ACE Gets Light and Lean

Joint Concepts to Make ACE Effective in the Western Pacific

Stephen Blackstone

As currently designed, agile combat employment (ACE) is a flawed concept for peer adversary conflict in the anti-access/area denial area of the Western Pacific; however, merging ACE with other joint force concepts, such as the Marine Corps expeditionary advanced base operations and the US Army's multi-domain operations, will increase its effectiveness in a contested environment. ACE should evolve to incorporate joint effects more suitable to light and lean operations than the generation of fighter aircraft. Moving beyond existing research, this article offers a meta-analysis of service concepts that identifies ways to optimize ACE, leveraging both Air Force and joint capabilities.

Over the last quarter century, the US military advantage over the People's Republic of China (PRC) has eroded as the United States was occupied with multiple low intensity conflicts around the world. Across all its military services, the Chinese People's Liberation Army (PLA) has closed the capability gap with the United States with a force design intended to control the battlespace in the event of war at increasing distance from mainland China, with ambitions beyond the second island chain—which stretches from Japan to the Mariana Islands, where Guam is located, to western New Guinea. Key to this force design is the PLA Rocket Force (PLARF), created in 2015, which underpins the PLA's anti-access and area denial (A2/AD) strategy to create an area of air base and sea denial past the second island chain.[1]

The PLARF has built thousands of theater ballistic, hypersonic, and cruise missiles to target US bases and fleets critical to long-range precision strike from the air, which has characterized the American way of war.[2] To counter this strategy, each service has developed an operational concept to fight through the A2/AD challenge. The US Air Force's concept is called agile combat employment (ACE), defined by doctrine as "a proactive and reactive operational scheme of maneuver executed within threat timelines to increase resiliency and

Colonel Stephen Blackstone, USAF, serves as the individual mobilization augmentee to the deputy director of operations, Headquarters, Air Force Special Operations Command, Hurlburt Field, Florida. He holds a master in international relations from the University of Oklahoma and a master in national security and strategic studies from the Naval War College.

1. *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2024* (US Department of Defense [DOD], 2024).
2. *Annual Report: 2024.*

survivability while generating combat power."[3] Conceptually, ACE appears to be a reasonable approach to mitigate the significant problems posed by the PLA's A2/AD strategy.

Yet as currently designed, ACE is unable to overcome A2/AD challenges in the Western Pacific. In particular, ACE faces three challenges: the PLARF arsenal of theater ballistic, hypersonic, and cruise missiles, which is capable of saturating the handful of ACE air bases and overwhelming their active and passive defenses; its inability to operate with the necessary agility required to be effective; and the theater geometry of the Western Pacific paired with the PLA Air Force's (PLAAF) long-range counterair capabilities. By merging ACE with other joint force concepts, however, the US Air Force can operate despite sustained missile attack and provide survivable long-range strike to prevent and even deter China's aggression in the region. To overcome these challenges ACE should adapt by incorporating the US Marines' expeditionary advanced base operations (EABO) concepts to mitigate China's missile threat and theater geometry problems while using the US Army's multi-domain operations to make long-range strike agile, light, and lean.

Unpacking Agile Combat Employment

ACE is an operational concept designed for fighter aircraft operations that evolved over time from competing adaptive basing concepts—which centered on identifying air base options that enable air operations while under attack—to deal with China's theater ballistic, hypersonic, and cruise missiles. Three "umbrella" adaptive basing possibilities focus on this threat: hardening to survive a missile attack, standoff to withdraw from missile attacks, and alternate force employment concepts to operate despite missile attacks.[4] ACE is an "operate despite missile attack" type of adaptive basing. Air Force Doctrine Note 1-21 outlines ACE operating within a hub-and-spoke model, distributing support cargo from a main hub to forward contingency location spokes to enable fighter sorties from those locations.[5] Fighters and support equipment then cycle between hub and contingency location spokes while the missile threat persists. As one PRC-based military expert states, dispersal is critical in the Western Pacific because air bases are one of the primary targets for PLARF missiles.[6]

China's Long-Range Precision Strike

Although the ACE base cluster model seeks to distribute risk across multiple main operating base hubs and semi-permanent contingency location spokes—provisional locations with the infrastructure and support services needed for sustained operations—the

3. Air Force Doctrine Note (AFDN) 1-21, *Agile Combat Employment* (Curtis E. Lemay Center for Doctrine Development and Education, 2023), 2.

4. David T. Orletsky et al., *How Can the Mobility Air Forces Better Support Adaptive Basing? Appendixes A–C, Supporting Analyses of Adaptive Basing, Soft Power, and Historical Case Studies* (RAND Corporation, 2023), 1–2.

5. AFDN 1-21, 2-6.

6. *Annual Report: 2024*, 65.

plan is inadequate to mitigate the threat of thousands of theater ballistic, hypersonic, and cruise missiles, and PLA missile volume would overcome this small number of distributed bases.[7] In 2024, the PLARF had 900 short-range ballistic missiles (SRBM) and 300 launchers with a range of 300 to 1,000 kilometers (km); 1,300 medium-range ballistic missiles (MRBM) and 300 launchers with a range of 1,000 to 3,000 km; 400 ground-launched cruise missiles (GLCM) and 150 launchers with a range greater than 1,500 km; and 500 intermediate-range ballistic missiles (IRBM) and 250 launchers with a range of 3,000 to 5,500 km.[8]

Figure 1 illustrates the reach of these missiles overlaid with US airbases—including allied airbases that allow US operations—and enhanced defense cooperation agreement locations. One of the missiles the PLARF has deployed, the DF-17, is an MRBM equipped with a hypersonic glide vehicle, designed to evade radar and ballistic missile defenses. According to a PRC-based military expert, the DF-17 is intended to target foreign military bases and warships in the Western Pacific region.[9] The *2022 Annual Report to Congress* on China's military and security developments notes, "PLA writings frame logistics and power projection assets as potential vulnerabilities in modern warfare, which aligns with the PLA's expanding ability to conduct strikes against regional air bases." It further points out that American bases in Guam "are in range of a growing number of the PLA's ballistic and cruise missiles."[10] The PLA not only has the magazine depth to bring power projection from ACE clusters to a halt, but it also has the intelligence, surveillance, and reconnaissance (ISR) and targeting capabilities that enable these strikes.

China has developed a sophisticated find-fix-track-target-engage-assess (F2T2EA) capability using space-based ISR. This enables precision strikes during adverse-weather with 24-hour coverage, thanks to a constellation of electro-optical, synthetic aperture radar imaging, and electronic/signals intelligence satellites.[11] The PRC has integrated these ISR advances with improved command, control, and communications systems.[12] This provides high-fidelity over-the-horizon targeting information from strategic to tactical levels, allowing rapid tracking and targeting of US aircraft carriers and deployed air wings.[13]

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7. Sean M. Zeigler et al., *Assessing Progress on Air Base Defense: Past Investments and Future Options* (RAND Corporation, 2025), 21, https://www.rand.org/; and AFDN 1-21, 13.
8. *Annual Report: 2024*, 66.
9. *Annual Report: 2024*, 65.
10. *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2022* (DOD, 2022), 81–82.
11. Zeigler et al., *Assessing Progress*, 34.
12. *Annual Report: 2022*, 90.
13. *Annual Report: 2022*, 90.

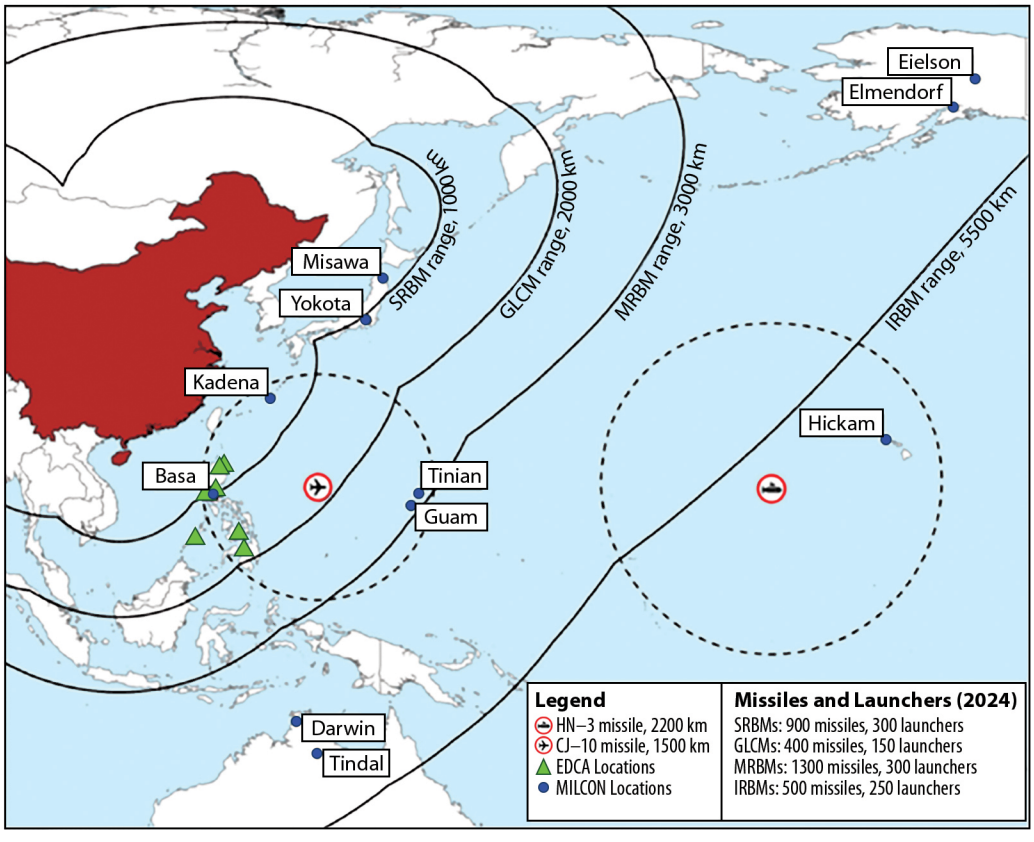

Figure 1. China's missile capabilities as of 2024[14]

Consequently, operating continuously from either semi-permanent contingency location spokes or main operating base hubs within a cluster will likely only be possible for a single targeting cycle, potentially less than a day, until the PLARF exhausts its missiles. Even if US Air Force rapid runway repair teams can restore runways quickly, the PLA is likely to target aircraft parking areas, fuel, and munitions storage. This would leave undamaged aircraft without essential supplies, requiring re-supply flights that could take days or weeks. In a conflict involving thousands of missiles targeting tens of bases, getting inside the PRC's targeting cycle is increasingly challenging due to its growing ISR capabilities. This requires a light and lean force capable of relocating daily or sooner.

Light and Lean Gains Weight

As commander of Pacific Air Forces Command, General Charles Q. Brown Jr. sought to "generate combat power from a number of locations to create dilemmas for an adversary."

14. Zeigler et al., *Assessing Progress*, 34, https://www.rand.org/; and *Annual Report: 2024*, 66.

He stated, "I just need a runway, a ramp, a weapons trailer, a fuel bladder, and a pallet of MRE [Meals, Ready-to-Eat]. That's maybe a little bit bold, but the point is, we've got to be light, lean, and agile."[15] Adapting to planning realities, the ACE base cluster model has strayed from this light and lean concept, making logistics vulnerable and unsustainable.

Once planners considered the logistical requirements to fuel and arm aircraft, provide secure facilities, communication equipment, planning tools, and provisions for aircrew to receive taskings, intelligence, inspect equipment, and plan missions, the requirements quickly accumulate. Meeting these basic operational support needs alone can tie a fighter formation to a location for days. When multi-day sortie generation is required, logistical demands escalate dramatically. These demands involve everything from munitions and fuel to maintenance, aircraft generation, material handling, and crash fire rescue personnel and equipment, just to generate the sorties. When adding the base support functions of power generation, water, rations, lodging, command and control, communications equipment, air traffic control, and short-range air defense, the logistics tail truly becomes unmanageable.[16] While efforts to reduce these requirements have been made, the sheer volume of supplies and equipment needed to generate fighter sorties for even a few days makes these contingency locations far from light and lean.

Pre-positioning equipment and supplies is one way the Air Force is trying to meet the logistical challenges of ACE.[17] Yet, pre-positioning is cost-prohibitive from a procurement and sustainment aspect, particularly when munitions are in short supply and the defense industrial base is challenged to provide the parts and equipment for current operations, much less contingencies. Additionally, pre-positioning works against the agility of ACE since the build-up of equipment and supplies is difficult to conceal from persistent Chinese ISR, making targeting likely. If agility is prioritized over pre-positioning to reduce observable signatures, the airlift requirement would be prohibitively high. With 222 C-17s in the US inventory, assigning tens of C-17s per cluster is not practical when strategic airlift will be in high-demand to deploy the joint force.[18] If these airlift assets were allocated to ACE operations, it would require multiple days to move, download, set up, and reload fighter generation cargo from hub-to-spoke and back again. Multi-day operations would fail to get inside the PLA's targeting cycle, making the spoke vulnerable to long-range precision fires.

Tyranny of Distance

Air refueling is crucial to the success of agile combat employment, which relies on dispersed base clusters. Yet, China has developed missiles that threaten American tanker

15. General Charles Q. Brown Jr., Pacific Air Force commander, remarks at the Air Force Association's Air, Space, and Cyberspace Conference, National Harbor, MD, September 2019.

16. Air Force Doctrine Publication (AFDP) 4-0, *Combat Support* (LeMay Center, 2020), 29.

17. AFDN 1-21, 7.

18. "C-17 Globemaster III," US Air Force [USAF, website], accessed 7 October 2023, https://www.af.mil/.

aircraft, and the number of tankers needed to support operations at these distances outstrips supply. Land-based fifth-generation fighters have a combat radius of approximately 600 nautical miles (NM), requiring air refueling if based beyond the first island chain, which stretches southward from Japan through Taiwan to the Philippines.[19] With thousands of short- and medium-range ballistic missiles, basing fighters at unrefueled range from the objective is untenable. Generating sorties beyond the reach of these missiles mitigates some of the challenge but creates a large air refueling demand.

China has observed the United States overcome problematic theater geometry in Afghanistan using tanker aircraft to extend the range and time-on-station of its aircraft. Compared to tactical aircraft, tanker aircraft are slow, unmaneuverable, and unable to defend themselves against radar-guided missiles. China has developed the PL-17 (CH-AA-12) "tanker killer" very long-range air-to-air missile that has a 186 NM range, which is greater than any air-to-air missile in the US inventory with exquisite guidance capabilities specifically designed to target tankers and other high-value aircraft.[20] If fighter sorties can be generated despite missile attacks, China's tanker killer missiles make it exceedingly difficult to get fighters within a relevant range of the Taiwan Strait or other conflict point in the first island chain. Even if tankers could survive the PL-17 missiles, the required volume of tankers is still daunting. If fighter formations were generated from a 2,000 NM standoff range, outside of SRBM and MRBM striking distance, the tanker fleet available could only support about nine 24-hour two-ship combat air-patrols.[21] The challenges posed by China in the Western Pacific are daunting for operationalizing ACE, but combining strengths of each service's emerging warfighting concept can help address these challenges.

Ace and Multi-Domain Fires

Perhaps the Air Force can resolve the logistical challenges of the current ACE construct while building up enough passive defense and convincing the joint force to provide enough active defense for Air Force fighter aircraft to make a difference in the Western Pacific. If conflict occurs in the region, however, this operational approach to apply airpower should not be the only arrow in the Air Force's quiver. A different approach would be to expand ACE to dramatically increase the movement and maneuver of land-based tactical missiles as part of a broader distributed operational fires concept, or missile-ACE (M-ACE). By leveraging Marine Corps expeditionary advance base operations and Army multi-domain operation capabilities, the Air Force could reduce the fighter demand for air interdiction, maritime interdiction, and offensive counterair missions for areas covered by these forces during the initial days of conflict when the theater ballistic and cruise missile threat is greatest.

19. "F-35A Lightning II," USAF, accessed 7 October 2023, https://www.af.mil/.

20. Tyler Rogoway, "Massive PL-17 Air-To-Air Missile Seen on Chinese J-16 Fighters," *TWZ* [*The War Zone*], 2 December 2023, https://www.twz.com/.

21. Orletsky et al., *Mobility Air Forces*, 9.

The limitation of land forces throughout history is that movement and maneuver are limited to hundreds of miles per day if good overland lines of communication are available. When the operational terrain is limited to an island a few miles wide or less, movement and maneuver for force protection or operational and strategic impact is not organically possible. Applying a M-ACE concept to these forces would enable their movement and maneuver with operational and strategic impacts. Air Force mobility and special operations aircraft can airlift these systems and move them hundreds of miles in minutes, including between remote islands, as demonstrated in the HIRAIN (High Mobility Artillery Rocket System Rapid Insertion) exercises that have been occurring for years.[22] Air Force C-130s and C-17s can land on short, semi-prepared or unimproved surfaces, opening most airfields in the region to these aircraft. More importantly, improvised landing zones like fields, roads, and even beaches vastly increase the available ACE locations while reducing the logistical tail required to bring joint fires to bear, since fighter-capable runways and support would not be required.[23]

The Marine Corps is already practicing these types of landing zone operations by creating expeditionary airfields to support air operations in austere locations unlikely to be targeted by the PLARF's ballistic missiles. These airfields are defined in Marine Corps Warfighting Publication 3-20 as "portable airfields that can be constructed, used, dismantled, and moved to another site for reuse . . . [that] are constructed on-site . . . [and that] permits Marine aviation to operate from captured or damaged runways, parking lots, or roads and to establish bases where none previously existed."[24] Although some landing zones are created when needed, the Marines' expeditionary advanced base operations concept prepares the operational environment during competition to help ensure access and placement during conflict.

While campaigning, EABO looks "to support allies and partners with local infrastructure improvements, which can mask construction of dual-use infrastructure that will enable [the] conduct of future distributed operations."[25] By understanding the local environment and building relationships with allies, the Air Force could determine the best locations for landing zones and the local equipment available for improvements, and could understand the sentiment of local populations to a conflict.

The HIMARS battery in the MDTF is being retooled with the PrSM, the follow-on to Army tactical missile systems, which are being produced in several increments in rapid succession. The currently fielded Increment 1 is equipped with two missiles per vehicle,

22. Brenden Beezley, "U.S. and Belgian Forces Conduct HIRAIN Training," Ramstein Air Base, 31 July 2024, https://www.ramstein.af.mil/.

23. Joseph Trevithick, "Special Ops C-130s Using Beaches as Runways Eyed for Pacific Fight," *TWZ*, 19 September 2023, https://www.twz.com/.

24. Marine Corps Warfighting Publication (MCWP) 3-20, *Aviation Operations* (Department of the Navy, Headquarters US Marine Corps [HQMC], 2008, Change 1, 2018), 6-2.

25. *Tentative Manual For Expeditionary Advanced Base Operations, 2nd ed.* (HQMC, 2023), 6-6.

uses attack on coordinate guidance, and has a range of greater than 499 km.[26] Increment 2, which will be fielded by 2027, has a similar range with a dual-mode radio-frequency/infrared (RF/IR) seeker, allowing it to target moving land and naval targets.[27] Increment 4 will increase the range to 1,000 km, Increment 5 beyond that, and Increment 3, which will now come after Increment 4, will provide enhanced lethality in the warhead.[28] The Typhon battery consists of four tractor-trailer mounted launchers that hold four launch cells each and a command post that employ either Tomahawk missiles against land-based targets or anti-ship variants of the Tomahawk and SM-6s that provide air defense with demonstrated capability in anti-ship and counter-hypersonic weapon roles.[29]

The Marine Corps EABO concept employs mobile, low-signature capabilities like the Navy Marine Expeditionary Ship Interdiction System (NMESIS) launching Naval Strike Missiles (NSM) from shore in a contested environment for sea denial operations.[30] The NMESIS is smaller and more mobile than Army tactical missiles since the NSM cells are mounted on the joint light tactical vehicle chassis but their range is shorter at 115 NM (212 km).[31] Yet, the mobility tradeoff is amplified when airlift is concerned, as two NMESIS can be airlifted per C-130, versus one HIMARS. Up to four NMESIS could theoretically be airdropped from a C-17, providing runway independent insertion, a capability not available to HIMARS.[32]

Figure 2 demonstrates the potential operational and strategic impacts of rapidly inserting a mixture of these capabilities when moving from crisis to conflict in the Western Pacific. Just seven C-130s would be required to insert PrSM-equipped HIMARS covering the area represented in figure 2, providing sea denial around the entirety of Taiwan and western approaches to the Philippines, leaving only the Straits of Malacca and Karimata as permissive exit points for the PLA Navy (PLAN). Just four C-17s could deliver enough Typhon launchers for 16 SM-6s to surround Taiwan and Kadena Air Base. This could be expanded to a denial area from the north part of Borneo to the Japanese home islands with only modest airlift cost. Establishing a sector of air superiority over this large an area of allied territory would have a knock-on effect of enabling the freedom of movement for mobility aircraft to relocate all the missiles outlined in the M-ACE concept inside of PLARF targeting timelines without need of fighter escort. When the Tomahawk-equipped Typhon launchers are added, one can begin to range all PLAN

26. Feickert, *Typhon*.

27. Joseph Trevithick, "PrSM Ballistic Missiles Loaded with Coyote Drones, Hatchet Mini Smart Bombs Eyed by Army," *TWZ*, 30 April 2025, https://www.twz.com/.

28. Trevithick, "PrSM."

29. Joseph Trevithick, "Army Fires Tomahawk Missile from Its New Typhon Battery in Major Milestone," *The Drive*, 3 July 2023, https://www.thedrive.com/; and Feickert, *Typhon*.

30. *Tentative Manual*, 1-2.

31. Jeff Schogol, "The Marines Have a New Ship-Killing Weapons System to Counter China," *Task & Purpose*, 16 January 2023, https://taskandpurpose.com/.

32. Kenneth B. Rice, "U.S. Army Tests Gravity Airdrop, High-Altitude Parachutes and Powered Paragliders," Aerospace America, 1 December 2023, https://aerospaceamerica.aiaa.org/.

vessels to the docks of China and a large portion of PLARF theater ballistic, hypersonic, and cruise missiles that create the A2/AD challenge.

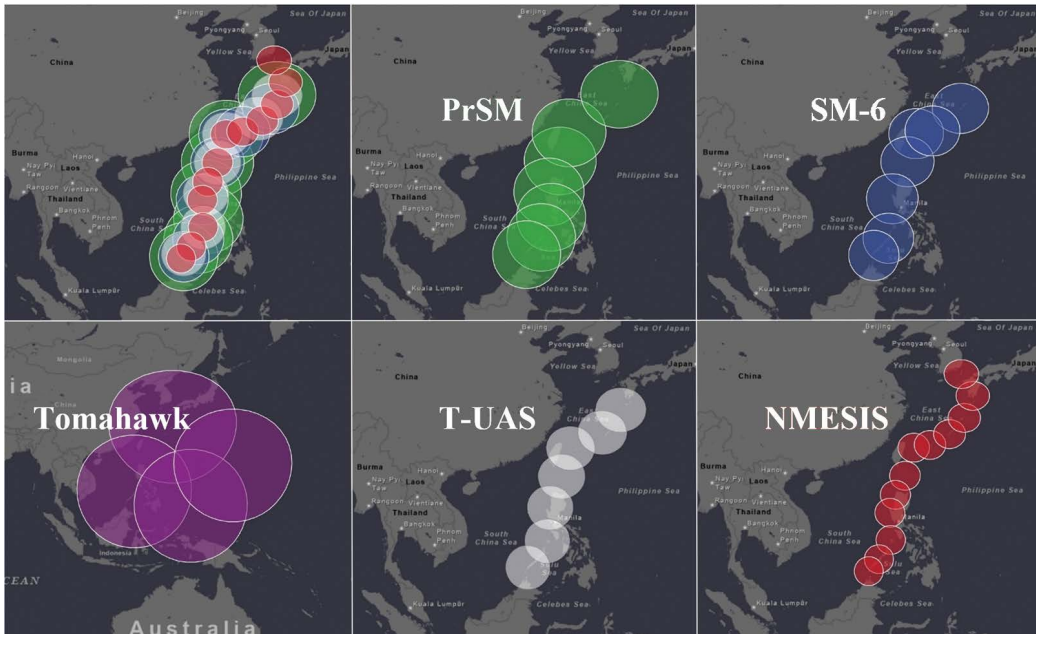

Figure 2. Range of M-ACE deployed missile and T-UAS systems

China is no doubt aware of the Air Force's efforts to operationalize the ACE concept, given the military construction outlays at various locations across the Western Pacific.[33] Exponentially multiplying the number of airfields on the PLARF target list would force it to spend more of its missile magazine depth degrading these additional airfields. This would limit the duration it could suppress American airpower. Even if the PLARF targeted runways of all lengths, targeting every conceivable landing surface within the first island chain is not practical, given a finite number of missiles.

To operationalize a M-ACE concept, the Army's MDTF—and to a lesser degree the Marines' NMESIS forces—would need to rethink the self-sustaining heavy force package the current force design requires. As with any ground force, the Army prefers to mass its long-range fires in batteries including the support personnel and equipment to provide on-sight intel analysis, target cueing, and the prime movers, trailers, generators, and support vehicles an Army battalion requires to move overland.[34] Reconceptualizing the MDO concept to allow a true "shoot-and-scoot" capability would allow this support to be accomplished disaggregated from the missile launch points using the aircraft's tactical datalinks to relay cueing information.

33. Zeigler et al., *Assessing Progress*.
34. Feickert, *Typhon*.

The HIMARS and Typhon systems within the MDTF are currently unable to operate effectively in disaggregated scenarios where command and control or target cueing are not organically located with the battalion. The HIMARS/PrSM battalion and the MRC/Typhon battalion rely on a collocated multi-domain effects battalion, which uses space-based or space enabled sensors to provide target acquisition, identification, and custody to cue the missiles.[35] While space-based cueing would certainly be used in an M-ACE concept, this target acquisition, tracking and dissemination could be disseminated from the air operations center or the Naval Integrated Fires Element via tactical datalinks since they would have the highest situational awareness of the orders of battle and priority for deep strike.

In a peer-conflict, space-based sensors will be operating in a contested domain and may be denied and unavailable. The development of tactical unmanned aerial systems (T-UAS) and the shrinking of RF and IR sensors make this an important addition to any F2T2EA PACE plan, especially one wholly reliant on space support for operations. T-UAS, also known as Group 3 UAS, are usually some form of small fixed-wing aircraft like a Jump-20 that has a range of 115 NM on line-of-sight datalink control.[36] When paired with a small (24 pound) multimode radar like the NSP-7, the T-UAS can detect and geolocate maritime targets out to 174 NMs, for a total detection range of 289 NM (535 km) from the launch point.[37] This is in addition to the electro-optical/IR and passive collect payloads these UAS can carry that can determine what vessels were detected and characterize the electromagnetic environment.[38]

To get a sense of the mobility of these T-UAS, the AeroVironment Jump-20 is a VTOL fixed-wing aircraft that is man-portable (215 pound maximum gross takeoff weight), can carry a usable load of 30 pounds, has an endurance of 13-plus hours, can be launched in 60 minutes with no launch equipment or runway, and can fit onto a single pallet position and loaded onto a mobility aircraft's ramp—a place an Army wheeled vehicle like the HIMARS would not occupy.[39] Figure 2 depicts the range a T-UAS can detect maritime targets.

When paired with a PrSM equipped HIMARS, this would provide a light and lean F2T2EA system for counter-maritime and land-based targets like PLA landing craft, disembarked vehicles, and escorting PLAN destroyers and cruisers. If additional T-UAS were added to the equation in the form of one-way attack aircraft, M-ACE enabled temporary long-range strike positions could provide a high-low strike mix with enough mass to overwhelm PLAN and PLA defenses during an invasion or blockade. As the technology matures, the range and sensing of T-UAS will increase, and T-UAS mesh

35. Joe Mroszczyk, "Multi-Domain Effects Battalion: Space Integration and Effects in Multidomain Operations," *Military Review*, Space and Missile Defense (2024): 96, https://www.armyupress.army.mil/.

36. "Jump 20 VTOL Fixed-Wing," AV [AeroVironment], accessed 27 August 2025, https://www.avinc.com/.

37. "Jump 20"; and "NSP-7: Multi-Mode, Multi-Domain SAR/MTI Radar," IMSAR, accessed 27 August 2025, https://www.imsar.com/.

38. "Jump 20."

39. "Jump 20."

networks—a capability on the near horizon—will pair well with future PrSM increments.[40] Yet, the range of the current systems, especially when paired with the Air Force special tactics' distributed C2 architecture and other passive sensors, has the mobility and capabilities required to provide targeting information in a contested environment when space-based capabilities are denied.

Army of One Multi-Domain Task Force

Given the range and multi-domain strike capabilities of the Army's and Marine Corps' long-range missile systems, they clearly will have a role in a conflict with China. If the Army and Marine Corps plan to deploy these capabilities as a stand-in force in the first island chain prior to conflict, why would a joint employment concept be necessary for mission success? While the small size of the Marine Corps NMESIS lends itself to camouflage and concealment in the expeditionary advanced base operations concept, the Army's battery-based structure with command vehicles and prime movers, generators, and other support vehicles have the same large signature problems as Air Force fighter airfields. While these systems are road-mobile, the large battalion support package footprint makes these ground forces unlikely to go undetected and get inside of the PLARF's theater ballistic, hypersonic, and cruise missile targeting cycle. The M-ACE concept eliminates much of the Army's forward-deployed support tail that enables the multi-domain task force. The HIMARS battery has proven this concept in multiple HIRAIN exercises, and similar aircraft mobile packages could be developed for Typhon.

The Army is organizing its forces to satisfy multiple geographic combatant commands, and would face access, placement, and mobility challenges to ensure missiles are at the point of need in relevant timelines. The regionally aligned concept of the Army's five MDTFs make it clear that only 20 percent of the US Typhon and PrSM assets may be a stand-in force in the first island chain at the outset of the conflict.[41] Organic movement and maneuver of MDTF battalions in the first island chain is limited to aging allied road networks, where the speed of movement is limited and the range is limited to the island's geography. In a war with China, it is likely these systems will not be at the point of need in a rapidly changing conflict. Even if the Army dedicated 100 percent of its MDTFs to the Western Pacific, it is not guaranteed to have access and placement to desired locations for political reasons during competition. If it gains this access, the Army may be unable to employ long-range fires from the host nation's territory if that nation is not a party to the conflict. As currently planned, the deployment of MDTF battalions in the Western Pacific would face limited mobility with the same A2/AD challenges as the Air Force,

40. Ryan Schradin, "Unlocking Drone Potential: How Mobile Mesh Networking Enhances Tactical Operations for Public Safety and Military Operators," *The Last Mile*, 2 November 2023, https://thelastmile.gotennapro.com/.

41. Feickert, *Typhon*.

without an ACE capability, and may be out of position and unable to provide long-range strike should conflict come.

The Army is adapting to meet the PLA's force design by developing weapon systems that operate beyond the land domain. The air domain is the most advantageous, given the widely dispersed island geography of the Western Pacific, and the ability to strike maritime targets is essential in a theater of islands and vast oceans. The Army is pouring resources into theater ballistic and cruise missiles, Groups 1 to 4 UAS, high-altitude balloons, a diversified air and missile defense portfolio, and likely anything else that flies.

The Air Force is ceding the high ground—the air domain—to the Army. The Air Force has been the branch with long-range strike expertise since the Air Corps created the concept in World War II. Theater ballistic, hypersonic, and cruise missiles are just unmanned aircraft systems by another name. Since the demise of the Intermediate-Range Nuclear Force Treaty in 2019—which restricted the United States and Russia from possessing and producing intermediate-range (500 to 5,500 km) conventional and nuclear missiles—the Army has moved to develop weapons in that domain.[42]

Yet the Air Force should be the service conducting long-range strike from the air, be it with bombers, fighters, one-way attack UAS, or ballistic and cruise missiles. Across the military, the Air Force is the service that has target analysts with expertise in long-range strike operations and the ability to rapidly process the find-fix-track-target portion of the targeting cycle, enabling dynamic, long-range strike. Similarly, the Air Force should continue to lead in the UAS field—at a minimum Groups 3 to 5 UAS, including ISR, strike, C2 nodes, collaborative combat aircraft, and one-way attack UAS. Now is the time for the Department of Defense to reassess the roles and missions of the services, especially mission creep of the services, and reallocate resources accordingly. The Air Force should be the one to lead the way in all aspects of airpower.

The Future of Ace and Airpower

China has studied the American way of war and understands its strengths and vulnerabilities, building its force design around countering such strengths, including American airpower. So far, agile combat employment is the Air Force's answer to the People Liberation Army's anti-access/area denial force design; however, it is a one-dimensional approach that has devolved from a light and lean concept to a logistically heavy and vulnerable operational concept. Should China choose to invade or blockade Taiwan, or violate the territorial integrity of the Philippines, a missile-ACE concept that combines joint concepts in the air domain would give the joint force additional options for long-range strike, taking the best aspects of ACE and pairing them with long-range strike capabilities against land and maritime targets in what is sure to be a contested environment.

42. C. Todd Lopez, "U.S. Withdraws from Intermediate-Range Nuclear Forces Treaty," DOD, 2 August 2019, https://www.defense.gov/.

Utilizing a M-ACE concept to build out a missile force organized, trained, and equipped for rapid mobility—even one based as far away as Australia or in Hawaii or Alaska—would provide a missile force "in being" in the first island chain, with an alert force that can be in place in hours. This would be a powerful deterrent to decisionmakers in Beijing as an opposing A2/AD network would be ready to overlap its own, centered on Taiwan. Finally, the Air Force should reassert its role as the lead service for all aspects of the air domain, taking the best parts of emerging joint concepts and designing an Air Force that meets the challenges of the twenty-first century.