AIR FORCE DOCTRINE NOTE 1-21

AGILE COMBAT EMPLOYMENT

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From its founding, the US Air Force has been tasked with projecting combat power across the globe. Historically, it has relied on a combination of continental US and overseas air bases to allow for relatively uncontested movement and operational reach to posture and employ forces and capabilities. However, since the Cold War ended, the Air Force has significantly reduced its global footprint. From 93 air bases during World War II, the Air Force presently maintains 33 permanent overseas air bases[1], a 65% reduction. This reduction challenges the Air Force's ability to project power while simultaneously concentrating friendly high value assets for potential adversary action.

Concurrently with the global footprint reduction, adversarial technological advances in pervasive intelligence, surveillance, and reconnaissance and all-domain long-range fires have placed air bases at significantly increased risk. Just as the Soviets placed Cold War bases in Europe at risk, new weapons systems now place bases at risk that were previously considered sanctuaries. Additionally, fiscal and political constraints limit the establishment of new permanent air bases. To address these challenges, the Air Force introduced **Agile Combat Employment (ACE): a proactive and reactive operational scheme of maneuver executed within threat timelines to increase survivability while generating combat power throughout the integrated deterrence continuum**.

When applied correctly, ACE complicates the enemy's targeting process, creates political and operational dilemmas for the enemy, and creates flexibility for friendly forces. To effectively accomplish joint force commander objectives, ACE requires reexamining a wide variety of enabling systems, to include: command and control (C2); logistics under attack; counter-small unmanned aircraft systems; air and missile defense; and offensive and defensive space and cyber capabilities.

[1] Department of Defense, *Base Structure Report – Fiscal Year 2018 Baseline* (Washington, DC: Deputy Assistant Secretary of Defense [Infrastructure], 2018).

ACE is an operational concept that supports joint all-domain operations (JADO). Joint force operations are increasingly interconnected, interdependent, and challenged. Anti-access and area denial threats, reduced freedom of maneuver, and rapid proliferation of advanced technologies challenge the Air Force's ability to operate. The successful employment of ACE positions the force to observe, orient, decide, and act in concert across all domains. To achieve freedom of action, ACE enables convergence across domains, presenting an adversary with dilemmas at an operational tempo that complicates or negates adversary responses and enables the joint force to operate inside the adversary's decision-making cycle.

> *"The best place to kill an enemy's air force is on the ground. Especially if that air force is postured in bases that are few in number and lack passive defenses — such as shelters and decoys — and active defenses such as kinetic and non-kinetic interceptors, electronic warfare, and directed-energy weapons that can help counter these air and missile threats."*
>
> **-- Mark Gunzinger**
> Director of Government Programs and War Gaming,
> Mitchell Institute for Aerospace Studies

This doctrine note is intended to guide the development of ACE within Air Force operational doctrine. It establishes working definitions and a framework for ACE doctrine development. It includes an overview of evolving doctrine topics and provides the starting point for Airmen to codify best practices for ACE throughout integrated deterrence. This doctrine note focuses on ACE enablers and the ACE operations framework. It lays the foundation for the future development of ACE doctrine, aligns with the joint functions, and focuses on planning, execution, and assessment for operations executed from competition through conflict.

WORKING DEFINITIONS OF KEY TERMS

Please note, these are working definitions, are derived from a variety of sources, and are placed here to facilitate further discussion. Their final wording in doctrine may differ.

Agile: Able to outpace adversary action through movement and maneuver to achieve commander's intent.

Agile Combat Employment: A proactive and reactive operational scheme of maneuver executed within threat timelines to increase resiliency and survivability while generating combat power throughout the integrated deterrence continuum.

Mission Command: The conduct of military operations through decentralized execution based upon mission type orders (MTO).[2]

[2] Joint Publication 3-31, *Joint Land Operations*.

Multi-Capable Airmen: Airmen capable of accomplishing tasks outside of their core Air Force Specialty. Specifically, these personnel are often trained as a cross-functional team to provide combat support and combat service support to ACE force elements. They are enabled by cross-utilization training and can operate independently in an expeditionary environment to accomplish mission objectives within acceptable levels of risk.

Proactive Maneuver: A scheme of maneuver by which forces and assets are moved between main operating bases (MOB), forward operating sites (FOS), cooperative security locations (CSL), and contingency locations (CL) (see appendix) to assure allies and partner nations of US support, alter adversary or enemy understanding of friendly intentions and capabilities, posture to deter aggression, or gain a positional advantage.

Reactive Maneuver: A scheme of maneuver employed in response to observed, perceived, anticipated, or realized enemy aggression using mobility and dispersion of forces and assets to complicate enemy targeting, redistributing forces away from concentrated hubs, increasing survivability, and repositioning forces for follow-on operations.

Threat Timelines: Theater-specific planning factors based on the time required for an adversary to accomplish its find, fix, track, target, engage, and assess cycle.

HOW IS ACE DIFFERENT?

The US faces adversaries capable of wielding a disruptive and dangerous operational reach with mass, precision, and speed in all domains. Adversaries can challenge the US's ability to project power from MOBs, often large and centralized physical structures with unprotected infrastructure. To address this threat, ACE shifts operations from centralized physical infrastructures to a network of smaller, dispersed locations that can complicate adversary planning and provide more options for joint force commanders. Its value derives from the ability to hold adversary targets at risk from multiple locations that are defensible, sustainable, and relocatable. Airmen should expect to conduct operations at a speed, scope, complexity, and scale exceeding recent campaigns from distributed locations.

ACE Operations, Activities, and Investments ACE operations present commanders with options to initiate, continue or reestablish operations while balancing associated risk factors, as shown through a few examples below.	
Continuum event	**ACE operations, activities, and investments**
Cooperation	✪ Create steady-state and contingency authorities with partner nations which allow for: overflight, direct coordination with host nation defense, staging of material/equipment, etc. ✪ Organize, Train, and Equip forces for ACE constructs
Competition	✪ Exercise ACE operations and conduct capability demonstrations with joint forces and partner nations as an active deterrent to conflict ✪ Maintain freedom of access and maneuver
Conflict	✪ Conduct persistent mission generation and logistics under attack ✪ Complicate enemy observe-orient-decide-act loop ✪ Preserve combat capability ✪ Generate combat power

ACE ENABLERS

Achieving freedom of action and decision advantage can be achieved by creating multiple adversary dilemmas by forcing complex target situations. This **deters** aggression and enables the US to **defend and win** in conflict.[3] ACE achieves this through the following enablers:

✪ **Expeditionary and Multi-Capable Airmen**

✪ **Tailorable Force Packages**

EXPEDITIONARY AND MULTI-CAPABLE AIRMEN

The Air Force must refocus on the expeditionary skills necessary to operate outside of a MOB. Many Airmen must have diverse foundational skills that enable them to operate in a contested, degraded, and operationally limited environment with minimal support. Leaders mitigate risk to force by training Airmen to execute distributed operations that increase survivability while generating combat power.

ACE teams consist of unit-assigned multi-capable Airmen. These teams are tailored portions of force packages able to provide mission generation (MG), command and control, and base operating support (BOS) as the mission dictates. Functional communities must identify how to minimize equipment and personnel footprints to increase dispersal capabilities and complicate adversary targeting.

[3] COMUSAFE Public Affairs preparation for Military.com interview, 4 May 2020.

TAILORABLE FORCE PACKAGES

To meet theater requirements, ACE requires tailorable force packages with the ability to execute across a range of operating locations. Force structure and tailorable UTCs must be designed to enhance agility while also balancing risk to mission and force. Functional communities will work with commanders to define ACE force packages that will be reflected in existing, new, or updated UTCs.

> *"To generate combat power from a number of locations to create dilemmas for an adversary...I just need a runway, a ramp, a weapons trailer, a fuel bladder, and a pallet of [Meals, Ready-to-Eat]. That's maybe a little bit bold, but the point is, we've got to be light, lean and agile."*
>
> **-- General CQ Brown, Jr., Chief of Staff of the Air Force**
> Remarks to Air Force Association Air, Space, and Cyberspace Conference
> as Commander, Pacific Air Forces, September 2019

ACE OPERATIONS FRAMEWORK

To provide a common lexicon with joint partners, ACE consists of **five core elements**: **posture**, **C2**, **movement and maneuver**, **protection**, and **sustainment**. The latter four align with the joint functions. Together with the remaining joint functions (information, intelligence, and fires), the five core elements form the whole of ACE's operational framework.[4]

POSTURE

Posture is intrinsically tied to all other elements. **Forces must be able to rapidly execute operations from various locations with integrated capabilities and interoperability across the core functions.** It is the starting position from which subsequent actions take place. When executed properly, posture establishes a deterrent to conflict by being strategically predictable, but operationally unpredictable.[5] An effectively tailored posture provides commanders with expanded force employment options and mitigates operational risk. It provides an increased defensive posture by increasing the scope and scale of friendly force locations, boosts deterrence to adversary aggression, and assures allies by presenting a credible combat force. Posture redistributes both theater-assigned and follow-on forces to positions of advantage to best support operations plan execution. MOBs should be robust and should have the ability to support further dispersion to smaller CLs while maintaining integrated capabilities and interoperability across MG, C2, and BOS functions.

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[4] Joint Publication 3-0, *Joint Operations*.
[5] 2018 *National Defense Strategy.*

Operational unpredictability is enabled through agility of forces across pre-postured locations, increasing the number of locations an adversary must target. The increased number of dispersed locations presents adversaries with challenges from the tactical to the strategic level. It does this politically through nation agreements and financially by increasing the numerical offensive capability required to achieve intended effects. Operational locations should be identified based on the ability to support warfighting requirements and sustainment opportunities while balancing risk to force. Risk to force may prohibit massing personnel at locations inside enemy weapon engagement zones (e.g. unconventional ground forces, small unmanned aircraft systems (sUAS), ballistic missiles, cruise missiles, and hypersonic weapons). Risk management is critical to balancing survivability with combat operations tempo by stationing forces at varying proximities to the fight and associated threats. Providing the flexibility to rapidly re-route forces and equipment inbound to the theater is critical to successful ACE.

Operational planners should focus ACE efforts during the early stages on strengthening alliances, increasing partner capacity, and increasing the number of partner nation access agreements and locations within those nations. This requires a "whole of government" approach between the State Department, Department of Defense (DOD), and other US Government agencies. To achieve optimal sourcing decisions and enable ACE objectives, planners should consider establishing acquisition and cross-servicing agreements, host-nation support agreements, and integration of operational contract support equities across the air component command staff functions. As the quality and quantity of operational locations increase, ACE operations exponentially increase both the operational advantage to friendly forces as well as the political and operational dilemma for adversaries.

Distributed operations will exist on a spectrum from well-developed MOBs to CLs. Infrastructure improvements and associated pre-positioning of materiel at distributed operating locations is necessary to ensure respective theater plans are executable. Capability development includes: equipment and supply pre-positioning; scalable logistics packages; access to FOS, including partner military and civil airfields; resilient communications to function in distributed denied, disconnected, intermittent, or limited bandwidth (D-DIL) environments; and a force optimized for major combat operations in a contested environment. Finally, it is critical to understand local and regional commercial market capacity to source critical operational requirements to support distributed forces.

COMMAND AND CONTROL

Commanders in any conflict require the ability to conduct C2 across domains. Centralized command, distributed control, and decentralized execution provide the framework for the C2 of ACE.[6] Airmen should be able to translate C2 information into action at the speed and scale of relevance, regardless of the operational environment. Airmen should be trained and equipped to employ communications equipment to support distributed operations.

[6] Air Force Doctrine Publication (AFDP) 1, *The Air Force*.

Joint all-domain command and control (JADC2) and mission command enable Airmen and joint partners to gain operational advantage, maintain operational effectiveness, and achieve convergence of effects across domains. This is accomplished via the communication of commander's intent through issuance of MTOs in conjunction with delegated and conditions-based authorities, allowing operational commanders to generate combat airpower in a D-DIL environment. It is highly expected that elements conducting ACE will lose connectivity with operational C2; therefore it is imperative that units be trained to operate via commander's intent with limited direction from air operations centers or air component staffs. In situations where communications are degraded and forces lack continuous contact with higher echelon commands, Airmen should execute in alignment with the commander's intent to protect and preserve the force. Additionally, they should take advantage of emergent opportunities which allow the commander to maintain the initiative, and resolve situations locally based on a commander's own situational awareness. Codification of conditions-based authorities and delegated authorities will maximize the advantages provided by emergent opportunities.

JADO requires command authorities to be flexible and responsive to battlespace changes with respect to time, geography, communications, and command relationships. Because of distributed control's inherent complexity, specified elements of operational, tactical, and administrative control should be developed early, adapted to the situation, and exercised during day-to-day cooperative and competitive activities. Within this construct, effective ACE operations require significant coordination across service component commanders and industry partners to organize efficiently. These relationships and agreements should be established and rehearsed well ahead of any potential conflict. To contend with D-DIL environments, command authorities should be delegated to the lowest appropriate level. In an ACE scheme of maneuver, distributed control drives additional planning and coordination requirements at echelons below the operational level. Forces executing should have information that enables them to understand the current and expected threat environment, the overall plan, their role within it, status of forces, available support relationships, and the means to be used for coordinating actions at the times and places required. Leveraging advances in automated systems from mission and industry partners (e.g. artificial intelligence, automation, and augmentation & human-machine teaming) will play an important role in managing the increased workload.[7]

JADC2 facilitates the unification of efforts across all domains to exploit the advantages of joint and partner nation capabilities, providing mission commanders an ability to rapidly develop, execute, or transition between kill chains; overwhelming adversary defenses and presenting the enemy with multiple dilemmas. Enhanced all domain awareness, data sharing initiatives, and synchronization of forces translates decision advantage into operational advantage. Mission command supports combat effectiveness during the inevitable fog and friction of war. Redundant and resilient C2 nodes enable effective ACE execution. ACE operations require communications packages that are mobile, survivable, secure, and sustainable across the

[7] AFDP 3-99.

electromagnetic spectrum to provide personnel access to DOD networks and voice services in a D-DIL environment.

MOVEMENT AND MANEUVER

ACE provides greater agility and ability to outpace an adversary's action through movement and maneuver to achieve and fight from positions of advantage. Agility is capable of disrupting an adversary's decision cycle by creating multiple dilemmas with which they must contend.

Maneuver includes expansion of operational footprints and access throughout the theater to provide flexibility, deter adversaries, and support partners and allies. ACE maneuver includes movement of forces to pre-determined, dispersed locations and flow of dispersed forces back to a MOB. The maneuver of forces in this manner is intended to enhance MG efficiency and simplify sustainment. It can provide the ability to push combat and support elements forward for limited periods of time to accomplish offensive objectives.

Dispersal operations complicate enemy targeting by either redistributing forces away from concentrated hubs into multiple operating locations, or by redistributing forces within an established air base (also known as base dispersals or "on the MOB dispersals"). Once dispersed, friendly forces maintain operational momentum via delegated control and mission command principles. Dispersal operations are augmented with other passive defense measures, such as hardening and camouflage.

ACE maneuver requires sufficient coordination of inter-theater and intra-theater transportation to move the force at the proper time and with sufficient tempo to achieve desired effects. Early planning and posturing can ensure airlift, ground movement, and sealift is employed with sufficient quantity, speed, and flexibility. Properly integrated into the planning cycle, operational contract support planners can provide optimized sourcing recommendations and options for the use of commercial support to reduce air, ground, and sea transportation requirements. Dispersal plans from specific MOBs to dispersed locations should be incorporated into theater operation plans to permit adequate equipment and personnel posturing as well as time phased force deployment data development.

PROTECTION

The *National Defense Strategy* highlights that air bases are no longer considered a sanctuary from attack, regardless of their location. To stay in the fight, forces must operate in and through contested environments. A combination of active and passive defenses are necessary to counter threats in all domains. Posturing a robust and layered integrated air & missile defense (IAMD) is paramount to protect the force from present and future threats to include: sUAS, cruise missiles, ballistic missiles, and hypersonic weapons.

A strategy that implements layered IAMD capabilities with robust defensive measures complicates and frustrates enemy targeting. Additionally, all installations should be prepared to defend against air, space, cyberspace, surface-to-surface, and ground threats throughout the conflict. Protection strategies enable Airmen to prevent, protect, mitigate, respond to, and recover from attacks while rapidly reconstituting and continuing to generate combat airpower throughout.

MOB-focused force protection plans and strategies prove insufficient to meet the needs of short-term or dispersed operations. Pre-planned integration of joint or host nation security assets for dispersed operations is paramount. Additionally, on-demand force protection intelligence support is critical to ACE operations. Proactively providing planners and leaders with information enables quality basing and risk mitigation decisions. Continuance of intelligence and counterintelligence (CI) activities leading up to and through conflict initiation informs commanders' risk calculus when executing reactive maneuver or other protection actions. Air Force intelligence, CI, force protection, emergency management, and law enforcement entities should leverage existing relationships with joint and host nation entities to coordinate supplementary on-demand force protection and intelligence support for ACE operations. Finally, intelligence and CI entities should work closely with planners and supporting contracting activities to develop and maintain actionable information related to vendors and contractors in the operational environment, especially regarding their potential allegiance to and partnership with an adversary.

SUSTAINMENT

ACE will challenge current logistics systems and transportation nodes. Supply and distribution systems need to transform from a fully connected "pull" system, optimized for efficient operations, to a "push" system that maximizes distributed mission effectiveness.[8] The Air Force should anticipate limitations to standard means of distribution and transportation, and leverage an adaptive logistic system to support operations in these environments. Leveraging local and regional commercial markets can alleviate distribution system stress and provide critical services and equipment to distributed forces.

ACE Sustainment requires infrastructure innovation and full visibility of war reserve materiel (WRM) and non-WRM equipment. Innovative logistics and force projection capabilities are required to meet operational ACE needs as operations grow in scope and scale due to the increase in operating locations.

Current Air Force basing logistics systems are challenged to project, protect, and sustain the force in a dynamic, contested operational environment.[9] The processes of setting the theater, deploying the force, and maneuvering the force depend on robust,

[8] A pull system emphasizes efficiency through a "just in time" logistics system, where supplies are pulled forward on an as needed basis. Whereas, a push system emphasizes effectiveness, at efficiency's expense, by anticipating the need and ensuring supplies are on hand before they are needed.
[9] USAF Expeditionary Center, *Agile Combat Employment for Force Providers, Version 2.0*, 11 April 2020.

resilient, and responsive logistics and infrastructure support and must withstand an adversary's disruption strategy. Diversification of sustainment by using multiple sources such as support agreements and contracted support reduces stress on traditional logistics systems, contributes to maneuver unpredictability, and utilizes host nation resources.

As dispersed sites grow in number across a wider operational area, sustainment plans and systems should also be capable of scaling sustainment operations to match. ACE sustainment plans should focus primarily on aircraft sortie generation, but should also include the ability to execute implied tasks such as receiving airlift or sealift for resupply, executing BOS functions, and contracting local services, supplies, and equipment.

INFORMATION

Effective conduct of information warfare is a key element of ACE. All ACE actions, including written or spoken words and displayed or related images, have informational aspects that communicate some message or intent. This message or intent can be leveraged to shape perceptions and behaviors in ways that support the achievement of friendly force objectives. Overt messaging about ACE can be used to: communicate the ability to rapidly disperse assets, aircraft, and personnel across a wide range of potential forward operating locations; and leverage host nation organic capabilities, assets, and partner nation cooperative agreements.

In the planning and execution of proactive or reactive ACE schemes of maneuver, the deceptive use of information can induce an adversary to errantly diffuse or concentrate forces, rendering them ineffective. Similarly, it can induce a state of "analysis paralysis" about ACE maneuver that challenges an adversary's ability to make effective, timely decisions.

ACE supports information warfare's aim of shaping the perceptions, behaviors, and attitudes of relevant actors throughout integrated deterrence.[10] The effective integration of information into ACE schemes of maneuver can bolster assurance and deterrence by revealing overall joint force capabilities to deny adversary benefits or punish aggression, conceal or obscure aspects that provide perishable advantage, or suggest elements that mislead adversaries. ACE preparation demonstrates and signals a combat-credible deterrent to adversaries and provides assurance to partners and allies.

INTELLIGENCE

Intelligence and CI should be prepared to support operations in a D-DIL environment characterized by mission command, and rapidly changing basing. Support to expeditionary mission generation units and the Contingency Intelligence Network will further enable the ability to project desired affects via air operations. Force protection-related intelligence and CI activities enable survivability of operations by providing

[10] AFDP 3-99.

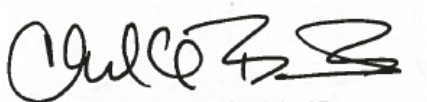
commanders current, time-sensitive, critical information and intelligence necessary to make risk decisions regarding maneuver. This intelligence and CI gathering should precede operational ACE execution to identify all potential kinetic, non-kinetic, and foreign intelligence threats. Intelligence preparation of the operational environment and Intelligence preparation of the battlespace identifies enemy capabilities and threats to proposed ACE operating locations. The intelligence and CI community must also consider threats from commercial vendors and contractors. In locations without a current presence, the US should initiate and develop new relationships with individuals and organizations capable of providing desired information.

FIRES

ACE scheme of maneuver ensures the ability to mass fires to achieve convergence of effects in all domains, to include coordinated ground-based fires in defense of an airfield and its ability to generate aircraft. The execution of fires does not fundamentally change in ACE execution but requires use of MTO and delegation of authorities to the lowest appropriate level. Plans should account for the timelines that may be required to aggregate forces originating from different forward operating sites to create effects against a common target. Under the DOD's vision for JADO, fires may be delivered by air, space, cyberspace, land, maritime, and special operations forces.

CONCLUSION

ACE requires a revolutionary change in how the Air Force thinks about and conducts operations within the modern operational environment. This doctrine note informs relevant and forward-looking ACE concepts and provides a mechanism to quickly evolve doctrine to adapt to an ever-changing security environment. The intent of this doctrine note is to share information and generate discussion across the force. As ACE operations continue to mature through employment in field operations and exercises, feedback and lessons learned will continue to feed the evolution of this emerging doctrine.



CHARLES Q. BROWN, JR.
General, USAF
Chief of Staff of the Air Force

APPENDIX: QUICK REFERENCE LIST OF OPERATING LOCATIONS

Enduring Locations			Contingency Locations		
Main Operating Base (MOB)	Forward Operating Site (FOS)	Cooperative Security Location (CSL)	Semipermanent Contingency Location (SCL)	Temporary Contingency Location (TCL)	Initial Contingency Location (ICL)
A facility outside the United States and its territories with permanently stationed operating forces and robust infrastructure.	A scalable location outside the United States and its territories intended for rotational use by operating forces.	A facility located outside the United States and its territories with little or no permanent United States presence that is maintained by periodic Service, contractor, or host nation support.	A contingency location that provides support for a prolonged contingency operation and characterized by enhanced infrastructure and support services consistent with sustained operations.	A locale that provides near-term support for a contingency operation and characterized by expedient infrastructure and support services that have been expanded beyond Service-organic capabilities.	A locale occupied by a force in immediate response to a contingency operation and characterized by austere infrastructure and limited services with little or no external support except through Service-organic capabilities.