China Aerospace Studies Institute

Commander's Toolkit for China

PLA Air Force

History

Starting Period 1949-1955

Homeland Defense 1956-1980s

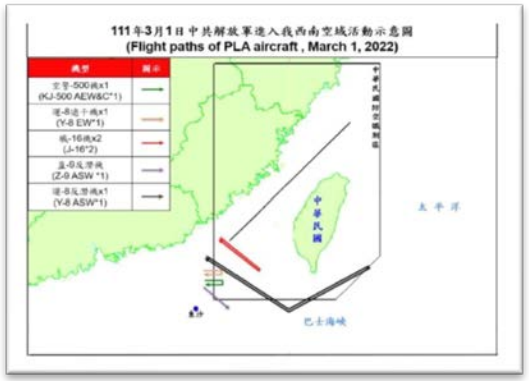
Border Defense 1990s-2003

Integrated Aerospace 2004-Present

Leadership

PLAAF Commander
General Chang Dingqiu (常丁求)

Missions



Taiwan

Air Defense

Counter Intervention

Nuclear Deterrence

Modernization Priorities

Early Warning

Offensive Strike

Air and Missile Defense

Transportation

Current Forces – Aircraft


Fighter

- 5th Gen: 4
- 4.5 Gen: 14
- 4th Gen: 16
- 3rd Gen: 11

Strike

- Attack: 5
- Bomber: 9

Support

- SMA: 9
- Lift: 6
- VIP: 2

Current Forces – Air Defense Systems

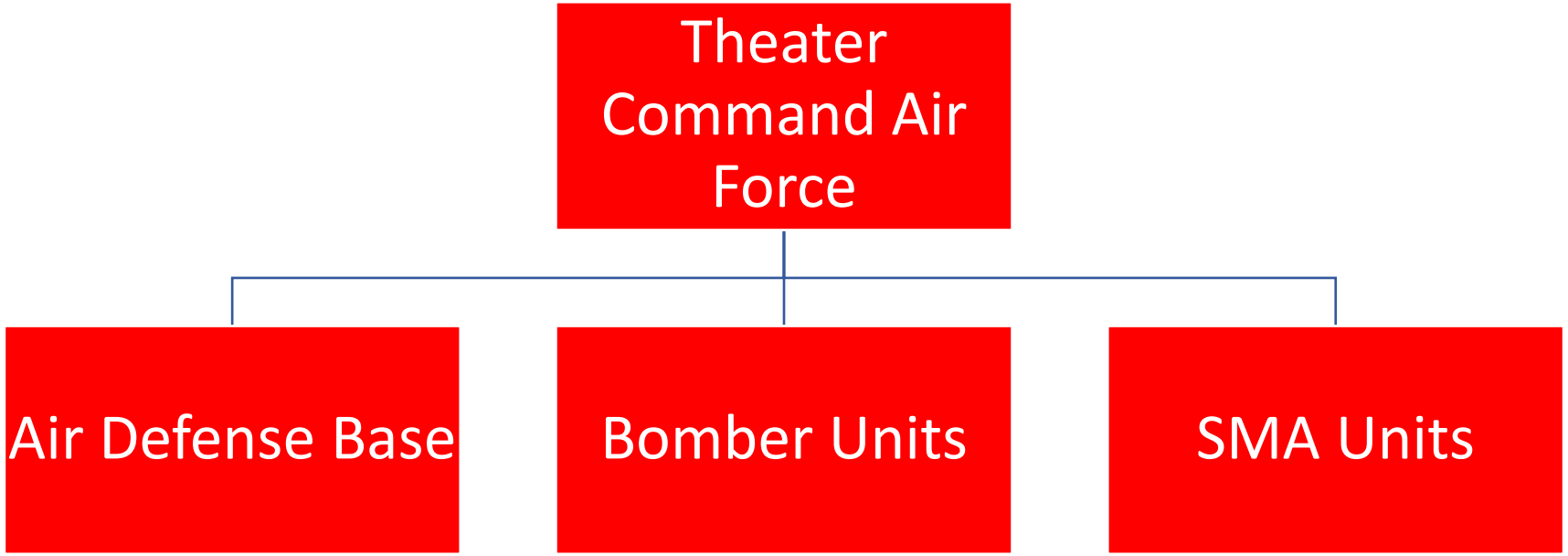
Air Defense Sites

- SAM Sites: ~150
- Radar Sites: 400+

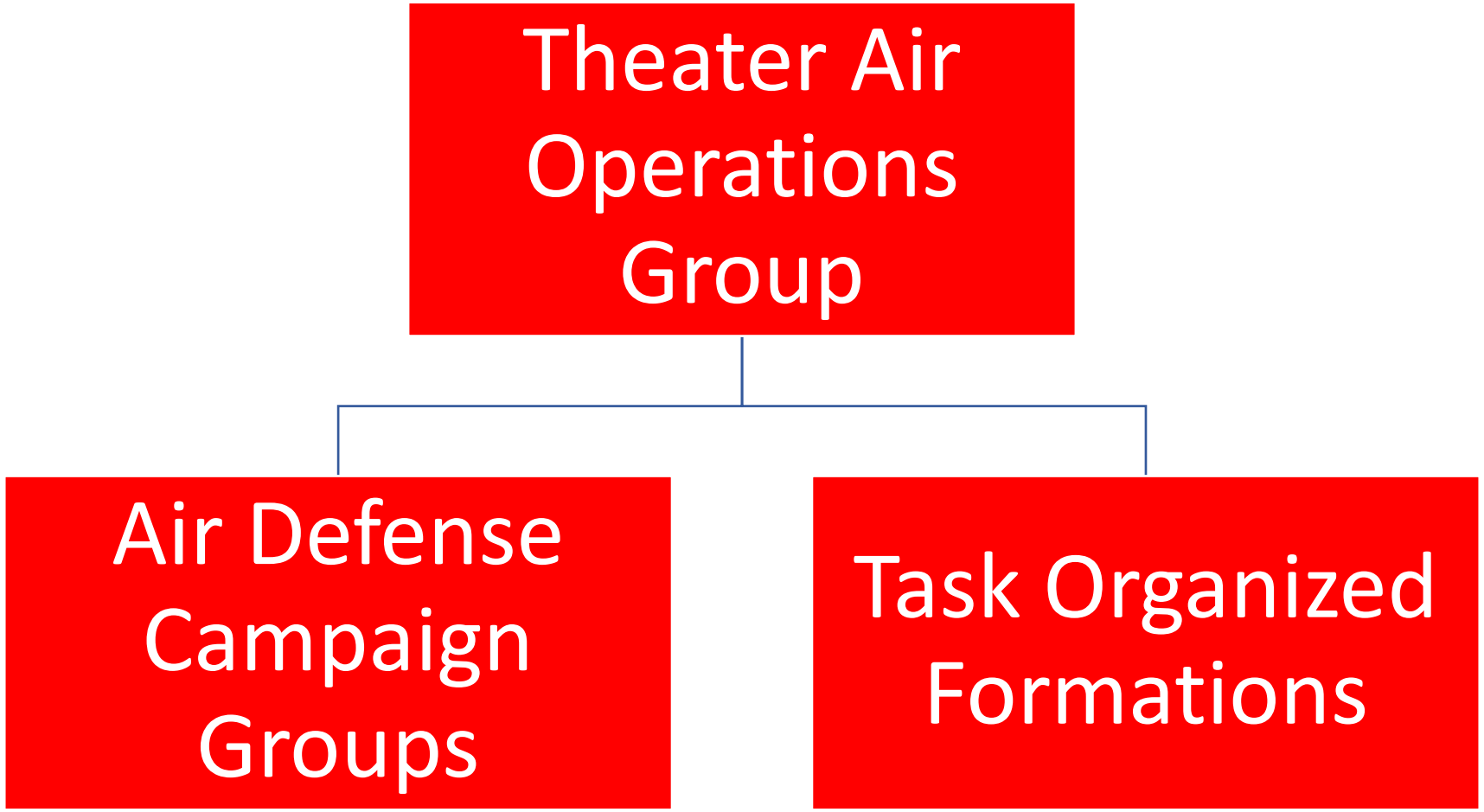
Force Employment

- Layered air defense and offense
  - Airborne operations
- Combined offensive strike

Organization – Peacetime



Organization – Wartime



Other Organizations

Reserve AAA

Nuclear Bombers

Airborne Corps

Training Priorities

- Joint air defense
- Long range offensive strike
- Electronic warfare
- Maritime strike
- Sustained Combat Operations

Personnel

- NCO and Enlisted Force:
  - Greater proportion of NCOs vs two-year enlisted
  - Technical expertise vs leadership
- Officer corps
  - Pilots likely rate highly among other candidates
  - Other parts of the PLAAF mixed in quality
  - Extremely high demands on independent decision making
- Aviators
  - Flight hours (approx.): 120 for fighters, upwards of 200 for bombers
  - Pilot track vs command track (warrant officer equivalent)

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PLA Air Force

History (Slide 2)

Starting Period: At the time of the founding of the People's Republic of China (PRC) and the transition of the Red Army to the People's Liberation Army, the PLAAF was established and placed under command of PLA Army officers. It would take decades until officers who began their career in the PLAAF worked their way up the ranks and filled leadership billets across the board and achieve further autonomy from the PLA Army. This period saw the PLAAF establish its own command structure and foster a nascent domestic aviation industry, while being dealt serious losses at the hands of the US during the Korean war and by the Republic of China during the First Taiwan Straits Crisis.

Homeland Defense: This period began with a PLAAF continuing to struggle to prevent USAF incursions or defeat the USAF backed ROC air force during the Second Taiwan Straits Crisis. These incursions spurred the PLAAF to invest further into procuring and training more SAM and AAA units. These units would go on to operate out of northern Vietnam during the Vietnam War. Events of this period such as the Great Leap Forward and the Cultural Revolution hamstrung the PLAAF's ability to modernize and procure enough aviation fuel to regularly train let alone conduct operations. While the USSR and the USAF were beginning to field fourth generation aircraft, the PLAAF was still stuck with 3rd generation aircraft.

Border Defense: The 1990s began a long period of modernization and reorganization of the PLAAF, enabling the PLAAF to prevent intrusions into Mainland PRC airspace. In the 1990s, the PLAAF procured a number of Russian aircraft, and began licensed and un-licensed production of these airframes. It was during this time that the PLAAF began its initial efforts towards becoming a cross-domain "Strategic Airforce" capable of operating across the air, space, and cyber domains. During this time the PLAAF began to expand its sensor network to include airborne early warning and control platforms, airborne command posts, large phased-array radars, and aircraft mounted synthetic aperture radar. During this period, the PLAAF also finally became capable of preventing intrusions into its airspace via a burgeoning Integrated Air Defense System (IADS) network and air defense fighter fleet.

Integrated Aerospace: This last period sees the PLAAF further develop its ground-based SAM and radar network, AEW&C aircraft, bomber and ground attack aircraft, and multirole fighter capabilities, while later facing a sort of identity crisis by having large portions of its multidomain capabilities and responsibilities stripped from it. The founding of the Strategic Support Force in 2016 stripped the PLAAF of these space and information domain responsibilities, restricting it to conducting air operations, related electronic warfare (EW) and early warning tasks, as well as surface strike operations.

Leadership (Slide 3)

Chang Dingqiu: The current commander of the PLAAF, General Chang Dingqiu, is the youngest general to assume command of the PLAAF and his career experience heralds a change in the force. Not only is Chang the first 4th generation aircraft pilot to command the PLAAF, but he also has the most joint command experience. This joint experience includes serving in the CMC Joint Staff Department and serving as a deputy commander of the Southern Theater Command.

In addition to his more modern career experience, Chang is also a proponent of modernizing the PLAAF's pilot training regime as well as providing more comprehensive care to pilots, such as mental health services, to improve pilot performance.

Leadership overall: The PLAAF leadership structure is dominated by fighter pilots. Beginning at the TCAF Deputy Commander level, command staff will be dominated by fighter pilots. Other pilots such as transport and bomber pilots traditionally top out as division leader grade officers, while other officers such as radar branch officer can only top out as brigade leader grade officers.

Missions (Slide 4)

The PLAAF's primary mission is a Taiwan invasion. The PLAAF trains to conduct offensive counter air (OCA) and defensive counter air (DCA) operations to maintain air superiority over and around Taiwan, augment joint firepower strikes with air launched cruise missiles and dumb bombs, conduct suppression of enemy air defenses (SEAD) and destruction of enemy air defenses (DEAD), support joint operations with aerial reconnaissance, and conduct airborne landings to seize key points. During peacetime, the PLAAFs flight activity around the Taiwan ADIZ has the function of both familiarizing PLAAF EW operators with signatures and signals of ROC air and missile defense systems as well as interceptor aircraft. These flights also serve as a potential deterrent targeted at maintaining the status quo of cross strait relations via a demonstration of modern PLAAF capabilities' superiority over the ROC Air Force.

the PLAAF is largely responsible for maintaining the IADS system tasked with defending the PRC. While the PLA Navy (PLAN) is responsible for air defense coverage on Hainan Island, Zhejiang Province, and parts of the Shandong Peninsula, the PLAAF is responsible for managing the radar and SAM network that is a cornerstone of PRC air defense in every other part of the PRC. The PLAAF is also introducing the more advanced systems with nascent ballistic missile defense capabilities such as the HQ-19 and S-400

The PLAAF's counter intervention mission is married to its modernization of its longer-range strike capabilities, prioritization of developing capabilities to conduct operations beyond the first island chain, and the Taiwan invasion mission set. The PLAAF is expected to be a key component of joint counter intervention strikes with PLARF conventional missile units, creating a robust and effective capability to sink US Navy surface assets and to strike U.S. bases in the region. The PLAAF will also perform a counter intervention function targeted at preventing the USAF from conducting operations in the region by striking the USAF tanker fleet and AWACs, as well as conducting DCA and OCA as far out as can be sustained by the PLAAF tanker fleet, which while limited today, will not be as few in number in the future.

The PLAAF was the original service responsible for delivering the PLA's first nuclear weapons, but was eventually superseded by long range ballistic missiles. Today, the PLAAF has re-introduced a nuclear capable bomber capable of launching a nuclear armed ALBM. This platform's limited range hampers its ability to carry out credible deterrence operations, but it does allow the PLAAF to develop modern TTPs for nuclear bomber units that will adopt longer range platforms that will become a credible air leg of a future triad.

Modernization Priorities (Slide 5)

With an effort to push more commanders into the air, the PLAAF has both put commanders in combat aircraft as well as AWE&C aircraft. The PLAAF traditionally has been reliant on ground-based radar for both early warning and directing aircraft to targets, but has been undergoing a campaign intended on further developing the capabilities and increasing the number of its airborne command platforms, most notably the KJ-500.

The PLAAF has been prioritizing the development and acquisition of long-range offensive strike capabilities, be that continued modernization of H-6 platforms to fly further and deliver longer range cruise missiles, or fielding more multirole, cruise missile capable 4.5 generation aircraft like the J-16.

The PLAAF is continually seeking to procure more capable, longer-range SAMs to both provide a robust IADS system for homeland air defense, as well as providing a further bubble of shore-based air defense coverage, enabling fighters capable of operating at longer ranges to push farther out from the PRC coastline. Beyond increasing the range of these systems, the PLA is seeking to procure more advanced radar systems to better find, fix, track, and target adversary air threats.

Lastly, the PLAAF is procuring increasing numbers of its new large transport aircraft, the Y-20. The PLAAF transport fleet is currently capable of transporting two light airborne brigades or one light mechanized airborne brigade if it uses its entire inventory of transportation aircraft, leaving limited extra capacity for emergency transport of materiel or other tasks. Given this relative weakness, the PLAAF is seeking to expand this fleet to provide it with more options for rapid logistics support for aviation units or to provide other cargo transportation services without putting the lift it needs for a Taiwan invasion scenario at risk.

Current Forces Aircraft (Slide 6)

The PLAAF is currently fielding a combat aircraft fleet composed of more modern aircraft as well as broadening its ground attack and bomber inventories. These are the numbers as of early 2022.

Aviation brigades equipped with fighter aircraft are largely composed of one type of aircraft. The PLAAF is continuing to phase out its legacy 3rd generation aircraft, while also beginning to gradually replace its fourth-generation fighter units in coastal China, namely J-11 and J-10A units, with 4.5 gen aircraft. Central Theater Command units are predominantly equipped with 3rd generation or older 4th generation aircraft such as J-7 variants, J-11As, or J-10As. The Eastern, Southern, Western, and Northern Theater Commands all have received newer 4.5 and 5th generation aircraft. Currently, the PLAAF inventory of active third generation aircraft is largely composed of newer J-7 and J-8 variants, which are a modernized PRC produced mig-21 variant and variants of the indigenously developed J-8 interceptor respectively.

PLAAF 4.5 generation aircraft include the domestically produced and powered J-10C and J-16. Additionally, the PRC has imported several Su-35s, which were also imported with Russian munitions. The J-10C and J-16 employ PRC manufactured weapons such as the PL-10 and PL-15, which outrange their American counterparts the AIM-9X and the AIM-120 AAMRAM, and are equipped with a mix PRC developed engines and imported AL-31s. In addition to the PL-15, PLAAF 4.5 gen fighters, most notably the J-16 and imported Russian Su-30MKK and Su-35, can also employ the PL-17, an even longer-range radar guided AAM intended to shoot down tankers and AWACs to limit the USAF's ability to project power. The PLAAF currently fields two active versions of its J-20 fifth generation stealth fighter, the J-20 and the J-20A.

The PLAAF currently fields a variety of H-6 variants, ranging from the older M variants, which have mostly been converted to trainers, to newer K variants. Older variants of the H-6 more closely resemble the Tu-16 design on which it is based, while the newer variants have redesigned wing roots, modern sensors and avionics, removed bomb bays, and can carry up to six cruise missiles as opposed to the four of the older variants such as the H-6M.

PLAAF special mission aircraft are primarily airborne early warning and control platforms, tanker aircraft, and electronic intelligence gathering aircraft. AWA&C aircraft include the KJ-2000, KJ-200, and the KJ-500. Additionally, the PLAAF fields ELINT variants such as the Y-8CB. The PLAAF also fields dedicated standoff jammer aircraft, the older GX-3 and the newer GX-11, which are based on the Y-8 and Y-9 airframes. In addition to these larger platforms the PLAAF has begun procurement of the J-16D, a dedicated escort jammer. As of early 2022, the PLAAF fields around 30 tankers, a mix of Y-6Us and Y-20Us.

Current Forces Air Defense Systems (Slide 7)

The PLAAF operates a robust IADs network composed of domestically developed short, medium, and long-range SAM systems, namely the HQ-6, HQ-12, HQ-9 variants, and HQ-22. Additionally, the PLAAF operates several battalions of imported S-300 PMU2s and handful of S-400s. The Russian systems are primarily based in the Northern and Eastern Theater Commands.

Force Employment (Slide 8)

PLA military thought increasingly advocates a proactive approach to air defense, whereby the PLAAF not only protects Chinese territorial airspace but also targets and destroys enemy aircraft on the ground as well as the facilities and support infrastructure needed for conducting air operations. PLAAF planning appears to give special priority to protecting the Beijing region, as well as coastal areas, from enemy air attacks. Alternatively known as the "air strike" or "air raid" campaign, the PLAAF's conceptualization of an air offensive campaign mainly entails air-to-ground attacks against military formations, supply and transportation lines, and political, economic, or other military targets. Such a campaign can occur either independently or jointly as part of a larger military operation.

PLAAF airborne campaigns seek to parachute troops behind enemy lines, either in support of joint operations or on independent missions. Once inserted, airborne forces could be directed to sabotage key enemy military and economic infrastructure, cut off enemy front lines from support or reserve forces, or seize other key infrastructure. PLA doctrine seems to recognize that these campaigns can be extremely difficult to carry out successfully.

PLAAF standoff strike capabilities have matured to a point where they would be an integral part of a joint firepower strike against an enemy surface formation or ground targets. By combining PLAAF air launched cruise missiles with PLARF ballistic missiles, a joint strike becomes much harder for missile defenses to successfully intercept. An attack on surface combatants could also potentially involve PLA Navy assets employing anti-ship weapons, placing further stress on shipborne missile defense capabilities.

A notional example of a PLAAF assault on targets on Taiwan would involve a mix of supporting ISR and standoff jammers, air cover formations, and an assault force. Prior to this notional operation, PLARF fires would likely be used to degrade enemy integrated air defenses and C4ISR to prepare the battle space for a PLAAF follow on operation. The first line of an assault formation would be assault and cover formations of multirole aircraft covering northern, central, and southern portions of the assault formation. Standoff jammers and potentially unmanned ISR platforms will be meshed into this frontline cover formation to provide ISR and EW support to the formation. Behind this cover force are Airborne ISR and EW platforms that are more critical to managing awareness of the battle space and coordinating operations within the AO such as AEW&C platforms. In the rear of the formation will be separate bomber assault groups which will launch standoff munitions, or if enemy air defense has been sufficiently destroyed, drop dumb bombs.

Organization Peacetime (Slide 9)

The PLAAF is organized into five theater air forces with radar, SAM, and fighter aviation brigades falling under Theater Command Air Force (TCAF) subordinate Air Defense Bases. Others aircraft and units such as transport, bombers, and special mission aviation units, due to their operational nature and small numbers, are directly aligned under TCAFs.

Air defense bases are responsible for C2 of the aviation brigades, SAM, and radar units in their AOR. They also coordinate with PLAA and PLAN units in their AOR for joint training.

As mentioned earlier, the largest fighter unit formation in the PLAAF is called a “brigade.” This formation has a similar number of aircraft as a U.S. Air Force fighter squadron, 24 to 36, but it also owns its own support units that in the USAF would be subordinate to a U.S. Air Force fighter group. A PLAAF aviation brigade consists into three USAF flight-equivalents, a maintenance flight equivalent, a repair shop, and a unit that manages the physical airfield infrastructure called an “airfield station.” The previously mentioned “flight equivalents” are battalion-level organizations and are called “flight groups” in the PLAAF and each group has roughly eight to ten airframes divided into two company-level “flight detachments,” which they call ‘squadrons’ so the nomenclature gets messy.

Organization Wartime (Slide 10)

While air defense bases are primarily responsible for air defense in their area of responsibility, major offensive strike and joint fires capabilities are subordinate to TCAFs.

Other Organizations (Slide 11)

Unlike in the U.S., the PLAAF is responsible not only for "delivering" troops from its subordinate Airborne Branch to their landing zones, but also for the creation and training of the airborne units themselves. The Airborne Corps falls under their own two star equivalent command composed of six combined arms airborne brigades, a special operations brigade, and a fixed wing transport brigade mainly for training purposes.

The nuclear bomber brigade currently operating out of Neixiang airfield while administratively subordinate to the CTCAF, OPCON is likely under CMC nuclear C2 authorities.

The PLAAF reserves own most if not all of the PLA's remaining AAA.

Training Priorities (Slide 12)

The PLAAF's training regime has increased in tempo and adjusted to incorporate more training to employ the capabilities it has been seeking to acquire through its modernization campaign. In its routine training, the PLAAF has begun to prioritize training for long range offensive strike, maritime strike missions, joint air defense, electronic warfare, and the sustainment of combat operations. Joint air defense training typically consists of SAM units from the different services working with radar units from different services to pass target information or track targets between different areas covered by the PLAAF and the PLAN.

Since 2015, the PLAAF has been conducting longer range bomber flights and maritime strike training into the Western Pacific and has begun conducting this training with fighter escorts. The PLAAF has also begun training more frequently to employ EW assets in escort jamming and SEAD/DEAD capacities as well as training under contested electromagnetic conditions, especially during national training exercises. However, the ease with which the PLA can close off airspace and the electromagnetic spectrum for routine training allows the PLAAF to more frequently train to operate in a contested electromagnetic environment.

While the PLAAF has long been training out of garrison operations, more recently it has also begun experimenting with various methods of sustaining operations out of garrison for longer periods of time. This has taken the form of testing the mobility and performance of smaller emergency support detachments from aviation brigade maintenance squadrons or slightly larger support units composed of both maintenance squadron and airfield station personnel.

Personnel (Slide 13)

The PLAAF recruits non-commissioned officers, or NCOs, either from candidate pools of highly skilled civilians or promoted out of the ranks of two-year conscripts.17 While it has always been reliant on a core of NCOs, the NCO corps began to expand in 2009 as part of an intentional

program to shift the enlisted force to be predominantly composted of NCOs instead of conscripts.

Once an officer commissions into the PLAAF, they will periodically return to one of these institutions to receive a graduate degree in their specialty. However, if they are what is called a “commanding officer,” which means anyone who has any leadership position, they return to the PLAAF’s Command College in Beijing for mid-level professional military education and receive only a certificate. At the more senior levels, PLAAF officers will attend the PLA’s National Defense University for additional joint professional military education, where they also receive only a certificate.