

How to Neutralize China's Advantages in a South China Sea Conflict for the U.S. Navy and Its Implications for Republic of Korea Navy

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I . Introduction

what is of supreme importance in war is to attack the enemy's strategy.
-Sun Tzu, p.77, 1963.

Military tension between the United States(U.S.) and China has been intensifying in the South China Sea(SCS) for many years. On September 30, 2018, a U.S. Navy ship came close to colliding with a Chinese warship that had challenged the U.S vessel's presence in the SCS. The destroyer USS Decatur was performing a freedom of navigation operation, sailing close to Chinese-claimed reefs in the Spratly Islands, when it was approached by a Chinese destroyer, the Lanzhou. The two ships came within 45 yards of each other.¹⁾ Recently China has been responding more aggressively to the U.S.'s freedom of navigation operations.

The perspective of China's leader Xi Jinping about the SCS is very aggressive. In October 25, 2018, Xi made the following comments to the Southern Theatre Command while he was on an inspection tour: "It's necessary to strengthen the mission ... and concentrate preparations for fighting a war. We need to take all complex situations into consideration and make emergency plans accordingly. We have to step up combat readiness exercises, joint exercises and confrontational exercises to enhance servicemen's capabilities and preparation for war."²⁾ President Xi also ordered the military region responsible for monitoring the SCS to assess the situation and boost its capabilities to handle any emergency.³⁾ As a result, the possibility of a conflict between the U.S. and China is increasing in the SCS.

Since 2000, China has rapidly increased its naval capabilities. The People's

1) Brad Lendon, "Photos show how close Chinese warship came to colliding with US destroyer," *CNN*, October 4, 2018.

2) Ryan Gaydos, "China's Xi Jinping tells military advisers overseeing South China Sea to prepare for fighting a war," *Fox News*, October 29, 2018.

3) Kristin, "Prepare for war, Xi Jinping tells military region that monitors South China Sea, Taiwan," *South China Morning Post*, October 27, 2018.

Liberation Army Navy(PLAN)'s expansion from 2000 to 2018 exceeds the buildup in any other nation's navy in the post-World War II era.⁴⁾ In addition to the naval buildup, China has continued island-building in the SCS, which contributes to China's control of waters inside the first island chain. In other words, China now has developed the potential capability to oppose all air and sea movement within or through the first island chain.⁵⁾ China also has developed missiles(DF-21D/26) that can strike land targets and naval ships(including aircraft carriers) operating from China's shores out to the first island chain.⁶⁾

Professor, Milan Vego of the U.S. Naval War College pointed out that operational factors such as time, space, force should be balanced to achieve freedom of action. Time means responding faster to the threat of the opponent. Space means deploying forces in the battle field. Finally, force means integration of fire power and logistical support.⁷⁾

With China's aggressive intentions and military capabilities, China has challenged U.S. maritime dominance in the Indo-Pacific region because China's island-building, and missiles could pose a threat to U.S. naval forces and U.S. bases in Japan, South Korea, and the Philippines.⁸⁾ So, to neutralize China's advantages in the SCS, the U.S. should develop an operational concept how to use time, space, force with allies and partners in a SCS conflict.

The scope of this paper ranges from the escalation of U.S.-China conflict in the SCS to the early stages of a war. In other words, this model applies to the period prior to full-scale war, if that were to occur. The composition of this paper is also as follows. First, China's sea control against the U.S. Navy in the

4) James E. Fanell, "China's global naval strategy and expanding force structure," *Naval War College Review*, Vol.72, No. 1, 2019, p.16.

5) Sam Bateman, "China's latest moves to control the South China Sea," *East Asia Forum*, 5 June, 2018.

6) U.S. Defense Intelligence Agency, "China Military Power: Modernizing a Force to Fight and Win,"(2019), P.91.

7) Milan Vego, *Joint Operational Warfare: Theory and Practice*, Newport, RI: Naval War College, reprint 2009, III-7, 29, 33.

8) Robert Ross, "The end of U.S. Naval Dominance in Asia," *Lawfare*, November 18, 2018.

SCS will be explained. Second, China's possible advantages in a SCS conflict will be discussed. Third, operational factors(time, space, force) to neutralize China's advantages will be examined. Finally, implications for the U.S. Navy-Republic of Korea Navy(ROKN) coordination will be suggested.

II . China's Sea Control Against the U.S. Navy in the South China Sea

China's sea control against the U.S. Navy in the SCS can be largely divided into two parts: island-building and development of missile capability. Since December 2013, China has been rapidly gaining effective control of the SCS by occupying the Spratly Islands and Fiery Cross Reef. China constructed infrastructure at its outposts on the Spratly Islands and Fiery Cross Reef. These outposts provide China with persistent military bases to enhance its presence in the SCS and improve China's ability to control maritime space. China has an airfield, surface search radars, electronic jamming equipment, surface-to-air missiles, and anti-ship missiles on these outposts,⁹⁾ which would divert the U.S. navy from performing other missions and increase risks for the U.S. Navy in various combat scenarios.¹⁰⁾

Second, China is developing missile capabilities intended to strike regional targets.¹¹⁾ DF-21D/26 allow China to conduct precision strikes against land bases and U.S. naval ships, including aircraft carriers.¹²⁾ In the early stages of a war, by using ballistic missiles to strike U.S. forward bases and U.S. naval ships, China could deny the U.S. Navy access to the Chinese coast, which

9) Ronald O'Rourke, "China's Actions in South and East China Seas: Implications for U.S. Interests—Background and Issues for Congress," CRS REPORT, January 31, 2019, pp.15-16.

10) Ben Dolven, "Chinese Land Reclamation in the South China Sea: Implications and Policy Options," CRS REPORT, June 18, 2015, pp. 9-12.

11) Office of The Secretary of Defense, "2019 Missile Defense Review," 2019, p.19

12) U.S. Defense Intelligence Agency, "China Military Power: Modernizing a Force to Fight and Win,"(2019), p.91.

contributes to China's sea control in the SCS.

Using island-building and threat of missiles, China has tried to control the sea within the first island chain. In the first island chain, the U.S. could be denied power projection by forcing its aircraft carrier far away from the Chinese coast, particularly during the early stages of a war. To defeat China's efforts to control the sea near the first island chain, the U.S. should encourage its allies and partners to neutralize China's advantages in a SCS conflict.

III. China's Advantages in a South China Sea Conflict

1. Time

Required Additional ISR

According to the research thinktank GlobalSecurity.org, the implementation of China's Over The Horizon Radar(OTH-R) system in 2017 enables complete coverage of the SCS, with ability to detect carrier strike groups and aircraft at ranges of over 1,600 nautical miles.¹³⁾ This extended view gives China the ability to locate, track, and target U.S. Navy platforms, and is a significant component of the A2/AD architecture. In other words, implementation of multiple signals intelligence(SIGINT) ground stations in and around mainland China, plus a robust intelligence-gathering fleet of ships(both Navy and the paramilitary maritime militia), focus on detecting and tracking U.S. Navy platforms at distant ranges.¹⁴⁾ With China aggressively employing A2/AD capabilities across the SCS, China forces the U.S. Navy to be strictly passive electronic warfare(EW) and communications/signals intelligence.¹⁵⁾ Yet, for the

13) Globalsecurity.org, "Over-the-Horizon Backscatter Radar (OTH-B)," accessed July 16, 2019, <https://www.globalsecurity.org/wmd/world/china/oth-b.htm>.

14) Kimberly Underwood, "China Advances Signals Intelligence (August 13, 2018)," *Signal*, accessed April 15, 2019, <https://www.afcea.org/content/china-advances-signals-intelligence>.

15) Kris Osborn, "Navy Strengthens Ship-Based Electronic Warfare," (December 9, 2016),

U.S. Navy, emissions control(EMCON) alone will not be enough to remain undetected and detect PLAN platforms inside the first island chain. So, the U.S. needs to require additional ISR to attack effectively first.

2. Space

1) Concentrated U.S. Forces in One Place

The U.S. Naval forces concentrated in Japan would be vulnerable to the enemy's attack due to proximity to China. Milan Vego maintains that "it is invariably a bad thing to rely on the use of a single major base in wartime, because then one's own forces use the same line of operation for both attack and retreat."¹⁶⁾ In other words, in a conflict, China could seriously damage the U.S. naval forces immediately because they are concentrated in one place(Japan). The U.S. should disperse its naval forces to improve their survivability.

2) U.S. Bases and Forces Close to the First Island Chain

First, before the outbreak of a war, the U.S. should consider how to protect military assets. China could use its missiles to conduct a surprise preemptive strike against U.S. and its allied military bases, vulnerable carriers and warships in port. Most of the U.S. and allied military bases are located within China's missile range, and it appears that China has been conducting exercises to strike those bases.¹⁷⁾ Therefore, the U.S. should carefully analyze how to protect their forces in bases.

Second, the U.S. should consider where to deploy warships during early stages

accessed July 14, 2019, <https://defensesystems.com/articles/2016/12/09/sewip.aspx>.

16) Milan Vego, *Naval Strategy and Operations in Narrow Seas* (New York: Frank Cass Publishers, 2003), p.63.

17) Zachary Keck, "Missile Strike on U.S. Bases in Asia: Is This China's Real Threat to America?", *The National Interest*, July 29, 2017; Thomas Shugart, "Has China Been Practicing Preemptive Missile Strikes Against U.S. Bases?," *War on The Rocks*, February 6, 2017.

of a war because the U.S. navy would be denied access to the Chinese coast due to China's efforts to control the sea within the first island chain. In addition, the Distributed Lethality(DL) concept of the U.S. navy relies upon breaking up the defensive surface forces into smaller offensive surface action groups(three to four U.S. and allied vessels)¹⁸⁾. Given China's growing anti-surface missile threats and DL concept, the U.S. should develop ways to deploy naval forces in wider waters while improving the viability of naval forces.

3. Force

1) Needed Additional Combat Power

To weaken U.S. power projection into the Indo-Pacific region, China developed joint fire strike capabilities. These includes ballistic and cruise missiles of PLAN, PLA Air Force(PLAAF), and the PLA Rocket Force (PLARF).¹⁹⁾ In particular, PLARF controls the largest missile force in the world and has an inventory of more than 2,000 ballistic and cruise missiles that strike targets as far away as Guam. China's missile systems have outranged U.S. power projection because the U.S. only relies on air and sea platforms for power projection into the Indo-Pacific region.²⁰⁾ To overcome China's joint fire strike capabilities, the U.S. should use the firepower of its allies and partners to strengthen its power projection.

18) Thomas Rowden, "Distributed Lethality," *Proceeding Magazine*, U.S. Naval Institute, Vol.141/1/1,343, January 2015.

19) Harry B. Harris JR. "Statement of admiral Harry B. Harris JR., U.S. Navy Commander, U.S. Pacific Command before the House Appropriations Committee - Defense Subcommittee On U.S. Pacific Command Posture," April 26, 2017.

20) Dave Deptula, "Whether The U.S. Scraps The INF Or Stays In, China Must Be Checked," *Forbes*, November 5, 2018.

2) Not Enough Maritime interdiction and Facilities for the U.S. Navy

First, the U.S. is required to blockade major hubs on Chinese trade routes for maritime interdiction. China announced plans for the 21st Century Maritime Silk Road at the 2013 summit of the Association of Southeast Asian Nations(ASEAN) in Indonesia. To accommodate expanding maritime trade traffic, China would invest in port development along the Indian Ocean, from Southeast Asia all the way to East Africa.²¹⁾ The U.S. should try to pose a deeper threat to China's maritime Silk Road because an economic blockade is a useful way to pressure on an adversary to contain a war during peacetime. ²²⁾

Second, the U.S. would be limited to recovering the damaged ship. If a U.S. surface ship gets badly damaged, they could use the repair facilities in Yokosuka, Japan. Japan is the only ally in the SCS to have these kind of facilities.²³⁾ Yet, during a naval conflict against a competent adversary, a major U.S. base(Japan) is also equally at risk for conducting battle damage repairs²⁴⁾ because it is located close to the first island chain. To carry out the war continuously, the U.S. should ensure that damaged warships are recovered and returned to the battlefield.

21) Andrew Chatzky and James McBride, "China's Massive Belt and Road Initiative," Council on Foreign Relations, May 21, 2019.

22) Geoffrey Till, *Maritime Strategy and The Nuclear Age* (London: Macmilan Press, 1984), pp.194-195.

23) Christopher Cedros, "Distributed Lethality and the Importance of Ship Repair," *Real Clear Defense*, February 15, 2017.

24) Wes Hammond, "Fleet Maintenance and Sustainment for Naval Maneuver Warfare More Than Ship Salvage and Battle Damage Repair," *The Strategy Bridge*, May 15, 2017.

IV. How to Neutralize China's Advantages in a SCS conflict

To neutralize China's advantages in a SCS conflict, the U.S. should consider the following: Time(intelligence: sharing information), Space(distribution: dispersing naval forces, protection: deployed forces considering enemy threats), Force(fire: strengthening lethality, sustainment: ensuring logistics).

1. Time

Intelligence: Sharing Information

For the U.S. Navy to have the plan to initiate an effective first strike in a conflict with China, they must be able to target the adversary(scouting) while preventing the same from happening to friendly units(anti-scouting). First of all, for scouting, the U.S. could utilize unmanned aerial vehicles(UAVs) from Australia, Thailand, the Philippines, Vietnam to share information about the adversary.²⁵⁾ These UAV could enhance maritime domain awareness for the U.S. and increase information sharing between the U.S. and other countries in the SCS.²⁶⁾ The U.S. which can use more varied scouting platforms at longer ranges than the adversary will have both the tactical and operational advantage in combat. In addition, for anti-scouting, employment of deception plans, blending in with merchant shipping of allies and partners, and minimizing operations that are easily attributable to military platforms(flight operations), can be used simultaneously.

Second, Aegis ships of allies could be also used for ISR. There are three allied countries that have Aegis ships: Australia, Japan, and South Korea. These Aegis

25) Rich Abbott, "Australia Puts \$1B Toward Unmanned ISR With Six MQ-4C Tritons," *aviationtoday*, June 27, 2018; Jon Grevatt, Bangkok, Thailand expands ties with Israel through UAV acquisition, *Jane's 360*, 26 June 2018; Amo Rojkes Dome, Report: Elbit sold Hermes 450 UAVs to the Philippines, *ISRAEL DEFENSE*, August 24, 2018.

26) Mike Yeo, These US partners in the Asia-Pacific are to receive ScanEagle drones, *Defense News*, June 5, 2019.

ships have been upgraded to Aegis Baseline 9. This system gives the ships the ability to share targeting and other data in real-time with ships and planes operating in the SCS. The Aegis ships can provide an advanced air defense system capable of engaging enemy aircraft and missiles more than 90 miles away.²⁷⁾ By sharing information about the enemy, in situations where the U.S. C2 systems and ISR assets are restricted, the U.S. can maintain awareness of the adversary.

The critical requirement for sharing information is regional ISR architecture with allies and partners. Unfortunately, the U.S. relies on mostly on its organic ISR capability or bilateral ISR agreements to address security concerns. Individual countries usually prefer to deal with security issues on a bilateral basis. In addition, distrust resulting from long-standing territorial and maritime claims among allies and partners is also hindering the formation of a regional ISR architecture.²⁸⁾ To counter this, the U.S. needs to provide allies and partners with more opportunities to enhance operational interoperability, including ISR in the Indo-Pacific region.

2. Space

1) Distribution: Dispersing Naval Forces

The U.S. should disperse its naval forces to Japan and Australia. Deploying the forces to Japan and Australia would complicate China's strike plan and reduce the chance of losing the majority of naval forces during the opening salvo. In addition, if U.S. naval forces deploy on Australia's west coast, the U.S. could put its ships outside range of China's main missiles(DF-21D/26) and access both the Indian Ocean and the SCS directly. This contributes to the U.S. expanding its influence in the Indian Ocean. It will also be effective to

27) Ben werner, "Australian Destroyer Will be First Foreign Warship to Install Raytheon's Cooperative Engagement Capability", *USNI News*, December 21, 2017.

28) Andrew Torelli, "US Intelligence, Surveillance and Reconnaissance challenges in the Asia-Pacific," Royal Australian Air Force Air Power Development Centre, May 2013. pp.12-17.

distribute warships for sea battle by geographically dividing the U.S. warships into two areas. The U.S. could thus improve the viability of its naval forces and respond quickly to China's threats in a conflict.

The critical requirement for deploying the U.S. naval forces to Japan and Australia is cost. Yet, the cost issue may be positively considered by the U.S. with Australia because dividing the U.S. naval forces in the Indo-Pacific region could be perceived as part of the Indo-Pacific strategy. Japan and Australia are also supportive of the Indo-Pacific strategy to counter China's threat and influence. In fact, the U.S. is planning to build additional military infrastructure. The planned new facilities would be big enough to accommodate amphibious warships and larger vessels such as the helicopter carrier USS Wasp.²⁹⁾

2) Protection: Deployed Forces Considering Enemy Threats

The U.S. should deploy Aegis ships near U.S. military bases (Japan, South Korea) to reduce damage from China's attack at a time of escalating military tension between the U.S. and China. The growing number, range, and accuracy of China's ballistic and cruise missiles constitute a serious threat to forward U.S. bases. China also could intensively strike U.S. naval and air force bases before a war breaks out. In particular, all bases in Japan and South Korea are located within range of China's MRBM and Land attack Cruise Missile (DF-21C, DH-10).³⁰⁾ It is very important for the U.S. to protect its bases in Japan and South Korea from China's attack. The U.S. could task Aegis ships with the defense of U.S. bases.³¹⁾ As shown in Figure 1, considering the maximum range of SM-3 missile (up to 500 km) and the location of naval and air bases (Gunsan, Osan, Yokosuka, Sasebo), at least three Aegis ships are required to protect bases in Japan and South Korea. By deploying Aegis ships (including its allies'

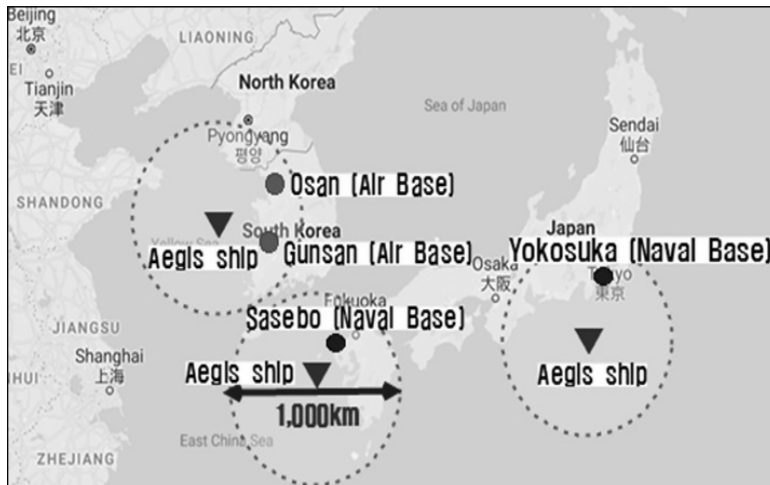
29) Manyard, Roger, "US plans new naval base in Australia to thwart Chinese," *The Times*, July 30, 2019.

30) Eric Heginbotham, "the U.S.-CHINA Military Scorecard: Forces, Geography, and the Evolving Balance of Power 1996-2017," RAND Corporation, 2015, pp. 51-52.

31) Thomas Shugart, "Has China Been Practicing Preemptive Missile Strikes Against U.S. Bases?," *War On The Rocks*, February 6, 2017.

Aegis ships) near Japan and South Korea, the U.S. could reduce damage to bases from China's attack.

<Figure 1> Deployment of Aegis ships near allied bases(Source: Author)

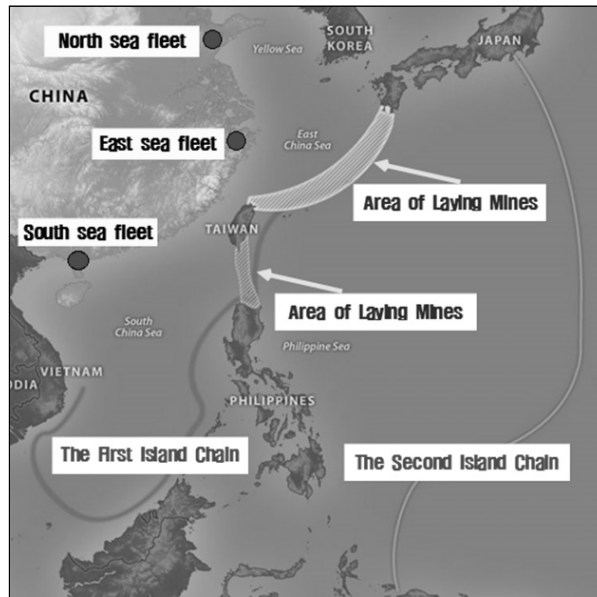


Second, in the early stages of a war, the initial fighting should be waged by of submarines and Unmanned Underwater Vehicles(UUVs) near the Chinese coast,³²⁾ because naval surface forces of the U.S., its allies and partners should be held outside the periphery of China's anti-ship missile range(DF-21D) and the operational radius of China's main aircraft(J-11), perhaps as far as 1,500km out. In other words, carriers and their surface warfare escorts would enter a combat zone after the U.S. achieves its air and surface superiority. Submarines and UUVs of the U.S., its allies and partners could carry out scouting, anti-surface warfare, minelaying, and land attacks in dangerous waters without risking human lives.³³⁾ In particular, as shown in Figure 2, if submarines and UUVs were to lay mines between Taiwan, Luzon Island, and near Okinawa Islands, China's path to the ocean would be blocked.

32) Geoff Ziezulewicz and David Larter, "Twilight of the flattop," *Navy Times*, May 6, 2019.

33) Mizokami. Kyle, "The Navy Just Ordered the 'Orca,' an Extra-Large Unmanned Submarine by Boeing." *Popular Mechanics*, February 14, 2019.

〈Figure 2〉 Laying Mines near the First Island Chain (Source : Author)



The critical requirement for the deploying of naval surface forces is accurate intelligence on China's anti-ship missiles. DF-26(3,500km) range is a serious concern.³⁴⁾ Yet, the capability of China's anti-ship missiles against moving targets has not been verified. It is also unclear whether sensor systems and information networks are built to hit moving targets thousands of miles away. Firing DF-26 from far away would increase the time to reach the moving target and give an opponent opportunities to evade the missile.³⁵⁾ In addition, considering the operational radius of F-35 Lightning II(2,220km),³⁶⁾ it may be inefficient to deploy naval surface forces with F-35 outside the range of the DF-26 missile(3,500km).

34) Dave Majumdar, "Death Match: Navy Aircraft Carriers vs. China's Carrier-killer missiles (Who Wins?)." *The National Interest*, December 13, 2018.

35) Joseph Trevithick, "China Wants U.S. To Know Its Ships In S.China Sea Can Be Targeted By Long Range Ballistic missiles," *The War Zone*, January 10, 2019.

36) The U.S. navy Fact File, "Fact File: F-35C Lightning II," *The U.S. navy*, February 6, 2019.

3. Force

1) Fire: Strengthening lethality

The U.S. should use its allies and partners to combine sea-based fire and land-based fire. In terms of sea-based fire, allied platforms such as the Canberra class in Australia, Dokdo class in South Korea, and Izumo class in Japan could provide the platform for F-35Bs.³⁷⁾ Since the F-35Bs have a vertical takeoff and landing function, this stealth fighter can be loaded on amphibious ships, not just on aircraft carriers.³⁸⁾ In particular, Japan decided to buy over 100 extra F-35B stealth fighter jets in December 2018. So, Izumo class helicopter carriers are expected to function as aircraft carriers for launching F-35Bs in the next decade.³⁹⁾ In addition, the U.S. can strengthen its lethality by using the Aegis ships of its allies. Besides the U.S. Navy, there are three Indo-Pacific countries that operate the Aegis ships[Australia(3), Japan(6), South Korea(3)]. If the Aegis ships of the allies and the F-35B of the U.S. work together, Australia can control 100 F-35B of the U.S., Japan 42, and South Korea 40. This would allow the U.S. to work with its allies to maximize their capabilities in the vast region and increase the interoperability of the interstate weapons system.⁴⁰⁾

In terms of land-based fire, due to withdrawing from the Intermediate-Range Nuclear Forces(INF), the U.S. could deploy short-range (1,000 km) cruise missile and intermediate-range(3,000 to 4,000 km) ballistic missile on its allied and partner's territory.⁴¹⁾ These missiles would be used to attack China's ships,

37) Tyler Rogoway, "Japan And South Korea Eye F-35B For Their Helicopter Carriers," *The Drive*, December 26, 2017.

38) Franz-Stefan Gady, "Distributed Lethality at Work: Combining the F-35 and Aegis Missile Defense," *The Diplomat*, September 15, 2016.

39) Franz-stefan Gady, Japan set to Become World's second largest Operator of F-35 Stealth Fighters, *The Diplomat*, December 19, 2018.

40) Scott C Truver, "Opinion: Expanding the Distributed Lethality Web," *USNI NEWS*, June 10, 2016.

41) Ankit Panda, "After the INF Treaty: US Plans First Tests of New Short and Intermediate-Range Missiles," *The Diplomat*, March 14, 2019.

artificial islands, and bases, which would contribute to achieving the navy's sea control mission in archipelagic environment. For example, deploying short-range(1,000 km) cruise missile from the southern tip of South Korea through the Japanese islands bordering the East China Sea, down through the Philippines, the U.S. could attack China's both land and naval targets. By deploying missiles on numerous islands of its allies and partners, the U.S. also could attack China's forces from surprise locations all over the first island chain.

The critical requirement for combining sea-based power and land-based power is the U.S. allied and partner's agreement on missile deployment in their territory. The U.S. allies and partner may fear China's retaliation and possible targets in a conflict. Yet, missiles would not need to be permanently based on the U.S. allied and partner's territory. They could be deployed during a crisis because U.S. missiles are mobile and rapidly deployable.⁴²⁾ The fact that the missiles could be deployed temporarily during a crisis could ease opposition from allies and partners.

2) Sustainment : Ensuring Logistics

First, the U.S. should exacerbate Chinese 'Malacca dilemma' utilizing the Andaman and Nicobar Islands(ANI) of India because China's trade, investment, energy, territory and territorial seas are intimately linked to the Straits of Malacca. As shown in Figure 3, the ANI lies in its proximity to the Straits of Malacca.

42) Abraham Denmark, "Exiting the Russia nuclear treaty impact military strategy in Asia," *The Hill*, October 25, 2018.

〈Figure 3〉 Location of Andaman and Nicobar Islands



*Source : <https://japan-forward.com/andaman-and-nicobar-islands-how-the-seas-bring-india-and-southeast-asia-closer/>

Even if China may gain strategic footholds in the SCS in the near future, its vital access route remains through the Malacca. Therefore, China has its vulnerabilities in the Indian ocean. In military perspective, with already established airstrips in some of these islands and suitable beaching grounds,⁴³⁾ the ANI can be used as an access denial asset with naval bases or in itself as a land-based anti-ship missile base which could practically seal the entry and exit of the world's busiest and expensive choke point. With credible information on traffic, marine radar and automatic information system(AIS) selective targeting of the merchant marine and naval platforms is feasible considering the range of conventional missiles. The proximity of these islands to the straits of Malacca poses an existential threat to the Chinese energy supply lines, 80 % of which flows from the Gulf through these straits.⁴⁴⁾ Military capability build up in the ANI will pose an inescapable critical vulnerability to

43) Sanjeev Miglani, India's navy has opened a new, strategically located base to keep an eye on China's increasingly active ships and subs, *Reuter*, January 25, 2019.

44) Chen, S. "China's Self-Extrication from the "Malacca Dilemma" and Implications." *International Journal of China Studies*(2010), Vol 1:1, p. 2.

China. In the run-up to war, China's energy flow through Malacca will be open to interdiction. The ANI, if developed with Indo-US military collaboration, shall pose a deeper threat to China's Malacca dilemma and make it more relevant.⁴⁵⁾

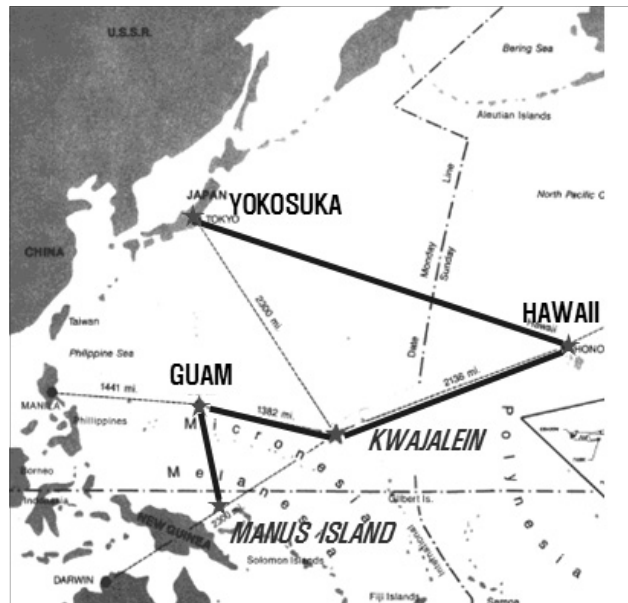
Second, the U.S. should secure facilities to repair ships that are damaged. Japan's repair facility may not be available because the facility is located within China's missile range. So, if the U.S. can not use Japan's repair facility, damaged surface ships must go to Guam for repair. A short-term solution, the U.S. should cooperate with Singapore and Vietnam to use their repair facilities in a conflict. China would be limited to attacking repair facilities in Singapore and Vietnam because China would not want a third country to join the U.S. side. A long-term solution, the U.S. would need to develop a new military base. The U.S. has already decided to develop the Lombrum naval base at Manus Island with Australia.⁴⁶⁾ In addition, Kwajalein atoll, where the current U.S. Army facilities are located, would be a suitable outpost for the U.S. Navy because Kwajalein atoll possesses a harbor, tug, fuel barge, and runway.⁴⁷⁾ As shown in Figure 4, Manus Island and the Kwajalein Atoll are located outside China's main missile range, so the installation of repair facilities at the sites could improve the sustainability of the outpost.

45) Pradeep Raja, "The Great Wall of Andaman and Nicobar Islands - US INDOPACOM gateway to IOR," Joint Maritime Operation Essay of Naval War College(2019).

46) Tim Fish, "Australia, U.S. Set to Expand Papua New Guinea Naval Base," *USNI News*, November 23, 2018.

47) Elee Wakim, "Beans, Bullets, and Benzene: A Proposal For Distributing Logistics," Center for International Maritime Security, August 29, 2016.

(Figure 4) The U.S. Pacific Island Chain (Source : Author)



The critical requirement for ensuring logistics is the necessity of developing additional overseas bases. Given China's intention to advance into the Pacific islands, the U.S. needs to develop additional overseas bases using Pacific islands. Over the past several years, China has increased its aid and investments across the Pacific islands. Since 2006, China has committed \$1.8 billion in aid and loans into Pacific islands (Micronesia, Fiji, Tonga, Vanuatu, Papua New Guinea). China is seeking to establish a military presence in the Pacific islands by using economic influence.⁴⁸⁾ The Pacific Islands are still strategically vital to the U.S. for projecting power into Indo-Pacific region. In addition, currently, the U.S. military is also searching for a new area in the Asia-Pacific region where it could deploy forces and equipment to counter China's threat.⁴⁹⁾ So, as shown in Figure 4, by developing overseas bases in the Pacific islands, the U.S. would prevent China from expanding its influence into the Pacific Ocean

48) Jason Scott, "China's Pacific Islands Push Has the U.S. Worried," *Bloomberg*, June 17, 2018.

49) Gina Harkins, "China's Antics in South China Sea Could Change Deployments for US Troops," *Military.com*, February 15, 2019.

and ensure conditions to project U.S. military power into the Indo-Pacific region.

V. Implications for the U.S. Navy-Republic of Korea Navy Coordination

To neutralize China's advantages in a SCS conflict, the U.S. Navy should develop an operational concept how to use time, space, force with allies and partners. In particular, the change of U.S. Navy's operational concept in the Indo-Pacific region will have an important impact on ROKN. In addition, South Korea should create a favorable environment for the U.S. to intervene in a SCS conflict because expansion of China's maritime power will have a negative effect on dispute over the ownership of the Jeodo and the delimitation of the exclusive economic zone (EEZ) in the Yellow Sea. This chapter will present implications for ROKN in consideration of U.S. Navy's operational concept in a SCS conflict.

1. Enhancement of Anti-Ballistic Missile Defense System

In addition to North Korea's missile threats, South Korea should pay more attention to defending against missile threats from neighboring country. In other words, as the conflict between the U.S. and China intensifies in the SCS, South Korea, which has a U.S. military base, should also respond to China's missile threats. Therefore, ROKN should assign the three new Aegis ships (a second batch of three KDX-III -class will be armed with SM-3 Block IB missile⁵⁰⁾) a mission of missile defense for responding a neighboring country missile threat because the first batch of three KDX-IIIs (Aegis ships) is now focusing on

50) Franz-Stefan Gady, "South Korea Approves Construction of New Destroyers and Submarines," *The Diplomat*, May 2, 2019.

a North Korea missile threat. South Korea needs to draw up procedures for engagement to efficiently defend against missiles from neighboring country. For example, the new missile defense plan for the three new Aegis ships should include the optimum location and maneuvering of the Aegis ships for detecting missiles from neighboring country. However, to use Aegis ships for base defense may be limited because Aegis ships are required to carry out various missions(destroying the enemy's vessels, submarines, and land targets, providing wide-area air surveillance). So, to supplement the limitations of deploying Aegis ships, South Korea should also supplement the Aegis ship's anti-missile defense capabilities by utilizing the ground-defense missile system such as Terminal High Altitude Area Defense(THAAD).

2. The Necessity of Developing ROKN Nuclear-Powered Submarine

South Korea needs to acquire nuclear-powered attack submarines(SSNs). In addition to offset the North Korea's SLBM threat, ROKN SSNs could support U.S. navy operations by enhancing ISR and escorting the U.S. carrier battle groups. If the U.S. could deploy ROKN SSNs near China during high tension between the U.S. and China, ROKN SSNs could enhance the U.S.'s littoral Anti Submarine Warfare capabilities by improving intelligence gathering around China's naval bases. ROKN SSNs also could be used to protecting the U.S. carrier battle groups by detecting china's forces(submarines and surface ships) and preserving sea lanes of communication for ensuring logistics. Even though ROKN SSNs could trigger unintended risks like regional arms race, stressing that ROKN SSNs are helpful to the U.S, South Korea should try to secure SSNs.

3. Developing Military Exercises with the U.S. and its Partners

South Korea should expand its participation in a range of the military exercises with the U.S. partners in the Indo-Pacific region. For example, Talisman Sabre is the main combined military exercise between the U.S. and Australia focusing on high-intensity warfare. For the first time in 2019, the exercise was expanded to include the Japanese Amphibious Rapid Deployment Brigade.⁵¹⁾ Expanding training with U.S. partners would not only enhance South Korea's presence but also contribute to deterring China's military threats in the Indo-Pacific region. In addition, Given China's growing military power, South Korea and the U.S. should establish new exercises tailored towards developing operational concepts for potential conflict between the U.S. and China. Exercises should practice rapid dispersal of forces from concentrated basing in Japan, to the allied and partner's territory for a surprise attack across the First and Second Island Chains.

4. Developing Unmanned Maritime Systems

Considering contested maritime zones in East Asia, ROKN should develop technology of Unmanned Maritime Systems such as Unmanned Undersea Vehicles(UUVs) and Unmanned Surface Vehicles(USVs). In fact, the U.S. Navy's Sea Hunter unmanned surface vessel has already conducted successfully autonomous navigation from San Diego to Pearl Harbor.⁵²⁾ Unmanned platforms can play a role in offsetting asymmetric threats such as missiles from China and North Korea. These unmanned vessels of the U.S. could be used to conduct operations near the Chinese coast in the early stages of a war because carriers and their surface warfare escorts would not enter a combat zone prior to achieving its air and surface superiority within disputed maritime zones.⁵³⁾

51) Ankit Panda, A First: Japan's Maritime Self-Defense Force Joins US-Australia Talisman Sabre Exercises, *The diplomat*, June 25, 2019.

52) Gina Harkins, "A Navy Ship Sailed to Hawaii and Back with No One on Board," *Military.com*, 15 February 2019.

So, deploying unmanned vessels could minimize risk by reducing the potential for loss of life, while simultaneously allowing the U.S. and South Korea to maintain a credible presence in the ocean of East Asia.

VI. Conclusion

Recently, the A2/AD abilities of China have quickly increased with naval forces and long-range missiles. China has also continued its aggressive behavior by developing islands in the SCS as military bases. Considering China's A2AD abilities and China's intentions for the SCS, the U.S. would be severely challenged by a conflict in the SCS.

To overcome adverse circumstances, the U.S., together with its allies and partner, could develop ways to neutralize China's advantages. The U.S. could respond more quickly to Chinese threats by sharing information with its allies and partner. The U.S. also could control the space by dividing its forces and deploying naval forces to minimize the Chinese threat. In addition, the U.S. should strengthen its lethality by integrating fire and ensure continuous logistics.

The U.S. still maintains maritime dominance in the Indo-Pacific region due to diverse naval platforms and military bases. Yet the U.S. should continue to develop operational concepts according to the changing strategic environment in the future. In particular, the U.S. cannot afford to police the vast ocean alone. With the U.S. allies and partner, the U.S. should develop ways to effectively respond to the enemy's threats. These efforts will affect ROKN in the future. So, South Korea should check the impact of these efforts and prepare what ROKN needs (enhancement of anti-ballistic missile defense system, the necessity of developing ROKN nuclear-powered submarine, developing military exercises with the U.S. and its partners, developing Unmanned Maritime Systems).

53) Unmanned Maritime Vehicle (UMV) - GlobalSecurity.org, <https://www.globalsecurity.org/military/systems/ship/umv>

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Abstract

남중국해 분쟁 관련 미국 해군의 제한사항과 극복방안, 한국 해군에의 함의

김 태 성*

2000년 이후 중국 해군은 빠르게 성장하고 있고 이러한 해군의 성장과 더불어 중국은 남중국해 내 도서를 군사기지화 하고 대함 미사일을 개발하고 있다. 이는 제1도련선 내 중국의 해양통제를 위한 노력으로써 인도-태평양 지역 내 미 해군 전력 및 기지에 심각한 위협으로 작용하여 미국의 해양 지배력을 약화시키는데 기여하고 있다. 이를 극복하기 위해서 미국은 인도-태평양 지역내 동맹국과 파트너국들과 함께 시간, 공간, 전력(화력, 군수) 측면에서 작전개념을 발전시켜야 한다.

우선 시간적인 측면에서 중국의 위협에 신속하게 대응하기 위해서 인도-태평양 지역내 국가들의 공중전력(UAVs)과 해상전력(Aegis ships)을 활용하여 대중 정보공유 체계를 강화시켜야 한다. 다음으로 공간적인 측면에서 중국의 위협으로부터 인도-태평양 지역 내 미 해군의 전력 및 기지를 보호하기 위해서 미 해군 전력을 일본과 호주로 분산 배치시키고 동맹국과 파트너국들의 이지스함, 잠수함 및 무인 수중전력을 적극 활용해야 한다. 전력 측면에서는 해상 기반 화력과 지상 기반 화력을 통합하여 화력의 치명성을 강화해야 하고 인도와의 협력 및 인도-태평양 지역내 합정 손상통제 시설의 확충을 통해서 해상 군수지원 능력을 발전시켜야 한다.

이러한 미 해군의 작전개념 발전 방향이 주는 한국 해군에의 함의는 다음과 같다. 첫째, 미·중간 남중국해 분쟁 발생시 중국의 미사일 위협으로부터 한국 내 위치하고 있는 한·미 해군 전력 보호를 위해 미사일 방어체계(이지스함, 사드 등)를 발전시켜야 한다. 둘째, 대중 감시·정찰 및 미 항공모함단 방호 전력으로 활용 가능한 한국형 원자력 잠수함을 개발해야 한다. 셋째, 미국 뿐만 아니라 인도-태평양 지역내 파트너 국가들을 포함하는 연합훈련을 확대·발전시킴으로써 남중국해내 중국의 해양통제 노력에 대응해야 한다. 넷째, 인명 손실을 최소화하고 효율적으로 해군력을 현시할 수 있는 무인 수중·수상체계를 지속적으로 발전시켜 나가야 한다.

핵심어 : 남중국해 분쟁, 해양통제, 시간, 공간, 전력

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