

# COUNTERSEA OPERATIONS



**Air Force Doctrine Document 2-1.4**  
**15 September 2005**

This document complements related discussion found in Joint Publication 3-30,  
*Command and Control for Joint Air Operations.*

## **SUMMARY OF REVISIONS**

This document is substantially revised. This revision's overarching changes are new chapter headings and sections, terminology progression to "air and space" from "aerospace," expanded discussion on planning and employment factors, operational considerations when conducting countersea operations, and effects-based methodology and the emphasis on operations vice capabilities or platforms.

Specific changes with this revision are the additions of the naval warfighter's perspective to enhance understanding the environment, doctrine, and operations of the maritime forces on page 3; comparison between Air Force and Navy/Marine Corp terminology, on page 7, included to ensure Air Force forces are aware of the difference in terms or semantics; a terminology matrix added to simplify that awareness on page 9; amphibious operations organization, command and control, and planning are also included throughout the document.

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Approved by: Bentley B. Rayburn, Major General, USAF

Commander, Headquarters Air Force Doctrine Center

## FOREWORD

*Countersea Operations* are about the use of Air Force capabilities in the maritime environment to accomplish the joint force commander's objectives. This doctrine supports DOD Directive 5100.1 requirements for surface sea surveillance, anti-air warfare, anti-surface ship warfare, and anti-submarine warfare. Air Force countersea operations are conducted in the maritime environment through counterair; strategic attack; air interdiction; close air support; and intelligence, surveillance, and reconnaissance operations. Air Force forces also provide vital air mobility support to maritime forces through air refueling.

The objective of countersea operations is to gain and maintain control of the maritime environment in order to achieve maritime superiority. Air Force forces, with their speed, range, and flexibility, offer the joint force commander the unique ability to exploit the air and space dimensions. Air Force forces are inherently capable whether achieving effects in the air, on land, or on the sea. Air, space, and information forces of the Air Force, working in concert with naval forces, make a significant contribution to US dominance of the maritime environment.

**BENTLEY B. RAYBURN**  
**Major General, USAF**  
**Commander, Air Force Doctrine Center**

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# INTRODUCTION

## PURPOSE

This document establishes doctrine guiding the employment of Air Force forces in countersea operations. It describes the critical role Air Force functions such as counterair and interdiction perform in the maritime environment. Additionally, it articulates the conventional wisdom of Airmen and provides guidance for conducting independent, joint, and multinational Air Force operations.

## APPLICATION

This Air Force Doctrine Document applies to all active duty, Air Force Reserve, Air National Guard, and civilian Air Force personnel. The doctrine in this document is authoritative, but not directive. Therefore, commanders need to consider the contents of this AFDD and the particular situation when accomplishing their missions. Airmen should read it, discuss it, and practice it.

## SCOPE

This doctrine primarily focuses on Air Force operations in the maritime environment. It emphasizes the roles of commander, Air Force forces, and joint force air and space component commander in these operations as the service component or functional commander to the joint force commander.

## **COMAFFOR / JFACC / CFACC**

### **A note on terminology**

One of the cornerstones of Air Force doctrine is that “the US Air Force prefers - and in fact, plans and trains - to employ through a commander, Air Force forces (COMAFFOR) who is also dual-hatted as a joint force air and space component commander (JFACC).” (AFDD 1)

To simplify the use of nomenclature, Air Force doctrine documents will assume the COMAFFOR is dual-hatted as the JFACC unless specifically stated otherwise. The term “COMAFFOR” refers to the Air Force Service component commander while the term “JFACC” refers to the joint component-level operational commander.

While both joint and Air Force doctrine state that one individual will normally be dual-hatted as COMAFFOR and JFACC, the two responsibilities are different, and should be executed through different staffs.

Normally, the COMAFFOR function executes operational control administrative control of assigned and attached Air Force forces through a Service A-staff while the JFACC function executes tactical control of joint air and space component forces through an air and space operations center (AOC).

When multinational operations are involved, the JFACC becomes a combined force air and space component commander (CFACC). Likewise, the air and space operations center, though commonly referred to as an AOC, in joint or combined operations is correctly known as a JAOC or CAOC.

## FOUNDATIONAL DOCTRINE STATEMENTS

Foundational doctrine statements are the basic principles and beliefs upon which Air Force doctrine documents (AFDDs) are built. Other information in the AFDDs expands on or supports these statements.

- ★ Countersea operations are those operations conducted to attain and maintain a desired degree of maritime superiority by the destruction, disruption, delay, diversion, or other neutralization of threats in the maritime environment (page 1).
- ★ Air Force forces achieve effects in the maritime environment through the integrated employment of air and space operations. (Page 1)
- ★ Countersea operations are equally relevant to shallow littoral “brown” water as well as the deep “blue” water environment. (Page 2)
- ★ Air Force capabilities can extend the reach and increase the flexibility of naval surface, subsurface, and aviation assets, playing a key role in controlling the maritime environment. Air Force and Navy capabilities synergistically employed enable the joint force to control the maritime environment. (Page 2)
- ★ US military airpower is particularly suited to dominating the maritime environment by virtue of its inherent offensive character, precision, speed, range, and flexibility. (Page 7)
- ★ Air Force forces can provide rapid and large area coverage and often engage the adversary long before other forces arrive, transitioning swiftly from defensive to offensive roles to dominate the maritime environment. (Page 7)
- ★ Command relationships should be tailored to account for supported and supporting roles in joint or multinational actions. (Page 12)
- ★ Regardless of the support relationship, Air Force forces are best utilized when employed by a single air component commander exercising centralized control and decentralized execution of joint air operations. (Page 12)
- ★ The commander, Air Force forces, whether acting as Service component commander or dual-hatted as joint force air and space component commander, should be prepared and equipped to perform countersea operations either in support of maritime forces or as a supported commander when directed by higher authority. (Page 13)
- ★ Detailed coordination is required when operating Air Force forces in proximity to US Navy forces or when Air Force forces are placed under tactical control or in support of the navy composite warfare commander. (Page 18)
- ★ Until the requisite combat power exists ashore, the amphibious operation is quite vulnerable. It is during this transition from afloat to ashore that Air Force forces can

create needed effects and play a pivotal role in the success of the amphibious operation. (Page 22)

- ★ Due to the inherently joint nature of most countersea operations, liaisons serve a vital and active role in coordinating and planning effects in the maritime environment. (Page 29)
- ★ Air Force members can be expected to be liaisons to the joint force maritime component commander and/or the commander, Naval forces, during joint maritime operations. These Air Force liaisons within the staff(s) of the respective maritime commander offer tactical expertise, operational guidance, proper doctrinal implementation and real-time coordination of operations with Air Force forces. (Page 30)
- ★ Air Force forces provide rapid and large area surveillance and reconnaissance coverage, often arriving on station prior to other forces. This coverage can be used to observe the maritime environment in a homeland security role or overseas. (Page 33)
- ★ One of the most important aspects of countersea preparation is training. Training should be realistic, subject to constant review and evaluation, and reflect the range of military operations in the maritime environment. (Page 46)

## CHAPTER ONE

### FUNDAMENTALS OF COUNTERSEA OPERATIONS



*We must be able to project military power much more rapidly into areas where we may not have stationed forces. The ability to project lethal forces—in the air, on the sea, or on the land—will be essential.*

**—Transforming Defense:  
National Security in the 21<sup>st</sup> Century**

#### GENERAL

Our nation depends on assured access to the world's waterways and coastal regions for global economic trade, as well as providing a stabilizing military presence abroad. These waterways, along with our maritime fleet, provide the means for projecting the bulk of our heavy forces forward, sustaining them over the long term, and projecting force ashore from the seas. Where air and space power is the key to rapid forward presence and striking power over long distances, sea power is key to extended forward presence, power projection, mass force deployment, and sustainment through sealift. Protecting sea lanes, littorals, and our maritime assets operating within them are vital to US defense posture, economic prosperity, and national security.

#### Definition of Countersea

**Countersea operations are those operations conducted to attain and maintain a desired degree of maritime superiority by the destruction, disruption, delay, diversion, or other neutralization of threats in the maritime environment.** The main objective of countersea operations is to secure and dominate the maritime environment and prevent opponents from doing the same.

The countersea function entails Air Force operations in the maritime environment to achieve, or aid in the achievement of, superiority in that medium. This function fulfills Department of Defense (DOD) requirements for the use of Air Force forces to counter adversary air, surface, and subsurface threats, ensuring the security of vital sea and coastal areas, and enhancing the maritime scheme of maneuver. More importantly, it demonstrates the teamwork required of Service forces working together in a joint environment. **Air Force forces achieve effects in the maritime environment through the integrated employment of air and space operations.** The overarching effect of countersea operations is maritime superiority—denial of this medium to the

adversary while assuring access and freedom of maneuver for US and allied maritime forces. To this end, Air Force operations can make significant contributions to maritime components in support of joint force objectives.

## THE MARITIME ENVIRONMENT



*We are a maritime nation. Our economic stability is inextricably tied to the sea. 99% of our import-export tonnage and 90% of the world's trade is transported on the sea*

**—Naval Doctrine Publication 1**

From a military perspective, the maritime environment is not limited to the open seas. The DOD Dictionary of Military and Associated Terms (Joint Publication [JP] 1-02) defines the maritime environment as *“the oceans, seas, bays, estuaries, islands, coastal areas, and the airspace above these, including the littorals.”* “Littoral” refers to the world’s coastal regions. **Countersea operations are equally relevant to shallow littoral “brown” water as well as the deep “blue” or open water environment.**

With the potential emergence of a credible naval opponent, maritime operations are once again focusing on defeating enemy naval forces while retaining a focus on the role of power projection ashore from the littorals. Airpower provides a rapid, maneuverable, and flexible element in this environment. **Air Force capabilities can extend the reach and increase the flexibility of naval surface, subsurface, and aviation assets, playing a key role in controlling the maritime environment. Air Force and Navy capabilities synergistically employed enable the joint force to control the maritime environment.**

## AIR FORCE SERVICE FUNCTIONS AND RESPONSIBILITIES

In defining the functions of the various military Services, DOD policy directs each Service to provide assistance to its sister Services. This mutual support is essential to the conduct of joint military operations ensuring combat force is massed and concentrated to achieve decisive results over the enemy.

DOD Directive 5100.1, *Functions of the Department of Defense and its Major Components*, directs the Air Force to carry out certain functions for protecting and enhancing maritime freedom of operations. The Air Force performs the following DOD maritime functions through assigned missions designed to achieve effects for the JFC:

Primary function:

- ★ The Air Force is required to organize, train, equip, and provide forces and tactics, techniques, and procedures (TTP) for joint amphibious, space, and airborne operations.

Collateral functions:

- ★ Surface sea surveillance and antisurface ship warfare through air and space operations.
- ★ Antisubmarine warfare and anti-air warfare operations to protect sea lines of communications.
- ★ Aerial mine-laying operations.
- ★ Air-to-air refueling in support of naval air operations.

## **COUNTERSEA OPERATIONS**

Countersea operations can be used in various ways to support the joint force commander's (JFC's) campaign. Conducted independently, or in conjunction with other military operations, countersea operations may be used for the following purposes:

- ★ At the initial phase of a campaign or major operation where the objective is to establish a military lodgment to support subsequent phases.
- ★ Serve as a supporting operation during a campaign in order to deny use of an area or facilities to the enemy, or to fix enemy forces' attention in support of other combat operations.
- ★ Support stability operations in order to deter war, resolve conflict, promote peace and stability, or support civil authorities in response to crises that require controlling the surrounding maritime environment.
- ★ Support military operations for homeland defense, by controlling use of the maritime environment along US coastal waters to prevent enemies from attacking civilian population centers, disrupting sea lines of communication (SLOC), or committing terrorism on US sovereign soil.
- ★ As an independent operation without other Service forces present, to achieve operational or strategic objectives in the maritime environment.

## **NAVAL WARFIGHTER PERSPECTIVE**

US naval forces offer a specific capability to shape the maritime environment through the mobility of their platforms and extended presence. Their ability to project timely high-intensity combat power from the sea is critical to meeting JFC objectives

during crisis response as well as during a campaign. In peacetime, the carrier strike group (CSG), expeditionary strike group (ESG), and surface action group (SAG) possess the credible military might to project power reinforcing our nation's ability to influence events, deter potential aggressors, promote regional stability and provide the requisite force to influence multinational collective security.

The ability to take the fight to the enemy at a time and place of our choosing is a forte enjoyed by naval forces, and has always been one of our nation's primary objectives in war. Sea control and power projection in naval warfare are critical to securing the maritime environment and delivering effects against the enemy. Airmen can view sea control as a similar concept to air superiority. Additionally, the concept of maritime power projection can be viewed in parallel with the Air Force's functions of counterland and strategic attack. Historically, maritime power projection focused on creating effects in the maritime environment while Air Force counterland and strategic attack operations typically were directed theater-wide. The maritime forces are now creating effects throughout the joint operations area (JOA).

## Sea Control

Sea control entails control of the surface, subsurface, and airspace affecting naval operations in any littoral or open ocean. Naval forces achieve control of the sea by destroying enemy forces, deterring enemy actions, disabling or disrupting enemy command and control, or seizing critical littoral areas and/or chokepoints. Control of the sea ensures operating areas and SLOCs remain open and protected, but it does not imply absolute control over all the seas at all times. Rather, control of the sea is required in specific regions for particular periods of time, to allow unencumbered maritime operations (Naval Doctrine Publication [NDP] 1, *Naval Warfare*).

## Power Projection

Power projection takes the battle to the enemy. It means applying high-intensity, precise, offensive power at a chosen time and place to create the desired effects and achieve JFC objectives. Naval commanders are provided with a full range of power projection options that include employment of long range cruise missiles, Marines conducting high-speed maneuvers across the shore (and inland) aided by naval surface fire support, and a great variety of weapons released from naval strike aircraft (NDP-1, *Naval Warfare*).

At the end of the Cold War, the emphasis of maritime warfare changed from "blue water" operations against enemy navies to "brown water" force projection ashore. The naval perspective similarly changed. To this end, **Navy and Marine Corps capabilities and operations are currently used increasingly in combination with Air Force capabilities and operations to create effects inland.**

In contrast, the growing naval threats in the 21<sup>st</sup> century, and the possibility of entering into combat with a near-peer adversary, have forced the Navy to readdress its

capabilities in the blue water environment. In order to employ in this fashion, Air Force forces should be familiar with and understand the maritime warfare areas and three-dimensional battlespace from which maritime forces develop their operations.

## Naval Warfare Areas

Navy doctrine identifies six warfare areas, conducted in three dimensions (surface, undersea, and air), in which air elements play a prominent role. Each requires coordination and integration in the battlespace. These warfare areas can be compared to the way Airmen view Air Force operational functions, such as counterair, counterland, etc.

- ✦ **Undersea Warfare (USW).** USW is operations conducted to establish battlespace dominance in the underwater environment. It includes offensive and defensive submarine operations, antisubmarine warfare (ASW) and mine warfare (MIW). ASW involves locating, tracking, and engaging enemy submarines and often employ airborne assets to locate and destroy those platforms. ASW may require airspace deconfliction measures particularly in littoral operations. DOD and the Navy also place MIW and sea, air, land (SEAL) operations in this category. Air Force forces may be called upon to support undersea warfare through the interdiction of enemy submarines or mine employment. DOD 5100.1 refers to this action as “antisubmarine warfare.”
- ✦ **Surface Warfare (SUW).** SUW employs airborne, surface, and subsurface assets to locate and destroy maritime surface platforms. As with USW, execution of this operation requires airspace deconfliction, particularly in the near-land environment. Air Force forces may be called upon to perform surface sea surveillance, maritime air support (MAS), or interdiction in the maritime environment. DOD 5100.1 refers to this task as “antisurface ship warfare.”
- ✦ **Strike Warfare (STW).** STW consists of carrier-based strike aircraft, the use of missiles such as the Tomahawk land attack missile (TLAM), and naval surface artillery to create effects ashore. STW can produce strategic, operational, and tactical effects. Integration of TLAM with strike aircraft in the same attack requires close coordination between the joint force air and space component commander (JFACC) and the joint force maritime component commander (JFMCC) (specifically through the air and space operations center [AOC] Tomahawk strike coordinator) and possibly the joint force land component commander (JFLCC) as well to ensure target and airspace deconfliction. The Air Force refers to these operations as “counterland,” “counterair,” or “strategic attack” depending on intended effects. Close air support (CAS) is part of STW.
- ✦ **Command and Control Warfare (C2W).** C2W achieves effects in the realm of command and control. It integrates operations security, military deception, psychological operations, electronic warfare, and physical destruction and is driven by intelligence. Its purpose is to deny or influence information used for

C2. This area also includes protecting friendly C2 capabilities against such actions. C2W is the offensive and defensive application of information operations. Naval C2W involves the direction and control of aircraft, TLAM, naval surface fire support (NSFS), and special operations forces (SOF) targeting (directing units and localization), counter-targeting, reconnaissance, surveillance, counter-surveillance, C2 attack, and C2 protection. The Air Force conducts similar “C2W type” operations, depending on the desired level of effects and objectives through functions such as strategic attack; counterland, counterair, countersea, counterspace operations; information operations; and command and control operations.

- ★ **Amphibious Warfare (AMW).** Amphibious warfare operations involve naval and landing forces launching from the sea against a hostile or potentially hostile shore. Major elements of amphibious warfare for Air Force forces are counterair, interdiction, and CAS.
- ★ **Air Defense (AD).** AD is the protection of all friendly forces in the assigned area of operations (AO) against hostile air platforms and weapons, i.e., theater ballistic missiles, cruise missiles, and aircraft both manned and unmanned.

### Commander’s Intent and Unity of Effort

*Officers of the maritime forces are given command opportunities very early in their careers and are expected to take the initiative following the broad intent of their superiors. Naval warfare is shaped by commander’s intent through unity of effort by subordinate units—getting all parts of a force to work together. **Air Force forces are taught and exercise the tenet of centralized control—decentralized execution. Maritime forces are offered more latitude in exercising control and execution of operations in the maritime environment.***

*To reconcile these seemingly contradictory requirements, the naval forces use their understanding of the main effort, and a tool called the commander’s intent, which conveys the “**end state**,” his desired result of action. The commander’s intent reflects his vision. His thinking is conveyed through mission-type orders, in which subordinates are encouraged to exercise initiative and are given freedom to act independently to reach the end state.*

*Historically, the isolated nature of the maritime environment coupled with the need for rapid action, dictate a large degree of decentralization, thereby giving those closest to the problem the freedom to solve it. While maritime forces have incorporated technological advances in command and control warfare, the continued culture of decentralized operations still offers naval warfighters the flexibility to operate more autonomously than their Air Force brethren, while both still execute under the superior commander’s intent.*

—Edited from NDP-1, *Naval Warfare*

## AIR FORCE COUNTERSEA OPERATIONS

**US military airpower is particularly suited to dominating the maritime environment by virtue of its inherent offensive character, precision, speed, range, and flexibility.** Long ago, maritime forces realized the power and flexibility of aircraft carrier operations over battleship operations and the distinctive advantage of using airpower to dominate the maritime environment. Subsequently, Navy and Marine aviation further developed by fielding a formidable array of carrier-based air capability enabling the maritime forces to achieve strategic, operational, and tactical effects through airpower. Today, Air Force capabilities protect and complement maritime operations. Air Force forces, by design, can augment naval forces by providing additional protection; extended reach; intelligence, surveillance, and reconnaissance (ISR); and strike capability with air, both manned and unmanned, and space platforms.

Due to their inherent flexibility and versatility, **Air Force forces can provide rapid and large area coverage and often engage the adversary long before other forces arrive, transitioning swiftly from defensive to offensive roles to dominate the maritime environment.** In certain situations Navy and Marine airpower alone is insufficient, unmanned aerial vehicles (UAVs) are well suited to provide large littoral or open ocean area surveillance and reconnaissance over long time periods that would normally require several aircraft and air-refueling resources to accomplish. Air Force forces will likely be called upon to counter adversary maritime threats whether those threats originate from land, the sea, or from the air. Air Force forces should be prepared to conduct warfare in the maritime environment independently or together with Navy and Marine aviation.

Air Force countersea operations use Air Force strengths in traditional air interdiction, close air support, and counterair missions to accomplish effects in the maritime environment. From a tactical perspective, these traditional missions can be quite different in the maritime environment than missions conducted over land. Countersea operations require familiarity with naval air warfare, terminology, and command and control. This familiarity will be key in successful countersea operations in the maritime environment, and is one reason why joint training is vital.

## TERMINOLOGY

Air Force personnel operating in the maritime environment will likely do so in conjunction with maritime forces. Understanding Navy and Marine Corps terminology will contribute greatly to clear communication while minimizing confusion during operations. The following discusses Navy/Marine Corps terms used for comparable Air Force functions, missions, or capabilities. For more information regarding Naval or Marine Doctrine, see, *Naval Tactics, Techniques, and Procedures (NTTP) 3-03.4 (Rev A)*, *Naval Strike and Air Warfare* and Marine Corps Doctrine Publication (MCDP) 1-0, *Marine Corps Operations*.

## **Air Warfare vs. Counterair**

*Air warfare* is a term used by Navy forces to indicate the action required to destroy or reduce to an acceptable level the enemy air and missile threat. The Marine Corps term, *anti-air warfare*, uses same definition (see below). It includes use of fighters, bombers, ship anti-aircraft guns, ship surface-to-air missiles, air-to-air missiles, cruise missiles launched from ships or submarines, as well as electronic attack to destroy, disrupt, delay, or deceive the air or missile threat before or after it is launched. It also includes measures taken to minimize the effects of hostile air action using cover, concealment, dispersion, deception (including electronic), and mobility.

Naval and Marine aviators label and define operations such as offensive counterair (OCA), defensive counterair (DCA), and suppression of enemy air defenses (SEAD) in line with Air Force and joint terminology. What is different is the Navy and Marine Corps, outside of the aviation community, identify all or partial employment in this operational function as either “air defense” or “anti-air warfare.” Thus, doctrinally the terms “air defense/anti-air warfare” and elements of “counterair” are similar. Air Force doctrine and joint doctrine identify this function solely as counterair.

## **Air Defense/Anti-Air Warfare vs. Defensive Counterair**

*Air Defense* (AD) is not only a mission performed by the carrier strike group (CSG) but a command and control authority (air defense commander) within the CSG and is usually located on an AEGIS-equipped surface combatant. The Navy definition of air defense is nearly synonymous with defensive counterair (DCA).

Further confusion for Air Force forces could come from the Marine Corps definition of *anti-air warfare* (AAW) used to indicate that action required to destroy or reduce to an acceptable level the enemy air and missile threat. This definition is more in line with Air Force operational function of counterair (and the Navy operational function of *air warfare*). The Marine Corps breaks down AAW to offensive AAW (OAAW) and air defense (AD), which parallels the OCA and DCA elements of counterair respectively.

## **Strike Warfare vs. Counterland and Strategic Attack**

*Strike warfare* is another potentially confusing and encompassing term Navy/Marine Corps forces use to describe what the Air Force typically refers to as counterland or strategic attack. It involves Navy and Marine Corps assets (aircraft, cruise missiles, naval surface fire support, and special forces) to destroy, disrupt, delay, or neutralize enemy targets ashore. Strike warfare includes attacks against targets such as manufacturing facilities and operating bases from which an enemy is capable of conducting or supporting air, surface, or undersea operations against friendly forces. Strike warfare also includes CAS. Therefore the doctrinal term “strike warfare,” depending on its intended effect, is similar to either counterland or strategic attack.

## Maritime Air Support (MAS) and Dynamic Targeting

*Maritime air support* or MAS is a concept that adapts the tactics, techniques, and procedures (TTP) of CAS against a dynamic target in the littoral or open ocean environment not in close proximity to friendly forces. The Navy and Marine Corps don't think of MAS as a tactic, but more of a standardized method of providing targeting information through a maritime air controller (MAC). MAS is defined as those operations conducted against enemy forces and their equipment to directly assist in the attainment of the surface force objectives by the destruction of enemy resources or the isolation of his military force.

Any available and suitably loaded aircraft may conduct MAS in order to provide a rapid response. A MAC is responsible for the coordination, tactical employment, and safety of on-scene action platforms. MAC duties are similar to those of a forward air controller (FAC) in CAS. The MAC simply adapts CAS procedures to control aircraft or ship-coordinated fires to achieve mission objectives against a dynamic target. As MAS is not conducted with friendly forces in close proximity, there is no requirement for detailed integration of each air mission with the fire and movement of friendly forces. Detailed integration is simply used as needed to enhance mission success.

MAS can be preplanned or immediate, depending on the response time and urgency required. Preplanned requests are made early enough to be included on the air and space tasking order (ATO). Immediate requests arise from situations that necessitate an urgent requirement for air support or to exploit a time-sensitive opportunity. Primary consideration is rapid response to counter immediate threats and attack targets of opportunity. For more on MAS, see NTTP 3-03.4 (Rev A), *Naval Strike and Air Warfare*.

## Battlespace Dominance vs. Battlespace Control

Naval forces describe *battlespace dominance* as a critical operational capability they can provide. Navy and Marine Corps operations encompass air, surface, undersea, land, space, and time. Dominance of these dimensions continues to be an important factor in the survival and combat effectiveness of their forces. Command and control integrate ships, submarines, aircraft and ground forces, to effectively extend their full range of capabilities throughout the battlespace (NDP 1).

Battlespace dominance can be easily mistaken with the Air Force term of *battlespace control* which has a somewhat different meaning. Battlespace control means exercising the degree of control necessary in all domains (land, sea, air, and space in their physical and informational domains) to employ, maneuver, and engage forces while denying the same capability to the adversary. Battlespace control includes a number of active measures such as ensuring air, space, and maritime superiority. Furthermore, information superiority and control of the use of the electromagnetic spectrum also play a critical role in battlespace control.

Figure 1.1 is a terminology matrix to help Air Force forces understand terminology of functions, operations, or missions, and how they relate to their maritime force counterparts. *These terms are NOT synonymous*, but are similar and aid in discussion, planning, and execution of countersea operations.

<b>TERMINOLOGY</b>			
<b>Air Force</b>	<b>Navy/USMC</b>	<b>Joint</b>	<b>DOD 5100.1</b>
Counterair	Air Warfare/Anti-Air Warfare	Counterair	Anti-Air Warfare
Countersea	Undersea Warfare		Antisubmarine Warfare
Countersea	Surface Warfare		Antisurface-Ship Warfare
Counterland/ Strategic Attack	Strike Warfare	Interdiction	
Offensive Counter-air (OCA)	Air Warfare/Offensive Anti-Air Warfare	Offensive Counterair	
Defensive Counter-air (DCA)	Air Defense/Air Defense	Defensive Counterair	
Close Air Support	Joint CAS	Joint CAS	
Dynamic Targeting	Maritime Air Support (MAS)		
Battlespace Control	Battlespace Dominance		

**Figure 1.1. Service and Joint Terminology**

Reference Publications

JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*

DOD Directive 5100.1, *Functions of the Department of Defense and Its Major Components*

Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*

NTTP 3-03.4, *Naval Strike and Air Warfare*

MWDP 1-0, *Marine Corps Operations*

## BATTLE OF THE BISMARCK SEA (14 MARCH 1943)



*Throughout July and August, Allied aircraft that had survived the Japanese invasion of the Philippines were now operating out of Australia. During the summer of 1942, Japanese forces landed on New Guinea's Papuan peninsula and began a drive toward Port Moresby. Ground fighting was fierce and, because of limited numbers operating from far away, air support sporadic. Allied aircraft were unsuccessful in their attempts to counter Japanese shipping because they*

*were using high level bombing techniques, which proved to be very inaccurate against ships at sea. Fifth Air Force was organized in September 1942. Due to the archipelagic nature of the Southwest Pacific operating area, General George C. Kenney, Fifth Air Force commander, realized that the means to successfully attack shipping had to be developed.*

*Fifth Air Force began experimenting with different ideas to improve their lethality. Their A-20s were modified by the addition of four .50-caliber, forward firing machine guns in the nose and two 450-gallon fuel tanks to extend their range. Parafrag bombs were acquired. The A-20s then enjoyed remarkable success against targets in the jungles of New Guinea. Kenney then directed that several B-25Cs be modified in a similar fashion. Since they were to operate at low altitude, the tail and belly turrets were removed. Fifth Air Force shifted from the traditional high altitude bombing to low altitude bombing. American and British tests of skip bombing showed promise. Eventually, the bombers of Fifth Air Force perfected the technique of two aircraft attacking at masthead height. One aircraft would strafe to reduce the anti-aircraft artillery coming from the ship under attack, while the other would strafe and bomb at mast height.*

*In January and February 1943, Allied intelligence indicated that the Japanese were beginning to assemble a convoy in Rabaul for the reinforcement of Japanese forces fighting in New Guinea. On 28 February, word came that 14 ships were coming down from Rabaul. On 1 March, a B-24 Liberator spotted the convoy and for the next two days it was shadowed and harassed by the longer-range heavy bombers. Escorting P-38s engaged aircraft from Japan's Eleventh Air Fleet destroying 25 of 30 aircraft. The convoy came within range of the medium bombers on the third. Coordinated attacks by long range bombers dropping bombs from 3,000 to 6,000 feet, followed by low-level skip bombing releases from the Beaufighters and B-25s resulted in the loss of eight transports and four destroyers, along with all of the Army Division's equipment and nearly half of the unit's 7,000 men. Japanese ground forces at Lae were not reinforced, effectively ending any chances of a renewed Japanese offensive. The victory confirmed General MacArthur's growing confidence in Fifth Air Force and demonstrated the dominance of air power in the Southwest Pacific.*

**—Various sources**

## CHAPTER TWO

### ORGANIZATION, COMMAND, AND CONTROL



*The lesson from the last war that stands out clearly above all the others is that if you want to go anywhere in modern war, in the air, on the sea, on the land, you must have command of the air.*

**—Fleet Admiral William F. Halsey to Congress after World War II**

#### GENERAL

Countersea operations require maximum flexibility in organization, command, and control. Since Air Force forces may be directed to accomplish these operations in supported or supporting roles in a joint or multinational environment, adaptability is paramount. **Command relationships should be tailored to account for supported and supporting roles in joint or multinational actions.** Refer to AFDD 2, *Operations and Organization*, JP 0-2, *Unified Action Armed Forces (UNAAF)*, and JP 3-0, *Doctrine for Joint Operations*, for specifics relating to organizational structure and command relationships.

#### SUPPORTED VS. SUPPORTING RELATIONSHIPS

A commander, such as the JFC, establishes support relationships when he identifies subordinate command organizations to aid, protect, complement, or sustain another force. The designation of support relationships is important as it conveys priorities to commanders and staffs planning or executing joint operations. For air operations in the maritime environment where airpower is providing the joint force commander's intended effect or is the primary combat arm, the JFACC should be the supported commander. While capable of serving as a supporting commander to the JFMCC, this command relationship dilutes the disproportionate effects airpower can have for the joint force commander. No matter where the AOC location, the JFACC may serve in a supporting and/or supported role in the maritime environment. **Regardless of the support relationship, Air Force forces are best utilized when employed by a single air component commander exercising centralized control and decentralized execution of joint air operations.**

An example would be the JFACC providing air and space support to the JFMCC in the planning and execution of an amphibious operation. Supporting the landing force

can range from aircraft conducting CAS to an increase in communication satellite priority and utilization. The JFMCC would generally provide requirements in terms of the effects desired to meet his objectives, and possibly the specific maritime targets or target sets. The JFACC should determine how best to achieve those effects to meet JFMCC objectives and recommend the necessary apportionment of forces to the JFC. Employing those apportioned forces, the JFACC can provide the optimum support to JFMCC objectives.

## COMMANDER OF AIR FORCE FORCES

Two central ideas—the principle of unity of command and the tenet of centralized control and decentralized execution—underpin the way the Air Force organizes for operations. In any operation involving Air Force forces, a commander, Air Force forces (COMAFFOR), will exercise command over operational and administrative matters of the forces assigned and attached. Forces provided to the COMAFFOR will normally conduct operations as part of an air and space expeditionary task force (AETF). In this manner, COMAFFOR can present the JFC a tailored, task-organized, integrated package with the proper balance of force, sustainment, and force protection elements. **The COMAFFOR, whether acting as Service component commander or dual-hatted as JFACC, should be prepared and equipped to perform countersea operations either in support of maritime forces or as a supported commander if directed by higher authority.**

## THE JOINT FORCE AIR AND SPACE COMPONENT COMMANDER



*Air power is indivisible. If you split it up into compartments, you merely pull it to pieces and destroy its greatest asset — its flexibility.*

**—Field Marshal Sir Bernard Law Montgomery**

The COMAFFOR will normally serve as the JFACC, exercising operational control (OPCON) over assigned and attached Air Force assets and tactical control (TACON) over other component assets made available for tasking. These forces are generally centrally controlled and tasked from the AOC. Tasking occurs through publication of the ATO. Countersea operations involving the use of air assets should likewise fall under a single authority capable of planning and directing such operations. There may be cases when, in order to ensure effective integration with carrier-based air, the JFC may task the JFACC to support the JFMCC. Still, the JFACC must, by definition, control and execute the air assets assigned to the joint force operation, in whole or in part, depending on the situation.

A single air commander should command and control all joint air assets. The JFC normally designates a JFACC and apportions joint air assets for the JFACC to control. The component commander with the preponderance of air forces and the capability to control and direct joint air and space operations should be designated the JFACC. Centralized control and decentralized execution serve to focus forces on theater objectives and provide commanders flexibility for employment. The JFACC will make apportionment recommendations to the JFC. Apportionment can change as the campaign progresses and/or as the operational situation changes. The JFACC will allocate the JFC's apportioned air power to best affect the JFC's intent and priorities.

Even though the JFACC and COMAFFOR will normally be the same individual, the staffs are separate and have different functions. Furthermore, JFACC staffing requires augmentation within the AOC from relevant Service components and coalition partners to ensure adequate joint and multinational representation. It is important during countersea operations that the naval liaison officer (NALO) and/or Marine liaison officer (MARLO) assist the JFACC in having a clear understanding of the JFMCC or commander, Naval forces (COMNAVFOR), desired and prioritized effects.

The other Services have developed their air arms with different doctrinal and operating constructs in mind. Maritime forces have allowed for organic asset scheduling, command, and control utilizing their own assets for missions separate from the JFACC's control. For example, the Marine Corps expects that Marine aviation assets will be used organically within the Marine air-ground task force (MAGTF), during both amphibious operations and subsequent land operations. COMNAVFOR may have other mission priorities, such as USW or AW, constraining asset availability to the JFACC. Similar concerns also apply to the aviation arms of our allies. These limitations of air assets by their respective entities will normally be limited in time and scope to specific missions during certain phases of operations. The JFACC must account for these dynamics when developing the joint air operations plan and realize that all aircraft flying within the AOR may not be available for tasking.

## **Sea-based JFACC**

In operations where no shore-based AOC facility can initially be accommodated, the preponderance of air capability coordination may be located afloat on a US Navy command and control ship. This scenario is most likely during the initial stages of a campaign, in maritime forced entry operations or prior to shore-based AOC arrival/completion.

The sea-based JFACC positions are jointly manned by officers and enlisted personnel from the other Services who may fill key JFACC staff positions while aboard the command ship. These ships have the ability to host several hundred augmentees and have sufficient connectivity to meet requisite command, control, communications, computers, and intelligence (C4I) requirements for initial operations until the JFACC is transitioned ashore.

In this arrangement, Air Force component and joint air component functions and responsibilities remain distinct; both are essential to successful joint air operations. The COMAFFOR will maintain OPCON of Air Force forces executed through an A-staff. With another Service designated as JFACC, the COMAFFOR will provide Air Force forces TACON to the JFACC as directed by the JFC. In addition, the COMAFFOR will coordinate with the JFACC through a liaison officer (LNO) teams and fill designated billets within the JFACC staff and joint AOC (JAOC).

### **Naval Air Command and Control of Air Operations (NC2AO)**

*NC2AO is a new and developing construct for naval assets to manage air operations where no shore based JFACC has been established. The US Navy has established policy to support this idea, but is still developing the actual doctrine and yet to practice this in operational exercises.*

**—Commander, Fleet Forces Command, MSG 131456Z JAN04**

When the JFACC transitions to a suitable host shore-based facility (or from shore-based to sea-based) and where the preponderance of air assets may be or may become Air Force, several concerns need to be addressed. The following is taken from JP 3-30, *Command and Control of Joint Air Operations*.

## **General Considerations for Command and Control of Joint Air Operations**

- ★ **Planned Transition.** The JFACC should develop a plan for transition of JFACC duties to another component or location. Planned JFACC transitions are possible as a function of buildup or scale down of joint force operations. During transition of JFACC responsibilities, the component passing responsibilities should continue monitoring joint air planning, tasking, and control circuits, and remain ready to reassume JFACC responsibilities until the gaining component has achieved full operational capability.
- ★ **Unplanned Transition.** During unplanned shifts of JFACC responsibility, as a possible result of battle damage or major C2 equipment failure, a smooth transition is unlikely. Therefore, the JFC should pre-designate alternates (both inter- and intra-component) and establish preplanned responses/options to the temporary or permanent loss of primary JFACC capability. Frequent backup and exchange of databases is essential to facilitate a rapid resumption of operations should an unplanned transition occur.
- ★ **Transition Events.** The following events may cause the JFACC responsibilities to shift:

(a) Coordination requirements related to ATO planning and execution exceeds the component capability.

(b) Buildup or relocation of forces shifts preponderance of the air capabilities/forces and the ability to effectively plan, task, and control joint air operations to another component commander and the JFC decides that the other component is in a better position (location, C2 capability, or other considerations) to accomplish the JFACC responsibilities.

(c) C4I capability becomes unresponsive or unreliable.

★ **Considerations.** Considerations to aid in JFACC transition planning and decisions:

(a) Continuous, uninterrupted, and unambiguous guidance and direction for joint air operations must be the primary objective of any JFACC transition.

(b) Appropriate C4I capabilities to ensure shift of JFACC duties are as transparent to the components as possible.

(c) Specific procedures for coordinating and executing planned and unplanned shifts of JFACC should be published in the joint air operations plan (JAOP).

(d) The relieving component must have adequate communications, connectivity, manning, intelligence support, and C2 capability prior to assuming JFACC responsibilities.

## MARITIME COMMAND AND CONTROL

In joint maritime operations, C2 is normally directed either from a command ship, a CSG, or the lead ship in an ESG or SAG. The command ships have the most robust capabilities for establishing a sea-based JFACC or JFMCC. The mobile air base and layered defense system represented by aircraft carriers and their surface screening units (cruisers, destroyers, and frigates) create a network of control options. Depending on the ships capabilities, it can integrate as part of the maritime command and control system as well as a part of the maritime layered defense system. The maritime command and control structure may differ from those used in a land-based operation and may require establishing a regional or sector area air defense commander (AADC) in order to integrate and best utilize unique maritime capabilities and operations.

The Airspace Control Authority (ACA) may designate COMNAVFOR or JFMCC as the control authority for a specific airspace control area or sector for the accomplishment of a specific mission. The massing of maritime forces into a battle force of combined arms (air, surface, and undersea) under a single commander reduces the front to be defended, enhances mutual support, and simplifies identification and deconfliction of friendly aircraft and other air defense measures. To ensure seamless

integration, unity of effort and minimal interference along adjacent boundaries, the commander responsible for the maritime airspace sector should coordinate with the ACA on the items from JP 3-52, *Doctrine for Joint Airspace Control in the Combat Zone*.

## **Maritime Airspace Sector Commander Coordination Responsibilities**

- ✧ Procedures for coordination of flight information.
- ✧ Clearance of aircraft to enter and depart the maritime airspace sector.
- ✧ Procedures for assisting and coordinating with airspace control elements that respond to adjacent or supporting component commander.
- ✧ Procedures for deconfliction of operations during transitional operations and during operations in overlapping airspace areas.

Where no sector control authority is designated by the ACA and where joint operations composed of adjacent maritime and land environments exist, specific control and defensive measures may be a composite of those measures normally employed in each environment. The JFC for such operations needs to ensure detailed coordination of control and defensive measures with the affected air, land, and maritime commanders. The exchange of liaison personnel at the joint force level will facilitate coordination to ensure:

- ✧ Establishment of procedures for integration and coordination of joint air operations along adjacent boundaries.
- ✧ Agreement on procedures for coordination of flight information, clearance of aircraft to enter and depart the adjoining airspace, and the coordination of airspace control services.
- ✧ These coordination items should be clearly stated in the airspace control plan (ACP) and daily special instructions (SPINS) as required.

## **JOINT FORCE MARITIME COMPONENT COMMANDER**

Normally, COMNAVFOR will serve as the JFMCC, exercising operational authority over assigned and attached maritime assets and forces. The JFMCC role is to provide a central authority over all maritime assets operating within a given region. These forces are generally centrally controlled and tasked from the command ship within a task force. Maritime tasking occurs through publication of the maritime tasking order (MTO). Air assets conducting countersea operations could fall under the tasking of the JFACC in serving maritime objectives within an AOR (JFACC supporting/JFMCC supported). Organic naval and marine air assets will most likely be retained for direction by the JFMCC. Detailed coordination with ATO-tasked air assets operating within or adjacent to the JFMCC's AOR is necessary for ensuring safe, effective operations.

The JFMCC is also responsible for advising the JFC on the proper employment of maritime forces, and in some situations, may plan and direct limited Air Force support operations in coordination with the COMAFFOR. For instance, a communications support unit operating in the maritime environment may fall under the guidance of the JFMCC.

## NAVY COMPOSITE WARFARE COMMANDER

Naval units are deployed in task group organizations that can be tailored to the intended employment of the force. The commander of each task group is responsible for all aspects of operations and for carrying out the missions assigned by the JFC. (The force is organized according to the composite warfare commander [CWC] doctrine). CWC doctrine represents the Navy's implementation of centralized control and decentralized execution. This type of planning, control, and execution allows subordinates flexibility and initiative in executing the commander's intent by telling them how their respective warfare areas contribute to overall mission success without specifically telling them how their tasks are to be accomplished. Naval doctrine makes decentralized execution of battlespace dominance and power projection tasks possible through subordinate warfare commanders who are focused on air (air defense commander or ADC), strike (strike warfare commander or STWC), sea (sea combat commander or SCC), surface information (information warfare commander or IWC) environments. Standard procedures for the CWC concept are contained in NWP 3-56.1, *JFACC Organization And Processes*. Air Force forces should view this organizational construct as similar to how the Air Force organizes an AETF.

*USS Blue Ridge, under escort, is a US Navy command ship designed to accommodate planning staffs and their associated command and control of combat operations in the maritime environment*



**Detailed coordination is required when operating Air Force forces in close proximity to US Navy forces or when Air Force forces are placed under TACON or in support of the navy composite warfare commander (CWC) (i.e. coordinated AD, SCC or STW operations with a CSG).**

Coordinating, synchronizing, and integrating land-based air operations with maritime air and sea operations are challenging, but necessary. In a joint context, maritime operations are distributed operations that stress communications capabilities. The JFACC staff, as well as land-based air units, should establish communication channels and points of contact well in advance of integrated joint air operations. For example, normal Air Force mission planning timelines may not be adequate for operations with strike warfare crew mission planning on an aircraft carrier.

The criteria for either joint force or Service component application are determined by the overall effectiveness and availability of appropriate forces for the task at hand. In most instances joint operations will dominate a campaign; however, in selected instances, this should not preclude the effectiveness, C2, and economy of force considerations of single Service operations.

## **AMPHIBIOUS OPERATIONS**

With increased maritime operations in the vicinity of the shoreline (the littoral), Air Force forces conducting countersea operations should be prepared to be part of amphibious operations. Airmen need to understand that amphibious operations are very intensive and complex in planning, C2, and execution. Operations in the amphibious objective area (AOA) are particularly risky due to the high density and close proximity of friendly forces attempting to achieve initial lodgment, with their variety of supporting fires. Landing forces will generally be supported by ship artillery, land-based artillery, organic Navy and Marine airpower, and Air Force airpower, all using the same airspace. The risk of fratricide is high in this environment.

### **Airspace Control During Amphibious Operations**

During maritime operations such as amphibious operations, the ACA will normally designate the maritime commander as the control authority for a specific airspace control area during the conduct of the amphibious operation (see JP 3-52, *Doctrine for Joint Airspace Control in the Combat Zone*). The complexity and size of an amphibious operation directly affects the amount of airspace allocated. The level of air control allocated to the amphibious force depends on the air control measures approved by the ACA. If only an area of operations (AO) is established, the amphibious force may request that the ACA establish a high-density air space control zone (HIDACZ) over this geographic area. A HIDACZ is airspace designated in an airspace control plan (ACP) or airspace control order (ACO) where there is a concentrated employment of numerous and varied weapons and airspace users. Access is normally controlled by the maneuver commander who has the requisite capabilities to command and control the designated area. The items shown below should be considered when establishing a HIDACZ:

- ★ Airspace control capabilities and limitations of the amphibious force.

- ✦ Minimum risk routes into and out of the HIDACZ (and to the target area.).
- ✦ Air traffic advisory requirements. Procedures and systems must also be considered for air traffic control service during instrument meteorological conditions.
- ✦ Procedures that offer expeditious movement of aircraft into and out of the HIDACZ while providing aircraft deconfliction as well as awareness to surface units.
- ✦ Coordination of fire support, as well as air defense weapons control orders or status within and in the vicinity of the HIDACZ.
- ✦ Range and type of naval surface fire support (NSFS) available.
- ✦ Location of enemy forces inside and in close proximity to the HIDACZ.
- ✦ At a minimum, the HIDACZ should cover the amphibious task force sea echelon areas and extend inland to the landing force's (LF's) fire support coordination line. Additionally, the HIDACZ should be large enough to accommodate the flow of fixed-wing aircraft into and out of the amphibious airspace.

## COMBAT ZONE AIRSPACE CONTROL IN AMPHIBIOUS OPERATIONS

- For airspace control, the joint force commander (JFC) or higher authority who orders the amphibious operation will assign to the Commander, Amphibious Task Force (CATF), who may be the JFC, an airspace of defined proportions, which will include the amphibious objective area (AOA).
- All air operations and airspace control procedures in the AOA will be under the control of the CATF, or designated CATF representative, until the amphibious operation is terminated.
- To ensure unity of effort in overall air operations, the CATF will coordinate air operations within the defined airspace with the commander responsible for airspace control in the surrounding area when adjacent airspace control areas exist.
- As conditions warrant and as control and coordination agencies are established ashore, the CATF delegates the authority to control and coordinate supporting arms to the Commander, Landing Force. At the discretion of the CATF, airspace control and the control of air operations in the AOA are passed to the Commander, Landing Force, if Marine Corps, or to a commander of forces ashore who has the capability to control and coordinate such operations.
- At the termination of the amphibious operation, the AOA will be disestablished. Airspace control will be passed to the airspace control authority designated for that area in accordance with the JFC's initiating directive.
- Guidance on the coordination procedures required for aircraft providing support into the AOA and amphibious task force aircraft providing support outside the AOA must be established in the initiating directive. Approved missions will be reflected in the standard joint force air tasking order as described in the Joint Pub 3-56 series of publications.
- For specific details on airspace control in amphibious operations, refer to Joint Pub 3-02, "Joint Doctrine for Amphibious Operations," and Joint Pub 3-02.1, "Joint Doctrine for Landing Force Operations."

**Figure 2.1. Airspace Control in Amphibious Operations (from JP 3-52 *Doctrine for Joint Airspace Control in the Combat Zone*)**

When an amphibious objective area (AOA) is established, the items in Figure 2.1 (see JP 3-02, *Joint Doctrine for Amphibious Operations*) need to be considered and implemented.

## C2 OF AMPHIBIOUS OPERATIONS

To conduct amphibious operations, an amphibious task force (ATF) is formed as a Navy task organization in charge of the initial afloat operations. The LF is formed as a Marine Corps or Army task organization in charge of the subsequent shore operations. The two commanders are responsible for the planning of the operation. Once initiated, the commander, amphibious task force (CATF) is the supported commander until enough combat power has been built up on land. The CATF then transitions this supported role to the commander, landing force (CLF) ashore who controls operations until complete or a withdrawal occurs. When an AOA or AO is initially established, Air Force forces could be tasked to support the CATF. Later, during the amphibious operation, air forces would transition to support the CLF. **Until the requisite combat power exists ashore, the amphibious operation is quite vulnerable. It is during this transition from afloat to ashore that Air Force forces can create needed effects and play a pivotal role in the success of the amphibious operation.**

### Afloat C2

While the preponderance of forces are sea-based, airspace control in the AOA will be performed by the Navy tactical air control center (TACC). The TACC role is to provide air planning, direction, and control over all air efforts within the airspace sector until such time as a land-based control center is established. Within the TACC, the Navy will produce airspace control measures for incorporation into the airspace control plan (ACP) and ATO special instructions (ATO SPINS). The TACC is usually collocated with the supporting arms coordination center (SACC). The SACC works closely with the Navy TACC to integrate both helicopter and fixed wing air operations with naval surface fire support (NSFS), land based artillery, and any other supporting arms. The SACC is the naval equivalent of the Marine Corps fire support coordination center (FSCC). The Marine Corps establishes a tactical air direction center (TADC) on initial build-up ashore to effect air operations through the Navy TACC.

### Ashore C2

Once sufficient combat power is massed ashore, C2 of the AOA is passed to CLF. This transition requires extensive planning and coordination in execution. When established ashore, the Marine Corps's TADC becomes the tactical air command center (TACC) and the afloat Navy TACC becomes a TADC supporting the Marine Corps TACC. Also, the Marine Corps TACC works in conjunction with the Marine Corps FSCC to integrate the different arms (as the SACC performed afloat).

### Close Air Support C2 During Amphibious Operations

Close air support C2 in an amphibious operation is significantly different than traditional Air Force/Army CAS over land. Planning and coordination require familiarity with maritime terminology and C2 arrangements. Additionally, agencies controlling CAS operations will transition from afloat operations to landing force operations.

Both the Navy and the Marine Corps air control systems are capable of independent operations. However, in the conduct of an amphibious operation, elements of both systems are used to different degrees from the beginning of the operation until the C2 of aircraft and missiles are phased ashore.

Under the CATF, the Navy TACC, typically onboard the amphibious flagship will normally be established as the agency responsible for controlling all air operations within the allocated airspace regardless of mission or origin, to include supporting arms. As the amphibious operation proceeds, C2 of aviation operations is phased ashore as Marine air command and control systems (MACCS) agencies are established on the ground. Air C2 functions are traditionally sequenced ashore in five phases:

(1) Phase one is characterized by the arrival of various “supporting arms controllers” ashore; namely the tactical air control party (TACP), forward observers, air support liaison teams, and naval surface fire spot teams.

(2) In phase two, the Marine direct air support center (DASC) is normally the first principal air control agency ashore during amphibious operations. When control is afloat, the Navy TACC supervises DASC operations.

(3) The movement of the Marine TADC ashore, although not directly related to CAS, is the principal event in phase three.

(4) In phase four, the senior organization of the Marine air control group (MACG) is established ashore and functions as the Marine TADC under control of the Navy TACC.

(5) Phase five is characterized by the passage of command responsibility ashore. The Marine Corps TADC assumes the role of the tactical air command center and once the Marine Corps tactical air command center receives control of all LF air operations, the Navy TACC becomes a TADC supporting the land-based air control agency.

## **Close Air Support Agenices**

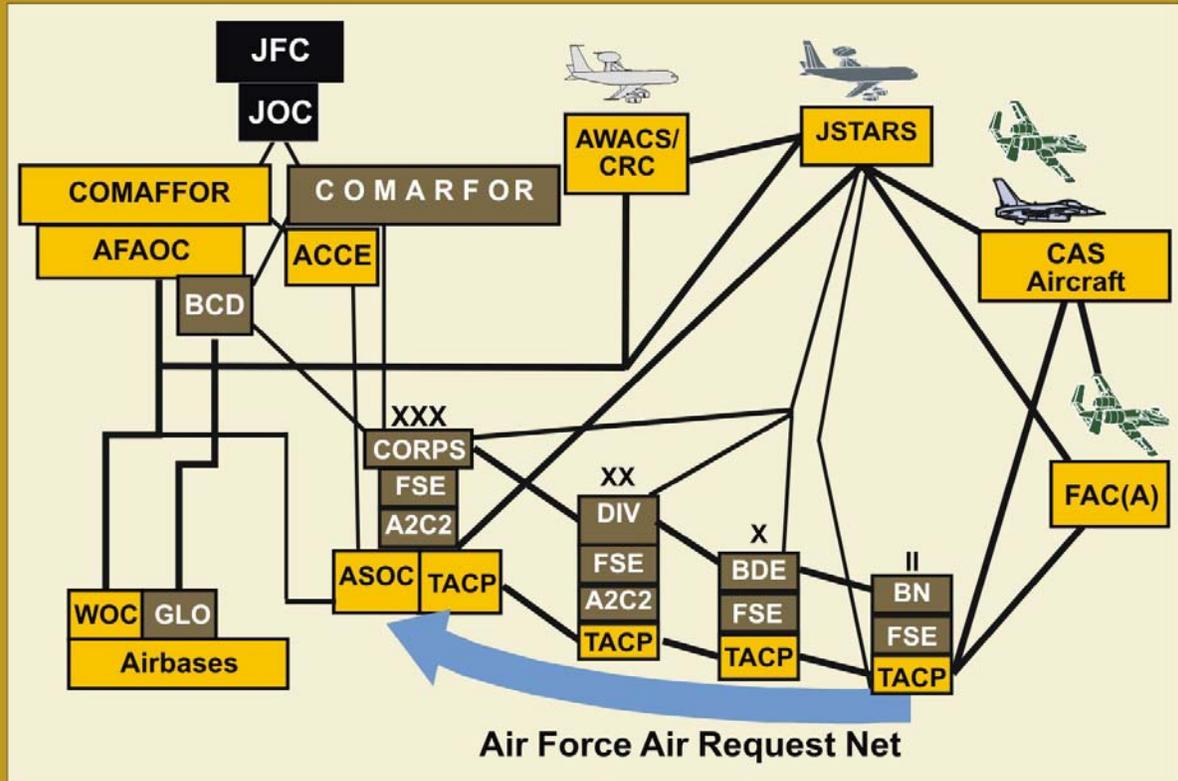
Figures 2.2 through 2.4 depict various C2 structures (including Air Force and Army for familiarity) for CAS. As aircrew perform CAS in the AOA, knowledge of the operating environment and associated C2 is critical to mission accomplishment. It is incumbent on planners and operators to be familiar with the synonymous functions but different labels for effective employment of CAS in amphibious operations.

## COMPONENT AIR COMMAND AND CONTROL AGENCIES FOR CLOSE AIR SUPPORT

United States Air Force	United States Army	United States Navy	United States Marine Corps	Special Operations Forces
Theater Air Control System	Army Air-Ground System	Navy Tactical Air Control System	Marine Air Command and Control System	Air Command and Control
Air Force Air and Space Operations Center		Tactical Air Control Center/ Tactical Air Direction Center	Tactical Air Command Center/ Tactical Air Direction Center	Joint Special Operations Air Component
	Battlefield Coordination Detachment	Naval and Amphibious Liaison Element	Marine Liaison Officer	Special Operations Liaison Element
Control and Reporting Center		Fleet Air Warfare Coordinator	Tactical Air Operations Center	
Air Support Operations Center		Air Support Coordination Section	Direct Air Support Center	Special Operations Command and Control Element
	Fire Support Element/Army Airspace Command and Control	Supporting Arms Coordination Center	Fire Support Coordination Center	Special Operations Command and Control Element
Tactical Air Control Party			Tactical Air Control Party	
Forward Air Controller (Airborne)		Forward Air Controller (Airborne)	Forward Air Controller (Airborne)	
Tactical Air Controller (Airborne)		Tactical Air Controller (Airborne)	Tactical Air Controller (Airborne)	
Terminal Attack Controller			Forward Air Controller	Joint Terminal Attack Controller qualified special operations personnel

**Figure 2.2. Component Air Command and Control Agencies for Close Air Support (from JP 3-09.3 *Joint Tactics, Techniques, and Procedures for Close Air Support*)**

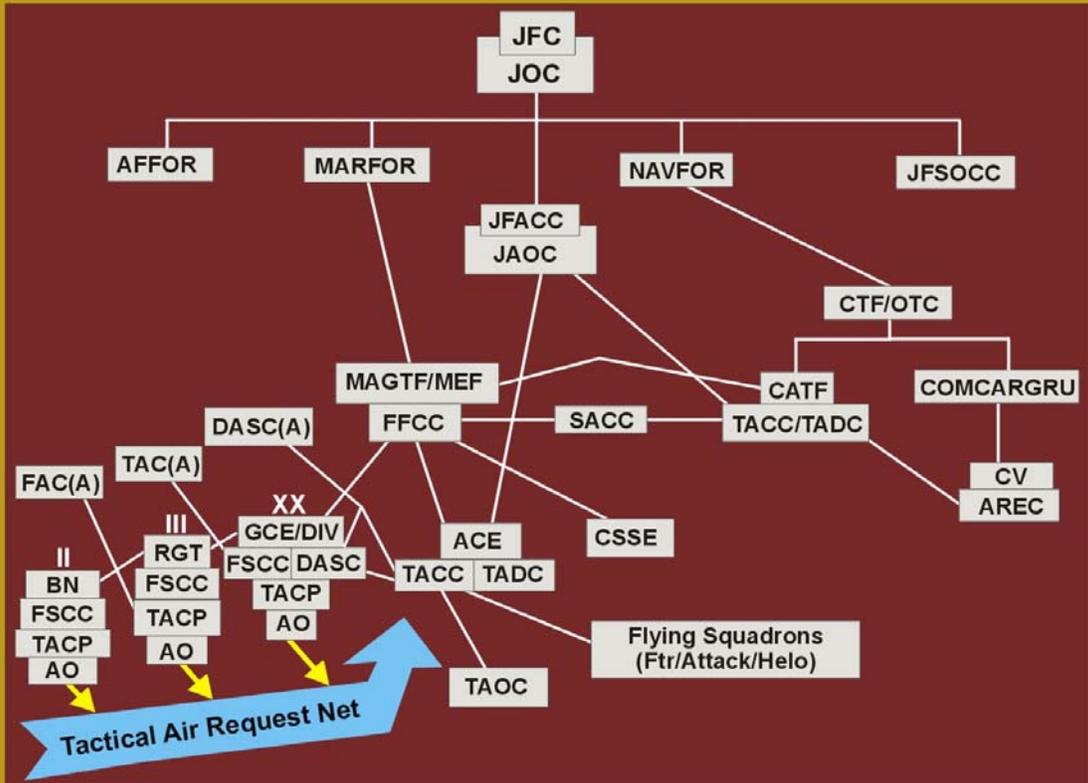
# ARMY/AIR FORCE CLOSE AIR SUPPORT CONNECTIVITY



<b>A2C2</b>	Army Airspace Command and Control	<b>CRC</b>	Control and Reporting Center
<b>ACCE</b>	Air Component Coordination Element	<b>DIV</b>	Division
<b>AFAOC</b>	Air Force Air and Space Operations Center	<b>FAC(A)</b>	Forward Air Controller (Airborne)
<b>ASOC</b>	Air Support Operations Center	<b>FSE</b>	Fire Support Element
<b>AWACS</b>	Airborne Warning and Control System	<b>GLO</b>	Ground Liaison Officer
<b>BCD</b>	Battlefield Coordination Detachment	<b>JFC</b>	Joint Force Commander
<b>BDE</b>	Brigade	<b>JFLCC</b>	Joint Force Land Component Commander
<b>BN</b>	Battalion	<b>JOC</b>	Joint Operations Center
<b>CAS</b>	Close Air Support	<b>JSTARS</b>	Joint Surveillance Target Attack Radar System
<b>COMAFFOR</b>	Commander Air Force Forces	<b>TACP</b>	Tactical Air Control Party
<b>COMARFOR</b>	Commander Army Forces	<b>WOC</b>	Wing Operations Center

Figure 2.3. Army/Air Force Close Air Support Connectivity (from JP 3-09.3 *Joint Tactics, Techniques, and Procedures for Close Air Support*)

# NAVY/MARINE CORPS CLOSE AIR SUPPORT CONNECTIVITY



<b>ACE</b>	Aviation Combat Element	<b>JFC</b>	Joint Force Commander
<b>AFFOR</b>	Air Force Forces	<b>JFSOCC</b>	Joint Force Special Operations Component Commander
<b>AO</b>	Air Officer	<b>JOC</b>	Joint Operations Center
<b>AREC</b>	Air Resource Element Coordinator	<b>MAGTF</b>	Marine Air-Ground Task Force
<b>BN</b>	Battalion	<b>MARFOR</b>	Marine Forces
<b>CATF</b>	Commander, Amphibious Task Force	<b>MEF</b>	Marine Expeditionary Force
<b>COMCARGRU</b>	Commander Carrier Group	<b>NAVFOR</b>	Navy Forces
<b>CSSE</b>	Combat Service Support Element	<b>OTC</b>	Officer Tactical Command
<b>CTF</b>	Combined Task Force	<b>RGT</b>	Regiment
<b>CV</b>	Carrier	<b>SACC</b>	Supporting Arms Coordination Center
<b>DASC(A)</b>	Direct Air Support Center (Airborne)	<b>TAC(A)</b>	Tactical Air Coordinator (Airborne)
<b>DIV</b>	Division	<b>TACC</b>	Tactical Air Control Center(USN)/ Tactical Air Command Center (USMC)
<b>FAC(A)</b>	Forward Air Controller (Airborne)	<b>TACP</b>	Tactical Air Control Party
<b>FFCC</b>	Force Fire Coordination Center	<b>TADC</b>	Tactical Air Direction Center
<b>FSCC</b>	Fire Support Coordination Center	<b>TAOC</b>	Tactical Air Operations Center
<b>GCE</b>	Ground Combat Element		
<b>JAOC</b>	Joint Air Operations Center		
<b>JFACC</b>	Joint Force Air Component Commander		

Figure 2.4. Navy/Marine Corps Close Air Support Connectivity (from JP 3-09.3 *Joint Tactics, Techniques, and Procedures for Close Air Support*)

## **MULTINATIONAL MARITIME ORGANIZATION**

### **Coalition Command Structures**

Coalition command structures are usually regulated by agreements and reflect the composition of the participating nations. The selection of the overall commander may be based on the preponderance of a nation's forces, a rotational basis, expertise, or other considerations. There are three basic coalition command structures—parallel, lead nation, or a combination of the two.

Within a parallel command, each nation retains control of its forces. Though Air Force forces will be operating under standardized joint guidance, they will probably be participating in maritime operations with other nations using different operating procedures. Careful coordination of multinational maritime operations is necessary to preclude conflicting operations.

Under a lead nation command structure, the nation that supplies the preponderance of forces generally provides the overall commander of forces. In a combination structure, parallel and lead nation arrangements coexist. Regardless of the structure, it is imperative that US personnel understand the procedures of other nations conducting operations in the maritime environment.

## CHAPTER THREE

### COUNTERSEA PLANNING AND EMPLOYMENT



*The argument has been advanced that the Air Force should be concerned with land objectives, and the Navy with objectives on and over the water. That distinction is to deny the peculiar quality of the air medium, the third dimension. The air is indivisible; it covers land and sea.*

—General Carl A. Spaatz,  
First Chief of Staff, United States Air Force (1947-1948)

#### GENERAL

Countersea planning and employment of Air Force forces with maritime forces will require close coordination between maritime component planners and AOC and unit planners. Ironing out the differences in expectations through liaison officers (LNOs) will reduce confusion and distraction while providing synergy, unity of effort, and effective air-sea integration. Employment in the maritime environment is enhanced greatly through integrated service collaboration, collective planning effort, and synchronized coordination in execution.

#### SUPPORTED COMMANDER RESPONSIBILITIES FOR PLANNING

Supported commanders and their staffs should clearly define commander's intent and objectives, scheme of maneuver, and effects desired. Once enemy capabilities have been assessed, supporting forces, timing, tempo, and concept of operations must be communicated to allow the supporting forces to understand their roles and objectives in the operation. Operational level planning will require integration of members from both supporting and supported staffs through various methods of communication.

#### SUPPORTING COMMANDER RESPONSIBILITIES FOR PLANNING

In order to aid, protect, complement, and sustain the supported commander's operation, supporting commanders and their staffs should expect to coordinate and integrate with the supported force, as well as to clearly identify employment strengths, shortfalls and limitations, interoperability challenges, and the impact of these factors on overall operations. It is also incumbent on the supporting commander and staff to know the intent, objectives, scheme of maneuver, and effects desired by the supported commander.

## APPORTIONMENT AND ALLOCATION

JFC priorities and objectives will determine the operational effects and weight of effort required. The JFACC, as the senior Airman, should determine the utilization of air assets to ensure proper balance, economy of force, and priority. This is particularly important to countersea operations where maritime and Air Force airpower need to be combined efficiently.

JP 1-02, *DOD Dictionary of Military and Associated Terms*, defines apportionment and allocation as follows:

- ✦ **Apportionment:** The determination and assignment of the total expected effort by percentage and/or by priority that should be devoted to the various air operations for a given period of time.
- ✦ **Allocation:** The translation of the air apportionment decision into total numbers of sorties by aircraft type available for each operation or task.

## LIAISON OFFICERS AND THE JOINT AIR AND SPACE OPERATIONS CENTER

Liaisons are an important aspect of joint force planning and employment. Liaison teams or individuals may be dispatched from higher to lower, lower to higher, laterally, or any combination of these. They generally represent the interests of the sending commander to the receiving commander, but can greatly promote understanding of the commander's intent at both the sending and receiving headquarters and should be assigned early in the planning stage of joint operations (JP 3-0, *Doctrine for Joint Operations*).

Naval and amphibious liaison element (NALE), Marine liaison officer (MARLO) and special operations liaison element (SOLE) provide the necessary face-to-face contact between Navy, Marine, and Special Operations planners and the JFACC or COMAFFOR and the respective planning staff. Direct communication between these individuals will help ensure mutual understanding and unity of effort, reducing friction between Services. The Navy, Marine, and special operations liaison officers participating in the AOC planning process represent their respective component commanders, and are not assigned or attached to the COMAFFOR or JFACC staff.

The NALE, MARLO, and SOLE provide the JFACC or COMAFFOR with timely information on non-familiar forces, assets, and planning opportunities to further the collective coordination and integration between components/Services. **Due to the inherently joint nature of most countersea operations, liaisons serve a vital and active role in coordinating and planning effects in the maritime environment.**

One liaison element offers coordination between the JFACC and other component or Service commanders. The air component coordination element (ACCE)

director is the JFACC's primary operational-level conduit to the supported/supporting component. The mission of the ACCE is to enable the director to personally and effectively represent the JFACC to his counterpart component commander. The ACCE works to ensure the director has all requisite knowledge, understanding, and background information to facilitate this mission. The ACCE also can provide component-to-command level presence in the forward headquarters. It provides operational level assessment and coordination of JFACC planning and execution to ensure integration with the operations plan and operational intent to meet JFC guidance.

**Air Force members can be expected to be liaisons to the JFMCC and/or COMNAVFOR during joint maritime operations. These Air Force liaisons within the staff(s) of the respective maritime commander offer tactical expertise, operational guidance, proper doctrinal implementation, and real-time coordination of operations with Air Force forces.**

## **PLANNING CONSIDERATIONS**

Planning for operations in the maritime environment presents many challenges. The following characteristics, conditions, and challenges found in the maritime environment should be considered in the planning process:

- ★ **Command Relationships.** Establishing proper relationships of components and functions is necessary to achieve unity of effort in employing Air Force forces in countersea operations. The following areas and issues need resolution before moving forward in the planning process:
  - ★★ The JFACC normally retains TACON of all common/joint use sorties.
  - ★★ All air defense sorties are considered common/joint use sorties.
  - ★★ Recognize that the COMNAVFOR and/or the JFMCC are conducting maritime superiority operations and will retain sorties/assets for organic support.
- ★ **Areas of Responsibility.** Clearly understood areas of responsibilities are prerequisite for successful joint operations in the maritime environment.
  - ★★ The JFACC, land or sea-based, is normally both the AADC, ACA, and space coordinating authority (SCA) responsible for overall defense of the joint operations area (JOA) and integrating all component requirements for space support.
  - ★★ The JFMCC or COMNAVFOR is typically assigned regional air defense responsibilities over water.

- ☆☆ The JFACC is normally tasked to achieve functional, not regional, objectives. Whereas land and naval commanders are normally given areas of operations (AO), the JFC normally tasks the JFACC with theater-wide responsibilities such as interdiction or strategic attack. Per joint doctrine, areas of operation do not apply to the joint air component.
- ☆☆ Defensive counterair operations or missions are typically sourced jointly for efficient command and control and economy of force whether over land or water.
- ★ **Strike Planning.** Strike planning should ensure maximum integration of land and sea-based air and space operations. Attention should be given to the complexity of the operation, as well as communications challenges.
  - ☆☆ Contemplate joint packaging after attainment of air and maritime superiority.
  - ☆☆ Use AWACS and E-2 Hawkeyes to assist real-time package coordination for joint air operations.
  - ☆☆ TLAM harmonization and launch deconfliction should continue to be coordinated through the JFACC and the TLAM strike coordinator to ensure deconfliction with strike aircraft.
  - ☆☆ Consideration should be given to flight deck operations and cycle times.
  - ☆☆ Suppression of enemy air defenses (SEAD) and air refueling are typically operations with the greatest demand. Consider all LIMFACs when conducting strike planning.
  - ☆☆ Exchange of Air Force unit representatives with JFMCC, COMNAVFOR, and/or carrier air wings (CVWs) is highly effective in facilitating tactical planning and operations coordination.
- ★ **Air Refueling Operations.** Air Force assets operating near or in the vicinity of an aircraft carrier require familiarity with flight deck operations to facilitate effective air refueling operations with Navy air assets. Air refueling coordination and integration requires constant management by planners, and details need to be stated in ATO SPINS.
  - ☆☆ Positive control procedures should be utilized combined with an awareness of potential air traffic congestion.
  - ☆☆ Organic maritime aircraft operating at lower altitudes (below 10,000 ft) can be a risk factor in the maritime operating environment
  - ☆☆ Planners should ensure Air Force air-to-air refueling procedures are clearly communicated to be used in all JFACC-controlled operations.

- ☆ **Desired effects.** Once desired effects are defined, the concept of operations (CONOPS) and master air attack plan (MAAP) optimize assets and munitions based on the maneuverability, size, shape, and dimensions of surface, undersea, and other potential maritime targets.
  
- ☆ **Integration with maritime forces.** Many variables not encountered in typical Air Force training environments are essential to the success of planning integrated operations with maritime forces. Integration during the planning process should consider and determine issues such as:
  - ☆☆ Maritime superiority vs. air superiority.
  - ☆☆ Joint air operations.
  - ☆☆ Joint packaging.
  - ☆☆ Leveraging component capabilities.
  - ☆☆ Cross component information flow.
  - ☆☆ Areas of responsibility.
  - ☆☆ ADC responsibilities within the maritime AO.
  - ☆☆ Sector and regional air defense functions.
  - ☆☆ DCA for maritime force protection.
  - ☆☆ Strike packaging and considerations.
  - ☆☆ Maritime air support.
  - ☆☆ Dynamic targeting.
  - ☆☆ Surface attacks.
  - ☆☆ EW support.
  - ☆☆ Air mobility and air refueling.
  
- ☆ **Environmental conditions.** Maritime environment weather conditions may change rapidly. Characteristics such as wave height and sea spray will impact visibility and radar/sensor effectiveness for platforms and munitions. Ducting, a phenomenon that allows radar energy to travel extended distances within a few hundred feet of the sea surface under some conditions, can influence tactical planning. Therefore, these conditions require thorough analysis. For example, carrier-based aircraft may encounter sea-state constraints for launch and recovery. Operations, in turn, may impact joint land- and sea-based strike packaging as well as counterair. Advance planning should address the need for

sufficient air power assets to offset the loss of capability and desired effects due to environmental factors.

- ✦ **Enemy threat, location, and capabilities.** Maritime targets tend to be more difficult to engage than land-based targets. The maritime environment does not provide the protection afforded by terrain. In this medium, the threat can often detect and engage aircraft from long distances. Such factors may increase the number of aircraft needed to successfully strike targets or meet desired effects and objectives.
- ✦ **Naval nomenclature and terminology.** Integration with maritime forces during employment needs to be thoroughly planned for and understood. Command and control structure, element/agency call signs, and communication procedures are, in most cases, different than those in the Air Force. Aircrew must be able to identify, understand, and interface with maritime elements within the CSG, ESG, or SAG. For instance, conducting CAS in an AOA requires coordination with the DASC as opposed to the air support operations center in traditional CAS.

## AIR FORCE OPERATIONS

The following sections cover planning and employment considerations for directing Air Force functions related to the protection and enhancement of maritime freedom of action.

### Maritime Surveillance and Reconnaissance

In the maritime environment, control must be achieved in the air, on the surface, and under the surface as part of battlespace dominance. Air Force forces help enable control of air and surface maritime areas through surveillance and reconnaissance coverage and their significant abilities to collect data. **Air Force forces provide rapid and large area surveillance and reconnaissance coverage, often arriving on station prior to other forces. This coverage can be used to observe the maritime environment in a homeland security role or overseas.**

Planning and employing this capacity could occur as a single Service or jointly. Operations may involve interfacing with multinational forces, Navy forces, the Coast Guard, or other agencies responsible for homeland security. Preparation and execution of ISR should include coordination through LNOs working in the AOC or with other agencies.

Some of the attributes Air Force air and space assets may offer in surveillance and reconnaissance of the maritime environment are:

- ✦ Rapid deployment to the area of interest.
- ✦ Large area coverage in a short time period.

- ✧ Ability to loiter with or without air refueling depending on platform.
- ✧ Passive and active detection, classification, and identification.
- ✧ Real time target tracking/reporting.
- ✧ Over the horizon targeting.
- ✧ Ability to transition to weapons employment depending on platform.
- ✧ Real time strike support.
- ✧ Environmental situational awareness through weather data.
- ✧ Indications and warnings.
- ✧ Rapid and accurate battle damage assessment.

Planning for ISR operations should address the objectives of *area* and *directed* surveillance/reconnaissance, classification of contacts, prioritization of contacts, and rules of engagement relating to contact location, type, and overflight. LNOs may be a valuable source of information regarding surveillance/reconnaissance operations and associated supported commander's intent. Awareness of international laws regarding vessel type and location, as well as threat capabilities, help avoid unnecessary escalation of a surveillance/reconnaissance situation.

### **Antisurface Ship Warfare (Surface Warfare)**

Commanders may employ Air Force forces to interdict enemy maritime surface forces. These operations are conducted to destroy or neutralize enemy naval surface forces and merchant vessels. Planning should address and define marshalling areas; area of attack; ROE; required coordination and deconfliction with friendly vessels in or near the area of operation; fighter, joint, missile, and self-defense engagement zones; vessel identification; and other factors that may influence platform choices, weapons mix, tactics, and support requirements.

Air Force assets such as the F-16, F-15E, A-10, B-1, B-2, B-52, and F-117 are capable of employing a variety of precision-guided munitions effectively against the majority of maritime surface vessels. Most Air Force fighter and bomber aircraft provide precision, cluster, and general-purpose munitions capabilities.

Today's combatant commanders require the capability to engage mobile seaborne targets in all weather conditions. While there exists a capability to engage mobile, maritime, surface vessels in clear air conditions using "fighter-centric" short-range munitions, there is presently no fielded capability to hit this same target set in adverse weather conditions such as low ceilings or fog. The Air Force is currently developing that capability and PACAF successfully completed tests in 2004 through the demonstration of Resultant Fury.

## Air Interdiction Demonstration In The Maritime Environment



1921

US Army Air Service MB-2 bombing of German capital ship Ostfriesland



2004

US Air Force B-52 using AMSTE JDAM creating effects on ex-USS Schenectady

*Analogous of the transformation from black and white to color photos, air interdiction in the maritime environment has progressed since 1921 when the first employment (83 years ago) of an aircraft against a ship proved to be, yet another effective use of air power. In November of 2004 the Air Force conducted Resultant Fury, a two-phased demonstration featuring B-52 bombers and F-15E fighters meeting, engaging, and sinking multiple moving maritime targets. This is the first time Air Force aircraft have used the [joint direct attack munition] JDAM to sink a moving vessel. "The ability for airpower to rapidly respond and sink naval vessels is crucial in our theater," said Maj. Gen. David Deptula, Director of [Pacific Air Forces] PACAF air and space operations. "We can successfully engage and destroy multiple ships in all weather, day or night."*

*Though maritime interdiction itself is not new, the Air Force has not practiced it a lot since before Desert Storm. However, the level of command and control and the ability to use the technology in the Global War on Terrorism is new. "We can use this technology to sink ships used by enemy combatants, terrorists, or those used for piracy," said Maj. Mike Eliason, Resultant Fury demonstration director and Chief of PACAF weapons and tactics.*

*Through real-time, all-weather technology, information was fed from intelligence, surveillance, and reconnaissance platforms to the Pacific air and space operations center, enabling command and control elements near real-time ability to track multiple moving sea targets and feed that information to airborne bomber pilots, allowing them to quickly engage and destroy the vessels.*

**–PACAF Public Affairs**

**NOTE:** While Resultant Fury was designed strictly as a demonstration, and as such does not reflect current operational capabilities, it, like Brigadier General "Billy" Mitchell's demonstration in 1921, dramatically highlighted the potential effectiveness of airpower in the maritime environment.



### **ATTACK ON THE *HMS SHEFFIELD***

*The British Task Force that deployed to retake the Falkland Islands was centered approximately 100 miles south of Port Stanley in the Falkland Islands on the morning of 4 May 1982. An Argentine Neptune of the 1<sup>st</sup> Naval Reconnaissance Escuadrilla had been shadowing the fleet and periodically reporting the fleet's position. Later that morning, two Argentine Super Etendards armed with Exocet missiles launched from Rio Grande Air Base. After a brief refueling from a KC-130 Hercules tanker, the two aircraft continued eastward toward the Falklands and their target, the British fleet, all the while maintaining radio silence and listening to broadcasts from the Neptune.*

*The Super Etendards descended to low altitude as they approached the target area. In the reported vicinity of the warships, they climbed to about 120 feet, turned on their radar to locate the targets, launched the Exocets, descended, and withdrew as fast as they could.*

*The HMS Sheffield was on radar picket duty approximately 20 miles west of the main body. Its radar briefly picked up an incoming aircraft at low altitude, but it disappeared from their radar shortly afterwards. Two minutes later, officers on the bridge noticed a trail of smoke followed five seconds later by the missile impacting the ship with a dull bang. Many believe the warhead never exploded, but the remaining rocket fuel started a fire that eventually forced the crew to abandon ship. Eventually the ship sank.*

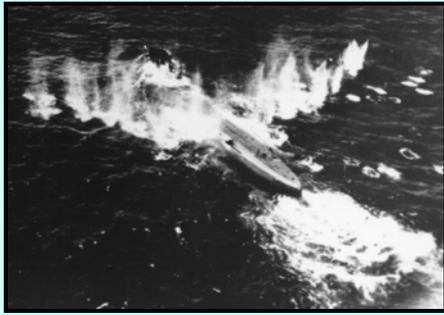
*With only four operational Super Etendards and few Exocets, the Argentines flew a total of 12 sorties that launched five missiles. Of these, two missiles hit their targets. Due to this threat and lacking an effective early warning capability, the British shifted their aircraft carriers further to the east, forcing their Harriers and Sea Harriers to operate close to their maximum combat radius, reducing the amount of support they could provide to British surface forces in the vicinity of the Falkland Islands.*

**—Various sources**

## **Antisubmarine Warfare**

Air Force forces successfully performed ASW during WW II. Currently, Air Force assets could perform ASW in an ISR and interdiction role by monitoring and, if needed, attacking enemy submarines under way or in port, as well as the port itself, or locations used for refueling or supply. Additionally, currently fielded Air Force assets have sensors and weapons required to detect and engage diesel submarines, in support of the JFMCC's undersea warfare efforts. However, extensive planning and training would be required for Air Force forces to effectively attack deployed, submerged submarines.

## ANTISUBMARINE WARFARE IN THE GULF OF MEXICO



*The formation, equipping, and training of effective sea and air antisubmarine forces against the German offensive on the East Coast required time. The Navy, supported by the AAF [Army Air Force], gradually progressed with various defensive measures and increasingly effective air patrols forced the Germans to greater caution in the waters of the*

*Eastern Sea Frontier. By June 1942, German submariners had turned to the less dangerous waters of the Gulf of Mexico and the Caribbean Sea.*

*The shift of the German submarines offensive to the Gulf overwhelmed the resources of the Navy and the AAF, which were barely adequate to defend against submarines in the Eastern Sea Frontier. The Navy had created the Gulf Sea Frontier in February 1942 with minimal surface and air forces, and the AAF had contributed only fourteen observation aircraft and two worn-out B-18s. To counter increased submarine attacks, the AAF, between May 8 and 10, sent a squadron of light bombers (A-29s) to Jacksonville, Florida, and six medium bombers (B-25s) to Miami and on May 20 - 21 sent a detachment of B-25s to Havana, Cuba, to patrol the Yucatan Channel. On May 26, the First Air Force created the Gulf Task Force and stationed it at Miami. This organization, which continued to operate until November 1942, cooperated with the Commander, Gulf Sea Frontier, to provide operational control of all AAF aircraft that flew antisubmarine patrols in the area. At the end of July 1942 the Navy instituted a convoy system in the Gulf of Mexico, and German submarines faced the same dangers they had off the East Coast. On September 4, 1942, the United States lost the last ship sunk by enemy action in the Gulf of Mexico, as Admiral Doenitz withdrew all submarines from the Gulf.*

**—A. Timothy Warnock**

***The Battle Against the U-Boat in the American Theater***

## Aerial Minelaying Operations

Mine warfare (MIW) is the strategic, operational, and tactical use of mines and mine countermeasures (MCM). Mine warfare is divided into two basic subdivisions—minelaying for area denial and countering enemy-laid mines. Mine warfare air operations support the broad task of establishing and maintaining control of vital sea areas. The most expeditious minelaying operations are accomplished by aircraft. Mine countermeasures seek to prevent an enemy from laying mines and include actions to reduce or eliminate mines already laid by an enemy.

## EFFECTS OF MINES



*From 1943 through 1945, US land-based bombers conducted aerial minelaying operations against Japanese shipping in Burma, the East Indies, the Solomon Islands, the Bismarck Archipelago, Thailand, and other locations around the South China Sea effectively closing the area or severely restricting barge and ship traffic. Beginning in the Spring of 1944, B-29s operating from the Marianas Islands began aerial minelaying in the waters surrounding Japan. B-29s flew 1,529 missions and dropped over*

*12,000 mines. This effort complemented the submarine campaign being waged by the US Navy. According to The United States Strategic Bombing Survey, "mines dropped by B-29s in Japanese harbors and inland waterways accounted for 50 percent of all ships sunk or damaged. In isolating areas of combat from ship-borne reinforcements land-based aircraft also sank large numbers of barges and vessels smaller than 500 tons gross weight, not included in the tabulation provided by the Survey." Mines dropped by B-29s are credited with sinking 287 ships and damaging another 323 from April 1945 until the war ended. Shipping in and around Japan was either stopped or severely restricted to the point that industry was paralyzed due to severe shortages of coal, oil, salt, and food.*

**—Various sources**

## Counterair Operations

Air Force doctrine and joint doctrine identify the term counterair as the action required to destroy or reduce to an acceptable level the enemy air and missile threat. "Counterair" and the US Navy/US Marine Corps term, "air warfare" (AW), are virtually synonymous. The Navy employs an air defense commander (ADC) as part of its composite warfare commander (CWC) structure to enable air and ship platforms to engage the enemy in much the same way Air Force assets perform counterair.

Depending upon the proximity of a forward operating location to an objective area and the availability of air-to-air refueling support, commanders may employ Air Force fighter aircraft in the maritime environment to gain air superiority. Counterair is divided into offensive counterair (OCA) and defensive counterair (DCA). SEAD is a component of OCA.

Air Force forces may perform DCA to thwart enemy air and missile attacks against maritime forces. Maritime aviation protects the carrier/expeditionary strike group through the action of AW. Surface combatants and aircraft within the strike group to protect them from any air threat much the same as DCA is employed. This function is controlled by the air warfare commander (AWC). The airborne warning and control system (AWACS) and Air Force fighter aircraft are the primary assets to perform DCA and augment the AW mission.

Planners, with LNO coordination, should flesh out airspace deconfliction, identification procedures and responsibilities, entry and exit procedures, and minimum risk routing (MRR) within the strike group AO. More importantly, the defining of fighter engagement zones (FEZ), joint engagement zones (JEZ), surface combatant missile engagement zones (MEZ), and/or self-defense zones is necessary to preclude fratricide.

## Air-to-Air Refueling

Planning air-to-air refueling in support of maritime operations should ensure refueling compatibility between tankers and aircraft receiving fuel. Because maritime support aircraft missions generally begin from locations outside the AO, determination of air refueling tracks and offload requirements should account for operating radius of aircraft, distance to and from the AOR, and threat reaction requirements. To the maximum extent possible, joint air units ordered to receive a scheduled ATO offload (e.g., specified air refueling control time) should take the fully planned onload.



**KC-10 refueling F-18 with F-14 in formation**

This helps ensure timely and efficient execution of joint air operations and prevents unintentional consequences in the joint air environment. Air Force air mobility planners need to recognize the Navy/Marine practice of “opportunity tanking” and accommodate it where practicable, without sacrificing planned offloads. Flight operations aboard an aircraft carrier are very dynamic and time sensitive requiring carrier-based crews to plan their missions with flexibility with regard to fuel and timing. There are instances where extra fuel can give these aircraft, or the aircraft carrier, the needed time and flexibility to conduct their operations safely and efficiently without having to divert aircraft to land-based facilities.

## Amphibious Operations

*“The doctrine and performance of Marines and Airmen matured in Pacific campaigns as the hesitancy and missteps of Guadalcanal, New Guinea, and Tarawa were heeded. Coordinated amphibious assault and air warfare became irreplaceable.”*

—**“Struggle for the Marianas,” CAPT Bernard D. Cole, USN  
Joint Force Quarterly, Spring ‘95**

Amphibious operations may require Air Force forces to perform functions such as counterair to provide air superiority, counterland for interdiction and/or joint close air support, airlift for air assault or resupply, and ISR from air and space assets. The COMAFFOR or JFACC should plan with the JFMCC, CATF, and CLF to ensure functional integration and to accomplish the following in preparation for amphibious operations:

- ★ Air superiority must be gained and maintained to protect the amphibious forces at sea during transition to land and until amphibious assault is complete.
- ★ Through air interdiction, enemy forces in the littoral environment will need to be reduced or suppressed to an acceptable level prior to an amphibious assault.
- ★ ISR assets are required to support friendly forces and to monitor enemy forces throughout the amphibious operation.
- ★ High-density airspace control may require the JFACC to designate, along with the CATF, a subordinate ADC and ACA within the AOA or HIDACZ depending on the area established.
- ★ Command and control requirements must be clearly established prior to employment. JFACC coordination with CATF, CLF, and subordinate agencies from initial planning through the different phases of amphibious operations to termination are key to mission success.



### **FAR EAST AIR FORCES (FEAF) AND INCHON (AUGUST – SEPTEMBER 1950)**

*As the date for the Inchon landing approached, FEAF began its part of the operation. Photographic reconnaissance units flew across the Inchon-Seoul area to provide the Navy with desperately needed high and low tide photos of the sea walls that would have to be scaled at Inchon. The photos also provided the Navy with the information needed to orient the landing crews. FEAF Bomber Command bombed the enemy's rail lines north of Seoul beginning 9 September. B-29s bombed bridges, marshalling yards, tunnels, trestles, and track leading into the landing area.*

*Armed fighters sought out and attacked enemy airfields and aircraft that could threaten the landings. The X Corps surprised the Communist troops when they went ashore on 15 September. On 17 September, the Marines took Kimpo Airfield with minimal damage. On 19 September, FEAF Combat Cargo Command landed the first C-54 at Kimpo, followed by additional C-54s and C-119s loaded with troops, supplies, night lighting equipment, and cargo handling equipment. A 24-hour operation began with incoming cargo aircraft bringing troops and supplies and outgoing aircraft providing aeromedical evacuation of casualties to Japan.*

**—Various sources**

As an entity, the amphibious operations generally follow following five distinct phases, though the sequence may vary:

- ★ Planning: The period extending from issuance of the initiating directive to embarkation.
- ★ Embarkation: The period during which the forces, with their equipment and supplies, are embarked (on board) in the assigned shipping.
- ★ Rehearsal: The period during which the prospective operation is rehearsed for the purpose of: (1) testing adequacy of plans, the timing of detailed operations, and the combat readiness of participating forces; (2) ensuring that all echelons are familiar with plans; and (3) testing communications. Rehearsal may consist of an actual landing or may be conducted as a command post exercise.

- ✦ Movement: The period during which various components of the amphibious task force move from points of embarkation or from a forward-deployed position to the operational area. This move may be via rehearsal, staging, or rendezvous areas. The movement phase is completed when the various elements of the amphibious force arrive at their assigned positions in the operational area.
- ✦ Assault: The period between the arrival of the major assault forces of the amphibious task force in the objective area and the accomplishment of the amphibious task force mission.

When amphibious forces are forward deployed, or when subsequent tasks are assigned, the sequence of phases may differ. Generally, forward-deployed amphibious forces use the sequence “embarkation,” “planning,” “rehearsal” (to include potential reconfiguration of embarked forces), “movement to the operational area,” and “action.” However, significant planning is conducted prior to embarkation to anticipate the most likely missions and to load assigned shipping accordingly. The same sequence is useful for subsequent tasks or follow-on amphibious missions.

In short, the five phases of an amphibious operation are always required, but the sequence in which they occur may be changed as circumstances dictate.

## **Close Air Support (CAS)**

Amphibious operations may entail CAS in the littoral environment. However, there are significant differences that make this type of CAS operation more difficult than traditional CAS. Amphibious operations involve many fire support elements creating deconfliction challenges and increased potential for fratricide. Air, sea surface and sub-surface, and land elements operate and converge in one confined area to support the LF. Command and control in an amphibious operation is complex, requiring both horizontal and vertical integration bringing fire support coordination agencies under one hierarchy. All dimensions become intricately interwoven as the LF transitions to shore.

Given the challenges of CAS in a maritime environment, aircrew cannot afford to operate as tasked by the ATO without prior planning and coordination. Execution of CAS with Air Force forces during amphibious operations requires significant pre-planning, rehearsal, and clear understanding of friendly force positions as well as movement intentions. Deconfliction of airspace, target areas, and friendly locations is essential to safely executing CAS and avoiding fratricide. Aircrew operating in the dynamic environment associated with a landing force moving inland requires familiarity with geographic reference points, holding points, and entry/exit routes as determined in planning.

## **Maritime Air Support (MAS)**

Air Force forces may be called upon to prosecute maritime surface targets in a time urgent manner. This is a Navy/Marine Corps mission called maritime air support (MAS) that is similar to Air Force dynamic targeting. This mission also parallels the

methodology of CAS with detailed integration and terminal control, but not in close proximity to friendly forces. Planner and operator coordination with LNOs is critical in conducting successful MAS. For more information and MAS procedures, refer to NTTP 3-03.4 (Rev A), *Naval Strike and Air Warfare*.

## Space Capability

The JFACC, as the SCA, will coordinate space operations, integrate space capabilities, and have primary responsibility for in-theater joint space operations planning. Planning and coordinating as early as possible to utilize joint space capabilities greatly enhance maritime operations. Space-based assets may provide a significant capability to characterize threats and identify adversary strengths, weaknesses, and vulnerabilities. Joint space assets provide global communication, bandwidth, space-based ISR, environmental monitoring, missile warning, positioning, navigation, and timing, which enhance air and maritime maneuver as well as joint fires in countersea operations. Also, counterspace operations are conducted to ensure friendly forces the ability to exploit space capabilities while negating the adversary's ability to do the same. Defensive counterspace operations are important since space capabilities enable distributed operations in the maritime environment.

## Stability Operations

The general goals of US military operations during such periods are to support national objectives, deter war, and return to a state of peace. The various discrete military tasks associated with small-scale and security operations are not mutually exclusive; depending on the scenario, there may be some overlap among the tasks. They may also occur within the context of a larger major operation. Air Force stability operations in the maritime environment include:

- ✦ Enforcement of sanctions and/or maritime intercept operations.
- ✦ Counterdrug enforcement.
- ✦ Ensuring freedom of navigation and/or protection of shipping.
- ✦ Recovery operations.

## Homeland Security Operations

The Air Force defines its role in homeland security operations as all applications of air and space power designed to detect, preempt, respond to, mitigate, and recover from the full spectrum of incidents and threats to the homeland, whether man-made or natural. This includes traditional combat operations as well as combat support. This definition for homeland security operations establishes the Air Force's responsibilities in direct support of homeland security.

The United States Department of Homeland Security (DHS) works with DOD to ensure the sovereignty and security of our nation. DHS provides a comprehensive framework for organizing the efforts of federal, state, local, and private organizations whose primary functions are often unrelated to national security. Air Force forces can be employed in the role of preserving the security of our homeland by performing operations that are conducted to protect our coastal areas from various threats. Air Force homeland security operations in the maritime environment include:

- ✧ Indications and warnings.
- ✧ Maritime surveillance and reconnaissance.
- ✧ Anti-surface ship warfare (interdiction in the maritime environment).
- ✧ Counterair.

There are differences in terminology and definitions between the DHS and the DOD. The Air Force construct for homeland security operations attempts to bridge the differences. See AFDD 2-10, *Homeland Security Operations*, for more detailed information regarding this matter.

## **Other Air Force Countersea Operations**

Other Air Force operations such as airlift, IO, special operations, C2, personnel recovery operations, and weather services may also provide support to countersea operations.

## **INTERNATIONAL LAW**

To effectively conduct countersea operations, commanders, planners, and aircrews must be aware of the legal issues that can impact such operations. National policy and legal requirements dictate that countersea operations be conducted in compliance with international law. The law relating to countersea operations is particularly complex in that much of the law is customary international law developed throughout naval history. In addition, commanders, planners, and aircrews must have knowledge of the air navigation regimes that dictate where aircraft can lawfully fly. Part of the preparation for countersea operations must be a review of the law of armed conflict (LOAC) and law of the sea requirements, which affect these operations.

The United Nations Law of the Sea Convention of 1982 has codified customary international law on maritime navigation and overflight rights. Air Force members involved in countersea operations must be aware of the rights of aircraft over the various maritime zones. These zones include the high seas, exclusive economic zones, contiguous zones, territorial seas, internal waters, archipelagic waters, international straits, and archipelagic sea lanes. These zones are important because they determine the amount of control that a coastal state may exercise over foreign aircraft and ships.

All of these zones are measured from national baselines, hence knowledge of where these baselines are located is essential if aircraft are to be able to assert and exercise their lawful rights in conducting countersea operations.

Some nations assert security zones beyond the limits of their territorial sea but international law does not recognize any such zone. Military aircraft generally have freedom of navigation rights outside of territorial seas. Any nation may declare a temporary warning zone including over areas of the high seas. These zones do not restrict the right of navigation but advise ships and aircraft of hazardous (but lawful) activities. These may include missile testing, gunnery practice, and space vehicle recovery operations. In the exercise of their inherent right of self-defense under the United Nations Charter, nations may declare various forms of maritime control areas. These may include air or maritime exclusion zones, or other types of defensive sea areas in which a measure of control is exercised over foreign ships and aircraft. During times of conflict, Air Force units must be particularly aware of the rights of neutral nations. These rights protect a neutral's sovereignty, which includes national ships and aircraft.

The upper limits of airspace have not been authoritatively defined by international law. There is a different legal regime that governs outer space, which begins at an unidentified point at which artificial satellites can be placed in orbit without freefalling to earth.

In the maritime environment, LOAC, customary international law as recognized by the United States, international conventions to which the United States is a party, and national policy directives are all relevant. When planning and conducting countersea operations, commanders, planners, and aircrew should obtain the legal advice of the supporting judge advocate.

## CHAPTER FOUR

### COUNTERSEA TRAINING

*Value of Training...Those air units which had anti-shipping attacks as their prime mission and employed the required specialized techniques, equipment, and training achieved against ships the best results for the effort expended.*

—The United States Strategic Bombing Survey

#### GENERAL

Not since the demise of the Soviet Union has the United States faced a formidable adversary on the seas or other maritime environment. Today, a near-peer threat to our maritime forces is emerging and will require countering through the use of organic maritime forces and Air Force forces. In short, Air Force countersea operations can be expected to take place against an enemy's maritime force, and to project power along with the Navy and Marine Corps and protect our domestic shores from would-be unconventional attacks.

To meet the challenges of the maritime environment, the Air Force should be prepared to conduct its assigned functions independently, as part of a joint force or as part of a coalition. Countersea functions assigned to the Air Force, based on its air, space, and information operations capabilities, will be performed most effectively with thorough and frequent training in the joint environment.

#### TRAINING FORCES

**One of the most important aspects of countersea preparation is training. Training should be realistic, subject to constant review and evaluation, and reflect the range of military operations in the maritime environment.** It should balance flexibility and cost, and also emphasize joint and multinational procedures. Units must train regularly for their countersea mission to gain experience, develop procedures, and streamline integration with maritime forces. For instance, if a unit's designed operational capability (DOC) statement includes a sea surveillance mission, then commanders should train crews to successfully fulfill that function. Unit programs, weapons schools, exercises, and simulations are sources for this training. Joint multinational exercises provide excellent opportunities to gain valuable experience and refine procedures for operating together in the maritime environment. Planners should design exercises to closely simulate stability and wartime operations in the maritime environment. The Air Force should pursue continued or increased participation in Service, joint, and multinational maritime exercises.

Simulation and wargaming, although not a substitute for hands-on training, should be utilized when unable to conduct live exercises. Simulations can be made more realistic by incorporating stress factors and varied scenarios. Simulation and wargaming may best be utilized to work through challenging aspects of an operation, such as integration or C2 issues, so as to identify “best practices” and optimize training in live exercises.

Examples of current training include B-52 and E-2 Hawkeye crews routinely performing maritime patrol missions, ISR, and aerial minelaying. The USAF Weapons School (USAFWS) provides elements of countersea training and academics to some weapon school students. For instance, the 340th Weapons Squadron provides training to all B-52 weapons officers in aerial minelaying and jointly coordinates with US Navy crews. Other squadrons at the Weapons School, such as the 16th Weapons Squadron (F-16) are taught maritime operations academics with cross-talk between USAFWS instructors and Navy “Top Gun” instructors.

## **SUMMARY**

The future success of Air Force maritime operations is based on efforts taken now to effectively organize, train, and equip Air Force forces for these operations. Through proper preparation and foresight, Air Force forces will be capable of conducting countersea to achieve commanders’ objectives in support of national policy for the maritime environment.



**Air Force forces in the maritime environment**

***At the very heart of warfare lies doctrine...***

## SUGGESTED READINGS

### Air Force Publications

AFDD 1, *Basic Air Force Doctrine*

AFDD 2, *Organization and Employment of Aerospace Power*

AFDD 2-1, *Air Warfare*

AFTTP (I) 3-2.25, *Bomber Maritime operations (BMO) Multiservice Tactics, Techniques and Procedures*

(Note: All Air Force doctrine documents are available on the Air Force Doctrine Center web page at <https://www.dctrine.af.mil>; all Air Land Sea Application (ALSA) documents are available on their website <https://wwwmil.alsa.mil/index.html>)

### Joint Publications

JP 3-0, *Doctrine for Joint Operations*

JP 3-09.3, *Joint Tactics, Techniques, and Procedures for Close Air Support*

JP 3-52, *Doctrine for Joint Airspace Control in the Combat Zone*

### Other Publications

Naval Warfare Publication 3–56, *Composite Warfare Commander Manual*. Naval Doctrine Command.

Naval Doctrine Publication 1, *Naval Warfare*. Naval Doctrine Command.

Naval Doctrine Publication 1–14M, *The Commander's Handbook on the Law of Naval Operations*. Naval Doctrine Command.

*The United States Strategic Bombing Survey*. Maxwell AFB, AL, reprinted by Air University Press, 1987.

Agawa, Hiroyuki. *The Reluctant Admiral*. Tokyo: Kodansha International Ltd., 1979.

Berger, Carl, ed. *The United States Air Force in Southeast Asia, 1961–1973: An Illustrated Account*. Washington, D.C., Office of Air Force History, 1984.

Blair, Clay. *Hitler's U–Boat War*. New York: Random House, 1996.

Doenitz, Karl. *Memoirs: Ten Years and Twenty Days*. New York: World Publishing Company, 1958.

Ethell, Jeffrey and Price, Alfred. *Air War: South Atlantic*. New York: Macmillan Publishing Company, 1983.

Kenney, George C. *General Kenney Reports*. Air Force History and Museums Program, 1997.

McAulay, Lex. *Battle of the Bismarck Sea*. New York: St. Martin's Press, 1991.

Mason, R. A. *Air Power: A Centennial Appraisal*. London: Brassey's Publishers, 1994.

Morison, Samuel Eliot. *The Two–Ocean War: A Short History of the United States Navy in the Second World War*. Boston: Little, Brown and Company, 1963.

Perry, Charles M., Pfaltzgraff Robert L., Conway Joseph C. *Long–Range Bombers and the Role of Airpower in the New Century*. Cambridge, MA, Institute for Foreign Policy Analysis, 1995.

Perry, Charles M., Rothenberg Laurence E., Davis Jacquelyn K. *Airpower Synergies in the New Strategic Era: The Complementary Roles of Long–Range Bombers and Carrier–Based Aircraft*. McLean, VA, Brassey's, Inc., 1997.

Potter, E. B. and Nimitz, Chester W., eds. *Sea Power: A Naval History*. Englewood Cliffs, N.J.: Prentice–Hall, 1960.

*San Remo Manual on International Law Applicable to Armed Forces at Sea*. International Institute of Humanitarian Law, 1994.

Schoenfeld, Maxwell. *Stalking the U–boat: USAAF Offensive Antisubmarine Operations in World War II*. Washington, D.C.: Smithsonian Institution Press, 1995.

Spector, Ronald H. *Eagle Against the Sun: The American War with Japan*. New York: Free Press, 1984.

Syrett, David. *The Defeat of the German U–Boats*. Columbia, S.C.: University of South Carolina Press, 1994.

Van der Vat, Dan. *The Atlantic Campaign: World War II's Great Struggle*. New York: Harper & Row Publisher. 1988.

## GLOSSARY

### Abbreviations and Acronyms

<b>AAA</b>	antiaircraft artillery
<b>AAF</b>	Army Air Forces
<b>ACC</b>	air component commander
<b>AFDD</b>	Air Force doctrine document
<b>AI</b>	air interdiction
<b>ATP</b>	allied tactical publication
<b>AOR</b>	area of responsibility
<b>AETF</b>	air and space expeditionary task force
<b>AW</b>	air warfare (Navy)
<b>AWC</b>	air warfare commander (Navy)
<b>C2</b>	command and control
<b>C2WC</b>	command and control warfare commander [Navy]
<b>CAS</b>	close air support
<b>COG</b>	center of gravity
<b>COMAFFOR</b>	commander, Air Force forces
<b>CONUS</b>	continental United States
<b>CSAR</b>	combat search and rescue
<b>CWC</b>	composite warfare commander (Navy)
<b>DCA</b>	defensive counterair
<b>DOC</b>	designed operational capability
<b>DOD</b>	Department of Defense
<b>DODD</b>	Department of Defense directive
<b>ELINT</b>	electronics intelligence
<b>IO</b>	information operations
<b>ISR</b>	intelligence, surveillance, and reconnaissance
<b>JA</b>	judge advocate
<b>JAOC</b>	joint air operations center
<b>JDAM</b>	joint direct attack munition
<b>JFACC</b>	joint force air and space component commander
<b>JFC</b>	joint force commander
<b>JFMCC</b>	joint force maritime component commander
<b>JP</b>	joint publication
<b>JTF</b>	joint task force
<b>LOAC</b>	law of armed conflict
<b>LNO</b>	liaison officer

<b>MCM</b>	mine countermeasures
<b>MIW</b>	mine warfare
<b>NDC</b>	Naval Doctrine Command
<b>NDP</b>	Naval doctrine publication
<b>NWP</b>	naval warfare publication
<b>OCA</b>	offensive counterair
<b>OPCON</b>	operational control
<b>OTC</b>	officer in tactical command (Navy)
<b>SEAD</b>	suppression of enemy air defenses
<b>SLOC</b>	sea lines of communication
<b>SO</b>	special operations
<b>SUW</b>	surface warfare (formerly antisurface air operation—Navy)
<b>SUWC</b>	surface warfare commander (Navy)
<b>TACON</b>	tactical control
<b>UAV</b>	unmanned aerial vehicle
<b>USW</b>	undersea warfare [formerly antisubmarine warfare] [Navy]
<b>USWC</b>	undersea warfare commander [Navy]

## Definitions

**airlift.** Operations to transport and deliver forces and materiel through the air in support of strategic, operational, or tactical objectives. (AFDD 1)

**air refueling.** The capability to refuel aircraft in flight, which extends presence, increases range, and serves as a force multiplier. (JP 1-02)

**air warfare.** A US Navy/US Marine Corps term used to indicate that action required to destroy or reduce to an acceptable level the enemy air and missile threat. It includes such measures as the use of interceptors, bombers, anti-aircraft guns, surface-to-air and air-to-air missiles, electronic attack, and destruction of the air or missile threat both before and after it is launched. Other measures which are taken to minimize the effects of hostile air action are cover, concealment, dispersion, deception (including electronic), and mobility. Also called **AW**. (NDC)

**amphibious operation.** An attack launched from the sea by naval and landing forces, embarked in ships or craft involving a landing on a hostile or potentially hostile shore. As an entity, the amphibious operation includes the following phases: a. planning—The period extending from issuance of the initiating directive to embarkation. b. embarkation—The period during which the forces, with their equipment and supplies, are embarked in the assigned shipping. c. rehearsal—The period during which the

prospective operation is rehearsed for the purpose of: (1) testing adequacy of plans, the timing of detailed operations, and the combat readiness of participating forces; (2) ensuring that all echelons are familiar with plans; and (3) testing communications. d. movement—The period during which various components of the amphibious task force move from points of embarkation to the objective area. e. assault—The period between the arrival of the major assault forces of the amphibious task force in the objective area and the accomplishment of the amphibious task force mission. (JP 1–02)

**battlespace.** The environment, factors, and conditions that must be understood to successfully apply combat power, protect the force, or complete the mission. This includes the air, land, sea, space, and the included enemy and friendly forces; facilities; weather; terrain; the electromagnetic spectrum; and the information environment within the operational areas and areas of interest. See also electromagnetic spectrum; information environment; joint intelligence preparation of the battlespace. (JP 1-02) *[The commander’s conceptual view of the area and factors which he must understand to successfully apply combat power, protect the force, and complete the mission. It encompasses all applicable aspects of air, sea, space, and land operations that the commander must consider in planning and executing military operations. The battlespace dimensions can change over time as the mission expands or contracts according to operational objectives and force composition. Battlespace provides the commander a mental forum for analyzing and selecting courses of action for employing military forces in relationship to time, tempo, and depth.]* (AFDD 1) {Italicized definition in brackets applies only to the Air Force and is offered for clarity.}

**close air support.** Air action by fixed– and rotary–wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Also called **CAS**. (JP 1–02)

**close support.** That action of the supporting force against targets or objectives which are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with the fire, movement, or other actions of the supported force. (JP 1–02)

**coalition.** An ad hoc arrangement between two or more nations for common action. (JP 1–02)

**combatant command (command authority).** Nontransferable command authority established by Title 10 (“Armed Forces”), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command

(command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and the Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called **COCOM**. (JP 1–02)

**command and control**. The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also called **C2**. (JP 1–02)

**compatibility**. Capability of two or more items or components of equipment or material to exist or function in the same system or environment without mutual interference. (JP 1–02)

**counterair**. A mission that integrates offensive and defensive operations to attain and maintain a desired degree of air superiority. Counterair missions are designed to destroy or negate enemy aircraft and missiles, both before and after launch. (JP 1–02)

**counterland**. Operations conducted to attain and maintain a desired degree of superiority over surface operations through the destruction, disruption, delay, diversion, or other neutralization of enemy forces. The main objectives of counterland operations are to dominate the surface environment and prevent the opponent from doing the same. (AFDD 1)

**countersea**. Operations conducted to attain and maintain a desired degree of superiority over maritime operations by the destruction, disruption, delay, diversion, or other neutralization of threats to maritime capability. The main objectives of countersea operations are to dominate the maritime environment and prevent the opponent from doing the same. (AFDD 2-1.4)

**direct support**. A mission requiring a force to support another specific force and authorizing it to answer directly the supported force's request for assistance. (JP 1–02)

**functional component command**. A command normally, but not necessarily, composed of forces of two or more Military Departments which may be established across the range of military operations to perform particular operational missions that may be of short duration or may extend over a period of time. (JP 1–02)

**general support**. That support which is given to the supported force as a whole and not to any particular subdivision thereof. (JP 1–02)

**interoperability.** The ability of systems, units or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. (JP 1–02)

**joint force air component commander.** The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. The joint force air component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. Also called **JFACC**. See also joint force commander. (JP 1-02) [*The joint air and space component commander (JFACC) uses the joint air and space operations center to command and control the integrated air and space effort to meet the joint force commander's objectives. This title emphasizes the Air Force position that air power and space power together create effects that cannot be achieved through air or space power alone.*] (AFDD 2) {Italicized words in brackets apply only to the Air Force and are offered for clarity.}

**joint force commander.** A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called **JFC**. (JP 1–02)

**joint force maritime component commander.** The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of maritime forces and assets, planning and coordinating maritime operations, or accomplishing such operational missions as may be assigned. The joint force maritime component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. The joint force maritime component commander will normally be the commander with the preponderance of maritime forces and the requisite command and control capabilities. Also called **JFMCC**. (JP 1–02)

**littoral.** A coastal region (Webster, 10<sup>th</sup> ed). The term littoral, as it applies to naval operations, is not restricted to the limited oceanographic definition encompassing the world's coastal regions. Rather, it includes that portion of the world's land masses adjacent to the oceans within direct control of and vulnerable to the striking power of sea-based forces. (NPD-1)

**maritime environment.** The oceans, seas, bays, estuaries, islands, coastal areas, and the airspace above these, including the littorals. (JP 1–02)

**maritime power projection.** Power projection in and from the maritime environment, including a broad spectrum of offensive military operations to destroy enemy forces or logistic support or to prevent enemy forces from approaching within enemy weapons' range of friendly forces. Maritime power projection may be accomplished by

amphibious assault operations, attack of targets ashore, or support of sea control operations. (JP 1–02)

**mine warfare.** The strategic, operational, and tactical use of mines and mine countermeasures. Mine warfare is divided into two basic subdivisions: the laying of mines to degrade the enemy's capabilities to wage land, air, and maritime warfare; and the countering of enemy-laid mines to permit friendly maneuver or use of selected land or sea areas. Also called **MIW**. (JP 1–02)

**mutual support.** That support which units render each other against an enemy, because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities. (JP 1–02)

**Naval Surface Fire Support (NSFS).** Fire provided by Navy surface gun, missile, and electronic-warfare systems in support of a unit or units on land. (NDP-1)

**operational control.** Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and the Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called **OPCON**. (JP 1–02)

**power projection.** The application of offensive military force against an enemy at a chosen time and place. Maritime power projection may be accomplished by amphibious assault operations, attack of targets ashore, or support of sea control operations. (NDP-1)

**sea control operations.** The employment of naval forces, supported by land and air forces, as appropriate, to achieve military objectives in vital sea areas. Such operations include destruction of enemy naval forces, suppression of enemy sea commerce, protection of vital sea lanes, and establishment of local military superiority in areas of naval operations. (JP 1–02)

**sea surveillance.** The systematic observation of surface and subsurface sea areas by all available and practicable means primarily for the purpose of locating, identifying and

determining the movements of ships, submarines, and other vehicles, friendly and enemy, proceeding on or under the surface of the world's seas and oceans. (JP 1–02)

**Service component command.** A command consisting of the Service component commander and all those Service forces, such as individuals, units, detachments, organizations, and installations under the command including the support forces that have been assigned to a combatant command, or further assigned to a subordinate unified command or joint task force. (JP 1–02)

**standardization.** The process by which the Department of Defense achieves the closest practicable cooperation among the Services and Defense agencies for the most efficient use of research, development, and production resources, and agrees to adopt on the broadest possible basis the use of: a. common or compatible operational, administrative, and logistic procedures; b. common or compatible technical procedures and criteria; c. common, compatible, or interchangeable supplies, components, weapons, or equipment; and d. common or compatible tactical doctrine with corresponding organizational compatibility. (JP 1–02)

**strategic attack.** Military action carried out against an enemy's center(s) of gravity or other vital target sets including command elements, war production assets, and key supporting infrastructure in order to effect a level of destruction and disintegration of the enemy's military capacity to the point where the enemy no longer retains the ability or will to wage war or carry out aggressive activity. (AFDD 1)

**supported commander.** The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. (JP 1–02)

**supporting commander.** A commander who provides augmentation forces or other support to a supported commander or who develops a supporting plan. Includes the designated combatant commands and Defense agencies as appropriate. (JP 1–02)

**suppression of enemy air defenses.** That activity which neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or disruptive means. Also called **SEAD**. (JP 1–02)

**surface warfare.** That portion of maritime warfare in which operations are conducted to destroy or neutralize enemy naval surface forces and merchant vessels. Also called **SUW**. (NDC)

**tactical control.** Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks as-signed. Tactical control is inherent in operational

control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. Also called **TACON**. See also combatant command; combatant command (command authority); operational control. (JP 1-02)

**undersea warfare.** Operations conducted with the intention of denying the enemy the effective use of submarines. Also called **USW**. (NDC) [*This term was formerly known as antisubmarine warfare.*]