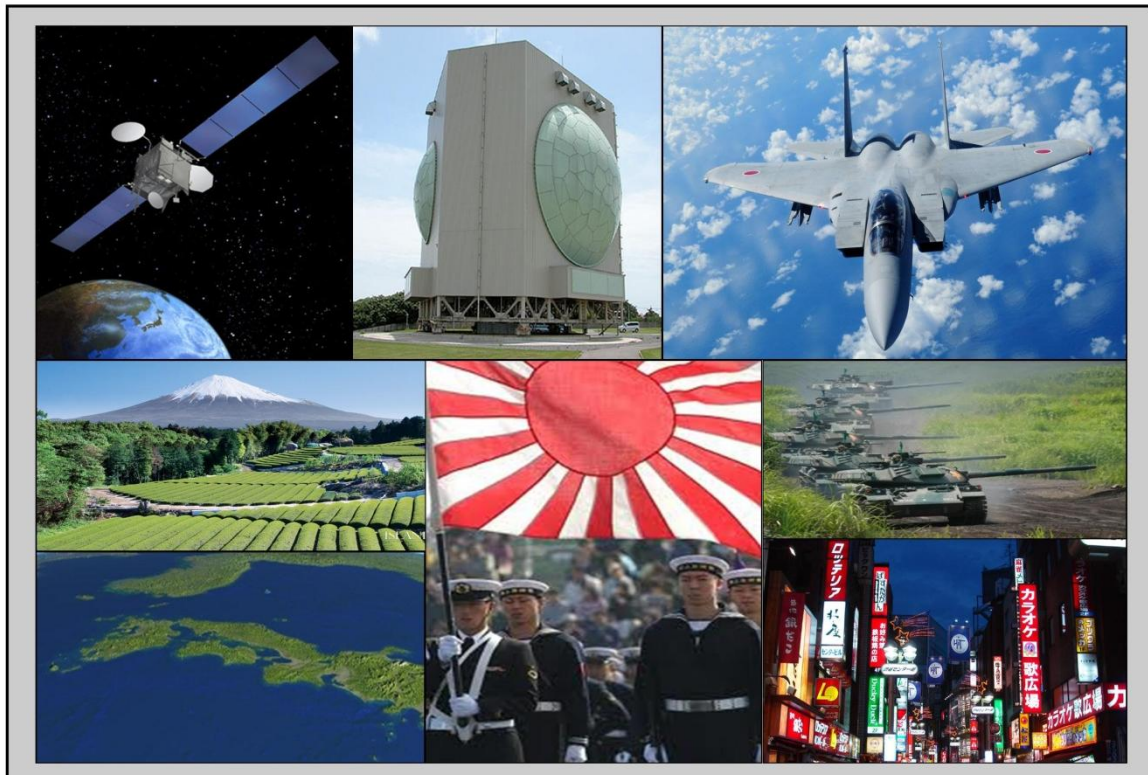


ASSESSING JAPAN'S NATIONAL DEFENSE:

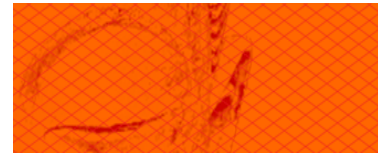
TOWARD A NEW SECURITY PARADIGM IN THE ASIA-PACIFIC



PROJECT
2049
INSTITUTE

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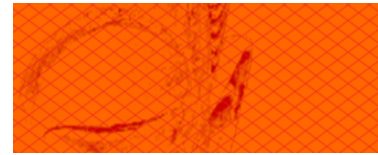
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About the Project 2049 Institute

The Project 2049 Institute seeks to guide decision makers toward a more secure Asia by the century's mid-point. The organization fills a gap in the public policy realm through forward-looking, region-specific research on alternative security and policy solutions. Its interdisciplinary approach draws on rigorous analysis of socioeconomic, governance, military, environmental, technological and political trends, and input from key players in the region, with an eye toward educating the public and informing policy debate.

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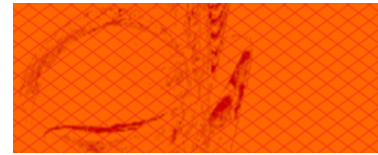
Introduction

Profound strategic changes are unfolding that have the potential to transform the fabric of the international system. It is unknown whether or not the positive forces of globalization and democracy or the darker forces of mercantilism and authoritarianism will ultimately prevail. What is known is that the struggle between these forces will take foremost place in the Asia-Pacific region, the new epicenter of global affairs. As one of the region's most prosperous and powerful – and pivotally located – countries, Japan will play a major role in steering the trajectory of future developments in the Asia-Pacific.

The impact that Japan will have on the strategic architecture that frames and defines the region in the years ahead cannot be overstated. Decisions made in Tokyo will ripple into policymaking calculations across the region, and indeed the world. How Japan conceptualizes its place in the nascent U.S. rebalance to Asia more broadly, and how it perceives its role in the Air-Sea Battle concept of operations more specifically, will influence and shape much. More important may prove to be the extent to which Japanese leaders are able to implement changes to their national defense guidelines (currently under review) and find freedom from the self-imposed political constraints currently in place under Article Nine of Japan's Constitution.

Constitutional constraints notwithstanding, trends in the regional security environment are likely to drive Tokyo's defense planning, compelling decisions regarding roles and missions that will in turn alter the course of capacity development. Foremost among its security challenges, the People's Republic of China's (PRC) military modernization program is attended by uncertainties and risks for neighboring Japan. These uncertainties and risks have increased at a remarkable pace over the past ten years as China's military build-up continues to surpass expectations and Beijing's assertiveness over disputed territories grows. Likewise, North Korean behavior remains unstable and provocative, while its nuclear weapons and ballistic missiles programs mature. The threats posed by both nations, as measured in capabilities and intentions, have catalyzed reconsiderations of Japan's defense posture. The threats of Russian incursion, international terrorism, pandemic, and natural disaster remain relevant for Japan, but now represent more distant second order problems for the nation's security in light of the challenges posed by China and North Korea.

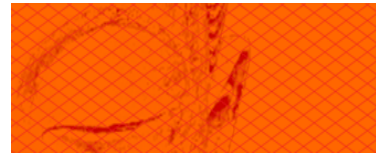
The most important aspect of Japan's national security strategy is its defensive alliance with the United States. Since the end of the Second World War, the U.S. security commitment to Japan has served as an anchor stabilizing the region and enabling growth. The stunning political and economic transformation of post-war Japan created



the world's second most prosperous country after the United States and – importantly – a model for other aspiring regional powers to follow. Arguably, democracy and prosperity would not have flourished in South Korea and Taiwan in the absence of the U.S.-Japan alliance; Australia, Singapore and Hong Kong would not enjoy their current standards of living; and China would not be an emerging superpower. In ways large and small the U.S.-Japan alliance has served as a pillar supporting the dramatic rise of the Asia-Pacific on the world stage.

Yet there have been times when policymakers in Washington and Tokyo disregarded the central importance of their alliance. The fall of the Soviet Union and the end of the Cold War led to a gradual drift in the U.S.-Japan relationship. This drift saw something of a course correction following by the 9-11 terrorist attacks, as Japan strongly supported the ensuing U.S. invasions of Afghanistan and Iraq, and anti-piracy operations off the coast of East Africa. However, the alliance was also beset by basing relocation issues, the global financial recession, and a season of political contrarianism in Tokyo. The successful joint humanitarian assistance and disaster relief mission following the Great East Japan Earthquake in March 2011 served to “buy time” for the alliance, but it wasn't until the U.S. began to redefine and refocus its role in the region that new life was injected into the U.S.-Japan relationship. Further improving prospects for a stronger U.S.-Japan alliance, the Abe administration has begun pursuing deeper defense ties with Washington while expanding Tokyo's domestic contributions to regional security.

This monograph will explore Japan's role in the evolving U.S.-led defense architecture that is likely to define the Asia-Pacific in the years ahead. To begin, we will describe the major trends and capabilities that will factor into the regional security environment and challenge Japanese defense planners. Next, we will review the Japanese Self Defense Force's (JSDF) evolving capabilities and posture. Following this we will assess ways in which Japan could participate in – and enable – both the U.S. rebalance to Asia and the U.S. military's Air-Sea Battle concept of operations. We will then conclude with recommendations for Tokyo, recommendations for Washington, and recommendations for the U.S.-Japan alliance.

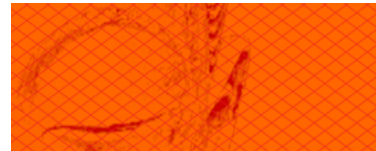


Trends and Growing Adversary Capabilities

The manner in which Japan's regional security environment evolves over the coming years will be contingent upon broader trends that may already be discernible. One such trend is the rapid proliferation of technologies that can undermine the ability of modern militaries – such as those fielded by Japan and its ally the United States – to maintain regional dominance. Driven by advances in integrated circuit technologies that allow for exponentially more powerful chip performance, modern conventional weapons systems are capable of strategic effects that until recently could only be achieved through the use of nuclear weapons. This has had a flattening effect on power asymmetries, allowing relatively weak states to threaten more powerful adversaries with weapons that cost a mere fraction of the cutting-edge platforms they seek to counter. At the low end of the spectrum, Hezbollah in its 2006 war with Israel showed the world how a small force could defeat an otherwise overwhelming opponent through the application of tactics that optimize the employment of guided rockets, artillery, mortars and missiles (G-RAMM). At the high end of the spectrum, China is developing advanced ballistic and cruise missiles, anti-satellite weapons, submarines, cyber warfare capabilities, and unmanned aerial systems that have the potential to rapidly erode America's preponderance in the Western Pacific.

Broadly speaking, the global commons of international water, air, space and cyberspace that were once the sole purview of superpowers are increasingly congested and contested by a multitude of actors. This situation creates new challenges for the defense of Japan while also promising significant advantages that may reduce some past vulnerabilities. For example, as an island nation that is highly dependent upon seaborne trade and energy supplies, Japan is justifiably concerned about China's growing maritime threats to its shipping fleet. On the other hand, given the development of technology-enabled shore defense systems, Japan may be in a position to radically undercut concerns about the potential for a successful amphibious invasion against its islands. However, despite some positive aspects to these trends, Japanese defense planners describe their overall security situation as one in decline. According to then-Japanese Defense Minister, Satoshi Morimoto, "the security environment surrounding [Japan] is becoming increasingly harsh."¹

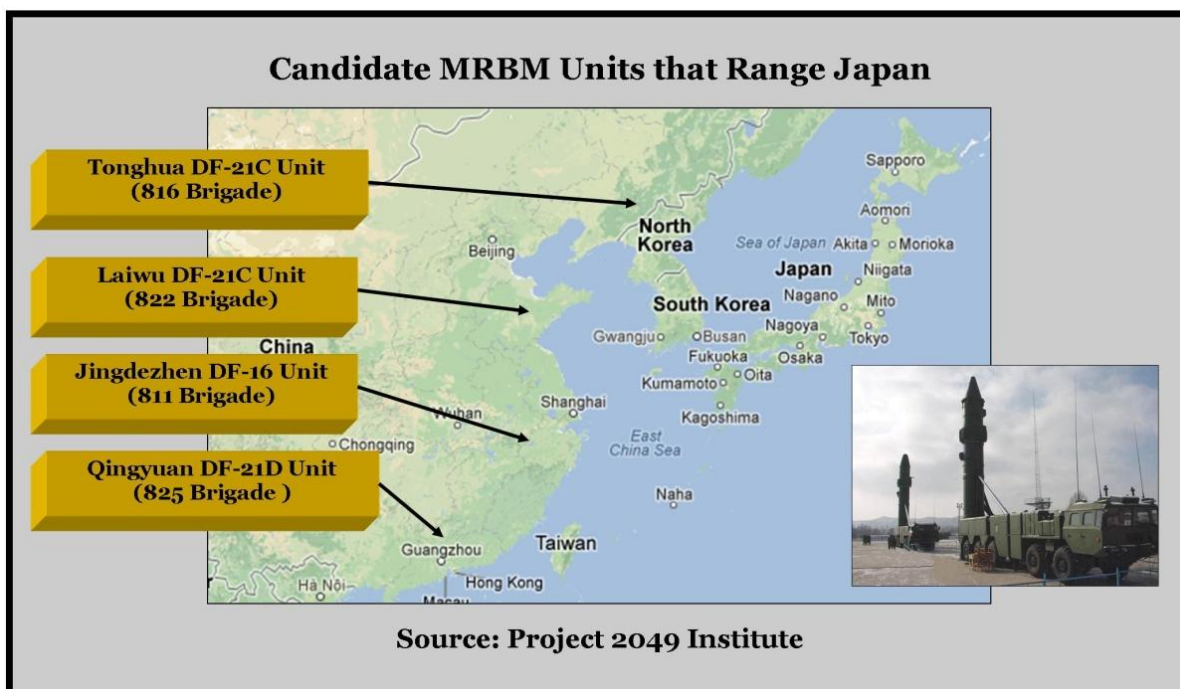
What follows is an overview of weapons technology proliferation trends that are negatively impacting upon Japan's security. These trends are worrisome because they increasingly allow countries such as China and – to a much lesser degree – North Korea to expose critical vulnerabilities in Japan's defense posture, while at the same time eroding the dominance of Japan's ally the United States. Because the entire territory of

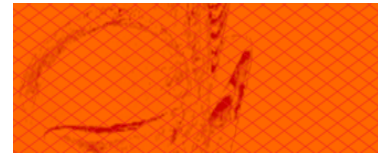


Japan is within the “threat envelope” of many of the adversary weapons being fielded, and because there is no reliable defense against these weapons, there is a concern that they could serve to undermine or at the very least complicate the U.S.-Japan alliance. Also of concern is the destabilizing nature of the weapons themselves. Many of the weapons being deployed are primed for offensive first strikes. They therefore encourage rapid horizontal and vertical escalatory responses in times of conflict. As such, their deployment represents a nettlesome problem for the long-term maintenance of regional stability.

Ballistic missiles.² The Chinese People’s Liberation Army’s (PLA) Second Artillery Force fields the world’s largest and most capable inventory of conventionally armed ballistic missiles. In recent years, the Second Artillery has deployed an increasing number of conventional ballistic missiles that have sufficient ranges to target Japanese territory. These missiles are all solid-fueled and road mobile, making it difficult for a defender to predict when and where they will be launched. Further advancing their lethality, significant investments have been made into improving warhead accuracies and payloads while also developing methods to defeat ballistic missile defenses such as Patriot-3 (PAC-3) and Standard Missile-3 (SM-3) missile interception systems fielded by the JSDF.

Initially, the only conventional ballistic missile in the PLA arsenal that could reach Japan was the medium-range *Dongfeng-21C* (DF-21C).³ However, the Second Artillery Force has also begun deploying a new medium-range ballistic missile (MRBM), the DF-16, which is reportedly aimed at “counter-intervention” missions.⁴ According to this assessment, the DF-16 would be primarily intended for targeting U.S. air and naval bases in Japan during a confrontation over Taiwan. Of even greater concern, the Second Artillery began deploying an anti-ship ballistic missile (ASBM), the DF-21D, in 2010.⁵



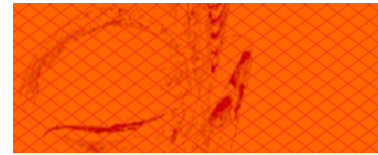


The purpose of the DF-21D is to threaten U.S. carrier strike groups operating in the Western Pacific. In theory, it could also pose a threat to Japan's helicopter carriers.

North Korea has developed two MRBMs with ranges that suggest that their primary target is Japan.⁶ The *Nodong* is a road mobile MRBM that has been deployed in active service since the mid-1990s. As of 2006, it was estimated that North Korea had produced approximately 200 operational *Nodong* missiles.⁷ North Korea has also been developing the *Taepodong-1* MRBM for Japan-related missions, although recent reports suggest that this missile may be intended as a transitory program for the development of the longer-ranged *Taepodong-2* intercontinental ballistic missile (ICBM).⁸ While both the *Nodong* and the *Taepodong-1* could strike targets across Japan, their lack of advanced guidance make them weapons of terror rather than precision-strike weapons that could reliably target military facilities. For this reason, it appears likely that North Korea would use them as delivery platforms for nuclear, biological or chemical weapons, rather than conventional warheads.⁹ Unlike comparable Chinese systems, the *Nodong* and *Taepodong* MRBMs are both liquid-fueled.¹⁰ In further contrast with China, it does not appear that North Korea has developed methods to defeat ballistic missile defense systems.

Cruise missiles.¹¹ After decades of sustained investments in advanced cruise missile procurement, the PLA currently fields some of the world's most cutting-edge cruise missile systems. China has produced large numbers of advanced ground-launched cruise missiles that are capable of standoff precision strikes. Having previously obtained a large number of cruise missiles from Russia, the PLA in recent years has been acquiring considerable numbers of domestically built systems. These include the Second Artillery Force's indigenous, ground-launched *Changjian-10* "Long Sword" (CJ-10) land attack cruise missiles (LACM); the PLA Navy's ground- and ship-launched *Yingji-62* "Eagle Strike" (YJ-62) anti-ship cruise missile (ASCM); and the PLA Air Force's *Yingji-63* (YJ-63) LACM.¹² The PLA Navy also deploys the Russian-built SS-N-22 "Sunburn" supersonic ASCM on its Sovremenny-class destroyers, and the Russian SS-N-27B "Sizzler" supersonic ASCM on eight of its 12 Kilo-class diesel-attack submarines. In sum, the PLA Navy has or is in the process of acquiring over ten ASCM variants, including the next generation CH-SS-NX-13 ASCM indigenous design.¹³

With an estimated 200-500 missiles deployed on 40-55 road-mobile, tri-canister launchers in the Second Artillery Force, China's strategic CJ-10 LACM may be of particular concern to Japanese defense planners. It is reported to have a stealthy design and a range of over 1,500km, giving the PLA the ability to place the entirety of Japan within the threat envelope of its cruise missiles.¹⁴ Likewise, the PLA Navy operates 100 JH-7 land based fighter-bombers and an unknown number of H-6 maritime bombers



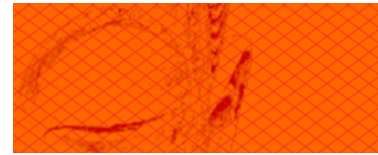
that are armed with ASCMs.¹⁵ According to the Department of Defense, these could have a strike radius of over 1,500km.¹⁶ For its part, the PLA Air Force operates an unknown number of H-6 bombers equipped with LACMs that have maximum strike ranges out to Guam.¹⁷

At both the tactical and strategic levels, China's advanced cruise missiles have serious implications for regional security in the Western Pacific and beyond. Like China's highly-successful ballistic missile systems, cruise missiles are technologically challenging (and expensive) to defend against. However, unlike ballistic missiles, cruise missiles are able to strike from any direction and fly at very low altitudes, making them even harder to detect and counter. Cruise missiles are also more accurate and inexpensive to build than ballistic missiles and, because of their relatively small size, can be launched from a variety of platforms, further adding to their stealth and agility. Like ballistic missiles, they also represent a major proliferation risk.¹⁸ Indeed, while details remain murky, it has been reported that cruise missiles China sold to Iran were later acquired by North Korea.¹⁹



Submarines.²⁰ The PLA Navy has the world's largest fleet of diesel electric submarines, and a small but growing nuclear-powered attack submarine force, giving it a strong anti-surface warfare capability. With some 40 modern attack submarines currently fielded and up to 70 expected to be in service by the end of the decade, the PLA Navy's submarine force is designed to assist in efforts to achieve sea superiority around the first island chain, to include countering U.S. and Japanese intervention in a Taiwan conflict. The current mainstay of the PLA Navy submarine force is its 13 Song-class (Type-039) boats, and its growing force of next-generation Yuan-class (Type-041) submarines. Both the Song-class and Yuan-class are capable of carrying ASCMs, and the newer Yuan-class boats are probably equipped with air-independent propulsion (AIP) systems, greatly extending their submerged patrol ranges.

The PLA Navy fields nuclear-powered attack submarines (SSN) for a variety of long-range missions, including surveillance and surface interdiction missions carried out with ASCMs and torpedoes. It currently has two second-generation Shang-class (Type-

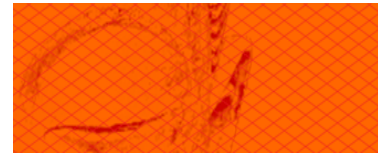


093) submarines in service and may add up to five third-generation Type-095 SSNs in the coming years. The PLA Navy's SSNs may be capable of launching LACMs. The Song, Yuan, Shang and new Type-095 SSN are expected to be eventually capable of launching the next generation CH-SS-NX-13 ASCM.²¹ The PLA Navy also operates eight upgraded Kilo-class submarines that are notable for their stealth and ability to launch advanced, Russian-made ASCMs. China intends to purchase four Lada-class submarines from Russia in the coming years. These would represent an improved variant of the PLA-Navy's already highly capable Kilo-class submarines, and be equipped with AIP.²²

The PLA Navy operates a number of obsolete Ming-class (Type-035) submarines that are much less capable than the aforementioned newer-design submarines. The continued deployment of the Ming-class submarines suggests that the PLA Navy views them as still having value as minelayers or decoys that can be used to distract or draw out enemy submarines. All of China's submarines are capable of launching one or more of the following: torpedoes (wire-guided or wake-homing), mines, and ASCMs. Wake-homing torpedoes, like ASCMs, are of concern because they can be very difficult to counter. China has also modernized its large inventory of mines; with estimates exceeding 50,000 mines in the PLA Navy inventory. It appears that China is also developing unmanned underwater vehicles.²³

The North Korean Navy has approximately 20 Romeo-class submarines and 60 midget submarines. While its submarines are outdated, they could still pose a challenge in coastal areas. An example of this can be seen in the March 26, 2010 sinking of the ROK naval patrol ship *Cheonan*. A joint military-civilian survey group found that a small North Korean Navy submarine sunk the *Cheonan* with a torpedo.²⁴ Of concern to Japan, North Korea could also use its submarines to infiltrate special operations forces into coastal areas for sabotage, abduction, guerilla warfare and intelligence gathering missions.²⁵

Anti-satellite weapons. Along with missiles and submarines, counter space weapons capabilities are viewed as key elements of China's military modernization and regional strike programs. The PLA has been developing a multifaceted program to degrade or deny adversaries the use of satellites in times of crisis or conflict since at least the early 1990s. This program has included repeated testing of direct-ascent anti-satellite (ASAT) weapons, space-based co-orbital weapons, and high-powered ground-based lasers. The PLA has also developed counter space capabilities that include jamming, microwave and cyber weapons.²⁶ The PLA sees a significant advantage in having the capabilities to engage in space warfare. At the strategic level, PLA planners and strategists view ASATs as critical elements of a space deterrent that can help maintain the coercive leverage of China's nuclear and conventional weapons in the face of U.S.-led regional missile



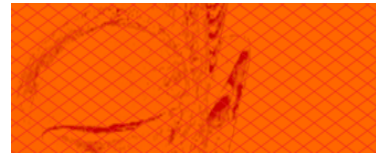
defense programs.²⁷ China's continued acquisition of ASAT weapons is attended with a great deal of opacity, making estimates regarding specific capability deployments difficult. However, given China's aggressive testing regime and its across-the-board advancements in space technology, a cautious assumption would posit that the PLA has or will soon have the ability to hold Japan's growing force of military satellites at risk across the orbital spectrum.

Cyber warfare capabilities. China's military cyber espionage and cyber warfare capabilities represent what is commonly referred to as an advanced persistent threat. Unlike in other realms of warfare, where gaining intelligence, surveillance and reconnaissance information on the location and disposition of an enemy force is a much easier task than actually executing strikes on that force, in the cyber domain the ability to penetrate defenses in order to prepare the battlefield directly enables attacks. Once computer networks have been penetrated, the aggressor can launch light-speed offensive actions at a time of his choosing and expect vanishingly small levels of resistance.²⁸

The PLA's unparalleled cyber espionage campaign, notable for penetrating sensitive networks around the globe, including those of Japan, should be considered a threat that is at least on par with its development of missile, submarine and space warfare capabilities. The PLA General Staff Department's (GSD) Third Department, China's executive authority for signals intelligence (SIGINT) and cyber warfare, has a large unit that focuses on Japan and Korea. This unit is the GSD Third Department Fourth Bureau (91419 Unit), headquartered in Qingdao.²⁹ While individual missions are not entirely clear, the 91419 Unit has subordinate offices located in Shanghai, Beijing, Dalian, Hangzhou, and Xinzhou that could target Japanese computer networks and other electronic systems.³⁰

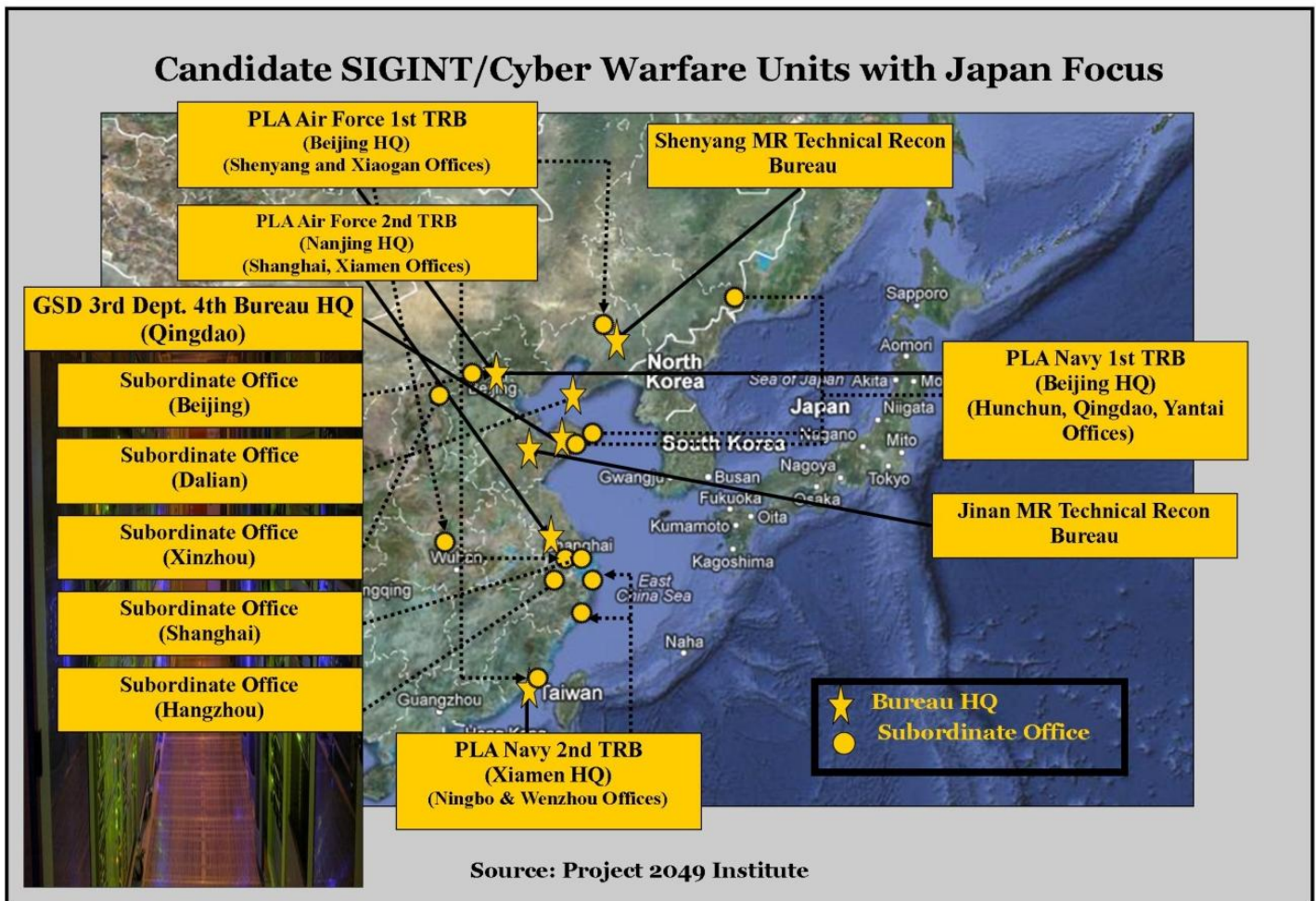
The PLA also has at least two Technical Reconnaissance Bureaus (TRB) that focus on Japanese and Korean targets. These TRBs would have the primary mission of supporting their respective Military Region (MR) command with SIGINT and cyber warfare capabilities. They would also likely follow policy guidance and general tasking for collection, translation, analysis and reporting issued by the GSD Third Department headquarters in Beijing. The Jinan MR TRB (72959 Unit) is located in Jinan City, and the Shenyang MR (65016) TRB is located in Shenyang's Dongling District. Both oversee at least one office that would focus on Japanese targets.³¹

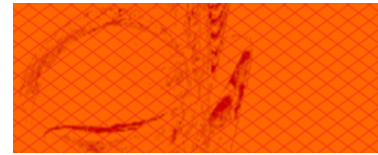
The PLA Air Force First TRB (95830 Unit) in Beijing may also support cyber operations with a Japan focus, although its primary mission is likely to be providing national air defense. The PLA Air Force First TRB oversees elements in Shenyang and Xiaogan. Likewise, the PLA Air Force Second TRB in Nanjing would notionally support missions targeting Japan as well. Specific offices may be based in Shanghai, and Xiamen.³²



The PLA Navy's First TRB in Beijing may also support cyber operations with a Japan focus, although its primary missions would be to provide maritime domain awareness, electronic warfare and electronic intelligence (ELINT) collection capabilities. The PLA Navy First TRB operates offices in Hunchun, Qingdao and Yantai that could support missions targeting Japan. The PLA Navy's Second TRB in Xiamen oversees offices in Ningbo and Wenzhou that may have a Japan focus.³³

The PLA's GSD Forth Department, China's executive authority for radar and radar countermeasures may also have a cyber warfare mission. Unlike the GSD Third Department, which conducts strategic operations, the GSD Forth Department's cyber warriors would most likely focus on achieving tactical level effects, to include jamming or destroying enemy computer networks supporting battlefield ISR.³⁴ It is possible that this would include computers or other electronic systems on enemy communications and early warning satellites in low-inclination, equatorial orbits.³⁵

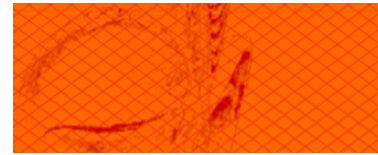




Unmanned Aerial Vehicles. China's development of large numbers of unmanned aerial vehicles (UAV) for military missions extending into the Western Pacific represents an emerging threat to Japan's defense. The PLA has developed an extensive UAV infrastructure over the past decade. This program includes a growing number of operational UAV units under the PLA Air Force, the PLA Navy, the PLA Second Artillery Force and PLA ground forces. China's UAV programs appear to be focused on meeting the primary mission types of ISR, precision strike, electronic warfare and data relay.³⁶ In the near term, the PLA's UAVs could play key role in monitoring China's disputed maritime claims, including the Senkaku Islands. This could put Japan at a distinct disadvantage, especially if the JSDF lacks its own sophisticated aerial reconnaissance and surveillance capabilities to match the Chinese in terms of maritime domain awareness.

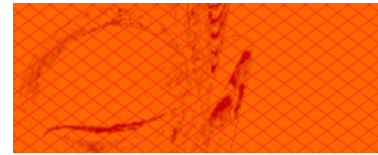
According to Chinese officials, China plans to construct 11 UAV bases along its coastline by 2015 for maritime monitoring missions. As part of this program, the State Oceanic Administration (SOA) completed a trial program in 2011 that used UAVs in Liaoning Province to take aerial imagery of 980 square miles of sea area.³⁷ Because SOA is an organization that appears to sometimes serve as a proxy to the PLA Navy, these maritime reconnaissance capabilities represent dual use capabilities that, while ostensibly civilian in nature, would be called to military service in wartime.³⁸ According to reports, the PLA has already deployed UAVs for missions over the East China Sea, notably to an air base near Shuimen, Fujian.³⁹ Other UAV units in China are reportedly stationed in the Guangzhou MR and the Beijing MR, in Meizhou and Tongzhou, respectively.⁴⁰ Authoritative estimates state that the PLA Air Force alone had over 280 UAVs in service by early 2011.⁴¹ According to a retired Deputy Chief of the PLA General Staff Department, China is likely to field over 1000 UAVs in the near future.⁴²

Looking farther ahead, Chinese UAVs will support the expansion of the PLA's operational envelope, pushing its reconnaissance strike complex farther out into the Western Pacific. Chinese sources note that UAVs provide the ability to engage in high altitude long endurance patrols unmatched by manned missions whose flight times are restricted by the limits of human endurance. A robust network of ISR mission capable UAVs, combined with satellites and "tattletale" ships will make it increasingly likely that the PLA will be able to locate enemy fleets at greater distances, and, once discovered, track them continuously.⁴³



This should be of particular concern to the Japanese Maritime Self Defense Force and the U.S. Navy because according to Chinese military-technical materials, PLA operational thinkers and scientists envision attacking U.S. aircraft carrier battle groups with swarms of multi-mission UAVs in the event of conflict.⁴⁴ While Chinese sources indicate significantly less interest in planning to use UAVs in support of amphibious island landing operations or operations against land-based targets, it seems logical that the PLA could use the same weapons and tactics to enhance operational capabilities beyond the anti-ship mission. This would suggest that the PLA's expanding UAV capabilities could complicate American and Japanese operational planning across the Western Pacific battle space, ultimately impacting upon equities in all service branches.⁴⁵





Japan's Evolving Capabilities and Defense Posture

Compelled by emerging Chinese and North Korean threats in its security environment, Japan released a new National Defense Program Guidelines (NDPG) in late 2010 that called for the development of a “Dynamic Defense Force.” This concept focuses on improving JSDF readiness, mobility, flexibility, and sustainability while developing advanced military technology and intelligence capabilities.⁴⁶ With regards to the role of the JSDF, the 2010 NDPG states that priorities are placed on:

- 1) Protecting the sea and airspace around Japan;
- 2) Responding to attacks on offshore islands;
- 3) Responding to cyber attacks;
- 4) Responding to guerilla and special force attacks;
- 5) Responding to ballistic missile attacks;
- 6) Responding to “complex contingencies”; and
- 7) Responding to large scale disasters and/or the use of weapons of mass destruction.⁴⁷

Specifically, the 2010 NDPG calls for adjusting the heretofore Cold War-era posture of the JSDF by drawing down equipment that is less-relevant to the current security environment, such as tanks and artillery, while redistributing units geographically from the North (Hokkaido) to the West (Kyushu) and Southwest (the Ryukyus).⁴⁸ It prioritizes joint operations, off-shore island defense, operational support (logistics, military medicine and engineering), and intelligence capabilities.⁴⁹ In practice, this has resulted in an increased emphasis on a defense capacity building effort that was already underway. At the strategic level, there has been a focus on ensuring information superiority through continuous ISR activities. In particular, Japan has developed a military space program, deployed an integrated land- and sea-based ballistic missile defense network, and significantly strengthened its intelligence collection infrastructure.

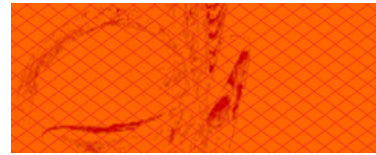
Japan's Military Space Force

Japan began its military space program in response to North Korea's test firing of a *Taepodong-1* ballistic missile over Japanese territory in 1998. Beginning with a reconnaissance satellite program, the JSDF has steadily expanded its utilization of the space domain over the past decade. Japan has developed and launched two series of advanced imagery satellites, including at least four electro-optical (EO) satellites for imaging targets visible in daylight, and three or four synthetic aperture radar (SAR)

JAPAN'S NATIONAL DEFENSE GUIDELINES

- . **Established 1976**
- . **Revised 1995, 2004 and 2010**
- . **Currently under review**
- . **Sets basic defense policies and future guidelines on the role and organization of JSDF**
- . **Targets levels of major equipment to be acquired**

Source: Defense of Japan 2012



satellites capable of imaging targets obscured by clouds or cloaked in the dark of night.⁵⁰ The Japanese Ministry of Defense (MoD) also purchases and analyzes high resolution commercial satellite imagery as part of its intelligence collection activities.⁵¹

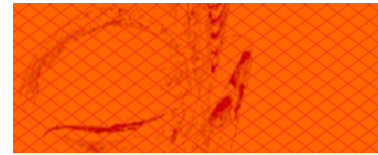
The Japanese MoD and JSDF have two communications satellites – Superbird-B2 and Superbird-D – that they use to share intelligence and exercise command and control over naval vessels and aircraft, ground units responding to disasters, and forces deployed overseas. These satellites will be replaced by an X-band communications satellite system around 2015 that will be more resistant to jamming.⁵² Japan has also been developing a “Quasi-Zenith” navigation satellite constellation to improve the accuracy and availability of GPS signals in mountainous and urban areas. It launched its first Quasi-Zenith satellite in 2010, and plans to launch three more satellites in the series before 2018.⁵³

Japan's military space program is supported by the “Kodama” Data-Relay and Tracking Satellite (DRTS), which allows for the real-time transmission of data from satellites in low earth orbits not otherwise within view of ground stations.⁵⁴ Looking ahead, Japan is considering upgrading its military space fleet with an infrared early warning satellite for detecting ballistic missile launches, communications intelligence (COMINT) collection satellites, and electronic intelligence (ELINT) satellite constellations for ocean surveillance.⁵⁵

Japan's Ballistic Missile Defense Force

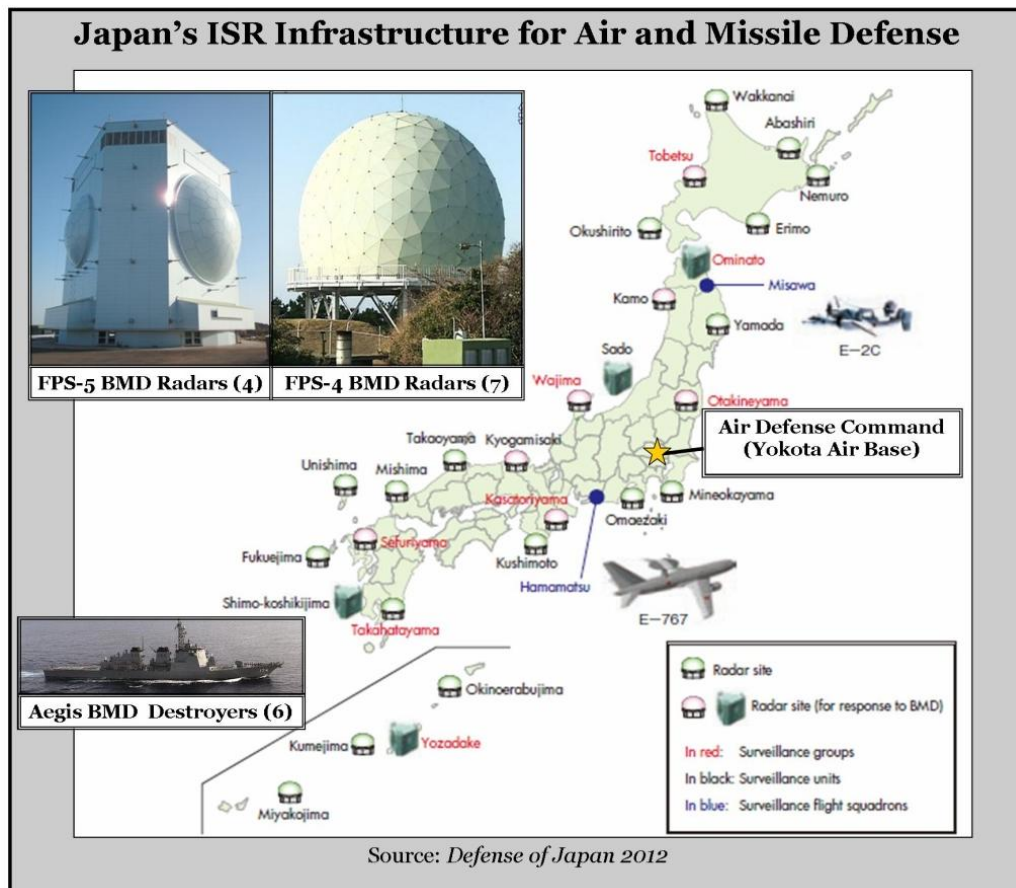
Like its military space program, Japan's missile defense efforts began in response to North Korea's 1998 ballistic missiles test. In recent years, the Japanese MoD has evinced a steadily increasing sense of urgency with regards to its Ballistic Missile Defense (BMD) program as potential Chinese missile threats to Japan have advanced. According to one Japanese MoD report, “in the event of an armed attack on Japan, such attacks are...likely to begin with surprise air attacks using aircraft or missiles.⁵⁶ As such, Japan has been taking a number of steps to improve its air and missile defense posture that include: upgrading its air defense radars, centralizing its air defense command headquarters, integrating itself into the regional U.S. BMD architecture and deploying new missile interceptors.

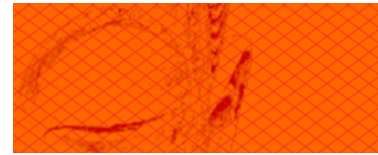
Japan's Air Self Defense Force (JASDF) maintains 28 ground-based, air defense radar sites.⁵⁷ Of these, four FPS-5 next generation missile defense radars and seven improved FPS-3 radars (FPS-4) are BMD capable. Japan's first FPS-5 radar was deployed on Shimo-koshiki island on May 2009, with follow-on radar sites at Ominato, Sado and Yozadake (Okinawa) completed by 2011.⁵⁸ Seven FPS-3 radar sites at have been



upgraded to FPS-4 systems.⁵⁹ These radar sites and their associated air defense units are organized into air defense missile groups, which are grouped geographically with their associated air wings into four air defense forces, each of which maintains one advanced FPS-5 missile defense radar site. These four air and missile defense forces are unified at Japan's Air Defense Command (ADC) headquarters, which completed its move from Fuchu Air Station to Yokota Air Base in March 2012.⁶⁰

In a move strengthening the U.S.-Japanese missile defense partnership, all elements of Japan's air defense network are now unified at Japan's ADC headquarters at Yokota Air Base. About 1,200 Japanese personnel transferred to the new ADC headquarters building which serves as the supreme command authority for Japanese air and ballistic missile defense.⁶¹ The location helps facilitate cooperation between U.S. and Japanese forces as the new bilateral air operations center links up with the 613th Air and Space Operations Center (AOC) at Hickham Air Force Base in Hawaii which synchronizes all U.S. air, space and cyberspace missions in the Asia-Pacific region.⁶² Importantly, this gives Japan direct access to data from U.S. early-warning satellites and other BMD sensors.⁶³ The JASDF ADC complex is physically linked by a tunnel to a basement control hub under the headquarters of the U.S. Force Japan (USFJ) headquarters building. The Bilateral Joint Operations Coordination Command Center (BJOCC) under the USFJ headquarters building can hold up to 150 personnel during wartime scenarios, with every position on the main floor having Japanese and U.S. counterparts working alongside each other to augment bilateral operability.⁶⁴





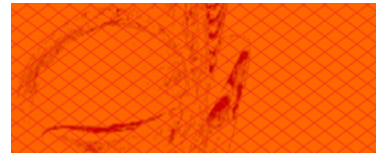
Japan has been actively integrating itself into the U.S. BMD shield in other ways, including the acquisition of U.S.-made missile defense interceptor systems and the co-development of next generation BMD capabilities. By the end of 2010, Japan had equipped four of its Aegis destroyers with SM-3 interceptors for upper tier BMD. By the end of 2010 Japan had also deployed Patriot Advanced Capability-3 (PAC-3) interceptors to some fire units.⁶⁵ Japan's MoD links its four BMD-capable Aegis destroyers and 17 Patriot (PAC-2/PAC-3) fire units to its FPS-5 radar sites and upgraded FPS-4 radar sites via a network known as the Japan Aerospace Defense Ground Environment (JADGE).⁶⁶ Eventually, Japan plans to have six to eight of its Aegis destroyers equipped with SM-3 missiles.⁶⁷ Looking ahead, Japanese destroyers will eventually be armed with an advanced interceptor missile (the SM-3 Block IIA) that Japan is jointly developing with the U.S. government and defense industry.⁶⁸

Japan's Signals Intelligence Infrastructure

Japan's 2012 defense white paper highlights the growing role that intelligence has in adapting to the regional threat environment, stating: "it is ever more necessary to acquire signs of various situations in advance and collect, analyze, and share information promptly and appropriately...broader and more comprehensive intelligence capabilities are essential for Japanese national security."⁶⁹ In particular, Japan has focused investments into its capabilities for "collecting, processing and analyzing radio waves on military communications and radio waves emitted from electronic weapons."⁷⁰ Japan's SIGINT construction efforts include a significant build-up over the past decade of a robust infrastructure for monitoring Chinese and North Korean emitters.

The JASDF is an important collector of SIGINT. Its Air Information Collection Units operate at least seven SIGINT stations that report to the Radio-wave Collection Group of the Air Intelligence Wing. The Japanese Air Intelligence Wing (or Operational Intelligence Unit) – which is also responsible for supporting Japan's BMD enterprise – is based at Japan's ADC headquarters at Yokota.⁷¹ This streamlines the intelligence process, as radar surveillance data and SIGINT collected by ground stations and aircraft are all sent to the ADC in near real time, as well as the MoD's Joint Staff Office, for further analysis.⁷²

Working in tandem with SIGINT stations, JASDF reportedly operates RF-4J ELINT collection aircraft, E-2C airborne early warning aircraft, E-767 airborne command and control aircraft, YS-11EB ELINT collection aircraft, YS-11EA electronic warfare aircraft, and EC-1 SIGINT aircraft.⁷³ Japan also has various other ground stations for SIGINT-collection, including large stations operated by the Defense Intelligence Headquarters' (DIH) *Chobetsu*, Japan's executive authority for SIGINT.⁷⁴

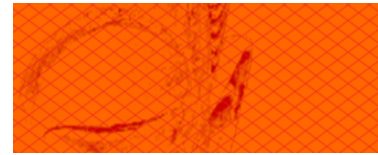


Operational and Tactical JSDF Capabilities

At the operational and tactical levels, each service branch has begun to take steps towards a long term effort to adapt to the evolving security environment. The Japanese Ground Self Defense Force (JGSDF) is improving its long-range mobility, upgrading air and missile interceptor batteries, and increasing off-shore island defense capabilities while reducing the number of its tanks and artillery batteries.⁷⁵ To improve its long-range mobility, the JGSDF is conducting exercises to test its ability to rapidly transport JGSDF units from Hokkaido to Southern Japan. In support of Japan's air and missile defense enterprise, the JGSDF has upgraded to PAC-3 interceptors for lower-tier "point defense" against ballistic missiles and air-breathing aircraft. To increase its island defense capabilities, JGSDF personnel are training with U.S. Marines. Looking ahead, key variables regarding future JGSDF capabilities include possible decisions to acquire THAAD⁷⁶ or land-based SM-3 interceptors for upper-tier BMD; equip multiple launch rocket systems (MLRS) with sensor fused munitions for technology-enabled shore defense; and stand up special operations units dedicated to amphibious warfare and off-shore island defense.

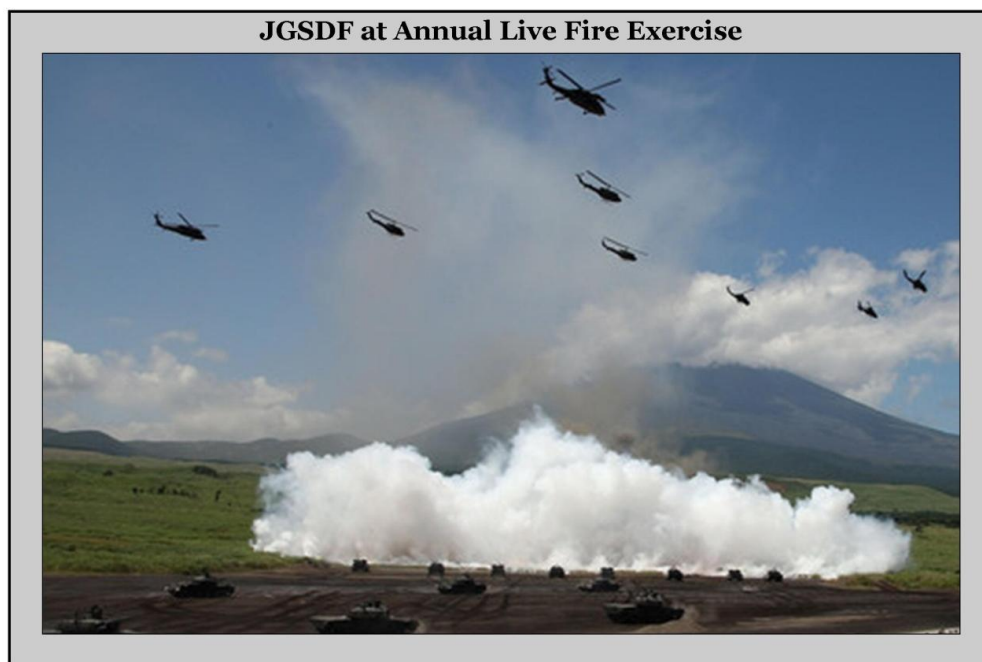
The Japanese Maritime Self Defense Force (JMSDF) is improving its sea territory and sea lane defense capabilities through regular ISR and anti-submarine warfare operations. This effort includes the restructuring of its Escort Ship Squadrons into a 48 ship force grouped into one Escort Corps (16 ships) and one Escort Group (32 ships), with basic units consisting of four and eight ships, respectively. Deployments are now structured to operate in watch and surveillance operations in and around the Ryukyu Islands. To patrol key sea traffic points in the East China Sea and the Sea of Japan, the JMSDF is increasing the number of its stealth submarines from 16 to 22. This will provide Japan with a nearly undetectable means "to regularly conduct ISR over a wide range of waters surrounding Japan including the southwestern area."⁷⁷ To further improve its ability to conduct continuous ISR operations in the East China Sea, the JMSDF is increasing the presence of P-3C patrol aircraft on Okinawa.⁷⁸ Looking ahead, key variables regarding future JMSDF capabilities include possible decisions to acquire F-35B short take-off and vertical landing (STOVL) fighters, advanced ship-to-ship and ship-to-shore missiles, and amphibious warfare units such as naval infantry or marines.

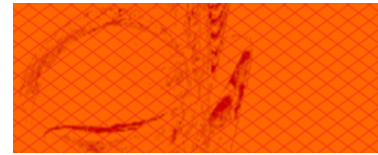
The Japanese Air Self Defense Force (JASDF) plans to improve its capacity for maintaining air superiority through the future acquisition of fifth-generation F-35A strike fighters even as it decreases its total number of combat aircraft. The decision to select the F-35A has significance beyond the air superiority mission. Given its advanced stealth capabilities, the F-35A is expected to provide Japan with a precision strike capability that it currently lacks. In the interim, the JASDF is also moving an additional



squadron of F-15s to Okinawa to double its fighter presence in the Southwestern Air Defense Sector.⁷⁹ To improve its ISR capabilities, the JASDF is seeking to acquire two or three RQ-4 “Global Hawk” UAVs by 2015.⁸⁰ However, while it has emphasized active air and missile defense measures, including improved ISR for early-warning and BMD operations, the JASDF does not appear to be investing in passive air and missile defense measures.⁸¹ Likewise, it appears that the JASDF does not have plans to ensure the security of Japan’s military satellites or counter adversary space assets. This could leave Japan vulnerable to a coercive aerospace campaign launched from China.⁸² Looking ahead, key variables regarding future JASDF capabilities include possible decisions to acquire passive defenses to assure the utility of its otherwise superior air capabilities in times of crisis or conflict.

Despite the efforts underway to improve the JSDF’s strategic, operational and tactical capabilities, Japanese policymakers and Ministry of Defense (MoD) officials are concerned that the measures authorized by the 2010 NDPG may be insufficient to pace the threats that are developing in Japan’s evolving security environment. As such, the Japanese MoD is currently reviewing its defense guidelines with an eye toward releasing an updated NDPG in late 2013. Key issues under consideration may include the requirement for a long-range precision strike program based on cruise missile technology, a Japanese amphibious assault force, and a joint cyber command.⁸³ The new NDPG should also discuss Japan’s role in the U.S. rebalance to Asia, as well as how Japan will be integrated into the U.S. military’s Air-Sea Battle concept of operations.





Japan, the U.S. Rebalance and Air-Sea Battle

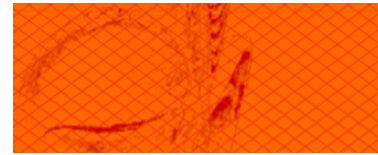
Japan's 2012 defense white paper reiterates the message of 2010 NDPG, noting the heightened importance of the U.S.-Japan alliance in light of the evolving security environment. Specifically, Japan resolves to adapt to this environment and deepen the U.S.-Japan alliance by:

- Engaging in strategic dialogues and coordinating specific policies with the U.S.;
- Cooperating on intelligence, contingency planning, ballistic missile defense, and other matters;
- Studying measures to enhance Japan's role in strengthening U.S. deterrent and response capabilities to meet regional contingencies; and
- Strengthening joint training, joint usage of facilities, and joint enhancement of global commons (including space, cyberspace, international sea lanes).⁸⁴

However, since the release of the 2010 NDPG there have been significant changes in the U.S. defense strategy that have important implications for Japan and the alliance. In November 2011, former Secretary of State Clinton publically announced America's reorientation or "pivot" toward the Asia-Pacific.⁸⁵ That same month the Pentagon announced the establishment of an Air-Sea Battle Office.⁸⁶ This was followed in January 2012 by President Obama's introduction of new defense strategic guidance, to which the Chairman of the Joint Chiefs of Staff added the Joint Operational Access Concept later that same month.⁸⁷

These developments are being driven by an understanding that the U.S. is at strategic inflection point due to factors related to the end of the wars in Iraq and Afghanistan, the poor fiscal health of the nation, and the potential decline in America's relative strength vis-à-vis China. Broadly speaking, the solutions that are being proposed to address the U.S. need to rebalance toward the Asia-Pacific include an "all of government effort" to increase investments into educational, diplomatic, economic, and strategic investments into the region. As the United States' most important ally in the Asia-Pacific, Japan is poised to play a leading role in enabling the success of the U.S. rebalance.

In terms of security issues, the most serious challenge facing the U.S.-Japan alliance will be maintaining access to critical air and naval bases in Japan. China's sophisticated "anti-access, area-denial" (A2/AD)⁸⁸ capabilities represent a driving force compelling Japan and the U.S. to develop strategies for being able to effectively execute power projection operations. In a future conflict scenario, China's integrated strike capabilities could allow for multi-dimensional offensive that would likely open with cyber and anti-

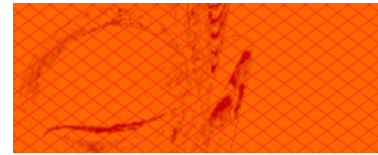


satellite attacks, followed with ballistic and cruise missile raids that were coordinated with UAVs and UCAVs. Once critical node targets were sufficiently degraded, follow-on waves of manned aircraft and submarines would inflict strikes on second tier targets, while also establishing area denial zones through air and maritime interdiction operations.

Notional targets for an integrated strike campaign against Japan include critical command and control centers, such as the Japanese ADC and the Headquarters of U.S. Forces Japan at Yokota Air Base outside Tokyo; the U.S. Seventh Fleet and Japanese Self-Defense Fleet headquarters in Yokosuka; and the Ground Self Defense Force headquarters in Ichigaya, Tokyo. Regional district command centers, communications facilities, satellites (and their ground stations), early-warning radar sites, air bases and naval ports would represent second tier targets. Given the vast spaces involved, aerospace power would be the critical factor deciding the outcome of the conflict.

To counter the threat of a potential Chinese integrated strike campaign against Japan that could devastate the JSDF's defensive capabilities and severely undermine the capacity of the U.S. to project power in the West Pacific, it will be critical for Washington and Tokyo to take both active and passive measures to prepare for worst-case scenarios. Like the JSDF, the U.S. military is focusing on efforts to improve its space, missile defense, and intelligence posture around Japan. The U.S. Military is also beginning to invest in long term programs in the Asia-Pacific under its Air-Sea Battle concept of operations that will improve its ability to sustain operations in theater.

At the high end of the spectrum, the U.S. is deploying a next-generation space-based BMD system based on Space-based Infrared System (SBIRS) satellites, and their integrated ground components. When complete, SBIRS will consist of four SBIRS-High satellites in geosynchronous orbits (GEO) and two in highly elliptical orbits (HEO).⁸⁹ These satellites provide a revolutionary early warning system that is sensitive enough to detect and target mobile missile launchers from their engines' heat signatures and will have a crucial role to play in missile defense.⁹⁰ SBIRS satellites are currently augmenting the Defense Support Program (DSP) satellites in GEO that they are designed to eventually replace. DSP satellites have far out-performed expectations and greatly exceeded their design lives, allowing them to stay on station while the much delayed SBIRS-High satellites are completed.⁹¹ This combination of SBIRS and DSP satellites has been utilized in the creation of the theater event system (TES) in order to increase defense against growing ballistic and cruise missile threats.

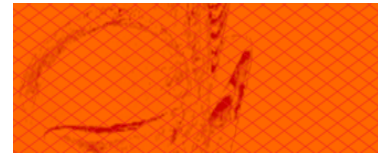


The TES is comprised of three networked elements: SBIRS, which in combination with DSP satellites provide tactical and strategic missile warning functions; the joint tactical ground station (JTAGS) for mobile in-theater processing; and the classified tactical detection and reporting (TACDAR) system comprised of sensors which ride on unidentified host satellites. The TES reports theater missile threats over two types of satellite broadcast networks with the data incorporated into a number of different battle-management systems including the Airborne Warning and Control System (AWACS) and the Air Defense Systems Integrator (ADSI).⁹² These elements work in concert with air and ground-based warning sensors and ground-based missile interceptors.

In the Asia-Pacific region, U.S. space-based BMD systems are augmented by long-range warning sensors like the mobile Sea-Based X-band (SBX) radar in Honolulu.⁹³ The U.S. Navy also plans to deploy its most advanced Aegis BMD cruisers and destroyers to the region. On Guam, the U.S. Army Air and Missile Defense Command (AAMDC) is in the process of deploying a missile defense task force for the Pacific region. This would include a THAAD battery and a PAC-3 battery for ballistic and cruise missile defense.⁹⁴

In terms of point defense, USFJ has been increasing its deployment of BMD units to Japan. In 2006, USFJ deployed a mobile X-band radar system to Shariki Air Base (AB) in Aomori Prefecture and a PAC-3 battalion to Kadena Air Base on Okinawa.⁹⁵ That same year, the U.S. Navy began forward deploying BMD capable Aegis destroyers armed with SM-3 interceptors to Japan.⁹⁶ In 2007, a JTAGS was established at Misawa Air Base in Aomori Prefecture.⁹⁷ More recently, the Pentagon announced its intention to deploy a second mobile X-band radar system to Kyotango, near Kyoto.⁹⁸

Japan also cooperates extensively with the U.S. on SIGINT collection, and hosts at least three major U.S. SIGINT sites. This includes a large site at Misawa, reportedly once the largest U.S. SIGINT complex in Asia and formerly the largest such complex in the world. Misawa, the location of the Northern Air Defense Force Headquarters, is also home to a joint-service, US-run antenna array as well as extensive satellite communications (SATCOM) SIGINT facilities.⁹⁹ Two other SIGINT stations of note are the US Navy's Yokosuka SIGINT collection and processing station, and the Navy's SIGINT site at Camp Hansen, Okinawa.¹⁰⁰



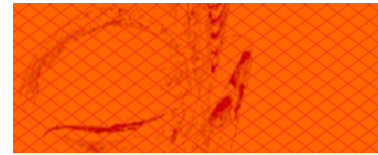
Toward an Allied Air-Sea Battle

The Air-Sea Battle concept of operations is a classified Pentagon framework for coping with the rapid spread of A2AD capabilities. Publicly available information indicates that it seeks closer cooperation between the Air Force and the Navy in order to counter the potential for a devastating enemy attack on forward-deployed forces using sophisticated, but relatively inexpensive, long-range strike systems. Air-Sea Battle also calls for closer cooperation between U.S. forces and allies in forward deployed locations. Because of its strategic location and close alliance with the U.S., Japan will naturally play a vital role in the success – or failure – of the concept.

There are several indicators as to how successful the U.S.-Japan alliance is likely to be in shaping the future security environment in the West Pacific. At the tactical level, Chinese A2AD capabilities will add complexity to air base and carrier fleet defense and impose greater risks to aircraft and warships operating in contested area-denial areas. To meet these challenges, it will be imperative that American and Japanese investments are made in electromagnetic and laser weapon technologies for air base and ship defenses. Greater investments are also required in electronic, cyber, and space warfare so that aggressors face a layered defense that includes both kinetic and non-kinetic means.

Even with these investments it is possible that Japan could see a sharp deterioration in its security environment if China continues to deploy more sophisticated variants of the weapon systems it is currently fielding. This is because, at least notionally speaking, Chinese cruise and ballistic missiles, UAVs, ASATs and cyber attacks could be launched from dispersed, interior bases in highly coordinated raids with little or no warning. Compounding the problem, China has a redundant network of buried fiber optic cables that allows for tight electronic emissions control. In the event of an attack, it is possible that U.S. and Japanese sensors would be unable to provide adequate early warning until long-range precision strike weapons were already closing on their targets, by which time it could be too late to mount an effective defense. This would be especially so if – as must be expected – opening missile and drone raids were timed to coincide with follow-on waves of manned fighter bombers that were launched to maximize windows of opportunity created by anti-satellite attacks and cyber-attacks on command and control nodes.

With the threat of having air and missile defense systems rapidly overwhelmed during attacks, the U.S. and Japan could be forced to invest in a large forward deployed presence that was on constant alert during crisis situations. That would increase the risk

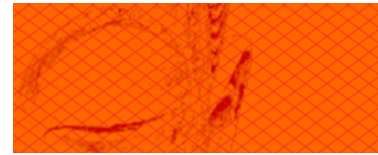


of mistakes, accidents and rapid escalation. It would also risk giving Beijing a false sense of security, in that Chinese war planners may convince decision-makers that by taking the initiative at the outset of armed conflict through carefully timed raids, they would be able to control the flow and tempo of follow-on operations.

Adding to the temptation to attack first, relatively expendable (and cheap) weapons could allow the Chinese to affect strategic changes that until recently were only achievable through the use of nuclear weapons. That could bring the bar down for initiating a conflict without addressing the escalation dangers inherent in such a move. In effect, China's growing range of precision strike capabilities could make it easier to imagine a successful first strike against U.S. and Japanese air force and naval groups operating in the Western Pacific. However, such a first strike would invite immediate retaliation against the satellite, airborne and ground communications infrastructure facilitating the command and control of these operations. It would also compel U.S. and Japanese strikes on coastal and inland Chinese targets.

Looking ahead, the compression of decision-making timelines, along with the threat of crippling attacks on communications networks, would argue for the decentralization of command authorities in Japan for operational and tactical reasons. Yet the strategic effects of such a decision could cascade in unforeseen ways, with relatively benign tactical events potentially spinning out of control. Whatever Japan does to adapt, the proliferation of Chinese weapons systems capable of long-range precision strike operations will negatively impact on the strategic stability in Japan's security environment. Chinese weapons exacerbate an already offense-dominated environment, forcing a situation where both sides could be on high alert for the others' first strike – potentially even during period of relative calm, but especially during times of regional tension – with all the ensuing risk for miscalculation and escalation that entails.

This emerging situation has important near-term and long-term implications. In the near-term, it will be critical for the United States to fully integrate Japan into Air-Sea Battle. Should this effort fail, China could eventually be tempted to resolve outstanding political disputes through military means, and if the U.S.-Japan alliance lacked an adequate conventional deterrent against China's military power, more weight would have to be placed on the threat of nuclear retaliation in order to maintain stability. However, it is very difficult to imagine U.S. decision-makers resolving to respond to conventional attacks with nuclear weapons, especially if only American and Japanese military targets had been struck. As such, the credibility of the U.S. nuclear umbrella will begin to erode if there is no credible conventional deterrent to which the nation can first turn for escalatory step control. This situation would naturally push Japan toward the development of its own nuclear deterrent, something that, while not altogether

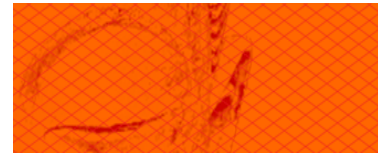


negative from the perspective regional stability maintenance, would not have positive effects on the alliance, nor on the reputation of the United States as the guardian of regional security.

In the long-term, it will be critical for the United States and Japan to develop enough conventional war fighting leverage to convince Beijing to agree to an arms control treaty that can greatly curtail the PLA's build-up of destabilizing first-strike weapons. Indeed, ground launched cruise and ballistic missiles (and UAVs) have long been of sufficient concern to warrant international agreements to limit their proliferation. The 1987 Intermediate Range Nuclear Forces (INF) Treaty led to the elimination of U.S. and Soviet land-based cruise and ballistic missiles with ranges of between 500 and 5,500 kilometers.¹⁰¹ Unfortunately, China was not included in the treaty negotiations. As a result, by 2020 it will be increasingly unlikely that the U.S. and Japan will be able to mount an effective defense against China's intermediate ranged conventional strike weapons without drastic – and politically excruciating – adjustments to their respective defense budgets. To avoid the regional destabilization that would result from a loss of conventional deterrence, it is therefore advisable for the U.S. government to temporarily suspend its commitments to the INF Treaty until China can be brought into the treaty framework.¹⁰²

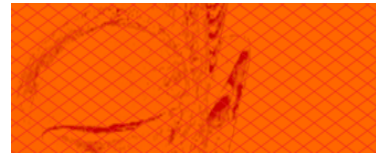
Ultimately, China's communist party leadership is probably only going see it in its interest to join the INF Treaty if at least one of two things occurs. The first would be that the United States begins to develop and deploy conventionally armed ground launched missiles in Japan that have ranges in excess of 3,000 kilometers. The American experience in the 1980s with the Soviets in Europe should be instructive here.¹⁰³ The second would be that the United States and Japan make technological breakthroughs in missile defense technologies which would allow them to intercept Chinese missiles with directed energy weapons that cost less per shot than their targets. This would dramatically change the offense-defense balance of warfare, and radically improve the defense of Japan and other U.S. allies. However, such technological breakthroughs, while foreseeable, are not guaranteed to happen anytime soon.

What follows are our recommendations as to what policymakers in Tokyo and Washington should consider as they assess programs and strategies to assure peace and stability in the Asia-Pacific in the face of the challenges we have attempted to describe in this monograph.

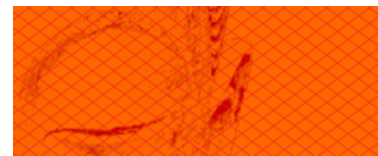


Recommendations

1. The United States and Japan should undertake a joint “Net Assessment” of China’s military trajectory and its implications for the U.S.-Japan Alliance.
2. The United States and Japan should complete the current Roles and Missions review, and should regularize a process for dynamic, sustained discussions on Roles and Missions to enable more timely revisions consistent with the fast evolving security environment.
3. The United States must complete its QDR, and begin to reconcile resource constraints with rhetorical goals of “rebalancing.” The United States must soon be in a position to convey to Japan our specific expectations for the alliance going forward, to include full integration of the JSDF into the Pentagon’s Air-Sea Battle concept of operations. To be effective, this would include joint experimentation and training, as well as burden sharing in terms of deep interdiction missions.
4. The United States and Japan should actively seek and pursue opportunities for joint development of future weaponry and related capabilities. The United States should fully exploit the relaxation of Japan’s “three principles on arms exports.”
5. The United States and Japan should pursue joint basing and “hardening” simultaneously. Joint facilities should benefit from mature protection capabilities, to include cost-effective aircraft shelters, deeply buried command and control facilities, proven rapid runway repair capabilities, redundant communication lines, underground logistical stations, and decoys.
6. Japanese defense planners should actively promote the integration of capabilities appropriate for new battle spaces through the establishment of a joint strategic computing and cyber warfare force. They should also increase cooperation with the United States on unmanned aerial system and space operations.
7. The United States and Japan must defeat the ballistic and cruise missile capabilities of the PLA. To counter the inherently destabilizing nature of China’s missile force, Washington and Tokyo should strongly advocate for Beijing’s inclusion in the INF Treaty. Should these political efforts initially fail, the United States military should develop and forward deploy conventional ground-launched missile systems in Japan as a means of increasing diplomatic leverage.



8. As Japan embarks on a path to reinterpret and/or revise its constitution, the United States and Japan should create a more ambitious joint training program to reflect greater alliance capacity to deal with highly stressful wartime contingencies. To better enable this effort, Washington should increase the number of American military officers and civilian officials with Japanese language and cultural training.
9. The United States and Japan should embrace the goal of becoming full “resource” allies. This must envision not only secure and reliable sources of energy in the event of a crisis, but assured supply of other critical resources such as rare earth minerals.
10. Washington and Tokyo have a real stake in peace, especially since a war in the Western Pacific would almost certainly involve the use of highly destructive conventional – and possibly nuclear – weapons. Therefore, it is in the interest of both governments to educate their publics to recognize the common threats they face and seek their support for a stronger U.S.-Japan alliance.



Notes

¹ See the Minister's statement in the forward to *Defense of Japan 2012* (Tokyo: Ministry of Defense, 2012), at http://www.mod.go.jp/e/publ/w_paper/pdf/2012/01_Foreword.pdf.

² Unless otherwise noted, this section draws from *Military and Security Developments Involving the People's Republic of China 2012* (Washington D.C.: Office of the Secretary of Defense, May 2012), at http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf; "Security Environment Surrounding Japan: China," in *Defense of Japan 2012* (Tokyo: Ministry of Defense, 2012), at http://www.mod.go.jp/e/publ/w_paper/pdf/2012/07_Part1_Chapter1_Sec3.pdf; and Jan Van Tol, *AirSea Battle: a Point of Departure Operational Concept* (Washington D.C.: Center for Strategic and Budgetary Analysis, May 2010), at <http://www.csbaonline.org/publications/2010/05/airsea-battle-concept/>.

³ While the PLA Second Artillery Force was reported to have fielded 75-100 DF-21 MRBMs by 2012, it is unclear how many of these were the conventionally armed DF-21C variants.

⁴ Rogge Chen and Sofia Wu, "Taiwan concerned about China's DF-16 missile deployment," *Focus Taiwan News Channel*, March 20, 2013, at <http://focustaiwan.tw/news/aall/201303200039.aspx>.

⁵ For detailed discussions on China's ASBM program and its implications, see Mark Stokes, "China's Evolving Conventional Strategic Strike Capability: The anti-ship ballistic missile challenge to U.S. maritime operations in the Western Pacific and beyond," *Project 2049 Institute Occasional Paper*, September 14, 2009, at http://project2049.net/documents/chinese_anti_ship_ballistic_missile_asbm.pdf; Andrew S. Erickson and David D. Yang, "On the Verge of a Game-Changer," *Proceedings Magazine*, May 2009, at <http://www.usni.org/magazines/proceedings/2009-05/verge-game-changer>; Andrew S. Erickson, "China's Anti-Ship Ballistic Missile (ASBM) Reaches Equivalent of 'Initial Operating Capability' (IOC)- Where It's going and what it means," at <http://www.andrewerickson.com/2011/07/china%E2%80%99s-anti-ship-ballistic-missile-asbm-reaches-equivalent-of-%E2%80%9Cinitial-operational-capability%E2%80%9D-ioc%E2%80%94where-it%E2%80%99s-going-and-what-it-means/>.

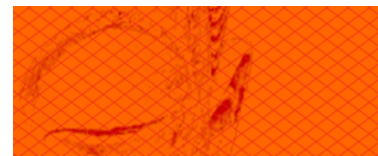
⁶ North Korea is also developing the *Musudan* intermediate range ballistic missile (IRBM) and the *Taepodong-2* intercontinental ballistic missile (ICBM). Because both missiles are being developed to have ranges far longer than what would be required to cover Japan, it seems probable that their targets would actually be U.S. bases in Guam and Alaska.

⁷ See "No Dong 1," *Missile Threat: A Project of the George C. Marshall and Claremont Institute*, October 26, 2012, at <http://missilethreat.com/missiles/no-dong-1/?country=north-korea#north-korea>; and "CNS Special Report on North Korean Ballistic Missile Capabilities," *Center for Nonproliferation Studies*, March 22, 2006, at <http://cns.miis.edu/stories/pdfs/060321.pdf>.

⁸ *Defense of Japan 2012* (Tokyo: Ministry of Defense, 2012), p. 18.

⁹ See *Defense of Japan 2012* (Tokyo: Ministry of Defense, 2012), pp. 17-19.

¹⁰ Liquid-fueled ballistic missiles take significantly longer to prepare for launch than solid-fueled missiles. The use of liquid propellant to fuel missiles limits operational flexibility in other ways. Because liquid propellants are highly toxic and require special storage and handling, missile launching units generally cannot travel far from basing facilities. To counter these disadvantages, North Korea reportedly has



constructed an extensive system of underground shelters for their missiles. See “CNS Special Report on North Korean Ballistic Missile Capabilities,” *Center for Nonproliferation Studies*, March 22, 2006, pp. 3-4, at <http://cns.miis.edu/stories/pdfs/o6o321.pdf>.

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¹² The PLAAF is also developing a new long-range cruise missile for land-attack and, possibly, anti-ship missions. This missile will be launched from PLAAF’s upgraded *Hong-6* (H-6) bombers. See *Military and Security Developments Involving the People's Republic of China 2012* (Washington D.C.: Office of the Secretary of Defense, May 2012), p. 24 at http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf; and Carlo Kopp and Martin Andrew, “PLA Cruise Missiles/PLA Air-Surface Missiles,” *Air Power Australia*, March 29, 2013, at <http://www.ausairpower.net/APA-PLA-Cruise-Missiles.html>.

¹³ Ronald O’Rourke, *China’s Naval Modernization: Implications for U.S. Navy Capabilities—Background Issues for Congress* (Washington D.C.: Congressional Research Service, March 2013), p. 11, at <http://www.fas.org/sgp/crs/row/RL33153.pdf>.

¹⁴ However, the Second Artillery’s two or three CJ-10 Brigades may not represent a direct threat to Japan given their current locations. They are believed to be based in southeastern China, well out of range of most Japanese targets. Ian Easton, “The Assassin Under the Radar: China’s DH-10 Cruise Missile Program,” *Project 2049 Futuregram 09-005*, October 1, 2009, p. 4, at http://project2049.net/documents/assassin_under_radar_china_cruise_missile.pdf.

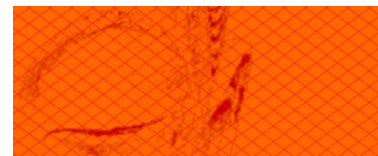
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¹⁶ *Military and Security Developments Involving the People's Republic of China 2012* (Washington D.C.: Office of the Secretary of Defense, May 2012), p. 42, at http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf.

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Surface Missiles,” *Air Power Australia*, March 29, 2013, at <http://www.ausairpower.net/APA-PLA-Cruise-Missiles.html>.

²⁰ Unless otherwise noted, this section draws from *Military and Security Developments Involving the People's Republic of China 2012* (Washington D.C.: Office of the Secretary of Defense, May 2012), at http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf; “Security Environment Surrounding Japan: China,” in *Defense of Japan 2012* (Tokyo: Ministry of Defense, 2012), at http://www.mod.go.jp/e/publ/w_paper/pdf/2012/07_Part1_Chapter1_Sec3.pdf; Jan Van Tol, *AirSea Battle: a Point of Departure Operational Concept* (Washington D.C.: Center for Strategic and Budgetary Analysis, May 2010), at <http://www.csbaonline.org/publications/2010/05/airsea-battle-concept/>; and Andrew S. Erickson, “China’s Modernization of its Naval and Air Power Capabilities,” in Ashley J. Tellis and Travis Tanner (eds.) *Strategic Asia 2012-13: China’s Military Challenge* (Washington D.C., National Bureau of Asian Research, 2012), pp. 61-125.

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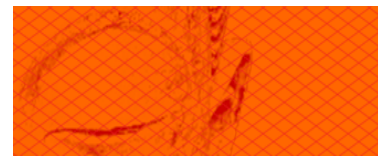
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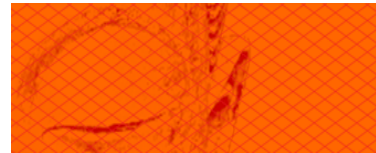
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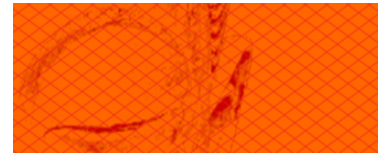
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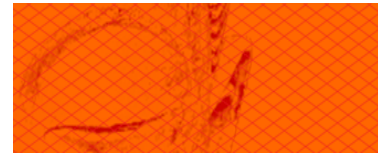
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⁷⁶ THAAD is a reference to Terminal High Altitude Area Defense, a U.S. Army system to shoot down SRBMs, MRBMs and IRBMs using missile interceptors.

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⁸⁰ James Hardy, “The New Eyes in East Asia’s Skies,” *The Diplomat*, January 4, 2013, at <http://thediplomat.com/2013/01/04/s-korea-to-purchase-global-hawk-uavs/>.

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⁸² See Mark Stokes and Ian Easton, “Evolving Aerospace Trends In the Asia-Pacific Region: Implications for Stability in the Taiwan Strait and Beyond,” *Project 2049 Institute Occasional Paper*, May 27, 2010 at http://www.project2049.net/documents/aerospace_trends_asia_pacific_region_stokes_easton.pdf.

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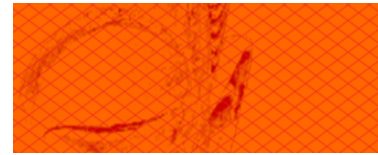
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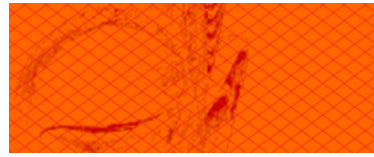
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¹⁰⁰ Ibid, pp. 9-10.

¹⁰¹ See Mark Stokes and Ian Easton, "Evolving Aerospace Trends In the Asia-Pacific Region: Implications for Stability in the Taiwan Strait and Beyond," *Project 2049 Institute Occasional Paper*, May 27, 2010, pp. 36-38, at http://www.project2049.net/documents/aerospace_trends_asia_pacific_region_stokes_easton.pdf.

¹⁰² For an excellent discussion on what this would mean for the U.S. Army, see Jim Thomas, "Why the U.S. Army Needs Missiles: A New Mission to Save the Service," *Foreign Affairs*, May/June 2013, pp. 137-144, available online at <http://www.csbaonline.org/2013/04/22/why-the-u-s-army-needs-missiles-a-new-mission-to-save-the-service/>. For a more detailed discussion of why China's first-strike weapons should compel the U.S. to suspend its INF Treaty obligations until China can be included in the framework, see Mark Stokes and Ian Easton, "Evolving Aerospace Trends In the Asia-Pacific Region: Implications for Stability in the Taiwan Strait and Beyond," *Project 2049 Institute Occasional Paper*, May 27, 2010, pp. 36-38, at http://www.project2049.net/documents/aerospace_trends_asia_pacific_region_stokes_easton.pdf; Mark Stokes and Dan Blumenthal, "Can a Treaty Contain China's Missiles?" *Washington Post*, January 2, 2011, at <http://www.washingtonpost.com/wp-dyn/content/article/2010/12/31/AR2010123104108.html>; John R. Bolton and Paula A. Desutter, "A Cold war Treaty That's Doing Us Harm," *Wall Street Journal*, August 15, 2011, at <http://online.wsj.com/article/SB10001424053111903918104576500273389091098.html>; and David W.



Kearn, *Facing the Missile Challenge: U.S. Strategy and the Future of the INF Treaty* (Arlington, VA: RAND Corporation, 2012), at <http://www.rand.org/pubs/monographs/MG1181.html>.

¹⁰³ Ibid.