



An undated photo of an Su-30MKK in midair refueling with a Russian-made Il-78 Midas tanker. Chinese capability to conduct midair refueling lags significantly behind that of the United States. (Photo courtesy of the China Military Network)

Air Supremacy

Are the Chinese Ready?

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The Chinese People's Liberation Army (PLA) has invested in defensive air capabilities such as anti-access/area denial assets and fifth-generation fighter aircraft. Yet, it is still significantly behind Western airpower capabilities; it is unable to demonstrate offensive power projection in the air domain. This calls into question China's ability to establish air superiority against the U.S. military if a conflict were to arise between the two. This lack of Chinese airpower capacity is most

apparent in three areas: air integration in the joint fight, aerial refueling, and aircraft production and sustainment. These make the difference right now between the Chinese achieving regional dominance in the air domain and having an air force with global reach.

People's Liberation Army Air Force

The People's Liberation Army Air Force (PLAAF) is the air component of the Chinese military; it has been

charged with a largely supportive role from its time of conception.¹ Cristina L. Garafola's "The Evolution of PLAAF Mission, Roles and Requirements" highlights the "PLAAF's development in three separate phases since the PLAAF was established on November 11, 1949."² The three separate phases show the maturation of the PLAAF and the strains on the organization during its development.

The first period (1949–1955) is defined by broad goals of "building an Air Force on the Army's foundation, figuring out how to employ the PLAAF in combat during the Korean War, and establishing an aviation industry."³ Founded in 1949, the air component was "equipped with captured Nationalist and Japanese aircraft."⁴ This was in stark contrast to the United States and most NATO members at the time, which had robust production capabilities and assembly apparatuses, and had maintained a well-trained crew force with expertise in conducting air combat and aerial operations. While infantile at its inception, the Chinese air component received assistance from neighboring countries. This first period was marked by incredible growth within a short period of four years, where the PLAAF became the "third largest air force in the world" with "three thousand fighters and bombers."⁵

Such progression was attributed to Soviet assistance caused by the outbreak of war on the Korean peninsula where "Chinese People's Volunteers flowed into the Democratic People's Republic of Korea."⁶ Astonishingly, by the time the 1953 Korean Armistice was signed, China had built up a military with about sixty thousand soldiers and eight hundred pilots.⁷ The Chinese were quick learners; they studied air combat and employed that knowledge over the next two years. They developed the airpower capacity to launch strike, reconnaissance, fighter escort, and air defense missions off the coast near Taiwan.⁸ The Chinese were rapidly developing a formidable air force, yet the second phase would dramatically alter their trajectory.

The second period (1956–1990) illustrates the dangers of quickly developing airpower without a long-term strategy as "the PLAAF suffered both in terms of its warfighting capability and also politically."⁹ The intermediate period was heavily impacted by the Cultural Revolution, leading to purges of key PLAAF leaders stemming from "deep suspicion regarding the political reliability of PLAAF forces."¹⁰ During this time, the U.S. Air Force (USAF) had over a decade of air combat experience in Vietnam, where equipment

was put to the test against an adversary's counter air defenses and USAF pilots gained valuable experience—the kind only achieved under actual combat conditions.

While the USAF refined tactics, techniques, and procedures, the PLAAF's two main missions were "homeland air defense and supporting Army and Navy operations."¹¹ The supportive nature of the PLAAF is not uncommon for a country trying to figure out how best to employ air assets; yet, given the PLAAF's rapid growth during the early 1950s, this stranglehold on the air component dramatically set Chinese capabilities behind that of near-peer competitors. Additionally, the most troubling aspect of this time period was the loss of leadership within the organization due to rampant purges. Such coup-proofing undermined PLAAF effectiveness, where political loyalty was valued over meritocratic abilities. Toward the end of this period, new Chinese leaders reversed course and sought to "develop a more self-reliant aviation industry."¹²

As the Cold War came to a close, two events shaped China and the PLAAF: the collapse of the Soviet Union and the Persian Gulf War. These events brought the PLAAF into the third period (1990–present), changing the dynamics of regional power balances. Additionally, the Persian Gulf War highlighted how the nature of warfare had changed: airpower was now emphasized over land power.¹³ While the fall of the Soviet Union erased the threat of a neighboring state, the spectacular American military success against Iraq's military forced the Chinese to adapt to the new nature of warfare, where power projection and technology, specifically from the air, dominated contemporary battlefields.

Air Integration into the Joint Fight

Dean Cheng's piece "Chinese Lessons from the Gulf Wars" highlights how the conflict was "very influential, affecting Chinese tactical, operational, and strategic thinking."¹⁴ While much was made of the overwhelming demonstration of military technology to employ massive firepower, it was the tactical, operational, and strategic employment

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of the American air component that was revolutionary.¹⁵ The PLA and PLAAF learned several lessons from this new American way of fighting in Iraq in 1991. One of the most important lessons was that “weapon systems do not operate in isolation, but instead are integrated with each other.”¹⁶ Such integration is best defined as “joint warfare.”

Joint Publication (JP) 3-0, *Joint Operations*, defines joint warfare as “team warfare.”¹⁷ Highlighting the difficult nature of joint operations, JP 3-0 further states



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that “joint functions reinforce and complement one another, and integration across the functions is essential to mission accomplishment.”¹⁸ Joint doctrine further divides joint functions into “C2 [command and control], information, intelligence, fires, movement and maneuver, protection, and sustainment.”¹⁹ What enables the USAF to integrate into the joint fight starts with how “integration [is] necessary for effective joint operations” and “will require training, technical and technological interoperability, liaison, and planning.”²⁰

The PLAAF is starting to realize that effectively conducting joint operations actually requires an extensive amount of joint training. This is at odds with Cold War-era traditional structures of command and control that developed around Chinese coup-proofing, where “jointness” and other forms of military collaboration were perceived as threats to the Communist regime. Lyle Morris’s article “China’s Air Force is Fixing Its Shortcomings” states that Chinese military leaders are introducing reforms to train their fighter pilots under “actual combat conditions.”²¹ The need for change stems largely from the inability of their pilots to make any decision due to “strict control from a commander in the control tower.”²² Morris notes that changes such as the ability to change “navigation routes and flying tactics in the air ... represent [a] significant departure from past practice.”²³ While these changes are noteworthy, they are hardly groundbreaking and they are far from where a country would want its air component to be with respect to joint warfighting. This is because the joint

environment is a fluid and dynamic battlespace where an inability to make simple decisions such as changes to a flight plan would prove catastrophic in actual combat.

In-Flight Air Refueling

While integration into the joint fight remains a challenge for the Chinese PLAAF, the ability to conduct air refueling remains another limitation in the quest for power projection. The Chinese are attempting to over-

come this problem in a variety of ways. One of these ways is by building up airbases on islands in the South China Sea. Andrew S. Erickson and Austin Strange’s *Foreign Affairs* article “Pandora’s Sandbox: China’s Island-Building Strategy in the South China Sea” highlights how the effort to construct islands containing “radars, satellite communication equipment, anti-aircraft and naval guns, a helipad, a dock, and even a wind turbine” indicates a substantial investment in coastal defense and offensive capabilities.²⁴ Such new Chinese capabilities are presenting a nightmare scenario, where the U.S. military might lose its ability to freely operate throughout the region.²⁵ This makes many wonder if the rise of China will be as a bellicose dragon or a pacific panda.²⁶

Currently, China’s message to the international community is one of peaceful intentions. In their article “China’s Airfield Construction at Fiery Cross Reef in Context: Catch-Up or Coercion?,” Michael S. Chase and Benjamin Purser note that “although China is not the first state to build an airstrip in the South China Sea, it is the first state to employ island-building technologies to transform a contested maritime feature into a military base that extends the reach of offensive military capabilities.”²⁷ The buildup of austere Chinese airstrips represents a challenge to U.S. interests both in the sea and air domains, yet there appears to be little slowing of the Chinese desire to project power.

When compared to how the USAF views the effect of air refueling, it is possible to gain insight into another potential reason for the China’s artificial island chains.



JP 3-17, *Air Mobility Operations*, states that air refueling “allows air assets to rapidly reach any trouble spot around the world with less dependence on forward staging bases ... [and] significantly expands the force options available to a commander by increasing the range, payload, loiter time, and flexibility of other aircraft.”²⁸ However, in China’s view, building islands with airports extends the range of aircraft without investing in air assets capable of conducting sustained in-flight air refueling.

Air refueling remains one of the cornerstones of strategic air support. Garafola identified that China’s 2013 edition of *Science of Military Strategy* discusses a “need for the development of a strategic air transport system [which] is an important mark of a strategic air force.”²⁹ Air refueling is seen as a “critical force multiplier across the full range of global and theater employment scenarios,” thus making it a necessity to project power throughout the globe.³⁰

What is most remarkable is that the “PLAAF is the largest air force in Asia and third largest in the world, with more than 2,700 total aircraft,” yet it has only purchased “a small number of IL-78 MIDAS ... from Ukraine to conduct aerial refueling.”³¹ While power

An Air Force B-2 Spirit bomber approaches a KC-135 Stratotanker for refueling 29 August 2019 during a training exercise over England. (Photo by Staff Sgt. Jordan Castelan, U.S. Air Force)

projection appears to be a goal of Chinese leadership throughout the PLAAF, the employment of one of the world’s largest air forces gets exponentially more difficult when it only has a handful of air assets capable of providing in-flight refueling.

Aircraft Production and Sustainment

A country that is trying to develop an air component will often acquire various assets through purchase, yet this places the PLAAF in a perplexing situation. A starting point for examination is military spending. In Bill Carey’s article “Pentagon: China is ‘Closing the Gap’ in Air Power,” he notes that in 2016 “China announced a 7 percent increase in military spending, to \$144.3 billion, sustaining its position as the second largest military spender after the U.S.”³² While spending totals can paint a dramatic picture, further examination reveals a different

explanation. Carey goes on to note that “China’s aircraft industry still relies on foreign-sourced components for high-performance aircraft engines.”³³ Such reliance on foreign-produced parts incurs a risk should a conflict break out and outside production or sustainment is cut off.

to start production of all its aircraft organically, this could possibly signal the ability to maintain or even increase production should hostilities break out. Such organic production would demonstrate self-reliance that negates the risks associated with dependence on foreign production



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While the Chinese are at risk relying on outside procurement, some believe that it is an obstacle that can easily be overcome. Sebastien Roblin’s *National Interest* article “China’s Air Force: 1,700 Combat Aircraft Ready for War” states that “most Chinese military aircraft are inspired by or copied from Russian or American designs, so it’s not too hard to grasp their capabilities if you know their origins.”³⁴ Roblin infers that if China can copy the design, it can manufacture the design in bulk. This remains a counterpoint to the challenge of relying heavily on borrowed or stolen technology and does not validate the ability of a country to mass produce aircraft during a conflict.

Future Considerations

The Chinese military, specifically the PLAAF, is in a time of transformation, and the United States, notably the USAF, needs to consider three indicators as a change in comparative advantage in the air domain. The first indicator would be a successful air campaign launched against a formidable air defense. While unlikely, the USAF should closely study how the PLAAF would respond to an adversarial threat. More simply, how would it conduct an air campaign?

A second indicator would be increased joint training exercises with land and naval forces. The United States needs to proceed with caution in concluding that if the PLAAF’s integration does not mirror that of the USAF, it is a failure. Rather, any attempts at integration need to be studied to see what progress has been made in the complex formation of joint operations.

A third indicator would be Chinese production of aircraft across a broad spectrum. This would include infrastructure dedicated to all types of aircraft, which are needed to effectively project joint forces through multi-domain airpower operations.³⁵ Should the Chinese decide

and procurement. This is the crucial ingredient for the rise of Chinese military might, as the U.S. Navy with its eleven carrier groups could easily impose a blockade that would eventually exhaust the ability of the Chinese military to conduct and sustain military operations.

Conclusion

At this time, the PLAAF is not capable of demonstrating global reach or air superiority due to three distinct factors: an inability to successfully integrate into the joint fight, minimal aerial refueling capabilities, and a lack of military-industrial infrastructure to support aviation production and procurement. Any one of these three areas would take a vast amount of time and resources to overcome, and all three together represent a monumental challenge to Chinese leadership. The significant organizational challenge for the PLAAF is to transition from a supportive role to a strategic role. While all three of these shortcomings are not insurmountable, the odds of overcoming them are not favorable. Joint warfare requires the ability to make decisions at the lowest level possible, with commanders understanding their specific roles and responsibilities and conducting operations accordingly. This fluidity would be challenged by the construct currently employed by the PLA and PLAAF, whereas Western militaries rely on centralized command of air forces but with decentralized execution.³⁶

Second, while the PLAAF has a significantly high number of aircraft in its inventory, there is a great disproportionality with respect to aerial refueling assets. Air refueling is a vital part of not only projecting regional power but also global power. While artificial islands are a stopgap for a lack of air refueling capabilities, they remain a temporary solution for regional power projection and will not contribute to global Chinese power projection.

Finally, aircraft production and sustainment is a vital part of any country's air force. While simplistic in nature, it is important to remember that aircraft break, and reliance on foreign manufacturers and suppliers to produce replacement parts incurs a risk to long-term operational capability. Production is also a vital part of a country's ability to maintain a reputable air force. Should a conflict break out, there is the potential to lose aircraft, and without a robust production process in place, a country will again be at risk by depending on another country to produce aircraft for combat and other aspects of air operations.

In closing, if we are to assume that the rise of China will be that of a dragon, for the foreseeable future, it

will be one with clipped wings. The PLAAF lacks the capability to achieve (or sustain) air superiority should a conflict break out against the U.S. military. The USAF retains the competitive advantages of air integration into the joint fight, the ability to conduct robust air refueling, and an established production and procurement process necessary to sustain an air force during a conflict. These competitive advantages cannot be taken for granted. Rather, time and resources need to be devoted toward their enhancement to maintain dominance in a potentially contested future domain. ■

These views do not reflect the views of the U.S. Air Force, the Department of Defense, or the U.S. government.

Notes

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