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

**Command Relationships.** Establishing proper command 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 joint force air component commander (JFACC) normally retains tactical control of all common and joint-use sorties.
- All air defense sorties are considered common / joint-use sorties. However, fleet defense sorties are not solely air defense sorties because they tend to be dual role sorties for both air warfare and surface warfare.
- Recognize that the commander, Navy forces (COMNAVFOR) or the joint force maritime component commander (JFMCC) is conducting maritime superiority operations and will retain sorties and assets for organic support.

**Responsibility Areas.** Clearly understood responsibility areas are prerequisite for successful joint operations in the maritime domain.

- The JFACC, land or sea-based, is normally also designated as the area air defense commander, airspace control authority, and space coordinating authority responsible for overall defense of the joint operations area 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 (AOs), the joint force commander normally tasks the JFACC with theater-wide...
responsibilities such as interdiction or strategic attack. Per joint doctrine, AOs do not normally apply to the joint air component.

**Defensive counterair** (DCA) 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, space, cyberspace, and electromagnetic spectrum (EMS) operations. Attention should be given to the complexity of the operation, as well as communications challenges.

- Contemplate joint or combined packaging for efficient employment of available assets.
- Use airborne command and control to assist real-time package coordination for joint air operations.
- Cruise missile harmonization and launch deconfliction should continue to be coordinated through the JFACC and the cruise missile strike coordinator to ensure deconfliction with strike aircraft.
- Flight deck operations, limitations, and carrier cycle times are major restrictions to maritime flight operations and require constant coordination between the JFACC and JFMCC.
- Suppression of enemy air defenses and air refueling are typically operations with the greatest demand. Consider all limiting factors when conducting strike planning.
- Exchanging Air Force unit representatives with the JFMCC, COMNAVFOR, and carrier air wings 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 require constant management by planners, and details should be stated in the air tasking order special instructions.

- Appropriate control procedures should be used in combination with an awareness of potential air traffic congestion.
- Organic maritime aircraft operating at lower altitudes (below 10,000 feet) can be a risk factor in the maritime operating environment.
- Planners should ensure air refueling procedures used in all JFACC-controlled air operations are clearly communicated.
Planners should ensure that aircraft assigned to refuel probe-and-drogue aircraft are properly configured and procedures are fully understood.

Desired effects. Once desired effects are defined, the concept of operations and master air attack plan 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
- Joint air operations
- Joint packaging
- Leveraging component capabilities
- Cross-component information flow
- Air defense commander responsibilities within the maritime AO
- Sector and regional air defense functions
- DCA for maritime force protection
- Strike packaging and considerations
- Air Operations in Maritime Surface Warfare
- Dynamic targeting
- Surface attacks
- Electromagnetic warfare

Cyberspace Operations

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

Air mobility and air refueling

Environmental conditions. Maritime domain weather conditions may change rapidly. Characteristics such as wave height and sea spray impact visibility and radar or 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 airpower 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 for attacking forces. The maritime domain does not provide the protection afforded by terrain for either the attacker or defender. In this medium, the threat can often detect and engage aircraft from long distances. Additionally, because maritime targets are constantly moving, maintaining target quality locating data can be challenging. 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 should be thoroughly planned for and understood. Command and control structure, element and agency call signs, and communication procedures are, in most cases, different than those in the Air Force. Aircrew should be able to identify, understand, and interface with maritime elements. For instance, conducting close air support (CAS) in an amphibious objective area requires coordination with the direct air support center as opposed to the air support operations center in traditional CAS.