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Doctrine for Joint Theater Missile Defense



22 February 1996

PREFACE

1. Scope

This publication provides doctrine for the integration of theater missile defense capabilities to support execution of the joint force commander's operation order or campaign plan. The focus is to protect against theater missile attack through an appropriate integrated and coordinated mix of mutually supporting measures of passive defense, active defense, and attack operations with supporting command, control, communications, computers, and intelligence.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine and selected joint tactics, techniques, and procedures (JTTP) to govern the joint activities and performance of the Armed Forces of the United States in joint operations as well as the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders and prescribes doctrine and selected tactics, techniques, and procedures for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the joint force commander (JFC) from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

3. Application

a. Doctrine and selected tactics, techniques, and procedures and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine (or JTTP) will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

For the Chairman of the Joint Chiefs of Staff:



WALTER KROSS
Lieutenant General, USAF
Director, Joint Staff

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EXECUTIVE SUMMARY COMMANDER'S OVERVIEW

- **Addresses the Operational Environment and the Threat**
 - **Establishes Responsibilities and Command Relationships**
 - **Addresses Multinational Operations Responsibilities and Organizational Considerations**
 - **Provides Planning and Preparation Factors and Considerations**
 - **Discusses the Transition to Joint Theater Missile Defense Operations**
 - **Presents and Discusses Four Mutually Supporting Operational Elements for a Successful Defense**
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Overview

Potential adversaries possess theater missiles that pose both a military and political threat to US security interests and forward-deployed forces.

Theater missiles (TMs) are ballistic missiles, cruise missiles and air-to-surface missiles whose targets are within a given theater of operation. Their proliferation and advances in missile and associated technologies, coupled with the pursuit of weapons of mass destruction (WMD) capabilities, **can provide adversaries with potentially decisive attack capabilities.** TMs may be as much a political weapon as a military weapon.

The precise time, location, and nature of TM employment is uncertain, thus complicating the determination of friendly force composition and method of power projection to overcome specific threats. The nature and extent of US global interests require that **theater missile defense (TMD) forces be rapidly deployable or employable** from the United States, forward bases, and/or ships.

TMD is inherently a joint mission. During the planning stage, TMD forces, requirements, and capabilities must be integrated into all phases of the operation and mission areas early on. **The TM threat may appear across the range of military operations.** Joint theater missile defense (JTMD) systems and procedures must be adaptable for joint or multinational operations in any contingency.

Theater missile defense (TMD) is composed of four operational elements: passive defense, active defense, attack operations, and command, control, communications, computers, and intelligence (C4I).

The purpose of TMD is to counter the TM threat by coordinating and integrating the four operational elements of TMD into cohesive and coherent combat operations.

Passive defense - measures taken to posture the force to reduce vulnerability and minimize the effects of a TM attack.

Active defense - operations taken to protect against a TM attack by destroying TM airborne launch platforms and/or destroying TMs in flight.

Attack operations - operations taken to destroy, disrupt, or neutralize TM launch platforms and their supporting structures and systems.

Command, control, communications, computers, and intelligence (C4I) - systems used to coordinate and integrate the joint force capabilities to conduct and link passive defense, active defense, and attack operations.

TMD systems should build on existing systems and doctrine and, when appropriate, incorporate the newest technologies and concepts. **All TMD systems must integrate with the existing command and control (C2) architecture.** JTMD should be coordinated with integrated strategic defense operations. Strategic defense forces combine the capabilities of air defense, ballistic missile defense, and space defense for North America.

The Threat

Theater missiles (TMs) are weapons that possess both military threat and political intimidation characteristics.

Military threats from TMs include but are not limited to: **attacks on deployed US and multinational forces; interdiction** of lines of communications; **attacks on logistic facilities** (ports, air bases, and marshalling areas); **counter-TMD activity; and countervalue attacks** on population centers. **Political targets** for theater missiles include civilian population centers and political, cultural, and religious structures (government buildings, historical centers, holy sites). In addition, propaganda value exists in attacking concentrations of US and multinational military forces.

The **proliferation of TMs throughout developing nations** (particularly the proliferation of ballistic and cruise missiles, missile technology, and WMD technology) **poses a new challenge** to US military planners. Many developing nations either possess TMs or are trying to develop or acquire them.

A continuing significant threat to the United States and its allies is posed by **countries possessing large quantities of qualitatively advanced missiles**. Ballistic and air-, land-, and sea-launched cruise missiles could also present a serious threat to maritime operations in joint littoral warfare.

Joint Organization

The geographic combatant commander establishes theater guidance and objectives for joint theater missile defense (JTMD) and assigns and/or apportions forces and resources.

The joint force commander (JFC) establishes guidance and objectives for JTMD. This guidance should be reflected in appropriate operation plans and their annexes. The JFC must define and implement a methodology for joint TMD activities. **The JFC's concept of operations** specifies the objectives to be met and provides guidance for the employment of command, control, communications, computers, and intelligence (C4I), attack operations, active defense, and passive defense measures. **The component commanders plan and execute JTMD operations** under the guidance and in support of the objectives of the JFC. The JFC uses the joint force staff to plan, monitor, advise, and coordinate the overall operation.

Multinational Operations

JTMD operations may be required within the context of an alliance, coalition, or other international arrangement.

The JFC must consider those areas peculiar to multinational operations such as force capabilities and disparities, information and equipment security levels, and procedural and organizational differences that may influence the ability to achieve combined unity of effort. **Special considerations and areas of emphasis are needed to ensure unity of effort** with other national forces.

When the individual national forces of the multinational force are not uniformly capable of actively defending against enemy TMs or attacking enemy missile capabilities, provisions should be made to ensure that **JTMD assets are provided for missile defense within multinational force commander-established priorities**. Consensus on the enemy TM threat, a clearly defined chain of command, and a responsive, interoperable C2 structure are crucial to successful multinational JTMD operations.

JTMD Planning and Operations

Successful JTMD operations are highly dependent on the simultaneous and sequential execution of a wide spectrum of tasks and activities.

Some JTMD tasks and activities occur or begin prior to the initiation of the use of force. Significant among these are intelligence preparation of the battlespace (IPB); JTMD preparation and training; and operation planning. Additionally, logistic and geographic considerations will impact many aspects of early JTMD planning.

Detection of TM launch platform preparations may be an indication of an impending act of war. Detection of these preparations may allow for the transmission of tactical warnings that alert commanders, automated weapon systems, sensors, fusion centers, C2 nodes, and, in some cases, civil authorities, to prepare for the expected attack.

Passive Defense

Passive defense is necessary to provide essential individual and collective protection for friendly forces, population centers, and critical assets.

Passive defense measures should be planned whenever US forces might face a TM threat. **Principal measures used to accomplish passive defense are: tactical warning; reducing targeting effectiveness; reducing vulnerability; and recovery and reconstitution.** The principal support that C4I will provide for passive defense is warning. Planning for passive defense is conducted at all levels. **Executing passive defense is the responsibility of unit commanders at all echelons.**

Active Defense Operations

The role of active defense operations is to protect selected assets and forces from attack by destroying TM airborne launch platforms and/or TMs in flight.

Active defense must consist of defense in depth against all classes of TMs. When destruction of the TM launch platform prior to launch is not possible or successful, **TMs should be engaged by all means available throughout their entire flight profile.** Defense in depth provides multiple opportunities to negate the TMs with differing capabilities, increases probability of kill, and prohibits the enemy from being able to counter the defensive system with a single technique. Active defense also includes those actions which mitigate the effectiveness of targeting and delivery systems through electronic warfare (EW) against remote or onboard guidance systems.

The JFC exercises control of active defense operations by integration of JTMD systems and forces into the C4I systems supporting theater air defense.

The JFC normally assigns overall responsibility for theater/JOA air defense, to include active defense TMD, to the AADC. The AADC assists the JFC in determining missions, communications priorities, and rules of engagement for active defense forces based on assessment and prioritization of forces, critical assets, and population centers to protect. **Active defense**

forces are under the operational control of their component commanders, who employ these forces under the weapons control procedures and measures established by the AADC and approved by the JFC.

Attack Operations

Attack operations are characterized by offensive actions intended to destroy and disrupt enemy TM capabilities before, during, and after launch.

The objective of attack operations is to prevent the launch of TMs by attacking each element of the overall system, including such actions as destroying launch platforms, reconnaissance, surveillance, and target acquisition platforms, C2 nodes, and missile stocks and infrastructure. Attack operations also strive to deny or disrupt employment of additional TMs that may be available to the enemy. **The preferred method of countering enemy TM operations is to attack and destroy or disrupt TMs prior to their launch.**

Systems used to support attack operations may include rotary- and fixed-wing aircraft in air-to-surface and air-to-air operations, surface-to-surface fires, naval missile forces, special operations forces, antisubmarine forces, EW systems, and maneuver forces. **Attack operations are highly dependent upon predictive and developed intelligence.**

The joint force air component commander (JFACC) plans for the theater / joint operations area-wide attack operations effort. The JFACC is also responsible for executing attack operations outside other components' areas of operations (AOs). Component commanders are normally designated as supported commanders for attack operations inside their AOs.

The JFC will normally assign responsibility for the planning and execution of JTMD attack operations outside the other component commanders areas of operations (AOs) to the JFACC. Since the location of these AOs may change with the maneuver of forces or with changes in JFC guidance, **the JFACC should also plan for and maintain visibility on the theater/joint operations area (JOA)-wide attack operations effort.** This will ensure the JFACC is prepared to support the other component commanders when, for example, they request JFACC support in conducting JTMD attack operations within their AOs. **Inside their AOs, component commanders are normally designated as supported commanders for attack operations.**

Conduct of attack operations is reliant on sensor systems, a responsive near-real-time sensor management and communications network, and weapon systems capable of attacking targets at great ranges as soon as adequate targeting information is available. At the tactical level, responsive intelligence and operations interfaces are required for targeting and countering relocatable enemy TM launchers and support facilities.

Command, Control, Communications, Computers, and Intelligence

Command and control for JTMD operations is the exercise of authority and direction by commanders over forces assigned JTMD missions.

C4I for JTMD missions must be accomplished using existing joint and Service C4I systems and resources efficiently to ensure integration with other operational functions and to optimize the use of scarce resources. The C4I system links passive defense, active defense, and attack operations to provide timely assessment of the threat (to include IPB); rapid dissemination of tactical warning; and mission assignment, targeting data, and poststrike assessment to the appropriate JTMD element. For each operational element, the C4I system must provide rapid communications among intelligence assets, the fusion and decisionmaking facilities, warning systems, and weapon systems, to include a capability for rapid coordination with supporting combatant commanders. **Space assets are critical to passive defense, active defense, and attack operations** because they provide launch warning, launch point prediction, threat type determination, impact point prediction, weapon systems cuing, communications, and related intelligence.

CONCLUSION

This publication provides doctrine for the integration of theater missile defense capabilities to support execution of the joint force commander's operation order or campaign plan. The focus is to protect against theater missile attack through an appropriate integrated and coordinated mix of mutually supporting measures of passive defense, active defense, and attack operations with supporting command, control, communications, computers, and intelligence.

CHAPTER I

GENERAL

“...we received a report that a Scud fired at Dhahran had struck a US barracks. The explosion killed twenty-eight of our troops and wounded many more. It was a terrible tragedy—this terror weapon launched into the sky that by sheer fate happened to fall where we had a concentration of troops—and it brought home once again to our side the profanity of war. I was sick at heart.”

General H. Norman Schwarzkopf

SECTION A. INTRODUCTION

1. Overview

a. Potential adversaries possessing theater missiles (TMs) pose a threat to US security interests and forward-deployed forces. The **proliferation of TMs and advances in missile and associated technologies, coupled with the pursuit of weapons of mass destruction (WMD) capabilities**, can provide these adversaries with potentially decisive attack capabilities which can include the use of WMD against critical friendly targets.

b. TMs may be as much a **political** weapon as a **military** weapon. In many cases, their political impact may outweigh their military significance. Commanders must consider the political as well as the military impact of TMs. The precise time, location, and nature of TM employment is uncertain, thus complicating the determination of friendly force composition and method of power projection to overcome specific threats. The nature and extent of US global interests require that **theater missile defense (TMD) forces be rapidly deployable or employable from the United States, forward bases, and/or ships**. Furthermore, the intelligence, reconnaissance, surveillance, target acquisition systems, weapon systems, and communication architectures and resources required to conduct TMD operations must be flexible enough to provide timely and accurate support throughout the area of interest. Geographic

combatant commanders should plan for TMD operations within the theater in support of contingencies and national military strategy.

2. Objectives

The objectives of joint theater missile defense (JTMD) are depicted in Figure I-1.

3. Focus

a. **TMD is inherently a joint mission.** Therefore, joint force components, supporting combatant commanders, and multinational force TMD capabilities must be integrated toward the common objective of neutralizing or destroying the enemy's TM capability. This must be integrated into and in support of the JFC's overall concept of operations and campaign objectives.

b. During the planning stage, **TMD forces, requirements, and capabilities** must be **integrated** into all phases of the operation and mission areas early on. Assessment of a given threat and risk analysis will provide the basis for integration of the appropriate JTMD capability into the force package to ensure synchronization and efficient use of the limited number of dual-purpose systems.

c. JTMD should be capable of **countering threats** from TMs and their associated command, control, communications, computers, and intelligence (C4I), targeting, and logistic support systems. In addition, JTMD systems should possess the capability

JOINT THEATER MISSILE DEFENSE OBJECTIVES

- To demonstrate US resolve to deter aggression through the establishment of a theater missile defense capability
- To protect US-deployed and multinational forces as well as critical assets and areas of vital interest or political importance from attack by theater missiles
- To detect and target theater missile systems; to detect, warn, and report a theater missile launch; and to coordinate a multifaceted response to a theater missile attack while integrating that response with other combat operations
- To reduce the probability of and / or minimize the effects of damage caused by a theater missile attack
- To ensure that the joint force commander has the freedom to conduct joint operations without undue

Figure I-1. Joint Theater Missile Defense Objectives

for **rapid global deployability** and **intratheater mobility**.

d. The TM threat may appear across the range of military operations. JTMD systems and procedures must be adaptable for joint or multinational operations in any contingency. For example, in addition to warfighting situations, humanitarian assistance or noncombatant evacuation operations may be threatened by hostile forces that have a TM capability.

4. Terminology. Key terms include:

a. **Theater missile** applies to ballistic missiles, cruise missiles, and air-to-surface missiles whose targets are within a given

theater of operation. Short range, nonnuclear, direct fire missiles, bombs, and rockets such as Maverick or wire-guided missiles are not considered “theater missiles” for purposes of this publication. Of primary concern are the increasingly accurate ballistic and cruise missiles armed with conventional and WMD warheads.

b. **Theater missile defense** applies to the identification, integration, and employment of forces supported by other theater and national capabilities to detect, identify, locate, track, minimize the effects of, and/or destroy enemy TMs. This includes the destruction of TMs on the ground and in flight, their ground-based launchers and supporting infrastructure; TM-capable ships

WWII: THE BEGINNING OF MODERN BALLISTIC MISSILES

In 1925, Winston Churchill questioned, "Could not explosives even of the existing type be guided automatically in flying machines by wireless or other rays, without human pilot, in ceaseless procession upon a hostile city, arsenal, camp, or dockyard?" On the night of June 12, 1944, soon after the invasion of Normandy, his question was answered as the first ten V-1 German "flying bombs" struck England. By the end of the month 2,000 had been counted. Attacks by V-1 weapons on London severely impacted British morale, even though about half were shot down by anti-aircraft and fighter defensive action. These V-1 attacks were soon followed by the V-2, the first effective long-range rocket missile—a missile that could not be intercepted. Approximately 40 percent of bomber resources were diverted from support of Operation OVERLORD to attack CROSSBOW missile launch and support site targets with dubious results as the Germans rebuilt new sites as fast as they could be located and destroyed. Rapid Allied ground advances and intensive air bombardment ultimately prevented Germany's planned massive V (vengeance) weapon assault on England. Active defense and attack operations were ultimately successful, but not before thousands of V-1/V-2 rained down upon England and major ground operations occurred with reduced air support.

SOURCE: Unknown

and vessels in port or at sea; and enemy aircraft armed with air-to-surface missiles. TMD operations are accomplished by integrating a mix of mutually supportive passive defense, active defense, attack operations, and C4I measures.

c. **Joint theater missile defense** refers to the integration of joint force capabilities to destroy enemy theater missiles in flight or prior to launch or to otherwise disrupt the enemy's theater missile operations through an appropriate mix of mutually supportive passive missile defense, active missile defense, attack operations, and supporting command, control, communications, computers, and intelligence measures. Enemy theater missiles are those that are aimed at targets outside the continental United States.

d. **Theater missile defense system** refers to a system or systems with applicable capabilities that may be used to support passive defense measures, active defense measures, attack operations capabilities,

and the C4I and countermeasures required to counter the missile threat.

SECTION B. OPERATIONAL ENVIRONMENT

5. The Four Operational Elements of JTMD

As shown in Figure I-2, JTMD is composed of four operational elements: passive defense, active defense, attack operations, and TMD C4I. Because of the continual advancement and proliferation of TMs, the threat cannot currently be countered by any single technical solution, nor will it likely be in the future. **This threat can only be countered by the synergistic performance achieved by coordinating and integrating all four operational elements** into cohesive and coherent combat operations.

6. Integration

a. TMD systems should build on existing systems and doctrine and, when appropriate,

incorporate the newest technologies and concepts. **All TMD systems must integrate with the existing command and control (C2) architecture.** Integration of existing systems, and those that are well along in development, should be an iterative process that aggressively exercises and adapts those systems in order to optimize their responsiveness to the JFC's needs.

b. JTMD should be coordinated with integrated strategic defense operations.

Strategic defense forces combine the capabilities of air defense, ballistic missile

defense, and space defense for North America. The Commander in Chief, US Space Command, is the coordinating authority for strategic defense, and is the combatant commander (CINC) responsible for ballistic missile defense of North America, missile warning support to theaters, and space defense missions. The Commander in Chief, North American Aerospace Defense Command, provides attack assessments of strategic defense.

c. Strategic defense forces provide direct support to geographic combatant commanders



Figure I-2. The Four Operational Elements of JTMD

through global surveillance, tactical warning and attack assessment, ballistic missile warning, and by providing a secure mobilization base to support regional conflicts. During wartime, geographic combatant commanders continue to receive missile defense support consistent with both the degree and nature of the threat of attacks against US strategic assets.

d. Combat operations conducted within a theater may contribute to strategic defense through detection and/or attrition of hostile aerospace forces in the process of attack on the United States. These operations include theater sea control, antisubmarine warfare (ASW), counterair, theater ballistic missile defense, or special operations.

SECTION C. THREAT

7. General

TMs are weapons that possess both military threat and political intimidation characteristics. **Military threats** from TMs include but are not limited to those illustrated in Figure I-3. Depending on the sophistication of the individual TM system involved, the

political intimidation characteristics may outweigh the military value and danger of the TM system. **Political targets** for theater missiles include **civilian population centers and political, cultural, and religious structures** (government buildings, historical centers, holy sites). In addition, propaganda value exists in **attacking concentrations of US and multinational military forces**, separate and apart from any military significance, in order to show the vulnerability of these forces to attack. Rest and recreation areas and rear support areas to which news media have ready access should be considered potential target areas for TM attack for political and propaganda reasons.

8. Undeveloped Theaters

a. The proliferation of TMs throughout developing nations (particularly the proliferation of ballistic and cruise missiles, missile technology, and WMD technology) poses a new challenge to US military planners. Many developing nations either possess TMs or are trying to develop or acquire them. As a result, **the number of countries with a TM capability will continue to increase.**



Figure I-3. Military Threats from Theater Missiles



A barracks, which housed joint forces, is severely damaged after a Scud missile attack during the Persian Gulf War.

b. Allied nations and deployed US forces will be vulnerable to missile attack from many developing nations. Missile-equipped nations may not need to use large numbers of missiles to cause dramatic political change in a region because the mere threat or subsequent use of even a few weapons may be sufficient to achieve a regional goal. **The threat** to be countered includes but is not limited to: **intentional missile attack** or the threat of attack by a nation; **limited attack of population centers** or critical assets to achieve political benefits; **denying merchant shipping** freedom of navigation through waters outside internationally recognized territorial limits; and **unauthorized or accidental launch** of missiles.

c. Another problem associated with the proliferation of ballistic missiles is a **trend toward improved technology**. The trend is toward longer range missiles with increased accuracy and more lethal warheads (to include chemical, biological, and possibly nuclear). Additionally, the potential for introduction and proliferation of penetration aids cannot be discounted. Improved systems will pose an even more challenging and serious military threat.

d. Air-, land-, and sea-launched cruise missiles, including land attack and antiship missiles, continue to proliferate and grow in sophistication. These weapons have been exported to nations around the world. As with ballistic missiles, improvements in the next generation of cruise missiles will exacerbate the military threat.

9. Developed Theaters

a. A continuing **significant threat** to the United States and its allies is posed by **countries possessing large quantities of qualitatively advanced missiles**. JTMD capabilities should be structured to meet this threat while providing flexibility for rapid deployment in support of joint operations.

b. In a developed theater, an enemy may attack with air, surface, and subsurface forces. **Initial attacks may employ TMs, in conjunction with air attacks**, against a variety of targets such as air defense artillery sites, C2 elements, communications nodes, air facilities, seaports, logistic centers, key civilian facilities such as power and water plants, nuclear delivery systems, storage sites, naval vessels, population centers, and industrial complexes. **TMs provide an**



Soviet-built Scud B missile on display

additional capability for the enemy to strike deep and can contribute toward achieving strategic, operational, and tactical objectives. TMs could be used throughout the conflict against tactical, operational, and strategic targets to disrupt offenses, defenses and their support, and to reduce friendly military capabilities.

10. Naval Aspects of the TM Threat

Ballistic and air-, land-, and sea-launched cruise missiles could also present a **serious threat to maritime operations in joint littoral warfare**. Naval and other JTMD forces must be prepared to counter this threat.

PERSIAN GULF WAR: THE COUNTER-SCUD EFFORT

A well recognized and significant planning consideration for Tactical Ballistic Missile defense during the Persian Gulf War was that Saddam Hussein was likely to attack Israel with Scuds in the event of hostilities. Therefore, considerable thought was given to how Israel could be protected from such attacks without Israel's own forces entering the war. Although there was never any doubt about the willingness of Israel's highly capable forces to take on this mission, the President realized this was precisely what Saddam Hussein hoped to achieve. At a minimum, this almost certainly would have led to a war between Israel and Jordan and allowed Saddam Hussein to change the complexion of the war from the liberation of Kuwait to another Arab-Israeli conflict. It might easily have brought down the government of Jordan and replaced it with a radical one. The Coalition's unity would be tested severely, with potentially major repercussions.

Accordingly, the President directed that unprecedented steps be taken to persuade Israel not to exercise its unquestioned right to respond to Iraqi attacks. A special, secure communications link established between the Department of Defense (DOD) and the Israeli Ministry of Defense (MOD) before the offensive began enabled immediate and frequent contact between senior US and Israeli officials. Early warning of Iraqi Scud missile attacks on this link

gave the Israeli populace as much as five minutes to take shelter before missile impact. The President offered and Israel agreed to accept four US Patriot batteries manned with US troops which deployed from Europe in record time. Delivery of Israeli-manned Patriot batteries was accelerated.

On the second day of Operation DESERT STORM, Iraqi Scud missiles struck Tel Aviv and Haifa, Israel. While the damage was limited, (seven people were slightly injured by broken glass) the political and emotional impact was tremendous. There was concern that if the Scud threat were left unchecked, Israel might be forced to strike back. Accordingly, Scud suppression missions quickly took up an increasing share of air operations.

The Scud crews had several initial advantages. They fired from pre-surveyed launch positions using mobile erector launchers about as large as a medium-sized truck. This enabled crews to set up relatively quickly, fire, and move before Coalition forces could respond. The area of western Iraq from which the missiles that struck Israel were launched is rugged, a good setting in which to conceal mobile launchers in ravines, beneath highway underpasses, or in culverts.

In addition to the focus on this threat within the air operation, a considerable segment of the available intelligence-gathering capability was shifted to counter-Scud operations, including reconnaissance aircraft (U-2/TR-1s and RF-4Cs). Intelligence originally had estimated Iraq had 36 mobile Scud launchers, 33 of which were believed operational. *Ad hoc* groups were formed to develop options to the seemingly intractable problem of how to find and destroy Scuds. A special planning cell was set up in the US Embassy in Tel Aviv, headed by a Joint Staff flag officer, to give the Israelis a chance to analyze the available intelligence and elicit their ideas. When one Scud hit a residential section in Tel Aviv on 22 January, killing three Israelis and injuring dozens more, the problem took on even greater urgency.

The next week saw an intense effort in western Iraq to eliminate the mobile Scud launchers. B-52s bombed suspected Scud hide sites and support facilities at airfields in western Iraq during the day and at night. During the day, A-10s and F-16s patrolled the area; at night, LANTIRN-equipped F-16s and F-15Es, and FLIR-equipped A-6Es took up the task. Pilots often received target coordinates or patrol areas, based on the most up-to-date information, as they headed out to the planes. Using Defense Support Program (DSP) early warning information and other indications, CENTCOM directed aircraft to attack the launchers. JSTARS helped detect and report destruction of several possible mobile launchers. What came to be called the "Great Scud Hunt" was in full swing.

By early February, the counter-Scud effort seemed to be having an effect, although no destruction of mobile launchers had been confirmed. The daily CENTCOM chronology for this period contains numerous entries such as, "one Scud launched towards Israel, no damage," and "Patriots destroyed the only Scud launched at Saudi Arabia." As more intelligence assets were brought to bear on the problem, specific Scud operating areas (Scud boxes) were more clearly defined; Coalition striking power was concentrated there. On 19 February, Coalition aircraft began dropping CBU-89 area denial mines into

suspected operating areas, to hamper the launchers' mobility. A key element in this effort was small SOF groups on the ground who provided vital information about the Scuds.

SOURCE: DOD Final Report to Congress,
Conduct of the Persian Gulf War, April 1992

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CHAPTER II

RESPONSIBILITIES AND COMMAND RELATIONSHIPS

"Goldwater-Nichols established very, very clear lines of command authority and responsibility over subordinate commanders, and that meant a much more effective fighting force in the Gulf. The lines of authority were clear, and we just did not have any problems in that area—none whatsoever."

General H. Norman Schwarzkopf

SECTION A. JOINT ORGANIZATION

1. Geographic Combatant Commander

The geographic combatant commander establishes **theater guidance and objectives** for JTMD and **assigns and/or apports forces and resources**. The geographic combatant commander uses staff elements and component commanders and their staffs to plan, monitor, advise, coordinate, and execute overall operations, including JTMD. The geographic combatant commander is responsible for ensuring that JTMD plans and operations of subordinate forces are **integrated** at theater level and **documented** in the appropriate operation plans and annexes.

2. Joint Force Level

a. **Joint Force Commander (JFC).** The JFC establishes **guidance and objectives for JTMD**. This guidance should be reflected in appropriate operation plans and their annexes. The JFC must define and implement a methodology for joint TMD activities. JFC-level guidance is shown in Figure II-1.

b. The JFC's **concept of operations** specifies the objectives to be met and provides guidance for the employment of C4I, attack operations, active defense, and passive defense measures. The component commanders jointly conduct operations under

the guidance and in support of the objectives of the JFC.

c. **Joint Force Staff.** The JFC uses the joint force staff to **plan, monitor, advise, and coordinate** the overall operation.

- **Concept of Operations.** The joint force staff develops and issues the JFC-approved concept of operations, which includes JTMD. The JFC's concept of operations, issued to component commanders, should include but not be limited to the following JTMD considerations:

- **Specific joint force offensive or defensive objectives**, or both.

- Specific joint force guidance and objectives for JTMD operations, to include **prioritization of US and multinational forces; critical assets; and areas of vital interest or political importance** that should be protected with limited JTMD resources.

- Requirements to **develop, coordinate, and deconflict plans** to meet JTMD objectives.

- Guidance for planning, employing, and allocating **resources** for JTMD operations.

- Identification of **areas of operations (AOs)**.

JOINT FORCE COMMANDER JOINT THEATER MISSILE DEFENSE GUIDANCE

Joint force commander level guidance may include (but is not limited to):

- A methodology for joint planning of Joint Theater Missile Defense (JTMD)
- Priority of the JTMD effort; for example, what types of targets are most important for attack operations and what friendly assets must be protected by active defense
- Definition of the areas of operations of components
- Apportionment
- The capabilities / forces made available to the functional components
- Guidance on component-to-component coordination to facilitate deconfliction and timely Theater Missile Defense operations
- The role of the joint force commander's staff in coordinating JTMD activities
- Degree of joint targeting coordination board involvement in JTMD, if board is established

Figure II-1. Joint Force Commander Joint Theater Missile Defense Guidance

- Guidance for **coordinating with allies and/or civilian authorities** in preparing plans for JTMD operations.

d. The J-2, J-3, J-4, J-5, and J-6 are the primary staff elements responsible for JTMD operations at the joint force level; the JTCB (if established) and the political adviser also support JTMD operations. The responsibilities of the elements are determined by the JFC, but normally encompass the following:

- J-2--Joint Intelligence Staff
 - Maintains a theater- or Joint Operations Area (JOA)-wide, **all-source intelligence** collection, analysis, production, and distribution program on the TM threat.
 - Carries out prioritized intelligence **reconnaissance and surveillance requirements** in concert with and as established by the J-3.

- Generates or validates **intelligence collection requirements** on JTMD targets that cannot be accomplished by JFC resources through the supporting joint intelligence center. Collection requirements that cannot be satisfied with theater assets will be forwarded to Defense Intelligence Agency/J-2 for national collection.

- **Collects and fuses data** from all sources and makes it available to the JFC and other theater component activities (e.g., aircrews, ground forces, special operations forces [SOF]) in a usable format in near-real-time.

- Provides assigned and supporting JTMD forces with **targeting information** from the intelligence community.

- Develops procedures for **cuing timely reconnaissance** support to assess attacks.

- Participates as a member of the JTCB, if established.

"When Iraq launched an attack on Tel Aviv, 19 January 1991, the pressure to respond was intense. An intelligence officer assigned the 'Black Hole' identified what he believed to be a Scud launch site and recommended that F-15Es loaded with CBU-89s and CBU-87s, strike the location. After this strike by the 4th TFW, which reported secondary explosions, there was a break of 85 hours before the Iraqis launched a single Scud against Israel, and more than five days before another mass launch."

DOD Final Report to Congress Conduct of the Persian Gulf War

- Develops and executes, in conjunction with the J-3 and J-6, plans for **disseminating intelligence-derived**

launch warning information to all components, allies, and host nation (HN) civil authorities.

- Supports the J-3 in the conduct of **electronic warfare (EW)**.

- J-3--Joint Operations Staff

- With input from and in coordination with component commanders, **establishes and prioritizes JFC-approved targeting guidance and objectives**; this includes high-priority and politically sensitive targets for attack operations and (after JFC approval) rules of engagement (ROE) for both active missile defense and attack operations.

- Maintains **coordination with component staffs** to ensure compliance with JFC guidance and objectives for JTMD operations.

- Assists the J-2 in developing JTMD priority intelligence requirements.

- Recommends priorities for **EW support** and assigns EW missions for appropriate components.

- Monitors the **quantity, operational status, and location** of active missile defense and attack operation assets for JTMD operations.

- Serves as a member of the Joint Targeting Coordination Board (JTCB), if established.

- In coordination with the area air defense commander (AADC) and the J-2, ensures the development of plans to disseminate **launch warning or cuing information** from sensor or data sources. This information should go to active missile defense forces for engagement of incoming TMs and to forces conducting

attack operations that require TM launch point estimates.

- Establishes and maintains, in coordination with the J-2 and J-6, **near-real-time C4I** for coordinating JTMD operations and maintaining a data base of JTMD operations.

- **Deconflicts and integrates** JTMD and component deception activities.

- J-4--Joint Logistics Staff

- Integrates all components' JTMD **required items** into the time-phased force and deployment list (TPFDL).

- Monitors and supports **deployment** of TMD systems.

- Establishes **priorities for resupply** as directed by the J-3. Rapid consumption of active defense and attack operations missiles, combined with the size of the ammunition and

the wide dispersal of fire units, can put a strain on the logistic support systems.

- J-5--Joint Planning Staff

- **Evaluates** AADC and component plans for JTMD operations; if established, participates as appropriate in JTCB deliberations.

- **Plans for required assets** necessary to support JTMD operations, including US national strategic collection and intelligence information in coordination with the J-2.

- **Develops plans** for JTMD operations and ensures that JTMD measures are included in appropriate operation order annexes.

- In conjunction with the J-3 and political adviser, **assists HN or allied government officials** in planning for politico-military responsibilities, including providing for passive defense measures for populace and other geopolitically sensitive missile targets.



Patriot missile launched during DESERT STORM.

- **Develops a prioritized list of assets to be defended** from TM attack during various stages of operations. Coordinates this list with the J-3 before approval by the JFC.
 - J-6--Joint C4 Systems Staff
 - **Maintains** a theater- or JOA-wide command, control, communications, and computers (**C4**) **system**. Provides responsive, secure, and survivable communications.
 - In coordination with the J-2, assures that **C4I for JTMD RSTA is integrated** into the overall theater or JOA C4 network.
 - Assists in providing **connectivity** for national capabilities to support theater or JOA efforts.
 - Coordinates with component and multinational commanders to confirm **interoperability** of communications systems.
 - Political Adviser. Advises JFC regarding **assistance to HN or allied governments** in developing passive defense measures against TM attacks.
 - Joint Targeting Coordination Board. The JFC may organize a JTCB to coordinate target information, provide targeting guidance and priorities, and prepare and refine joint target lists. The JTCB is tailored by the JFC to each situation and consists of appropriate staff and component representatives.
- requires the **integrated operation of all available air defense weapon systems** of all components. Authority to integrate air defense forces and operations in overseas land areas will be delegated to the AADC. Air defense operations should also be coordinated with other tactical operations, both on and over land and sea. Representation from the other components involved will be provided, as appropriate, to the AADC's headquarters. **Preferably the AADC will also be the airspace control authority.** If the JFC establishes a joint force air component commander (JFACC), then the JFC may also assign the responsibilities of the AADC to the JFACC. See Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone," and the Joint Pub 3-01 series for more guidance on the AADC.
- b. Specific responsibilities for the AADC include:
 - Developing a **data base of friendly active defense capabilities** to facilitate planning the defense of prioritized assets.
 - Developing and executing plans for **dissemination of launch warning information** to all components, allies, and HN civil authorities for population warning, as appropriate.
 - Developing and executing detailed plans, including weapon control procedures and measures, to **disseminate launch warning and cue information** by the fastest means available to components and active defense forces for engaging incoming TMs by the fastest means available.
 - Ensuring, through organization and application of appropriate procedures within the framework of other JFC air and surface operations, that the **optimum effectiveness is realized** from each of the various weapon systems used **for active defense** and that no unnecessary

3. Area Air Defense Commander

a. The JFC will normally assign overall responsibility for air defense to an AADC. The successful conduct of theater air defense

PATRIOT DEPLOYMENT IN THE PERSIAN GULF

On 12 January 1991, in response to a growing Tactical Ballistic Missile (TBM) threat in the Persian Gulf, the Secretary of Defense authorized the deployment of two USAREUR Patriot batteries to Turkey to provide TBM defense for Incirlik Air Base. By 22 January, six of the eight launchers were in place and operational, with 43 missiles on hand. The United States and Israeli political authorities also agreed to deploy Patriot units to counter TBM threats (in the form of Soviet-built Scud missiles) to Israel. Shortly after the war began, Iraq attacked Tel Aviv and Haifa, Israel, with an extended range variant of the Scud B missile. A direct Israeli military response to these attacks might have weakened the commitment of Coalition Arab members to Operation DESERT STORM. Task Force Patriot Defender, created from 32nd Air Defense Command (USAREUR), deployed to Israel to provide antitactical ballistic missile defense of priority Israeli assets and to provide training and maintenance support for the two newly formed IDF Patriot batteries. Patriot units from the 32nd Air Defense Command were ordered to deploy on 18 January, and within 29 hours from verbal notification to deploy, the task force was operational and ready to conduct fire missions. A second deployment of two more batteries to Israel began on 23 January and was completed and operational by 26 January.

**SOURCE: DOD Final Report to Congress
Conduct of the Persian Gulf War, April 1992**

restrictions are placed upon their employment.

- Developing and executing plans for JTMD active defense operations and ensuring that they are included in the counterair, air defense, and space annexes for all operation plans (OPLANS) and operation plans in concept format, if necessary.

4. Joint Force Air Component Commander

a. **The JFC will normally assign responsibility for the planning and execution of JTMD attack operations outside the other component commanders AOs to the JFACC.** Since the location of these AOs may change with the maneuver of forces or with changes in JFC guidance, the **JFACC should also plan for and maintain visibility on the theater/JOA-wide attack operations effort.** This will ensure the JFACC is prepared to support the other

component commanders when, for example, they request JFACC support in conducting JTMD attack operations within their AOs.

The JFACC plans and executes attack operations in the theater/JOA based on JFC guidance. The JFACC does this by integrating and directing the employment of the capabilities/forces made available by the JFC.

b. Because of the need for the JFACC to maintain theater/JOA-wide visibility on JTMD attack operations and the integrated relationship between attack operations, active defense, and the other operational elements of JTMD, **the JFC may assign the responsibilities of the AADC to the JFACC.** Detailed procedures should be established to fully integrate JFACC and AADC activities, should they be conducted by separate individuals.

c. To ensure a synchronized effort, **JFACC JTMD plans should be fully coordinated** with the other components and the JFC. This

will help prevent duplication of effort and minimize the possibility of fratricide.

5. Component Commanders

a. Component commanders plan and execute JTMD operations as directed by the JFC and active defense in accordance with weapon control procedures and measures established by the AADC. Component commanders are **responsible for planning and executing combat operations** and for jointly coordinating and prioritizing their operations and needs with the JFC and with other component commanders. **Inside their AOs, component commanders are normally designated as supported commanders for attack operations.** Beyond surface AOs, the JFACC is normally designated supported commander for attack operations. Component commanders are responsible for providing warning to assigned and attached forces in sectors vulnerable to attack.

b. **Close coordination** among component commanders, the JFC, and the AADC (if designated) **is necessary** to employ the most appropriate resources and measures to execute JTMD operations and to ensure a synergistic effort. Component-to-component coordination may be required in some situations as a result of the compressed time lines and short reaction times inherent in JTMD operations. Coordination among component commanders for JTMD operations usually includes the items illustrated in Figure II-2.

"If there is an attitude more dangerous to assume that future wars will be just like the last one, it is to imagine that it will be so utterly different that we can afford to ignore all the lessons of the last one."

**Sir John Slessor
RAF Marshal**

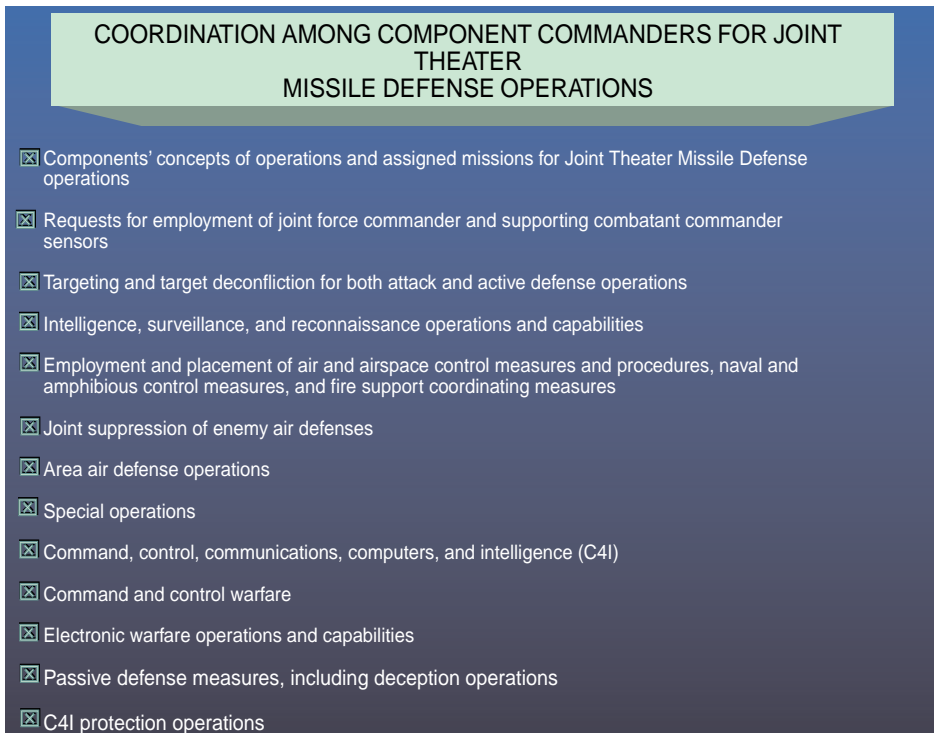


Figure II-2. Coordination Among Component Commanders for Joint Theater Missile Defense Operations

SECTION B. MULTINATIONAL OPERATIONS

6. General

JTMD operations may be required within the context of an alliance, coalition, or other international arrangement. Within this context, the JFC may be either subordinate to or may be the multinational CINC. In either event, the JFC must consider those **areas peculiar to multinational operations** such as **force capabilities and disparities, information and equipment security levels, and procedural and organizational differences** that may influence the ability to achieve combined unity of effort. Multinational CINCs and their subordinates identify the requirements and implications of allied and coalition operations, organize their forces, train to achieve force effectiveness, and conduct multinational operations as necessary.

7. Responsibilities

Requirements, responsibilities, and organizational considerations for conducting JTMD in a multinational operations environment are similar to those in joint operations. However, special considerations and areas of emphasis are needed to ensure **unity of effort** with other national forces. Each theater and each country is unique. Even within formal alliances, there are varying national interests that should be identified and considered. **Differences in doctrine, training, equipment, and organization** should be identified and considered when determining multinational interoperability requirements for employing forces. **The multinational CINC is responsible to both national and allied leaders.** Leaders must approve command relationships among the elements of the alliance or coalition.

8. Organizational Considerations

When the individual national forces of the multinational force are not uniformly capable of actively defending against enemy TMs or attacking enemy missile capabilities, provisions should be made to ensure that **JTMD assets are provided for missile defense within multinational CINC-established priorities.** This may entail introducing JTMD assets from another theater. For this reason, JTMD units and support organizations should be trained, oriented, and exercised to operate across the full range of military operations. As in unilateral operations, multinational CINCs may choose to organize on an area or functional basis, or a combination of the two. In either case, multinational force capability should be considered.

9. Operations

Consensus on the enemy TM threat, a clearly defined chain of command, and a responsive, interoperable C2 structure are crucial to successful multinational JTMD operations. Particular care should be taken to ensure that national forces and selected geopolitical assets are provided requisite protection from the effects of enemy TMs. Consideration may also be given to assisting HN or allied civil authorities in establishing passive defense measures for the civilian population and HN assets consistent with the overall mission. The JFC should consider establishing memorandums of agreement and/or status-of-forces agreements (time permitting) that would allow for collateral support (e.g., security and logistics) for JTMD forces assigned to protect allied and coalition forces.

a. **The TM threat to the total multinational force, including rear areas, should be considered.** Consensus on the

threat will facilitate the integration of national and alliance intelligence collection efforts and allocation of collection resources and assist in threat evaluation.

b. National forces are assigned JTMD missions that will produce, in concert with other forces, more significant effects than if employed alone. **Tasks are assigned to**

multinational commands will normally be supported by national intelligence systems to augment their organic intelligence systems. These should be integrated to ensure responsiveness to operational needs. Additionally, **issues related to releasability of intelligence information and products** to multinational partners must be resolved early, and if possible, prior to the onset of hostilities or operations. The



The remains of a Scud missile disabled by air defense systems.

national forces commensurate with their equipment and capabilities.

c. **C4I systems should be sufficiently interoperable** to respond to the needs of the multinational command. Information critical to JTMD needs is identified and systems are established to speed the flow of critical information throughout the multinational chain of command.

d. **Intelligence requirements** in support of JTMD operations should be **determined and prioritized** in order to plan the collection, analytical, and targeting efforts and to allocate appropriate resources to these functions. US forces that are part of

sharing of intelligence will be crucial to conducting operations.

e. **ROE for JTMD operations** should be delineated, published, and disseminated to and exercised by alliance members for compliance and as a planning consideration for future operations. Any national ROE that differ from the multinational ROE should be identified, published, and understood by all national commands.

f. **Planning for and dissemination of TM launch warning and impact area prediction to civil authorities** should be considered by multinational commanders.

g. **The key** to establishing and refining sound procedures **is multinational exercises with full participation of C4I assets.** Exercises provide an excellent environment for the simultaneous practice of all levels of responsibilities to evaluate and to sustain the requisite skills and procedures for effective JTMD operations. Exercises are particularly helpful in adapting a unit to a new environment subsequent to deployment from one geographic area to another. Exercises may also provide a deterrent effect.

CHAPTER III

PLANNING AND OPERATIONS

"The first thing for a commander-in-chief to determine is what he is going to do, to see if he has the means to overcome the obstacles which the enemy can oppose him, and when he has decided, to do all that he can to surmount them."

Napoleon
Maxim LXXIX

SECTION A. PLANNING AND PREPARATION FOR JTMD

1. General

Successful JTMD operations are highly dependent on the **simultaneous and sequential execution** of a wide spectrum of tasks and activities, some of which occur or begin prior to the initiation of the use of force. Significant among these are **intelligence preparation of the battlespace (IPB); JTMD preparation and training; and operation planning**. Additionally, logistic and geographic considerations will impact many aspects of early JTMD planning.

2. Intelligence Preparation of the Battlespace

Analysis and target development of TM threats should begin during peacetime. IPB drives the development of a collection plan, which in turn identifies sensor types, collection windows, and areas of coverage. **The allocation of the right mix of sensors, at the right time, against specific areas, in search of specific targets is critical to the successful conduct of TMD operations.** Development and refinement of a data base on threat TM capability, both indigenous and imported, must be a continuous process. IPB is an analytical methodology employed to reduce uncertainties concerning the enemy, environment, and terrain. IPB products are used to evaluate enemy capabilities, vulnerabilities, and probable courses of action. This process assists in situation and target

development by showing commanders when and where they can most effectively engage the enemy. **IPB products contribute significantly to the process of area limitation analysis and ultimately to automated cuing of TMD sensors and weapon systems to threatening targets.** IPB includes updating TM data bases to maintain and provide near-real-time status of selected enemy TM-related capabilities (e.g., orders of battle; operating bases; type, range, and employment techniques of available missiles and warheads; missile launch, load, hide, and support sites; potential routes; intelligence and electronic warfare (IEW) systems; C2 nodes; and enemy defenses).

"No combat commander has ever had as full and complete a view of his adversary as did our field commander. Intelligence support to Operations DESERT SHIELD and DESERT STORM was a success story."

General Colin Powell
Chairman of the
Joint Chiefs of Staff

3. Preparation and Training

Well-rehearsed TM defense plans and preparations allow forces in a developed theater to react swiftly across the range of military operations. TM defense systems should provide timely C4I and target acquisition before hostilities commence. **Preparatory activities include IPB, detection of launch platform preparations, and transmission of timely warnings to**

alert responsible commanders. JTMD training and preparation should be conducted for military forces. Consideration should also be given to providing training and preparation support for the civilian population as feasible.

4. Operation Planning

During this phase, forces are organized, known and suspected enemy TMs and TM-related targets are prioritized and assigned, and ROE established to protect assets and provide freedom of maneuver for friendly forces. Passive defense measures, active defense, and attack operations are planned.

5. Logistics

a. **Key** among the many factors that should be considered when developing sustainment plans for JTMD operations **are deployment of the weapons to their area of employment and resupply** of ammunition, repair parts and other supporting equipment, fuel, and supporting personnel to sustain the JTMD effort.

b. US doctrine requires the Services to provide their own logistic support; however, the geographic combatant commanders are authorized to exercise directive authority over logistics and transportation priorities based on transportation capacity, transportation requirements, and urgency of need. The TPFDL should be based on these priorities. Transportation assets can be more efficiently used and transportation requirements more readily met through early assessment of the theater's logistic requirements. **Early planning will permit the geographic combatant commander to fully exploit more efficient, but slower, sealift assets.** Ground-based TMD systems can also be transported by air into a theater, but this places an additional burden on the US airlift capacity. **A geographic combatant commander must balance the increased risk of imminent TM**

attack with the cost associated with diverting airlift assets for the deployment of JTMD forces. If the geographic combatant commander alters the TPFDL to meet TMD requirements, the geographic combatant commander must assess the cost of doing so in terms of the effects this will have on overall theater logistic operations.

6. Geographic Considerations

Within a theater of operations, **geographic features and time and distance factors relative to the threat will affect the balance of effort** required to conduct JTMD operations. The type of terrain (mountainous, wooded, open, swampy, urban, and other types) will influence the employment and siting of JTMD systems. Climate and weather may also be factors affecting the conduct of attack operations. Planning considerations are shown in Figure III-1.

SECTION B. TRANSITION TO JTMD OPERATIONS

7. General

a. **Detection of TM launch platform preparations may be an indication of an impending act of war.** Detection of these preparations may allow for the transmission of tactical warnings that alert commanders, automated weapon systems, sensors, fusion centers, C2 nodes, and in some cases, civil authorities to prepare for the expected attack.

b. **The JFC must** evaluate, by fusing all available intelligence sources, the potential enemy TM threat faced in the theater/JOA and **ensure that the proper JTMD resources are allocated to meet the threat.** Units supporting the JFC's JTMD plan should also be sequenced in the force deployment and employment schedules so that a JTMD capability can be established in consonance with the overall JFC priorities and risk assessment.

PLANNING CONSIDERATIONS FOR GEOGRAPHIC, TIME, AND DISTANCE FACTORS

- ✓ Missile range
- ✓ Neutral country overflight restrictions
- ✓ Missile debris
- ✓ Expected attack direction
- ✓ Missile chemical or biological warhead dispersant
- ✓ Location of population
- ✓ Location of units on the ground and ships at sea
- ✓ Communications systems and connectivity requirements
- ✓ Availability of host-nation Theater Missile Defense assets
- ✓ Space-based assets, capabilities, and availability

Figure III-1. Planning Considerations for Geographic, Time, and Distance Factors

8. Undeveloped Theaters

In an undeveloped theater, forcible entry operations entailing the introduction of personnel, weapon systems, and vehicles by air or sea limit the opportunity to establish an immediate, robust JTMD capability. **Advanced planning is fundamental to establish a credible JTMD capability on a timely basis.** Undeveloped theater JTMD requirements are very similar to those of a developed theater; **the principal differences are the time required to deploy JTMD forces and availability of JTMD resources.**

9. Forcible Entry Operations

Forcible entry is seizing and holding a military lodgment in the face of armed opposition and may include airborne, amphibious, air assault, or any combination thereof. Forcible entry is supported by air and space-based systems and special operations. Whatever the situation, the TM threat should be assessed and an appropriate defense provided to counter the expected threat. **During initial phases of amphibious operations, the Navy component has the primary role for providing this defense.** As

assault forces deploy ashore, ground commanders assume responsibility for their AOs and land-based systems should be employed and integrated into the TM defense. **Upon agreement, the primary responsibilities for JTMD operations may be passed to forces ashore.** During situations in which the Navy component is in support of land operations, Navy component and land-based JTMD operations should be coordinated to ensure unity of effort. Consequently, joint exercises are critical to ensure effective interoperability and communications.

10. Force Protection

Since JTMD assets available to the JFC will generally be limited, especially in forcible entry operations, **special focus should be placed on providing an appropriate level of physical security for critical JTMD assets** against terrorist and similar threats.

11. Launch Detection

Once a launch is observed, launch warning, impact point/time predictions, and missile type are passed to commands, military units, and civil authorities, allowing passive defense actions to be triggered. Additionally, trajectory data, launch point estimates, missile type, impact point and time predictions, and positions are passed to active missile defense units, interceptors, intelligence assets, and attack systems.

“The Scud missiles used by Iraq and Iran in the “War of the Cities,” and the Iraqi use of Scud missiles against coalition forces and Israel in the 1991 Gulf War were the first uses of ballistic missiles since the use of the V-2 in World War II. Though relatively primitive in nature, these Soviet and Iraqi variant Scud missiles had a psychological impact and forced operational and tactical changes.”

Unknown

SECTION C. PASSIVE DEFENSE

12. General

Passive defense is necessary to provide essential individual and collective protection for friendly forces, population centers, and critical assets. Passive defense measures should be planned whenever US forces might face a TM threat. By examining various combinations of TM warhead accuracy and effects, numbers of available missiles, and the enemy targeting process, the likelihood and timing of an attack may be predicted and passive measures selected for employment before, during, and after a TM attack.

13. Measures

Principal measures used to accomplish passive defense are depicted in Figure III-2.



Figure III-2. Principal Measures for Passive Defense

a. **Tactical Warning.** Geographic combatant commanders are **responsible for establishing theater event reporting systems** to acquire, process, and disseminate warning information to joint force components and population centers. **They are also responsible for implementing tactical event system architectures** into local operations and intelligence nets. Component

commanders are responsible for providing warning to assigned forces. Tactical warning triggers passive defense actions. **Warnings are both general (that missile launches are imminent or have occurred) and specific (that specific units or areas of the battlefield or theater are in danger of attack).** The geographic combatant commanders' tactical warning requirements are supported by national and theater intelligence systems.

b. Reducing Targeting Effectiveness. JFCs and component commanders are **responsible for protecting forces** against the effects of missile attack through:

- **Operations Security (OPSEC).** The communications security, signature reduction, and security aspects of OPSEC **deny enemy sensor and reconnaissance assets timely acquisition and identification of friendly targets.** Signature reduction measures include camouflage, commonality of vehicle appearance, an emission control program for infrared, electromagnetic, and acoustic emissions, and cover and concealment. Local unit security is an important element in denying accurate targeting data to enemy special operations forces or other enemy agents. **Frequent movement of units (inside the enemy's intelligence cycle) is of singular importance.** See Joint Pub 3-54, "Joint Doctrine for Operations Security," for additional guidance on OPSEC.
- **Deception.** Deception **misleads enemies by manipulating, distorting, or falsifying friendly actions.** This can cause enemies to deplete their TM resources by attacking false targets through the use of decoys, missing intended targets, and denying them accurate battle damage assessments. Deception influences enemy decisionmakers by feeding their

intelligence collectors what appears to be credible information or by denying the enemy the ability to gain tactical, operational, and strategic information when using reconnaissance and surveillance systems. **TM deception is an integral element of the JFC's overall plan for deception** and is included in the JFC's operation plan. The deception effort should be specifically tailored to counter or exploit the enemy's collection capability. See Joint Pub 3-58, "Joint Doctrine for Military Deception," for additional guidance concerning joint deception operations.

- **Mobility.** Mobility reduces vulnerability and contributes to survivability of certain systems by **limiting exposure to reconnaissance and targeting.**

c. Reducing Vulnerability

- **Hardening.** **Hardening reduces the effect of attack on systems and facilities** (i.e., aircraft, air base support equipment and facilities, nuclear delivery systems, nuclear storage areas, C2 elements, communications nodes, and theater logistic facilities). Hardening should be accomplished or begun in peacetime. However, political and fiscal constraints may preclude certain prehostility hardening measures, such as construction of fixed fortifications. Protection for **mobile ground forces** and equipment may be best accomplished by **careful site selection, field fortifications, and other field-expedient methods.**
- **Redundancy and Robustness.** A principal means of preserving combat power is **duplication of critical capabilities that are particularly vulnerable to TM attack and for which other passive measures may be less appropriate.** Of primary concern are "soft" targets such as C2 nodes and

sensors, and fixed sites such as airfields and ground stations for airborne sensors. The capabilities provided by these systems can be preserved through redundancy and robustness. That is, by having systems capable of backing up or duplicating the roles of other systems and having many systems with similar or identical capabilities.

- **Dispersal.** Dispersal reduces target vulnerability by **decreasing concentration and making a target less lucrative**. Combined with mobility and deception, dispersal increases enemy uncertainty as to whether a particular location is occupied and, if so, whether it will be occupied when the attack is executed. It forces the enemy to search more locations, which requires more resources and more time.
- **Training Civilian Authorities.** Civilian authorities should be trained **to organize and instruct their populations on actions to take upon warning of missile attack**. This training will facilitate civilian protection efforts and may reduce the political impact of missiles hitting civilian areas and facilities.
- **NBC Defense. The elements of passive defense against NBC weapons are contamination avoidance, force protection, and decontamination.** These form a hierarchy that protects the force, sustains operational effectiveness, and minimizes casualties. Units employ **detection and NBC reconnaissance** to avoid contamination, thus minimizing or eliminating NBC casualties, mission performance degradation, and logistical intensive decontamination requirements. If units fail to avoid being attacked or contaminated with NBC weapons, they use **individual and collective protection** to sustain operations and reduce the

impact on NBC weapons on the unit. Individual protection uses physical protection devices, medical immunization and prophylaxis, and NBC casualty medical treatment. Collective protection provides relief from sustained operations in full NBC protective equipment, shelters sensitive equipment not easily decontaminated, and provides clean environments for operations that cannot be performed under NBC-contaminated conditions. Decontamination removes NBC hazards from personnel and equipment. **Decontamination** also minimizes the hazard and spread of contamination and facilitates the prompt restoration of normal operations. See Joint Pub 3-11, “Joint Doctrine for Nuclear, Biological, and Chemical (NBC) Defense,” for more guidance on NBC defense.

d. Recovery and Reconstitution. Following a TM attack, **units should be restored to a desired level of combat effectiveness commensurate with mission requirements and available resources**. Reconstitution may include reestablishing or reinforcing C2; reallocating or replacing communications, personnel, supplies, and equipment; conducting essential training, reestablishing unit cohesion; and repairing battle damage. In some instances of mass devastation, whole unit replacement may be necessary.

14. Command and Control

The principal support that C4I will provide for passive defense is warning. Strategic warning is accomplished through ongoing intelligence collection and analysis of the threat. Tactical warning is provided to the components over the geographic combatant commander’s early warning net and used to dictate the local readiness posture. The geographic combatant commander’s

early warning net should link space-, air-, and surface-based sensors (both national and theater) that detect missile launches or track missiles in flight. Warning data should be transmitted immediately to appropriate commands and, if known, to targeted units and civilian authorities. TM defense reaction plans should be included as part of emergency-action checklists. **Warning times associated with TM attacks are minimal because of short missile flight times and difficulty of detection.** Regardless of time available, warning is required to allow for the use of all possible protective measures for exposed personnel and equipment. **Effective communications are essential** to provide the information required at each level to support the execution of passive defense measure plans.

15. Planning

Planning for passive defense is conducted at all levels. It should include warning and measures to reduce the effectiveness of enemy targeting, reduce vulnerability to attack, and reconstitute the force. Attack warning immediate action plans, deception plans, and IPB provide the focus for the passive defense effort. TM deception activities should be developed, coordinated, and integrated as an essential part of higher level deception operations. **Integration of the planning process reduces the effectiveness of the threat** by establishing and communicating the countermeasures to be taken at each level of command.

16. Execution

Executing passive defense is the **responsibility of unit commanders** at all echelons.

SECTION D. ACTIVE DEFENSE OPERATIONS

"I want to make it clear that we welcome the day when the Soviet Union can shoot down any incoming missile, so long as the United States can shoot down any incoming missile, too."

Ronald Reagan

17. General

The role of active defense operations is **to protect selected assets and forces from attack by destroying TM airborne launch platforms and/or TMs in flight.** Active defense must consist of defense in depth against all classes of TMs. When destruction of the TM launch platform prior to launch is not possible or successful, TMs should be engaged by all means available throughout their entire flight profile. **Defense in depth provides multiple opportunities to negate the TMs** with differing capabilities, increases probability of kill, and prohibits the enemy from being able to counter the defensive system with a single technique. **Active defense also includes** those actions which mitigate the effectiveness of targeting and delivery systems through **EW against remote or onboard guidance systems.**

18. Resources and Capabilities

a. **Boost Phase.** As a result of time and distance factors, destruction during the early phases of the missile trajectory **requires near-real-time information concerning a missile launch and an immediate delivery of destructive capability.** The detection and acquisition tasks should be integrally linked

THE IRAQI TERROR WEAPON

The Scud was a clumsy, obsolete Soviet missile which had been originally designed to lob a half-ton warhead 190 miles and be able to hit within a half mile of its target—close enough for Soviet purposes because the Scuds could carry nuclear warheads. The Iraqis had learned to roughly double the missile's range by welding two Scuds end to end, or adding a section to the original framework, but in doing so they had to drastically reduce the payload. So in essence what they had was a weapon that could fly 300 miles and miss the target by a couple of miles with a warhead of only 160 pounds. Militarily, that was the equivalent of a single airplane flying over, haphazardly dropping one small bomb, and flying away—terrible for anyone it happened to land on, but in the grand scheme of warfare, a mosquito. However, the Scud was effective as a terror weapon against civilian populations: in the Iran-Iraq war, the Iraqis had fired Scuds at Tehran in much the same way the Nazis had showered London with V-2s.

SOURCE: Schwarzkopf, H. Norman
It Doesn't Take a Hero, Bantam, 1992

with and dedicated to the active defense weapon systems. Systems participating in active defense should provide a means for near-real-time kill assessment and rapid damage assessment to determine the need for subsequent engagements. **Attack early in the trajectory offers the greatest potential for eliminating problems associated with the type of warhead and the intended target.** Space-based components should also be integrated with theater assets for launch warning, launch point and time determination, threat type determination, impact point and time prediction, weapon system cuing, communications, and other components.

b. Ascent and Mid-Course Phases. During ascent and mid-course phases, **active defense systems continue to receive warning and cuing information from external sensors and C2 nodes** in order to determine, based on established ROE, whether incoming TMs are threats that warrant engagement. If engagements are necessary, units begin processing for engagement and selecting fire units or weapon systems to perform the engagement based on firing doctrine, ROE, weapons and equipment status, and probability of kill.

c. Terminal Phase. During the terminal phase of a missile's trajectory, **incoming missiles are destroyed primarily by surface-to-air missiles or gun systems, depending on TM type.** Because it should be expected that an enemy attack may integrate aircraft and missiles, terminal phase active defense operations should be integrated within the theater/JOA air defense system.

d. Cruise Missiles. The previous three paragraphs were primarily related to ballistic missiles. Cruise missiles present a somewhat different challenge. **Cruise missiles can be air-, land-, or sea-launched and normally fly to their target at low altitude, thus creating an acquisition problem.** Often they follow an unpredictable trajectory that makes it difficult to determine their point of launch or to predict their exact impact point. The mobility of cruise missile launch platforms, the small launch signature of the missiles, and their reduced radar cross section also complicate TMD operations. Stealth technologies can be incorporated into cruise missiles, making them an even more challenging target. **A robust combination of friendly active defense and attack operations is required to defeat the cruise missile threat.**

e. The ability to destroy missiles in flight should be coupled with **dynamic and responsive deployment of active defense systems to prevent the enemy from knowing what is defended.** This redeployment capability assures responsiveness to changing theater priorities, assures protection of the force, and can be employed as a tactic to prevent the enemy from knowing what is defended. In the latter case, this causes uncertainty and reduces the enemy's expectation of a successful attack. **Active defense operations defend only what is most important or critical due to resource limitations** and accept some risk should the enemy attack lower priority assets that are not directly defended. The principal contributors to active defense systems are shown in Figure III-3.

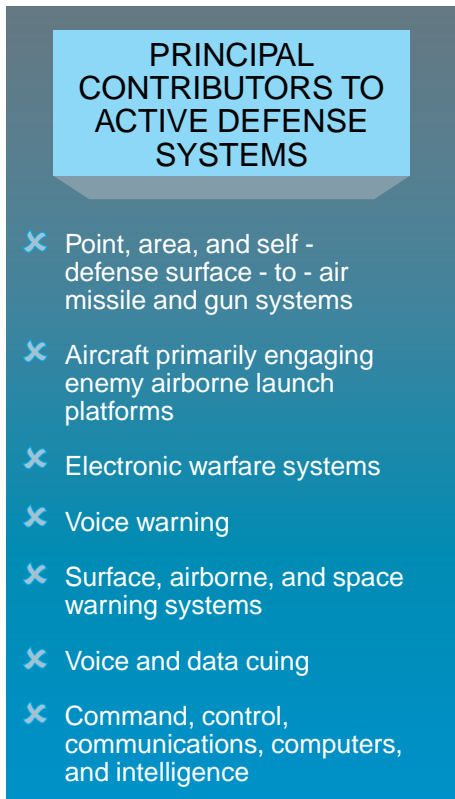


Figure III-3. Principal Contributors to Active Defense Systems

19. Command and Control

a. The JFC exercises control of active defense operations by **integration of JTMD systems and forces into the C4I systems supporting theater/JOA air defense.** The JFC normally assigns **overall responsibility for theater/JOA air defense, to include active defense TMD, to the AADC.** The AADC assists the JFC in determining missions, communications priorities, and ROE for active defense forces based on assessment and prioritization of forces, critical assets, and population centers. **Active defense forces are under the operational control of their component commanders,** who employ these forces under the weapons control procedures and measures established by the AADC and approved by the JFC.

b. Effective control of active defense weapon systems requires a capability to provide continuous wide-area surveillance of the theater/JOA, with emphasis on likely missile launch areas. **A confirmed launch triggers reactions by a preplanned selection of appropriate defensive systems,** in accordance with established ROE. Short missile flight times require that available air-, land-, sea-, and space-based sensor and surveillance assets reports be integrated to provide a complete and current air and space picture. Space-based systems should be responsive to the joint or multinational force commander. The C4I systems supporting theater air defense should provide for centralized coordination and decentralized execution of active defense operations.

20. Planning

Active defense planning begins with IPB. Upon completing initial analyses, the JFC provides the concept of operation and mission priorities. **The JFC finalizes decisions on apportionment of JTMD resources after the staff completes its comparison and**

analyses of the various courses of action and the component commanders have given their input. Intelligence requirements are identified and collection management priorities established for TM detection, acquisition, and identification. Threat priorities and ROE are established for engaging both enemy aircraft and missiles. Forces are designated to protect critical theater assets as illustrated in Figure III-4.



Figure III-4. Examples of Critical Theater Assets

21. Execution

a. **Active defense operations should be centrally coordinated and decentrally executed.** Based upon unconfirmed launch indicators, US Space Command may be capable of providing initial warning reports. These reports could be used by the JFC to initiate certain passive defense measures and provide initial cuing to active defense forces.

b. **An enemy launch** observed and identified through national, theater, or tactical surveillance systems **triggers active defense and attack operations, along with initiating passive defense measures** by military units and civilian authorities.

- **TM trajectory data are passed to surface- or air-based point** (including

self-protection) **and area defensive systems.** Depending on data quality, cuing of higher resolution sensor systems may be necessary to provide target engagement data immediately or to template the enemy's TM architecture to provide information for target engagement at a later time. Enemy launch locations and other targeting information are passed simultaneously to appropriate units and commands with attack operations missions.

- **Area systems**, such as some surface-to-air missile systems or interceptors, **provide defense in depth by attacking TMs at long ranges.** Engaging missiles early in flight permits multiple engagements by the area and point defense systems and minimizes ground damage to friendly forces and infrastructure from missile and warhead debris. Active electronic countermeasures systems also can deceive TM guidance systems late in flight.

SECTION E. ATTACK OPERATIONS

22. General

a. Attack operations are characterized by **offensive actions intended to destroy and disrupt enemy TM capabilities before, during, and after launch.** The objective of attack operations is to **prevent the launch of TMs by attacking each element of the overall system**, including such actions as destroying launch platforms, RSTA platforms, C2 nodes, and missile stocks and infrastructure. Attack operations also strive to deny or disrupt employment of additional TMs that may be available to the enemy. **The preferred method of countering enemy TM operations is to attack and destroy or disrupt TMs prior to their launch.**

b. Attack operations is not a mission in itself, but a way of characterizing those offensive attacks against launch platforms and their supporting infrastructure, including logistics. **Attack operations can be preemptive or reactive** as part of counterair, strategic attack, interdiction, fire support, maneuver, ASW, antisurface warfare, strike warfare, amphibious operations, or special operations. A sustained effort is required to reduce the enemy's TM capability and involves the execution of mutually supporting tasks. The detection, acquisition, identification, tracking, and attack tasks are highly dependent on a near-real-time C4I process and rapid targeting capability. **Attack operations are challenging because TM systems are generally hard to detect** since they will normally be dispersed, mobile, electronically quiet, and redundant. Attack operations use all-source intelligence to locate and attack enemy TM systems, their components, and supporting nodes.

23. Resources

Systems used to support attack operations may include rotary- and fixed-wing aircraft in air-to-surface and air-to-air operations, surface-to-surface fires, naval missile forces, SOF, antisubmarine forces, EW systems, and maneuver forces. **Attack operations are highly dependent upon predictive and developed intelligence.** Because it may be difficult to detect highly mobile launch systems, **a C4I capability should exist to support near-real-time targeting and attack.** National sensor systems will normally be required to augment theater air- and ground-based systems. National capabilities should provide tactical information to assist in launch point determination. Additionally, intelligence products collected by national systems can enable theater forces to anticipate possible TM operations and determine enemy TM unit locations. SOF involvement may be through attack of TM targets by way of a direct action

mission or through conduct of special reconnaissance missions that use electronic, mechanical, visual, or other means to facilitate target acquisition and countering of an enemy TM threat (i.e., terminal guidance operations).

24. Command and Control

Designation of engagement areas, assignment of AOs, and coordination of JTMD attack operations is prescribed by the JFC. When ground forces have been deployed and if a JFACC has been designated, **the JFC will normally task the JFACC as the supported commander to plan for and conduct, as apportioned, attack operations against longer range TMs outside the other component commanders' AOs.** The JFACC should also plan for and maintain visibility on the theater/JOA-wide attack operations effort. **The JFC will normally task component commanders for conduct of attack operations against TMs within their assigned AOs** (see Chapter II, "Responsibilities and Command Relationships," paragraphs 4 and 5). Subordinate commanders control attack resources and coordinate and conduct their operations according to joint doctrine and procedures. Effective attack operations **require real-time coordination** between all component commanders as well as continuous wide-area surveillance over the entire theater/JOA, with emphasis on enemy missile systems and likely support, fabrication, assembly, and launch areas. Coordination of attack operations involves the detection, acquisition, and identification of enemy TMs and the dissemination of the targeting information to the designated attack system for execution. These tasks are directed to subordinate elements as missions for execution.

25. Planning

Planning for attack operations begins with the IPB process. IPB is conducted, including surveillance of likely

areas, area limitations, and prediction of enemy activities. Upon completing the initial analyses, the JFC issues guidance on the concept and priorities for JTMD operations. Based on the JFC staff's analysis of various courses of action, and recommendations from the component commanders, the JFC assigns missions to the component commanders and provides corresponding guidance for JTMD operations. Component commanders then plan attack operations based on the assignment of attack responsibilities, the JFC's concept and priorities, and the apportionment decision of the JFC. Effective JTMD attack operations require the integration of all joint force plans. JFCs may task an organization within their staff to integrate component commanders' plans or may delegate this responsibility to a subordinate commander. If established, the JTCB may be an integration center for this effort or serve as a JFC-level review mechanism.

a. During planning, decisions are made concerning targets; conditions for attack; and asset assignment for surveillance, target acquisition, deconfliction, suppression of enemy air defenses, and attack.

b. Because of the mobility of TM systems, **the time to acquire, target, and attack key elements may be very short.** Thus, an accelerated execution cycle using the decide-detect-deliver process is required. **The decision to attack TMs may have already been made based on the JFC's priorities and facilitated by the ROE.** Accurate targeting data is required for execution. Such decisions provide focus and priorities for intelligence collection management and the attack planning process. **ROE approval criteria for attack or a "trigger event" established during the planning process will initiate the attack operation.** For aircraft, this decision could well be made by the aircrew orbiting over or near the target area in anticipation of TM activities. When implemented, this provides for quick, efficient, and effective use of limited C4I and attack means.

c. Throughout the planning cycle, commanders and staffs must continually reassess friendly dispositions, use all available intelligence to anticipate enemy attack plans and predict TM system dispositions, and plan appropriate attack responses. **Trigger events**



Successfully attacking theater missiles before launch requires extensive coordination between component commanders.

or signatures that might key the decision to attack, such as TM launch, should be identified. Observable TM system signatures and conditions under which they are observed are matched with appropriate surveillance and target acquisition systems.

26. Execution

a. **General.** Conduct of attack operations is **reliant on sensor systems, a responsive near-real-time sensor management and communications network, and weapon systems capable of attacking targets at great ranges as soon as adequate targeting information is available.** At the tactical level, responsive intelligence and operations interfaces are required for targeting and countering relocatable enemy TM launchers and support facilities. **Execution of air and ground JTMD attack operations is centrally controlled, decentrally executed, and governed by applicable joint policies, doctrine, and procedures.**

- **Detection.** Detection requires identification of prelaunch and postlaunch signatures and the accurate location of the launch system. To support attack operations in all environments, diminish the effects of enemy countermeasures, and capitalize on distinctive signatures of TM equipment and operations, **the surveillance capability should be multispectral, and integrate national-level intelligence and other externally furnished information** with theater-level surveillance. Space-, air-, sea-, and ground-based area and point surveillance sensors may all be required. Detection involves the segmentation of the battlefield to accommodate a systematic search of specified areas determined by the IPB process. **After detection, warning or location data should be passed immediately to the theater joint intelligence center, component**

command centers, executing units, and air and ground search equipment for cuing. Simultaneously, tactical warnings should also be provided to potential friendly targeted assets.

- **Acquisition.** Acquisition and tracking systems receive cuing from wide-area and local surveillance systems and warning data from other intelligence sources. **Acquisition supports target identification and discrimination and timely target engagement** by accurately locating and monitoring targets and transmitting information relative to target movement.
- **Identification.** Identification of TM launch platforms and supporting nodes requires maintenance of data on target movement, determination of the type of TM system employed, discrimination of the launch and support systems from decoys, and, through the use of predictive intelligence, identification of potential future target locations, area limitation analysis, and automated cuing of sensors to threatening targets.

b. Attack

- **Executing attack operations is the responsibility of subordinate commanders directed to conduct this mission.** Observed enemy activity within the predetermined context (TM signatures or characteristic preattack conditions) triggers timely execution, which has been anticipated through the decide-detect-deliver process. Concurrently with defensive actions, confirmed missile launch positions and other TM system targets identified in the IPB data base are included in the JFC's plan for preemptive strikes or operations at the onset of hostilities. Once hostilities are initiated, all targets acquired are attacked in

accordance with the JFC's guidance. **Attacking TM capabilities as early as possible after commencement of hostilities may prevent the launch of a substantial number of TMs.** This includes such methods as reducing enemy TM mobility through the use of scatterable mines in the TM operating area.

- **Command and control warfare is employed against an enemy's command, control, and communications surveillance and target acquisition to disrupt TM operations.** This aspect of attack operations will influence, degrade, or destroy the enemy C2 capabilities and is closely linked to the passive defense measure of deception. The primary goal is to blind the enemy and thereby enhance overall protection of the force.
- A deliberate program of operations may be planned to provide **continuous attack of the enemy's TM systems.** Aggressive target acquisition is planned and conducted so that TM systems and support organizations are systematically pursued and destroyed according to the JFC's concept of operations and priorities.

SECTION F. COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE

27. General

C2 for JTMD operations is the exercise of authority and direction by commanders over forces assigned JTMD missions. **C4I for JTMD missions must be accomplished using existing joint and Service C4I systems and resources efficiently** to ensure integration with other

operational functions and to optimize the use of scarce resources. The C4I system links passive defense, active defense, and attack operations to provide timely assessment of the threat (to include IPB); rapid dissemination of tactical warning; and mission assignment, targeting data, and poststrike assessment to the appropriate JTMD element. For each operational element, **the C4I system must provide rapid communications** among intelligence assets, the **fusion and decisionmaking facilities, warning systems, and weapon systems, to include a capability for rapid coordination with supporting combatant commanders.** Space assets are critical to passive defense, active defense, and attack operations because they provide launch warning, launch point prediction, threat type determination, impact point prediction, weapon systems cuing, communications, and related intelligence. JTMD C4I capabilities must support the principles of centralized planning, decentralized execution, and coordinated efforts by forces assigned JTMD tasks.

28. Resources

Inherent in effective JTMD operations is **an absolute requirement for vertical and horizontal technical and procedural interoperability.** This is especially true for the C4I operational element. JTMD C4I systems, facilities, procedures, and organizations are built on existing systems and integrate applicable joint capabilities. The JFC should be particularly sensitive to **the need to exercise JTMD C4I interoperability among joint force components** during peacetime joint and multinational exercises. However, new C4I functions, equipment, and procedures may be required to accommodate the changing characteristics and signatures associated with the rapidly evolving TM threat. These new C4I capabilities and procedures should be integrated with existing and planned C4I systems as requirements are

developed. JTMD C4I should fulfill the requirements depicted in Figure III-5.

29. Planning

a. C4I planning begins with the JFC's estimate of the situation, statement of objectives, and overall concept of operations. Based on the JFC's guidance and priorities, JTMD forces and resources are assigned and missions tasked to appropriate subordinate commanders. To ensure complementary efforts and to achieve synergism, **C4I planning** for passive defense, active defense, and attack operations **should be continually coordinated among all joint force components**.

b. Planning considerations for C4I of JTMD operations should **consider both joint and multinational relationships** when addressing the need for near-real-time response to the threat, the wide range of operations that may be appropriate, the diverse nature of the JTMD elements that should complement each other, and the possible impact of JTMD on other missions and tasks.

c. **Coordination of C4I in JTMD plans with allies and civilian authorities should be considered throughout JTMD operations.** Civilian populations will be a major target of TM attacks, since they offer a terror and intimidation value that may surpass the military value of TM attacks. Without

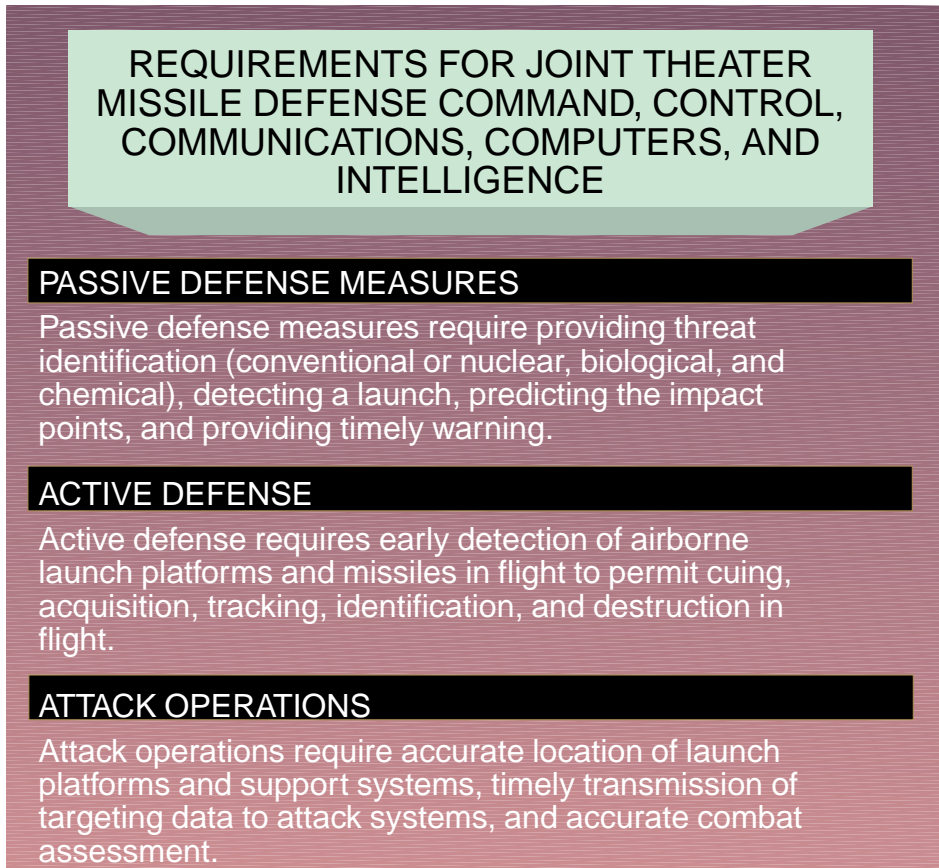


Figure III-5. Requirements for Joint Theater Missile Defense Command, Control, Communications, Computers, and Intelligence

adequate coordination with allies and civilian authorities, JTMD operations can be hampered.

30. Intelligence Support Requirements

a. The intelligence requirements dictate **a wide-area surveillance of the area of responsibility/JOA** to provide current, integrated, accurate, and timely all-source information of enemy capabilities and activities. JTMD intelligence requires interface with existing national and theater sensor and surveillance networks. The system should accommodate a variety of Service, national, and allied or coalition communications systems. The intelligence system is vital to the decisionmaking cycle and must support the status, assessment, planning, warning, and IPB functions, as well as target prioritization and engagement decisions.

b. The intelligence function is **carried out through a geographically dispersed network** in which national and Service systems are interconnected to form a disciplined and responsive information gathering and dissemination structure. Though the functional systems (sensors, decision support or fusion centers, and firing units) may be dissimilar, interoperable communications and software must be provided to allow them to operate most effectively.

31. Execution

During operations, the C4I system should **rapidly disseminate intelligence to the components and support attack operations with a rapid targeting capability**. C4I for JTMD actions should be integrated into the overall theater communications network and designed to avoid duplicative operations and fratricide, without precluding decentralized independent and/or autonomous control, if

required by conditions. Component organizations conducting JTMD operations should attempt to maintain interface and central control authority.

a. **Some theaters may have offensive constraint limitations, requiring a reactive JTMD C4I process. A reactive mode demands extensive preparation and preplanning using continuous IPB to provide critical targeting data.** The preparation and planning process within the C4I framework focuses sensor, surveillance, and intelligence management to allow target acquisition and tracking of the enemy TM systems and their supporting operations. Intelligence should be able to provide near-real-time data on enemy TMs; operating bases; missile launch, load, and hide sites; EW systems; C4 facilities; surveillance and control systems; and logistic and infrastructure support. **The C4I process should be able to detect and disseminate prelaunch signatures** that indicate enemy missile launch preparations and pass the prelaunch, launch, and postlaunch warning to friendly units.

b. Prelaunch and launch warnings provide for the alert and increased readiness of friendly defensive assets and preplanned offensive and passive countermeasures employment. Increasing the readiness posture includes performing the vital operating functions that prepare weapon systems, RSTA assets, and C2 nodes for the level of enemy activity anticipated. Once a launch is observed, the preparation and planning measures provide a capability for concurrent and simultaneous defensive and offensive responses.

c. **An enemy missile launch observed and identified through sensor and surveillance systems** (national, theater, and tactical) **keys the C4I process** that uses communications interfaces to provide near-real-time defensive and offensive attack response.

- Enemy missile trajectory data is made available in near-real-time to C4I centers, systems, and forces supporting active defense and attack operations.
- Simultaneously, while enemy missiles are in flight, updated enemy launch locations and target data base information are passed to the appropriate command and control and attack systems and launch warnings are provided to all units or commands within the theater.
- Depending on the capabilities of the sensor and surveillance systems, and the source and quality of the intelligence, cuing of additional systems may be necessary to provide more refined enemy missile launch point data to ensure accurate targeting. National or theater sensor and surveillance assets may be able to detect, footprint, or search areas that will then require more refined RSTA activities by theater and tactical assets. Friendly aerial reconnaissance, ground surveillance systems, and other intelligence assets requiring cuing are focused rapidly to achieve the necessary accuracies for IPB targeting objectives.

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APPENDIX A

REFERENCES

The development of Joint Pub 3-01.5 is based upon the following sources:

1. Joint Pub 0-2, “Unified Action Armed Forces.”
2. Joint Pub 1-01, “Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program.”
3. Joint Pub 1-02, “DOD Dictionary of Military and Associated Terms.”
4. Joint Pub 2-0, “Joint Doctrine for Intelligence Support to Operations.”
5. Joint Pub 3-0, “Doctrine for Joint Operations.”
6. Joint Pub 3-01.1, “Aerospace Defense of North America.” (In development)
7. Joint Pub 3-01.2, “Joint Doctrine for Theater Counterair Operations.”
8. Joint Pub 3-03, “Doctrine for Joint Interdiction Operations.” (In development)
9. Joint Pub 3-05, “Doctrine for Joint Special Operations.”
10. Joint Pub 3-09, “Doctrine for Joint Fire Support.” (In development)
11. Joint Pub 3-10, “Doctrine for Joint Rear Area Operations.”
12. Joint Pub 3-11, “Joint Doctrine for Nuclear, Biological, and Chemical (NBC) Defense.”
13. Joint Pub 3-52, “Doctrine for Joint Airspace Control in the Combat Zone.”
14. Joint Pub 3-54, “Joint Doctrine for Operations Security.”
15. Joint Pub 3-55, “Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA).”
16. Joint Pub 3-56.1 “Command and Control for Joint Air Operations.”
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23. Naval Warfare Publication 11, “Naval Operational Planning.”
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25. Air Force Manual 1-1, “Basic Aerospace Doctrine.”
26. Fleet Marine Force Manual 5-60, “Control of Aircraft and Missiles.”
27. Chief of Staff, Army Publication, Joint Tactical Missile Defense Master Plan, 20 July 1989.

APPENDIX B

ADMINISTRATIVE INSTRUCTIONS

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Users in the field are highly encouraged to submit comments on this publication to the Joint Warfighting Center, Attn: Doctrine Division, Fenwick Road, Bldg 96, Fort Monroe, VA 23651-5000. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

The lead agent for this publication is the Army. The Joint Staff doctrine sponsor for this publication is the Director for Operational Plans and Interoperability, J-7.

3. Change Recommendations

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GLOSSARY

PART I—ABBREVIATIONS AND ACRONYMS

AADC	area air defense commander
AO	area of operation
ASW	antisubmarine warfare
C2	command and control
C4	command, control, communications, and computers
C4I	command, control, communications, computers, and intelligence
CINC	combatant commander; commander in chief
EW	electronic warfare
HN	host nation
IEW	intelligence and electronic warfare
IPB	intelligence preparation of the battlespace
J-2	joint intelligence staff
J-3	joint operations staff
J-4	joint logistics staff
J-5	joint planning staff
J-6	joint C4I systems staff
JFACC	joint force air component commander
JFC	joint force commander
JOA	joint operations area
JTCB	Joint Targeting Coordination Board
JTMD	joint theater missile defense
NBC	nuclear, biological, and chemical
OPSEC	operations security
RSTA	reconnaissance, surveillance, and target acquisition
ROE	rules of engagement
SOF	special operations forces
TM	theater missile
TMD	theater missile defense
TPFDL	time-phased force deployment list
WMD	weapons of mass destruction

PART II—TERMS AND DEFINITIONS

apportionment. In the general sense, distribution for planning of limited resources among competing requirements. Specific apportionments (e.g., air sorties and forces for planning) are described as apportionment of air sorties and forces for planning, etc.) (Joint Pub 1-02)

area air defense commander. Within a unified command, subordinate unified command, or joint task force, the commander will assign overall responsibility for air defense to a single commander. Normally, this will be the component commander with the preponderance of air defense capability and the command, control, and communications capability to plan and execute integrated air defense operations. Representation from the other components involved will be provided, as appropriate, to the area air defense commander's headquarters. Also called AADC. (Joint Pub 1-02)

area of responsibility. 1. The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. 2. In naval usage, a predefined area of enemy terrain for which supporting ships are responsible for covering by fire on known targets or targets of opportunity and by observation. Also called AOR. (Joint Pub 1-02)

combatant commander. A commander in chief of one of the unified or specified combatant commands established by the President. Also called CINC. (Joint Pub 1-02)

fusion. 1. The process whereby the nuclei of light elements combine to form the nucleus of a heavier element, with the release of tremendous amounts of energy. 2. In intelligence usage, the process of examining

all sources of intelligence and information to derive a complete assessment of activity. (Joint Pub 1-02)

fusion center. In intelligence usage, a physical location to accomplish fusion. It normally has sufficient intelligence automated data processing capability to assist in the process. (Joint Pub 1-02)

intelligence preparation of the battlespace. An analytical methodology employed to reduce uncertainties concerning the enemy, environment, and terrain for all types of operations. Intelligence preparation of the battlespace builds an extensive data base for each potential area in which a unit may be required to operate. The data base is then analyzed in detail to determine the impact of the enemy, environment, and terrain on operations and presents it in graphic form. Intelligence preparation of the battlespace is a continuing process. Also called IPB. (Joint Pub 1-02)

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. (Joint Pub 1-02)

joint theater missile defense. The integration of joint force capabilities to destroy enemy theater missiles in flight or prior to launch or otherwise disrupt the enemy's theater missile operations through an appropriate mix of mutually supportive passive missile defense; active missile defense; attack operations; and supporting command, control, communications, computers, and intelligence measures. Enemy theater missiles are those which are aimed at targets outside the continental United States. Also called JTMD. (Joint Pub 1-02)

rules of engagement. Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE. (Joint Pub 1-02)

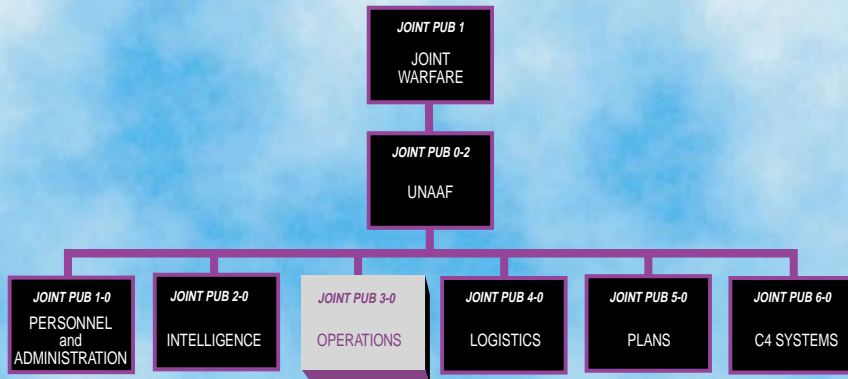
tactical warning. 1. A warning after initiation of a threatening or hostile act based on an evaluation of information from all available sources. 2. In satellite and missile surveillance, a notification to operational command centers that a specific threat event is occurring. The component elements that describe threat events are: Country of origin--country or countries initiating hostilities. Event type and size--

identification of the type of event and determination of the size or number of weapons. Country under attack--determined by observing trajectory of an object and predicting its impact point. Event time--time the hostile event occurred. Also called integrated tactical warning. (Joint Pub 1-02)

theater missile. A missile, which may be a ballistic missile, a cruise missile, or an air-to-surface missile (not including short-range, non-nuclear, direct fire missiles, bombs, or rockets such as Maverick or wire-guided missiles), whose target is within a given theater of operation. (Joint Pub 1-02)

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JOINT DOCTRINE PUBLICATIONS HIERARCHY



All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. **Joint Pub 3-01.5** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:

