

Trends in the US Military's "Rebalance" and the Current State of Japan's Air Self Defense Force

Colonel: Yasuo Kishimoto

Air Development and Test Command Headquarters,
Director of Research and Development Department

Introduction

In March 2014, the US Department of Defense published the 2014 Quadrennial Defense Review (hereinafter referred to as the "2014QDR").¹ The basic idea of the 2014QDR edition was to correspond to the transitions "from an emphasis on today's wars to preparing for future challenges" that the 2012 Defense Strategic Guidance (hereinafter referred to as "DSG")² directed. Although the stabilization operations in the Middle East are nearing their end, the changes in the strategic environment surrounding China, and its military trends, to include the Anti-Access / Area Denial (A2/AD) strategy in the Asia-Pacific region, are less clear due to the opacity of the Chinese.

It has been thought that the US would need to perform a force structure review. The long-term stability operations had an effect on the services' force structure, and a review focusing on readiness and modernization would help re-balance the force. Therefore the 2014QDR, as well clarifying that "the US military should not perform large-scale and long-term stabilization operations," and in addition to issues concerning deployed forces, discusses the modernization required for the three services other than the Army.

On the other hand, the 2014QDR also mentioned the congressional pressure to reduce the defense budget. That is, if the pressure to shrink the budget is not reduced, there will be an imbalance of military force structure, after which re-balancing the force will become very difficult. From this, the question of re-balancing the Joint Force is considered, including force deployment, overall military strength, and the level of involvement in stability operations, which have increased while the size of the Army and Marine Corps has decreased. It

also clarifies the priority investment areas.

The rebalancing of the US military will have an effect on Japan's surrounding security environment as well as the United States. In addition, changes to US Air Force operations, as a result of the rebalancing, will also affect the operations of the Air Self-Defense Force (ASDF). However, in the "overview of the 2015 US Defense Budget Request"³ and the "Impact Analysis on the Budget Sequester,"⁴ the rebalancing of US forces is only presented in pieces throughout the documents. However, the Center for Strategic and Budgetary Assessment (CSBA), a US think tank, has published a proposal to rebalance the US military, including the US Air Force, which is rich in ideas. In light of this discrepancy between documents, this paper will only focus on the CSBA and 2014QDR publications, provide an analysis of them and make some recommendations to the ASDF. These are based on the studies at my previous assignment as the chief of Defense Strategic Research Office, Air Power Studies Center of Excellence.

In addition, this paper compiled three research memos^{5,6,7} within the inaugural issue of the Air Power Studies journal (pages 74-115). Please see these memos for a separate analysis of the 2014QDR.

1. Overview of the 2014 Quadrennial Defense Review

The 2014QDR was published in March 2014, following the DSG which was enacted in 2012. The document proposes a rebalancing of the Joint Force in response to the changes in the security environment. That is, the 2014QDR follows the discourse of the DSG, which establishes the Asia Pacific Region as a top priority, focusing on maintaining stability amongst China's rapid, opaque military modernization and the serious threat posed by North Korea's long-range missiles and weapons of mass destruction (WMD). In addition, the document proposes a shift towards a balanced strategy, moving from the need to perform large-scale, long-term stability operations against asymmetric threats towards the ability to maintain freedom of action amidst A2/AD threats.⁸ (See Figure 1)

The 2014QDR embodies the US military rebalancing concepts from the DSG, which in addition to matters related to deployed forces, discusses the modernization of the US Navy, Air Force and Marine Corps. By reviewing the contents of the 2014QDR we can see that in terms of the rebalance the US military is at-

tempting to clarify its priority investment areas while drawing down the overall size of the force, particularly in the Army and Marine Corps, which had been enlarged to meet the demands of stability operations.

The Air Force investment programs in particular are receiving top priority, which can be seen as related to the relative importance of the Air Force's capabilities in areas such as quick response, global power projection, and contingency response. These capabilities, along with the corresponding capabilities the Navy possesses, are key to supporting counter-A2/AD operations and are considered to be an important capability for the national defense.

The Air Force's 2014QDR priority investment areas are the new Long-Range Strike Bomber (LRS-B), the new aerial refueling tanker (KC-46), and the new fifth-generation fighter (F-35).⁹ These platforms will all be an important part of counter-A2/AD operations. In addition, according to the Fiscal Year 2015 US Defense budget request overview,¹⁰ which was announced on the same day as the 2014QDR, the US Air Force is pursuing a five-fold strategy; air and space dominance, ISR, command and control, rapid global mobility, and global attack. (see Figure 2) The USAF is striving to achieve balance priorities between the precision attack capabilities required for counter-A2/AD operations and improving its long-range strike capability, which is also necessary for countering an enemy's A2/AD strategy. (see Figure 3) While the 2014QDR proposed rebalancing the military with an emphasis on counter-A2/AD operations, the Fiscal Year (FY) 2015 Budget Request was not passed, increasing the pressure in Congress to do something before the budget sequester becomes necessary again. (see Figure 4) If this happens, the scheduled force reduction in or after FY 2016 will become more severe and the rebalancing of the military will be more difficult to achieve.

2. China's A2 / AD concept and the United States response

In June 2014, the US Department of Defense published their Congressional Report on, "The Military and Security Developments of the People's Republic of China."¹¹ According to the report, China's A2/AD capabilities already include the ability to attack to Okinawa with Medium-Range Ballistic Missiles (MRBM) and to attack Guam with air-launched cruise missiles. Furthermore, China is

developing long-range aviation assets that are deployable to base in the Pacific region and extend its ability to attack targets far-off from its coastline, creating a multi-layered offensive capability in the Western Pacific Region. This includes not just the sea, but space and cyberspace as well, as China has developed, maintained and operates various information warfare capabilities.

The same report also discusses the modernization of China's Air Force with the appearance of a fifth-generation fighter (potentially beginning operations in 2018), provision of a long-range cruise missile capability to its bombers, the acquisition of UAV's with extremely long endurance, and other developments. The report specifically focuses on the improvement of their long-range reconnaissance and strike capabilities. This modernization of the Chinese Air Force is likely to lead to the strengthening of their A2/AD capabilities. In addition, there is a possibility that the Xi Jinping Zemin will further promote the modernization of the Air Force, since it was he specifically mentioned strengthening airpower, including the space domain.¹² The changes in the Chinese fighter-bomber situation is shown in Figure 5.

The US has done many studies on China's A2/AD concept. Recently, the RAND Institute published a study on China's A2 capabilities entitled, "Entering the Dragon's Lair" in 2007.¹³ In March of 2010, the Department of Defense published its "2010 Quadrennial Defense Review"¹⁴ which also specifically referenced the A2/AD situation and referred to the Air Sea Battle (ASB) initiative as a means to combat it. Just two months later, the CSBA published a paper on "Air Sea Battle."¹⁵ Later, many US senior-ranking military officials also published their opinions on the ASB concept, and one can see differences in their remarks.¹⁶

Currently, the newest official ASB initiative to come about,¹⁷ in order to counter the A2/AD system, is to simply maintain freedom of action. This comes from the CSBA's concept of ASB and is a big change in strategy from the initiative that once held that the objective was to "defeat" China in an A2/AD campaign. In addition, while the 2014QDR mentions A2/AD countermeasures, it does not specifically mention the ASB initiative at all.¹⁸

On the other hand, in order to defend the first island chain, researchers have proposed offshore control as a strategy to deter conflict. The ASB concept is

merely a strategic initiative lacking a strategic point of view. Furthermore, since the threshold for China's use of nuclear weapons is opaque, the ASB concept has been strongly criticized for its potential risk of creating an unintended nuclear escalation by conducting deep strike.¹⁹

Here it should be noted that the researchers who propose offshore control criticize "deep strike capability," focusing only on the tactical use of weapons. Instead, the capability should be considered in terms of the "Strategic Denial" capability inherent to the concept, intended to "suppress" the opponent at the strategic level. This counter A2/AD capability is a critical component in the successful offshore control strategy.

3. Strategic shift of US troops

The CSBA proposed the following guidance for rebalancing the US military, marking a strategic shift from "compelling force" to "deterrence."²⁰

- (1) Taking into consideration the financial situation the United States is facing, we must shift our approach to national security policy from maintaining a "compelling force" to one with more of an emphasis on "global deterrence."
- (2) To achieve and maintain deterrence requires the ability to defeat invaders or to deny their intended purpose. Thus a joint force, maximizing on long-range attack capability, will be necessary.
- (3) While allied nations continue to plan for their own defense, the US military must establish a means to be able to quickly deploy in support of them when needed.

It is not clear at the moment when US forces will adopt a "shift to deterrence." However, a RAND Institute study found that the effect of long-range bombers, as compared to tactical fighters, on stabilizing a crisis validates the CSBA proposal to shift to deterrence. The RAND Institute study²¹ found that long-range bombers were a better crisis management tool, due to their ability to signal an adversary as well as their responsiveness and flexibility, as well as their inherent structural stability features, such as their deterrent effect and surprise attack capability.²² Due to the influence of these two factors (crisis management tools and structural stability features) we also believe long-range bombers, as compared to tactical fighters, will be the most effective system in the future, particularly with

the structural stability the Long-Range Strike - Bomber (LRS-B) will provide. (see Figure 6)

In addition, corresponding to the US Air Force forced reduction is an increased emphasis on readiness and mission operational capabilities.²³ (see Figure 7) Taking into account the modernization of China's military forces, particularly the recent activities in the East China Sea and the extension of their military forces into the South China Sea, it is our opinion that the strategic choice should be to recognize the necessity of maintaining the readiness of military forces to deter conflict and ensure the stabilization of the Asian Pacific Ocean region. The US Air Force, in addition to the LRS-B plan, is considering other priority investments in the 2014QDR, including the refurbishment of existing bombers, such as the B-1, B-2 and B-52.²⁴ The background behind this discussion is that the current long-range strike capability is insufficient to meet the combat requirements of the future and is non-uniform.²⁵ (see Figure 8) This creates an imbalance in the force structure. This focus on the future, and the current imbalance in the force structure, are the main reasons the US Air Force is currently focusing on its future long-range strike capability.

The LRS-B system will likely have a tremendous deterrent effect, which, when combined with the focus on maintaining readiness, will lead to the high possibility that the US Air Force is shifting to a deterrence based concept for its strategic long-range strike force.

4. Dealing with A2/AD

The CSBA has some specific recommendations to rebalance the US Air Force posture in the Asia-Pacific Theater.²⁶ (see Figure 9) These recommendations are as follows:

- (1) Focus on fielding a Combat Cloud; a combination of wide-area sensors and a command and control network comprising systems connecting the sensors to precision-guided weapons (PGM). This is called the Reconnaissance-Strike Complex (RSC).
- (2) Deploy Long-Range ISR/Attack aircraft, in combination with more unmanned aerial vehicles (UAVs) to the Asia-Pacific region as a countermeasure to A2/AD. For the Air Force this should center on the LRS-B, and for the

Navy their stealth Unmanned Combat Aerial Vehicle (UCAV).

A Combat Cloud is a network designed to facilitate the use of manned and unmanned ISR and attack assets across a wide battle-space. It is possible based on the improvement in sensor capabilities, speed of passing information, and precision-guided weapons. Some of these systems have already been implemented into operations as a part of US military strategy. In other words, the US military's central idea to deal with an A2/AD environment is to utilize the Joint Operational Access Concept (JOAC), as well as the Combat Cloud, and create cross-domain synergy across the operational area.²⁷ Furthermore, subordinate to this broad concept is the Air-Sea Battle (ASB) initiative, also focused on networking, integrating the joint deep battle, while sewing confusion amongst the enemy in order to destroy and overthrow them.²⁸

The commander of the Pacific Air Forces stated they conducted a test wherein a Tomahawk Land Attack Missile (T-LAM) launched from a submarine was directed to a moving target by an F-22 using its own onboard sensors. In the future, it is said that weapons will be guided to targets not by their launching platforms, but will be directly controlled by sensors on the front-lines of the fight.²⁹ US forces in Iraq and Afghanistan have already integrated ISR platforms and sensors into the command control network.³⁰ If you think about the all of the RSC components that are the platforms and sensors involved with ISR integrated operations, then it follows that the concept of integrated ISR is consistent with, indeed a part of, the RSC. (see Figure 11)

On the other hand, from the strategic point of view previously mentioned, the CSBA agrees with the Navy and the Air Force on the importance of long-range ISR/attack aircraft with their emphasis on the UCAV and LRS-B programs as an A2/AD response. When looking at the combat aspects of these platforms along with the geography of the Asia Pacific Region and the characteristics of an A2/AD defense, both types have a longer cruising capability along with the stealth and other special systems required to operate in this area. Taking this into consideration, and accounting for the Air Force and Navy's strategy to deal with the vast area of the Asia-Pacific and the lay-down of US military bases in the region, these aircraft have the range required to conduct long-range attacks. (see Figure 12)

In addition, the persistent ISR systems are vulnerable to “blinding” and “scouting” and thus have a low-probability for survival, becoming the “Achilles Tendon” in any initial A2/AD response.³¹ Therefore stealth is an important factor in ensuring platforms can maintain a persistent presence.³² (see Figure 13) In addition, stealthy, long-range platforms that can exchange information with each other will be required in order to adjust the tactics and attack profiles to conduct attacks against TSTs (Time Sensitive Target) or moving targets under a threat environment.³³

A UAV, in addition to the LRS-B and UCAV, that can carry ISR sensors into an A2/AD environment and conduct multi-role operations, to include attack missions,³⁴ while being controlled in a semi-autonomous fashion and operating in conjunction with other manned and unmanned aircraft, is believed to be required in order to strengthen the density of US forces in the region.

In view of the above, the US Air Force in the Asia-Pacific region, facing an A2/AD environment, will shift to operations utilizing a combat cloud, utilizing networked and integrated systems centering on the LRS-B and UCAV.

5. The JASDF's State of Affairs in defense of Japan

The strengthening of the US Air Force, through its rebalancing and shift to a deterrence based strategy founded upon the strategic long-range strike capability of the LRS-B, in order to counter A2/AD capabilities in the Asia-Pacific region is a reasonable strategy to pursue.³⁵ On the other hand, until now the US Air Force has been a forward-deployed force of tactical fighter aircraft, such as the ones that have guaranteed the “extended deterrence” for US regional stabilization and to support its allies.³⁶ Originally it was desired for it to be a well-balanced development of both forces. However, it cannot be denied that the United States suffered from financial constraints which had an impact on the selection and development of its military forces, forcing trade-offs.³⁷ (see Figure 14) Following this trend, it is considered likely that the US Air Force will shift to a deterrent force based on the long-range attack capability of the LRS-B. Furthermore, the deterrence at the strategic level, provided by the long-range attack capability of the US military, does not necessarily guarantee deterrence at the theater level.³⁸ For this reason, in order to defend our country it will be necessary

for us to strengthen our links to the US Air Force, and taking into consideration the strategic deterrence provided by the US Air Force, and the reliability of this deterrence at the theater level as it complements the forward-based forces of the US Air Force.

(1) The Strategic Deterrent

If the US Air Force has made a shift to a "deterrence" strategy, it will take time to make the necessary advances in long-distance ISR/attack aircraft along with conventional tactical fighters. If a conflict broke out, it is necessary for its allies to establish an environment for US troops to deploy while preparing for the country's own defense as the first step moving forward. In order to defend Japan, we are considering strengthening the below-mentioned ISR capabilities, as well as maintaining and ensuring the US military deployment infrastructure in Japan is considered sufficient.³⁹

It should be noted that in the 2014QDR, under the ballistic missile defense measures to be strengthened, it was mentioned that "through Japan's support the first of two X-Band radars has been deployed in Japan (Kyogamisaki)." Also, as the US Air Force shifts to networked operations utilizing an integrated system, such as the combat cloud, it will affect JASDF operations. It is necessary to ensure the US Air Force recognizes this. In particular, we can help build this recognition through bilateral operations during joint exercises with the US Air Force.⁴⁰ From the viewpoint of conducting effective operations over a broader region, it might be beneficial to adopt some of these capabilities into the JASDF in defense of our country. For example, during combat in a broad operational area, if combining UAV's with our mainly fighter force acts as a Force Multiplier, by improving our ISR capability,⁴¹ then it will provide increased flexibility to JASDF operational command and control. It will be necessary to test the efficacy of this operational concept through war games and operational testing with UAVs in order to determine the right number of UAVs requires, maintenance requirements and so forth.

(2) Improve the reliability of deterrence at the theater level

The second island chain of the A2/AD zone is expected to include Japan's territory, territorial waters and exclusive economic zone (EEZ).(see Figure 12) Therefore to monitor the area of the EEZ requires an ISR capability that will

be highly survivable in A2/AD environment, and in defense of Japan, it is essential for the JASDF to have ISR that can perform urgent operations in a contested zone. In addition, utilizing early warning platforms and unmanned aircraft can be considered part of joint ISR with the US Air Force. In particular, the US military ISR system is constructed as a series of systems, including the command and control platforms. For this reason, we can expect to strengthen the co-operation between our command and control systems in emergencies in Japan, increasing the information sharing between the JASDF and the US Air Force. In addition, since ISR is a focal point of the US Air Force's strategy, cooperation with the US Air Force through joint ISR in defense of Japan will lead to an environmental improvement for the US forces to deploy into.

We are considering specific assets for this capability, such as a fighter/ISR platform, like the F-35, and mounting a targeting pod on the F-2. (see Figure 15) In particular, the F-35 will have high survivability because of its stealth features, and it will also be an asset in common with the US Air Force. Therefore, it would be beneficial to utilize the F-35 as a part of a series of systems performing joint ISR. In addition, as we examine the role of the JASDF in RSC, it is also conceivable to conduct joint operations with the US Air Force under an A2/AD environment. In particular, strengthening the ISR density in the forward areas can be considered to have special significance, since it will be critical for the US Air Force's long-range attack capability to improve its deterrent force.

In addition, space assets such as communication satellites and surveillance satellites are indispensable to the networked, integrated system of the US Air Force. Improving the Space Situational Awareness (SSA) capability of the Japan-US joint force would not only contribute to the improvement of the global ballistic missile defense capabilities, but it would also promote the co-operation between Japan and the US in the space field. It is important to promote deepening ties with the US Air Force from this strategic point of view.

By deepening ties to the US military during the shift to the RSC, will lead to improved deterrence at the theater level,⁴² and can also be expected to lead to improve the defense of our country.

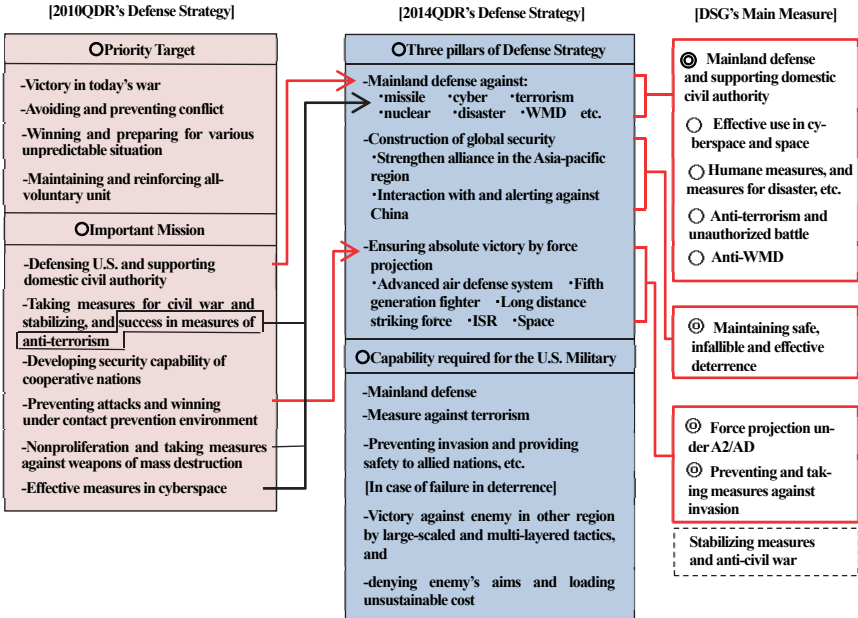
Conclusions

The importance of Asia Pacific region to the United States security policy was clearly shown when the DSG was enacted in 2012 and the highest regional priority was given to the Asia Pacific theater. In the opinion of some experts, the United States perspective, which after 9.11 was temporarily diverted attention to the Middle East, has reverted back to the pre-9.11 perspective.⁴³ In addition to the rapid modernization of the Chinese military, China's various activities in the East China Sea, its improvement of the security infrastructure, including the dredging of its reefs, in the South China Sea, has clarified their stance, and has significantly contributed to the emphasis of the importance the Asia Pacific region carries. However since the publication of the 2014QDR, following the idea of the DSG, in March 2014, the US has become inevitably involved with the issues in Europe surrounding the Ukraine crisis and with the actions of the Islamic State in Iraq and the Levant (ISIL) in the Middle East. Such involvement in the international environment changes the rebalancing of the United States to the Asia Pacific region, though the effect at the present time is not clear, so there is a need to continue to watch the US trends in the future in regards to their military posture.

On the other hand, as seen in the CSBA proposals covered in this paper, there is a reasonable proposal that the US military capabilities will maintain the status quo due to the financial problems. We can see that way of thinking with the analysis we have done in this paper on the impact of the 2014QDR and the forced reduction in the budget.

In this paper, we examined the trends in the US Air Force's rebalance, focusing on the CSBA's proposal, the US Air Force's strategy and the JASDF state of affairs in defense of Japan, coordination at the theater level, the proposal to deepen ties with the USAF through Joint ISR and other activities, and other topics. The adjustments within the US Air Force is becoming more profound, in order to match the "new creative presence paradigm" concept that was proposed in 2014QDR.⁴⁴ We consider the contents of this proposal worth deep consideration by the US Air Force. At the same time, coordination and deepening of ties between the JASDF and the US Air Force, is intended to lead to the improved

defense, through deterrence, of our country. In due course this will improve the overall ability for the US military to provide a deterrent force throughout the Asia-Pacific region.



Source: "Quadrennial Defense Review 2014," Department of Defense, March 4, 2014.

Figure 1 Relation between 2010QDR's Defense Strategy and DGS's Main Measures, and 2014 QDR's Defense Strategy

Measure	Principle Item	Main Equipment, etc.
Air Superiority	1. Corresponding to fifth generation fighter of competing nation and advanced surface-to-air-missile 2. Ensuring space superiority	•Modernization of F22 •Obtaining SBIRS, etc.
ISR (Intelligence, surveillance and Reconnaissance)	1. Observation for obtaining necessary information to be superior to enemy and to make decision, and implement and integrate reconnaissance 2. Providing ISR of full spectrum to military developing in other nation	•Replacing U-2 with RQ-4 •Reduction of MQ-9, etc.
Rapid Global Mobility	1. Reducing rate of air transportation capability for composing military force based on MCA analysis, etc. 2. Maintaining air transportation capability by introducing new refueling aircraft, and developing efficiency	•Introducing KC-46 •Modernization of C-130H Avionics, etc.
Global Strike	1. Seeking rapidity that is important capability for U.S. in terms of deterrence and that is superior to the other military kind A) Nuclear attack by ICBM, etc. B) Attack by B-2, B-52, B-18, F-15E, F-16 2. Focusing on precision attack capability and long distance attack capability against A2/AD	•Introducing F-35 •Modernization of B-18 •Introducing JASSM-ER •Investing in LRS-B, etc.
Command and Control	1. Corresponding to all levels from national decision-making to tactical level 2. Creating war area command and control system using aerial and ground system 3. Ensuring priority of decision-making under A2/AD circumstance	•Repairing E-8CE-3G •Investing new generation JSTARS, etc.

SBIRS: Space Based Infrared System

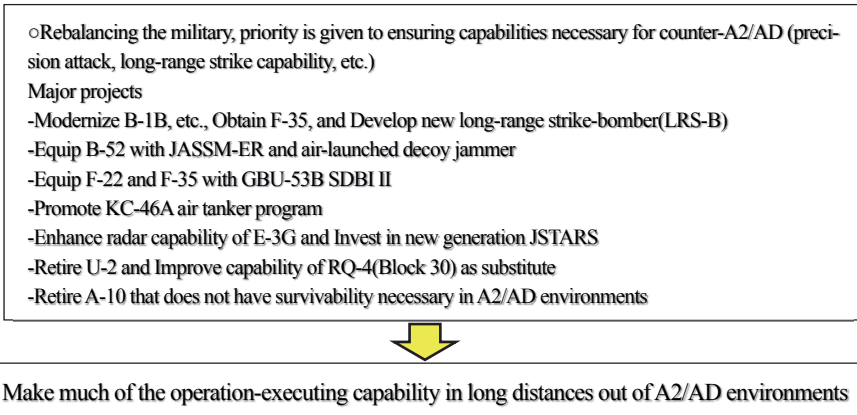
LRS-B: Long Range Strike-Bomber

MCA: Mobility Capability Assessment

JASSM-ER: Joint Air-to-Surface Standoff Missile-Extended Range

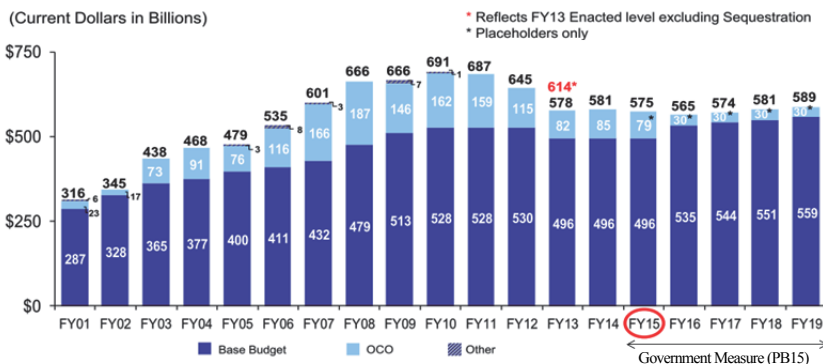
Source: "United States Department of Defense Fiscal Year 2015 Budget Request Overview," Office of The Under Secretary of Defense (Comptroller)/ Chief Financial Officer, March 4, 2014

Figure 2 Major Operations and Directions of USAF



Source: "United States Department of Defense Fiscal Year 2015 Budget Request Overview," Office of The Under Secretary of Defense (Comptroller)/ Chief Financial Officer, March 4, 2014

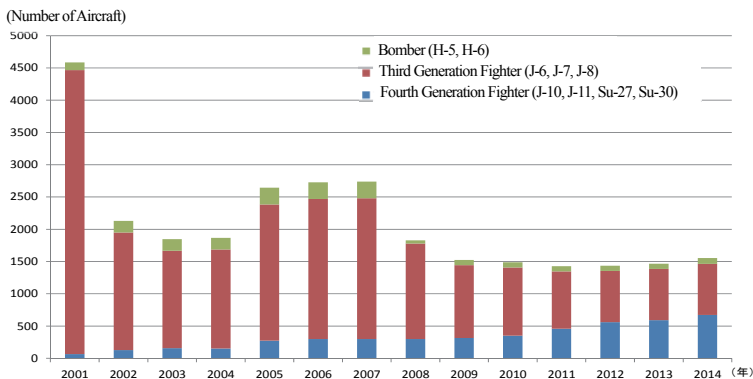
Figure 3 USAF's Priorities



1. Military expenditure before 2010QDR establishment tended to increase, and unclear part (Other) exists
2. Transparency of budget and cost reduction (50B every year) are required by the Congress (FY11:687B to FY13:578B), as a result of BCA (Budget Control Act) establishment in 2011
3. Bipartisan Budget Act 2013 is established, and in FY13, budget was added 38B to 578B and recovered to 614B, in addition, upper limit in FY14 and FY15 was set
4. If the current situation remains, pursuant to BCA, there is a possibility of forcibly reducing \$228.2B from FY14 between FY16 and FY19
5. The government will negotiate with the Congress by proposing PB15 as financial measure for 2014QDR, in order to ensure defense budget based on the measure

Source: "United States Department of Defense Fiscal Year 2015 Budget Request Overview," Office of The Under Secretary of Defense (Comptroller)/ Chief Financial Officer, March 4, 2014.

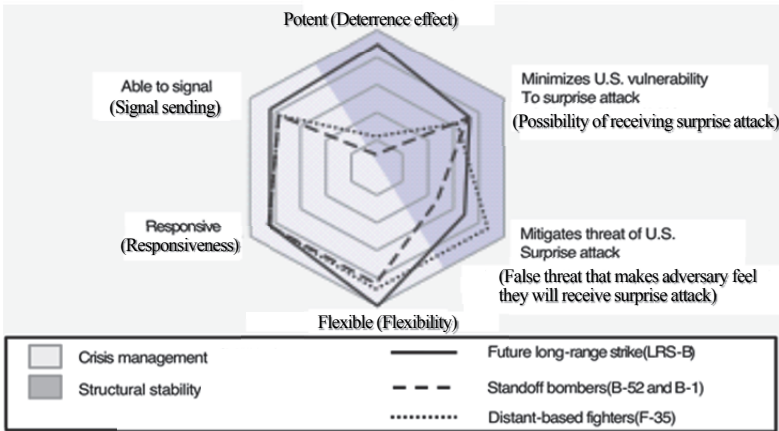
Figure 4 Circumstance regarding US Defense Budget



- [Modernization in Aircraft of Chinese Military]
- While the total number of fighters is decreasing as a result of cut in the third generation fighters, the fourth generation fighters have a tendency to increase.*
 - It is intended to replace H-5 with H-6 for bombers as well, at the same time, also intended to mount YJ-63 cruise missiles.

Source: "Military Balance," *International Institute for Strategic Studies*, ver. 2001-ver. 2014.

Figure 5 Shift in Fighter/Bomber of Chinese Military



Source : Forrest E. Morgan, "Crisis Stability and Long-Range Strike -A Comparative Analysis of Fighters, Bombers, and Missiles", RAND Corporation, 2013.

Figure 6 Comparison of long-range bomber and tactical fighter plane from the viewpoint of crisis stability

	PB15(B\$)	Sequestration Plan(B\$)	Reduction Amount(B\$)	Reduction Rate(%)*1
Military Personnel	678.0	675.3	2.7	2.3
Operational & Maintenance	1,076.6	1,036.5	40.1	34.8
Procurement	549.9	501.5	48.4	42.0
RDT & E*2	336.9	319.0	17.9	15.5
Military Construction	34.8	29.1	5.7	4.9
Family Housing	6.8	6.4	0.4	0.3
Revolving & MGMT Funds	1.8	1.8	0.0	0.0
Total	2,684.8	2,569.6	115.2	100.0

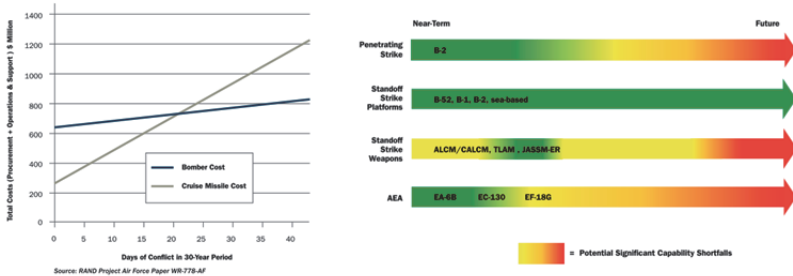
*1 Reduction Rate (%) = (Each Category Reduction) / (Total Reduction) × 100

*2 RDT & E: Research, Development, Test and Evaluation

- The reduction of "Procurement and RDT&E" which will affect future US Forces capabilities is equal to approximately 58% of the total reduction.
- The reduction of "Operation and Maintenance" which will affect US Forces Readiness and Operation Capabilities is equal to approximately 35% of the total reduction.
- Make much of US Forces Readiness and Operation Capabilities

Source: "Estimated Impacts of Sequestration-Level Funding," Department of Defense, April 15, 2014.

Figure 7 Making much of Readiness and Operation Capabilities considering USAF's Sequestration

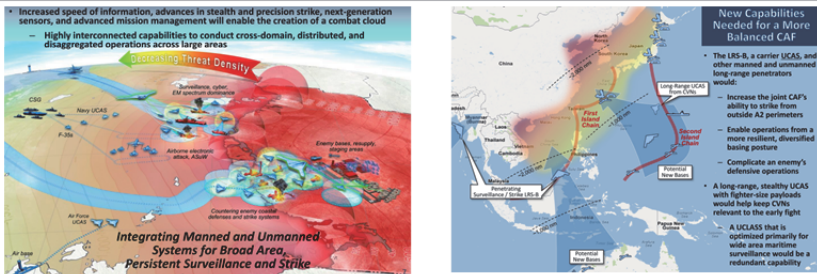


- Penetrating bomber strike is by far lower-cost than cruise missile attack. (upper left)
- Penetrating bomber (B-2) and standoff weapons such as cruise missile may fall short in the future. (upper right)
- Penetrating bombers should be expanded, considering its cost.

Figure 8 Countermeasures against future shortage of long-range strike capabilities

Create a balanced CAF with priority given to long-range ISR/strike aircraft, as a strategic option by US Forces

- Reconnaissance-Strike Complex (RSC) of Combat Cloud linked with broad area sensor, command control network and precision-guided munitions (PGM)
- React to A2/AD in the Asia-Pacific region by centering around Air Force’s LRS-B (long-range ISR/strike aircraft) and Navy’s stealthy unmanned combat air vehicle (UCAV), additionally combining unmanned aerial vehicles

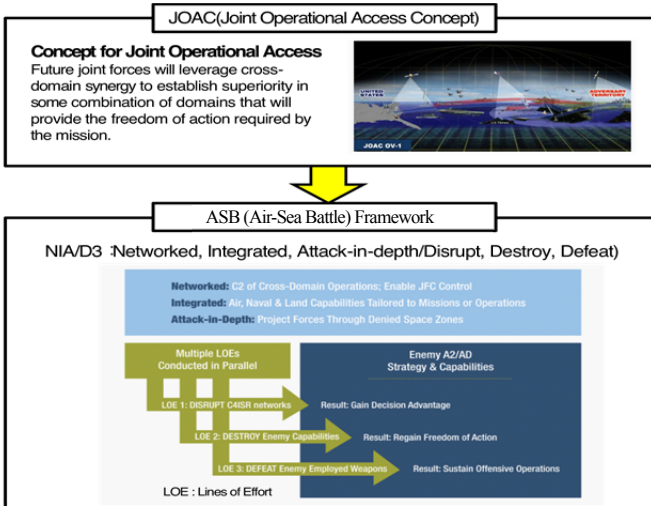


Combat Cloud Image

A2/AD reaction by LRS-B and UCAV

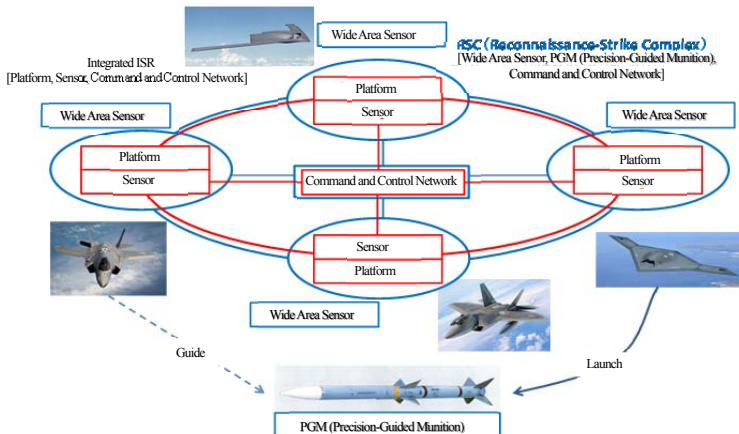
Source: Mark A. Gunzinger, David A. Deptula, “Thinking About A Balanced Future Combat Air Force,” CSBA, April 14, 2014.

Figure 9 Suggestion by CSBA about what future USAF should be



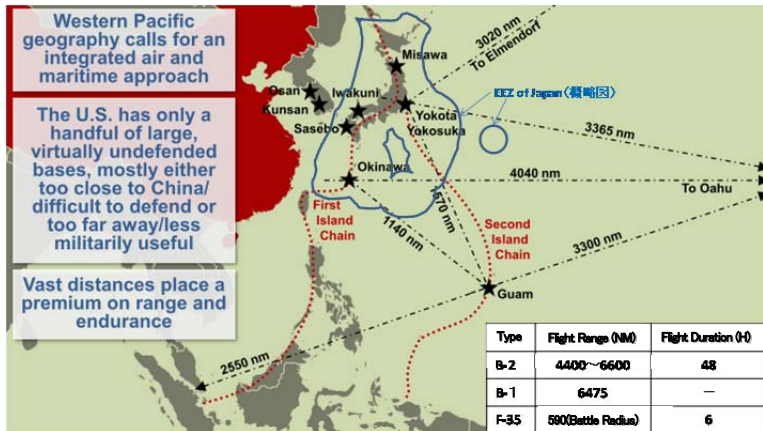
Source: 1 "Joint Operational Access Concept," Joint Chief of Staff, January 17, 2012.
 2 "Air-Sea Battle, Service Collaboration to Address Anti-Access & Area Denial Challenges, Air-Sea Battle Office, May 2013.

Figure 10 "Cross-Domain Synergy" and "NIA/D3"



Source:
 1 Mark A. Gunzinger, David A. Deptula, "Thinking About A Balanced Future Combat Air Force," CSBA, April 14, 2014.
 2 Dr. Robert P. Haff Jr., Ahmad Datta, "Joint Intelligence, Surveillance, and Reconnaissance in Contested Airspace," Air & Space Power Journal, Volume 28, Issue 3, May-June 2014.

Figure 11 Relationship between RSC and Integrated ISR



Source: 1 Jan van Tol with Mark Gunzinger, Andrew Krepinevich, and Jim Thomas, "AirSea Battle: A Point-of-Departure Operational Concept," CSBA, May 18, 2010.
 2 HIS Jane's All the World's Aircraft 2014-2015.
 3 Retouched Picture from Japan Coast HP<www.kaiho.mlit.go.jp/>

Figure 12 Topographical Characteristic of the Asia-Pacific Region

Division	Un-Contested Airspace (ISR Assets in Iraq and Afghanistan)	Contested Airspace (ISR Assets Required under A2/AD Circumstance)
Unmanned Aerial Vehicle	<ul style="list-style-type: none"> • Predator • Reaper 	<ul style="list-style-type: none"> • Unmanned Combat Air System Demonstrator (UCAS-D) • Unmanned Carrier-Launched Airborne Surveillance and Strike system (UCLASS) →UCAV(Unmanned Combat Aerial Vehicle)
	<ul style="list-style-type: none"> • Global Hawk 	<ul style="list-style-type: none"> • Global Hawk with a self protection (Laser Alerting Device, Radar Warning Receiver, Electronic Countermeasure/Jamming, Towed Decoy)
Manned Aircraft	<ul style="list-style-type: none"> • F-15, F-18 with targeting pods • F-16CJ for SIGINT • AC-130 with video capabilities 	<ul style="list-style-type: none"> • F-22 • F-35
Satellite, etc.	<p>Space deployment type platforms were not suitable for supplement of moving tactical targets in Iraq and Afghanistan. On the other hand, the platforms were suitable for new missions such as observing in vast areas of Western Pacific Ocean or the Persian Gulf, for example, and strategy evaluation. The mounted infrared radiation and radar-like sensor play more important roles as space deployment type ISR system, as well as communication and contribution to C2.</p>	<ul style="list-style-type: none"> • Supplement of GPS System(Providing Time/ Location Information to ISR Asset, Guiding Air-Launched PGM) • Advanced Extremely High Frequency(AEHF) Satellite System (Improving ISR Asset Integration Capability of Strategic/Tactical Level) • Family of Advanced Beyond-Line-of-Sight Terminals (Improving Easiness of Communication between AEHF Satellite and Aerial Stay Type ISR Asset) • Restarting Laser Type Transformational Satellite System • Providing Self-Protection Function against Space Deployment Type Asset

1 Stealth is especially required to improve survivability for Aerial Stay Type ISR Asset (Unmanned Aerial Vehicle, Manned Aircraft) under A2/AD circumstances.
 2 Improvement of capability relating to Integrated ISR is required for Space Deployment Type ISR Asset such as satellites, and self-protection function is also necessary.

Source: Dr. Robert P. Haffa Jr., Anand Datta, "Joint Intelligence, Surveillance, and Reconnaissance in Contested Airspace," Air & Space Power Journal Volume 28, Issue 3, May-June 2014.

Figure 13 Survivability of ISR Asset under A2/AD Circumstance



	AEI (American Enterprise Institute)	CNAS (Center for a New American Security)	CSBA (Center for Strategic & Budgetary Assessments)	CSIS (Center for Strategic & International Studies)	DOD (Department of Defense)
[If the sequestration against defense budget continues for 5 years]					
F-35	+180	-340	-240	No Change	No Change*
LRS-B	Accelerate			Delay	No Change
[If the sequestration against defense budget continues for 10 years]					
F-35	+100	-340	-320	-80	-48*
LRS-B	Accelerate			Delay	No Change

* estimated value

Source: "The FY 2015 Defense Budget: Balancing Strategy and Resources," CSBA, March, 2014.

1 CNAS maintains, as well as CSBA, that LRS-B should be made much of even if F-35 budget is drastically cut. And also, three think tanks, adding AEI to these 2 think tanks, suggest that LRS-B be obtained increasingly quickly.
 2 CSBA supposes that DoD will also accord priority to LRS-B with acceptance of F-35 budget reduction if the sequestration continues for 10 years

Figure 14 Think tanks analysis of Sequestration Influence

<p>F-35</p> 	<ol style="list-style-type: none"> 1. Gathering information relating to Stand-off jamming and enemy's condition, and delivering to integrated network 2. Recalculation of mission route according to enemy's air defense information 3. Detecting and homing ballistic missiles by DAS (Distributed Aperture System) 4. By AESA (Active Electronically Scanned Array) radar: <ul style="list-style-type: none"> -Improving resolution of target -Action against jamming by enemy -Deceiving enemy (utilizing frequency storing device)
<p>Targeting Pod</p>  <p>(Sniper Pod)</p>	<p>Attack with precision-guided weapon and in addition, Non-traditional ISR is possible</p> <ol style="list-style-type: none"> 1. High resolution FLIR (Forward Looking IR) and TV sensor 2. Laser target tracking capability that receives laser target from other aerial and ground asset 3. Downloading video image for improving SA(Situational Awareness) of ground force [Mounting Achievement] F-15, F-16, B-1, A-10C, etc.

Source: 1. Dr. Robert P. Haffa Jr., Anand Datla, "Joint Intelligence, Surveillance, and Reconnaissance in Contested Airspace," Air & Space Power Journal Volume 28, Issue 3, May-June 2014.
 2. Lockheedmartin < <http://www.lockheedmartin.com/us/products/Sniper.html> >.

Figure 15 ISR Capability of Targeting Pod and F-35 and F-2

Footnotes

- 1 “Quadrennial Defense Review 2014,” Department of Defense, March 4, 2014.
- 2 “Sustaining U.S. Global Leadership: Priorities for 21st Century Defense,” U.S. Department of Defense, January, 2012.
- 3 “United States Department of Defense Fiscal Year 2015 Budget Request Overview,” Office of The Under Secretary of Defense (Comptroller)/ Chief Financial Officer, March 4, 2014.
- 4 “Estimated Impacts of Sequestration-Level Funding,” Department of Defense, April 15, 2014.
- 5 戦略研究グループ「2014QDR に関する分析」『エア・パワー研究』創刊号、August, 2014, pp.74-85.
- 6 Ibid, 「国防予算の強制削減による影響の分析」, pp. 86-99.
- 7 Ibid, 「Balanced Future Combat Air Force」, pp. 100-115.
- 8 Sustaining U.S. Global Leadership, p.4, &p.8. DSG proposes shifting from stabilization operations to balanced operations for projecting forces to challenge-receiving areas against approach and freedom of maneuver by asymmetric measures.
- 9 Quadrennial Defense Review 2014, p.28.
- 10 United States Department of Defense Fiscal Year 2015 Budget Request Overview, pp. 7-15-24.
- 11 “Annual Report To Congress, Military and Security Developments involving the People’s Republic of China 2014,” Office of the Secretary of Defense, June 10, 2014.
- 12 Appeared as an article related to PLA report “Deep Learning of important statements by Xi Jinping about national defense and force building”, summarizing the statements at the 2nd senior officer study meeting (24 through 29 March)
- 13 Roger Cliff, Mark Burles, Michael S.Chase, Derek Eaton, Kevin L. Pollpeter, “Entering the Dragon’s Lair: Chinese Anti-Access Strategies and Their Implications for the United States,” Rand Corporation, 2007.
- 14 “Quadrennial Defense Review 2010,” Department of Defense, February, 2010.
- 15 Jan van Tol with Mark Gunzinger, Andrew Krepinevich, and Jim Thomas, “AirSea Battle:A Point-of-Departure Operational Concept,” CSBA, May 18, 2010.
- 16 平山茂敏「エアシー・バトルの変容」『海幹校戦略研究』第3巻第2号、December, 2013, pp. 22-41.
- 17 “Air-Sea Battle, Service Collaboration to Address Anti-Access & Area Denial Challenges,” Air-Sea Battle Office, May, 2013.
- 18 “Department of Defense Briefing on the Fiscal Year 2015 Department of Defense Budget and the 2014 Quadrennial Defense Review”, March, 5, 2014. Wormuth, Undersecretary of Defense for Policy answered to the questions concerned with ASB, “2014QDR doesn’t mention ASB, but it is a future idea

different from the rebalancing this time, and we are continuing to consider carrying out operations under threatening missiles, showing strong positions in the Asia-Pacific region.

- 19 T.X.Hammes, "Sorry Air Sea Battle Isn't about China," *The National Interest*, August 7, 2013. Off-shore Control is a military strategy to stop China's export by constructing a concentric circle which aims 1) to deny China use of the seas inside the First Island Chain, 2) to defend the First Island Chain, and 3) dominate the seas and the airspace outside the First Island Chain. In any operation, we do not intrude into China's territorial airspace.
- 20 Bryan Clark, Chris Dougherty, Mark Gunzinger, Todd Harrison, Erick Lindsey, Evan Montgomery, Jim Thomas, "Rebalancing America's Military for A New Era," CSBA, February 5, 2014.
- 21 Forrest E. Morgan, "Crisis Stability and Long-Range Strike -A Comparative Analysis of Fighters, Bombers, and Missiles", RAND Corporation, 2013.
This research uses the term "Future Bomber" instead of "LRS-B".
- 22 Ibid, p. Summary XV. Structural stability is determined by strategic environments such as geography, political relations, and force structures.
- 23 Estimated Impacts of Sequestration-Level Funding.
- 24 Jeremiah Gertler, "U.S. Air Force Bomber Sustainment and Modernization: Background and Issues for Congress," Congressional Research Service, June 4, 2014.
- 25 Mark A. Gunzinger, "Sustaining America's Strategic Advantage in Long-Range Strike," CSBA, September, 2010.
- 26 Mark A. Gunzinger, David A. Deptula, "Toward A Balanced Combat Air Force," CSBA, April 11, 2014.
- 27 "Joint Operational Access Concept," Joint Chief of Staff, January 17, 2012, p. 14.
- 28 "Air-Sea Battle, Service Collaboration to Address Anti-Access & Area Denial Challenges," Air-Sea Battle Office, May 2013, P. 4.
- 29 Robbin Laird, "Pacific Needs Better Allied, US Air-Missile Integration: PACAF Gen. Carlisle," *Breaking Defense*, March 7, 2014, p. 3.
- 30 Dr. Robert P. Haffa Jr., Anand Datla, "Joint Intelligence, Surveillance, and Reconnaissance in Contested Airspace," *Air & Space Power Journal* Volume 28, Issue 3, May-June 2014, p. 30.
- 31 AirSea Battle: A Point-of-Departure Operational Concept, P. 56. "Blinding" is to deny the adversary vital ISR information by destroying or degrading it, protecting our ISR capabilities.
Scouting is to reconnoiter and immediately detect military power under enemy's command control network, and to execute attacks (reconnaissance, attack) before enemy's Weapon Release.
- 32 Joint Intelligence, Surveillance, and Reconnaissance in Contested Airspace, p. 38.

- 33 Ibid, p. 44.
- 34 Thomas P. Ehrhard, Robert O. Work, "Range, Persistence, stealth, and networking: the case for a Carrier-Based Unmanned Combat Air system," CSBA, 2008, p. 92.
- 35 Carl D. Rehberg, Christopher Wrenn, "Air and Sea Power Shaped for the Asia-Pacific Rebalance," *Strategic Studies Quarterly* 2014.
- 36 Michael Kreig, Leon Perkowski, Lt. Colonel, "Shaping Air and Sea Power for the Asia- Pivot," *Strategic Studies Quarterly* 2013.
- 37 "The FY 2015 Defense Budget : Balancing Strategy and Resources," CSBA, March, 2014. According to this reference book, more than one think tank are examining the sequestration influence.
- 38 Richard L. Armitage, Kurt M. Campbell, "Strengthening Deterrence in Asia," Atlantic Council, October 2014. Both authors point out that superior military power in high stage of escalation does not compensate the weak spot in low stage, and that there is a strong possibility that the capability necessary for fighting a big conflict with China and winning it is not enough for deterrence in "gray zone".
- 39 Robbin Laird, "Pacific Needs Better Allied, US Air-Missile Integration: PACAF Gen. Carlisle." In this article, Gen. Carlisle, Commander of Pacific Air Forces, noticed the importance of logistic support by allied nations.
- 40 Robbin Laird, "Pacific Needs Better Allied, US Air-Missile Integration: PACAF Gen. Carlisle." In this article, Gen. Carlisle, PACAF Commander, suggests the importance of joint exercise with allied nations, taking the missile defense with Japan as an example.
- 41 Capt. Michael Byrnes, "Nightfall : Machine Autonomy in Air-to-Air Combat," *Air & Space Power Journal* Volume 28, Issue 3, May-June 2014. There is a dispute in USAF about the introduction of Autonomous UAV to Air-to-Air Mission.
- 42 Richard L. Armitage, Kurt M. Campbell, "Strengthening Deterrence in Asia." Both authors mention that US allies and partner nations require more effective methods than ever for sharing information and strong capability in the fields such as amphibian operation, Intelligence, Surveillance and Reconnaissance (ISR) and maritime patrol and intercept.
- 43 高橋杉雄「米国の『リバランス』とアジア太平洋地域の安全保障」、東京財団、November 4, 2012.
- 44 "Deputy Undersecretary of Defense for Strategy, Plans and Force Development, Discussion QDR at Washington Foreign Press Center," March 5, 2014. Wormuth, Undersecretary of Defense for Policy, mentions that US will plan to deepen strategic program with allied nations and enlarge the substance of joint exercise.