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**NAVAL WAR COLLEGE
Newport, RI**



**A successful deterrence against a coercive attempt by
China to reunify Taiwan must be defeated in phases zero
and one.**

By

**Leif Hammersmark
Lieutenant Commander
United States Navy**

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

23 April 2008

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Abstract

The maturation of China's access denial capabilities emphasizes the importance of time as a critical factor for U.S. and Taiwan forces to resist offensive strike operations if the PRC uses coercive force to reunify Taiwan. This reality is exaggerated by the immutable, irreducible factor of space, which greatly favors China in any potential conflict between the U.S. and China. This will force the combatant commander to create more combat time by increasing, during phase zero and one operations and initiatives, Taiwan's ability and will to withstand force and by allocating forces required to counter missile and ASW threats posed by the PRC. This will allow the U.S. to apply asymmetric force in a deliberate rather than reactionary manner, decreasing the risk of escalation with a nuclear-armed adversary, and improving the odds of resolving the conflict successfully. Such a strategy will enhance deterrence and maintain the status quo in accordance with the U.S. policy.

U.S. Pacific Command, in concert with other U.S. government agencies and regional military partners, promotes security and peaceful development in the Asia-Pacific region by deterring aggression, advancing regional security cooperation, responding to crises, and fighting to win.

*U.S. Pacific Command Mission Statement*¹

Introduction

United States Pacific Command (USPACOM) is responsible for the Asia-Pacific region consisting of thirty nine independent states and encompassing nearly 169 million square kilometers in which China and Taiwan play a major role in regional stability². However, the United States Pacific Command's website does not list Taiwan among these independent states. Instead there is a note stating that "in 1979 the U.S. government recognized...the People's Republic of China as the sole government of China...and that Taiwan is a part of China."³ To understand the restrictions to the Pacific Commander's ability to fulfill his mission statement requires an understanding of the policy and precedence of the Taiwan Strait conflict as set forth in the Taiwan Relations Act (TRA) and the joint communiqués.⁴

If China would attempt to reunify Taiwan through coercive force the immense distances and geography coupled with China's expanding access denial capabilities provide challenging problems for U.S. Pacific Command and Seventh Fleet. By looking at the

¹ United States Pacific Command, "U.S. Pacific Command Strategic Foundation," United States Pacific Command, <http://www.pacom.mil/about/pacom.shtml> (accessed 18 April 2008).

² Ibid.

³ Ibid.

⁴ *Taiwan Relations Act*, U.S. Statutes at Large (93 Stat 14), (1979). http://usinfo.state.gov/eap/Archive_Index/Taiwan_Relations_Act.html (accessed 15 Mar 2008); and U.S. Department of State, "Joint Communiqué of the United States of America and the People's Republic of China," 27 February, 1972. http://usinfo.state.gov/eap/Archive_Index/joint_communique_1972.html (accessed 18 March 2008); and Department of State, "Joint Communiqué of the United States of America and the People's Republic of China," 1 January 1979. http://usinfo.state.gov/eap/Archive_Index/joint_communique_1979.html (accessed 18 March 2008); and Department of State, "Joint Communiqué of the United States of America and the People's Republic of China," 17 August 1982 http://usinfo.state.gov/eap/Archive_Index/joint_communique_1982.html (accessed 18 Mar 2008).

problem through the operational factors of Space, Time, and Force, the restrictions and some of the options available to Seventh Fleet and the Joint Task Force Commander become apparent. Examination suggests that it is during shaping (phase zero) and deterrent (phase one) operations where commanders need to focus in order to first deter the use of force by either China or Taiwan, and second to increase the time available to U.S. forces to gain access, defend Taiwan, and attain status quo ante bellum across the strait.⁵ (Refer to figure 1 for a description of operational phases versus military effort.)

Background – “One China” and the U.S. Obligation to Taiwan

The China-Taiwan conflict originated from civil war following the end of World War II. Since 1949 the political stability of the Taiwan Strait has revolved around the One China policy and U.S. military involvement. Though initially U.S. policy was to not interfere, hostilities in the Taiwan Strait and the outbreak of the Korean War prompted the U.S. to establish a direct military relationship with Taiwan. The Military Assistance Advisory Group was formed to help train, organize and equip a Taiwanese military that was capable of contributing to the fight against the spread of communism.⁶

Throughout the 1950s, Seventh Fleet deployed into the Taiwan Strait multiple times to stop hostilities between the People’s Republic of China (PRC) and the Republic of China (ROC) forces. In 1955 the U.S. threatened the use of nuclear force to stop Chinese aggression. However, this did not have the desired effect and Mao Zedung responded by

⁵ Operational phases assist the Joint Force Commander to achieve an operational objective. For an explanation of the operational phases refer to Joint Publication 3-0 (CH-1). The Chairman, U.S. Joint Chiefs of Staff, *Joint Operations*. Joint Publication (JP) 3-0 (Washington DC: CJCS, 17 September 2006, Incorporating Change 1, 13 February 2008), IV-25 – IV-30.

⁶ Bernard D. Cole, *Taiwan’s Security: History and Prospects* (New York, Routledge, 2006), 26-27.

developing a nuclear program of his own, complicating the Pacific Commander's problem today.⁷

From 1954 to 1979 the U.S. military involvement was guided by the Mutual Defense Treaty of 1954.⁸ But in 1978 the relationship with Taiwan changed when President Carter issued the Normalization Communiqué canceling the Mutual Defense Treaty and recognizing “the People's Republic of China as the sole legal government of China. Within this context, the people of the United States will maintain...unofficial relations with the people of Taiwan. The Government of the United States of America acknowledges the Chinese position that there is but one China and Taiwan is part of China.”⁹ This severed official ties with Taiwan.

To ensure that the United States would still provide defensive support to Taiwan, Congress passed the Taiwan Relations Act, Public Law 96-8, in 1979. The Taiwan Relations Act (TRA) directs the commitment of Pacific Command and Seventh Fleet to the defense of Taiwan today. It specifies that any “non-peaceful means to determine Taiwan's future is a threat to the peace and security of the Western Pacific and that the United States will maintain the capacity to resist the use of force or coercion against Taiwan.”¹⁰ The Taiwan Relations Act established a legal commitment for the Pacific Commander to maintain a force capable of gaining access and defending Taiwan.

The last major stand-off between the U.S. and China was during the missile crisis in 1995-1996. This occurred as a result of Taiwan's President Lee Teng-hui's accelerated efforts to gain international recognition and increased U.S. arms sales to Taiwan. President Lee was attempting to get support for Taiwanese independence through unofficial diplomatic

⁷ Ibid, 21.

⁸“Mutual Defense Treaty between the United States of America and the Republic of China,” 3 March 1955, <http://www.taiwandocuments.org/mutual01.htm> (accessed 10 April 2008).

⁹“Joint Communiqué of the United States of America and the People's Republic of China,” 1 January 1979.

¹⁰ *Taiwan Relations Act*.

visits to gain recognition and membership to the United Nations. In 1992 President Bush approved the sale of F-16s, patriot missile defense systems, anti-submarine warfare (ASW) helicopters and SM-1 missiles to Taipei dramatically advancing Taiwan's military capabilities.¹¹ To protest this arms sale and measure towards Taiwan independence, China conducted large scale exercises off the Taiwanese coast in a show of force simulating a naval blockade of Taiwan and a response to U.S. military intervention.¹² Taiwan in defiance, responded with an exercise of its own. In 1995, to respond to increased tensions with China, President Clinton issued the "Three Noes" stating that the U.S. would: (1) "oppose" Taiwan independence; (2) would not support "two Chinas" or one China and one Taiwan; and (3) would not support Taiwan's admission to the United Nations.¹³ This was the first time the U.S. openly stated that Washington was against Taiwan independence.

The culmination of these events resulted in China's demonstration of force by conducting exercises with air, surface, submarine and cruise missiles near Taiwan ports prior to the Taiwanese elections. This had several effects. First it sent a message to the Taiwanese voters that a formal declaration of independence would lead to war. Second was the economic impact. Because of Taiwan's reliance on access to the sea for trade and commerce, the Taiwan stock market "lost one third of its value" as "\$10 billion in capital fled the island."¹⁴ The US responded by deploying two carrier battle groups to the area, asserting Washington's commitment towards maintaining the status quo and maintaining

¹¹ Shirley A. Kan, *China/Taiwan: Evolution of the "One China" Policy — Key Statements from Washington, Beijing, and Taipei*. Washington DC: Congressional Research Service, 2007, 48.
<http://www.fas.org/sgp/crs/row/RL30341.pdf> (accessed 20 March 2008).

¹² Robert S. Ross, "The 1995-1996 Taiwan Strait Confrontation: Coercion, Credibility, and Use of Force." *International Security*, vol. 25, no. 2 (autumn 2000), 87-123.
<http://www.jstor.org> (accessed 15 March 2008).

¹³ Kan, *China/Taiwan: Evolution of the "One China" Policy — Key Statements from Washington, Beijing, and Taipei*, 57.

¹⁴ Cole, 29.

peace and stability in the area. The U.S. aircraft carriers were also a message to the Taiwanese people of U.S. defense support and reassured other partners and allies in the region that U.S. forces would honor their commitments.

In 2005 China passed the Anti-Secession Law. Article two of the Anti-Secession Law states that China will never allow Taiwan to secede from China. Article eight says the State may use non-peaceful means to protect China's sovereignty and territorial integrity because of secessionist activities or if peaceful measures for reunification are exhausted.¹⁵

The TRA and the communiqués obligate the Pacific and Seventh Fleet Commanders to maintain peace and stability across the Taiwan Strait but do not allow direct communication or actions with the Taiwanese military. As the JTF Commander, Seventh Fleet must defend Taiwan and if hostilities stop, possibly stop Taiwan from attacking China.

In a recent press conference in Beijing Admiral Keating was questioned regarding the US position on China and Taiwan. In his responses he referred to the Taiwan Relations Act and reiterated that "*Our position was, is and will be, as was expressed in 1979.*"¹⁶ Most recently, in March 2008 the USS *George Washington* and USS *Kitty Hawk* carrier strike groups deployed near Taiwan to monitor and maintain peace and stability in the area prior to and after the Presidential elections.¹⁷ This could also be interpreted as a message to China of increasing U.S capabilities to respond because the USS *George Washington* is replacing the USS *Kitty Hawk* as Seventh Fleet's forward deployed aircraft carrier.

¹⁵ U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2005, 38, http://www.defenselink.mil/pubs/pdfs/China_Military_Report_08.pdf (accessed 4 April 2008).

¹⁶ Admiral Timothy J. Keating, interview during press roundtable, Beijing China, 15 Jan 2008, <http://www.pacom.mil/speeches/sst2008/080117-keating-china.shtml> (accessed 16 April 2008).

¹⁷ David Morgan, "U.S. carriers sent toward Taiwan before election." *Reuters.com*, 19 March 2008, <http://www.reuters.com/article/worldNews/idUSN1934158120080319> (accessed 5 April 2008).

Analysis - Operational Factor: Space

Taiwan is an island nation approximately 100 miles from mainland China. It is 240 miles long and 90 miles wide. Roughly two thirds of the island on the eastern shore is mountainous terrain with peaks of approximately 10,000 feet. The major ports and the majority of the population of 23 million people live on the western shore. The geographical features of the shoreline offer very few beaches that would be suitable for amphibious landings.¹⁸ The Taiwan Strait is relatively shallow with an average depth less than 200 feet. This shallow water is not conducive to nuclear submarine operations and creates acoustic conditions that are very challenging for ASW operations. The eastern shore slopes into the Pacific at a grade of 1:10 to depths greater than 10,000 feet 30 miles off shore.¹⁹ This is most likely where a U.S. joint operating area (JOA) would be and U.S. naval and air forces would need to establish sea control in order to launch strike operations into and over the Taiwan Strait.

The climate consists of two prevailing monsoon seasons; the southwest monsoon from May to September and the northeast monsoon from October to March.²⁰ The summer season is characterized by high humidity and cloud cover and would limit aircraft operations. Taiwan's climate is frequently influenced by typhoons with typically three or four making landfall each season.²¹ However the preponderance of the typhoons every year in the Pacific pass through the Philippine Sea and into the waters south of Taiwan before turning across the Philippines into the South China Sea, turning towards Japan and Korea, or proceeding into

¹⁸ Cole, 3.

¹⁹ Central Geological Survey, MOEA, "Geographic Setting," http://www.moeacgs.gov.tw/english/twgeol/twgeol_setting.jsp (accessed 19 April 2008).

²⁰ Janes Information Group. "Janes Military and Security Assessments, Country Assessment, Geography, Asia, China and Northeast Asia, Taiwan." 8 February, 2007. <http://jmsa.janes.com/> (accessed 14 April 2008).

²¹ Ibid.

Taiwan and mainland China.²² The presence of a typhoon would significantly impact air and ship operations and could force a carrier strike group to operate either closer than desired to Taiwan and Chinese missiles, or to exit the area of operations and then once again regain access after the storm has passed.

However, the biggest hurdle for U.S. forces to overcome is the vast distance between the JOA and bases of operations. The nearest U.S. bases are in Okinawa, Japan, 400 nm away. Next is Sasebo at 800 nm followed by Yokosuka, Japan, at 1,350 nm and Guam at 1,470 nm. This problem will be amplified if Japan does not allow U.S. forces to launch attacks from U.S. bases inside their territory, i.e. F-22 fighters launching from Kadena. If this occurs then Guam will become the primary base and Seventh Fleet will face a situation similar to what the British faced in the Falklands in 1982 with extremely long and vulnerable lines of communication and supply. Japan does share a strategic interest to prevent hostilities in the Taiwan Strait as stated in the U.S.-Japan “2+2 Statement” where a common strategic objective is to encourage the peaceful resolution of issues concerning the Taiwan Strait through dialogue.”²³ It is unlikely that Japan would refuse U.S. operations from U.S. bases because of the Sino-Japanese history and relationships. It is also in Japan’s interest that U.S. forces remain an ally against expanding Chinese capabilities. To protect Washington’s alliance with Tokyo, Seventh Fleet must not only ensure the operational protection of U.S. forces, but protection of Japan’s bases as well.

²² Hawaii Solar Astronomy, links, Tropical Storm Tracks, Yearly Summaries of Storm Tracks, Tropical Storm Tracks: Yearly Summaries for NW Pacific, 2000-2008, <http://www.solar.ifa.hawaii.edu/Tropical/summary.html>, (accessed 15 April 2008).

²³ Kan, *China/Taiwan: Evolution of the “One China” Policy — Key Statements from Washington, Beijing, and Taipei*, 81.

The “human-space” as defined by Professor Milan Vego encompasses the intangible political, economic, ideological and ethnic aspects of the population.²⁴ It is the will of the people to resist Chinese coercive force. The will of the people is the *center of gravity* for Taiwan. China recognizes this and has exploited it in the past. Chinese military exercises and public declarations from Beijing prior to Taiwanese elections specifically targeted Taiwan’s population to limit the secessionist rhetoric and actions of their president. U.S. theater engagement or show of force operations reinforce to the people of Taiwan that the U.S. is committed to the Taiwan Relations Act and “the preservation of peace and stability across the Taiwan Strait.”²⁵ The Pacific Commander and Seventh Fleet should maintain presence in the area and continue to conduct low level, unofficial assistance to reinforce and strengthen the will of the Taiwanese people. Without technological advancements to increase the range and speed in which U.S. forces can arrive, it is this intangible “human space,” the will of the Taiwanese people to resist, that theater and combatant commanders need to influence and reinforce to gain the time available for U.S. forces to arrive.

Analysis - Operational Factors: Space and Time

There are many factors that affect the time it would take for U.S. forces to react to an attack on Taiwan. The physical location is the most obvious and one that cannot change. The close proximity to Taiwan and the knowledge of when hostilities would start give China a distinct advantage because it allows Chinese forces to deploy and establish a defensive barrier approaching U.S. forces will have to penetrate. Other factors that can be influenced include operational readiness, logistics, availability of platforms and reactions to operational threats, to name a few. The Functional Commanders will have to coordinate the logistical

²⁴ Milan N. Vego, *Joint Operational Warfare: Theory and Practice* (Newport, RI: United States Naval War College, 2007), III-7.

²⁵ *Taiwan Relations Act*.

support through air and sea lift abilities to enable forces to arrive in a timely manner. The JTF Commander will have to carefully sequence and coordinate the flow of forces into the JOA first to establish sea control, and then establish security for logistics in order to sustain power projection capabilities.

Tactical and surveillance aircraft should be readily available from bases in Japan and other assets could be advanced to forward bases. Maintenance personnel and support equipment would follow shortly behind if not in advance of the aircraft. Ships from Guam and Yokosuka could arrive in three days but it might take longer to allow the air wing and helicopters time to embark. From Hawaii and the west coast it would take about 10 and 15 days respectively. From the east coast it could take 14 to 17 days.²⁶ Minesweepers and amphibious ships are stationed in Sasebo and would take 3-5 days dependent on the track necessary to avoid Chinese forces. The location of possible mine threats would determine where the slower minesweepers would deploy. Air Force assets, such as the F-22, could arrive in as little as 96 hours if they have been alerted.²⁷ Intelligence plays the key role to predict a threat so U.S. forces can be alerted and ready to deploy.

Analysis - Operational Factors: Space, Time and Force

The greatest concern for U.S. Pacific Command, which Admiral Keating (Commander, U.S. Pacific Forces) recently stated in a visit to China, is the lack of transparency regarding China's increase in military capabilities and their purpose.²⁸ Transparency is necessary to build trust in order to prevent a confrontation from occurring accidentally. Of particular concern is China's increasing anti-access capability.

²⁶ Cole, table 14, 180.

²⁷ Charles Brown, discussions with author, 16 April, 2008.

²⁸ Admiral Timothy J. Keating, interview during press roundtable, Beijing China, 15 Jan 2008, <http://www.pacom.mil/speeches/sst2008/080117-keating-china.shtml> (accessed 16 April 2008).

China's defense budget has been growing over the last 15 years at about 9.7% annually. The 2007 budget is published to be \$45 billion; however Department of Defense estimates actually place the Chinese defense budget between \$97 and \$139 billion.²⁹ China has been simultaneously constructing indigenous platforms concurrently with foreign acquisitions increasing the rate at which People's Liberation Army (PLA) forces are growing in size and capability. With Russia as the primary arms supplier they have ready access to high end technologies designed during the Cold War specifically to counter U.S. carrier capabilities.

The 2008 DOD Report to Congress on the Military Power of the People's Republic of China states, "China is seeking the capacity to hold surface ships at risk through a layered capability reaching out to the second island chain."³⁰ Part of this is China's active defense which states that strategic defense may require preemptive military action at the operational or tactical level.³¹ The second island chain encompasses U.S. bases both in Japan and Guam (see figure 2). China currently lacks the command and control network necessary for extended range over the horizon targeting. When Beijing attains this capability all of U.S. Seventh Fleet's forward deployed forces will be inside a Chinese area of influence.

A key advantage that U.S. forces hold over China is advanced satellite communication and intelligence capabilities. China's anti-satellite capability, as demonstrated by the successful destruction of one of their satellites in January 2007, threatens this capability.³² The extensive use of satellite information for communications,

²⁹ U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, p 32, table 6, http://www.defenselink.mil/pubs/pdfs/China_Military_Report_08.pdf (accessed 4 April 2008).

³⁰ Ibid, 25, figure 3.

³¹ Ibid, 17.

³² Marc Kaufman Dafna Linzer, "China Criticized for Anti-Satellite Missile Test: Destruction of an Aging Satellite Illustrates Vulnerability of U.S. Space Assets," *Washingtonpost.com*, 19 January 2007,

intelligence, targeting and navigation makes U.S. satellites a viable target of Taipei's "active defense." PACOM and Commander Seventh Fleet (C7F) will need to consider deploying forces with the capability to protect our National assets in space.

Although China is nuclear capable, it is unlikely it would use nuclear weapons because of the U.S. nuclear strategic deterrent capability. Therefore only conventional weapons will be considered. Second Artillery's ballistic missile inventory and ranges are shown in figures 3 and 4. These illustrate China's distinct advantage over Taiwan with over 1,000 CSS-5 and CSS-6 missiles across the strait alone.³³

Taiwan's main component and the primary defense against the Chinese ballistic and missile threat is the Patriot missile defense system.³⁴ However, the patriot missile batteries do not have sufficient numbers of PAC-2 missiles for a 2:1 ratio against over 1,000 incoming missiles to increase the probability of a successful intercept. Taiwan must increase its ability to withstand a ballistic missile attack and keep airfields operational until U.S. forces can arrive to forcibly stop Chinese aggression or political pressures lead to a cease fire.

China has 59 submarines, five of which are nuclear and a dozen are the capable and quiet Kilo class submarines. The Kilo submarines, armed with the 200 km-ranged SS-N-27B /Sizzler, pose the greatest threat to U.S. carrier strike groups and Taiwanese ships. The Yuan

<http://www.washingtonpost.com/wp-dyn/content/article/2007/01/18/AR2007011801029.html> (accessed 10 March 2008).

³³ U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 56, Figure 17.

³⁴ Shirley A. Kan, Taiwan: Major U.S. Arms Sales Since 1990, Updated January 8, 2008, Washington DC: Congressional Research Service, 2008, 14, <http://www.fas.org/sgp/crs/row/RL30957.pdf> (accessed 25 March 2008).

and Song are other capable diesels with the 40 km-ranged C-802 ASCM. These weapons make the SSKs well suited for a blockade or surface warfare roles.³⁵

China's nuclear submarines consist of four obsolete Han SSNs and one Xia SSBN.³⁶ The Xia is armed with the 2,150 km range JL-1 (CSS-N-3) submarine launched ballistic missile and is thought to have never conducted a deterrent patrol, generally operating inside Chinese territorial waters to remain under the protection of Chinese naval and air forces.³⁷

China's submarines have the capability, along with aircraft and surface ships, to lay mines. Since the Kilos and Songs are the most likely platforms to deploy south of Taiwan as a deterrent to U.S. forces, they will have time to mine the lines of approach prior to the arrival of U.S. forces. The JTF Commander will not be able to enter with acceptable risk unless the submarines are located or sufficient water space is cleared to pass. As taught from damage to the USS *Samuel B. Roberts* in the Persian Gulf in 1988, mining is very effective. Minesweeping operations to counter mines, actual or threatened, are very time consuming. Seventh Fleet currently has only two minesweepers stationed in Sasebo, Japan.

The People's Liberation Army Navy (PLAN) has a limited capability to communicate with deployed submarines.³⁸ This reduces the ability of submarines to pass timely over-the-horizon targeting information to other forces and limits the PLA's tactical control over its submarines. When China develops this capability for coordinated over the horizon targeting it will extend their operational capabilities and be a greater threat to approaching forces.

³⁵ Gabriel Collins, Andrew Erickson, Lyle Goldstein and William Murray, "Chinese Evaluations of the U.S. Navy Submarine Force" *Naval War College Review* 61, no. 10 (Winter 2008): 80.

³⁶ Janes Information Group. "Janes Military and Security Assessments, Armed Forces, Organisation, Asia, China and Northeast Asia, China, Order of Battle, Submarines," 17 April, 2008. <http://jmsa.janes.com/> (accessed 14 April 2008).

³⁷ William Murray, discussions with author, 18 April 2008.

³⁸ Garth Heckler, Ed Francis, and James Mulvenon, "C3 in the Chinese Submarine Fleet," In *China's Future Nuclear Submarine Force*, ed. Andrew S. Erickson, Lyle J. Goldstein, William S. Murray, and Andrew R. Wilson (Annapolis Maryland: Naval Institute Press, 2007), 223-224.

USPACOM and the Joint Force Commander need to exploit this disadvantage when gaining access.

China's most capable ships are the Sovremenny and Luyang II destroyers. The four Sovremenny are armed with 120 km SS-N-22 Sunburn ASCMs.³⁹ The Luyang I/II class are similar to the Sovremenny and are equipped with the 120 km C-803 anti-ship and HHQ-9 surface to air missiles.⁴⁰ Literally dozens of other Chinese surface warships are equipped with 120 km C801/802 missiles.⁴¹ Taiwan has about 1/3 as many ships as China (refer to figure 5). The Kidd class destroyers are their most capable surface ship equipped with Harpoon anti-ship and SM-2 anti-air missiles with a joint combat management system.⁴² Taiwan's ASW capability rests with several Knox and Oliver Hazard Perry class frigates and ASW helicopters.

The major threat to aircraft is the preponderance of surface-to-air missiles, especially the 120 km SA(N)-20 (S300 PMU2) missiles. Figure 6 shows the coverage from land based surface to air missiles. The SA-20 extends this capability beyond Taiwan. China's two Louzhou destroyers also carry SA(N)-20s creating a moving threat window for both Taiwanese and U.S. aircraft. USAF F-22s, which recently conducted a trial deployment to Kadena airbase in Okinawa, Japan, or the F-35 would be the ideal platforms for operations in contested airspace ahead of carrier aviation because of their stealth technology.⁴³ U.S. aircraft may also face a threat from Taiwanese missiles in inadvertent engagements since the

³⁹ U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 2.

⁴⁰ Janes Information Group. "Janes Fighting Ships, Luyang," <http://jmsa.janes.com/> (accessed 14 April 2008).

⁴¹ Ibid.

⁴² Kan, Taiwan: Major U.S. Arms Sales Since 1990, Updated January 8, 2008, 9.

⁴³ David Shlapak, "Essay 6: Projecting Power in a China-Taiwan Contingency: Implications for USAF and USN Collaboration" in *Coping with the Dragon: Essays on PLA Transformations and the U.S. Military*, ed. Stuart E. Johnson and Duncan Long (Fort Leslie J. McNair, Washington D.C.: National Defense University, December 2007).

political posturing and communiqués prevent cooperative military exercises and coordination.

The final component is the People's Liberation Army Air Force (PLAAF). The PLAAF is inferior to the Taiwan Air Force in both pilot proficiency and equipment but quickly closing the gap. (Refer to figure 7 and 8 for comparison and location of air forces.) Currently, according to the 2008 Department of Defense Annual Report to Congress on the military power of the PRC, China has 490 of 2,250 aircraft within range to conduct combat operations without refueling.⁴⁴ Of these the most formidable are the SU-27 and SU-30 Flanker armed with the AS-17/Kh-31A ASCM with a range of approximately 200 km.⁴⁵ China also has an indigenous J-10 aircraft which is comparable to an F-16 or Mig-29. Taiwan's 150 F-16 and 60 Mirage 2000 aircraft are arguably the core of Taiwan's military defense. To remain effective the aircraft and airfields will need to be hardened and protected to preserve their combat capability. Taiwan's has eight active Air Force bases and at least one, Chashan, has the capability to store about 100 aircraft in underground hangars in the mountains.⁴⁶ Taiwan needs to expand these facilities, including supporting assets for the aircraft to enhance survivability from missile strikes. They also need to retain the capability for rapid runway repair and maintenance so they can continue to operate their most capable force and best means of resistance. Once within range of Taiwan U.S. fighters and ships with missile defense capabilities would be able to provide some relief and possibly resupply of their defense capabilities.

⁴⁴ U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 52, fig 12.

⁴⁵ Janes Information Group. "Janes Strategic Weapons, Kh-31A," <http://jmsa.janes.com/> (accessed 14 April 2008).

⁴⁶ Cole, 113.

Recommendations

From the forces described above China's capabilities have grown immensely since the 1995-96 Taiwan Strait crisis. At the same time Taipei has not concentrated its efforts on its military and has had a declining defense budget over the last decade except for 2007 and 2008.⁴⁷ This change in defense spending may be a response to Deputy Under Secretary of Defense Richard Lawless' statement in 2005 that "the U.S. ability to contribute to Taiwan's defense in a crisis is going to be measured against Taiwan's ability to resist, defend, and survive based on its own capabilities...we cannot help defend you, if you cannot defend yourself."⁴⁸ This made it clear that it is not just a China-U.S. battle. Taiwan is the major determinant of the outcome and U.S. forces provide a very powerful supporting role. Because of the anti-access capabilities of China, Taiwan needs to fight and resist until the U.S. forces or political pressure bring an end to the hostilities.

China's capability to attack U.S. aircraft carriers is very credible, still maturing, and will slow the approach of U.S. forces en route Taiwan. If China is able to hide preparatory movements for deployment from intelligence sources, the JTF Commander will be unable to respond immediately and will have to gain access against the layered anti-access weapons which China will have time to deploy and position. Even though additional resources for Seventh Fleet and the JTF Commander will reduce the time necessary for forces to arrive on scene gaining access will still be slow. During this time the fight will be up to Taiwan. Therefore Taiwan forces need to make use of technological advances and acquisition to increase their capabilities while instituting protective measures to increase survivability and resilience against a Chinese attack.

⁴⁷ Taiwan: Major U.S. Arms Sales Since 1990, Updated January 8, 2008, 27-28, table 1.

⁴⁸ Ibid, 32.

The biggest threat to Seventh Fleet assets are China's submarines. ASW has been stated as a weakness for the U.S. Navy. To correct this U.S. forces conduct several ASW exercises each year. The sailors operating the ASW systems are the most vital component for success. Even if the U.S. possesses the most technologically advanced ASW systems in the world, it is the capability of the sailors operating those systems to find and attack submarines that will determine success or defeat. Due to the looming threat from China's submarines, assets with improved capabilities such as the SH-60R helicopter and Mk-54 torpedo should be forward deployed to the Seventh Fleet area of responsibility.

To alleviate the time it takes to counter China's mine threat Seventh Fleet needs more minesweepers and minesweeping helicopters into the area. This could be done through the acquisition or redeployment of existing assets or by forming a coalition force against mining operations and take advantage of the "1,000 ship Navy."

However, the primary goal is the prevention of conflict with China. The peaceful resolution of differences needs to occur in phase zero and one operations, not during phases two and three. During a January, 2008 trip to China, Admiral Keating stated the trip was "an opportunity to meet with key leaders and build relationships that will ultimately ensure greater cooperation and collaboration across the spectrum of military-to-military relations."⁴⁹ Increased cooperation and predictability in peace between China and the U.S. will build trust. Through increased China-U.S. interaction and cooperative engagement activities the Combatant and Joint Force Commander can build understanding between both militaries to deter hostilities.

⁴⁹ Donna Miles, "Pacific Commander to Visit China to Bolster Communication, Cooperation," *American Forces Press Service*, 11 January 2008, <http://www.defenselink.mil/news/newsarticle.aspx?id=48642> (accessed 12 April 2008).

Conclusion

The maturation of China's access denial capabilities emphasizes the importance of time as a critical factor in any U.S. effort to oppose the use of coercive force by the PRC in an attempt to reunify with Taiwan. This reality is exaggerated by the immutable, irreducible factor of space, which greatly favors China in any potential conflict between the U.S. and China. This suggests the combatant commander should endeavor to create more combat time by increasing, during phase zero and one operations, Taiwan's ability to withstand force and the U.S. ability to respond quickly. This will allow the U.S. to apply asymmetric force in a deliberate rather than a reactionary manner, decreasing the risk of escalation with a nuclear-armed adversary, and improving the odds of resolving the conflict successfully or maintaining the status quo.

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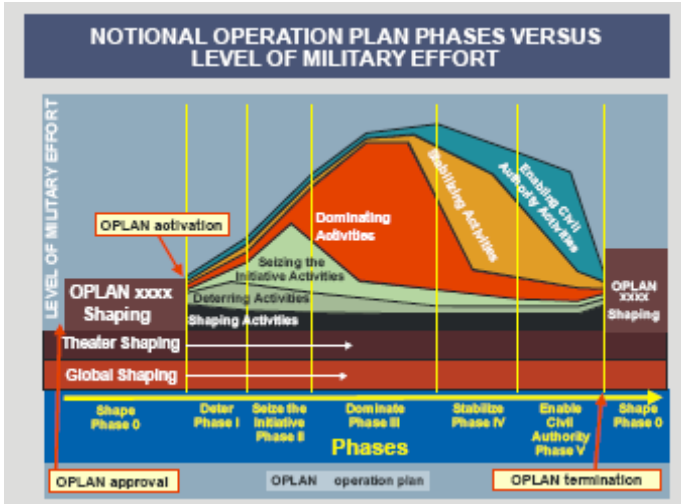


Figure 1. Notional Operation Plan Phases versus Level of Military Effort. (This figure taken from the U.S. Office of the Chairman of the Joint Chiefs of Staff, Joint Operations: *Joint Publication 3-0 (CH-1)*, 2008, IV-26, Figure IV-6.)



Figure 2. The first and second island chains. (This figure taken from the U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 56, Figure 17.)

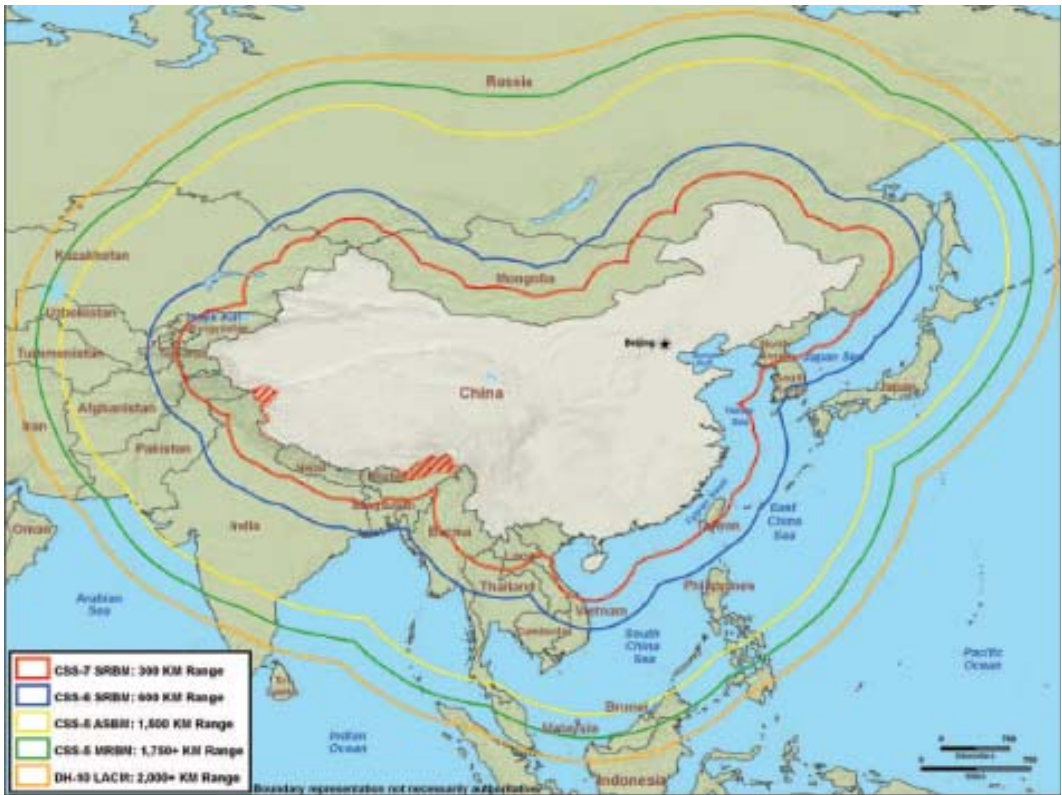


Figure 3. Regional Conventional Missiles. (This figure taken from the U.S. Department of Defense, Annual Report to Congress: *Military Power of the People’s Republic of China*, 2008, 56, Figure 5.)

China's Missile Force			
China's Missile Inventory	Ballistic and Cruise		Estimated Range
	Missiles	Launchers	
CSS-2	15-20	5-10	3,000+ km
CSS-3	15-20	10-15	5,400+ km
CSS-4	20	20	13,000+ km
DF-31	<10	<10	7,200+ km
DF-31A	<10	<10	11,200+ km
CSS-5	60-80	60	1,750+ km
CSS-6	315-355	90-110	600 km
CSS-7	675-715	120-140	300 km
DH-10	50-250	20-30	2,000+ km
JL-2	Developmental	10-14	7,200+ km

Note: China’s Second Artillery maintains at least 5 operational SRBM brigades; an additional two brigades are subordinate to PLA ground forces – one garrisoned in the Nanjing MR and the other in the Guangzhou MR. All of SRBM units are deployed to locations near Taiwan.

Figure 4. China’s Missile Force (This figure taken from the U.S. Department of Defense, Annual Report to Congress: *Military Power of the People’s Republic of China*, 2008, 56, Figure 17.)

Taiwan Strait Military Balance, Naval Forces			
	China		Taiwan
	Total	East and South Sea Fleets	Total
Destroyers	29	17	4
Frigates	45	36	22
Tank Landing Ships	26	24	12
Medium Landing Ships	28	23	4
Diesel Attack Submarines	54	32	4
Nuclear Attack Submarines	5	1	0
Coastal Patrol (Missile)	45	35	51

Note: The PLA Navy has the largest force of principal combatants, submarines, and amphibious warfare ships in Asia. After years of neglect, the force of missile-armed patrol craft is also growing. In the event of a major Taiwan conflict, the East and South Sea Fleets would be expected to participate in direct action against the Taiwan Navy. The North Sea Fleet would be responsible primarily for protecting Beijing and the northern coast, but could provide mission critical assets to support other fleets.

Figure 5. Taiwan Strait Military Balance, Naval Forces (This figure taken from the U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 56, Figure 16.)



Figure 6. Taiwan Strait SAM and SRBM Coverage. This map depicts notional coverage based on the range of the Russian-designed SA-20 PMU2 SAM system, the CSS-6 and CSS-7 SRBMs. Actual coverage would be non-contiguous and dependent upon precise deployment sites. If deployed near the Taiwan Strait, the PMU2's extended range provides the PLA's SAM force with an offensive capability against Taiwan aircraft.

(This figure taken from the U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 56, Figure 9.)

Taiwan Strait Military Balance, Air Forces			
China			Taiwan
Aircraft	Total	Within range of Taiwan	Total
Fighters	1,630	330	390
Bombers/Attack	620	160	0
Transport	450	40	40

Note: The PLAAF and the PLA Navy have approximately 2,250 operational combat aircraft. These consist of air defense and multi-role fighters, ground attack aircraft, fighter-bombers, and bombers. An additional 1,450 older fighters, bombers and trainers are employed for training and R&D. The two air arms also possess approximately 450 transports and over 100 surveillance and reconnaissance aircraft with intelligence, surface search, and airborne early warning capabilities. The majority of PLAAF and PLA Navy aircraft are based in the eastern half of the country. Currently, 490 aircraft could conduct combat operations against Taiwan without refueling. However, this number could be significantly increased through any combination of aircraft forward deployment, decreased ordnance loads, or altered mission profiles.

Figure 7. Taiwan Strait Military Balance, Air Forces (This figure taken from the U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 56, Figure 12.)



Figure 8. Major Air Force Units (This figure taken from the U.S. Department of Defense, Annual Report to Congress: *Military Power of the People's Republic of China*, 2008, 56, Figure 13.)