks or see its willingness to protect Taiwan's security called into question."⁷⁸ Hal Brands suggests that "such naked territorial aggression might, however, turbocharge Taiwan's sluggish defense reforms, catalyze a more formal anti-China alliance in the region, and convince the U.S. to issue clearer commitments to defend Taiwan's remaining islands" all of which would delay the timeline for China to conduct more aggressive military actions against Taiwan's main island.

The joint island landing campaign (JILC) is the most aggressive and dangerous strategy as it is a full island seizure consisting of amphibious and airborne campaigns, an anti-air raid campaign to defeat U.S. intervention that encompasses characteristics of the joint firepower strike campaign and joint blockade campaign. Should China succeed in conducting a JILC,

Taiwan would be firmly under CCP control. However, in combination with the lower probability of success, China would likely also see international condemnation, lasting economic consequences, potential direct conflict with the U.S. and Japan, and political risks to Xi Jinping personally should the invasion fail.⁷⁹

Beyond Taiwan, the PLA is tasked with conducting border security patrols, counter-terrorism, search and rescue, maritime patrols that seek to secure China's claims to the SCS and ECS, and disaster relief. Furthermore, China's gray zone activities include military construction in disputed territories to extend the range of PLA operations, enforcement of near seas development to bolster China's territorial claims narrative and protect PRC economic activities, and challenge U.S. military operations in the Western Pacific by harassing U.S. Navy and Air Force assets.⁸⁰

PLA's Global Ambitions

The PLA's "diversified military tasks," implies using "China's growing military capabilities in two different ways."⁸¹ First is to use the PLA for conventional warfighting capabilities abroad and the second is to use the PLA for noncombat operations to "enhance regime security and promote economic development by maintaining stability at home and abroad."⁸² Furthermore, China states that its overseas military should be able to conduct "international peacekeeping, international rescue, maritime escort, and overseas evacuation."⁸³ While peacekeeping operations is more commonly discussed regarding international operations for the PLA, China's desire to secure its national interests abroad will likely see more assertive military intervention as PLA global presence grows.

China has a vested interest in the security of its global trade and energy routes as it perceives the world becoming more confrontational. The PLA's primary role in securing these interests is through SLOC protection and conducting counter-piracy operations where its energy and trade supplies are threatened. This requires a strong Navy that is capable of projecting power beyond its region and securing the use of ports located in strategic partner nations. These capabilities will also enhance China's ability to protect its overseas interests as well.

China's concerns over its infrastructure, investments, and citizens abroad have influenced China's desire to establish a foreign military presence where it conducts business. With approximately 10.7 million Chinese nationals residing abroad as of 2022, China maintains a proactive approach to ensuring the safety of its citizens in times of crisis. Overseas evacuations have become a familiar occurrence, with 14 instances recorded between 2006 and 2014, involving various countries and typically encompassing fewer than 2,000 personnel. The evacuation procedures often rely on civilian charter flights and buses coordinated by Chinese embassies in the respective countries. While the PLA only occasionally played a supporting role in past operations, its share of the workload is growing. In 2011, PLAAF cargo planes were deployed to assist in the evacuation of Chinese nationals from Libya. Subsequently, PLAN ships were instrumental in the evacuations from Yemen in 2015 and Sudan in 2023 demonstrating overseas PLA capabilities.⁸⁴

While primarily focused on non-combatant evacuation operations (NEO) right now, China recognizes that establishing military access to locations where its citizens are working is required to properly defend its people and interests. China sees the military tasks of a globally present PLA as resolutely fulfilling “the mission and tasks of the new era, and further strengthening the planning and guidance of the overseas use of military forces, and contribute to safeguarding the country's overseas interests and promoting regional stability and the maintenance of world peace.”⁸⁵ However, as its overseas presence grows, many other countries have become concerned by China’s military expansion making China sensitive to a narrative that a globally-present PLA is a military threat.

In order to shape the narrative of China’s military presence overseas, the PLA seeks to conduct military diplomacy and military operations other than war (MOOTW). According to China, a globally present PLA should look to conduct “international joint military exercises and joint training, naval and air strategic cruises, open sea training, military assistance, warship visits, international counter-terrorism, etc.” all in an effort to showcase goodwill and build trust.⁸⁶ In a December 2023 press conference to show that their growing international footprint is not without merit, China stated that the PLA “conducted 34 joint exercises and training and international military games with 37 countries, and remained open to expanding and upgrading its international cooperation on military training,” as part of China’s Global Security Initiative (GSI)^{ix} efforts.⁸⁷

While still nascent on a global scale, China’s desire to develop a globally-present PLA remains prerequisite to achieving China’s ambitions of eventually usurping U.S. global leadership and promoting an alternative global governance system with Chinese characteristics. For China to achieve a successful global footprint, it relies on the development of “strategic strong points” (战略支点) that could “provide support for overseas military operations or act as a forward base for deploying military forces overseas.”⁸⁸ Centered around GSI and its desire to protect its economic interests abroad, the PLA will continue to promote an alternative global security environment by interacting with countries that view GSI and the presence of Chinese investments in a positive light, allowing China to develop these required strategic strong points. China will also continue to implement its GSI-related alternative security proposals into already established international organizations.⁸⁹

PLA Air Force Regional Role

The 1990s marked the commencement of a prolonged phase of modernization and reorganization for the PLAAF, empowering it to expand its mission towards preventing

^{ix} While vague, the GSI seeks to build a global security architecture to rival the US-led system of treaties, alliances, and institutions to tackle many security related issues such as: terrorism, transnational crime, drug trafficking, public health, natural disaster, nuclear proliferation, climate change, cybersecurity, artificial intelligence, and biosecurity where China will likely define its role as mediator or peacemaker in various regional conflicts. Gabriel Wildau, “China’s Global Security Initiative (GSI) Aims to Build a Diplomatic and Security Architecture to Rival the US-Led System of Multilateral Treaties, Alliances, and Institutions.” *Taneo*, n.d., <https://www.taneo.com/insights/articles/china-what-is-the-global-security-initiative/>.

intrusions into China’s airspace. Throughout this era, the PLAAF successfully developed the ability to thwart airspace intrusions by establishing a growing Integrated Air Defense Systems (IADS) network and a formidable fighter fleet. Over time, the PLAAF further developed its ground-based surface-to-air missile systems (SAM), airborne early warning and control (AEW&C) aircraft, bomber and ground attack aircraft, and multirole fighter capabilities.

In 2004, the PLAAF adopted a strategy of “Strategic Air Force,”^x which was the product of earlier PLA observations of U.S. Air Force combat operations as well as the acknowledgement of the increasing importance of multidomain operations to modern air force capabilities.⁹⁰ However, the founding of the PLASSF in 2016 stripped the PLAAF of its space and information domain responsibilities, restricting it to air operations, related electronic warfare (EW) and early warning tasks, and surface strike operations.⁹¹ Thus, the PLAAF’s focus remains on the “three lines of control”: 1) Total air control and situational awareness within the coastline of mainland China, 2) Conducting varying degrees of limited control and limited strikes between the coastline of China and the first island chain, and 3) Conducting limited deterrence between the first island chain and the second island chain.⁹²



The First and Second Island Chains. PRC military theorists refer to two “island “chains” along China’s maritime perimeter. The First Island Chain includes Taiwan and the Ryuku Islands, the Second Island Chain extends from Japan to Guam.

Figure 1. The First and Second Island Chains. Source: Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China, 2011. (https://dod.defense.gov/Portals/1/Documents/pubs/2011_CMPR_Final.pdf)

^x “Strategic Air Force” could be defined as a modern force capable of supporting or conducting multidomain operations independently or in a joint context to secure the airspace over the PRC’s borders, maritime periphery, and support counter-intervention operations beyond the PRC’s borders with ambitions to project power over long distances, including globally positioned forces, to defend Chinese security interests.

Regarding the PLAAF's first line of control, defending China's sovereign airspace, the PLAAF operates a robust, highly-capable modern IADS. The synergistic and networked construct of the PLAAF's IADS, combined with Defensive Counter-Air (DCA) conducted by PLAAF fighters, makes penetration of the IADS by fifth or sixth generation airborne assets an extremely difficult mission. Furthermore, the PLAAF continues to refine its point defense capabilities with the HQ-6, -11 and -12 series of SAM systems and potential long-range counter-precision guided munition capabilities. When coupled with systems that can degrade electro-optical and infrared systems, the layered effects of its other HQ-9 and -22 series systems, and foreign systems like the S-300 and -400 makes penetrating the airspace with existing long-range air-to-ground (AG) weapons equally difficult.

As missions relevant to the first and second lines of control overlap, the PLAAF is expected to conduct ISR, CAS, air interdiction, fires support to ground and naval forces, and defense of PRC airspace in both wartime and peacetime. Concerning the third line of control, the PLAAF's development and acquisition of long-range offensive strike capabilities beyond the first island chain has been a priority. Having received all land-based fixed wing combat aircraft in 2023 from the other services, these long-range efforts fit the PLAAF's roles and responsibilities. As part of gaining and maintaining air superiority, the PLAAF is responsible for targeting adversary aircraft who conduct land and maritime interdiction attacks in the region.

Since 2015 the PLAAF has been conducting longer range bomber flights and maritime strike training beyond the first island chain into the western Pacific and has conducted regular training with fighter escorts.⁹³ While a good portion of the H-6 bomber fleet lacks modernized avionics, the fleet of over 150 aircraft provides the PLAAF the ability to sustain long-range strike missions with Air Launched Cruise Missiles (ALCM) or YJ-12 Anti-ship cruise missiles (270 NM) significantly increasing "the number of bombers available to the PLA for long-range maritime strike missions."⁹⁴ As this training increases in frequency and distance, ISR assets such as the KJ-200, -500, and -2000, which are also being fielded with air refueling technology, have also begun to operate further from the mainland extending the PLAAF's AEW&C capabilities.⁹⁵

It is important to note that the current peacetime environment allows for longer range flights by bombers and fighter escorts. A high-end kinetic conflagration in the region could limit long-range operations pursuant to the third line of control objectives, deferring long-range anti-maritime and land-based interdiction strikes to the PLARF due its nature for low-risk engagement, robust magazine depth, and the need for PLAAF assets to maintain the first and second line of control. Furthermore, the PLAAF's planning for a Taiwan invasion likely includes operations against both Taiwan and intervention forces. The PLAAF's role in this Taiwan unification scenario will be determined by the level of conflict the CCP initiates as discussed earlier in the PLA's regional strategy section.

A key role of the PLAAF is to provide an environment where the PLAA and PLAN can operate without interference when securing regional objectives. In 1979, Deng Xiaoping stated that in "the future battles to be fought, not having an Air Force will not do, and not having command of the air will not do. The Army needs cover and assisting support by the Air Force, and the Navy also cannot do without cover by the Air Force, since our main task is offshore

operations. Without command of the air, the enemy's aircraft can run amuck."⁹⁶ In 1997, Jiang Zemin also made a point that "the Air Force needed to reinforce the building of offensive air power and of the corresponding full sets of equipment, and to progressively realize the conversion from a homeland air defense type to a type with both attack and defense."⁹⁷ This "attack and defense" allows the PLAAF to execute attacks against enemy positions in the region such as air bases, a variety of aircraft, Carrier Strike Groups (CSGs), logistics, and more through investments in long-range air-to-air (AA) and AG weapons and the IADS it operates today.

During a regional conflict, the PLAAF is expected to be a key component of joint counter intervention strikes with the PLARF and PLAN. PLAAF operations will likely center around sinking adversary naval surface assets, striking adversary bases within the first island chain, adversary air refueling assets, and other high value airborne assets (HVAA) with very long-range air-to-air Missiles (AAM).⁹⁸ The PLAAF's long-range weapons capabilities in the maritime, land, and air domains act as a deterrence to intervening forces which may elect to stay out of the range of these weapons. Should intervention forces choose to penetrate the sea-based or coastal-based IADS, the PLAAF could still choose to avoid engagements inside 100 nautical miles with adversary air assets, maintaining a defensive posture using long-range weapons and air defense systems.

In the event of a JILC, the PLAAF will be expected to achieve air superiority over the island of Taiwan and provide DCA coverage to repel potential intervention forces approaching from the north, east, and south of Taiwan. Because defending the JILC would be the PLAAF's highest priority, the PLAAF will likely conduct DCA and offensive counter-air (OCA) as far out as can be sustained by the PLAAF tanker fleet, coastal IADS coverage, and sea-based IADS coverage. While it is possible for the PLAAF to conduct long-range OCA/AI missions, bombers carrying long-range air-to-surface munitions do not need to leave the relative safety of their air defense system coverage to conduct strikes within the first island chain. Much of the PLAAF, therefore, may remain within Chinese peripheral airspace with minimal excursions beyond its coastal or sea-based IADS coverage where PLAAF forces would be more vulnerable to interception by adversary OCA. Long-range capabilities allow the PLAAF to maintain a defensive posture even during offensive operations.

Against a stand-in intervention force, maintaining a defensive posture allows the PLAAF to sustain the DCA assets required to defend the JILC. This posture would require intervention forces to execute incursions into the PLA's air superiority sphere laced with DCA assets and air defense systems. However, should intervention forces take a long-range posture wherein they conduct long-range strikes against the JILC from outside the reach of PLAAF and PLAN air defense systems and DCA AAMs, PLAAF excursions beyond IADS coverage to terminate adversary long-range strikes may be required. With the PLAAF's limited ability to organically project power at a continuous high operational tempo beyond its shores, the PLAAF would find it difficult to sustain OCA missions that extend beyond IADS coverage. However, any intervention force is currently relegated to using mostly stand-in weapons which would require incursions into the PLAAF's air superiority bubble. As stated earlier, given the PLAAF's primary responsibility of targeting adversary aircraft conducting land and sea interdiction attacks, a stand-

in adversary allows the PLAAF to adapt a defensive posture under a multitude of air defense systems.

Due to the concern for horizontal escalation, the PLAAF is also expected to perform primary and supporting missions related to land and maritime disputes in other theater commands. Because of this, it is expected that other TCs will maintain combat ready forces and will not chop all of their combat platforms to the Eastern TC which is in charge of a Taiwan forceful unification campaign. Therefore, it is likely that many combat aircraft will remain in their respective TCs to deter potential hostile actions from regional neighbors against a pre-occupied China. This further suggests that during a conflict over Taiwan, the PLAAF will continue to maintain a defensive posture, relying on long-range AG munitions and very long-range AAMs under the cover of coastal or sea-based IADS to deter adversary air assets, extending their reach only when necessary. The Southern TC, which is in charge of managing the PRC's SCS territorial claims, will likely be projecting PLAAF forces into the SCS to defend its artificial, militarized features such as Fiery Cross, Mischief Reef, and others. This suggests that the Southern TC may utilize forces to defend the southern side of a JILC against intervention forces, allowing the Eastern TC more resources to focus efforts against intervention forces coming from the ECS.

In addition to traditional airframes, the PLAAF operates a wide range of UAVs that can be either armed or focused strictly on ISR. The PLAAF believes that autonomous aircraft are part of the future of air warfare and will continue to invest heavily in unmanned capabilities. In the realm of UAVs, the Center for Naval Analyses (CNA) recently identified the PLA's focus on low-altitude airspace dominance. CNA highlighted an article in the PLA's official newspaper as identifying "several areas for investment to ensure the PLA may secure dominance of low-altitude airspace (100-1000 meters) in future conflicts" as a necessary component of achieving "comprehensive dominance" in future land warfare.⁹⁹

Likely informed by "observations of the ongoing Russia-Ukraine war," the PLA stated that "low-altitude dominance is the purview of lower flying and/or slower armaments, such as helicopters, medium and small drones, and cruise missiles" and claimed that contests for "low-altitude dominance would become more intense in future 'intelligentized' warfare."¹⁰⁰ CNA identified three areas on which the PLA intends to focus to achieve low-altitude dominance in future conflicts: "Improve the ability of army air defense systems in field environments to operate effectively in low-altitude airspace, step up research and development of surveillance and monitoring platforms capable of detecting and dynamically monitoring 'low, slow, and small' air vehicles operating at low and 'very low' altitudes, and accelerate the development of low-altitude drones, cruise missiles, and swarm capabilities capable of strikes against air and land targets."¹⁰¹ The three areas identified by the PLA are likely intended to play a large role in thwarting intervention forces in the event of a Taiwan conflict.

Regarding the Airborne Corps, according to a China Maritime Studies Institute (CMSI) report from 2022, the PLAAF's Airborne Corps is expected to play a significant role in a potential cross-strait invasion by potentially executing operations deep within enemy territory. As part of the landing campaign, the Airborne Corps could conduct paradrops onto Taiwan.¹⁰² Once

deployed on the island, airborne units could seize control of strategic areas while performing various tasks to support the overall invasion effort. In recent years, the Airborne Corps has undergone reorganization to enhance its capacity for mechanized maneuvers and assaults, capitalizing on the PLAAF's expanded fleet of transport aircraft, particularly the Y-20. Additionally, improvements have been made in training methodologies, both domestically and through international engagements with foreign militaries.

However, despite reorganization and modernization efforts, uncertainties persist regarding the Airborne Corps' ability to address critical challenges relevant to a cross-strait operation. For example, limited landing zones exist given Taiwan's dense urbanization and mountainous terrain. Moreover, effective coordination with other PLA units, conducting operations in complex or hostile environments, overcoming a lack of relevant combat experience, and securing adequate air support are all variables with which the Airborne Corps will need to contend.¹⁰³ Finally, the PLAAF's air transport capacity for the Airborne Corps may not be enough to drop the number of paratroopers and equipment required for securing and holding objectives. While the Airborne Corps maintains its own aircraft for routine training purposes, it relies on outside PLAAF transport units for heavy airlift from Il-76s and Y-20s. During a JILC, heavy airlift could be stretched thin to fulfill other airlift requirements for the PLA. However, "if China continues to build and field Y-20s at [high] rates over the next few years, this long-standing capacity constraint on rapid deployment of the Corps could be effectively mitigated."¹⁰⁴

While the PLAAF has a robust capability to defend PRC sovereign airspace, it is important to acknowledge that the PLAAF is not currently built to be a power projection force like the U.S. Air Force. While the U.S. Air Force is constructed in such a way that is meant to move towards the enemy, gain air superiority, penetrate sovereign airspace if needed, and retrograde as necessary, the PLAAF was meant to be utilized as a defense force with minimal power projection capabilities beyond its borders, shooting down anything that attempts to enter their airspace or area of operation. The PLAAF, however, has been slowly building its proficiency in taking the fight beyond its coastline and continues to build the capabilities needed for power projection like air refueling tankers.

PLAAF Global Expectations

While the PLA primarily utilizes the PLAN to conduct global operations to protect the PRC's security interests, there is no shortage of ambition to build a globally-capable and proficient PLAAF. When it comes to securing China's international trade and energy routes as well as Chinese infrastructure projects, investments, and personnel abroad, the PLAAF could eventually assume a larger role.

The ability to project power with an air force requires a fleet of tankers, accommodating strategic partners, and access, basing, and overflight (ABO) agreements. Although the PLA intends for the PLAAF to be a strategic air force with the ability to project power to defend China's interests abroad, it will continue to play a more localized role until these power projection prerequisites have been developed.

As of mid-2024, the PLAAF has developed the skills and capabilities to employ its fleet of long-range airlift aircraft internationally, including during international crises. From the NEO in 2011 in Libya to disaster relief operations within the region, the PLAAF has been slowly taking on more responsibility to support its own interests abroad as well as helping other countries within China’s sphere of influence. Currently, these aircraft operate within the vicinity of U.S. Air Force aircraft that conduct similar operations. Over time, however, it is possible that the CCP can make enough partners and allies along its maritime routes of interconnected military and commercial facilities and associations to move PLAAF combat-assets from mainland to other countries of interest. As a key component of the PLAAF’s force projection ambitions is the acquisition of larger numbers of both air refueling tankers and aircraft capable of being refueled in the air. Limited to just over 30 tankers today, the PLAAF continues its efforts towards enlarging its air refueling fleet. Once these capabilities are realized, U.S. forces will likely encounter PLAAF combat forces in the Middle East, Africa, and South America in the future.

PLA Rocket Force Regional Role

The PLARF, previously the Second Artillery Corps, is the main counter-intervention force intended to blunt U.S. forces in the region. In 2004, China outlined its intended use of ASBMs to deter and block enemy carrier groups.¹⁰⁵ In 2016 Xi elevated the PLARF’s importance by stating that the Rocket Force is the “core strength of China’s strategic deterrence, the strategic support for the country’s status as a major power, and an important cornerstone safeguarding national security.”^{106,107} While the PLAAF has ALCM capabilities, the PLARF is likely to be the primary PLA branch that will be conducting over-the-horizon (OTH) strikes on enemy positions due to the PLAAF’s vulnerability during long-range strike operations.

Therefore, it is expected that the PLARF will conduct conventional strikes on adversary assets stationed in the first and second island chain and wherever else intervention forces are stationed regionally. By fielding a force that is capable of firing missiles from the mainland to strike targets on both land and sea, all within the second island chain, China has put into question traditional U.S. power projection operations.

CHINA'S ROCKET FORCE			
System	Launchers	Missiles	Estimated Range
ICBM	500	350	>5,500 km
IRBM	250	500	3,000-5,500 km
MRBM	300	1,000	1,000-3,000 km
SRBM	200	1,000	300-1,000 km
GLCM	150	300	>1,500 km

Figure 2: PLARF Quantities. Source: Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China, 2023.

The PLARF’s evolution from a small, unsophisticated force to a modern, technologically-advanced force showcases the PRC’s successful push for asymmetric blunting capabilities as outlined in Section I. Furthermore, the PLARF has made significant improvements to its C4ISR infrastructure in recent years using thousands of miles of fiber optic cables in order to improve secure communication during wartime conditions.¹⁰⁸ Along with creating a technologically advanced counter-invasion military branch, the PLARF also focuses on degraded wartime

conditions wherein reports suggest that the PLARF can achieve up to 40 percent losses of personnel and still maintain minimal launch capability. The PLARF’s resilience and redundancy is further enhanced by select choices of underground facilities, ensuring the “rock they are built under is sufficient to survive counterattacks.”¹⁰⁹ Therefore, between long-range strike, degraded operations, and hardened, underground facilities, the PLARF is well-postured to inflict considerable damage on any regional intervention force within the first two island chains using ground-launched cruise missiles (GLCMs), short-range ballistic missiles (SRBMs), medium-range ballistic missiles (MRBMs), (intermediate-range ballistic missiles) IRBMs,^{xi} and hypersonic weapons against adversary fixed bases, logistics, and maritime forces.

The PLARF rarely acts as an individual service and primarily partakes in joint firepower strikes. During joint firepower strikes, the PLARF will likely use conventional missile units for preliminary strikes against an adversary’s ISR and early warning systems, EW systems, base defense systems, base function systems, and adversary air force bases in an effort to paralyze the enemy’s operational “system of systems” and “suppress the enemy’s operational strength.”¹¹⁰ Additionally, the PLARF may conduct counter-maritime strikes on targets of opportunities such as carrier strike groups to facilitate freedom of maneuver for PLAN and PLAAF forces within the first island chain. With the adversary in a weakened state, the PLA’s other services are free to maneuver to achieve regional objectives.

Name		Type	Max Range
CSS-7	DF-11	SRBM	280 - 300 km
CSS-X-15	DF-12 / M20	SRBM	280 km
CSS-6	DF-15	SRBM	600 km
CSS-11	DF-16	SRBM	800 - 1,000 km
CH-SS-22	DF-17	HGV	1,800 - 2,500 km
CSS-5	DF-21	MRBM	2,150 km
CH-SS-18	DF-26	IRBM	4,000 km
CSS-3	DF-4	IRBM/ICBM	4,500 - 5,500 km
CJ-10 variant	HN 2	Cruise Missile	1,400-1,800 km
CJ-10 variant	HN 3	Cruise Missile	3,000 km
CJ-10 variant	HN 1	Cruise Missile	50 - 650 km
CH-SS-NX-13	YJ-18	Cruise Missile	220 - 540 km
CJ-100	DH-100	ASBM	>1,500km

Figure 3: PLARF Arsenal. Source: Missile Defense Project, "Missiles of China," *Missile Threat*, Center for Strategic and International Studies, June 14, 2018, last modified April 12, 2021, <https://missilethreat.csis.org/country/china/>

PLA and PLARF media suggest the PLARF has emphasized several training areas to include nighttime training, defense against enemy satellite surveillance, EW, nuclear-biological-chemical attacks and survival, as well as ad-hoc launch sites, multi-capable^{xii} personnel in a degraded environment, and the ability to maintain high mobility via shoot and scoot tactics.¹¹¹ These training focus areas are designed to counter an opposing force in the region and ensure the PLARF can continue to operate in a contested environment.

^{xi} Ground-Launched cruise missiles 50-1,800km, Short-range ballistic missiles 280-1,000km, Medium-range ballistic missiles >2,100km, and Intermediate-range ballistic missiles up to 4,000km.

^{xii} Cross-training personnel to enhance multi-functional redundancy for operations in a degraded environment.

The PLARF operates nine Bases, six of which (Bases 61-66) are operational bases, while the other three (Bases 67-69) conduct support missions.¹¹² Each base controls 6-7 missile brigades with approximately 18-36 launchers for each IRBM brigade, 12-24 launchers in each MRBM brigade, and 36-48 launchers for each SRBM brigade. Each of the operational bases oversees both nuclear and conventional forces, complicating targeting of PLARF assets. Attacks on conventional forces that are collocated with strategic, nuclear forces lacks escalation stability^{xiii} due to increased chances of miscalculation by all sides before, during,

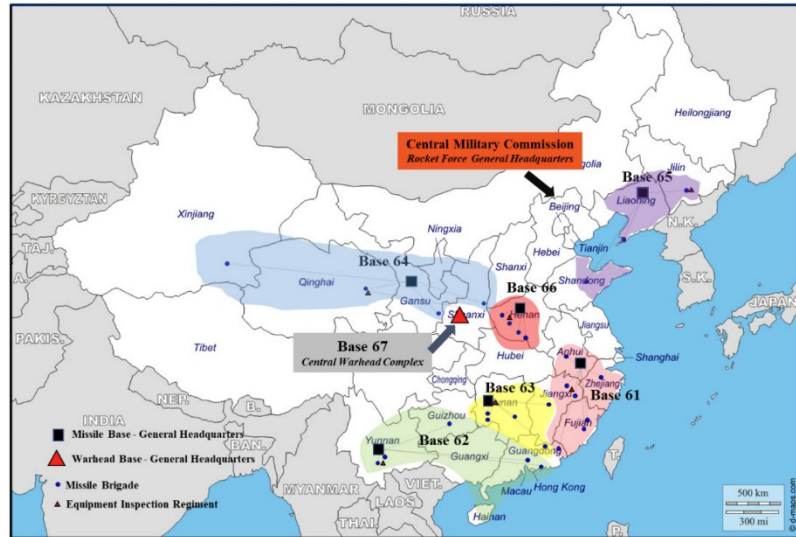


Figure 4. PLARF Base Locations and supported TCs. Source: PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces, 2024, CASI.

or after an attack.

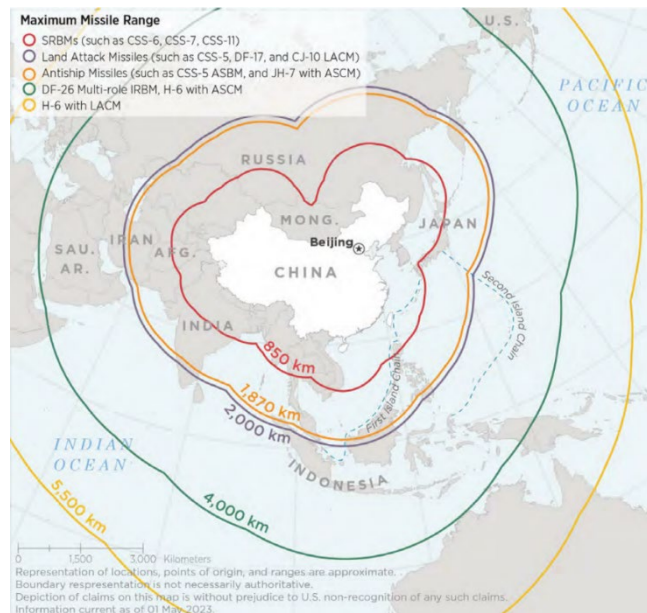


Figure 5. Fielded PLARF capabilities. Source: 2023 Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, 2023, p. 69

Some have posited that the entanglement of conventional and nuclear forces could be a strategic decision by China to induce “Manipulation of Risk.”^{113xiv} To that end, China may perceive that an adversary is not willing to execute conventional attacks on entangled forces in order to avoid a potential miscalculation with regards to which assets are being targeted (conventional or nuclear). Furthermore, China’s doctrine states that a conventional attack on China’s strategic forces is seen as a strategic attack and could potentially invoke a strategic response. Therefore, some observers perceive that entanglement is purposeful while others posit that it is benign and

^{xiii} If a conventional attack is meant for a conventional asset, but instead inadvertently strikes a nuclear asset, the side being attacked may perceive an attack on their nuclear first- or second-strike capability and retaliate with a nuclear response before losing the ability to use nuclear forces in the future.

^{xiv} The manipulation of risk with regards to nuclear forces suggests that entanglement is a strategy which involves influencing an adversary’s decision-making process to make certain actions unattractive, such as attacking ballistic missile sites. For example, if nuclear and conventional forces are collocated, attempting to strike conventional assets could potentially be construed as an attack on nuclear forces, increasing the risk for nuclear exchange.

simply an effect of policy decisions to achieve operational flexibility and logistical simplicity.¹¹⁴ Regardless, the fact remains that targeting conventional PLARF forces increases the risk of nuclear exchange due to entanglement, to say nothing of the difficulty in targeting mobile assets to begin with.

The range of MRBMs and IRBMs allow the highly mobile launchers to sit deep within China's territory, making it difficult for enemy forces to find, fix, track, target, and engage (F2T2EA) the weapon systems. Even with a robust joint fires network and long-range fires from an adversary force, the ability to target the PLARF en masse is extremely limited due to the dispersed and mobile nature of the PLARF. Therefore, the likelihood of conducting kinetic strikes on PLARF assets is low during a limited conflict, leaving intervention forces to rely on non-kinetic effects to degrade PLARF operations.

While the PLARF is a formidable service used to counter intervention forces it remains heavily reliant on other services for ISR support infrastructure and ISR such as OTH radars, satellites, and other sensors within the sensing grid to conduct engagements. PLARF missiles are also likely capable of using alternate navigation systems beyond BeiDou throughout its midcourse guidance phase which implies that even with degraded effects on BeiDou, PLARF missiles can possibly guide to terminal phase using alternate positioning, navigation, and timing (PNT) sources.¹¹⁵ Therefore, the PLARF's ability to find, fix, and track remains the crux of the PLARF's operational capabilities in theater.

Finally, due to China's limited capability to strike U.S. mainland targets through power projection, the DoD has identified in its most recent military and security developments report to congress that China has developed a conventionally-armed ICBM. This allows the PLARF to extend its reach to U.S. mainland targets using conventional weapons. This weapon, however, induces extreme strategic risk through miscalculation that could trigger nuclear exchanges.¹¹⁶

PLA Rocket Force Global Expectations

Much like the PLAAF, the PLARF has no global footprint at this time. As seen in Xi's comments above, the primary mission of the PLARF is strategic deterrence, a symbol of the country's status as a major power, and a foundation for safeguarding national security. Therefore, much of the PLARF is expected to remain within mainland China for a considerable amount of time.

Should China begin building a substantial military presence around the globe, it is expected that the PLARF could deploy assets to defend fixed military locations and participate in international conflicts that directly affect China's national security interests. Additionally, globally positioned PLARF assets would extend the PLARF's reach beyond Asia, potentially threatening U.S. assets at home and abroad. If deployed in South America, for instance, sensitive U.S. homeland targets would be well within PLARF IRBM ranges creating a conventional situation similar to the Cuban Missile Crisis. However, under the existing rules-based order construct, it is difficult to envision countries allowing PLA IRBMs to be stationed in their country as it could potentially generate a dangerous situation and increase the potential for

horizontal escalation. Therefore, it is more likely that SRBMs, and potentially MRBMs, would be stationed at a future overseas PLA base.

It is important to note, however, that U.S. intelligence, as of 2021, has “assessed that Saudi Arabia is now actively manufacturing its own ballistic missiles with the help of China.”¹¹⁷ While Saudi Arabia maintains a generally favorable relationship with the U.S., as the U.S. also sells arms to Saudi Arabia and operates military forces in Saudi Arabia, this development suggests that China is willing to help other countries develop their own ballistic missile programs.

PLA Navy Regional Role

Beginning in the late-1980s, the PLAN established a strategy of “Offshore Defense” which focused on regional goals just off the coast of China in the Yellow Sea, ECS, and SCS.¹¹⁸ Through the 1990s, the PLA primarily focused on developing counter-intervention capabilities to deter a modern adversary, namely the U.S., and eschewed investments in maritime control and the acquisition of aircraft carriers.¹¹⁹ By the Late 1990s, however, PLAN aircraft began to fly sorties from mainland bases over the Taiwan Strait and in the 2010s, began to extend its periphery by developing “far seas” naval capabilities, flying bomber and Anti-Surface Warfare (ASuW) aircraft into the Western Pacific.¹²⁰ China’s shift from blunting to power projection in the 2010s eventually brought about the fielding of three aircraft carriers with a fourth under development.

Today, the PLAN is the PLA’s premier force that opposing military forces are likely to come across both regionally and internationally should conflict arise. At over “370 ships and submarines, including more than 140 major surface combatants”¹²¹ exceeding 2 million tons, the PLAN plays the biggest role in the region across various missions including “Taiwan-related scenarios, coastal defense, and protecting maritime sovereignty,” extending to disputes in the ECS and SCS.¹²² In the event of a JILC, the PLAN will likely serve as the primary blocking force, with support from the PLAAF, against intervention forces.

While relatively nascent, PLAN aviation mission areas include “maritime airspace protection and support of surface ship operations in costal and maritime areas.”¹²³ To support this, the PLAN has been working to expand its contingent of carrier-based aircraft that will be capable of catapult takeoff (CATOBAR) on the Fujian and future carriers. The J-15 remains the sole carrier-based fighter in the PLAN inventory with the J-15S tandem-seat and J-15D EW variants under development as well as the FC-35 carrier-based stealth fighter also under development.¹²⁴ While primarily launched from the ski jump carriers, the J-15 is currently undergoing capability upgrades to allow for CATOBAR operations.¹²⁵ Additionally, the catapult technology will bring the KJ-600 Airborne Early

Name (Type)		QTY	Weapons
JIANGKAI-II (054)	(FFG)	40	32-cell VLS; ASCM, HQ-16 (SAM), and torpedoes
JIANGDAO (056)	(FFL)	72	ASCM, HQ-10 (SAM), and torpedoes
LUYANG-III (052)	(DDG)	13	64-cell VLS; ASCM, HQ-10/HHQ-9 (SAM), torpedoes, LACMs, and ASBM
LUYANG-III MOD (052)	(DDG)	12	64-cell VLS; ASCM, HQ-10/HHQ-9 (SAM), torpedoes, LACMs, and ASBM
RENHAI (055)	(CG)	8	112-cell VLS; ASCM, HQ-10/HHQ-9 (SAM), torpedoes, LACMs, and ASBM

Figure 6. PLAN's primary threats to U.S. Air Force operations.

Warning (AEW) aircraft to the carrier fleet.¹²⁶ As with the PLAAF, UAVs are also expected to join the PLAN aviation fleet with a focus on ISR as their primary role.¹²⁷

The PLAN's 140 or more major surface combatant ships primarily consist of the JIANGKAI-II (frigate), JIANGDAO (corvette or light frigate), LUYANG-I/II/III (destroyer), and RENHAI (cruiser). Armed with antiship cruise missiles (ASCMs), ASBMs, land attack cruise missiles, and anti-submarine warfare weaponry, these ships are the cornerstone of the PLAN's sea-control force. Furthermore, the HHQ-9 SAM systems on the LUYANG-IIIs and RENHAIs significantly upgrade the PLAN's air defense capabilities and are critical in extending operations beyond the range of the PLA's shore-based IADS, providing coverage for both PLAAF and PLAN aviation assets.¹²⁸ In the event of a cross-strait conflict, these assets are expected to be operating in the ECS, SCS, and the Philippine Sea to block access to the strait and provide screening and coverage for the JILC as well as PLAAF air superiority and air interdiction missions against intervention forces. There is a possibility, however, that not all of the PLAN's major surface combatant ships will participate in a JILC.

While these ships will be the blunting force with which intervention forces must contend, the PLAN, like the PLAAF, must consider potential missions tasked by Southern and Northern Theater Commands. Should a cross-strait conflict escalate horizontally in Asia, the PLAN will be required to deploy forces to protect its maritime energy and supply routes and militarized artificial features in the SCS, and maintain a strong presence near Beijing in the Yellow Sea. Additionally, underway replenishment (UNREP) will play a big role in keeping the primary blocking force supplied against a robust intervention force. Any degradation in UNREP could cause operational complications when attempting to stave off intervention forces, forcing a retrograde or significant losses of the PLAN's major surface combatants.



Figure 7. CMSI

To support the PLAN, the PLARF will likely conduct ASuW through the use of ASCM and ASBM, complicating operations for intervening naval surface forces operating inside the First Island Chain. The PLARF's ability to provide maritime ASuW support allows greater freedom of maneuver for the PLAN's Surface Action Groups (SAG) and frees up these forces to focus on intervening air forces, naval forces, and anti-submarine warfare (ASW). To further free up the use of major surface combatants, it is also expected that China will use coast guard and maritime militia assets as a near seas and far seas force to secure disputed territories during a regional conflict.

Although China's surface combatants will be the primary

blocking force, the PLAN's six operational TYPE 094 JIN-class nuclear submarines with their extended reach will pose an additional issue for any intervention force.¹²⁹ Analysts point out that non-official sources, such as the PLAN journal *Shipborne Weapons*, view submarines as an anti-access/area-denial platform. These platforms will help "guarantee the required national defense strength and to safeguard the completion of national unification and to prevent 'Taiwan independence'" by using diesel submarines as homeland defense and nuclear submarines as long-range interdiction platforms that can hold U.S. bases, SLOCs, and mainland targets at risk.¹³⁰

To complicate matters even more, China currently boasts the world's largest mine arsenal explicitly designed to deny advanced navies from operating in the vicinity of China's territorial claims. China's investments in deep sea and rocket mines--mines that are moored deep in the ocean and rapidly rise to strike their targets--will attempt to frustrate naval access to waters surrounding Taiwan as well as the ECS and SCS. This will further complicate operations of an intervening naval force inside the First Island Chain, increasing reliance on intervening air power. It is expected that China will create ASW zones that will act similar to no-fly zones potentially increasing the safety and survivability of Chinese SAGs, which will be positioned to directly counter intervening air assets operating in and around the skies of China, Taiwan, and Japan.

PLA Navy Global Expectations

The strategic importance of controlling maritime trade routes is a barrier to entry for a nation aspiring to global leadership. A nation must ensure the security and stability of these routes to facilitate its economic and strategic interests. This involves having a strong navy and maritime presence to guard against threats such as piracy, blockades or military conflicts. But during a time of significant shift in global power dynamics, where a new leading nation attempts to set international rules and norms, the incumbent maritime powers that protected the seas during the previous global order may be unwilling to defend or support the interests of a rising nation that challenges their dominance. Therefore, a nation seeking to establish a new world governance system must take responsibility for securing its own interests, and prove that it can protect the interests of others, rather than relying on the established powers to do so.

Though China has historically viewed the use of military force to protect a nation's interests and citizens abroad as acts of "aggression" and "intervention," China has since reconsidered and now seeks to become a global maritime power in order to protect its own security interests abroad. Indeed, General Chen Zhou stated in 2009 that with "the growth of [China's] comprehensive national power, we must protect the safety of our energy resources and transportation passages and protect the legal rights and interests of Chinese nationals ... and we must treat this as an important aspect of national security."¹³¹ General Zhou stated that intervention on behalf of China's national security and its citizens is "the right and the power of the state, as well as its responsibility and obligation."¹³² Furthermore, Liu Cigui, the former director of the State Oceanic Administration that devises maritime strategy, wrote in 2014 that "the security of sea lanes is the key to sustaining the stable development of the Maritime Silk Road, and ports and docks are the highest priority for securing the sea lanes."¹³³

While China continues to operate in an alliance deficit today and lacks overseas military bases with which to project its forces, the CCP continues to make inroads by expanding access to ports for the PLAN. Therefore, it is conceivable that the CCP can use these access agreements along its maritime routes of interest to support a globally-present maritime force. The CCP has been developing dual use military and commercial facilities and associations to support movement of PLAN combat-assets around the globe. These efforts facilitate some of the key PLA engagements with foreign countries where PLAN engagements such as naval port calls increase foreign confidence in the PLAN.¹³⁴ Additionally, while counter piracy is mainly conducted around Africa, "ships often conduct naval port calls and drills with foreign partners on their return voyage."¹³⁵

Despite the PRC's alliance deficit, the PLAN remains the backbone of China's global military presence. This likely will not change in the near-term. In fact, China conducts an increasing amount of seafloor mapping activities to facilitate the use of its submarine force in its areas of maritime interest.^{136,137} This remains a key component of PLAN global operations as "Chinese doctrinal texts discuss submarines as an asymmetric tool against a powerful country's carrier battle groups."¹³⁸

Finally, as China's ties with South America grow, it is possible to see more PLAN activity in the U.S.'s own backyard.^{139,140,141} Under the guise of enhancing strategic partnerships,

the PLA could routinely operate PLAN combat vessels with and in the proximity of South American partners, raising the risk of horizontal escalation in the event of an Indo-Pacific regional conflict. This, however, likely remains a longer-term goal as the PRC is currently focused on its periphery and securing unification with Taiwan.

PLA Army Regional Role

The PLAA plays a major role in securing land borders and land-based territorial disputes. Being the largest branch of the PLA, the PLAA is dispersed widely across China with concentration near border flashpoints. Moreover, with the advent of a stronger police state under the People's Armed Police, the PLAA has likely reduced its role in authoritarian population control. Beyond land borders and population control, however, the PLAA is the primary amphibious assault force with a main focus on a Taiwan invasion.

The PLAA's amphibious units would be the primary landing force in the event of a JILC. As of 2017, the PLAA "possesses six amphibious combined arms brigades distributed across three group armies (the 72nd, 73rd, and 74th)," two of which are located in the Eastern TC while the 74th is located in the Southern TC.¹⁴² If called upon to conduct a landing campaign, "the six amphibious combined arms brigades will work in concert with elements of their parent group armies and theater commands in an operation that likely will be reinforced by additional Army units from outside the region."¹⁴³ Nevertheless, being that none of the amphibious units are located near assembly and embarkation points, it will take several days to mobilize and organize units and ready them for a potential assault. Given Taiwan's suboptimal topography and only a few beaches suitable for a large-scale landing invasion, the PLA has sought to shift towards "a series of airborne (parachute) or airmobile (helicopter) assault operations to seize ports of entry on the coast, airfields, and other key terrain/objectives closer to the center of gravity of Taiwan's defenses to allow for the rapid insertion of second-echelon follow-on forces by sea and air."¹⁴⁴

Brigades not specialized in amphibious operations from other group armies across the Eastern, Southern, and Northern Theater Commands may conduct training exercises involving cross-strait landings. These drills could involve the use of PLAA amphibious craft, PLAN landing ships, or civilian vessels for sea transportation. Such exercises are likely designed to simulate the deployment of second-echelon forces in an amphibious landing scenario, coordinated to arrive after the initial securing of landing beaches or ports by first-echelon forces.¹⁴⁵ Furthermore, the amphibious units could receive support from supporting brigades within group armies. These include artillery, air defense, special operations forces, army aviation or air assault, engineer and chemical defense, and service support brigades. It is expected that the PLAA will likely use organic fires to conduct fire support for amphibious assaults while preserving PLARF short-, medium-, and long-range fires for intervention forces and "Taiwan's C2 facilities, air bases, and radar sites, in an attempt to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the public's will to fight."¹⁴⁶

Additionally, given the close training between PLAA air defense brigades and PLAAF air defense base training,¹⁴⁷ the PLAA air defense brigades will likely "integrate their HQ-16-series medium-range surface-to-air missile and electronic warfare units with PLAAF and PLAN air

defenses to protect PLA assembly areas and sea movements in the Taiwan Strait.”¹⁴⁸ Considering the PLAA’s “digitized air picture” with near real-time updates and a single network, PLAA air defense brigades are more easily integrated into a joint IADS system shared with the PLAAF and PLAN.¹⁴⁹

Ultimately, while the PLAA continues to train and prepare with Taiwan in focus, a 2021 Department of Defense report suggests that, “the PLA is capable of attempting various amphibious operations short of a full-scale invasion of Taiwan. With few overt military preparations beyond routine training, the PRC could launch an invasion of small Taiwan-occupied islands in the South China Sea such as Pratas or Itu Aba. A PLA invasion of a medium-sized, better-defended island such as Matsu or Jinmen is within the PLA’s capabilities.”¹⁵⁰

PLA Army Global Expectations

While the CCP appears coy about its implicit desire to establish a global military footprint, professional military writings in China suggest that the PLA needs to be vigilant in protecting its overseas interest. Particularly in the face of Chinese nationals working on BRI projects worldwide, its multitude of Free Trade Agreements, “nearshoring” trends, and degrading relations with the West, Chinese strategists state that the “military must resolutely fulfill the mission and tasks of the new era, and further strengthen the planning and guidance of the overseas use of military forces, and contribute to safeguarding the country's overseas interests and promoting regional stability and the maintenance of world peace.”¹⁵¹ But, while these writings point to a larger role for the PLA in securing overseas interests, there are little specifics on the PLAA’s role in this. Looking at the PLAA’s training, however, can provide insight into the PLAA’s global readiness.

While the concept of “all-domain operations” has been part of the PLA's vocabulary for some time, it does not necessarily always refer to the same “all-domain” or “multi-domain” concepts of the U.S. military. Some researchers suggest that the definition of all-domain operations within the PLA remains fluid and could either refer to the U.S. military concepts of all-domain or it can refer to “physical spheres of activity.”¹⁵² Xi's directive to the PLAA to transition from a regional defense approach to an all-domain operations model at the end of 2015 could suggest offensive activities beyond China's borders, wherein “all-domain” was synonymous with “global.”¹⁵³ This would fit China’s global ambitions of usurping U.S. global leadership. If the U.S.’s position is to be replaced by China, then China needs to be able to pick up the roles and responsibilities of the U.S. on the world stage. This would involve temporary or standing army locations abroad.

Providing a military umbrella for weaker nations with which a country relies on, or supports, is not a new concept. In a post Bretton Woods world where globalization is fractured into regionalization, the deployment of PLAA assets to protect countries within the “Global South” that are key to China’s growth and prosperity is a potential reality. Currently, however, China has chosen to use another method of securing its overseas interests with ground personnel.

It has been identified that 20 to 40 Chinese private security companies (PSCs) operate in over 40 countries as growing threats to Chinese infrastructure and nationals abroad threaten China's overseas interests.¹⁵⁴ While some analysts suggest the presence and scope of PSCs may be sensationalized, it does, however, allow PSCs to serve as a strategic tool for the CCP to extend influence internationally without the perception of being imperialistic by establishing large footprints of standing armed forces. This form of asymmetric power projection contrasts with conventional U.S. strategies for force projection and emphasizes how China employs unconventional methods to undermine U.S. global influence.¹⁵⁵ As time progresses, however, there is a possibility that the CCP could decrease its PSC footprint and favor a PLAA footprint to provide a more legitimate "responsible world power" type perception.

PLA's Four Arms: Aerospace Force, Cyberspace Force, Information Support Force, and the Joint Logistics Support Force Regional Roles

The PLA Strategic Support Force (PLASSF) was established in 2015 in recognition that space, cyberspace, and the electromagnetic spectrum are warfighting domains in their own right in which China will carry out information warfare.¹⁵⁶ In April 2024, however, the PLASSF was disbanded as a service. From the PLASSF, the PLA stood up "strategic arms" that support the PLA services.¹⁵⁷ The Aerospace Force (ASF) and Cyberspace Force (CSF) are the space and cyber entities, respectively, and are subordinate directly to the CMC. The Information Support Force (ISF), as the third support arm to be established from the PLASSF, is also subordinate to the CMC and is stated to be the "key support force for coordinating the construction and application of the network information system-of-systems" to improve "military combat effectiveness" and likely "responsible for PLA communications networks and network defense."^{158,159}

Though military services and TCs operate their own electronic countermeasure brigades and maintain operational control over EW platforms in the air, maritime, and ground domains, the ASF, CSF, and ISF will likely execute strategic space, cyberspace, electronic, information, communications, and psychological warfare missions and capabilities.¹⁶⁰ With the new 4+4^{xv} model, it's difficult to tell where roles and responsibilities will be divided when conducting information warfare. However, it is likely that the CSF, possibly with help from the ISF, will be responsible for "information warfare with an integrated mission set that includes cyberspace warfare, technical reconnaissance, electronic warfare, and psychological warfare" and missions and tasks associated with China's "Three Warfares"^{xvi} concept.¹⁶¹ Additionally, the ASF manages the PLA's space assets and conducts combat operations using various capabilities ranging from

^{xv} 4+4 Model is defined as having four military services (PLAA, PLAN, PLAAF, and PLARF) and four strategic support services (ASF, CSF, ISF, and JLSF).

^{xvi} The Three Warfares concept relates to information-related non-kinetic operations for influencing adversary behavior by means of: strategic psychological operations, public opinion and media operations, and exploiting national and international legal systems. Doug Livermore, "China's 'Three Warfares' In Theory and Practice in the South China Sea," *Georgetown Security Studies Review*, March 25, 2018, <https://georgetownsecuritystudiesreview.org/2018/03/25/chinas-three-warfares-in-theory-and-practice-in-the-south-china-sea/>.

terrestrially based anti-satellite (ASAT) weapons and space based Shijian series satellites^{xvii} against adversary space forces in an attempt to achieve space superiority^{xviii}, allowing their Earth observation, communication, and intelligence satellites, among other things, to operate uncontested.

The level of importance placed on space control is underscored by the amount of resources devoted to enhancing its counterspace capabilities, including anti-satellite weapons, electronic warfare, co-orbital satellites, and directed-energy systems, to hinder adversaries' access to and activities in space during times of crisis or conflict.¹⁶² With significant investments in both military and civilian applications, including commercial launches, scientific research, and space exploration, the ASF collaborates with civilian entities, such as universities and research organizations, to incorporate civilian resources into military endeavors. Through these endeavors, the ASF seeks to enhance C2 for joint operations, “establish a real-time surveillance, reconnaissance, and warning system,” and increase its capabilities in “space-based ISR, SATCOM, satellite navigation, human spaceflight, and robotic space exploration.”¹⁶³

As strategic support arms, the ASF, CSF, and ISF collect, process, integrate, and provide information derived from space, cyber, and EMS assets to all PLA branches and the five TCs to facilitate joint operations and psychological warfare.¹⁶⁴ Additionally, the strategic support arms report directly to the CMC, rather than theater commanders, while having forces postured across each of the TCs to carry out information operations such as network espionage and attack as well as defending space, cyber, and electromagnetic spectrum missions with the primary intent to paralyze an adversary's joint operational capabilities.¹⁶⁵

Within the region the strategic support arms intend to integrate “constant, controllable, and high-impact” network and electronic warfare to support the PLAN, PLAAF, and PLARF's “high-intensity and fast-paced” precision strike efforts. Through the integration of kinetic and non-kinetic fires, the PLA seeks to inflict “irreversible damage and powerful destruction” to simultaneously “decapitate and blind” forces and sustain an advantage to achieve regional strategic goals.¹⁶⁶ The integration of non-kinetic fires with the primary services allows warfighters to leverage their advanced abilities to target the enemy's critical operational centers and disrupt key elements of their combat capabilities such as command centers, vital information networks, communication hubs, and essential infrastructure. Under this premise, the primary goal for the PLA is to create an early advantage through the exploitation of vulnerabilities and accelerate the operational tempo.¹⁶⁷ Aside from non-kinetic fires, the strategic support arms intend to provide situational awareness and targeting solutions in rapid fashion through the use of

^{xvii} The Shijian series satellites (SJ-17, SJ-18, SJ-21, etc) are On-Orbit Servicing, Assembly, and Manufacturing (OSAM) satellites capable of grabbing onto a satellite in orbit and dragging it out of its orbit. While promoted as a primary method for cleaning space debris, the Shijian satellites have raised concerns that they can be used to de-orbit adversary satellites during a conflict.

^{xviii} “The degree of control in space of one force over any others that permits the conduct of its operations at a given time and place without prohibitive interference from terrestrial or space-based threats.” “Air Force Doctrine Publication (AFDP) 3-14 Counterspace Operations” (United States Air Force, n.d.), https://www.doctrine.af.mil/Portals/61/documents/AFDP_3-14/3-14-D03-SPACE-Superiority.pdf.

AI and ML into its integrated network in a continued effort to debilitate adversary operational capacity and capability.¹⁶⁸

The bottom line is that U.S. forces can expect the ASF, CSF, and ISF to play a crucial role in joint operations, providing real-time surveillance, reconnaissance, and targeting solutions to support precision strikes by other PLA branches. The integration of kinetic and non-kinetic fires, using a multifaceted and highly coordinated approach across various warfighting domains, means that adversaries may face simultaneous attacks targeting critical operational centers, communication hubs, reconnaissance and intelligence capabilities, and infrastructure, aimed at achieving irreversible damage and sustain an advantage on the battlefield. Finally, intervention forces should expect the ASF, CSF, and ISF to hinder their access to, and activities in, space during times of crisis or conflict.

Regarding the fourth arm, the JLSF, the PLA views joint logistics as a vital base for its growing integrated joint operations with the JLSF playing a central role in establishing a modern logistics support system. This system is essential for executing integrated joint operations, supporting joint training, and delivering strategic and campaign-level logistics. The JLSF's modernization of joint logistics aims to achieve precise logistics support tailored to the changing conditions of the battlespace and focuses on integrating information technologies, utilizing logistics networks and databases, and managing systems that track supply levels and unit needs. Moreover, the JLSF is tasked with overseeing military-civil fusion in logistics, which includes outsourcing logistics tasks and advancing dual-use technology research and development. Seeking to optimize the use of military and civilian resources, the PLA's extensive use of civilian infrastructure, resources, and transportation in a conflict may complicate an opponent's ability to identify and target military forces.¹⁶⁹

PLA's Four Arms: Aerospace Force, Cyberspace Force, Information Support Force, and the Joint Logistics Support Force Regional Roles

China intends to utilize the information domain to generate negative impacts on an adversary's societal, economic, political, and military structures. According to China's National Defense University, information deterrence harnesses the capability for "large-scale information attacks [that] may paralyze the social information network, thereby causing chaos in the national economic system and triggering social unrest" and the ability to affect "national electric power, communications, finance, transportation, industry, medical treatment, military, etc."¹⁷⁰ This drive for information dominance is also supported by the space domain as it feeds into its informatization and intelligentization warfare principles. According to Chinese strategists, "the offensive weapon system on the available space platform can conduct firepower or electronic attacks on the enemy's military targets in space and the atmosphere. It can be seen that in war under the conditions of informatization and intelligence, the role of space forces has become increasingly prominent. The use and counter-utilization, destruction, and counter-sabotage of space systems will have a major impact on the process and outcome of the war."¹⁷¹

The strategic arms will likely seek to conduct operations beyond the region in the event of a regional conflict or during "gray zone" activities below the threshold of conflict, or what

China may refer to as “hybrid warfare.”^{xix} Being that space and cyberspace are global in nature with no boundaries, the ASF’s and CSF’s global footprint easily extends beyond its coastal defenses and into the interconnected networks that brings the world together. Through this interconnectedness, the ASF, CSF, and potentially the ISF could attempt to form a false narrative to mold public opinion, shoring up international support with intent to vilify the U.S. on the world stage.

Regarding logistics, China's rising economic power, along with its overseas strategic interests and commitments such as the BRI and peacekeeping missions, is driving the PLA's development of strategic delivery capabilities^{xx} and overseas bases. The PLA views strategic delivery as a deterrent and a key factor in influencing the outcome of conflicts, enabling overseas joint logistics and joint operations, and expanding global influence. While the PLA still lacks power projection, the potential threat to U.S. and allied interests worldwide may grow as the PLA enhances its joint logistics, strategic delivery, and integrated joint operations capabilities and experience, in the event of a future global conflict.¹⁷²

Challenges

Chinese military modernization has made remarkable advancements. The PLA has made significant strides in crucial technological. PLA personnel have undergone enhanced training and development, equipping them with the skills to execute increasingly complex operations both near China's shores and further afield. Additionally, Chinese military strategy and doctrine have been updated to emphasize modern, coordinated maneuver warfare and a deeper focus on joint operations. Supported by substantial annual increases in defense spending since 1990, these transformations better position the PLA to engage in "short-duration, high-intensity regional conflicts."¹⁷³ But while China boasts what appears to be a formidable force that is engineered to stave off U.S. intervention in the region, there are many unknowns about the PLA and its capabilities.

Recent high-profile investigations into high-level PLA officers reveal cracks within the overall management and potential residual corruption within the force itself. Regarding these recent events, Dr. Joel Wuthnow posited that “Xi’s knowledge of the PLA’s secrecy and mismanagement deep inside its own structure could lead him to doubt its operational proficiency in a crisis or conflict.”¹⁷⁴ In January of 2024, Xi Jinping highlighted the need to stamp out

^{xix} According to Chinese theorists, “Stated simply, hybrid warfare refers to an act of war that is conducted at the strategic level; that comprehensively employs political, economic, military, diplomatic, public opinion, legal, and other such means; whose boundaries are blurrier, whose forces are more diverse, whose form is more mixed, whose regulation and control is more flexible, and whose objectives are more concealed.” Derek Solen, “Fight Fire with Fire: The PLA Studies Hybrid Warfare” (China Aerospace Studies Institute, March 2022), [https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/CASI%20Articles/2022-03-23%20Fight%20Fire%20with%20Fire.pdf?ver=5LsQVgQEt53Er0kLTyn0zQ%3D%3D#:~:text=Its%20author%2C%20Gao%20Wei%2C%20defined,operations\)%2C%20and%20other%20such%20means.](https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/CASI%20Articles/2022-03-23%20Fight%20Fire%20with%20Fire.pdf?ver=5LsQVgQEt53Er0kLTyn0zQ%3D%3D#:~:text=Its%20author%2C%20Gao%20Wei%2C%20defined,operations)%2C%20and%20other%20such%20means.)

^{xx} Considered to be the blending of “mobility, logistics support, and national mobilization” to manage “crises, safeguard the peace, deter war, protect national interests abroad, and win wars.” “Modernization of PLA Logistics: Joint Logistic Support Force,” February 15, 2018, https://www.uscc.gov/sites/default/files/McCauley_Written%20Testimony.pdf.

continued corruption within the PLA and CCP by stating that “after 10 years of unrelenting and powerful anti-corruption efforts in the new era, we have achieved an overwhelming victory and have comprehensively consolidated our achievements. However, the situation remains dire and complex” and that the CCP “must strengthen the party's centralized and unified leadership in the fight against corruption.”¹⁷⁵ Exacerbating the problems with corruption and combat readiness, China’s regional goals face further hurdles.

Dr. Wuthnow posits that since the PLA has been "tasked with an array of additional missions" that include reinforcing territorial claims, deterring regional rivals, protecting overseas interests, and maintaining CCP survival, Chinese strategists have "long worried that China’s rivals—including domestic secessionists, regional powers, or the United States—could exploit a Taiwan conflict to press their own agendas" if the PLA is distracted by a cross-strait conflict.¹⁷⁶ Referred to as "chain reaction" warfare by PLA analysts, being able to successfully execute a Taiwan invasion while performing the additional missions requires the PLA to "simultaneously maintain readiness in other regions, shift resources among theaters when required, and coordinate multi-theater operations."¹⁷⁷ The ability for the PLA to successfully do this remains an open question.

Regarding a Taiwan invasion, in their class on the PLA at NDU, Institute for National Strategic Studies outlines five primary challenges the PLA will face. First, the inherent complexity of large-scale amphibious operations requires a high level of joint operations that the PLA is still attempting to master. This requires the PLA to have a complex command structure. The existing command structure, however, is not currently suited for wartime operations which would result in a reduction in the cohesion of invasion forces. Second, the PLA currently suffers from insufficient transportation capabilities. As it stands, the PLA’s military lift can support only half of six PLAA amphibious brigades and one of six PLAAF Airborne Corps combined arms brigades. While progressing, the transport of invasion resources that utilize civilian resources like roll-on, roll-off platforms remains largely untested, though frequently exercised. Third, the geography of Taiwan favors a defense. The Taiwan Strait’s severe weather limits large-scale landings to brief windows of opportunities which largely reside between May and July and again in October. Additionally, limited beachfronts on the island of Taiwan coupled with obstructed landing zones and complex terrain severely complicated landing resources via water. Fourth, the PLA has not conducted large-scale combat operations since the Vietnam offensive in 1979, which was largely a ground offensive. While a subject of debate as to whether or not this is an important factor, the fact remains that the entirety of the PLA lacks high-end combat experience. Most of the PLA’s recent real-world experience falls under MOOTW with little real-world experience in joint operations. Fifth, neither the PLA nor CCP can guarantee that an invasion of Taiwan will remain a limited conflict. If the CCP truly believes that the U.S., much less allies and partners, will intervene, this changes the military equation on requirements to successfully conduct a Taiwan invasion.¹⁷⁸

Regarding a global footprint, Rush Doshi suggests that China’s global military presence may never reach the level of the U.S. military. Attributing this to a “lack of alliance networks and bases with tens of thousands of soldiers” and China’s desire to “eschew costly interventions,” China “is more likely to opt for dual-use facilities, rotational access, and a lighter footprint-at

least for now-when its military still faces difficulties in challenging the United States outside of the Indo-Pacific.”¹⁷⁹ Though the PLAN continues to be the primary force that China projects power with, much of this force lacks nuclear power in its larger surface groups which requires frequent port visits. This makes power projection difficult which is why the CCP has focused efforts on securing access to deep water ports along the maritime silk road, west Africa, Cuba, and Argentina.¹⁸⁰

Beyond power projection, the PLA faces other hurdles as well. The lack of a global, cohesive joint C2 system may create an overreliance on individual services self-administer command and control, limiting joint operations. While the PLA seeks to enhance C2 for joint operations by establishing a real-time surveillance, reconnaissance, and warning system, the four strategic arms of the PLA primarily focus on regional efforts. This regional focus is also apparent in PLA’s expeditionary training. Many PLA personnel have few opportunities to train abroad, resulting in most training focusing on regional missions. Additionally, while gradually becoming more globally focused, much of the PLA’s doctrine remains focused on local wars, as China needs to be able to secure its regional strategic goals before truly expanding beyond its periphery. Lastly, much of the PLA’s platforms are occupied with regional missions. While the PLAAF boasts a “strategic air force,” the reality is that the PLAAF has little projection capability outside the first island chain. However, as time progresses and military spending increases, the PLA seeks to enhance its power projection capabilities.¹⁸¹

As alluded to above, the PLA’s ability to conduct joint operations is another unknown in the event of a major conflict. Though the PLA began conducting combined arms exercises during 1956, which saw the birth of Active Defense, the PLA has yet to execute joint operations in a wartime environment.¹⁸² Much of the joint operations during modern exercises potentially lack true joint fires. This may decrease the effectiveness of the JILC in a Taiwan invasion scenario. Furthermore, any targeting and degradation of the PLA’s existing joint C2 network by adversary forces could lead to severe fog and friction during hostilities. Understanding their weaknesses, however, the PLA continues to develop and improve their joint capabilities.

Dr. Saunders and Dr. Wuthnow point out that “the PLA has increasingly focused on exercises involving multiple branches, services, and TCs in a variety of complex scenarios.”¹⁸³ This has led the PLA to go to great lengths to “improve realism and build real capability” in exercises and highlight weaknesses. Incorporated in the reforms is an increase in joint education within military academies as well as improving joint training systems. Xi’s stated goal in 2016 was to address the shortage of officers versed in “deep knowledge” of joint operations.¹⁸⁴ The establishment of the Logistics Support Department and JLSF is another step in the direction of enhancing joint operations in that the Logistics Support Department will “coordinate with the theaters and services to support joint logistics requirements, similar to the U.S. Joint Staff J4” and the JLSF will “consolidate and strengthen the provision of supplies to operational units within theater commands.”¹⁸⁵ As the PLA learns to become more joint, the PLA will become more effective at accomplishing regional objectives.

Concerning China's endeavors in science and technology, fundamental issues exist. While China is known for stealing technology from its competitors, China’s STI efforts are primarily

limited to technology and innovation, with little foundational science.¹⁸⁶ This can be seen in China's domestically produced scientists and the lower relative impact they have on research than Western trained scientists.¹⁸⁷ Zhang Jian, a Shanghai Academy of Social Sciences historian, also argues that China's attempt to save China through science has had little to do with science and that the nature of the movement is really attempting to save China through technology.¹⁸⁸ Therefore, while China is capable of stealing, building, securing, and advancing technology within its system, it lacks the scientific base that is accompanied with the stolen technology.¹⁸⁹

In conclusion, the Chinese military has made significant strides in modernization, bolstering the PLA's capabilities across various domains. From technological advancements to enhanced training and strategic reforms, China has demonstrated a commitment to bolstering its military prowess. However, underlying challenges such as corruption, combat readiness, and the intricacies of conducting joint operations persist. Recent efforts by the Chinese leadership to address corruption within the PLA and the emphasis on joint education and training reflect a recognition of these challenges. Moreover, while China has made significant progress in technology and innovation, fundamental issues such as the lack of foundational scientific research and adherence to CCP ideology continue to pose hurdles. As China navigates its path towards further military modernization and global projection of power, addressing these challenges will be pivotal in determining the PLA's effectiveness in achieving its regional and global objectives.

SECTION III: The Way Forward for the U.S. Air Force

“You can’t improve unless you know what you need to improve.”¹⁹⁰

Michael Pillsbury

As seen in Section II, the PLA’s regional focus is currently on “high intensity combat operations within Asia,” primarily focused on Taiwan with an effort to keep the U.S. out of the fight.¹⁹¹ In terms of regional blunting capabilities, the PLA’s ability to conduct strikes on bases inside the first and second island chain cannot be overstated. China’s robust development of AAM and SSM capabilities have created a threat environment that substantially increases risk to U.S. forces in the region, threatening the ability of the U.S. Air Force and Navy to project power within the first two island chains. As of mid-2024, the best defense the U.S. has in the event of a conflict is the yet-to-be-proven concept of Agile Combat Employment (ACE) where U.S. forces attempt to move assets and logistics at a pace that stays well inside China’s targeting timeline for long-range fires. But given the ABO issue within the theater due to the anticipated neutrality of smaller Asian nations, ACE will likely be relegated to Japan as well as U.S. territories and allies outside the first island chain.

Overcoming the PLA’s counter-intervention strategy in the region is no easy feat. The U.S. Air Force must therefore understand the PLA’s counter-intervention strategy and apply its own counter to overcome the PLA’s defensive strengths. By conducting an internal assessment of the U.S. Air Force’s shortcomings in the region, lines of effort that support operations in the theater can be identified, allowing the Air Force to move forward with the appropriate investments and operational focus.

With regards to the PLA’s potential future global footprint, the same capabilities will likely apply. PLAN, PLAAF, and PLARF assets that hold U.S. bases and aircraft at risk could potentially become a problem in other regions of the world where the U.S. has an existing footprint. While a globally present PLA is a distant concern, a reinvigorated effort towards building U.S. asymmetric conventional capabilities to counter both China’s regional and future global capabilities is critical.

Reemergence of Conventional Deterrence

The invasion of Ukraine in 2022 demonstrated authoritarian leaders’ continued willingness to resort to conventional kinetic force to pursue territorial ambitions, particularly against non-nuclear states. This reemergence of territorial conquest through the use of conventional forces potentially pits great powers’ forces against one another to protect their interests. This viewpoint is not lost on China. Chinese military writings state that “the limitations of nuclear deterrence are increasingly exposed, and the role of conventional deterrence is being valued again.”¹⁹² They assert that “conventional deterrence is highly controllable and less risky, and generally does not lead to devastating disasters like nuclear war.”¹⁹³ This is not dissimilar to thoughts of high-ranking members of the U.S. Department of Defense (DoD).

In a 2022 Air Force Association presentation, General Mark Kelly, then Commander of Air Combat Command, posited that when one country has conventional overmatch over another, strategic risk is low, resulting in reduced military confrontation. He went on to state that while a trending decrease in conventional deterrence over the last 30 plus years might have been overlooked by the US, “our peer adversaries took note and saw a once-in-a-century opportunity to increase confrontation and secure gains at minimal risk.” By all accounts then, “we should not be surprised at how our strategic adversaries have responded to a decrease in conventional deterrence.”¹⁹⁴

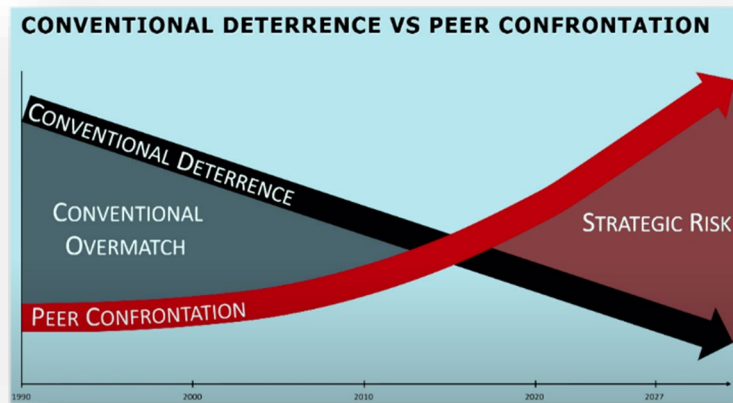


Figure 8. Strategic risk grows as conventional overmatch declines. Source: General (ret) Mark D. Kelly.

General Kelly’s comments draw parallels from Doshi’s assertions that China was forced to conduct their “hide and bide” strategy and reduce confrontation with the U.S. through the 1990s and early- to mid-2000s due to U.S. conventional overmatch. More specifically, Doshi highlights that China was forced to delay investments in sea control capabilities and invest in asymmetric, sea denial capabilities that would blunt U.S. naval power projection in Asia while avoiding open confrontation with the U.S. military and delaying U.S. suspicion of growing Chinese military might.¹⁹⁵ Over time, China worked to close the conventional gap with the United States. As U.S. and Chinese conventional deterrence continue to converge, the risk to U.S. Navy operations grows, leading to greater reliance on the U.S. Air Force, whose operations are also becoming increasingly threatened.

The Old Operational Environment

After the fall of the USSR, the U.S. had no peer competitor on which to focus military research and development on, being that the Russian Federation was no longer considered a peer, but a near-peer. Having not identified China as an existential threat to the liberal world order during the 1990s and early 2000s, much of U.S. military research and development was focused towards Russia and smaller nation-state conflicts, including a heavy focus on counterinsurgency warfare. This would lead to developing capabilities focused on destroying insurgents more effectively in mountainous terrain and urban warfare with a wary eye towards Russia. As seen in Section I, this is in stark contrast to China’s science, technology, and innovation which has used the U.S. as its pacing threat since 1991. Therefore, while China focused on changing the landscape of Pacific warfare, the U.S. focused on Middle East counterinsurgency operations and European conventional deterrent investments.

Platforms like the F-35 were designed for a European theater focused on a Russian threat. Although a versatile fighter platform, the F-35A lacks long-range and heavy payload capacity. Aircraft like the F-22 and F-35 were built to penetrate enemy IADS and dominate the Su-series aircraft, predominant in the European theater. Informing the design of these aircraft was a mostly contiguous geographic region that provided short distances and a plethora of viable airfields where the “tyranny of distance”^{xxi} was not a factor. Furthermore, the requirements for the F-35 were developed during a time when the Air Force had many more fighter squadrons than today. Since 1990, the Air Force has seen a substantial reduction in fighter squadrons and does not have the resources to maintain a fighter presence as it did in the 1990s. The ability to generate mass firepower with fighter platforms, therefore, is no longer the same which has driven the recent desire to build Collaborative Combat Aircraft (CCA) to satisfy the principle of mass. Exacerbating the problem, the U.S. Air Force weapons arsenal is also ill-prepared to take on the highly contested environment of the Pacific.

The Joint Air-to-Surface Standoff Missile is the Air Force’s premier long-range weapon. Like the F-35, the 1995 design requirements for the Joint Air-to-Surface Standoff Missile were focused on a European theater against fixed Russian targets. Systematically dismantling a JILC is an extremely difficult task with this type of weapon. Additionally, hitting highly mobile SAM or SSM launchers remains a very difficult task. Under current capabilities, this mission set is daunting, even for a world-class military. These types of missions currently rely on stand-in attacks which require incursions into a joint engagement zone (JEZ)^{xxii} more threatening than Russia’s. Moreover, given the probable location of SSMs deep inside Chinese territory, targeting them with kinetic weapons risks vertical and horizontal escalation.

The New Operational Environment

While the U.S. Air Force needs to move forward with new weapons development, the character of war has evolved to place information at the center stage in air combat, electronic warfare, and network warfare. Consequently, advantages in information capacity, volume, and speed are poised to become the decisive factor in determining success or failure in future conflicts. The need for resilient, long-range weapons that are tied into a network that leverages information advantage regarding capacity, volume, and speed is a necessity in today’s fight as well as tomorrow’s. While short- to medium-range engagements have not completely vanished, the existing threat environment that frustrates U.S. power projection drives the requirement for longer range platforms carrying longer range weapons that leverage information dominance.

The basic principle of modern air warfare is to create an environment with an acceptable level of risk by degrading enemy counter-air capabilities from a stand-off posture. The “tanker

^{xxi} The "tyranny of distance" is a concept that refers to the challenges and disadvantages imposed by large geographical distances. It is often used in various contexts regarding military strategy, logistics, and communication, to describe how physical separation complicates and hinders effective operations. In military strategy, for example, the "tyranny of distance" can refer to the logistical and operational difficulties faced by a nation in projecting power and maintaining supply lines over vast distances or communication difficulties over vast distances.

^{xxii} A JEZ is defined as utilizing both SAMs and air-to-air capable aircraft to simultaneously defend a specified location.

bridge” requirement to get shorter range fighters to a launch distance using the current inventory of long-range weapons is extensive. Additionally, China’s direct counter to U.S. tankers through very long-range AAMs and SAMs potentially threatens tanker operations even within the second island chain. Platforms like the B-52, B-21, and F-15EX fulfill long-range and long-loiter requirements while also providing capability to employ advanced long-range weapons. Paired with the F-22 and Next Generation Air Dominance (NGAD) fighter to provide OCA-Escort, the long-range platforms can maintain a presence outside the JEZ while executing long-range strikes, removing the need for platforms to enter the JEZ until it is severely degraded.

For these reasons, the new operational environment necessitates the need for a force capable of expending long-range AA and AG weapons linked to a joint fires network that leverages high-speed information processing and transfer. This posture forces adversary air to extend their reach beyond the protection of their IADS in order to stop attacks on their forces, allowing the U.S. Air Force to engage the adversary on more amenable terms. Without a long-range posture, current forces are required to enter a contested, denied, and operationally-limited environment, skewing the risk/reward ratio by elevating the risk and reducing benefits. This, however, requires a change in thinking of how to achieve air superiority.

Modern Day Air Superiority

The U.S. Air Force defines air superiority as “that degree of control of the air by one force that permits the conduct of its operations at a given time and place without prohibitive interference from air and missile threats. Air superiority may be localized in space (horizontally and vertically) and in time, or it may be broad and enduring.”¹⁹⁶ In the Indo-Pacific, achieving localized air superiority over geographic locations like Taiwan is an extremely difficult task without an extensive, exhaustive counter-air and air interdiction campaign. Given the lack of appropriate weapons available to the Air Force and lack of a robust integrated joint fires network, that extensive air campaign will not produce the desired effects to achieve the degree of air superiority to which the Air Force is accustomed.

Conducting long-range strikes by Air Force assets outside the range of enemy counter-air systems, however, is air superiority none-the-less. In this regard, air superiority does not need to be immediately fought for as is the case when executing stand-in attacks over enemy territory. Additionally, this negates the risk of tasking jets to enter a JEZ with both extreme redundancy and powerful sensing capabilities. Conducting continuous long-range strikes, however, requires the ability to carry larger weapons over long distances with a robust long-range kill chain providing targeting data.

According to a Center for Strategic and Budgetary Assessments publication in 2023 titled *Air Power Metamorphosis* “the lethality of air-to-air missiles means the Air Force should explore new concepts in its approach to air superiority. [While] fighters have traditionally offered the advantages of speed and maneuverability to gain the upper hand in air combat ... advanced long-range missiles, which have greatly increased in capability, have emerged as the dominant kill system in modern air engagements.”¹⁹⁷

Additionally, the report points out what the Chinese researches have also already identified, that “speed and maneuverability have limited utility when evading modern missiles and generate a cost in terms of air frame weight, radar signature, and range” and that “the advantage of speed has declined significantly due to the advent of infrared search and track sensors ... [where] even stealthy supersonic aircraft at high speed generate a significant heat signature.”¹⁹⁸ According to the report, “trends in air-to-air combat indicate that the Air Force should consider a larger, sub-sonic aircraft as part of its future air superiority force” that is “equipped with larger sensors to locate low-observable adversaries at longer range-and carry larger, long-range missiles to kill those adversaries before they can engage.”¹⁹⁹ These large aircraft “working in coordination with air superiority fighters offers many intriguing operational possibilities.”²⁰⁰ Right or wrong, the way to achieve air superiority is changing.

Many methods from air campaigns during Vietnam, Desert Storm, and the 2003 Iraq invasion do not apply in the Indo-Pacific due to technological advancement in counter-intervention capabilities. Information, range, payload, and sensors reign supreme in a 21st Century conflagration with a peer competitor. This is seen in PLA professional writings wherein they see that “air battles beyond visual range, strikes from outside defensive perimeters, ultra-long-range air defense, etc., are becoming the primary form of air operations.”²⁰¹ Therefore, if China can negate the U.S. Air Force’s ability to marshal aircraft that are required to execute stand-in air interdiction campaigns by using the PLA’s long-range strikes to target logistic nodes, extensive logistic supply trains, air refueling, or other centers of gravity on which our aircraft rely, then they have achieved air superiority in its purest form with Chinese characteristics. In this situation, Chinese forces will be permitted to conduct “operations at a given time and place without prohibitive interference from air and missile threats.”²⁰²

This does not, however, negate the need to operate a stand-in force. Operating a highly-capable stand-in force is still a requirement as all combat cannot be continuously done from beyond visual range during an extended conflict. There will come a point in time where both forces are required to move closer to the enemy, potentially inside threat ranges, as the supply of long-range weapons dwindles or long-range kill chain networks are disrupted or destroyed. Stand-off and stand-in forces are not mutually exclusive. Therefore, to strike the proper balance, it is imperative to maintain both while also seeking cheaper forms of air dominance in the realm of attritable, asymmetric investments.

Other Factors that Affect Air Superiority

Warden’s Five Rings theory focuses on military strategic bombing to systematically target an adversary’s centers of gravity to achieve decisive results. From most important to least important, the Five Rings are: 1. Leadership, 2. Organic/System Essentials/Key Production, 3. Infrastructure, 4. Population, and 5. Fielded Military Forces. Warden’s concept of the five rings aimed to target each of these rings to incapacitate enemy forces, a goal referred to as physical paralysis. To enhance the effectiveness of a strike, the attacker would prioritize engaging multiple rings, with particular focus on neutralizing the central ring, representing the enemy’s leadership. This strategy’s intent is complete physical incapacitation. The Five-Ring Model has

been influential in shaping modern air power doctrines and strategies for conducting precision airstrikes and strategic bombing campaigns and has influenced the Air Force's development of effects-based operations (EBO) in the 1990s. However, the use of the Five-Ring model or EBO suggests an offensive military campaign, not necessarily a defensive military campaign, which is the case for Taiwan.

Often, we reference the operational and strategic events of the 1991 Gulf War or the 2003 Iraq invasion to demonstrate successful methods of attacking an adversary. These conflicts showcased the effectiveness of EBO in dismantling command and control structures which impaired the enemy's ability to manage military operations. However, we seldom examine direct force engagements because the Iraqi army was significantly overpowered in both conflicts, evident in their decision to bury their aircraft in the ground during the 1991 Gulf War. Nevertheless, China has learned from these lessons. China has endeavored to counter the EBO tactics by establishing highly redundant networks and implementing hardened, deeply buried targets to safeguard its command-and-control systems, posing formidable challenges to EBO efforts against the PLA's command and control infrastructure. Moreover, striking these targets in an EBO campaign says nothing of the escalating nature of striking China's mainland to begin with.

The PLA, having scrutinized the outcomes of the 1991 and 2003 conflicts, has fortified its defenses to counter offensive actions by the U.S. military. The U.S. often approaches China with an offensive mindset, seeking ways to conduct EBO and incapacitate the PLA's ability to wage warfare by targeting its defensive systems to allow for other follow-on offensive strikes that match the Five Ring Model. This offensive-oriented perspective is ingrained in the U.S. military's mindset, as it predominantly operates from an offensive posture. However, in the event of a potential invasion of Taiwan, it might be advantageous to adopt a defensive mindset. By examining the effects of Russia's declining military capabilities resulting from the conflict in Ukraine, valuable insights could be gained on how to undermine PLA successes and erode its capabilities.

While Ukraine has conducted attacks on Russian soil, Ukraine has primarily focused its efforts on engaging Russian fielded forces rather than targeting Russian infrastructure, air bases, missile silos, or command centers. The conflict has largely revolved around Russia's deployed forces tasked with occupying Ukrainian territory, which includes Russia's fielded logistics. The substantial losses incurred by Russia in terms of armor, artillery, materiel, and personnel and its continuous

How military control of Ukraine has changed



Figure 9. Russia's stalled military conquest. Source: Ukraine in maps: Tracking the war with Russia, BBC. (<https://www.bbc.com/news/world-europe-60506682>)

expenditures of its long-range weapons have significantly weakened its military capabilities, reducing Russia's military effectiveness.^{xxiii} Despite Russia's relentless bombardment of city blocks with indiscriminate artillery fire and long-range surface-to-surface and air-to-surface strikes, Ukraine has resisted, thwarting Russia's mission to fully annex the country after more than two^{xxiv} years of conflict as of mid-2024. Unable to seize control of Ukraine entirely, Russia has been compelled to settle for the contested eastern and southern portions of Ukraine, expending substantial resources in attempts to maintain its hold.

The Ukrainian success in repelling a full-scale Russian invasion suggests potential strategies for confronting PLA fielded forces against Taiwan. While Ukraine struggled to fend off long-range surface-to-surface, air-to-surface, and artillery strikes, it effectively thwarted Russian advancements by denying them air superiority. In the absence of air dominance, Russian armored columns and personnel carriers became vulnerable to asymmetric attacks from drones armed with precision munitions and ISR capabilities to facilitate western surface-to-surface weapons and ambushes by Ukrainian ground forces. Despite lacking extensive military training, Ukrainian armed forces capitalized on their freedom of movement on the battlefield to target Russian invasion forces successfully. This experience suggests that if the PLA fails to establish air superiority over Taiwan, the Taiwanese military could exploit asymmetric capabilities to harass and hinder maritime invasion forces along the coastline. Leveraging drone swarms, dispersed land-launched maritime weapons, shoulder-fired surface-to-air missiles, near-shore mining, and other tactics, Taiwan could potentially impede or repel a PLA invasion of the island.

Some of the sequence of events in the PLA's amphibious landing campaign consist of artillery bombardment of landing beaches, unmanned surface vessels clearing obstacles in water on approaches to landing beaches, helicopter attacks on targets near the beach and/or transport helicopters inserting troops beyond the shoreline, reconnaissance and engineer troops landing in small motor boats to clear beach obstacles, long-range strikes on cities, decapitation attacks, and amphibious fighting vehicles and assault guns disembarking from PLAN amphibious ships to assault the shore and consolidate the beachhead. These events are similar to events that unfolded in Ukraine, though occurring mostly on land, which saw large materiel losses on the Russian side. Therefore, Taiwan can mimic Ukraine's success; for just as Russia was unable to reconstitute and mount up another full-blown invasion as seen in February 2022 due to materiel losses, the PLA could face the same fate.

While Taiwan focuses on cheap, dispersed, decentralized, asymmetric capabilities, the U.S. military should focus on capabilities that focus on denying air superiority over Taiwan and

^{xxiii} According to a United States Institute of Peace article, "the war's toll on Russia's military has been significant. By the end of 2023, estimates for Russian personnel killed ranged between 66,000 and 120,000. If you add in the number of wounded, that total reaches an astounding 315,000. In addition, Russia has taken tremendous equipment losses, including the severe degradation of its Black Sea fleet with 20 vessels sunk. In total, Russia has lost around 8,800 armored vehicles since it invaded Ukraine on February 24, 2022." While the article also states that "experts estimate Russia has enough resources to continue the war at the same intensity for the next two to three years, if not longer," this severely hampers Russia's ability to achieve other regional military goals should they arise. Mary Glantz, "Ukraine War Takes a Toll on Russia," *United States Institute of Peace*, March 11, 2024, <https://www.usip.org/publications/2024/03/ukraine-war-takes-toll-russia>.

^{xxiv} Or 10 if you consider the annexation of Crimea the start of Russia's war on Ukraine.

targeting fielded forces in the straits. By developing a robust, leading-edge sensing capability, a joint fires network, and cheap, asymmetric capabilities like drone swarms and long-range air-to-air and air-to-surface networked weapons, the U.S. Air Force can deny air superiority, target fielded forces, and help impede or repel an invasion landing campaign without putting the Air Force's exquisite assets at unnecessary risk through excessive JEZ penetration. These efforts can create a more permissible environment for follow on penetrating air interdiction assets. If, however, the Air Force does not develop the appropriate redundant sensing and long-range capabilities, the potential exists that the U.S. will suffer prohibitive losses of exquisite assets leading to its inability to fully fulfill global responsibilities. Moreover, while kinetic operations are focused on denying the lodgment of invasion forces, non-kinetic forces can focus on the other rings of the Five Ring Model as non-kinetic operations on these rings may not pose the same escalating effects that kinetic attacks possess, potentially avoiding turning a limited conflict into a total war.^{xxv}

The ideas described above are nothing new, however. This simply falls under the concept of denial warfare where the aim is to wear down an opponent's strength and resources through continuous and prolonged engagement, typically involving high casualties and materiel losses. By inflicting attrition and eroding an adversary's ability to fight effectively through a sustained and coordinated effort across multiple domains such as cyber, electronic, kinetic, and informational warfare, strategic objectives can be denied.

While the PLA's amphibious landing force is not necessarily a "one trick pony," if it fails to land enough of its forces on Taiwan, the PLA will be hard-pressed to gain control of the island.

Lines of Effort

Secretary Frank Kendall has stated that he wants to focus on "what scares China" when it comes to Air and Space Force investments in the future force structure.²⁰³ His line, presumably, plays off China's own mentality in the 1990s when China sought to develop "assassin's mace" weapons under the explicit principle of "whatever the enemy is afraid of, we develop that."²⁰⁴ In light of fiscally constrained environments against the previous Soviet threat, Andrew Marshall stated, "the United States has to be as good as, or better than, its opponent in the effectiveness with which resources are used now that the Soviets are spending comparable resources."²⁰⁵ Similarly, as China's defense spending has ballooned, the U.S. Air Force needs to make investments that impose a cost on the opponent greater than the cost of the investment itself. To understand where these investments need to be made, however, we must understand what China fears the most regarding regional conflict.

China has five primary concerns: 1) Losing information dominance, 2) Losing the efficacy of its counter-intervention weapons, 3) Adversary weapons capable of rendering its JILC

^{xxv} Current non-kinetic attacks that exist in modern day "gray zone" or "hybrid warfare" activities at the level below the threshold of war potentially suggest that the same or similar effects during a limited conflict would not necessarily trigger a wider conflict. There is a possibility, however, that non-kinetic attacks against an adversary's infrastructure could lead to kinetic retaliation.

ineffective, 4) Magazine depth of its sea-based IADS and 5) Threats to logistics and UNREP to supply the support entities to a JILC during a Taiwan invasion. Using these fears as the guiding principles for future force development, the Air Force should first conduct an internal assessment of the force it believes it needs to be to achieve strategic goals and then focus on a resilient joint fires network, delivering mass in a cost-effective way, adapt to the 21st century way of achieving air superiority during the initial phases of conflict, direct efforts towards targeting the PLA's sensing grid, increase air base defense capabilities, increase operational resiliency, and forge a way to dominate space, cyberspace, and the EMS to support information dominance and the joint fires network.

Offensive Counter Air in the 21st Century

A 2023 study published by Special Competitive Studies Project highlights a concerning trend where significant resources are being allocated to provide decreasing levels of protection for people, particularly in the context of modern weapons systems. The study goes on to state that “modern military equipment is so valuable that it creates a strong disincentive to use it in battle. Besides the massive human and capability impacts, this development would have significant political effects as well. Allied militaries have few forces that can be considered attritable without high political cost, which undermines the conventional deterrent value of our militaries.”²⁰⁶ It is therefore imperative to protect the valuable assets that the Air Force has invested in. Sending them into the high-density, highly-contested threat environment on day one is not a prudent use of resources.

While the Air Force's current stand-in construct will perform well in a low-tier environment,^{xxvi} a move to a stand-off followed by stand-in force is the requirement of the next predicted major conflict. Many of the existing operational and tactical problems can be solved by developing a highly capable long-range attack force. For instance, fuel requirements for a stand-off force that eventually transitions to a stand-in force are significantly more manageable than fuel requirements for a stand-in only force in the Pacific theater. Additionally, magazine depth of stand-in attack weapons will be preserved until the force is ready to transition to stand-in attacks after the level of risk has been appropriately reduced. To achieve this, however, certain platforms need to carry the weight of the initial portions of a conflict.

In a stand-off scenario, NGAD, F-22s, and F-35s play a primary role of OCA-Escort with a mindset of protecting long-range strike platforms operating outside of PLA counter-air capabilities. These aircraft should be appropriately positioned to protect long-range strike assets without ever needing to enter a JEZ. OCA-Escort platforms essentially wait for adversary aircraft to exit their defensive bubble as they try to take down the long-range strike platforms. This allows air-to-air engagements to occur in a more permissible environment that lends the advantage to the U.S. Air Force. Whether operating with or without CCAs, the air superiority fighters protecting long-range strike platforms outside the JEZ also offer some breathing room for tankers and the fuel plan as the tankers do not need to traverse as close to the threat

^{xxvi} Low-tier environments are considered to be countries without high-end military capabilities such as Iran, North Korea, Syria, Libya, etc.

environment as they would if they were supporting stand-in fighters exiting the JEZ who, presumably, would be low on gas. Additionally, the fighters need to be placed in locations that maximizes their combat radius without multiple air refuelings. For instance, the F-35 has many advantages over the J-20 and would be highly effective operating from bases located closer to the objective area. This would place F-35s in the Sea of Japan and ECS while NGAD and F-22s operate in the Philippine Sea.

Regarding long-range fires, the F-15EX needs to become the primary fighter to employ very long-range munitions for both AA and AG missions. Similar to how the PLAAF intends to use the J-16 to cooperate with other fighter platforms, C2ISR platforms, and its kill-web to employ its outsized weapons, the F-15EX provides the range, payload, and sensors to do the same for the U.S. Air Force. Additionally, this platform, with its array of weapons integration, can be deployed to other environments in the event of horizontal escalation or low- to medium-tier conflicts. While not stealth, the F-15EX provides global firepower reach against smaller, malign nation states and still provides key capabilities in the high-end fight. Furthermore, the F-15EX has the ability to carry external munitions and pods that stealth assets simply cannot, or will not, carry. Advanced pods can provide many warfighting enhancing capabilities from communications to sensing to electronic warfare to network redundancy to edge computing. Unfortunately, however, the U.S. Air Force has chosen to focus utilization of the F-15EX on a single mission: long-range air-to-air. While capable of conducting CAS, strike coordination and reconnaissance (SCAR), air interdiction, maritime air interdiction, DCA, suppression of enemy air defenses, and more, this high-tech piece of machinery is capable of so much more than just long-range air-to-air engagements.

Since the Air Force has committed itself to the B-21, the Air Force needs to ensure that the B-21 is capable of more than penetrating air interdiction. The B-21 also needs to be able to conduct long-range strikes using stand-off weapons before transitioning to a stand-in air interdiction platform. Additionally, there is opportunity for the B-21 to take on long-range, long-loiter air superiority roles using third-party targeting with long-range AAMs where air refueling vulnerabilities exist for air superiority fighters. While considered taboo in many Air Force circles, it can be practical when attempting to reduce reliance on large, vulnerable tanker bridges and when we want to bring mass to the fight. When looking at China's plan to utilize the PLAAF, there is no desire at this time for PLAAF fighters to go toe-to-toe with Air Force fighters because the PLAAF understands they are outmatched by the skill, experience, and closer in weapon systems capabilities of Air Force fighters. The PLAAF, therefore, has focused its efforts on creating larger, longer ranged weapons that use third party targeting to shoot further than U.S. weapon systems. This would be a similar concept to using the B-21 as an air superiority weapon system.

The B-52 is, and likely will continue to be, the Air Force's premier platform to carry and employ very long-range networked munitions that are outsized in nature. But to be successful, the B-52 needs to be integrated into a joint fires network that allows the B-52 to hand off the weapon to a third party that handles in flight updates to guide the weapon to its target successfully. Launching from long-distances and armed with very long-range weapons capable of midcourse updates from off-board systems allows the B-52 to launch and leave or loiter in a

safe zone prior to tasking. This, however, requires a strong focus on weapons and the network that supports them.

Resilient Joint Fires Network

Effective long-range fires start with constructing a digital long-range kill chain that leverages information from an intelligence collection system and distributes targets to the long-range shooters. It is therefore imperative that the U.S. military constructs an information-centric Joint Fires Network (JFN) where information from multiple sources is fed. Current efforts towards building a Disposition of Force^{xxvii} system and JFN, however, hit road blocks due to inter- and intra-service compatibility issues. And while the Air Force hosts a Command and Control Summit every January which brings in all services in an effort to streamline C2 across the services, it is slow to develop actual solutions due to these incompatibilities. Ultimately, any JFN developed needs to be tied in with any DOF system developed which in turn needs to also be able to receive information from allied and partner forces.

For the JFN to be effective, there will need to be more investments in other technologies within the global integrated intelligence, surveillance, and reconnaissance realm. In his book, *When AI Rules the World*, Handel Jones points out that in the future, there will be a “need for very high computer processing capacity in the cloud as well as in edge devices, including drones, robots, and other machines, in order to be superior to an opponent” along with establishing “impenetrable firewalls around various cloud-based data ecosystems, which will become the targets of cyber warfare because destroying databases can win battles and wars.”²⁰⁷ Utilizing edge devices, in particular, assists with rapidly communicating targets by allowing processing and computing to happen far beyond the IT enterprise. Whoever can harness an edge computing meshed network of systems may be least vulnerable to operational disruption because it will not rely on sending data back to process and subsequently send it forward. The ability to process information on the forward edge of the battlespace and distribute data at the edge of the battlespace harnesses rapid information sharing and closes kill chains faster.

Leveraging low-Earth orbit satellites like StarShield^{xxviii} will assist with rapid communications on the edge. Conversely, StarShield, while large in quantity, is still a space-based network and is still susceptible to disruption by high-powered ground-based lasers, space-based lasers, and EW jamming. Therefore, creating a redundant system that uses low-, medium-, and high-altitude drones and very low-Earth orbit satellites with communications capabilities operating across a wide breadth of the Pacific that utilizes the same StarShield network, linking

^{xxvii} DOF data allows for tracking/targeting of adversary objects. However, data is reported using various theater data schemas and stored in diverse systems, making it challenging for users to search and compile DOF collections. By unifying data through a shared application framework, customers can utilize the information more efficiently.

^{xxviii} StarShield is a satellite communications service developed by SpaceX, designed for government and military applications. Building on the technology and infrastructure of SpaceX's Starlink low Earth orbit satellites network, StarShield missions is to offer secure and resilient communications capabilities tailored to the needs of national security and defense.

all forces to the same network, creates resiliency within the network. Once constructed, a JFN should be able to provide high-quality, off-board targeting for long-range weapons employment.

In essence, the JFN needs to be built so that long-range platforms can receive targeting information from fires authorities via the network. This enables engagement of targets from a distance without acquiring the target with organic sensors. Following this, the weapon's control should be transferred to the team overseeing fires authorities for mid-course and terminal guidance. This team could be airborne on large AEW&C platforms or based terrestrially within the theater. With this type of long-range engagement, however, identifying the proper firing authority^{xxix} can be difficult.

The concept of long-range fires needs to fall under the mindset of long-range SCAR rather than “deliberate targeting.” With SCAR, an aircraft operates within a defined geographic area wherein authorized targets on a Joint Priority Targeting List may be found. The aircraft is tasked to conduct strike coordination and reconnaissance efforts under the find, fix, track, target, engage and assess construct. The aircraft in control over the defined geographic area has the authority to attack, or call in attacks from other aircraft, based on the standing rules of engagement and reasonable certainty of an object matching a target on the authorized target list. This allows faster strikes in a rapidly developing environment where time is of the essence, targets are dynamic, and no forward air controllers (FAC) or tactical operations center has visual observation in the area. This is how long-range strike operations need to be conducted. However, rather than everything being organically done by the aircraft in the target area, the team conducting find, fix, track and the shooter conducting target, engage, assess are geographically separated not only from the environment where the strikes happen, but also from one another. The team conducting find, fix, track is provided information from a network of sensors and systems to make targeting decisions. This team then holds the authority, similar to a FAC or FAC(A), to issue targets to the shooter. Once the shooter receives the targeting information, the shooter then finalizes the F2T2EA by targeting and engaging, forfeiting assessment of the attack to other sensors due to the nature of long-range attacks. In a rapidly changing, highly dynamic environment where the enemy disposition of forces is in continuous flux, treating each attack like a deliberate target^{xxx} slows down the process. Therefore, long-range SCAR is a more appropriate mindset when developing the long-range kill chain.

^{xxix} Firing authority refers to the level of authorization or command required to initiate the use of weapons or military force. It determines who has the legal and operational power to order the firing of weapons, such as missiles, artillery, or other forms of combat engagement.

^{xxx} Deliberate targeting of valid military targets typically undergoes a series of reviews in order to ensure that the target is validated before striking. This is the type of targeting that is often seen during current operations in the Central Command. After thoroughly looking at a target for a period of time, the decision is made to strike the target. These targets are typically stationary and there is little to no dynamism.

Delivering Mass in a Cost-Effective Way

Mass is one of the principles of joint operations. The U.S. Army Air Corps achieved mass in World War II through mass production of bombers and fighters as it was the only way to punch through enemy defenses and achieve some level of success with general purpose munitions. In Desert Storm, mass was achieved through a large Air Force that was built up due to the Cold War, though the number of aircraft was still substantially less than that of World War II. The development of precision guided munitions allowed for a smaller force than what was needed in previous conflicts like World War II, Korea, or Vietnam. As counter-air technology advanced through the 1990s and 2000s, the Air Force held on to its early 1990s way of achieving mass. While effective in the 2003 invasion of Iraq, who still operated 1970s, 80s, and 90s counter-air defense systems, the early 1990s way to achieve mass will not work in a modern highly contested environment.

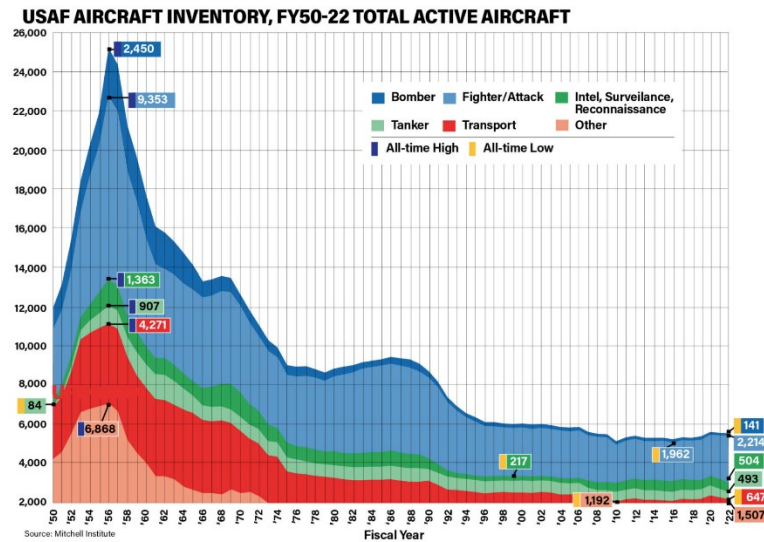


Figure 10. U.S. Air Force aircraft inventory over time. Source: 2023 USAF & USSF Almanac: Equipment (<https://www.airandspaceforces.com/article/2023-usaf-ussf-almanac-equipment/>)

The complexity of the operational environment in the Pacific requires the Air Force to build ad hoc strike packages from multiple disparate locations to try and penetrate enemy air defenses on both land and sea in order to achieve some semblance of the 1991 and 2003 stand-in air interdiction campaigns. This type of operation assumes that communications and the flow of information is in good order and that logistics and base functions are operating well enough to launch the assets necessary. More realistically, the combined effects of fog, friction, reduced ABO options, long transit, logistics under fire, and other barriers requires a rethinking how the Air Force delivers mass. While it's important to maintain a formidable fleet of aircraft as a globe spanning Air Force, delivering mass through expensive aircraft is no longer an option. A focus on affordable, medium- to long-range precision strike weapons that utilize an integrated JFN, cheap CCAs that do not create an increased demand on an already stretched tanker fleet, and cheap one-way attack drones to complicate the adversary's ability to defend itself can help the Air Force achieve the mass it needs.

While the Air Force is highly capable in low-tier environments, current weapons do not support the high-end environment without incurring appreciable losses. Some experts, as identified by Kevin Rudd, suggest that "based on the current balance of forces and published reports of the most recent wargaming by both sides, an American loss, at present, represents the most probable outcome of a full-scale U.S. conventional military intervention in support of

Taiwan in the event of a Chinese armed attack on the island.”²⁰⁸ This should not come as a surprise as China has used the U.S. as its pacing threat since 1991 and focused on efforts to thwart the U.S. military’s capabilities.

Operating as a stand-in force allows an adversary to sit inside its defenses and wait for the stand-in forces to arrive. This negates the need for red forces to exit their defenses in an attempt to intercept and disrupt their blue adversary. This is what allows the PLAAF to operate primarily in a defensive role without the need to extend beyond their coastal or sea-based IADS. If, however, air assets are employing long range munitions from well outside air-to-air or surface-to-air ranges, then it forces the hand of the adversaries to extend their reach in an effort to stop the bombardment. Thus, a focus on building a formidable magazine depth of long-range, networked weapons that are capable of destroying or degrading a slew of targets is necessary. Moreover, these weapons need to be more difficult to target than existing ALCMs.

Although many point to hypersonics as a desired characteristic of long-range fires, the reality is that air launch hypersonics impose a lot of issues and cost. Hypersonics, while difficult to defend against, are expensive. Once the Mach 5 threshold is crossed, cost rises substantially. According to research by the Congressional Budget Office in 2023, “hypersonic missiles could cost one-third more to procure and field than ballistic missiles of the same range with maneuverable warheads,” attributing the higher costs to the “complexity of building systems that can withstand the heat of hypersonic flight.”²⁰⁹ Creating mass through air launched supersonic cruise missiles, on the other hand, allows for cheaper, high-speed munitions that can be delivered en masse while still providing a difficult weapon to target when compared to subsonic cruise missiles. By taking the best traits from subsonic cruise missiles and ballistic missiles, creating a supersonic cruise missile leverages existing mature technology and increases survivability and speed at which targets can be engaged. Allowing more variability within the design and delivered from medium- to high-altitude, supersonic cruise missiles are also capable of achieving ranges well outside threat criteria. Beyond speed and detectability, however, is the susceptibility to other interferences during the mid-course phase of a long-range weapon.

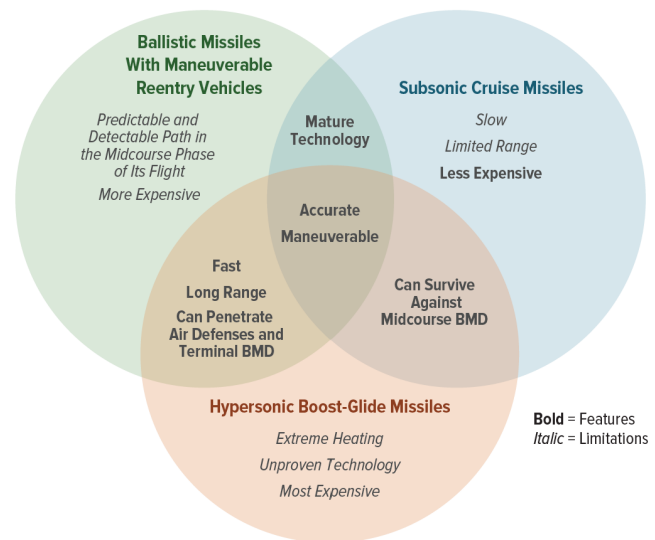


Figure 11. CBO Comparison of the Features and Limitations of Hypersonic Missiles and Alternatives

Developing weapons that are precise currently requires the use of the Global Positioning System (GPS) constellation. The frequencies used by this constellation when providing PNT to weapons will be contested.²¹⁰ Therefore, in order to reduce the reliance on space-based navigation systems, the Air Force needs to start developing weapons that utilize a “quantum

compass” to enable greater precision in positioning in the event of degraded space-based capabilities. But this can also assist in the terminal phase of flight as well.

Often times when a weapon enters its terminal phase of flight, it utilizes a multi-mode seeker in order to characterize the target’s environment and attempt to identify the appropriate target to hit. The likelihood that the target’s environment is going to be contested in the EMS and densely packed with other targets is high, subsequently degrading the ability of the multi-mode seeker to find the correct target. If, however, a JFN were to have the ability to maintain track on a target while providing in-flight target updates through mid-course and into terminal phase, the weapon could tighten its search parameters to ensure the correct target is found once the multi-mode seeker turns on. Additionally, the operators guiding the weapon could potentially have the option to override the multi-mode seeker if the operator has high confidence of the target’s location, in which the weapon now guides to a set of coordinates utilizing the quantum compass.

Another way of achieving mass is through CCAs. The approach the Air Force is taking is through building multiple tranches of CCAs to accompany exquisite fighters and bombers in a stand-in campaign. Initially designed with a focus on affordability and disposability, meeting future CCAs’ tactical requirements and operational needs, like range, velocity, and aerial refueling, renders this goal unattainable. As developmental CCAs become more sophisticated with diverse sensors, functionalities, and stealth capabilities, the expenses associated with each CCA become too high to feasibly achieve mass production. The development of CCAs, then, needs to focus on aircraft with specialized capabilities at a disposable cost. These CCAs, however, will likely only be able to conduct one or two missions such as sensing, communications, weapons truck, or jamming.

While there may be a desire to get more than one flight out of an attritable CCA, a more cost-effective solution to sending CCAs into the CDO-L environment would be the use of one-way attack drone swarms. These swarms would need to operate mostly autonomously while relaying battlefield situational awareness and be even cheaper than the low-cost CCAs being teamed with manned aircraft.²¹¹ Additionally, finding a path to GPS independence by utilizing quantum compasses or alternate PNT sources for one-way drone swarms would be beneficial in a contested or denied PNT region. Utilizing the swarms as a stand-in ISR type role, they would enter a JEZ, survey the battlefield, pass data back to an integrated JFN, and execute a one-way attack profile forcing the adversary to engage the drone swarms. By using "unique processing vantage points from separate locations and varying speeds" drone swarms can collectively "capture a comprehensive vision and offer high-fidelity information."²¹²

Meanwhile, long-range strike platforms using the integrated JFN outside the JEZ begin launching a volley of attacks on the adversary systems. The long-range strike platforms could be protected and escorted, outside the engagement zones, by air superiority assets that are teamed with air superiority CCAs, engaging adversary aircraft that seek to leave the JEZ to intercept long-range strike platforms. Finally, one-way drones supported with auto-target recognition that focus on attacking with small but effective weapons can pay dividends. These one-way attack swarms complicate the adversary’s ability to defend itself and potentially force the adversary to utilize its magazine of exquisite defensive weapons. To be successful, however, requires the

ability to scale the drones at an affordable price point. Creating tens of thousands will not be enough in the next major conflict. Hundreds of thousands will likely be required to continue sustained operations.

Target the “Sensing Grid”

One of the strengths of the PLAAF’s counter-air mission is the ability to leverage the plethora of integrated sensors feeding information into the overall air picture for DCA, OCA, and SAMs. Advancements in third-party tracking, targeting, and guidance that support long-range weapons employment suggests that China intends to rely on its informatized and intelligentized systems to feed weapons quality tracks to its air superiority players. Therefore, the U.S. must target the sensing grid to deny these capabilities. But it’s important to consider that the sensing grid is more than just a KJ-500. Therefore, Air Force weapons need to target a variety of sensing grid targets in the land, sea, and air domains.

From high-altitude balloons to maritime vessels fixed with ISR capabilities, defeating an adversary’s ability to find, fix, track, target, and engage is one of the most vital efforts the U.S. military can make in 21st century warfare. These efforts will induce fog and friction, forcing the adversary to fall back on 20th century tactics. The importance of this effort cannot be overstated. The PLA’s success hinges on network centric warfare. If the PLA is unable to detect, track, and target U.S. forces shifting around the AOR operating under the ACE concept, the PLA will be forced to conduct strikes on stationary structures and targets that may not achieve the desired effect. Moreover, if the adversary is unable to leverage third-party targeting data against a strike package, the adversary will be unable to posture to defend against it or be forced to accept higher levels of risk to engage it.

Air Base Defense

The runways and fixed operational support facilities that the U.S. Air Force depends on are under threat from long-range cruise missiles, ballistic missiles, one-way attack drones, and hypersonic munitions. This cannot be emphasized enough. During a conflict, it is likely that China will execute a series of ballistic missile, cruise missile, and drone strikes on U.S. and allied bases in the first and second island chain. The quantity of PLA long-range munitions far exceeds any defensive magazines that currently exists on bases that support U.S. forces around the Pacific. The PLA’s magazine depth of cruise missiles, SRBM, MRBM, IRBM, hypersonics, and potentially even one-way attack drones suggest attacks will be large in quantity during the first round of attacks to exhaust the U.S.’s defensive capabilities and then continue in a battle rhythm that frustrates the U.S.’s ability to conduct operations.

The bases that are likely to see combined PLAAF and PLARF missile, hypersonic, and cruise missile attacks are those situated in Japan due to its proximity to China. While other bases in the Pacific are within range of PLAAF and PLARF attacks, PLAAF bombers are more vulnerable to interception by U.S. forces during long-range missions to attack bases situated in the second island chain. To reduce risk, the PLAAF could likely focus efforts strictly within the

first island chain leaving the PLARF as the primary force to conduct attacks on locations within the second island chain and beyond with IRBMs and hypersonic glide vehicles in an effort to negate U.S. Air Force power projection. A combined effort by the U.S. and Japan to develop more ballistic missile defenses could benefit both Japan and other bases in the Pacific. Therefore, the U.S. needs to work with Japan on developing robust kinetic and non-kinetic ballistic missile defenses around Japan to protect Japanese citizens, Japanese Self Defense Forces, and U.S. military forces, with an eye towards using those systems at other locations in the Pacific, including Australia.

Moreover, the magazine depth of these defensive capabilities needs to meet or exceed the magazine depth of potential incoming missiles. This magazine depth should consider DCA assets capable of targeting cruise missiles and drones. Moreover, defense systems aimed at defending against drone attacks or sub-sonic cruise missile attacks need to be cost effective as not to spend more than the adversary's expended round. Finally, effective integration of U.S. and Japanese Self Defense Forces C4ISR systems is essential for both forces to operate in a joint environment and counter any attacks on the Japanese homeland. Without these integrated systems, joint operations will face significant delays and challenges.

Having one exquisite system to counter long-range PLARF attacks on a base, however, likely will not be enough. Having a web of systems that are capable of finding, targeting, and engaging through an integrated fire control system is vital. Furthermore, engagement zones in the form of concentric rings should provide fires deconfliction for long-, medium-, and short-range defensive systems. By increasing the defensive posture, the Air Force can secure more sustained operations and reduce losses on the ground. Additionally, there needs to be a strong effort in targeting mid-course guidance of long-range PLARF munitions. The PLA's long-range munitions likely rely heavily on mid-course guidance to navigate to its intended location. Disrupting this guidance and throwing weapons severely off-course decreases probability of hit for the munition and increases survivability for U.S. forces, allowing defensive munitions to be saved.

Finally, the F-16 is the most numerous fighter in the U.S. inventory and offers the ability to provide much needed base defense for many of the bases in the region that need protecting. Being connected to a targeting network that the base defense systems operate on can enhance the F-16's ability to conduct base defense and engage the plethora of PLA long-range weapons being employed against U.S. bases in the region. Moreover, base defense CCAs built to providing sensing data and edge computing could rapidly relay threat information to F-16s conducting base defense and increase the ability for the F-16s to rapidly respond to incoming threats.

Finally, littering integrated ballistic missile defenses and IADS across Japan's southern islands can create a screen for long-range weapon systems like the B-21, B-52, and F-15EX to operate behind. The ability for the PLAAF to maneuver forces across the densely defended islands to intercept long-range shooters would be risky, portending to high losses. This would allow a more permissive geographical area for long-range shooters to operate from without concern for offensive counter air.

Although some suggest “runway independence” as a future operating concept for the Air Force, it is no easy task. The U.S. Air Force’s force structure is built around runway dependence. To achieve runway independence would require a completely different force structure that operates air vehicles that don’t rely on large amounts of fuel or long runways and have a moderately sized maintenance footprint and can travel long distances with heavy payloads. Until this feat can be achieved, however, the U.S. Air Force will always be runway dependent. To break free from runway dependence would be to create a PLARF equivalent in the U.S. military. Creating mobile, ground base, long-range fires that can target fixed, mobile, and maritime targets and are interlinked with a JFN and dispersed throughout the Indo-Pacific creates a complex targeting problem that the PLA would struggle with. Until that reality exists, however, the U.S. Air Force will continue to rely on air bases and the need to protect them as the U.S. Air Force remains the primary long-range fires service.

Operational Resiliency

Base resiliency doesn’t lie only with base defense as described above. The Air Force needs to take a serious look into hardening, burying, concealing, camouflaging, and dispersing essential warfighting functions at bases in the Pacific. Above ground fuel depots and communication nodes are easy targets for the PLARF and will most certainly make it to the top of the PLA’s targeting list. While base defense systems will help with survivability, making the facilities survivable themselves will complicate PLARF targeting as they scramble to find ways to take Air Force power projection out of the fight. This, however, generates a large military construction requirement. Military construction is lacking in the Indo-Pacific as over the last 30 years much of effort has been focused on the Middle East and building up bases to sustain operations. A re-focus of MILCON efforts is required in the Pacific to ensure operations are sustainable in a conflict. While base operations support functions need to undergo hardening, burying, concealing, camouflaging, and dispersion, Air Force C2 needs to become more dispersed.

The Air Force must look at ways to truly distribute command and control to create a synchronized network that is difficult to target. In an article from Modern War Institute at West Point, the National Training Center identified distributed communications facilities created targeting difficulties for opposition forces. Specifically, they identified the key to survival for U.S. forces operating in a region where the adversary has an advantage, “is to mask indicators that betray unique or critical capabilities.”²¹³ The idea is to mask signatures and “look unimportant” because “large, static command posts accompanied by large, obvious satellite dishes are quickly identified and rapidly destroyed.”²¹⁴ While this observation was primarily geared towards how fielded army units can increase the survivability of command and control, the same lessons learned apply to the Air Force.

Much of the Air Force’s structures are at risk of being targeted by cruise, ballistic, and hypersonic missiles. The key to building a resilient command and control architecture that can distribute information and orders is to disperse and conceal the command-and-control center during wartime operations. These dispersed command and control nodes would then be able to

provide data to airborne command and control assets or directly to offensive airborne assets through a resilient terrestrial, airborne, and space-based communications network. This is akin to the ACE concept that the Air Force is attempting to implement. As the National Training Center found out, "the most effective command posts in this environment are small and mobile and appear insignificant."²¹⁵ In a fight with minimal ABO and extensive ranges, a dispersed network of C2 nodes that are integrated and communicating across an archipelago is the surest way to maintain operational control of forces in theater.

Space, Cyber, and the EMS are Warfighting Domains

If the U.S. military successfully built an effective JFN and *if* the U.S. Air Force successfully built long-range weapons supported by the JFN and long-range fire authorities, the network would more than likely be vulnerable to attacks. Professional PLA publications state that "information support comprises two aspects, i.e., achieving a thorough grasp of the situation, knowing everything in the battlespace inside and out, and attacking at the right time; it is also closing the adversary's eyes and plugging his ears, turning him into a blind and deaf man sitting still to await his death."²¹⁶ As discussed in Section II, the PLA's objective in a wartime environment is to integrate "constant, controllable, and high-impact" network and electronic warfare to inflict "irreversible damage and powerful destruction" to simultaneously "decapitate and blind" forces and sustain an advantage with the primary intent to paralyze an adversary's joint operational capabilities.²¹⁷ Much of this will revolve around the "use and counter-utilization, destruction, and counter-sabotage of space systems," cyber, and the EMS.²¹⁸

Dr. Everett C. Dolman, in 2022, wrote that space is a warfighting domain. He describes how services need to be able to achieve superiority in their domain prior to focusing on subsequent domains to support. The Air Force needs to be able to achieve air superiority before it can focus on maritime or land-based air interdiction. The Navy needs to be able to achieve sea superiority before it can conduct land-based targeting/suppression operations. Therefore, the Space Force needs to be able to achieve space superiority before it can conduct the multitude of secondary missions that the other services rely on in the terrestrial domains, which includes utilization of a JFN. If space assets are unable to support air and naval long-range strikes because these assets have been de-orbited, kinetically defeated, or non-kinetically defeated, then the terrestrial forces will be unable to achieve their primary or secondary objectives. The reality is, just as the PLA hinges its success on the sensing grid, which also incorporates space assets, the U.S. military hinges success on the sensing and communication grid, much of which is space based. Make no mistake, China is rapidly advancing terrestrial and space-based capabilities aimed at dismantling U.S. space supremacy. It is the PLA's goal to blind and deafen the U.S. military in the event it attempts to intervene in a conflict within China's periphery. Technologies that can hamper the PLA's ability to disrupt Air Force operations need to receive greater attention.

As the advent of quantum decryption and hacking against mathematical encryption techniques is upon us, the Air Force needs to focus efforts on quantum encryption. While challenges involving quantum encryption exist regarding transmission distances, noise in the

communication channel, and the need for specialized hardware, the use of quantum key distribution, which involves secure exchange of cryptographic keys between two parties using the principles of quantum mechanics through fiber-optics or quantum satellites, provides enhanced security of communication networks.²¹⁹ Other examples of disruptive technologies with potential military applications include blockchain technology.

Blockchain is a decentralized system that maintains and exchanges a digital ledger of information using cryptographic methods to guarantee both confidentiality and integrity. Consequently, blockchain networks not only decrease the likelihood of compromise but also substantially raise the costs for any potential adversary attempting to breach them.²²⁰ The significance of this technology lies in its ability to instill trust in digital data, as a large decentralized network, like a JFN, can verify the accuracy of information and maintain a permanent, secure digital record. The Air Force needs to push the envelope in identifying applications of blockchain technology, particularly in areas such as cyber defense, secure communication, resilient networking, logistics support, and the integration of defense-related Internet of Things.²²¹ For example, when conducting a long-range strike, the shooter can pass the weapon to the individuals conducting the find, fix, and tracking of the target who will then conduct in-flight target updates for the weapon. As the weapon likely has a long time of flight, susceptibility to disruption from adversary space, cyber, and EMS forces is a possibility. If the weapon is transferred utilizing blockchain technology concepts in a peer-to-peer system, the likelihood of disruption from adversary counter-measures may potentially be reduced.

Lines of Effort Summary

To be more competitive, it is important for the United States to adapt its military strategies and technologies to maintain its influence and counter China's rising capabilities. Through understanding the PLA's counter-intervention strategy in the region, and growing power projection capabilities, the Air Force should focus on the above efforts in order to contend with a dominant regional threat in the Pacific.

The evolving operational landscape in the Indo-Pacific region necessitates a fundamental reevaluation of traditional concepts of air superiority. With the emergence of sophisticated long-range missile systems in modern air engagements and interdiction campaigns, the U.S. Air Force faces significant challenges in maintaining dominance over contested airspace. The traditional approach to achieving air superiority through stand-in air interdiction campaigns may prove ineffective against adversaries with robust anti-access and area denial capabilities. Instead, the focus must shift towards developing a force capable of executing long-range strikes while leveraging high-speed information processing and transfer to exploit adversary vulnerabilities with an eventual transition to stand-in interdiction. Additionally, the utilization of cheap, asymmetric one-way attack drones that number in the thousands have found a new purpose in air dominance by degrading the adversary's ability to completely defend itself and exact high costs. This demands a strategic shift towards platforms and weapons systems optimized for extended range and resilience supported by a robust integrated joint fires network and accompanied by a cheap way to deliver mass through attritable, asymmetric platforms and weapons. As the nature

of air combat evolves in the 21st century, adaptability and innovation will be paramount for ensuring U.S. air dominance in the face of increasingly sophisticated threats.

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