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Hot Air: Has China Finally Achieved Total Force Dominance in the Skies over Taiwan?

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The 'Taiwan Strait Crisis' initiated by Chinese missile tests in 1995 illustrated the delicate balance and animosity that still remains between Beijing and Taipei vis-a-vis Taiwan's legal status within the People's Republic of China (PRC) and its precarious alliance with the United States.¹ The crisis represented another salvo in the decades-long political, diplomatic and military stalemate that has dominated cross-strait relations and shaped US foreign policy in Asia for more than half a century. The tests also provided the People's Liberation Army (PLA) an opportunity to display its nascent military capabilities and modern force structure, and demonstrated that the PLA was prepared to exercise its increased combat power to possibly force an endgame to tensions between Taipei and Beijing.²

At the time, however, China was unable to overcome US military supremacy in the region and sustain an effective cross-strait military operation against Taiwan (this was evident after Chinese forces were forced to back down when two US carrier groups were dispatched to the strait to effectively halt any further tests). However, since the strait crisis, China has been able to use its double digit economic growth and trade surpluses to train, equip and modernise an effective and highly capable military force.³

Initially, this took a two pronged approach: the first prong involved an increase in China's inventory of surface-to-surface ballistic and cruise missiles; and the second was to upgrade the People's Liberation Army Air Force (PLAAF).⁴ These two developments represent a watershed in the cross-strait strategic theatre, demonstrating that Taiwan is slowly losing the last remaining deterrent it has over

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¹ Jonathan D. Pollack. 'Chinese Military Power: What Vexes the United States and Why?' *Orbis*, Fall 2007, Foreign Policy Research Institute, Philadelphia, 2007, p. 642. <http://www.fpri.org/orbis/5104/pollack.chinesemilitarypower.pdf> (accessed 11 June 2010).

² Ibid, pp. 642-643.

³ Benjamin K. Lim. 'China Military Threat to Taiwan Rises Despite Detente' *Reuters*, 31 August 2009, p. 1. <http://www.reuters.com/article/idUSTRE5800L520090901> (accessed 11 June 2010).

⁴ David A. Shlapak. *Questions of Balance: The Shifting Cross-Strait Balance and implications for the US*, Testimony presented before the US-China Economic and Security Review Committee March 2010. RAND Corporation: Santa Monica, 2010, p. 1. <http://www.rand.org/pubs/testimonies/CT343/> (accessed 11 June 2010).

China: its force of advanced, well-equipped fighter aircraft, missile systems (offensive and defensive), and highly trained flight crews.⁵ This has been evident with recent developments in indigenous Chinese fighter technology, acquisitions of Russian-made advanced fighter aircraft and air-to-air missile technology and a new emphasis on advanced military training principles that expose Taipei's rapidly degrading air superiority.⁶ Include China's already vast and ever expanding missile inventory, and it appears that a strategic re-alignment of Chinese and Taiwanese air power will be a reality in the very near future.⁷

By looking at the empirical data, this article will critically examine the current state of military affairs in the Taiwan Strait to determine if China has achieved its long sought-after strategic advantage and attained total force dominance over that airspace. The analysis will look at several different aspects of Chinese air power, including: current aircraft inventories, especially fourth- and fifth-generation fighters; support aircraft; and air-to-air missiles. It will then compare those inventories to Taiwan's, and to US air power stationed in the Pacific. This will be followed by several theoretical scenarios based on coordinated Chinese strikes against Taiwan's air bases and anti-aircraft systems.

Comparative Force Levels: The PLAAF, The Republic of China Air Force, and the USAF

Nowhere has Chinese force modernisation been more evident than within the ranks of the People's Liberation Army Air Force. Since 2008, over 20% of PLAAF fighter aircraft have been upgraded to modern, fourth-generation status.⁸ Furthermore, the October 1st military parade held this year in Beijing was distinctly different from the past, with pre-eminence being given to the Air Force, Navy and Second Artillery Corps (China's strategic missile forces), which represented a shift away from the previous ground-force-oriented, continental mindset. Prominently featured weapons included:

- Latest variants of the DF-21C medium range ballistic missile;
- The DF-31A intercontinental ballistic missile;
- The DH-10 (CJ-10) land attack cruise missile;
- The J-10 fighter (China's indigenously made fourth-generation advanced fighter aircraft);
- The H-6U air refuelling tanker; and
- Electronic warfare platforms including the KJ-2000 Airborne Warning and Control Aircraft (AWACS).

⁵ Ivan Eland. 'The China-Taiwan Military Balance Implications for the United States', *CATO Institute Foreign Policy Briefing*, Washington, D.C., 2003, p. 1 <http://www.missilethreat.com/repository/doclib/20030203-Cato-chinataiwanmil.pdf> (accessed 10 June 2010).

⁶ Richard Dobson. 'Taiwan Air Force Loses Ground to Rival China' *Reuters*, 29 May 2007, pp. 1-2.

⁷ US State Department. 'Bilateral Relationships in Northeast Asia' *The Rise of China and Its Effect on Taiwan, Japan and South Korea: US Policy Choices*, US State Department, Washington D.C., 2005, p. 10. Some 600 missiles were believed to be stationed along China's southern coast, opposite Taiwan.

⁸ International Institute for Strategic Studies. 'Chapter 8: East Asia and Australasia' *Military Balance 2010*, Routledge, London, 2010, p. 377.

The parade was not only a carefully scripted, large-scale exercise to celebrate the 60th anniversary of the People’s Republic of China, but also a message from the PLA and the Communist Party that it was generating a comprehensive set of state-of-the-art capabilities that would enable Chinese military power projection beyond its own borders.⁹

Since the beginning of the millennium, the primary goal of senior political and military leaders within the PRC has been to close the technological gap between them, Taiwan, and the US. As Figure 1.1 illustrates, China has recently begun to focus more on advanced fighter aircraft; in particular, it has paid great attention to domestic production of the J-10 (a fighter based on the US F-16A/B that entered China through Pakistan in the 1990s), and to the purchase of Su-27SK and Su-30MKK aircraft that represent a large portion of China’s modern strike/fighter aircraft inventory.¹⁰ Additionally, the J-10s and Su-27/30s have been fitted with modern Anti-Aircraft Munitions (AAMs), including Russian-made precision guided missiles.¹¹ China has also purchased Il-78 mid-air refuelling tankers that, with the help of Israeli aerospace companies, have enhanced the operational range of the Su-27/30s to cover the airspace from China’s coast to Guam.¹² Finally, support and strategic lift aircraft have rounded out the PLAAF’s modernisation with the delivery of Russian Il-76s, which have significantly increased China’s long-range, heavy airlift capability. This will, for the first time in its history, allow the Chinese air force to transport troops and equipment over long distances rapidly and efficiently.¹³ In sum, this overhaul has dramatically increased the posture of the PLAAF and poses a significant challenge to Taiwan’s air defence capabilities.

Figure 1.1: China’s Total Air Power Assets (Advanced Fighter Aircraft)

| Aircraft | Production Site | Load Out | Inventory | Source: CSI S Rep ort <i>Chinese Milit</i> |
|------------------|-----------------|--|---|---|
| J-10 | China | PL-8, PL-12 AAMs; Russian made R-73, R77 AAMs; YJ-8K, YJ-82K and YJ-9 AAMs | Unknown but entered service in 2004 | |
| Su-27SK/Su-30MKK | Russia/China | R-77 AAM | 150 with a license to produce 200 more | |

ary Modernization and Force Development

⁹ Ibid.

¹⁰ Anthony H. Cordesman and Martin Kleiber. ‘Chinese Military Modernization and Force Development: Main Report’. *Centre for Strategic and International Studies Arleigh A. Burke Chair in Strategy*, 2006, p. 75, http://www.csis.org/files/media/isis/pubs/060907_chinesemilitary.pdf (accessed 10 June 2010).

¹¹ Ibid.

¹² Wei-chin Lee. ‘Long Shot and Short Hit: China as a Military Power and Its Implications for the USA and Taiwan’ *Journal of Asian and African Studies*, Vol. 43, No. 5, 2008, p. 527.

¹³ Ibid.

Higher quality aircraft have required the PLAAF's leadership to rethink and reorganise pilot training practices. As a result, new standards and programs have been implemented to familiarise Chinese pilots with advanced systems, to train them in advanced air-to-air and air-to-surface combat techniques, and to remould the outdated and crude training regimes China had been using for the past half century.¹⁴ An example is the minimum number of flight hours PLAAF pilots used to receive in comparison to their Taiwanese adversaries - a mere 5 hours a month compared to 15 hours.¹⁵ Recently, however, that has all changed with the implementation of the *Stride 2009* training and combat exercise program.¹⁶

Stride represents a significant change to the conduct and execution of joint and element specific exercises and war game scenarios. So far it has featured the first ever long distance, joint training exercise involving the deployment by PLAAF air squadrons and logistic wings of four army divisions (roughly 50,000 troops); and practice missions for coordinated airstrikes, the heavy airlift of large pieces of equipment, and the transport of troops over several thousand kilometres.¹⁷

In order to facilitate this growing emphasis on advanced aerial warfare, China is continuing both its program of domestic fighter production and its partnership with Russia to acquire greater numbers of Flanker strike/fighters. Projections by the RAND Corporation suggest an impressive capability by 2013. Figure 1.2 demonstrates the PLAAF's development, noting in particular:

- An increase in the advanced fighter fleet of between 90 and 300 percent;
- The addition of 'generation 3 ½' J-8 fighters (older airframes but with updated avionics and fire-and-forget beyond visual range [BVR] missiles);
- The continued fielding of advanced electronic warfare systems, such as jammers;
- The addition of nearly 50 upgraded H-6 bombers as platforms for the YJ-63 and DH-10 Land Attack Cruise Missiles (LACM); and
- A reduction of older combat aircraft (J-7, Q-5 and earlier versions of the J-8).¹⁸

This program stands in stark contrast to the (Taiwan) Republic of China Air Force (ROCAF),¹⁹ which will have a much smaller inventory of advanced fighter aircraft integrated into a joint-air defence system that combines anti-aircraft forces and multi-layer interception techniques.²⁰ Taiwan also relies on USAF

¹⁴ David A. Shlapak, David T. Orlesky, Toy I. Reid, Murray Scott Tanner and Barry Wilson. *A Question of Balance: Political and Military Aspects of the China-Taiwan Dispute*, The RAND Corporation, Santa Monica, 2009, p. 58.

¹⁵ Dobson, p. 1.

¹⁶ IISS, p. 378.

¹⁷ Ibid, p. 387.

¹⁸ Shlapak, Orlesky, Reid, Tanner and Wilson, pp. 53-54.

¹⁹ While Shlapak and Orlesky have referred to Taiwan's Air Force as the 'Taiwanese Air Force' or TAF, its official name in Taiwan remains 'The Republic of China Air Force' or ROCAF.

²⁰ K. and J. Allen. 'Controlling the Airspace Over the Taiwan Strait', in *If China Attacks Taiwan: Military Strategy, Politics and Economics* ed. S. Tsang, Routledge: London and New York, 2006, p. 103.

forces based in Kadena, Guam, and Iwakuni; and on the US 7th Fleet's Carrier Battle Group (CBG) to assist with any cross-strait incursion by China.²¹

A baseline composition analysis provided by the RAND Corporation demonstrates that by 2013 the ROCAF will, relatively, be the same in terms of composition and order of battle as it is today.²² Using this analysis, Figure 1.3 represents the size and composition of the ROCAF by 2013 based on a completed purchase of 66 F-16C aircraft (requested by Taiwan in 2006 but yet to be delivered), and the inclusion of French Mirage 2000 aircraft and the domestically-built *Ching-Kuo* Indigenous Defence Fighter (IDF)

Figure 1.2: Projected PLAAF Inventories by 2013

| Aircraft Type | Base | Advanced |
|--|-------------|-----------------|
| Su-30 | 73 | 150 |
| Su-27/F-11 | 116 | 130 |
| J-10 | 100 | 250 |
| J-8 (Advanced) | 62 | 100 |
| J-8 | 280 | 0 |
| Total fighter/Multi Role | 631* | 630* |
| JH-7 | 40 | 40 |
| Q-5 | 200 | 0 |
| H-6 (Upgraded) | 46 | 60 |
| H-6 | 50 | 40 |
| Total attack/bomber | 336* | 140* |
| Grand Total | 967* | 770* |
| *Projections include only those aircraft notionally allocated to the Taiwan Campaign. Table does not include PLA Naval Air Force assets. ²³ | | |

Source: RAND Study A *Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute*

Figure 1.3: Projected ROCAF Inventories by 2013

| Aircraft Type (Taiwan) | Base | Advanced |
|-------------------------------|-------------|-----------------|
| F-16 | 132 | 198 |
| Mirage 2000 | 57 | 57 |
| IDF | 128 | 128 |
| Total | 317 | 383 |

Source: RAND Study A *Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute*

²¹ Shlapak, Orletsky, Reid, Tanner and Wilson, p. 65.

²² *Ibid*, p. 55.

²³ *Ibid*, p. 54.

In addition, further studies conclude that the best-case scenario for American intervention in a cross-strait operation would involve one wing of 72 F-15Cs or F-22s out of Okinawa, with support from 36 US Marine Corps F/A-18 C/D aircraft from Iwakuni Air Base. This scenario also assumes that the Chinese will not use their missile forces in pre-emptive strikes against US targets in Japan or the CBGs in the Yellow Sea.²⁴ Figures 1.2 and 1.3 illustrate the huge disparity in numbers and capabilities of Taiwan's air power vis-a-vis China's.

An additional impediment to Taiwan's ability to keep pace with Chinese modernisation may be political squabbling in Taipei, with recent infighting leading to a 6% cut in the 2010 defence budget, down to US\$6.9 billion.²⁵ This has significantly reduced a number of big-budget acquisitions included in the US\$6.4 billion arms package approved by the US in 2008.²⁶ Originally, this package was to include 30 AH-64 Apache attack helicopters, Patriot PAC-3 anti-missile systems, UGM-84L Harpoon anti-ship missiles, and upgrades to the ageing front-line F-16 A/B and *Ching-Kuo* IDF fighters. However, the final package delivered to Taipei on February 1st of this year was a severely watered down version that did not include the F-16 upgrades or the Apache helicopters (because of political reasons in Washington and budget constraints in Taipei).²⁷ While the Harpoon missiles and PAC-3 systems were included, the Apache helicopters were replaced by 60 UH-60M Black Hawk helicopters, mostly used for troop transportation and with a limited combat utility.²⁸

A number of factors is likely to hamper Taiwanese and US forces from effectively engaging Chinese air forces in the event of war. The first may be Taiwan's best asset - its pilot corps. According to the US Department of Defence's Quadrennial Review of Chinese Military Power in 2003, the ROCAF was experiencing a shortage of trained and capable pilots for its newest aircraft.²⁹ Reports show that Taiwan's air force has fallen from 55,000 personnel to 45,000, while simultaneously preserving its basic organisational structure, fleet size, and defensive counter-air mission focus, which in turn has led to its fighter pilot corps being over worked.³⁰ This has led to cuts in certain aspects of aerial warfare training, including air combat, close air support, and anti-surface warfare.³¹

The second factor involves Taiwan's closest ally, America. US forces in the Pacific are faring little better, suffering from a 'tyranny of distance' which affects deployment time and force

²⁴ Ibid, p.62.

²⁵ IISS, p. 380.

²⁶ Ibid.

²⁷ Li Xiaokun. 'Beijing Furious at Arms Sales to Taiwan', *China Times*, 1 February 2010, p. 1.

http://www.chinadaily.com.cn/china/2010-02/01/content_9404199.htm (accessed 12 June 2010).

²⁸ Ibid.

²⁹ US Department of Defence. 'Section V: Security Situation in the Taiwan Strait', *Annual Report to Congress on the Military Power of the People's Republic of China*, 2003, p. 50. <http://www.defense.gov/pubs/2003chinaex.pdf> (accessed 21 June 2010).

³⁰ Ibid.

³¹ DOD 2003, p. 50.

sustainability.³² A former commander of US Air Forces in the Pacific (PACAF), General William Begert, has identified equipment availability and readiness problems with fighters and tankers.³³ Specifically, F-15C fighters and KC-135 tankers have been feeling the stress of high operational pace. The F-15Cs at Kadena, for example, had not met their 79 percent readiness rates since 2000, with their lowest rates recorded at 70 percent in 2003.³⁴ On top of that, the KC-135s were flying 1,000 hours per year more than planned.

In summary, this provides a rather bleak operational scenario for US and Taiwanese forces in the strait. Years of stagnation and political in-fighting in Taipei have seriously degraded Taiwan's tactical air advantage. Simultaneously, China has dramatically modernised its air power and planning capabilities. Recent trends suggest that the US may not be able to intervene or prevent Chinese military operations in the strait. Alternatively, the US's attitude on arms sales may be a subtle hint to the leadership in Taipei to get its house in order and provide for its own well-being. However, Taiwan's political system has failed to provide a unified front against China, and sometimes seems not to recognise that the endgame may already be in play.

The Silent Assassins and the Tip of the Spear: China's Cruise and Ballistic Missile Forces

Taiwan's ability to defend itself also faces significant challenges from China's strategic missile inventory that includes Land Attack Cruise Missiles (LACM), Short-Range Ballistic Missiles (SRBM), and Medium Range Ballistic Missiles (MRBM) from the Second Artillery Corps. According to the Pentagon, in 2007 China had a stockpile of over 900 SRBMs (increasing its inventory at a rate of 100/year) and was developing an arsenal of LACMs with a stand-off, precision strike capability against hard targets.³⁵ As of 2009 that inventory had increased to between 1,050 and 1,150 missiles (estimates from Taiwan place it closer to 1,500) with greater ranges, improved accuracy, and a wider variety of conventional payloads.³⁶ As Figure 1.4 demonstrates, the inventory is staggering.

Reports indicate that an attack against Taiwan would see China use its missile forces to support the PLAAF in obtaining air superiority over the strait.³⁷ Missions would be organised into four distinct operations supported by the Second Artillery Corps, as follows:

- Elimination of enemy air defence systems (including early warning and control facilities), airborne operations, and anti-air weapons systems; and strikes against civilian aviation industries and flight training bases;

³² Allen, p. 110.

³³ Cited in Robert Walling. 'USAF Widens Cooperation in the Region While Coping with Operational Needs and Ageing Aircraft', *Aviation Week & Space Technology*, 26 January 2004, p. 47.

³⁴ Ibid.

³⁵ US Department of Defence. 'Chapter Four: Force Modernisation Goals and Trends' *Annual Report to Congress: Military Power of the People's Republic of China*, 2007, p. 17. <http://www.defense.gov/pubs/pdfs/070523-china-military-power-final.pdf> (accessed 12 June 2010).

³⁶ Lim, p. 2; David Shlapak. 'Does China Have Taiwan in a Strait Jacket?' *Foreign Policy*, 2 October 2009, p. 2. http://www.foreignpolicy.com/articles/2009/10/02/chinas_beefed_up_air_force?page=0,1 (accessed 12 June 2010).

³⁷ Dennis M. Gormley. *Dealing with the Threat of Cruise Missiles*. London, Oxford University Press, 2001, p. 51.

- Attacks on the enemy’s military industry, political and economic centres; and the destruction of his ability to conduct war;
- Destruction of major infrastructure, including roads, railroads, transportation nodes, ports, bridges and supply networks deep behind enemy lines; and
- Attacks on strategic and campaign reserve forces or other combat units, to destroy or weaken the enemy’s combat strength.³⁸

Figure 1.4: China’s Strategic Missile Forces Opposite Taiwan

| China’s Missile Inventory | Launchers/Missiles | Estimated Range | Source: <i>Annual Report to Congress</i> |
|---------------------------|--------------------|-----------------|---|
| CSS-5 MRBM | 34-38/40-50 | 1,770+ km | |
| DH-10 LACM | Unknown/150-350 | 1,550-2,000+ km | |
| CSS-6 SRBM | 70-80/300-350 | 600 km | |
| CSS-7 SRBM | 110-130/575-625 | 300 km | |

Source: *Military Power of the People’s Republic of China 2007; The Assassin Under the Radar: China’s DH-10 Cruise Missile Program*

These strikes may also involve mobile brigades from the Second Artillery Corps using the CSS-6 and CSS-7 SRBM, CSS-5 MRBM, and DH-10 LACM, which have ranges of 600, 300, 1,700+ and 2,000+ km respectively.³⁹ China is also growing its inventory of unmanned aerial vehicles (UAVs) and satellite constellations for reconnaissance of possible targets, and is developing ‘informatized’ special operations units which can provide precision targeting data for long-range strikes. Targets for these strike could include: Taiwanese and western Pacific airbases, ports, naval forces, land- and space-based C4ISR, air defence systems, and command facilities, in an attempt to hold any intervention by the US and its allies at bay.⁴⁰

The CSS-6 and CSS-7 SRBMs will be of particular importance in any pre-emptive strike against air bases and facilities in Taiwan.⁴¹ The CSS-7’s early variants have a single 800kg warhead and a circular error probable (CEP) of 600m; the newer and more advanced versions have even greater accuracy with a CEP of 20-30m and several additional warhead options including high-explosive (HE), nuclear, chemical, fuel-air explosive (FAE), and submunition. The CSS-6 has also been upgraded over time: its newest version dubbed the DF-15A/B is reported to have a 600kg warhead of HE, with nuclear and submunition options, coupled with an enhanced range of 600km and a CEP from 5-300m depending on the variant.⁴² Of particular concern should be the use of submunition warheads which are specifically

³⁸ Allen, p. 101.

³⁹ DOD 2007, p. 16.

⁴⁰ Ibid.

⁴¹ David A. Shlapak, David T. Orlesky and Barry A. Wilson. *Dire Strait? Military Aspects of the China-Taiwan Confrontation and Options for US Policy*, The RAND Corporation, Santa Monica, 2000, p. 32.

⁴² *Ibid*, p. 33. CEP defines the radius around a target within which 50% of attacking munitions can be expected to land.

designed to hit soft targets such as runways, hangars and aircraft parked on taxiways. This would help to cripple Taiwan's runways and eliminate its fighters before they could even get off the ground.

Also of concern is the development of the DH-10 LACM, which represents a major advance in Chinese missile technology.⁴³ The DH-10 is a unique weapon in the Chinese arsenal: its estimated range is over 2,000km, with variants that can be launched from both air- and mobile ground-based platforms. It was estimated that by April 2008 the PLA had 150-350 DH-10 ground-launched cruise missiles. The DH-10's targeting system is highly advanced, with integrated Russian Glonass or European Galileo GPS navigation that enables pin-point accuracy comparable to the US Tomahawk.⁴⁴

The Second Artillery Corps has been the main recipient of this new weapon, integrating the DH-10 into at least two operational road-mobile brigades (the 821 Brigade, 96215 Unit, in Liuzhou, Guangxi Province; and the 824 Brigade, 96317 Unit, in Dongkou, Hunan Province) with unconfirmed reports that a third brigade is stationed in Jiansui, Yunan Province. Targets include Okinawa and Taiwan, and the North Asia and South China Sea areas.⁴⁵ The DH-10s' range and mobility make them difficult to target, more so because China has deliberately positioned them inland to maximise their protection against detection and counter-strike. On top of that, the Second Artillery Corps has incorporated a complex web of advanced air-defence S300-PMU1 and PMU-2 surface-to-air missile (SAM) buffers to protect them against potential US and Taiwanese counter-strikes.⁴⁶

This system has been integrated into China's larger web of state-of-the art, Area Denial/Anti-Access Capabilities that could limit the effect of Taiwanese or American counter-strikes against Chinese air and missile bases deep within the PRC.⁴⁷ As reported in the *New York Times*, '[these] air defence radar[s] ... almost match the performance of similar networks in developed countries.'⁴⁸ In summary, China's Joint-Air Raid Campaign planning is based on a modern and integrated air defence system and incorporates both offensive and defensive counter-air operations.

Taiwan has been looking at options to counter Chinese missile forces that include both domestic- and US-made defensive and offensive systems. Taiwan has continued to develop a missile with a 400kg payload and a range of 1,000km that could be deployed on mobile launchers around the island, for use against Chinese targets on the mainland.⁴⁹ There has also been the deployment of so-called 'special missiles' such as the *Hsiung Feng* 2E, with a range of 600-1000km, at various launch sites outside of Taiwan proper, including Dongyin Island, approximately 60 km from the mainland.⁵⁰ This is in addition

⁴³ Ian Easton. 'The Assassin Under the Radar: China's DH-10 Cruise Missile Program', *Project 2049 Institute Report*, 2010, p. 1 http://project2049.net/documents/assassin_under_radar_china_cruise_missile.pdf (accessed 12 June 2010).

⁴⁴ Richard Fisher Jr. 'China's New Strategic Cruise Missiles: From the Land, Sea and Air' *Strategy Centre*, 3 June 2005, p. 3. http://www.strategycenter.net/research/pubID.71/pub_detail.asp# (accessed 12 June 2010).

⁴⁵ Easton, p. 4

⁴⁶ Ibid.

⁴⁷ DOD 2007, p. 16.

⁴⁸ David Lague. 'China and Taiwan Flex Military Muscles' *New York Times*, 10 October 2007, p.1.

⁴⁹ Ibid, p. 2

⁵⁰ Lee, p. 535

to the defensive missile platforms already in place on the Republic of China (Taiwan) Navy's four Kidd-Class Destroyers with Standard Missiles reaching a distance of 144km and a three-dimensional radar targeting system with a range of 400km.

Taiwan has also benefitted from its involvement in the US's Theatre Missile Defence (TMD) network activities; and from operating E-2T Hawkeye airborne early-warning aircraft, Patriot-derived Modified Air Defence Systems, and Hawk and Chapparral Ground based air-defence systems.⁵¹ Additionally, the US Department of Defence runs exchange programs to train Taiwanese operators on advanced C4I and air raid systems.⁵²

At the same time, Chinese and American observers have speculated that Taiwan's integration into the TMD network may give it a false sense of security which could embolden pro-independence agitators to do something drastic.⁵³ Furthermore, a TMD system may constitute a violation of Chinese territorial integrity and a blatant act of interference in China's domestic affairs that may embolden the Chinese to take drastic action.⁵⁴ And other defensive systems such as the PAC-3 have turned out to be very costly, and have concentrated Taiwan's defence dollars on a limited range of capabilities that China increasingly is able to counter. Finally, offensive counterstrike weapons such as the missiles on Dongyin Island are potentially destabilising, since China would have difficulty determining if they came from US or Taiwanese platforms.⁵⁵

China's combination of missile attacks, strike/fighters, and dense array of anti-aircraft and area denial capabilities have the potential to overwhelm Taiwan's defences. Any attack would undoubtedly employ surprise tactics that may include a barrage of hundreds of LACMs armed with submunition packages to target key airbases.⁵⁶ One estimate is that a mere 16 LACMs armed with submunition warheads could be sufficient to provide a 90% probability of temporarily closing down the ROCAF's main runways, thus effectively grounding the service.⁵⁷ LACMs would also be effective against Taiwan's US-supplied PAVE PAWS phased-array warning system (originally developed to provide warning against Chinese ballistic missile attacks). With their long range, circuitous flight path, and 'earth hugging' flight profiles, cruise missiles are difficult to detect and should be able to counter the PAVE PAWS system.

With PAVE PAWS eliminated, the second wave of Chinese attacks could involve satellite-guided ballistic missiles to target munitions storages, maintenance complexes, and command and control links.⁵⁸ Simultaneously, the PLAAF would probably employ asymmetric tactics, including electronic jamming

⁵¹ Ibid.

⁵² Jing-Dong Yuan. 'Chinese responses to US missile defences: Implications for Arms Control and Regional Security' *The Non-proliferation Review*, Vol. 10, No. 1, 2003, p. 84.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Gormley, p. 52.

⁵⁷ Ibid.

⁵⁸ Ibid.

and information warfare assaults against Taiwan's command and control capabilities, to disorientate and cripple the air defence network. With large numbers of aircraft destroyed, runways rendered unusable, and the command and control system paralysed, the airspace would be cleared for the first wave of PLAAF strikes against Taiwanese targets. Additionally, this would release PLAAF aircraft from air-defence and suppression attacks, allowing them to transit to their target sets at higher altitudes (thus achieving longer range) and carrying heavier payloads.⁵⁹

Once air operations had been commenced, the following kind of scenario could unfold:

- A wave of Chinese fighters would perform a sweep over the strait and Taiwan;
- A large, escorted strike package would follow, and would target coastal defences, remaining air defences, and airfield targets; and
- Second and third fighter sweeps would eliminate any remaining resistance.⁶⁰

If that were not enough, the 'trump card' could be China's stockpile of LACMs. Cruise missiles are relatively inexpensive to develop (for example the newest version of the US Tomahawk costs around \$660,000, while the Russian Alfa and Chinese Silkworm missiles have an average price tag around \$250-300,000), and they are very expensive to defend against.⁶¹ The PAC-3 anti-missile system bought by Taiwan this year is becoming more and more expensive to maintain, to the extent that it has forced Taiwan to limit its offensive missile inventories. Furthermore, saturation attacks with cruise missiles could draw critical defences away from important missions such as defending against ballistic missiles.⁶²

Those scenarios provide many complex challenges, and seriously bring into question Taiwan's ability to defend itself.

Conclusion

Chinese airpower in the Strait of Taiwan is redrawing the strategic map. The dual pillars of economic growth and investments in technological advancements have provided vast economic resources for China to pursue its military ambitions and to grow its inventory of advanced strike/fighter aircraft and missiles.⁶³ Simultaneously, political squabbling in Taipei and the reorientation of American strategic interests and, therefore, forces, has allowed China to exploit its new-found regional tactical advantage. China has substantially closed the gap between itself and its adversaries, to the extent that it can now reasonably aspire to dominance in the air.

In terms of deterrence, this development is significant for a number of reasons. Firstly, China has quickly caught up to Taiwan and the US in the advanced aircraft arena, and has eliminated the last obstacle to its grand strategy in relation to Taiwan. In the long run, this could buy military planners the time they need to coordinate and conduct a successful invasion of the island. Secondly, Taiwan's

⁵⁹ Ibid.

⁶⁰ Shlapak, Orletsky and Wilson, p. 24.

⁶¹ Gormley, p. 53.

⁶² Ibid.

⁶³ Lee, p. 528.

military/strategic situation seems perilous at best, dire at worst. The decline of the ROCAF may well spell the end of the last remaining advantage Taiwan had over China's vastly superior forces. The inability of Taipei's ruling elite to come to a consensus regarding defence expenditures and weapons procurement programs with the US has had unforeseen consequences that have worked in China's favour.

For its part, the US may have to accept that it can no longer deter Chinese aggression in the strait, and instead re-align its forces to take into account the rapid modernisation of the Chinese Air Force. This may require senior officials in the Pentagon to re-examine the situation in North Asia and determine what changes are needed in order to maintain its tactical foothold in the region. One area in need of serious review is disturbing state of (un)preparedness of its forces in Japan and Guam. If the US is indeed hostage to 'the tyranny of distance', then the battle may already be over. US assistance in any strait operation is essential: Taiwan simply cannot survive without it and would be left to absorb the full onslaught of China's military superiority. Taiwan would lose any air war in the skies over the strait.

The endgame may be well in sight. As Allen Whiting has pointed out, 'for the next decade ... [China] will likely achieve the ability to influence Taiwan's choices about its political future or, failing that ... [will be able] to prevent Taiwan from achieving formal independence'. For the next decade, the strategy of both Taiwan and the US must be to prevent this from happening.⁶⁴ However, they may no longer have a voice in the debate. China's air power is rapidly raising it to the position of 'king-maker' in Asia and will be critical should Beijing decide to re-take something they believe is rightfully theirs.

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⁶⁴ Allen S. Whiting 'China Versus Taiwan: Balance of Power or of Will' *UCLA International Institute*, 21 January 2005, p. 1, <http://www.international.ucla.edu/article.asp?parentid=6671> (accessed 13 June 2010).

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