Command the Air Over Taiwan

Dr. Chih-Heng Yan, TzuYun Su

International Conference On
Taiwan’s Security and Air Power
Jan. 2003
Content

Summary .................................................................................................................. 1
Foreword ............................................................................................................... 1
Complex Air Power ............................................................................................. 3
A gradual imbalanced strategic scale .............................................................. 5
Review on the PLAAF .......................................................................................... 6
  Strategy: Offensive Orientation ................................................................. 6
  limited high-tech fighting ability .......................................................... 6
  Doctrine and Training ........................................................................... 8
  Area Air Defense and Anti-Missile Capability .......................................... 10
Taiwan Air Force Capabilities ....................................................................... 10
The Key Factors for Command of the Air over Taiwan .................................. 12
  The British Battle Pattern Is Not Existed .............................................. 12
  Paralyzing Taiwan Air Defense Capability ........................................ 12
  Airports Are Bolsters ............................................................................. 13
Defending Territorial Air: Offensive Defense is the Best Choice .................. 13
  Abandon Maginot Line in Mind ............................................................ 13
  Disturbing Enemy’s Operational Tempo ............................................. 14
  Promotion Survivability ........................................................................ 14
  Acquisition Third Generation Fighter ............................................... 15
  Finding Economic Approach ............................................................... 15
  Establishing Non-Linear Air Power ....................................................... 15
Conclusion .......................................................................................................... 16
Command the Air Over Taiwan

Summary

To command the air over the Taiwan Straits is the key to Taiwan’s defense, and it also influences the vision for the Pacific strategy. From the 1920s on, the concept of air power has practically fulfilled and become more and more diversified in the battlefield. Air power means to command the air as well as the sea and the land from the air. In fact, with the improvement of military technique, the military managers can use the aviation power more effectively to attack the flank and rear of the enemy. It has been possible to use high mobility fighters circling over the front line to attack the sideline, and further to defeat the enemy. Such kind of idea will be common in the future warfare. In other words, troops that tenaciously comply with the traditional linear defense are destined to be the sacrifice of the future war. In my opinion, since the war over Taiwan Strait is asymmetry on timing, in fact, the war will be decided by the air battles.

Foreword

Zhang Wan-Nian, the Vice-chairman Central Military Commission and central work group of Taiwan, once said on a "work meeting of equipment of whole PLA" that during the 15th periods, as well as the tenth five-year-plan, from 2001 to 2005, No matter if his saying should be regarded as a war timetable, once the military conflict occurs over the Taiwan Strait, under the high strength battlefield environment, the final victory will belong to who can command the air.

Any point of Taiwan away from the Mainland China is within 300 kilometers. If a war occurs and Taiwan loses its power control of air over Taiwan Strait, the PLA Air force (PLAAF) will compel Taiwan’s navy out of moving ability immediately. Besides, the army attack helicopters will also be suppressed by PLAAF; the ground battle might become another Normandy disaster for Taiwan’s army. The panzer will be slaughtered by the China’s fighters, not able to protect the front line. On the contrary, should the PLAAF spends much time and still can’t master the air supremacy of Taiwan Strait, it will get hard to effectively prepare and transport shellfire, neither to support the ground troops to land on Taiwan. Even though the PLAAF strives to land on at the expense of heavy

---

1 Dr. Chih-Heng Yang is Deputy Director of Division of Strategic and International Studies, Taiwan Research Institute, Tzu-Yun Su is Associate Researcher of Policy Research and Coordinating Committee of Democratic Progressive Party.
casualties, the troops will also be nailed by Taiwan’s firepower, and it is very hard for the PLAAF to unfold and launch an attack in depth from beachhead in such situation.

In fact, air power’s coverage has reached to the sea and the land. It is no doubt that the targets of maritime control are the warships, but the land control is more complicated. It not only traditionally aims to attack the front face of the enemy, but also to extend the attacking range and to deeply attack the rear by the combination of all kinds of long distance and precise weapons. Air power targets on controlling or holding up enemy’s access to aid, support, and the key nodes of enemy supporting system; the ultimate goal is to isolate the first echelon. Besides, political purpose is to suppress enemy’s headquarter and facilities, psychologically slacking them off. The extension of air power means that the air force can command the sea and the land. What’s more important, controlling the land also stands for air force’s ability to fight a war independently. The fact has already made the theory "Air-Land Battle" acquire a lot of attention. Besides the traditional distinction of land power, sea power and air power, the idea of air power may also extend to "Air-Land Power". Thus, the command of air will become a key factor to defend Taiwan Strait; at the meanwhile, the air force must be the main force in the battlefield.

Fairly speaking, for many countries, security of Taiwan Strait is really a delicate strategic game. Geologically, East Asia is the boundary of Eurasia mainland plate; geo-politically, it is also where the land power and the sea power meet. Taiwan, China, the United States, and Japan all play an important role there.

Under the containment policy during the Cold War, an example of cooperation of the sea power and the land power was that the United States allied the PRC to fight against another major power, USSR. Presently, the PRC has become a rising power, so the competition for the sea power and land power could possibly be the latent conflict between the United States and the PRC.

The United States and Japan are currently the main sea power nations of the Eastern Asia. Although the United States is self-sufficient in various resources, however, its regional trade and energy transportation are still highly relying on ocean shipping. If the possible enemies control those important sea communicate lines, the United States’ economy and security will be endangered. That’s why the United States insists that the freedom of sailing is a basic interest of a nation. Besides, the United States’ military thought are also based on two themes: maintaining its ocean control, and projecting forces globally.

Japan’s Self-Defense Force also followed the same principle after WWⅡ. Japan needs ocean shipping to obtain natural resources which it lacks most. Besides, ocean channel is also the secondary key factor for its nation security. Objectively speaking,

---

4 另請參見蘇紫雲、翟文中, 2010 中共軍力評估, 台北：麥田出版，2000 年，三刷版，頁 41-43。
locations play a very important part in the Western Pacific, but their strategic values are positioned by the international system. In other words, given different time and space, those locations have different strategic values. Therefore the so-called strategic values should be taken as a relative idea.

If Beijing decided to obtain Taiwan by force, there would be risks. Imagine that if Taiwan stood over the attack, Taiwan might declare independence, and win the worldwide diplomatic support from most of the countries, and leaders in Beijing might come to a ruling crisis. Moreover, the US and Japan, though not making it public, would doubtlessly worry about it. If China occupied Taiwan, fighters of PLAAF would be able to take off from Taiwan and patrol area radius of 800 nautical miles around. All the navigation routes from northeast to southeast of the Western Pacific would thus directly be exposed under the threat of PLA’s air force. The result would be hard to imagine. Another possible scenario is that the Chinese nuclear submarines could sail from Taiwan and directly sneak into the Western Pacific or even the Middle Pacific to damage the United States’ NMD system. To both US and Japan, the result would be a momentous threat to the regional security.

In other words, defending Taiwan’s air can not only protect the interest of ROC’s survival, to a certain degree, but also decide whether or not to lock China from getting into the Pacific Ocean. Actually, it also sets up the future strategic vision of the Western Pacific Ocean.

**Complex Air Power**

Due to the geo-political characteristic and matured military technology, to distinguish and obtain the air power over the Taiwan Strait becomes more and more delicate and highly interacted. Air power is developing in a complex way. Nowadays, the concept of air power includes not only the traditional perception of controlling the air, but also controlling the low altitude (treetop), space, edge of atmosphere, and using the unmanned aviation vehicle (UAV). The changing concept is making a significant influence on the ownership of air power over the Taiwan Strait.

The edge of atmosphere and space has already become a new area to fight for air power. According to the space plans of China, from 2003 to 2005, the 10th five-year plan period, China will launch more than 30 satellites, including information, navigation, and weather satellites. Currently, PRC has completed six serials of satellites, which include the reentry sensor satellite (spy satellite), Dofanhon information satellites, Fonwun weather satellites, Xijan science exploration and technique experiment satellites.

Another two series of satellites are roughly completed now, including a resource satellite which covers most of the globe and a navigate satellite named Beiduo(Plough). What’s most important, Beiduo navigate experiment satellite, the first generation of China-made navigate satellite, has been deployed to the assigned track. It will help PRC

---

6 中國時報，台北，2002年5月16日。
a lot to target its military object. According to Xinhua News Agency, the Beiduo navigate experiment satellite is invented and produced by technology research academy of China aerospace group. Since the satellite will highly upgrade PRC’s ability to satellite targeting and tracing, PRC is capable to set up a controlling coordinate system anytime, free from the limit of national border and the global curve. It contributes a lot for the launching and aiming of navigate missiles and middle-long range missiles. Thus, PRC’s controlling-navigate weapons definitely have a better, precise guidance system.

Meanwhile, after collocating with GPS, the M-family ballistic missile, which works near the edge of the atmosphere, will become a real destructive weapon. Although the military ministry analyzed that a M-family ballistic missile with traditional warhead could result in a huge hole of 10 meters deep and 30 meters wide after attacking the target. That means, PRC needs at least fifty to sixty missiles to paralyze one airport of Taiwan.

However, PRC is still a great threat to Taiwan’s ground logistics especially when it has improved the attacking ability and may add the equipment of air-fuel or sub-ammunition warhead and in the future. Strictly speaking, the threat may not come from the crafts directly but the delay effect it will result instead, which makes Taiwan’s fighters not able to take off because the tracks may have been ruined or blockaded after the first attack initiated by China. Besides, super-low altitude and treetop air power are key factors, too. Treetop air power means the ability to fly as staying close to the ground. For example, a cruise missile or a helicopter’s treetop air power means to be able to fly six to ten meters close to the ground. The low-altitude fighters not only are hardly discovered by the alarming radar; they are also hardly attacked down by the low-altitude fire and missiles because of the limit of the curvature of globe and coverage effect. In other words, except the fixed-wing fighters, which have ability to plunging fire, other ground anti-aircraft weapons, including the Stinger missiles, could not fight against it effectively. Therefore, those who initiate the first strike will undoubtedly acquire the advantage of movement and the access to fire supply, as well as the absolute the power of air control. However, observing PRC’s current development, it seems that cruise missiles have more potential than military helicopters, so cruise missile would become a greater threat to Taiwan.

Actually, if any of the both sides could master the superiority of super-low altitude, also so-called the fifth-dimensioned space or the treetop air power, the first battle for the

---

7 東森新聞報，2001年3月7日。
power of air control over Taiwan Strait would happen on the high altitude or the edge of the atmosphere, and the super-low altitude at the treetop distance.

A gradual imbalanced strategic scale

Although experts have not reached a consensus on whether Beijing would be able to acquire Taiwan by force, however, many western observers who have been gradually modifying their ideas believe that the PLA may be capable to occupy Taiwan finally. A military review done by the US Defense Department in 1999 has mentioned that once China decides to declare a war to Taiwan and take the first strike, it may capture the air control power over the Taiwan Strait in forty-five minutes. Moreover, an article on AirForce, a periodical published in England, also indicated that the military scale gradually tends to tilt as the PLA is quickening its pace of military modernization. The unbalance has become a threat on Taiwan’s strategy development.

In fact, the PLA is accelerating to improve its air force, guidance missiles, information technology, navy and air power, and the first troop of army. Liberation 1, the military exercise held on the Dong Shan island in 2001, could be taken as the first large-scaled joint exercise of China’s integrated new military force. The exercise showed some traditional categories like the display of Su-27 fighters and massive landing operation; what’s more important, it also exercised other new categories like digital wall, which was used for information advantage competition, and how to against aircraft carrier, which aimed to defense from outer force’s interference.

Review on National Force of the People Republic of China, declared by the US Defense Department in July 2002, indicated that Taiwan has been losing its advantages and on the other hand, PRC tends to obtain more and more advantages. PRC’s current training projects emphasize more on navy and amphibious warfare, actively integrating the force of ground troops, marine corps, airborne troops and task troops. It is estimated that PRC may possibly to overcome difficulties to conduct such kind of war successfully before 2010, but if there’s a third party involved and Beijing would like to afford the political, economic, diplomatic or military expense, the war may come true.

Besides armed attack, PRC could use every means of information technology to proceed its psychological war toward Taiwan. For example, the computer virus could be used to destroy Taiwan’s information system and traffic, break down the social order and people’s morale, and weaken enterprises’ confidence and support to the Taiwan government. Many businessmen who invest both in China and Taiwan would like to compromise on politics rather than afford the economic depression. Like what McVadon, a demobilized navy General of the US and the former military officer accredited in Beijing, once said, “Even though the information warfare does not work, Beijing would not choose other strategies that may lead to any casualty and depress its military morale.” The deepest worry for him is that if Beijing did not successfully acquired Taiwan by force, Beijing would face
Review on the PLAAF

Strategy: Offensive Orientation

The PLAAF has adjusted its strategic position and direction of force readiness, speeding up the completion of offensive air force. The indicator shows that China has gradually turned the developing direction from local air defense to long-range air defense, outside-territory interception, and even the middle-long range air force that can support wars outside the territory.

Moreover, he said that the strategy would try to take the initiative by means of offense, so the military training has emphasized on airport transfer. Many fighters are sent to the military bases in Fu-jian and Guang-dong to get familiar with the front-line airports, strengthening their fighting ability and the execution of integrated middle-long range offense fights. Some evidence can prove the Commander’s statement. First, the PRC actively purchases the Su-30’s long-range multi-purpose attacker. Second, the PRC is developing many auxiliary fighters for oil refuel, alarming and digital war. According to the Military Intelligence Agency of the US, fighters that originally function at the secondary or the third line but recently are assigned to the front line have decreased their preparation time from 10 hours to 3.5 hours. Besides, their ability of long-range fighting is particularly used for the strategies of air threat and rush attack in depth.

limited high-tech fighting ability

Although the PLA has owned massive clusters of fighters, however, most of the fighters are made in 1970s. That means, most of the fighters are approaching to the time

9 「中共空軍戰術由防轉向攻防兼備」，中國時報，台北，1999年11月8日，14版。
10 Ken Allen, op. Cit., p. 3.
11 「中共空軍戰術由防轉向攻防兼備」，前引文。
limit and not functioning as good as before; their functions are not able to meet the present and the future needs as well. Therefore, most people pay their attention to the new equipment the PLA has.

<table>
<thead>
<tr>
<th>Type</th>
<th>Service Life</th>
<th>Product. or Acquisition</th>
<th>Number (1994)</th>
<th>Number (2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>J 6</td>
<td>28</td>
<td>End of 70s</td>
<td>2824</td>
<td>544</td>
</tr>
<tr>
<td>J 7</td>
<td>25</td>
<td>End of 70s</td>
<td>586</td>
<td>919</td>
</tr>
<tr>
<td>J 8</td>
<td>25</td>
<td>Mid. of 80s</td>
<td>205</td>
<td>466</td>
</tr>
<tr>
<td>J 10</td>
<td>25</td>
<td>Early 01----</td>
<td>0</td>
<td>21</td>
</tr>
</tbody>
</table>

Source: China’s Air Force Enters the 21 Century SIPRI Year Book 2001 Military Balance 2000-01

To improve the situation, the development of PLA’s force readiness follows two approaches: purchasing abroad or inventing on their own. The foreign purchase gives priority to Su-27 and Su-30 family fighters made by Russia; the self-invented fighters include J-7, which is modified from J-7 type, and J-8A/B. Among them, the Su-27 (J-11), J-10, which technology is from other countries but research and production are from China, is the most noticeable. Many world-class experts appraise that the Su-27 fighters' performance equals to that of initial F-15, and J-10s performance equals to that of F-16 A. Since China and Russia has reached an agreement on the technique transfer of Su-27 family fighters in 1996, the Su-27 fighters made by PRC may be completed in 2001-2003. The production rate is estimated as 20 fighters per year.

According to currently information, Israel has provided the critical technologies for the J-10 fighter. For spare parts, for example, titanium alloy wielding, Kun-Lun jet engine, and reliability obstacles have overcome. For the weapon system, AAM Research Academy has successful manufactured new anti-jamming capability air-to-air prototype missile.  

On 2nd December, Asian Weekly (Hong Kong) reported: ten J-10 fighters have deployed in Nanjing Military Region. Currently, J-10 fighter had some prototype fighters and executed flight tests, and production lines may be established in 2003. Notable, Air Force First Aviation Academy try to incorporate voice system to airborne test equipment. When the voice system equipped in the PLAAF future

---

12 中共將在深圳研製蘇氏２７戰機，《中國時報》，(台北)，1996年5月17日，版九。報導中之量產架數為一百五十架分十年生產，本文則將此數量向上修正。  
13 《千龍新聞網》，2002年10月9日。
fighters, it could reduce aviators operation load, promote aviators operation capabilities in worst environment (i.e. high-tense battlefield, night, and land configuration flight).

According to operational limitation, technology replacement, and fighters production, PLAAN fighters number estimate approximately 2,500 in 2010. The PLAAN inventory including:

- Air superiority fighters: approximately 2,000, including J-7/ JH-7 variants, J-8 variants, Su-27/ 30 family and J-10 fighters;
- Attack fighters: approximately 450-500, including QJ-5, domestic JH-7, Russian introduction Su-30 attack fighters (estimate 60);
- Bomber: approximately 125, H-5 out of commission, H-6 modified, and some air tanker modified from H-6;
- Auxiliary/support inventories: including air early warn plane, air tanker plane, C4I system, electronic warfare, fire control, medium-range AAM and ASM. These inventories improvement and acquirement could promote PLAAF operational capabilities.

The PLAAF fighters deployment divides three categories: (1) the first line: 250 nautical miles from Taiwan; (2) the second line: 500 nautical miles from Taiwan; (3) the third line: 500 nautical miles beyond Taiwan. Within the first line, have 13 military and civilian airports; within the second line, including 1,300 combat fighters, among 600 fighters combat radius could cover Taiwan.

The PLA Air Force Second and Third Divisions deployed Su-30 fighters (equipped air-launched SS-N-22 cruise anti-ship missile, KH-31 long-range anti-radiation missile), Su-27 fighters (equipped AA-10 medium/long-range AAM, KH-31 long range anti-radiation missile), J-8 II fighters, FB-7, An-12, A-50 AWACS plane. In addition, Air and Naval Aviation also deployed electronic warfare planes. All sort of airborne EW systems, electronic support equipment frequency between 0.7 to 18 GHz; active electronic jamming could execute ECCM to A, D, E, F waveband. The First Line and major combat fighters equipped with jamming device delivery system.

**Doctrine and Training**

For training, PLAAF strengthen aviators combat skills, increase flying time and all-weather condition operational capabilities step by step. Before 1990, PLA

---

Air Force is a “subordinate role” in each exercise. Due to command power belong to the PLA Army, non-professional could cause Air Force combat power reduction. After the Persian Gulf War, PLA military planning personnel found the 42 days of total war have 38 air campaign.  

Depend on deployed fighter, PLA Air Force divide “Jia-Division” (A class) and “Yi-Division” (B class), could execute training work for different threat considerations.

In 1994, PLAAF first executed across ten-province emergency mobility drill for new joint operational requirements. This drill focused on using attack fighters rapidly paralyze enemy’s air defense systems, seize command of the air, and creating a advantage condition for land operations. Operation consecutions below: first, electronic jamming planes and ground ECM forces launch high-tense electronic jamming, and attack fighters adopted low-altitude flight to attack enemy’s radar and communication centers, then, 5 sorties attack fighters paralyze enemy’s warning and C2 system in 20 minutes. At the same time, attack fighters are responsible for interception enemy’s fighters, SAM mobility alert, and bombers followed the attack fighters. During the drill, suppression enemy’s fighters on the ground is the first and important objective.  

For example, 18th Attack Division deployed J-8D (capable of air fuel) for reaching “territorial air reach, all-weather operation” training objectives.

The primarily flight training courses including night flight, guide missile launching, flight at sea, low-altitude flight, and emergency transferring etc.  

For these purposes, PLAAF obviously promote air combat effectiveness for matching the modern and future air campaign, especially, strengthen attack to the ground targets. In the “A” class aviation units, approximately 90-95% aviators accept last all-weather condition flight training, among 75% aviators of the PLAAF accept the same training courses. In fact, PLAAF encourage competition mechanism between units, and use the replace new fighters for prize to aviators units. “Who those are winners, who those fly the new planes.” For “Jia-Division” it is pressure, nevertheless, for “Yi-Division, it is a driving force. Due to flight time approximately 100 hours per year, PLAAF training time is far from Taiwan, U.S. and European countries. In addition, PLAAF aviators must spend a lot of time to strengthen “sea deep-strike capability”. Under these circumstances, training courses expanded than ever, aviators have no time to promotion flight familiarization and combat experiences. It is a negative factor.

---

16 亓樂義, "中共空軍戰略從固土防禦轉向攻防兼備"中國時報, 台北, 2000年4月30日, 11版。  
17 前引文。  
19 Ibid.  
20 中國時報, 台北, 2000年10月11日, 14版。  
21 解放軍報, 轉引自 http://mil.21dnn.com/5051/2002-12-24/179@598330.htm
Area Air Defense and Anti-Missile Capability

Beijing is a practical regime, it does not neglect air attack from enemy’s air power. In August 2000, China coastal cities, including Shanghai, hold the first air defense drills since establishing Chinese Communist regime in 1949. Currently, Chinese air defense system, including high, medium, and low tiers. Second Artillery, Air Force, Air Force Air Defense Force, and Army Air Defense Forces are responsible for the air defense mission of the PRC. In these systems, Air Force and SAM incorporated. Therefore, PLAAF have a variety of airplanes, and also have HQ-variants SAM, notable, HQ-9 and KS-1 possess anti-ballistic missile potential capability. Second Artillery is responsible for missile defense mission, it attribution have strategic attack and strategic defense characters, operated new S-300 SAM system. For prevention air attack from Taiwan air power, Second Artillery established 10 independent air defense brigades, comprised 2 SAM regiment and 4 antiaircraft artillery battalion. The major weapons of independent air defense brigade including 24 transportation erection launchers (TELs) and 60 anti-aircraft artillery. In addition, these units also equipped shoulder-launch guided missile, HQ-7 missile, SA-15 field air defense missile, type 90 35 mm self-propelled artillery and advanced Ft-20000 anti-radiation missile. Anti-radiation missile primarily counter air early warning and electronic jamming planes. 

Judge from this, author conceive PLAAF possess C2, BMC3, across-Strait attack weaknesses. Nevertheless, it have enough capability to engage a high-tech warfare in the Chinese surroundings in 2005. For Taiwan Air Force, Force Recapitalization Plan placed in backwater, it is a warning message. Furthermore, PLA is a veteran for application asymmetrical warfare. In Cold War era, PLA used the inferior weapon systems shut down the U-2 high-level reconnaissance fighter and Fire-Bee unmanned reconnaissance fighter. In other words, PLA is good at unpredictable and have never been seen measures to attack the strong sides’ weakness. Consequently, PLAAF have previous weakness, its capabilities does not neglect.

Taiwan Air Force Capabilities

For response the China threat, Taiwan’ air power development reached pinnacle in mid-1990s. Currently, air power development is placed in pause
situation. This standstill derived from national resources limitation, democracy operation immature, and administrative sector restrictions.

According to ROC National Defense Report 2002, ROCAF major strategic and mission is: strengthen combat readiness to protection territorial air in peace time; seize command of the air and execute joint operations with ROC Army and Navy in wartime. In fact, how ROCAF strategy does develop, whether active attack or passive defense, and should mission focus on command of the air or anti-landing missions? These issues provoked high tense arguments.

Currently, ROCAF have 50 thousand personnel subordinate the ROCAF Headquarter. Administrative organizations including Operation Command, Logistics Command, Anti-aircraft artillery and Guarding Command, Education and Doctrine Development Command, Base Command, Tactical and Combat Wings, Mixed Wings, Tactical Control Wings, Communication and Aviation Wings, and Weather Wings. The inventory of the ROCAF including U.S.-built F-16 fighter, French-built Mirage 2000-5, and domestic production IDF fighter, the three fighters is the framework of the ROCAF.

In the integrated air defense system (IADS), air defense troops subordinate to the ROC Army, comprised three categories: (1) 3 Patriot missile company, deployed approximately 200 missiles; (2) 6 Tian-Gong missile company, deployed 250 Tian-Gong I and II missile respectively; and (3) 20 Hawk missile companies. According to MND deployment planning, air defense nets over Taiwan divide to tactical and strategic. Tactical deployment including low tier’s (overground 150 to 1,500 m) Avenger system and anti-aircraft artillery; medium tier’s (overground 1,500 to 7,600m) Hawk, Tian-Gang (Sky Bow) I, II anti-aircraft/missile systems. Strategic deployment comprises high tier (beyond 7,600m), Patriot III is responsible for air defense. Purportedly, Tian-Gong II possess anti-ballistic missile capability, could effective against China’s M-9 and M-11 low-tier ballistic missile and cruise missile attacks. This missile interception parts almost completed, long-warning radar would product in 2005.

According to open source information, Taiwan has approximately 40 more radar stations that deployed 100 modes radars. These most radars stations locate in the western and central parts of Taiwan. The radars inventories including HADR (HR-3000) three dimension multi-function long-range air defense and alert radar, GE-592 three dimension long-range search radar, AN/GPS-43 mobility radar, An/TPQ-36 three dimension low-altitude surveillance radar, AN/ EPS-89, 90 high power long-range high-tier radar. In addition, Taiwan have a domestic Chang-Bai phase arrayed radar that it is mobile multi-function phase arrayed radar. This radar can detect low-altitude flight targets with in 30 km and

中央社，台北電，1999年11月18日。
detect over 20,000 m flight targets beyond 450 km. It can also provide 5 minute for warning time. Because most radar can detect China’s coastal regions within 460 km, it could not match battlefield management requirements.

The Key Factors for Command of the Air over Taiwan

The British Battle Pattern Is Not Existed

In modern air campaign, command of the sea hardly seize by fighters, the best way is suppressed enemy’s airports that no aircraft could take off. From the Israel-Arab War to the Kosovo War, they demonstrated previous argument. Like the British Battle Air Campaign, both sides adopted attrition approach to seize command of the sea, would disappear in the military history.

Following the tradition warfare mode, Taiwan suffers air attack form China would endure a long time, may be two to three weeks. Nevertheless, from the PLA recently development, China does not choose the British-Germany mode to Taiwan. Destroying or Suppression fighters on the ground are the best operation for China to attack Taiwan air power. Particular, China would acquire standoff AAM in the future.

Paralyzing Taiwan Air Defense Capability

When a large-scale military conflict occurred the Taiwan Strait, China may adopt several methods to paralyze the Taiwan air defense capability:

- Attack air defense command system: use soft kill and hard kill to destroy Taiwan air defense’s surveillance and C2 system that could led to lose organization command and battlefield management capabilities;
- Suppression airports: China uses ballistic missiles attack Taiwan airports. The major objective of attack is paralyzing the airports that fighters could not take-off and land.
- Situation air defense capability: At the same time, China uses the modified unmanned out-dated fighters and unmanned aerial vehicle (UAV) interfere with Taiwan air defense troops and radars, and use anti-radiation missile to attack radar stations. Under these circumstances, Taiwan spend a lot of air defense missiles. Taiwan have 800 medium and long-range air defense missile, but, only 100 missile are placed of combat readiness. So, missiles reload make a time gap that China can use to attack Taiwan air defense assets.
Airports Are Bolsters

Airports for Taiwan are similar to the aircraft carrier for the U.S. Navy, it is very important. Taiwan airports are built by Japanese occupied era. For consideration attack to Mainland China and reduce the threat from the Taiwan east, airports almost located in Taiwan western region. Nowadays, Taiwan suffer from Chinese military threat, almost airports are vulnerable under Chinese air attack.

In addition to ballistic missile, attack fighters, Taiwan airports also suffer from PLA land attack cruise missile to execute precision attack. Under these circumstances, Taiwan western airports' defense and survival would become the key factor for defense the Taiwan air power.

First Battle is Key Factor

Recently, PLA stress the first battle is decisive battle. In view of modern warfare development, it is very accuracy. In fact, Taiwan has a well-found air force. Due to political consideration, Taiwan does not make the first shoot. So, as previous note, China would use attack and suppression airports in the first battle of the attack Taiwan. For China, it is a key battle for attacking Taiwan, if Taiwan fighters would not take-off, China could seize the limit or local command of the air that destroyed Taiwan entire air defense systems. Under these circumstances, China sequential operation plans and tempo would have a high possibility of success. In contrast to, ROCAF absorbed the first strike and continue engage with PLA, fog of war would confuse PLA.

Defending Territorial Air: Offensive Defense is the Best Choice

Taiwan is a democratic nation, its defense policy has a variety of limitation. Based on international and domestic political environment, strategic culture, and tradition cultural values, offensive or active defense-orientation strategy would provoke a tense argument. Nevertheless, in view of objective environment change and PLA military capability promotion, author conceives Taiwan must establish offensive capability to achieving the objective of effective defend Taiwan's territorial air. In the ROCAF Force Recapitalization Plan, should consider below items:

Abandon Maginot Line in Mind
Davis Line is not Maginot Line. For Taiwan, it is a limitation strategic depth between Taiwan and Maniland, especially, for Taiwan Navy and Air Force. Due to the width of the Taiwan Strait is limit, space distance does not provide the necessary shield under modern military technology condition.

For the jet propulsion airplane's cruise speed, it only spends 15 to 20 minutes across the Taiwan Strait. If use tactical speed, it spends less time across the Taiwan Strait. In the other hand, Taiwan Island itself also lack strategic depth to delay China’ attack. In view of strategic planning, extending defense line and fire line, and delay, denial enemy on the onslaught line is the best defense option.

**Disturbing Enemy’s Operational Tempo**

When war occurred in the Taiwan Strait, Taiwan’s war sources do not support to destroy the Mainland China military capabilities. Therefore, Taiwan’s war objectives should focus on attack enemy’s operational planning, disturb enemy’s operational tempo that could lead enemy toward unbalanced situation. Attack targets are enemy’s airports, C2 center and communication nodes.

For battlefield manager, technology superiority means that can reduce information inferior to incite the potential threat. Furthermore, he may have a lot of opportunities to disconnect enemy’s information channel and acquire information superiority and operational initiatives. We also believe technology superiority may lead to information superiority in the future battlefield. Under these circumstance, information superiority is equal to battle victory.

Clausewitz argue, knowledge must become capability, is right for today. In short, obtain information superiority not only acquire mass battlefield information, but also gain the possibility of inferior against superiority. In the future battlefield, it is a knowledge-orientation battlespace that means some potential crisis and new niche for resources limitation nations.

**Promotion Survivability**

Through establishing second strike capability, can reduce the impact of China’s first strike to Taiwan. The methods must base upon tactical and skill, one is promotion troops and equipment survivability in the battle; another is improve theirs combat readiness capability. To achieve two objectives, the primarily task must conserve troops combat capability. Except camouflage,

25 佳山、志航洞庫抗炸與偽裝不足，自由時報，台北，2001 年 7 月 18 日，版 2。
Taiwan also improve anti-bombing capability of the air force bases. Based on this consideration, it is the priority of the establishing passive defense capability. At the same time, troops dispersed and improve camouflage is the important tasks of the passive defense. On the other hand, ROCAF can adopt active measures to strengthen defense capabilities, including improve electronic detection equipment and electronic warfare equipment.

**Acquisition Third Generation Fighter**

As previous note, China continue introduction advance fighters and weapon systems, its force recapitalization plan gradually reach the pinnacle. Compared to China, Taiwan acquire IDR, F-16, and Mirage fighters, have no lasting force recapitalization plan to strengthen ROCAF combat effectiveness. Consequently, fighter R&D capability decrease, furthermore, some researcher were employed by ROK fighter industrial factors. It isn’t a ROCAF itself problem, administrative must submit comprehensive plan to strengthen the ROCAF capability, maintain military balance across the Taiwan Strait, and reserve aviation technology base.

**Finding Economic Approach**

Like China use ballistic missile attack Taiwan, Taiwan also used ballistic missile attack PLA’s nodes. When Taiwan extended defense line from central of the Taiwan Strait to Mainland China territory, military targets would become strike objectives within this region in wartime. Strike weapons includes cruise missile, standoff land attack missile (SLAM), and ballistic missile etc. Strike objectives includes airport, C4I system, radar station, fixed and mobile ballistic missile stations, logistics stations, tunnel, naval bases. For Taiwan, it is adapting to the resources available and using them creatively to defeat the enemy.

**Establishing Non-Linear Air Power**

Following technology development, non-linear operation measures become the importance method to seize command of the air. For example, USAF F-117 stealth fighter execute mission beyond enemy’s air defense systems. This operational mode can view as non-linear operational measures. In addition, cruise missile and unmanned aerial vehicles possess the non-linear operation potential capability. In the foreseeable future, non-linear operational mode would become the major operational measures. It is true in the Persian Gulf War and the Kosovo War. This trend is inevitable. The root cause these weapon systems not only use to penetrate enemy’s air defense, but also spend a low cost
to acquire high effective. Even if non-linear do not replace tradition warfare, we do not neglect its huge potential for future warfare.

**Conclusion**

For offensive-defense strategy, it is a comparative concept. Except attacker adopt first strike, defender may adopt attack measures to against enemy in many cases. In fact, we hardly define who were aggressor by the first shoot. Indeed, we should use intention as aggression judgment indication.

At the same time, defensive-defense strategy is not comprehensive strike. In contrast to, military targets always are limited. For example, one would want to strike another’s nuclear forces in the nuclear war. On the other hand, one would want to strike another’s invasion forces in tradition war.

For Taiwan strategic environment, author believe that neutralize China’s air power is the key factor of defending Taiwan. Therefore, Taiwan should consider to build offensive capability to strike China’s air force capabilities. Within 250 nautical miles from Taiwan, China deployed 1,200 fighters in the First Line. In addition, U.S. estimates in this region that do not accommodate 1/3 fighters of PLAAF. China deploys 1,100 fighters in the First Line and Second Line, both sides fighter ratio approximately 3:1. Under these circumstances, Taiwan can concentrate military resources to attack China’s limit targets. This tactics provide Taiwan defeat PLAAF and collapse Chinese invasion capabilities.

Offensive tactics possess practical military benefits and strategic value of effective deterrence. Offensive is diversity attribution, physical fire attack and strategic information warfare are important methods. Due to dependent and vulnerable, net become the important targets for each side in wartime. Taiwan have a pretty foundation to develop information warfare to counter Chinese military threat. Taiwan faces the tremendous military threat, can use whatever defeat invasion enemy to safeguard national security. Further, Taiwan could create strategic value to contribute for regional security and potential alliance.

---

26 「中共空軍戰力不及台灣」，中國時報，台北，2000年5月13日，14版。
27 同前註。