



JOINT DOCTRINE FOR METEOROLOGICAL AND OCEANOGRAPHIC SUPPORT



22 DECEMBER 1993



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T. R. PATRICK
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JOINT DOCTRINE FOR METEOROLOGICAL AND OCEANOGRAPHIC SUPPORT

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CHAPTER I

GENERAL

1. Purpose. This publication sets forth doctrine 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 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.

2. Application

a. Doctrine 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. In applying the doctrine set forth in this publication, care must be taken to distinguish between distinct but related responsibilities in the two channels of authority to forces assigned to combatant commands. The Military Departments and Services recruit, organize, train, equip, and provide forces for assignment to combatant commands and administer and support these forces. This authority is, by law, subject to the provisions of title 10, United States Code, chapter 6, which is the section that details the authority of combatant commanders. Commanders of the unified commands exercise combatant command (command authority) over their assigned forces. Service component commanders are subject to the orders of combatant commanders, and subject to the combatant commander's direction, are also responsible to the Military Departments and Services in the exercise of their administrative and support responsibilities.

c. This publication is authoritative but not directive. Commanders will exercise judgment in applying the

procedures herein to accomplish their missions. This doctrine should 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 guidance 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.

3. Scope. This publication establishes doctrine to govern meteorological and oceanographic (METOC) support for joint operations of the Armed Forces of the United States, including the US Coast Guard while operating under the Department of Defense in time of war. The term METOC incorporates all facets of Services' meteorological, oceanographic, and space environmental programs to include the whole range of atmospheric, oceanographic, and space environment phenomena from the bottom of the earth's oceans into the space environment (space weather). This publication provides guidance to combatant commanders, subunified commanders, and joint task force commanders about the use of Service component METOC assets, as well as Service-unique assets that support the components (i.e., central and regional METOC production sites) during joint operations. It provides the joint force commanders (JFCs) with a framework for the development of METOC support to enhance the planning and execution of their military strategies, operations, and tactics. This publication:

- a. Describes command and Service responsibilities for METOC support for joint operations.
- b. Discusses US interagency and international coordination.
- c. Describes requirements for establishing interoperability of METOC capabilities and resources (i.e., communications systems, common communications methods, communications security (COMSEC), data standards, products, and techniques).

d. Discusses joint training to satisfy requirements established by each CINC's Joint Mission Essential Task Lists (JMETLs). This training includes combined, joint, consolidated and Service courses of instruction or technical training. Generally, these programs are conducted by the Service components and exercised under a CINC's Joint Training Plan.

4. Terminology. Terms and definitions used in the development of this publication are in accordance with Joint Pub 1-02, "Department of Defense Dictionary of Military and Associated Terms." In this publication, the terms "meteorology" and "weather" include the entire range of atmospheric phenomena extending from the earth's surface (tropospheric weather) into the space environment (space weather). The term "oceanography" includes all of the marine environment from the bottom of the ocean to the air-sea interface at the ocean's surface.

5. Basis. The development of Joint Pub 3-59 is based on the following primary sources:

- a. Joint Pub 1, 11 November 1991, "Joint Warfare of the US Armed Forces."
- b. Joint Pub 0-2, 1 December 1986, "Unified Action Armed Forces."
- c. Joint Pub 1-01, 30 July 1992, "Joint Publication System: Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program."
- d. Joint Pub 1-02, 1 December 1989, "DOD Dictionary of Military and Associated Terms."
- e. Joint Pub 3-0, 9 September 1993, "Doctrine for Joint Operations."
- f. AF Manual 1-1, "Basic Doctrine for the USAF."
- g. NWP-1, "Strategic Concepts of the US Navy."
- h. AF Manual 3-F (Draft), "Aerospace Environmental (Weather) Support Operations."
- i. Oceanographer of the Navy, "1992-1993 Operational Oceanography Systems Architecture."
- j. Field Manual 34-81/Air Force Manual 105-4, 31 August 1989, "Weather Support for Army Tactical Operations."

- k. NAVOCEANCOMINST 3140.1, "US Navy Oceanographic and Meteorological Support System Manual."
- l. Field Manual 34-130, 23 May 1989, "Intelligence Preparation of the Battlefield."
- m. Field Manual 100-5, "Operations."
- n. Field Manual 100-7, (Final Draft, 10 December 1992), "The Army in Theater Operations."
- o. Field Manual 6-15, 18 June 1992, "Tactics, Techniques, and Procedures for Field Artillery Meteorology."
- p. TRADOC Pamphlet 525-21/MAC Pamphlet 105-3, 10 July 1987, "Joint Operational Concept for Weather and Environmental Support to Army Operations."
- q. TRADOC Pamphlet 525-5, 1 August 1991, "Airland Operations - A Concept for the Evolution of Airland Battle for the Strategic Army of the 1990s and Beyond."
- r. CJCS MOP 52, 4 November 1991, "Policy and Responsibilities for the Denial of Environmental Information to the Enemy."
- s. MCM-38-92, 13 March 1991, "Tasking or Transfer of Assets of the National Oceanic and Atmospheric Administration During Crisis."
- t. MCM-31-92, 6 March 1992, "International Aspects of Weather Modification."
- u. Joint Pub 5-03 series, "Joint Operation Planning and Execution System."
- v. DOD Directive Number 5100.1, "Functions of the Department of Defense and its Major Components."
- w. CJCS Instruction 3810.01, 30 June 1993, "Meteorological and Oceanographic Support."
- x. MCM 71-92, 21 May 1992, Joint Training Manual.
- y. CJCS MOP 26, 6 August 1990, Joint Training Program.

CHAPTER II

RESPONSIBILITIES

1. Purpose. To assign the responsibilities for METOC support to joint operations as delineated in CJCS Instruction 3810.01.
2. The Chairman of the Joint Chiefs of Staff will:
 - a. Define common communications and data standards for the transmission and receipt of METOC information between the Services to ensure interoperability.
 - b. Coordinate with the Services, USSOCOM, and/or US Government agencies to fulfill shortfalls in METOC capabilities and meet requirements of the supported and supporting CINCs.
 - c. Where appropriate, review and approve operation plans (OPLANS) to ensure adequacy, coordination, and interoperability of METOC resources and activities.
 - d. Define and establish doctrine for all aspects of joint employment of METOC assets.
 - e. Evaluate and integrate operational METOC requirements of the CINCs and provide those requirements to the Services and Defense agencies, as required.
 - f. Provide recommendations to the Services concerning METOC training required to ensure that Service components can support joint operations.
 - g. Serve as a focal point for coordination of METOC operational support issues in the interagency and international arenas.
3. Chief of Staff, US Army will: Be responsible for surface and upper air observations in direct support of Army ground systems and in areas forward of division main command posts, not covered by the Air Force, as described in Army-Air Force joint agreements.
4. Chief of Naval Operations will provide:
 - a. METOC support to all elements of the Navy.
 - b. METOC products to the Marine Corps.

c. Oceanographic support to all elements of the Department of Defense.

5. Chief of Staff, US Air Force will provide:

a. Meteorological support to all elements of the Air Force and all Army units (by joint agreement).

b. Space environmental support to all elements of the Department of Defense.

6. Commandant of the Marine Corps will: Be responsible for meteorological support to the Marine Air-Ground Task Force (MAGTF).

7. United States Special Operations Command will: Be responsible for training assigned METOC personnel and acquiring interoperable METOC equipment for special operations forces.

8. Services will:

a. Organize and train personnel needed for METOC support to joint operations and provide personnel and equipment for these training opportunities and joint operations. Air Force meteorological personnel will be trained to support the Army according to Law and Army-Air Force regulations and agreements.

b. Plan for the continued evolution of peacetime METOC facilities, assets, support, and services to meet mobilization needs in coordination with Federal departments, the Joint Staff, NOAA/National Weather Service, or other appropriate authorities.

c. Promote interoperability with other Services' equipment, procedures, and general support to a joint force to provide unity of effort. Where feasible, assist one another in the accomplishment of METOC functions, to include coordination of research and development efforts, to avoid duplication and ensure commonality in the development of METOC capabilities.

d. Provide, operate, and maintain the METOC assets, tactical equipment, and capabilities organic to their own organizations.

9. Combatant Commanders will:

- a. Assign METOC tasks to and direct coordination among the components to ensure unity of effort. Commanders will tailor joint METOC support to be flexible enough to ensure a variety of options in response to any crisis and sufficiently agile to accommodate the uncertainties associated with the transition from a peacetime posture to crisis response.
- b. During the initial planning for joint operations:
 - (1) Designate a Joint Force METOC Forecast Unit (JMFU) and supporting METOC forecast centers.
 - (2) Coordinate with individual Service components and other agencies for additional support required to meet the JFC METOC requirements.
- c. Ensure that interoperable communications requirements for METOC information flow are clearly stated in an OPORD or other appropriate theater document and that interoperable resources are employed to support transmission and receipt of METOC information and tactical decision aids.
- d. Ensure that ocean, air, and space climatological information are considered during the planning of all operations.
- e. Coordinate with US diplomatic missions, senior headquarters, and other US agencies, as required, to ensure that all available METOC information and systems, as well as indigenous assets and information, are properly considered and made available for use by the joint force.
- f. Review bilateral and multilateral treaties and treaty requirements where the receipt or provision of METOC information or services is concerned, as well as any memorandum of understanding with non-DOD agencies for the same purpose.
- g. Integrate METOC training, communications and data standards, support forces, and Reserve training to support deployed and deployable units.
- h. Develop and disseminate to the JFC and components a concept of operations (CONOPS) for METOC support to joint operations.

i. For theater combatant commands, designate the Senior METOC Officer for the theater.

10. The Joint Force Commander (JFC) will:

a. Use apportioned component METOC assets and resources, including those of the US Coast Guard, while operating under the Department of Defense, to provide support for joint operations, joint training exercises and personnel exchanges. When appropriate, JFCs will direct training of joint METOC personnel.

b. Direct and coordinate the activities of all METOC assets under operational control to ensure unity of effort in supporting assigned missions.

c. Identify component METOC support requirements, as well as any known shortfalls in the component's METOC capabilities.

d. Coordinate with the appropriate CINC for centralized METOC support or other additional support required to fulfill operational needs not within the capabilities of forces OPCON to the JFC.

e. Following initial planning for joint operations, designate the location and composition of the JMFU and its staff deployed to the joint force AOR.

f. Ensure that all supporting METOC force elements are capable of exchanging information directly and freely with each other to ensure consistency and accuracy of information across the range of military operations.

g. Ensure that ocean, air, and space environments are considered during the planning of all operations and that the joint force METOC officer (JMO) is involved throughout the planning process.

h. Designate the Joint Force METOC Officer for the joint force.

11. Service Components will:

a. Except for the Army components, provide trained METOC personnel to support joint operations.

b. Through their respective Services:

(1) Provide input to assist with coordination and prioritization of research and development efforts of the individual Services to avoid duplication and ensure commonality in the development of METOC support capabilities, as appropriate.

(2) Coordinate and, as directed by Service agreements or regulations, participate in the funding and procurement of METOC support equipment, except for unique special operations forces METOC equipment, for the collection, processing, receipt, storage, and transmission of METOC data. This equipment should be configured in accordance with CJCS guidance to ensure interoperability. Where feasible, equipment should be procured from a common source to reduce costs.

c. Upon initiation of joint operations planning:

(1) Use the CINC CONOPS as guidance in developing and disseminating specific guidance for METOC support within the Service METOC organizations.

(2) Provide component METOC support requirements to the JFC and identify any known shortfalls in the components' ability to provide required METOC support.

d. Provide funding for the deployment of METOC assets and resources in support of joint training exercises and contingencies in which their component forces are participating.

e. Provide METOC personnel and equipment and funding to participate in informal training opportunities with other component organizations.

12. The Senior METOC Officer (SMO) to the Combatant Commander will:

a. Assist the CINC and staff in developing and executing an operational concept of operations for METOC support to the joint force.

b. Obtain METOC support requirements from all joint force components and recommend tasking, through the CINC, of Service components' METOC capabilities.

- c. Coordinate with the JMO and the individual Services and other agencies for centralized METOC support or other additional capabilities required to fulfill operational needs not within the components' ability.
- d. Through the deliberate and crisis action planning cycles, ensure Annex H (Meteorological/Oceanographic Services) is developed for each OPORD, OPLAN, or CONPLAN.
- e. Coordinate METOC communications requirements with the CINC's J-6 and components, and assist in the development of Annex K (Command, Control, and Communications Systems) of each OPORD, OPLAN, or CONPLAN, as appropriate.
- f. With the CINC's approval and the aid of the staff, coordinate with US diplomatic missions, the Joint Staff, and other US agencies as required to ensure all available METOC information and systems, as well as indigenous assets and data, are properly considered and made available, if needed, for use by the joint force. Coordination should include a review of bilateral or multilateral treaties and treaty requirements where the provision of METOC data or services is concerned, as well as any memorandum of understanding with non-DOD agencies for the same purpose. Use of host nation assets should only add to the capability resident within US military METOC support capabilities. US military METOC assets should maintain the capability to function in a stand-alone environment without receiving indigenous assistance.
- g. Recommend to the CINC the establishment, manning, and initial location of a JMFU and joint METOC staff consistent with the scope and mission of the joint force.
- h. Ensure that additional METOC personnel and equipment required after deployment are validated by the JFC and entered in the time-phased force deployment list (TPFDL).
- i. Ensure that all METOC personnel and equipment requirements are identified in the TPFDL and that METOC TPFDL requirements are validated during the deliberate or crisis action planning process.

13. The Joint Force METOC Officer (JMO) to the JFC will:

- a. Assemble the joint force METOC staff and equipment within the joint force AOR, consisting of the personnel and resources assigned by the CINC and consistent with the scope of the joint force mission.

- b. In coordination with the CINC SMO, establish a JMFU within the joint force AOR upon deployment, or assist with transitioning the JMFU into the AOR from one initially established in a central facility outside the AOR.
- c. Assist the JFC and staff in developing and executing operational METOC support plans and procedures.
- d. Establish and publish METOC product requirements and coordinate METOC support services for the joint force.
- e. Coordinate with the CINC SMO on METOC manning, communications, information, and service requirements beyond the capabilities of assigned METOC assets and request additional resources through the JFC.
- f. During the execution phase, coordinate with the CINC SMO on updates to Annex H to the supporting joint force OPLAN or OPORD.
- g. Coordinate METOC communication requirements down to the component level that are not addressed at the theater CINC level with the CINC SMO, joint force J-6, and Service component communicators. Assist in the development of Annex K (Command, Control, and Communications Systems) of each supporting JFC OPORD, OPLAN, or CONPLAN as appropriate.
- h. Represent METOC support requirements in the JFC communications connectivity allocation process within the joint force.
- i. Coordinate with the CINC SMO to ensure all available METOC information and resources, as well as indigenous assets and data, are properly considered and made available for use by joint forces.

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CHAPTER III

OPERATIONS

1. Purpose. To provide guidance for developing METOC support employment concepts for joint operations.
2. General. The space, air, and ocean environments impact military operations. Climatology, real-time data, and accurate forecasts of specific METOC parameters and the output of tactical decision aids are factors that provide a commander with the best environmental windows of opportunity to execute, support, and sustain specific missions.
3. METOC Support Requirements. The JFC, through the JMO, is responsible for ensuring that appropriate METOC support is provided to all subordinate joint forces and components for the entire range of military operations and should provide overall direction and guidance to unify METOC support efforts. This support includes the provision for information concerning the past, present, and future states of the space, air, and ocean environments, which allows commanders to determine the impact of these environments on personnel, weapons, sensors, and system performance. Component-specific METOC support will generally be provided by assigned or attached component METOC assets using guidance provided by the JMO. Because of the highly perishable nature of METOC data, support effectiveness is greatly dependent on timely, reliable, and interoperable communications among METOC Service components at all levels.
 - a. Climatology. During the planning phase of any operation, knowledge of the historical regional METOC conditions provides invaluable insight into possible impacts on operations.
 - b. Observations. Support to current operations depends on comprehensive METOC observations derived from land and ship reports, upper air soundings, satellite earth sensors, weather radars, lightning detection systems, profilers, solar telescopes, ionospheric sensors, buoys, and aircraft. These observations are necessary to support local missions and are part of a worldwide data base from which products are derived to support operational commanders at all levels. A theater or area of responsibility sensing strategy should be developed that fully integrates the individual components' METOC observation networks and exploits all reliable sources of foreign data. This will ensure unity of effort while

optimizing data collection, dissemination, and integration into support forecast products.

c. Forecasts. To support all operational activities effectively, forecast products need to cover global, regional, and tactical scales. These forecasts vary from generalized planning forecasts issued several days in advance of an operation, to forecasts issued to support the execution of a specific mission or operation. Specific JMFU forecasts should be considered official forecasts and are to be used by all agencies in the joint force area of operations. Significant deviations from official forecasts by subordinate activities should be coordinated with the JMFU.

4. Support Force Structure/Characteristics. METOC forces must have the flexibility and mobility to ensure uninterrupted support to achieve unity of effort. The JFC, through the JMO, should designate the location and composition of the JMFU and its staff. This unit should be responsible for official joint force forecasts that can be tailored for use at all levels. The JMFU staff should be composed of forces drawn from all Services participating in the operation to ensure that quality Service-unique METOC support is provided. The composition of the JMFU staff should be tailored to support the concept of operations of the joint mission and composition of assigned forces (i.e., maritime, amphibious, special operations, ground, air, space, etc.). The JMFU should be a JTF command-level function and, therefore, should be under the operational control of the JFC when the JMFU is deployed in theater. The JMFU may be fixed or mobile and may change as operational conditions dictate. It should receive support and data from other organizations as required. Early identification and sourcing of the JFC JMO, JMFU, and staff will assist the Services in programming sufficient manpower and equipment to meet JFC requirements. This support structure typically consists of three tiers:

a. METOC Forecast Centers (MFC). Centralized sites are manned and operated by one of the Services (usually the Navy or Air Force), and make products beyond the capabilities of component level or on-scene tactical units supporting local operations. Examples of centralized products include:

- (1) Current analyses for global and hemispheric scales.
- (2) Forecast products for extended time periods and large geographic areas.

(3) Point-specific data.

(4) Climatological analyses for long-range operational and contingency support planning.

(5) Space environmental products.

b. Component Level (Army Navy Air Force, Marine Corps SOF). Component organizations receive products from centralized sites, as well as data from subordinate units. They provide tailored METOC support to component command and control activities and to subordinate units. Component command support activities may also provide tailored support to the JFC as required. During a crisis and/or when a JTF is established, component command activities may be designated as the JMFU and, although they may require personnel and/or equipment augmentation, function in support of the JTF. SOF METOC support requirements must be established and satisfied separately. SOF METOC support forces will normally include representation from all Services to ensure quality Service-unique support is provided.

c. Tactical Operations (Wing, Squadron, Corps, Division, Carrier Battle Group, MAGTF, Surface Action Group, etc.). These organizations take local observations, generate analyses and forecast products, and use centrally prepared products to provide support specifically tailored to operational mission requirements in the tactical area of operations. Tactical-level support activities may also provide tailored support to the JFC as required. During a crisis and/or when a JTF is established, tactical-level activities may be designated as the JMFU and, although they may require personnel and/or equipment augmentation, should function in support of the JTF.

5. Data and Communications Requirements. Communications is an essential element for METOC support. Because METOC data are extremely perishable, effective METOC services are dependent on timely, reliable communications support. The joint communications architecture should support the collection or interception, storage and retrieval, dissemination, quality control, and processing of large amounts of data. High-speed communications are required to rapidly transmit and receive real-time global scale METOC information between the METOC forecasting centers, JMFU, component, and field units. Planning should include timely

movement and establishment of necessary equipment to support METOC communications.

a. The theater CINC, through the SMO, is responsible for denial of METOC information to an enemy as governed by CJCS MOP 52.

b. METOC communications requirements and procedures should be addressed in Annex K of joint force and component OPORDs, OPLANS, or CONPLANS.

6. Planning Responsibilities. Early identification of specific support, including transportation and logistic sustainment, requirements for all levels is required to ensure the availability of necessary information and resources. Early identification of JMFU sourcing will also assist the Services in programming sufficient manpower and equipment to meet JFC requirements. The size, structure, and content of support depends on the JFC's operational needs. METOC support is provided by integrating a mix of global, regional, and locally produced METOC products as well as data and products received from reliable foreign sources. METOC services support long-range planning, mission planning, and operational execution. Appendix A assists the planner in establishing METOC support concepts and procedures. Employment and integration of component reservists should be considered when developing OPORDs, OPLANS, and CONPLANS.

7. Training. METOC concepts developed to support joint operations should be exercised and evaluated in realistic training scenarios to ensure they are feasible and can support the overall mission at all levels. Conduct of joint exercises trains assigned forces, enhances interoperability, and confirms the feasibility of communications and operational plans. Service components should state their training requirements for inclusion in CINC- and CJCS-sponsored exercises through the CINC's SMO. Joint training requirements are developed from the CINC's JMETL as governed by CJCS MOP 26.

APPENDIX A

PROCEDURES FOR DEVELOPING A JOINT METOC SUPPORT EMPLOYMENT CONCEPT

STAGE	DECISION	REQUIREMENT
1	What forces require support? (JFC staff, component HQ, etc.)	JFC's concept
2	Define METOC impact on operation(s). What METOC support do they require?	Climatology Data and Products Personnel Equipment
3	Identify Joint Force METOC Forecast Unit (JMFU) and determine the METOC Forecast Center(s) (MFCs) that will provide support requirements identified at Stage 2 to forces identified at Stage 1.	MFC and JMFU
4	What initial or sustaining communications system(s) will transmit and receive METOC information identified at Stage 2 from the JMFU and sites at Stage 3 to the forces at Stage 1? Identify this requirement to J-6, who determines solution. Ensure identified communications requirements are included in Annex K. In conjunction with J-4 determine transportation and logistic support requirements.	Communications
5	What are the METOC information requirements and capabilities of the JMFU and site(s) at Stage 3 in order to provide the support required at Stage 2?	Data and Products
6	What additional site(s) will provide the shortfall capability and requirements identified at Stage 5 but not available at the JMFU and site(s) identified at Stage 3?	MFC(s)

7	What initial or sustaining communications system(s) will transmit and receive the METOC requirements identified at Stage 5 between the JMFU and site(s) identified at Stages 3 and 6? Identify requirement to J-6.	Communications
8	What are the METOC data requirements of the site(s) identified at Stage 6 in order to provide support identified at Stage 5?	Data
9	How will METOC information at Stages 5 and 8 be collected?	Data Collection Capability Equipment
10	What initial or sustaining communications system(s) are required to transmit the METOC information from collecting sites to the JMFU and supporting site(s)?	Communications

NOTES:

1. This decision aid will help define the concept of support for the JMFU and supporting sites. It also identifies any shortfalls that would need resolution.
2. The JMFU identified at Stage 3 will provide support directly to operating forces. Other sites identified at Stages 3 and 6 should coordinate any requested direct support METOC products (other than routine numerical products or data) to operating forces through the JMFU.
3. Stages 3 and 4 may be revised in cases where availability of suitable communications system(s) will dictate which site will provide the required support. This is particularly true when providing support to maritime forces.

APPENDIX B

USERS EVALUATION REPORT
ON JOINT PUB 3-59

1. Users in the field are highly encouraged to submit comments on this pub by removing this page and sending it to JDC. Please fill out the following: users' POC, unit address, and phone (DSN) number.
2. Content
 - a. Does the pub provide a conceptual framework for the topic?

 - b. Is the information provided accurate? What needs to be updated?

 - c. Is the information provided useful? If not, how can it be improved? _____

 - d. Is this pub consistent with other joint pubs? _____

 - e. Can this pub be better organized for the best understanding of the doctrine and/or JTTP? How? _____

3. Writing and Appearance
 - a. Where does the pub need some revision to make the writing clear and concise? What words would you use? _____

 - b. Are the charts and figures clear and understandable? How would you revise them? _____

4. Recommended urgent change(s) (if any). _____

5. Other _____

6. Please fold and mail comments to the Joint Doctrine Center (additional pages may be attached if desired) or FAX to DSN 564-3990 or COMM (804) 444-3990.

(FOLD)

FROM:

JOINT DOCTRINE CENTER
BLDG R-52
1283 CV TOWWAY STE 100
NORFOLK, VA 23511-2491

(FOLD)

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GLOSSARY

PART I -- ABBREVIATIONS AND ACRONYMS

AF	Air Force
AOR	area of responsibility
CINC	Commander in Chief of Unified Command
COMSEC	communications security
CONOPS	concept of operations
CONPLAN	operation plan in concept format
CONUS	continental United States
HQ	headquarters
JFC	joint force commander
JMETL	joint mission essential task list
JMFU	joint force METOC forecast unit
JMO	joint force METOC officer
JTF	joint task force
MAGTF	Marine Air-Ground Task Force
MCM	memorandum in the name of the Chairman of the Joint Chiefs of Staff
METOC	meteorological and oceanographic
MFC	METOC forecast center
MOP	memorandum of policy
NAVOCEANCOMINST	Naval Oceanography Command Instruction
NOAA	National Oceanic and Atmospheric Administration
NWP	Naval Warfare Publication
OPLAN	operation plan
OPORD	operations order
SMO	senior METOC officer
SOF	special operations forces
TPFDL	time-phased force deployment list
TRADOC	US Army Training and Doctrine Command
USAF	United States Air Force
USSOCOM	United States Special Operations Command

PART II--TERMS AND DEFINITIONS

atmosphere. The air surrounding the Earth. (Joint Pub 1-02)

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

environmental services. The various combinations of scientific, technical, and advisory activities (including modification processes, i.e., the influence of manmade and natural factors) required to acquire, produce, and supply information on the past, present, and future states of space, atmospheric, oceanographic, and terrestrial surroundings for use in military planning and decision making processes, or to modify those surroundings to enhance military operations. (Joint Pub 1-02)

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

joint force. A general term applied to a force composed of significant elements, assigned or attached, of the Army, the Navy or the Marine Corps, and the Air Force, or two or more of these Services, operating under a single commander authorized to exercise operational control. (Joint Pub 1-02)

Joint Force Meteorological and Oceanographic Forecast Unit. A flexible, transportable, jointly supported collective of meteorological and oceanographic personnel and equipment formed to provide the joint task force commander, and Joint force METOC officer with full meteorological and oceanographic services. Also called JMFU. (Approved for inclusion in the next edition of Joint Pub 1-02)

Joint Force Meteorological and Oceanographic Officer. Officer designated to provide direct meteorological and oceanographic support to the joint task force commander. Also called JMO. (Approved for inclusion in the next edition of Joint Pub 1-02)

meteorological data. Meteorological facts pertaining to the atmosphere, such as wind, temperature, air density, and other phenomena that affect military operations. (Joint Pub 1-02)

Meteorological and Oceanographic Forecast Center. Shore-based meteorological and oceanographic production activity. Also called MFC. (Approved for inclusion in the next edition of Joint Pub 1-02)

oceanography. The study of the sea, embracing and integrating all knowledge pertaining to the sea and its physical boundaries, the chemistry and physics of seawater, and marine biology. (Joint Pub 1-02)

Senior Meteorological and Oceanographic Officer. Meteorological and oceanographic officer responsible for assisting the CINC and staff in developing and executing operational meteorological and oceanographic service concepts. Also called SMO. (Approved for inclusion in the next edition of Joint Pub 1-02)

space weather. A term used to describe the environment and other natural phenomena occurring above 50 kilometers altitude. (Approved for inclusion in the next edition of Joint Pub 1-02)

troposphere. The lower layers of the atmosphere, in which the change of temperature with height is relatively large. It is the region where clouds form, convection is active, and mixing is continuous and more or less complete. (Joint Pub 1-02)

weather forecast. A prediction of weather conditions at a point, along a route, or within an area, for a specified period of time. (Joint Pub 1-02)

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