NAVAL WAR COLLEGE
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How the Joint Force Commander will manage Theater Missile Defense in 2005

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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The command and control aspects of the Theater Ballistic Missile Defense mission are extremely challenging. The Naval Composite Warfare (CWC) doctrine is well suited to meet the needs of the Joint Force Commander in the execution of this mission. CWC doctrine addresses the issues of force synchronization, flexibility, unity of command, delegation of authority, centralized planning and decentralized execution, options for close control to control by negation, tempo, firepower and simultaneous combined arms operations.

Designation of a Carrier Battle Group Commander as the Joint Force Commander and/or the Joint Force Air Component Commander in the initial phases of an operation, D-5 to D+10, is an excellent means of leveraging the power of the CWC doctrine. The CVBG arrives in the theater ready to accomplish the mission of an enabling JFC/JFACC. Aegis cruisers and destroyers have the hard kill weapons system, radar and trained personnel to accomplish the TMD mission of the JFACC. As the theater becomes more complex the CVBG would transfer the JFC and/or JFACC missions to larger or more robust staff.

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Abstract

How is the Joint Forces Commander going to manage Theater Missile Defense in 2005?

The command and control aspects of the Theater Ballistic Missile Defense mission are extremely challenging. The Naval Composite Warfare (CWC) doctrine is well suited to meet the needs of the Joint Force Commander in the execution of this mission. CWC doctrine addresses the issues of force synchronization, flexibility, unity of command, delegation of authority, centralized planning and decentralized execution, options for close control to control by negation, tempo, firepower and simultaneous combined arms operations.[1]

Designation of a Carrier Battle Group Commander as the Joint Force Commander and/or the Joint Force Air Component Commander in the initial phases of an operation, D-5 to D+10, is an excellent means of leveraging the power of the CWC doctrine. The CVBG arrives in the theater ready to accomplish the mission of an enabling JFC/JFACC. Aegis cruisers and destroyers have the hard kill weapons system, radar and trained personnel to accomplish the TMD mission of the JFACC. As the theater becomes more complex, the CVBG would transfer the JFC and/or JFACC missions to larger or more robust staff.

[1] Richard A. Brown, "Composite Warfare Commander Doctrine in the Age of the Joint Task Force: A New Approach," (Unpublished Thesis, U.S. Naval War College, Newport, R.I.:1983), 3.

Introduction

The United States military's first experience defending against a theater ballistic missile threat was during Operation Desert Storm. During this operation, Iraq launched scud missiles against coalition forces in Saudi Arabia as well as into Israel. The missiles launched against coalition forces were, at best, only marginally successful in deterring the coalitions ability to carry out planned operations. The missiles launched into Israel were strategically effective due to the political anxiety they created as they threatened to weaken the US lead coalition. Although Iraq's employment of TBM was only marginally successful, they demonstrated their ability to complicate future coalition planning and subsequent operations.

Since Operation Desert Storm, the proliferation of ballistic missiles has dramatically increased, and they are becoming the weapon of choice for emerging and third world nations. Within the past few years, China and North Korea have test-fired ballistic missiles demonstrating an ability to employ theater ballistic missiles. The reason for the popularity of these missiles is because of their high speed of flight, reliability (fire and forget weapons) and survivability against current defense strategies. Mobile ballistic missile platforms are exceedingly difficult to locate, target, and destroy prior to launch. Post launch, ballistic missiles have proven excessively difficult to engage because of their very high speed and high angle of attack.[1]

"Forward...From the Sea" defined the Navy's strategic concept for the 21st century as one in which naval forces, shaped for joint operations, will project power from the sea into the littoral regions of the globe. Naval forces provide a critical linkage

[1] James Fitzsimonds, Captain USN, "Weapons of Mass Destruction Considerations for the Operational Commander," NWC 2115:21.

between peacetime operations and the initial requirement for a Joint Force Commander (JFC) to intervene in a developing crisis or major regional contingency. Naval forces offer the CINC the ability to designate an enabling JFC/JFACC organization early in a crisis that can respond immediately and effectively until additional forces are available in theater.

Key to the success of any future operation will be the ability to manage the theater ballistic missile threat. In order to successfully execute theater missile defense, the JFC should operate within the fundamentals of the Navy's Composite Warfare Commander (CWC) doctrine. This is especially appropriate in that a Carrier Battle Group (CVBG) will be the most likely first response force to arrive on scene. The CVBG Commander should operate as the Joint Force Commander and/or the Joint Forces Air Component Commander (JFACC) during the crisis response and pre-hostilities stages of an operation.

Composite Warfare Commander Doctrine

"The CWC doctrine embodies a basic organizational structure that allows flexible implementation and a body of recommended operational principles. Use of this doctrine enables the Officer in Tactical Command (OTC) to aggressively wage offensive and defensive combat operations against air, surface, subsurface and land-based threats while carrying out the primary mission of his force."[2] The OTC is normally the CWC and Battle Group Commander. The OTC's designated subordinate warfare commanders are responsible for the conduct of the air warfare, surface warfare, strike warfare and undersea warfare areas.

[2] Naval Doctrine Command, Composite Warfare Commander Doctrine NWP 3-56, (Norfolk, Va:August 1993),2-1.

A wide range of options is available to the CWC for the delegation of command authority to the warfare commanders. Options governing the method by which the warfare commanders will fight range from full delegation of authority to no delegation at all. Regardless of the amount of authority delegated, the CWC retains, at all times, the option of control by negation. Delegation of authority and the option of control by negation fit equally well into a Joint Task Force where the JFC delegates his authority to the assigned component commanders.

Pivotal to the doctrine is the need for skillful, dynamic, and aggressive war fighters and planners whose judgment and actions earn the CWC's confidence. This confidence is gained by active participation with the CWC and other warfare and component commanders in the management of assets and development of theater relevant warfare area strategies prior to the commencement of hostilities. Warfare commander's assist the CWC with planning and most importantly keep the JFC apprised of near real time evaluated information.[3]

The organization of forces, management of shared assets and delegation of authority has allowed this doctrine to meet and overcome challenges encountered on the modern battlefield. The underlying principles of the CWC doctrine would appear to support the CVBG Commander being designated as the JFC and/or the JFACC and meeting his theater missile defense (TMD) mission. These principles are; unity of command, delegation of authority, centralized planning/decentralized execution, options

[3] Ibid.,2-3.

or close control to control by negation, tempo and firepower, simultaneous combined arms operations, self-synchronization and flexibility.[4]

Operational Elements of Joint Theater Missile Defense

Joint Pub 3-01.5 defines joint theater missile defense (JTMD) as being composed of four integrated elements.

> Passive missile defense – individual and collective measures taken to posture the Force to minimize the effects of a theater missile attack.
>
> Active missile defense – measures to intercept, destroy, and/or negate the effects of theater missiles after launch.
>
> Attack operations – actions to neutralize or destroy an adversary's ability to produce, deploy and employ theater missiles.
>
> Command, Control, Communications, Computers and Intelligence – capabilities to coordinate and integrate the joint force component capabilities to conduct passive defense, active defense and attack operations.[5]

Joint Pub 3-01.5 also defines the term theater missile as ballistic, air-to-surface and cruise missiles with targets in a given theater, not to include short-range direct fire rockets, direct fire missiles, and bombs. For the purposes of this discussion, and not to minimize the other threats, only the ballistic missile threat will be examined.

The initial application of these elements during the pre-hostilities and crisis response phases of an operation can be accomplished by a Naval Task Force. Passive missile defense is accomplished by avoiding land and leveraging the mobility of the ships. Active missile defense is accomplished by using the same stationing area, while

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[4] Richard A Brown, "Composite Warfare Commander Doctrine in the Age of the Joint Task Force: A New Approach," (Unpublished Thesis, U.S. Naval War College, Newport, R.I.:1998),3.
[5] Robert M. Soofer, "Joint Theater Missile Defense Strategy," Joint Forces Quarterly (Autumn 1995):70.

also encompassing individual unit capabilities to ensure adequate defensive missile coverage. Theater attack operations are accomplished by the carrier air wing and cruise missiles conducting strikes against fixed and mobile launch sites. The existing Command and Control (C2) relationships and Command, Control, Computer, Communication and Information (C4I) architecture combined with the CWC doctrine allow the CVBG to meet the C4I requirements of TMD.

Joint Force Air Component Commander (JFACC)/Area Air Defense Commander (AADC)

The JFACC is the air component that plans and executes attack operations in the theater of operations based on JFC's intent. The JFACC accomplishes this by integrating and directing the employment of the capabilities of the forces available. "The need for the JFACC to maintain theater-wide visibility on Theater Missile Defense, and other operational elements of TMD, may lead the JFC to assign the responsibilities of the AADC to the JFACC."[6] The AADC is responsible for planning, coordinating and executing air defense operations in an integrated air defense environment throughout the theater in support of the JFC's objectives.

The Joint Force Commander will "normally assign responsibility for the planning and execution of TMD attack operations ... to the JFACC."[7] The JFC "normally assigns overall responsibility for theater and Joint Operating Area Air Defense, to include active TMD, to the Area Air Defense Commander (AADC)."[8] However, when a "JFACC is

[6] Joint Chiefs of Staff, Doctrine for Joint Theater Missile Defense, Joint Pub 3-10.5, (Washington, DC:22 February 1996),II-6.
[7] Ibid., xi.
[8] Ibid., x.

designated, the JFACC will normally be assigned to function as AADC since these two functions are interrelated."[9] If an AADC, separate from the JFACC is designated, it would normally report to the JFACC.

Designation of Naval Forces Commander as JFC with JFACC and AADC responsibilities is a logical step and is in accordance with Joint Doctrine; "the JFACC is the Service component commander having the preponderance of air assets and the capability to plan, task, and control joint air operations."[10] As additional forces are assigned (typically Air Force) to the theater of operation and control of the airspace becomes more complex, both the JFACC and AADC organizations should be passed to a larger, more robust JFACC/AADC organization located in a more centralized and/or accessible area.

The Composite Warfare Commander (CWC) doctrine inherent within a Carrier Battle Group (CVBG) is ideal for conducting the tasks of JFACC and AADC during the initial phases of an operation. The CWC concept breaks down warfare responsibilities within the battle group by warfare areas. The Air Warfare Commander, normally resident onboard an Aegis cruiser, is ideally suited to be the Joint Force AADC. The air wing and battle group staffs are capable of conducting the functions of a JFACC. The cruiser is normally in control of aircraft designated for defense as well as the surface to air missiles able to conduct both air defense and TMD missions. Figure 1 in appendix (A) shows the command relationships of the JFC, JFACC and AADC that could be established within a Carrier Battle Task Force. The JFACC is subordinate to the JFC, while the AADC reports to the JFACC. During initial pre-hostilities and crisis response

[9] Joint Chiefs of Staff, Joint Doctrine for Countering Air and Missile Threats, Joint Pub 3-01, (Washington, DC:19 October 1999),II-6.
[10] Ibid., vii.

phases of an operation, D-5 to D+10, it is vital that the JFC have the flexibility to designate the JFACC and the AADC as separate commanders on different ships in order to take advantage of the different assets and capabilities available on the carrier and cruiser

Theater Missile Defense (TMD)

Once the potential for a crisis is recognized, intelligence preparation of the battlefield begins. Various intelligence communities, from within and out of the military would conduct this mission. It is essential that the CVBG have the connectivity to access this vital information. It is from this information that identification of stationary and mobile ballistic missile launch points would be accomplished. This is essential if the JFACC/AADC is to conduct TMD. The ability to fuse information regarding missile launch preparations or actual launch queuing is equally essential. Without this information the JFACC/AADC cannot effectively function and carry out the Theater Missile Defense mission by combining the active and attack elements of TMD.

The CVBG arrives in theater as an organization ready to conduct the four elements of TMD; passive missile defense, attack operation, active missile defense and C4I with the forces inherent within a Naval Task Force. There are four functions of theater missile defense that enables the JFC to adequately conduct the TMD mission: positioning of the hard kill vehicles to provide maximum coverage, a salvo doctrine to aid in resource (missile) conservation, intelligence to support attack operations and early warning/detection of a theater missile launch, and airspace control and deconfliction of

possible targets.[11] These functions are directly related and support the core elements of Theater Missile Defense as set forth in Joint Pub 3-01.5 and which are compatible with the CWC doctrine.

During the pre-hostilities and crisis response phases of the operation it is likely that a Naval Carrier Battle Group will be the CINC's first credible force to arrive on scene. While enroute to the area, the Battle Group Commander, as the JFC and JFACC, would develop an estimate of the situation and conduct crisis action planning. The C4I architecture would also be completed. The Battle Group Commander would also designate the JFACC and AADC based on the Task Force CWC doctrine. The Commander Air Group would be designated as JFACC, embarked on the aircraft carrier. The Commanding Officer of the cruiser would be designated as the AADC. The same arrangement would also be effective if the Battle Group Commander were designated as the initial JFACC. He could designate the cruiser as the AADC falling back on existing command relationships and C4I architecture. This flexibility, inherent within the CWC doctrine, enables the CVBG staff to fill either the JFC and/or JFACC positions. This is an incredibly powerful option available to the CINC as he begins to assemble a Joint Task Force organization.

When designated as JFC, the Battle Group Commander would already have an established and practiced sensor net and data links under the management of the AADC. By the time the CVBG arrives on scene, the C4I architecture would be in place and operational. Ship and air assets, augmented as necessary by national level assets, are capable of conducting air and surface surveillance. The JFACC, embarked in the aircraft

[11] CDR L.P James, III, USN, Naval Warfare Development Command, interview by author, 27 December 2000, Naval Warfare Development Command, Simms Hall, Newport, R.I.

carrier, would be able to execute limited attack operations with the air wing and cruise missiles organic to the battle group[12]. The AADC would then execute his TMD mission over the entire theater of operations.

Following the arrival of the CVBG in the operational area additional personnel, aircraft, active missile defense systems and staffs would be expected to begin arriving. These forces would then plug into the established C4I structure. One of the first assets to arrive would is likely to be a more robust and joint JFACC/AADC staff, potentially commanded by a flag officer that would embark in the carrier to assume responsibility for the expanding mission.[13] "As the complexity of the theater increases it will be desirable for the JFC to transition the JFACC, AADC and JFC to more advantageously positioned staffs ashore when the infrastructure is in place to support it."[14] Transfer of the primary JFACC functions from afloat commanders to ashore commanders would be accomplished with an absolute minimum of disruption of the ongoing tactical situation. The overall command and control structure should not be affected because of the flexibility and control by negation concepts within the CWC doctrine. The basic C4I architecture will already be in place and operational for the new commander ashore.

AADC Module

One argument against a CVBG Commander being designated as the JFC and or JFACC is that the staff is to small to carry out the requirements of a JFACC staff. Recent advances in technology have allowed for the development of an Area Air Defense

[12] Office of the Chief of Naval Operations, Area Air Defense Commander (AADC) Capability Concept of Operations DRAFT, (Washington, DC: April 1999),12.
[13] Ibid., 16.
[14] Ibid, 18.

Commander module. This module is expected to be placed on Aegis cruisers as well as Command ships and will "enable an afloat joint task force staff to quickly and easily plan and coordinate air defense protection against enemy aircraft, tactical ballistic missiles and cruise missiles during the critical initial stages of an operation"[15]. This cell is designed to allow the AADC to use computers to aid in the design of a defensive strategy for an area. "It also receives real-time warning of an enemy ballistic missile launch and updated trajectory tracks from surveillance radars."[16] The AADC module, along with its improved connectivity enhanced by SIPRNET, will allow the JFACC/AADC access to the required intelligence information. Another indispensable intelligence element is the "time critical" information, usually from national level assets providing mobile launcher positions or launch verification, which must be available for fusion within the C4I architecture. The AADC module will enable the smaller staff of a CVBG to quickly and effectively conduct the AADC duties, thus freeing personnel to work other aspects of the JFACC's mission and responsibilities.

Defended Asset List

One critical JFC requirement is to designate areas to be protected from theater ballistic missile attack; the Defended Asset List. Ballistic missiles present both a strategic and operational threat. Operationally, the threat includes, but is not limited to "attacks on deployed U.S. and multinational forces, interdiction of lines of communications, attacks on logistic facilities and counter TMD activity."[17] Strategic targets include "civilian population centers and political, cultural and religious

[15] Glenn W. Goodman Jr, "Leak-Proof Coverage" Armed Forces Journal International (May 1999):18.
[16] Ibid, 19.
[17] Joint Pub 3-01.5, viii.

structures"[18]. The use of ballistic missiles as strategic weapons was demonstrated during "Operation Desert Storm" when Iraq launched its scud missiles into Israel in an attempt to lure them into retaliation and possibly weaken the multinational coalition,

In the early phases of an operation the defended asset list is relatively easy to develop. It includes forces arriving in the theater, the Naval Task Force, and perhaps the ports of debarkation from which follow on forces would disembark. The physical number of active missile defense weapons systems, primarily the Navy Area Theater Missile Defense System, drives the size of the list. As more forces arrive in theater, including additional active missile defense weapon systems, the ability to defend the increasing number of potential targets increases and the defended asset list will grow accordingly.

Once the decision is made to move the JFC and/or JFACC ashore, the TMD mission becomes a larger, more complex problem. No longer is the area to be protected relatively small. The JFACC/AADC must now contend with protecting troop massing areas, airports/airfields, rear area support, ports, headquarters areas and potentially population areas and population support areas (water treatment facilities, electric plants, etc.), as well as possible areas of strategic importance (i.e. neighboring countries that are part of a coalition). This can result in a defended asset list that is too large to be adequately defended by TMD hard kill assets.

Active Missile Defense Capabilities

By 2005 the Army is scheduled to be able to deploy Patriot PAC-3 TMD capabilities. The Navy will have the Navy Area Theater Missile Defense System

[18] Ibid., ix.

deployed to support the JFACC. However, these are little more than point defense systems that provide coverage to relatively small geographic (local) areas. Additionally, the Army is only budgeting the procurement of 2.5 batteries (240 total missiles) of PAC-3 missiles while the Navy is budgeting the procurement of 134 Standard Missile Block IVA interceptors- the hard kill vehicle associated with the Navy Area Theater Missile Defense System.[19] With these relatively small numbers of missiles available the emphasis placed on early identification of the defended asset list is important. Obviously, not all potential targets can be covered with the small number of assets. The defended asset list is likely to be a point of contention for coalition partners as they try to leverage protection of their home country in exchange for their participation in the operation.

Concurrent with the limited number of assets available for protection, is the requirement to conserve these scarce hard kills vehicles. The CWC doctrine provides for their conservation. The JFACC/AADC must control the missile inventory. This will be accomplished by either directing specific assets to kill a target or by using a command by negation concept to ensure that the salvo doctrine set forth in the TMD guidance is followed. This would result in only the unit in the best position, firing on the ballistic missile.

This concept becomes more important in the future as the upper tier TMD systems become available to the JFC, in the 2007-2008 timeframe[20]. The Army Theater High Altitude Area Defense (THAAD) System and Navy Theater Wide Defense systems will include much longer-range missiles enabling "area" protection rather than point or

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[19] James Fitzsimonds, 22.

[20] "Theater High Altitude Area Defense System." Ballistic Missile Defense Organization Fact Sheet AQ-00-05. March 2000. http://www.acq.osd.mil/bmdo/bmdolink/html/thaad.html> [November 1999].

local protection. Although the capabilities are greatly enhanced over the current lower tier systems, the identification of a defended asset list will still be crucial since it is likely that only a limited number of missiles will be procured. Inventory conservation and control will be imperative as an ever-greater number of units will be able to take a target under fire. This will require more control and can be approached with the same command by negation that is used in conjunction with the lower tier systems and is supported by the CWC doctrine.

Conclusion

"The regional proliferation of weapons of mass destruction and theater missile delivery means (ranges 3,000 kilometers or less) has become the greatest direct threat to U.S. forces deployed and engaged worldwide. Many states treat theater ballistic missiles and WMD as their best chance to preclude U.S. force options and offset our conventional military superiority. Others are motivated more by regional threat perceptions. In either case, the pressure to acquire WMD and missiles is high and the prospects for limiting them are slim."[21] The ability of the Joint Force Commander to adequately neutralize the initial TMD threat is an absolute necessity for future operations (2005).

The organization and doctrine supporting the Carrier Battle Group are perfectly suited in meeting the TMD challenge. The Command and Control capabilities inherent within the CWC doctrine can easily be adapted to fulfilling the role of the JFACC and AADC as well as the JFC in the initial phases of an operation. With the AADC module present within a battle group the ability to plan and execute the responsibilities of the

[21] Patrick H. Hughes, U.S. Congress Senate. Armed Services Committee, Worldwide Threats to the Security of the United States, Hearing before the Armed Services Committee, 106th Congress, 1st Session, February 2, 1999.

JFACC and AADC are greatly enhanced. The CVBG is an ideal organization to act as an enabling JFC and/or JFACC, able to respond quickly and effectively and provide the linkage between crisis response and a major operation.

The Carrier Battle group arrives as a force ready to accomplish the operational elements of TMD during the pre-hostilities and crisis response phases of an operation. The CVBG and staff will be able to conduct the duties as JFC, JFACC and AADC functions without additional manning. One of the first additional assets to arrive in theater will be a JFACC/AADC organization which will not only compliment the CVBG staff, but to also familiarize themselves with the theater operations. After the duties of JFACC/AADC are passed ashore, the new commanders should retain the CWC doctrine concepts as they facilitate the elements required for completion of the TMD mission. Most important of these are control by negation, enabling inventory management of hard kill weapon systems.

The ability of the JFC to designate a defended asset list early in order to properly assign the limited numbers of capable units is pivotal to this process. Also essential, is the integration of all source intelligence related to the intelligence preparation of the battlefield (IPB). Not discussed, but equally as important to the conduct of TMD, is the management of theater operational fires. The CVBG (JFC) can sustain approximately 200 sorties a day. Many sorties could be dedicated toward the destruction and/or disruption of enemy theater missile capabilities before launch occurs.[22]

Missile inventory conservation is pivotal to the TMD mission. Due to the high cost and limited numbers of these assets, the numbers available to the JFACC/AADC will require conservation. This applies the to both lower and upper tier assets. This small

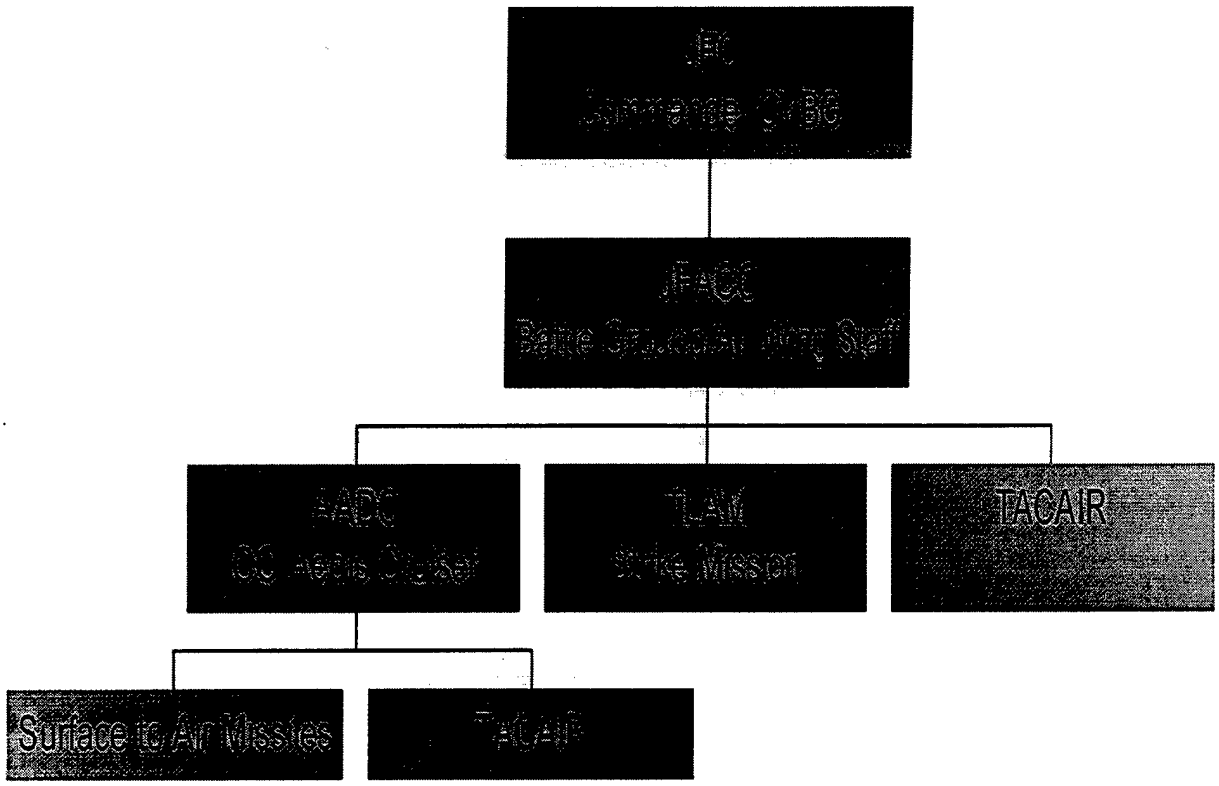
[22] Joint Pub 3-01.5, III-11.

number of assets translates to a requirement that only one unit fire upon one target with a pre-determined salvo size. The ability to reconstitute will be limited and here again the Naval concept of command by negation would greatly enhance conservation of the hard kill vehicles.

The JFC and JFACC should implement the CWC and command by negation concept in the conduct of TMD. CINC's should not overlook designation of the Battle Group Commander as an enabling JFC and his JFACC and AADC for the pre-hostilities and crisis response phases of a crisis, thus bridging the gap until more forces become available in theater.

Annex A

Sea Based Crisis Response and Initial Defense Notional Command Structure



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