FEATURE

# The Dragon's Wing

## The People's Liberation Army Air Force's Strategy

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## Abstract

The Chinese air force was born in the Cold War and developed into one of the world's largest—with 480,000 personnel and 3,700 airplanes, including the People's Liberation Army Air Force (PLAAF), Navy Air Force (PLANAF), and Army Aviation, which totaled 51 divisions by 2000. After becoming commander in chief in 2012, Xi Jinping shifted China's national security strategy from solely defensive to a defensive offense. Xi removed the traditional defensive principle of "never open fire first" in war and now justifies any of China's future attacks as preventive or retaliatory. Jin Yong and Bo Rui point out, "the Chinese air force will play a primary role in future warfare."[1] The PLAAF and PLANAF transformed from a tactical, defensive force within China to one capable of strategic, offensive missions beyond territorial borders.[2] Ongoing reforms changed Chinese aviation research, development, and equipment priorities from modernizing high-tech hardware to combining both platform-centric upgrades and IT-software development for future network-centric warfare.

This article indicates that the Chinese air force progressed considerably toward building and fielding a formidable defense/offense force, assumed responsibilities that accompany the projection of national power in the Pacific region, and can resist airborne invasion, protecting aerospace sovereignty, and safeguarding China's maritime interests. The article explains PLAAF strategy, intentions, and capabilities, and characterizes the Chinese Air Force as it pertains to the United States. Lack of transparency in the Chinese military and national security apparatus is a major hindrance to understanding the PLAAF. In addition to lacking transparency, Chinese pilots' aggressive behaviors toward the American, Japanese, and Taiwanese air forces certainly fomented distrustful, hostile, and even confrontational impressions. American public debates and strategic research focus on how to best deal with the PLAAF in case of crisis, such as in the Hainan US–China aircraft collision, and how to fight potential air wars over the South China Sea (SCS).


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Xi Jinping perpetuates the People's Liberation Army's (PLA) defensive offense by challenging the current US-led Indo-Pacific security system. During Mao Zedong's era, the PLA adopted an active defense strategy by challenging the Cold War international system, in which two superpowers dominated global affairs: the United States and the Soviet Union. The PLA fought American armed forces in Korea from 1950 to 1953 and then fought the Soviet

Union along its shared borders from 1969 to 1971. Xi reaffirms Jiang Zemin's post–Cold War doctrine and continues to employ nationalism as an ideology to unite the country and fight for China's superpower status, perhaps resulting in one more source of legitimacy for the Chinese Communist Party (CCP) as the country's ruling party. Xi promoted his global plan, "New Silk Road and Economic Belt," to establish a China-centric global system that excluded America.

In 2014, Xi visited PLAAF HQ and instructed air force generals "to improve air force structure, build up new combat capacity, and make a rapid transition to a balanced airpower for both defense and offense."[3] He regards the PLAAF highly—not only because he served in the Air Force for six years but also because he believes in the service's dominant role in future warfare.[4] The face of battle shifted the PLAAF from tactical support for the army and navy to a leading strategic role in winning the next war. China's *Defense White Paper 2018* indicated the PLAAF's mission and tasks transitioned from territorial air defense to "offensive and defensive operations."[5] The PLAAF's war preparation is designed for offense as building an offensive air force is faster and cheaper than building a defensive one, in terms of combat effectiveness, for a large country. Moreover, an offensive force has greater deterrence power that compensates for vulnerabilities in China's overall national defense. Ye Zhan states that PLAAF offensive doctrine includes long-range preemptive operations in the oceanic direction for air control, air strike, and air defense.[6] It should play a key role in joint amphibious landings, coastal blockade, joint firepower strike, island defense, airborne, and nuclear counterstrike campaigns. It will also serve as a comprehensive strategic force capable of strategic early warning, air and missile defense, information countermeasures, long-range airpower projection, and comprehensive support.[7]

Former PLAAF Commander Xu Qiliang claimed that by 2020 the Chinese air force would establish a defense/offense balance through its reorganization. General Xu became PLAAF Commander in 2007, Vice Chairman of the Central Military Commission (CMC) in 2012, and a member of the CCP Politburo in 2013. He was the first air force general in PLA history to achieve top Chinese military leadership. From the 2010s to the 2020s, Xu emphasized China's aerospace power, maritime interests, and air force digitalization. As China's top leader next to Xi Jinping, General Xu continued his effort to build a strong air force as he administrated the PLA's daily operations, managed China's defense budget, and completed military reorganization from 2016 to 2020. The PLAAF reorganized its divisions into brigades commanded by the air force bases in the PLA's five theater commands (TC).[8] Each TC air force (TCAF) has seven to 10 fighter brigades; each brigade has three to six fighter groups, totaling 30 to 50 aircraft. Each flight group (wing or battalion) has one type of six fixed-wing aircraft, in-

cluding J (*Jian*)-class fighters, JH (*Jianhong*)-class fighter-bombers, H (*Hong*)-class bombers, Q (*Qiang*)-class ground attack aircraft, Y (*Yun*)-class transport, and JZ (*Jianzi*)-class reconnaissance aircraft.[9] Each flight group has two to three flight squadrons; each squadron has three to five aircraft. The PLAAF has more than 2,250 combat aircraft, including 1,800 fighters, strategic bombers, tactical bombers, multimission tactical, and attack aircraft.

As a J-10 fighter pilot himself for 20 years, current PLAAF Commander Chang Dingqiu (since 2017) deployed enough strike fighters and bombers to the frontline bases to mount a credible first strike. These bases are used to serve as the takeoff point for offensive operations against enemy airplanes and air defense sites. It was a shift from traditional PLAAF deployment, as Kenneth Allen and others described it in a "front light, rear heavy" formation.[10] As Lawrence "Sid" Trevethan points out, the Chinese also reorganized other types of units into a brigade structure, including unmanned aerial vehicles (UAV), flight testing and training, airborne forces, and transport fleets.[11]

Xi Jinping also clarified in 2014 that the PLAAF would command the PLA Space Force. Chinese leaders remain concerned about international competition and possible conflict in space; the world's major powers have recently mimicked one another in initiating strategic space forces and expedited special weapons research and development. Expanding the battlefield to space could greatly change the international military balance of power. The PLAAF is rapidly catching up to Western air forces and has achieved air-space integration according to Commander Chang.[12] As the youngest four-star general of the PLA, Chang believes the best way for the PLAAF to be successful in the next air offense is to integrate air and space operations. In response to the changing ways of air war, PLAAF commanders sought strategic and tactical applications of military force via platforms operating or passing through air and space as a key instrument for Chinese security statecraft. Wang Xingwang explains the Chinese view that, without an operational space force, the PLA would not qualify as a major military power. The PLAAF's space program is the core in an informatized war machine and key to the air force's leap-forward aviation strategy.[13] In 2015, the CMC created the PLA's Strategic Support Force as a theater-level command to centralize the PLA's strategic space, cyber, electronic, and psychological warfare missions and capabilities. In April 2021, at the CCP's 18th Congressional Third Plenum, Xi told party leaders that building a full-fledged combat space army is part of creating a "new type" of combat forces.[14] He made a "three-step" plan for a strong space power.

Chinese leaders see a space war as less costly in human casualties when compared to a naval or ground war. Additionally, space warfare is more cost-effective, as a *Dongfeng* space missile, costing $200,000, can destroy a low-earth-orbit

military satellite worth more than $200 million. Nevertheless, war planners at the PLA's National Defense University project China's space actions as retaliative and preventive when a Chinese satellite is attacked, an imminent attack is signaled, a PLA amphibious landing campaign is interrupted, or a large direct bombardment against China occurs. With a similar doctrine for nuclear warfare, the PLAAF must possess reliable space capabilities for retaliation (or second-strike capabilities) and destruction against a powerful enemy. Moreover, the PLA planners continue designing a "limited space war," rather than an all-out star war, by identifying vulnerable but critical points in enemy space systems. They also argue that China's increased space power can also serve as a means of war deterrence, since all powers' space assets are vulnerable.

## Technology and Capabilities

The PLAAF continues its new offensive strategy and promotes the "leap-over" approach for aviation technological improvement.[15] In line with the strategic requirements of mobile operations and multidimensional offense and defense, the PLAAF has reoriented from theater defense to trans-theater mobility. Lu Xiaoping argues that the introduction of the new J-10 fighter jet in 2006 marked a "milestone in the development of both China's aviation industry and the PLAAF weaponry and equipment."[16] China's military-civil fusion (MCF) policy secured adequate financial resources and provided the PLAAF a rapidly rising budget for airpower exploration. MCF integration cultivated intellectual expertise and promoted aviation science and technology industries. The Chinese air force recently made technological developments that included new fighter jets, antimissile systems, missile defense capability, and a series of space shuttle launches.

Among the PLAAF's 1,100 fourth-generation fighters are the J-10C, J-11B, and J-16 (comparable to the US F-16/F-18) armed with the latest air-to-air missiles. During the 2019 military parade, the PLAAF demonstrated its fifth-generation J-20 fighters. Thereafter, it has received more than 150 J-20s, which have bolstered Chinese air-to-air capabilities for the J-11A and J-11B with high maneuverability, stealth characteristics, and an internal weapons bay. Pilot Chen Liu flew the J-10C and J-16 before becoming a J-20 pilot in 2018 for the Western TCAF. His wing employs informatized simulation training to shorten air combat power generation cycles. The Chinese transitioned from their traditional combat focus on high-altitude dogfighting for territorial defense. Chen and other pilots were trained to "fight and win" through beyond-the-horizon air engagement, ground strikes, and air assaults against maritime targets. Because of their realistic combat training record, 15 J-20 fighters from Chen's wing participated in Beijing's military parade on 1 July 2021, celebrating the CCP's 100th birthday.[17]

Moreover, for the PLA Navy's (PLAN) next class of aircraft carriers and as a future naval fighter for export, China developed the smaller J-31 fighter. On 26 April 2017, the PLAN launched its new aircraft carrier *Shandong*, *Kuznetsov-Mod*, *Type-002*, at the Dalian shipyard. As a modified version of the *Liaoning* (Russian *Kuznetsov*) design, it uses a ski-jump takeoff method for its J-15 fighters. On 17 June 2022, China launched its third aircraft carrier, the *Fujian*, at Shanghai. This *Type-003*, domestically designed, 80,000-ton aircraft carrier includes a Catapult Assisted Take-Off But Arrested Recovery (CATOBAR) system and three electromagnetic catapults. It will join the East Sea Fleet and operate an air group of new fighters, including J-35s. Naval aviation is developing new carrier-borne airborne early warning (AEW) aircraft. As the second-largest navy in the world in terms of tonnage, the PLAN has a strength of 240,000 personnel, including 15,000 marines, with an overall battle force of 350 surface ships and submarines. The PLANAF has 26,000 naval aviation personnel with 690 aircraft.

Currently, the PLAAF has more than 450 bombers, including the H-6N as its first nuclear-capable, air-to-air refuellable bomber and as the airborne leg of China's nuclear triad. As of 2020, the PLAAF has operationally fielded the H-6N bombers, providing China's nuclear platform an air component. In recent years, the PLAAF also fielded greater numbers of the H-6K, a modernized H-6 bomber that integrates standoff weapons, features the PLAAF's long-range precision strike capabilities, and can target ranges in the Second Island Chain from home airfields on the mainland and increase PLA antiaccess/area-denial (A2/AD) capabilities.[18] The Chinese air force has more than 250 JH-7A fighter-bombers in service. Meanwhile, China is developing a new generation of H-20 bombers with a range of at least 8,500 km and a 10-ton payload for both conventional and nuclear bombs. The Chinese air force also has 400 transport planes and 150 special mission aircraft.

The Chinese air force's missile defense is composed of domestically produced CSA-9 (HQ-9) and HQ (*Hongqi*)-9b battalions. The PLAAF is developing its indigenous CH-AB-X-02, or HQ-19, with ballistic missile defense capability. In 2019, China publicly debuted its new Y-9G and Y-9DZ communications jamming/electronic countermeasures aircraft (known as the GX (*GaoXin*)-11). The Chinese aviation industry continues to advance with deliveries of more than 40 domestic Y-20A and Y-20B large transport aircraft and completion of the world's largest seaplane, the AG-600. In November 2018, the PLAAF displayed its largest suite ever of UAV aircraft. China has armed and capable reconnaissance UAVs such as the *Yunying*, CH (*Caihong*)-4 and CH-5, and *Yilong* (or *Wing Loong*) series of aircraft. The year 2020 was the PLA Airborne Force's 70th anniversary. Its Airborne Corps has six airborne brigades equipped with combat vehicles for more

mobility and better ability to engage armored forces in the attack.[19] The Chinese air force is expanding in all respects except fixed-wing transport, which are stable. Moreover, the *Shenzhou 14* launch in the summer of 2022 sent three more astronauts to space. The *Cheng'e* moon landings and the *Tiangong* space station have been successful experiments. The *Beidou* space system is capable of military intelligence gathering and real-time communication. The recent attack on a satellite proves Chinese precision missile strike on defenseless satellites in space and indicates Chinese strategic thinking of a space offense as the next IT war. This space-combat capability becomes a key component of the PLAAF's A2/AD to reduce and undermine US military superiority and space dominance.

However, the PLAAF's indigenous technological capabilities are limited in the 2020s. The service will likely remain a "learner" rather than an "innovator" in many areas of aviation, missile, space, and nuclear technology up until the 2030s. Tai Ming Cheung places China in the "lower parts of the Tier 2 category" as one of the "adapters and modifiers" in the global defense industry because China "demonstrates few capacities for designing and producing relatively advanced conventional weapons system[s]."[20] Xi Jinping made eight trips to Moscow between 2012 and 2020 with the purpose of strengthening strategic support to China. By 2014, the two nations announced a new era of military collaboration as part of an enhanced strategic partnership. In retrospect, the PLAAF's investment in Soviet aviation technology paid significant dividends during the PLAAF's modernization. The partnership between the People's Republic of China (PRC) and Russian Federation air forces continues through collaborative engagement launched in the 2010s. One of the largest Chinese purchases included Su-35 fighters and accounted for over $1 billion annually from 2012 to 2017. While more than 70 Russian-made Su-30MKK fighters serve in the PLAAF, China has received 24 Su-35 advanced fourth-generation fighters since 2016. The Chinese air force's missile defense is also composed of Russian-made SA-20 (S-300) battalions. Beijing acquired the Russian SA-21 (S-400) system to improve China's strategic long-range air defense.

## Operations and Combat Readiness

The PLAAF has become a strategic air force, able to project power at long distances and defend Chinese maritime power and global interests. New aircraft continue to increase China's military capabilities to achieve regional and global security objectives in the East China Sea (ECS). In November 2013, Beijing began using "China's East Sea" to define that area and announced the establishment of an air defense identification zone (ADIZ) that included the disputed Diaoyu/Senkaku Islands.[21] Thereafter, the PLAAF regularly patrolled with jet fighters

and AEW aircrafts to strengthen effective control over the zone. Shen Jinke, spokesman for the PRC Defense Ministry, said that the PLAAF's routine patrols verify and identify foreign aircrafts, administer official warnings, and that they should not impact commercial air traffic. He stated that the PLAAF patrols "are purely defensive and consistent with international norms" and that the PLAAF would also conduct routine air drills in the zone for dealing with any emergency situations.[22] From 2014 to 2016, the PLAAF sent multiple warplanes to monitor and identify several foreign military aircrafts entering ADIZ, tracking them for evidence and issuing voice warnings. In a 2017 response to PLAAF aircraft encroachment into Japanese airspace, the Japan Air Self-Defense Force scrambled 1,168 fighter jets and confronted 851 incidents, breaking its former Cold War annual record. Since the Cold War, China has replaced Russia as the major threat to Japanese airspace.[23] Many American and Japanese naval strategists predict that there will be a clash, eventually, between their navies or air forces and the PLAN or PLAAF, both of which have become increasingly aggressive after acquiring new aviation technology.[24]

In 2015, the PLAAF began patrolling the SCS, including the disputed Paracel and Spratly Islands. The PLA's outposts in the SCS extend the air force's possible operating areas. Deployments of Chinese warplanes from Spratly Island outposts can extend range and loiter time over the SCS and even reach the Indian Ocean. The PLAAF's medium-range H-6K bombers carry up to six precision-guided CJ-20 air-launched cruise missiles each, giving it the ability to engage US armed forces as far away as Guam and Okinawa. The Southern TCAF was the first to receive the H-6J maritime strike bombers. All the PLAAF's 24 Su-35s are assigned to the Southern TCAF. Therefore, confrontation between Chinese and American armed forces in the SCS has aroused serious concerns in the international community about security and stability in the Indo-Pacific region. The US Air Force (USAF) continues flying military aircraft through the ADIZ without informing China, defying Beijing's declaration that the region falls into a Chinese airspace defense zone. In December 2019, Beijing commissioned its newly manufactured aircraft carrier, *Shandong*, into service at Hainan Island's Yulin Naval Base in the Southern TC. Additionally, the PLA successfully established its military base in Djibouti, to sustain PLAAF regional and global air operations.

Recent operations differ from past annual reports and demonstrate the Chinese air force's increasing presence in international airspaces and increased participations in various joint exercises through several regions. This reflects the public opinion that the PLAAF has significantly progressed in aviation equipment, fighter jets, defense missiles, aircraft carriers, and space technology. The Chinese

air force conducted combat-realistic training and employed J-16 and J-20 fighters, H-6K bombers, and Y-9 reconnaissance aircraft in exercises.

In May 2015, Chinese and Russian forces conducted a joint air/naval exercise, codenamed *Joint Sea 2015*, in the Mediterranean Sea. In August, a larger-scale operation, *Joint Sea II*, was held in international waters, about 250 miles from Japan, and involved 22 warships and 20 aircraft. Vice Admiral Aleksandr Fedotenkov, Deputy Commander of the Russian Navy, was satisfied with the joint training's results, which "showed that Russian and Chinese forces can effectively fulfill tasks in such a difficult region."[25] In the same year, the PLA conducted three large-scale military exercises in the ECS. The third live-fire exercise from 24 to 28 August involved more than 100 naval vessels, dozens of aircraft, and information-warfare units. Chinese warships fired nearly 100 missiles.[26] In November 2016, the PLAAF conducted another large-scale air exercise in the ADIZ, involving H-6K heavy bombers, Su-30 fighters, and air tankers. The drill included reconnaissance and early warning, attacks on air and sea surface targets, and in-flight refueling to test the PLAAF fighting capacity on the high seas. The PLAAF used three Y-20 large transit airplanes to transport Chinese troops and airlift heavy equipment to Russia for the *Kavkaz 2020* joint military exercise.

From 2020 to 2022, the PLAAF continued improving its combat effectiveness, despite the COVID-19 pandemic's impact. Since 2020, the PLAAF has launched "gray-zone" warfare in the Taiwan Strait by sending its fighters over the strait's median line in record numbers, likely in reaction to perceived "warming" of ties between Washington and Taipei. In 2020 and 2021, the PLAAF delivered COVID-19–related medical supplies to countries throughout the region including Afghanistan, Brunei, Myanmar, Indonesia, Kyrgyzstan, Malaysia, Nepal, Pakistan, the Philippines, Sri Lanka, Tajikistan, Thailand, and Uzbekistan.

## Impact on US–China Relations

The possibility of a new cold war between the United States and China is ever looming, especially if the latter continues efforts in creating "one world, two systems." In Beijing's bipolar world, one system is the existing American-led global community; the other is a China-centered international system. History will prove recurring if a complete break in diplomatic relations between the two countries, or a limited hot war in the 2020s, occurs. With no single enemy to unite against, and with China emerging as a major economic power, the relationship between the United States and the PRC has arrived at a historical crossroad. Certainly, the PRC is nothing like it was in 1950, but the CCP's dominant leadership, continuing insecurity, and Xi Jinping's call for the "fighting spirit" against

the United States continue the party's doctrine and Mao's legacy as one of few Communist survivors as well as a "beneficial participant" in the Cold War.

In response to the PLA's increased aggressive behaviors in the ECS, a US congressional amendment to the National Defense Act in November 2012 included possible defense of the ECS's disputed islands in the event of armed attacks.[27] In 2013, Secretary of State John Kerry further warned Beijing that although Washington did not take a position on the Diaoyu/Senkaku islands' ultimate sovereignty, the White House acknowledged they were under Japanese administration. The American government opposed any unilateral actions that sought to undermine Japanese administration.[28] In a May report, the US Department of Defense pointed out, "China began using improperly drawn straight baseline claims around the Senkaku Islands, adding to its network of maritime claims inconsistent with international law."[29] On 30 July 2013, the US Senate unanimously passed a resolution condemning China's "use of coercion, threats, or force by naval, maritime security, or fishing vessels and military or civilian aircraft in . . . the East China Sea to assert disputed maritime or territorial claims or alter the status quo."[30]

The United States, Japan, and Taiwan criticized China's establishing the ADIZ, citing renewed tensions over the ECS's disputed areas. On 26 November 2013, three days after Beijing's announcement establishing the ADIZ, two US military warplanes flew into the zone without informing China. Col Steve Warren, US Army, spokesman of the US Department of Defense, said, "We have conducted operations in the area of the Senkakus. We have continued to follow our normal procedures, which include not filing flight plans, not radioing ahead and not registering our frequencies."[31] On 25 April 2014, Pres. Barack Obama reaffirmed US commitments to Japan and the Senkaku Islands' safety through a joint press conference and statement with Japanese prime minister Shinzo Abe. Obama was the first US president to mention the disputed islands under Article 5 of the US–Japanese Treaty of Mutual Cooperation and Security. Pres. Donald Trump promised to commit US forces to the defense of Japan and South Korea and free trade sea routes and international maritime rights in the SCS. After taking office, Pres. Joe Biden continued Trump's hardline policy and described China as the United States' "strategic competitor."

In the mid-2020s, Xi Jinping's "Cold War II" may include a "strategic triangulation" of China–US–Europe relations, in which Beijing might seek new bargaining chips with Washington. In the coming new cold war, Beijing will deter the United States from a full-scale hot war with the PRC's nuclear arsenal as well as newly developed cyber and space powers. Lessons in survival aided the CCP in its strategic redefinition and changed its perceptions of the world in numerous ways. Its leaders will go to war according to their own consistent logic, political agenda,

diplomatic experience within the context of Chinese society and new international environments. The overall picture of US–China military relations is considerably bleak. According to the US Department of Defense's *Annual Report to Congress*, "Much uncertainty surrounds China's future course, in particular in the area of its expanding military power and how that power might be used."[32] The American high command remains uncertain about Chinese intentions and changing world views.

The years 2023 to 2049 will be the most important period for "the great rejuvenation of the Chinese nation" as well as when the PLA will reach three milestones for its modernization. Within 26 years, the PLA is slated to integrate its mechanization, informatization, and intelligentization by 2027; complete the modernization of national defense by 2035; and fully transform the PLA into a "world-class force" by 2049. Due to all the above challenges, the PLAAF has an arduous task to safeguard China's national unification, territorial integrity, and development interests. The Chinese air force will continue to fulfill its mission while evolving through adaptation and improvement for informatization and intelligentization. Through its operational experience in the Taiwan Strait, Vietnam, and the SCS, PLAAF confronts four key issues: planning, learning, changing, and political control. Air war planning and aerospace strategy have been the most prominent and foremost of PLAAF operations. ✪

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**Notes**

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