



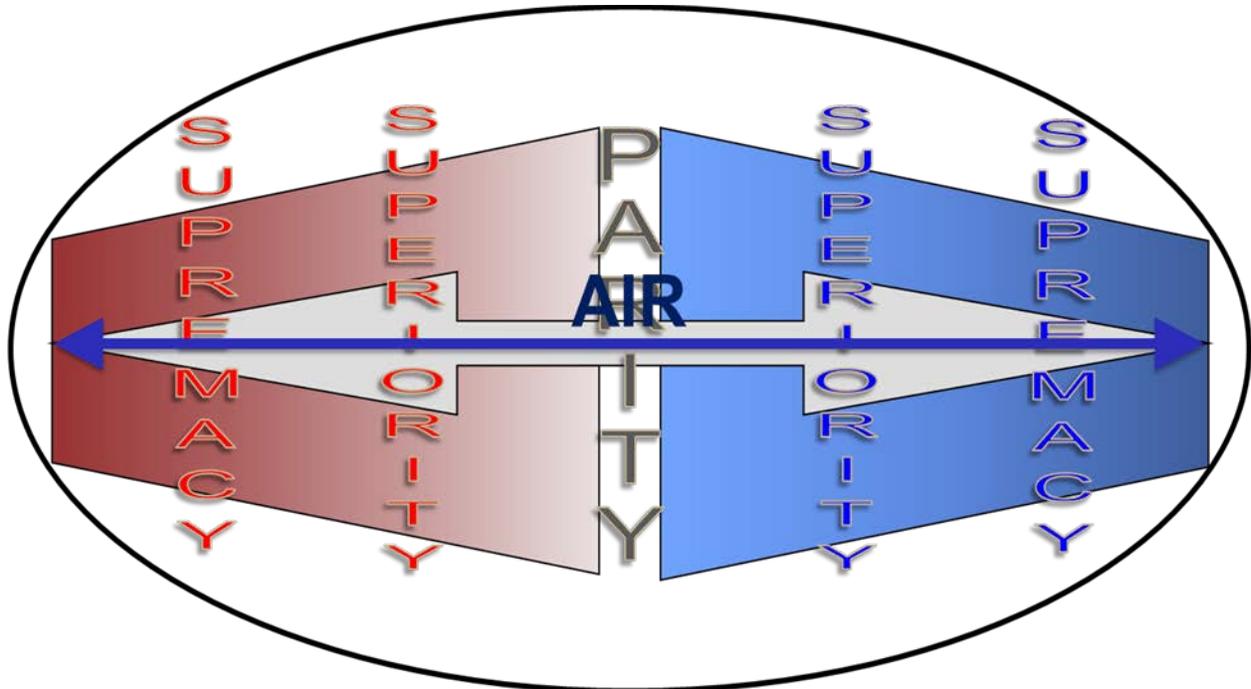
## ANNEX 3-01 COUNTERAIR OPERATIONS

### COUNTERAIR OPERATIONS

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The [counterair](#) mission integrates offensive and defensive operations to attain and maintain a desired degree of control of the air and of protection by neutralizing or destroying enemy aircraft and missiles, along with threats to air operations from other domains. Counterair operations are conducted across all domains and determine the level or degree of control of the air. **Control of the air describes a level of influence in the air domain relative to that of an adversary, and is typically categorized as parity, superiority, or supremacy.** The degree of control lies within a spectrum that can be enjoyed by any combatant. This can range from a parity (or neutral) situation, where neither adversary can claim control over the other, to air superiority, to air supremacy over an entire operational area, all depending upon the situation and the joint force commander's (JFC's) concept of operations. The figure, "Control of the Air Continuum," defines the degrees of operational area control and illustrates their relationship. The desired degree of control of the air is typically at least air superiority to enable the successful execution of joint operations such as strategic attack, interdiction, and close air support. In a peer or near-peer conflict, air superiority may not be able to be achieved in all places or at all times.

Normally, counterair operations are classified as offensive or defensive. However, airpower's inherent flexibility allows missions and aircraft to shift from defensive to offensive (or vice versa) to adapt to changing conditions in the operational environment. Counterair operations can be conducted across the tactical, operational, and strategic [levels of war](#) by any component or element of the joint force. Operations may be conducted over and in enemy, friendly, and international airspace, land, and waters; as well as in space and cyberspace. They range from seeking out and destroying the enemy's aircraft (manned and unmanned) and missiles (air-to-air, surface-to-air, cruise, and ballistic), through measures designed to minimize the effectiveness of those systems, to countering efforts to contest control of the air through use of other domains such as space and cyberspace. The JFC's objectives and desired effects determine when, where, and how these operations are conducted to gain the desired degree of control of the air.



**Control of the Air Continuum**

- ✦ **Air parity.** Air parity is described as a condition **in which no force has control of the air**. This represents a situation in which both friendly and adversary land, maritime, and air operations may encounter significant interference by the opposing force. Parity is not a standoff, nor does it mean aerial maneuver or ballistic missile operations have halted. On the contrary, parity may be typified by fleeting, intensely contested battles at critical points during an operation with maximum effort exerted between combatants in their attempt to achieve some level of favorable control.
- ✦ **Air superiority.** Air superiority is **that degree of control of the air by one force that permits the conduct of its operations at a given time and place without prohibitive interference from air and missile threats** (Joint Publication [JP] 3-01, [Countering Air and Missile Threats](#)). Air superiority may be localized in space (horizontally and vertically) and in time, or it may be broad and enduring.
- ✦ **Air supremacy.** Air supremacy is **that degree of control of the air wherein the opposing force is incapable of effective interference within the operational area using air and missile threats** (JP 3-01, [Countering Air and Missile Threats](#)). Air supremacy may be localized in space (horizontally and vertically) and in time, or it may be broad and enduring. This is the highest level of control of the air that air forces can pursue. Air supremacy may be difficult to achieve in a peer or near-peer conflict.

Control of the air hinges on preventing *prohibitive or effective* interference to friendly forces in the air domain from enemy forces, which would prevent friendly forces from creating their desired effects. Air supremacy prevents *effective* interference, which does

not mean *no* interference exists, but any attempted interference can be easily countered or should be so negligible as to have little or no effect on operations. While air supremacy is most desirable, it may not be operationally feasible. Air superiority, even local or mission-specific, may provide sufficient freedom of action to create desired effects. Therefore, commanders should determine the minimum level of control of the air required to accomplish their mission and assign an appropriate level of effort to achieve it.

### So What Is...Parity, Superiority, or Supremacy? It Depends...



In modern warfare, parity is often not recognized at the moment it exists. It is more easily identified when viewed in a historical context as the point in time just prior to when momentum swung to favor one combat force over another. During the 1973 Arab-Israeli War, Egyptian surface-to-air missile (SAM) batteries in the Sinai desert were employed so effectively that the Israeli Air Force—an otherwise extremely effective force—could not accomplish its mission with traditional tactics of air interdiction or suppression of enemy air defenses, the Egyptian air force was similarly unable to interfere with Israeli maneuver creating an Air Parity situation.



Both air and ground force maneuvering essentially came to a halt for a 48 hour period. The stalemate—the period of air parity—was not broken until the Israelis changed tactics by using direct infantry attacks on the Egyptian SAM system, an example of integrating capabilities of the full joint force into counterair operations. Those attacks swung the momentum back to the Israeli side by allowing their Air Force to regain control of the air domain, and eventually assert air superiority across the entire front.



By war's end, the Israeli Air Force was virtually unchallenged in the sky, and had therefore established air supremacy.

—Various Sources

The continuing proliferation of weapons of mass destruction (WMD) increases the importance of control of the air. Several nations have advanced air-to-surface and surface-to-surface missiles capable of delivering WMD. In addition, the electromagnetic warfare<sup>2</sup> capabilities of some potential adversaries have advanced to near parity with, or in some cases exceeded, those of the United States. This may enable aircraft capable of delivering WMD to penetrate friendly air defenses. Mobile missiles, cruise missiles, and unmanned aircraft systems pose a significant threat to friendly forces and populations. The ability to locate and destroy these systems prior to launch remains a challenge for effective counterair operations.

Like other air, space, and cyberspace operations, counterair is fundamentally effects based. This means that counterair operations are designed, planned, executed, assessed, and adapted in order to influence or change system behavior to achieve desired outcomes. Effective counterair operations should be part of a larger, coherent plan that logically ties the overall operation's end state to all objectives and effects and tasks. This plan should guide execution and the means of gaining feedback; measuring success must be planned for and evaluated throughout and after execution. This approach should consider all potential instruments of power and all available means to achieve desired effects, and must consider the entire operational environment. The operational environment is a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0, [Joint Operations](#)). Non-military instruments of national power may not seem relevant to counterair operations, but they can be decisively important in certain circumstances, as when diplomatic efforts permit or deny basing or overflight rights that critically impact counterair efforts. Conversely, counterair capability can help deter hostile adversary action by providing a credible military threat to enemy maneuver and freedom to attack.

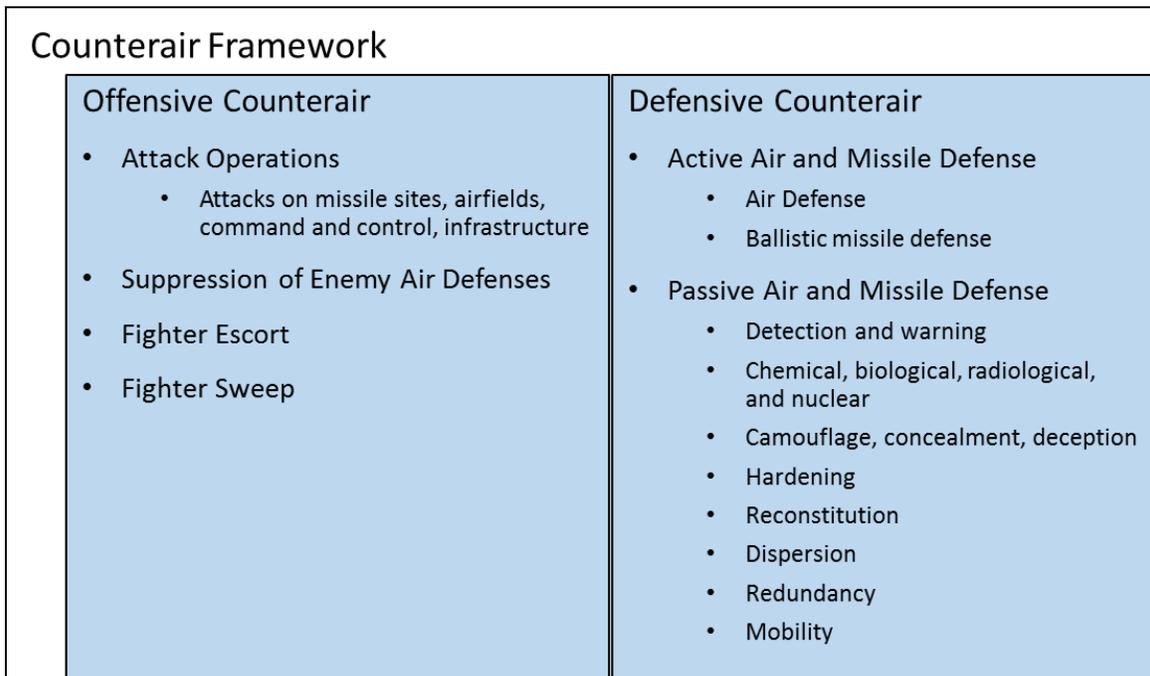
In an effects-based framework, effects fall into two broad categories: direct effects, or those immediate outcomes created by "blue" (friendly) actions, and indirect effects, higher-order effects created upon "red" (adversary) or "gray" (neutral) actors within the operational environment. The counterair framework, illustrated in the figure "The Counterair Framework," shows typical "blue" actions taken to create effects in support of counterair operations.

Counterair is the foundational framework at the theater level. It describes a number of different tasks or missions, each of which is described below. Note that in many cases the distinctions between the categories may blur. For example, an attack on an enemy SAM site may be considered an attack operation or suppression of enemy air defenses (SEAD). The finer distinctions do not substantially change the way operations are

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<sup>2</sup> Air Force language has evolved from using the term "electronic warfare" (and related terms such as "electronic attack" to refer now to "electromagnetic warfare". The legacy term, "electronic," speaks to actions to attack and protect the electronic circuits associated with radios and radars. With expanded use of the electromagnetic spectrum (e.g., infrared applications, lasers, microwave and satellite communications, computers) the broader term "electromagnetic" is more technically accurate. This evolution also anticipates a similar change in joint doctrine. For more information, see Annex 3-51, [Electromagnetic Warfare and Electromagnetic Spectrum Operations](#).

conducted, but may help Airmen to understand the elements of [offensive counterair](#) (OCA) and [defensive counterair](#) (DCA).



**The Counterair Framework**  
(Based on JP 3-01)

## OFFENSIVE COUNTERAIR

Different types of OCA operations are used to achieve specific counterair effects. Tasked units normally have decentralized execution authority and are given significant latitude in the detailed planning and coordination of the tasks. OCA efforts should be properly planned for, directed, and integrated with other offensive operations. OCA operations, in addition to supporting operations against adversary air and missile targets, support missions such as strategic attack, air interdiction, and close air support.

- ★ **Attack operations.** Attack operations are intended to destroy, disrupt, or degrade counterair targets on the ground and may be accomplished through kinetic or non-kinetic actions. These missions are directed against enemy air and missile threats, their command and control, and their support infrastructure (e.g., airfields, launch sites, launchers, fuel, supplies, and runways). The main goal is to prevent enemy employment of air and missile capabilities.
- ★ **Suppression of enemy air defenses.** Activity to neutralize, destroy, or degrade enemy surface-based air defenses by destructive or disruptive means. SEAD requirements may vary according to mission requirements, system capabilities, and threat complexity. SEAD planners should coordinate with intelligence, surveillance, and reconnaissance (ISR) operators to ensure collection and exploitation

opportunities are considered prior to destroying or disrupting emitters. SEAD operations fall into three categories:

- ✪✪ **Area of responsibility / joint operating area (JOA) air defense system suppression:** Operations conducted against specific enemy air defense systems to destroy, disrupt, or degrade their effectiveness. It targets high-payoff air defense assets, resulting in the greatest degradation of the enemy's total system and enabling effective friendly operations.
- ✪✪ **Localized suppression:** Operations normally confined to geographical areas associated with specific ground targets or friendly transit routes, contributing to local air superiority.
- ✪✪ **Opportune suppression:** Usually unplanned, including aircrew self-defense and attack against targets of opportunity. The joint force commander (JFC) or [joint force air component commander](#) (JFACC) normally establishes specific [rules of engagement](#) (ROE) to permit airborne assets the ability to conduct opportune suppression.
- ✪ **Fighter escort.** Fighter escort provides dedicated protection sorties by air-to-air capable fighters in support of other offensive air and air support operations over enemy territory or in a DCA role to protect aircraft such as high-value airborne assets (HVAAAs).
- ✪ **Fighter sweep.** An offensive mission by fighter aircraft to seek out and destroy enemy aircraft or targets of opportunity in a designated area. Normally, fighter sweeps are conducted in order to achieve local or joint operations area air superiority. The need for fighter sweep missions versus attack operations will depend on the air and missile threat and JFC or JFACC objectives.

## DEFENSIVE COUNTERAIR

Several types of DCA tasks also help to provide a permissive environment for friendly air action.

- ✪ **Active air and missile defense (AMD).** Active AMD is direct defensive action taken to destroy, nullify, or reduce the effectiveness of hostile air and ballistic missile threats against friendly forces and assets. It includes actions to counter enemy manned and unmanned aircraft, aerodynamic missiles (cruise, air-to-surface, & air-to-air), and ballistic missiles.
- ✪✪ **Air Defense.** Defensive measures designed to destroy attacking aircraft and aerodynamic missiles, or to nullify or reduce the effectiveness of such attack. It includes the use of aircraft, surface-to-air missiles, anti-aircraft artillery, electromagnetic warfare (including directed energy), multiple sensors, and other available weapons or capabilities.

- ☆☆ **Ballistic Missile Defense (BMD).** Defensive measures designed to destroy attacking enemy ballistic missiles, or to nullify or reduce the effectiveness of such attacks. Integration of BMD systems will allow for a defense in depth, with the potential for multiple engagements that increase the probability for success.

These actions are closely integrated to form essential DCA capabilities, but may involve different defensive weapon systems or tactics, techniques and procedures.

- ☆☆ **Passive air and missile defense.** Passive AMD includes all measures, other than active AMD, taken to minimize the effectiveness of hostile air and missile threats against friendly forces and assets. It consists of several categories of activities. Passive AMD measures are considered the same for air and missile threats, with one exception: detection and warning of ballistic missile attack is normally provided by supporting assets from outside the theater / JOA in concert with deployed command and control systems and sensors. These are briefly summarized in the section on execution considerations for passive defense:

- ☆☆ Detection and warning.

- ☆☆ Chemical, biological, radiological, and nuclear defenses.

- ☆☆ Camouflage, concealment, and deception (including passive countermeasures designed to reduce electronic and infrared signatures, and low-observable [stealth] technology).

- ☆☆ Hardening.

- ☆☆ Reconstitution.

- ☆☆ Dispersion.

- ☆☆ Redundancy.

- ☆☆ Mobility.

The list of potential counterair effects is endless and will vary from operation to operation. Nonetheless, there are certain considerations applicable to planning, executing, and assessing counterair effects, which are detailed in the following sections.

## **INTEGRATED AIR AND MISSILE DEFENSE (IAMD)**

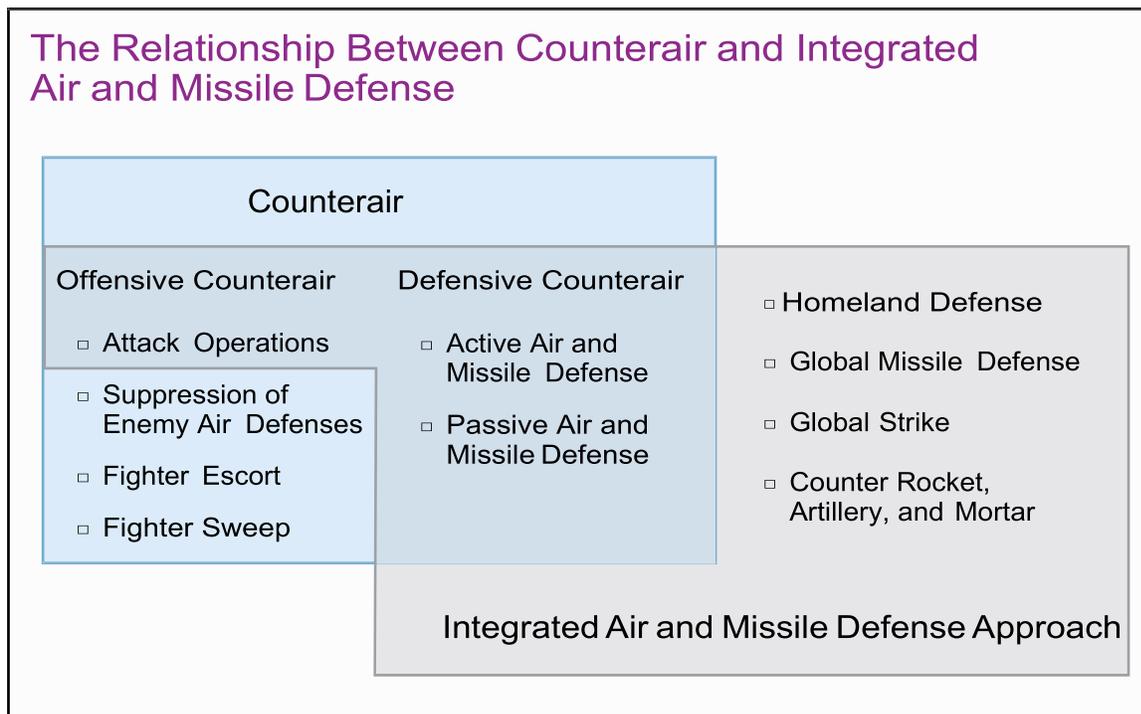
IAMD is the integration of capabilities and overlapping operations to defend the homeland and United States national interests, protect the joint force, and enable freedom of action by negating an adversary's ability to create adverse effects from their air and missile capabilities. IAMD is an approach to counter some but not all air and missile threats.

At the theater level, IAMD combines OCA attack operations and DCA operations to achieve the joint force commander's desired effects. Within the IAMD approach, OCA attack operations are commanded by the JFACC and DCA is commanded by the [area air defense commander](#) (AADC). The JFACC is responsible for integration between the offensive and defensive counterair components of IAMD. It is important to note that the OCA attack operations component of IAMD will not be planned and executed in isolation but rather be part of a wider offensive effort against a variety of enemy targets. Additionally, OCA attack operations include missions contributing to air superiority (e.g., attacks on enemy fighter airfields) which are not part of the IAMD approach.

At the tactical level, IAMD includes counter rocket, artillery, and mortar activities. These tactical level activities are the responsibility of the ground commander to execute; not the JFACC or AADC. Beyond the theater level, IAMD supports global missile defense, homeland defense, and global strike.

For further information on IAMD, see JP 3-01, [Countering Air and Missile Threats](#).

The relationship between counterair and the IAMD approach is illustrated in the figure below.



**The Relationship between Counterair and Integrated Air and Missile Defense**  
(Based on JP 3-01)