



# CHAIRMAN OF THE JOINT CHIEFS OF STAFF INSTRUCTION

J-3  
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CJCSI 3810.01F  
23 April 2019

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## METEOROLOGICAL AND OCEANOGRAPHIC OPERATIONS

### References:

See Enclosure E for References

1. Purpose. Provide policy and guidance and assign responsibility for providing and implementing meteorological and oceanographic (METOC) capabilities in support of Combatant Commanders (CCDRs), joint military operations, activities, plans, training, and exercises.
2. Superseded/Cancellation. Chairman of the Joint Chiefs of Staff (CJCS) Instruction (CJCSI) 3810.01E, 16 May 2016, is hereby superseded.
3. Applicability. This instruction applies to the Services, unified commands, Joint Staff, and other joint activities.
4. Policy. Applicable organizations will plan and execute METOC operations in accordance with this instruction and references a–q. See Enclosure A.
5. Definitions. See Glossary.
6. Responsibilities. See Enclosure B.
7. Summary of Changes. Updated joint responsibilities in accordance with relevant Department of Defense (DoD) references. Consolidated redundant roles and responsibilities. Incorporated joint efforts of combat support agencies. Specified joint METOC production centers available to CCDRs as Lead METOC Production Units. Included coordinating instructions for Combatant Command (CCMD) requests for available METOC products and services. Included requirement for annual joint METOC capability portfolio review to the Battlespace Awareness Functional Capabilities Board (FCB).
8. Releasability. UNRESTRICTED. This directive is approved for public release; distribution is unlimited on NIPRNET. DoD Components (to include the CCMDs), other Federal agencies, and the public, may obtain copies of this

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9. Effective Date. This INSTRUCTION is effective upon receipt.

For the Chairman of the Joint Chiefs of Staff:



GLEN D. VANHERCK, Maj Gen, USAF  
Vice Director, Joint Staff

Enclosures

- A — Policy
- B — Responsibilities for METOC Operations
- C — Joint METOC Production Centers
- D — U.S. Government Policy Regarding Weather Modification
- E — References
- GL — Glossary

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## ENCLOSURE A

### POLICY

1. Commanders must leverage accurate, consistent, timely, and relevant METOC information to anticipate, exploit, and mitigate METOC effects and enable their situational understanding of the operational environment, decision-making, and risk management.
2. Commanders must direct the integration of this METOC information across the range of military operations in training, exercises, rehearsals, and multi-domain, globally-integrated operations.
3. Commanders must assess and exploit METOC effects on friendly and adversary military capabilities in all domains—air, land, maritime, space, cyberspace, and the electromagnetic spectrum—to gain and maintain an informational and positional advantage. Commanders will leverage this METOC asymmetric advantage across the joint functions to more effectively integrate, synchronize, and direct operations, and outmaneuver the adversary.
4. Joint forces will leverage DoD METOC personnel and capabilities to provide accurate, consistent, timely, and relevant information through a combination of U.S. federal agency, commercial, and international partner capabilities.
5. U.S. military METOC forces must be interoperable, capable of independent operations, and able to operate in a coalition environment integrating systems and services with partner nations.
6. The United States ratified the Convention on the Prohibition of Military or Other Hostile Use of Environmental Modification Techniques (ENMOD Treaty) in 1980. Enclosure D addresses U.S. policy with respect to environmental and weather modification.
7. U.S. Military METOC forces assigned to support NATO operations must operate in accordance with any U.S.-ratified NATO directives, with the exception of any specific reservations documented in the appropriate Standardization Agreement.

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ENCLOSURE B

RESPONSIBILITIES FOR METOC OPERATIONS

1. Chairman of the Joint Chiefs of Staff. The CJCS:

a. Advises the Secretary of Defense on the extent to which METOC program recommendations, budget proposals, and manpower considerations of the Military Departments and other DoD Components conform to the priorities established in strategic plans and CCDR requirements (reference a).

b. Advises the Secretary of Defense on critical deficiencies and strengths in METOC capabilities identified during the preparation and review of joint plans, and assesses the effect of such deficiencies and strengths on meeting national security objectives and policy and on strategic plans (reference a).

c. Coordinates with civilian and military Capability Portfolio Managers for METOC to ensure support to the Joint Requirements Oversight Council (JROC), Joint Capabilities Integration Development System, and the Defense Acquisition System to mitigate METOC capability gaps (reference b).

d. Assesses and validates joint METOC requirements through appropriate DoD and Joint Staff processes. Coordinates with DoD stakeholders to address evolving and emerging operational METOC requirements to achieve unity of effort and eliminate duplication between the Military Departments (reference a).

e. Coordinates with the Under Secretary of Defense for Intelligence and the CCDRs on METOC requirements affecting Defense Intelligence warfighting support to the CCMDs and DoD intelligence collection activities, platforms, and analysis capabilities (reference c).

f. Coordinates with the Services, unified commanders, DoD laboratories, U.S. Government (USG) agencies, industry, academia, allies, and partners to fulfill shortfalls in METOC capabilities, meet requirements of the supported and supporting CCDRs, and protection of METOC data and capabilities across the National Security Innovation Base.

g. Resolves METOC issues through the JROC and its subordinate Battlespace Awareness Joint Capabilities Board and Battlespace Awareness FCB Working Group. Ensures METOC is addressed in other Joint Capability Area portfolios as appropriate (references d, e).

h. Integrates Military Departments' METOC capabilities and applications into CJCS strategy, operations, doctrine, education, training exercises, and wargames.

i. Provides guidance on aspects that relate to the conduct of joint METOC operations. Develops and establishes METOC doctrine for all aspects of the joint employment of the Armed Forces, including standardized guidance on release of METOC data and information to non-DoD agencies and foreign governments (reference a).

j. Serves as the focal point for coordination of METOC forces providing capabilities to support CCDRs, USG departments and agencies, state and local governments, and international partners as required.

k. Provides guidance for U.S. responses to international military standardization and interoperability requirements, to include the NATO Military Committee Working Group for Meteorology and Oceanography and subordinate panels (reference f).

l. Formulates policies and procedures for joint METOC training of the Armed Forces, including exercises and qualification of personnel for joint METOC billets (references g, h).

m. Oversees planning and execution of each Combat Support Agency's (CSA) mission and monitors implementation of METOC recommendations to ensure the responsiveness and readiness of the CSAs (reference i).

n. Coordinates actions (to include achieving cyber effects) required to deny METOC data and information (to include direct readout of meteorological satellite data) to an adversary while retaining use of the information for U.S., coalition, and allied forces (references j, k).

## 2. Overall Service Responsibilities

a. Formulate and implement METOC-related policies and programs that support national security objectives and policies established by the President of the United States and Secretary of Defense and this instruction. Provide capabilities required to conduct METOC operations in support of joint exercises and operations. Services will field METOC systems that are compliant with DoD cybersecurity policy and interoperable with: one another; supported command and control systems; and allied and coalition forces, while developing, strengthening, and sustaining U.S. security requirements to protect METOC data.

b. Plan for the continued evolution of peacetime METOC operations, support, and services to meet mobilization needs in coordination with the Joint Staff.

(1) Forward requests for interagency assets and/or personnel to the Joint Staff.

(2) Coordinate requests for interagency METOC data and information with the Joint Staff and appropriate federal agencies.

c. The Services will routinely cooperate in the development of a joint METOC capability for use across the joint force. The Services will reduce cost to DoD, and deliver effective performance with affordability and speed to achieve national security defense objectives. The Services will provide an annual joint METOC capability portfolio review to the Battlespace Awareness FCB (references b, d).

d. Assist other Military Departments and DoD Components in accomplishing their respective functions by providing METOC services and support as required (reference a).

e. Collaborates with DoD laboratories, USG agencies, industry, and academia to fill shortfalls in METOC capabilities required to meet supported CCDRs.

f. Develop concepts, strategies, doctrine, and tactics, techniques, and procedures (TTPs) to implement METOC capabilities in DoD operations. Incorporate DoD METOC forces, missions, and capabilities into Joint and Service doctrine, professional military education, and training. Integrate METOC missions, capabilities, and TTPs and the ability to operate against an adversary with enhanced METOC capabilities into Military Department war games, simulations, scenario development, experiments, and exercises.

g. Ensure METOC activities and operations are effective, efficient, and responsive. Formulate METOC policies that are fully consistent with national security objectives and policies established by the President of the United States and Secretary of Defense.

h. Provide, operate, and maintain the METOC capabilities and resources organic to their own organizations.

i. As required, U.S. Navy and/or U.S. Air Force Service-retained organizations will provide supporting services to the CCMD/Joint Force Commander (JFC) and may be designated as a Lead METOC Production Unit to support CCDR directed operations. Enclosure C lists joint METOC production centers.

3. Chief of Staff, U.S. Army. In addition to the responsibilities outlined in paragraph 2, the Chief of Staff, U.S. Army is responsible for:

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a. Weather capabilities in direct support of U.S. Army artillery systems and for atmospheric sensing as prescribed in Army Regulation (AR) 115-10/Air Force Instruction (AFI) 15-157.

b. Providing facilities, services, training, equipment, and funding for U.S. Air Force METOC personnel supporting the U.S. Army as prescribed in AR 115-10/AFI 15-157.

c. Funding U.S. Air Force METOC operations in support of the U.S. Army as prescribed in AR 115-10/AFI 15-157.

4. Chief of Naval Operations. In addition to the responsibilities outlined in paragraph 2, the Chief of Naval Operations is responsible for:

a. METOC operations in support of all elements of the U.S. Navy.

b. Executing funding decisions made by the Department of the Navy for the development and fielding of METOC equipment for the U.S. Marine Corps.

c. Oceanographic operations and capabilities in support of all elements of the DoD.

d. Precise time and astrometry for all elements of the DoD (reference l).

e. Recruiting, organizing, training, equipping, and sustaining forces to provide and employ required METOC capabilities for the JFC to enable decisive operations across all domains and spectrums of conflict to achieve the desired end state.

f. Modeling and simulation of the ocean environment in support of all elements of the DoD (reference m).

g. Modeling and simulation of the lower atmosphere in support of maritime operations.

h. Climate monitoring, analysis, and prediction capabilities for the lower atmosphere in support of maritime operations.

5. Chief of Staff, U.S. Air Force. In addition to the responsibilities outlined in paragraph 2, the Chief of Staff, U.S. Air Force is responsible for:

a. METOC operations in support of all elements of the U.S. Air Force, designated parts of the Intelligence Community, and the U.S. Army, to include climate, hydrometeorological, and hydrological support as prescribed by USA-USAFA inter-service directives.

b. Space weather operations and capabilities in support of all elements of the DoD (reference n).

c. Recruiting, organizing, training, equipping, and sustaining forces to provide and employ required METOC capabilities for the JFC to enable decisive operations across all domains and spectrums of conflict to achieve the desired end state.

d. Modeling and simulation of the air and space natural environment in support of all elements of the DoD (reference m).

e. Climate monitoring and analysis and prediction capabilities for all elements of the DoD with assistance from other Services as appropriate.

f. Military hydrology prediction capabilities, to include streamflow modeling, soil moisture, and runoff in support of all elements of the DoD.

6. Commandant of the U.S. Marine Corps. In addition to the responsibilities outlined in paragraph 2, the Commandant of the U.S. Marine Corps is responsible for:

a. METOC operations in support of the U.S. Marine Corps.

b. Recruiting, organizing, training, and sustaining forces to provide and employ required METOC capabilities for the JFC to enable decisive operations across all domains and spectrums of conflict to achieve the desired end state.

7. Commander, U.S. Special Operations Command

a. Acquires interoperable special operations-unique METOC equipment and provides training to special operations METOC personnel that is beyond Service responsibility and capability.

b. Develops doctrine and TTPs for METOC support to special operations.

c. Provides special operations trained METOC personnel to the Theater Special Operations Command to support Special Operations missions within their designated area of responsibility.

8. Combatant Commanders

a. CCDR will designate a Senior METOC Officer (SMO) assigned to a joint billet on the unified command staff as the most effective means of integrating METOC into joint plans and processes within the area of responsibility (AOR) or functional responsibility. The SMO will organize METOC resources to ensure synthesized capabilities and provide coherent METOC-effects,

battlespace awareness, efficiency of force, and unity of effort. The SMO should be primarily tasked for METOC-related duties and functions.

b. Ensure METOC-related activities and capabilities are considered and integrated when performing functions assigned in the Unified Command Plan. In addition, throughout the planning and execution of joint operations, the CCDR will establish or leverage a Lead METOC Production Unit from existing joint METOC production centers (see Enclosure C).

c. Request additional METOC capability as required to meet the JFC's METOC requirements. METOC requirements are prioritized to meet joint mission-based needs and effects, often in coordination with and conducted across joint areas of operation. Therefore, METOC considerations and capabilities should be factored into multiple lines of effort (e.g., deterrence, space, nuclear, cyberspace, electronic warfare, strike, etc.) enabling CCDR's ability to coordinate and conduct operations across geographic/theater boundaries, and employ effective responses from a global, transregional, and-multi-domain/multi-threat perspective.

d. CCMDs and their Components, Sub-unified Commands, Task Forces, and Centers must promulgate METOC guidance in base orders to ensure incorporation of globally integrated joint METOC production capability necessary to maintain day-to-day phase 0 operations.

e. Integrate METOC capabilities and applications into training, exercises, experiments, contingency plans, and operations plans and plan for the employment of these capabilities (defensive, offensive, support of civil authorities) within their areas of responsibility.

f. Coordinate with U.S. regional and individual diplomatic missions, senior headquarters, allied or coalition forces, other U.S. agencies, and commercial partners as required to ensure all available METOC data, information, and services, as well as indigenous data, information, and services, are properly considered, evaluated, protected, and, if deemed adequate for use, made available to the joint force.

g. Develop and disseminate to the JFC and Service Components a concept of operations (CONOPS) that includes METOC support to joint operations. The CONOPS should include a METOC sensing strategy to leverage and deconflict Service, Federal, allied/coalition, and/or civil/commercial partner capabilities to maximize efficiencies and identify traditional and non-traditional sensing and data collection capabilities. Develop and exercise operational concepts and TTPs to continue operations and achieve assigned national security objectives in an environment in which METOC capabilities have been degraded or denied.

h. Assimilate METOC information into information operations and the integrated employment of Information Related Capabilities (IRCs) to influence, disrupt, corrupt, or usurp the decision making of adversaries and potential adversaries (references j, k).

#### 9. Joint Force Commanders

a. Establish a requirement for METOC support for the CDR-directed exercise or operation by designating a Joint METOC Officer (JMO) immediately upon initiation of planning. When applicable, the JMO will be assigned to a joint billet on the JFC staff to most effectively integrate METOC operations into the joint force.

b. Employ component and Service METOC resources to conduct METOC operations in support of joint operations and training.

c. Provide additional METOC guidance, if necessary, to supplement the CDR METOC CONOPS or other published guidance.

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

e. Identify METOC capability requirements as well as any known shortfalls in METOC capabilities.

f. Coordinate with the appropriate CDR for centralized METOC support or other additional support required to fulfill operational needs not within the assigned forces' capabilities.

g. Coordinate with the CDR to establish or designate a Lead METOC Production Unit.

h. Ensure all supporting METOC forces are capable of exchanging information directly and freely with each other in a timely manner to maximize consistency of information.

i. Ensure air, land, maritime, and space environments are considered and METOC personnel, data and information are integrated throughout the planning process.

j. Direct the JMO to coordinate with the Lead METOC Production Unit to develop, integrate, and maintain METOC products for the joint operations area (JOA) as required.

10. Service Components

a. Services with organic METOC capabilities will conduct METOC operations in support of joint exercises and 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 operational capabilities, as appropriate.

(2) Coordinate and, as directed by Service agreements or regulations, participate in the funding and procurement of METOC equipment, except for unique special operations forces METOC equipment (see paragraph 7), for the collection, processing, receipt, storage, and transmission of METOC data. This equipment should be configured in accordance with CJCS guidance to ensure interoperability, exploit existing inter-Service capabilities, and avoid unnecessary duplication. Where feasible, equipment should be procured from a common source to reduce costs.

(3) Assist METOC personnel with obtaining weather limiting thresholds for friendly military capabilities. Request intelligence personnel, in coordination with their Intelligence Community partners, obtain weather limiting thresholds for adversary military capabilities.

c. Upon initiation of CCDR directed planning (references o, p):

(1) Use the CCDR recommendations for Annex H and other guidance (e.g., CONOPS, CCMD Instructions, and CJCSIs, etc.) in developing and disseminating specific guidance for METOC operations and coordination with other Service METOC organizations. Coordinate those operations in accordance with authoritative guidance and when required through the assigned SMO and JMO.

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

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



11. Senior METOC Officer

a. The SMO is responsible for assisting the CCDR and staff in developing and executing METOC operations, support, and service in support of a designated joint force or CCDR designated Service-led operation in the AOR.

b. Serves as the focal point for joint force METOC support and keeps the CCDR apprised of METOC operations and conditions in the AOR.

c. Coordinates with the JMO, Services, Joint Staff, and other agencies for METOC support or other additional capabilities required to fulfill operational needs that are not within the components' ability to provide.

d. Ensures effective METOC operations support to the Joint Force from planning to execution of both real world contingency operations and exercises.

e. Develops, implements, and assists in the execution of a CONOPS for METOC support that is integrated with and complements the CCDR's CONOPS. Through the planning and execution cycles, develops an Annex H (METOC Operations) for each CCDR operations order (OPORD), operations plan (OPLAN), or concept plan (CONPLAN), as appropriate (reference o). This Annex incorporates the METOC CONOPS and describes METOC operations and services within a joint force. It is the SMO's primary vehicle to provide directive guidance on tasks, responsibilities, and coordinating instructions.

f. Develops a METOC sensing strategy that leverages all possible national, international, host nation, and commercial capabilities to meet the CCDR's ongoing METOC situational awareness requirements. The SMO collaborates with the Service Components and other agencies to build this sensing strategy, which is then included in Annex H (METOC Operations).

g. Develops an initial METOC collection plan, based on the sensing strategy, and incorporates it into Annex H (METOC Operations).

h. Obtains METOC data and information requirements from all joint forces, recommends assignment of METOC tasks, and coordinates with components to ensure unity of effort.

i. Oversees METOC activities of the CCMDs. Serves as the METOC spokesperson for the CCDRs, especially on the METOC requirements of their commands. Provides guidance on joint METOC concept development and experimentation activities to the CCMDs and Military Services.

j. Coordinates METOC communication requirements with the CCDR's communication system directorate (J-6) and assists in the development of

Annex K (Communications Systems Support) of each CCDR OPORD, OPLAN, or CONPLAN, as appropriate.

k. Coordinates METOC support requirements/information needs with CCDR's J-2, Joint Intelligence Centers, and components. Provides input to the joint intelligence preparation of the operational environment, and assists in the development of Annex B (Intelligence) of each CCDR OPORD, OPLAN, or CONPLAN, as appropriate.

l. Addresses METOC requirements for Annex N (Space Operations) of each CCDR OPORD, OPLAN, or CONPLAN, as appropriate. Coordinates with the U.S. Strategic Command SMO for nonstandard space environmental support requirements.

m. With the CCDR's approval and the aid of his staff, coordinates with the U.S. regional and individual diplomatic missions, Joint Staff, other U.S. agencies, and allied or coalition forces, as required, to ensure all available METOC information and systems, including non-DoD, 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 information or services is concerned, as well as any memorandums of understanding with non-DoD agencies for the same purpose. Use of non-DoD assets should only add to the capability resident within U.S. military METOC operational capabilities.

n. Coordinates with the JFC, the Services, and the JMO on the requirements for the designation of a Lead METOC Production Unit. In cases where multiple JFCs are designated and JOAs overlap, communicates CCDR's guidance and priorities for METOC operations in order to maximize resources, find efficiencies, and de-conflict support to the different operations.

o. Coordinates with Service Components to ensure all METOC capability requirements are included in the time-phased force deployment data (TPFDD) and that METOC TPFDD requirements are validated. Through the planning, execution, and review cycle, evaluates requirements against reach-back capabilities to meet objectives outlined in OPLANs and CONPLANs.

p. Collects, reviews, and retains after actions reports (AARs) and lessons learned for joint exercises and operations. Identifies shortfalls, evaluates requirements, incorporates into revisions of OPLANs and CONPLANs, and provides the revised documents to the Services for future programming and planning.

q. Assimilates METOC information into information operations and the integrated employment of IRCs to influence, disrupt, corrupt, or usurp the decision making of adversaries and potential adversaries.

12. Joint METOC Officer

a. Coordinates the JFC's METOC operations to accomplish the commander's intent via coordination and collaboration with the SMO and component METOC forces assigned or attached to the command. Coordinates with the JFC's staff, to include but not limited to cyber plans and activities, logistics, and civil affairs, to integrate METOC capabilities and METOC effects within the Joint Task Force and CCDR directed operations.

b. Monitors METOC operations and incorporates environmental information within the JOA in accordance with applicable Joint Publications (e.g., JP 2-01.3, JP 3-05, JP 3-16, JP 3-59, JP 5-0, etc.).

c. Collects AARs, feedback, and assessments from METOC units and provides reports and lessons learned to the SMO.

d. Responsible for coordinating, deconflicting, and overseeing METOC collection capabilities within the JOA.

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## ENCLOSURE C

### JOINT METOC PRODUCTION CENTERS

1. The U.S. Air Force and U.S. Navy maintain METOC production centers (Table C-1) that can be leveraged with Lead METOC Production Unit responsibilities.
2. Most U.S. Air Force METOC production centers are aligned geographically and provide support inherent within a functional or regional Air Operations Center organized under appropriate Air Force Service Component to a CCDR. Commander, Naval Meteorology and Oceanography Command maintains a 24/7 operational command center watch and is the single point of entry for all USN-related METOC requests for information or products. Four METOC production centers provide specialized support to the joint force: the 14th Weather Squadron in Asheville, NC, provides climatology products; the 2d Weather Squadron in Offutt AFB, NE, provides space weather and designated intelligence community support products; the Joint Typhoon Warning Center in Pearl Harbor, HI, provides tropical storm support products; and the Joint/Naval Ice Center in Suitland, MD, provides sea ice characterizations and other arctic products.
3. Requirements for METOC capabilities should be formally submitted via the joint orders process (references o, p, q). CCDRs may have to leverage a Lead METOC Production Unit with the preponderance of products within the JOA and a supporting METOC production unit for METOC products not covered by the Lead METOC Production Unit.

<b>METOC PRODUCTION CENTER</b>	<b>FORCE PROVIDER</b>	<b>CCMD ALIGNED</b>
15th Operational Weather Squadron (OWS)	USAF	USNORTHCOM (NE CONUS/Canada)
17 OWS	USAF	USINDOPACOM NORTHCOM (Alaska)
21 OWS	USAF	USEUCOM / USAFRICOM
25 OWS	USAF	USNORTHCOM (W CONUS/Canada) USSOUTHCOM
26 OWS	USAF	USNORTHCOM (SE CONUS)
28 OWS	USAF	USCENTCOM
2d Weather Squadron	USAF	USSTRATCOM - Global (Space, Intelligence Community Support)
14th Weather Squadron	USAF	Global (Climate Services)
23d Special Operations Weather Squadron	USAF	USSOCOM
HQ Maritime Operations Center CTG 80.7	USN	USNORTHCOM (C2F) USSOUTHCOM (C4F) USEUCOM/USAFRICOM (C6F) USNORTHCOM (C3F) USCENTCOM (C5F) USINDOPACOM (C3F, C7F, Joint Typhoon Warning Center) Global (Joint/Naval Ice Center)
Naval Observatory – Washington DC	USN	USSTRATCOM - Global (Precise Time, Positioning, and Astrometry Support)
Note: In addition to regional references above, USAF and USN are available global force providers for METOC support to STRATCOM, TRANSCOM, and SOCOM.		

Table C-1. METOC Production Centers

ENCLOSURE D

U.S. GOVERNMENT POLICY REGARDING WEATHER MODIFICATION

1. The United States is party to an arms control treaty known as the Convention on the Prohibition of Military or other Hostile Use of Environmental Modification Techniques, ratified in 1980.

a. The ENMOD Treaty states that “Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long lasting, or severe effects as the means of destruction, damage, or injury to any other State Party.” Furthermore, “Each State Party to this Convention undertakes not to assist, encourage or induce any State, group of States or international organization to engage in activities contrary to the provisions of paragraph 1 of this article” (referring to the first quotation).

b. Environmental modification techniques refer to any techniques for changing (through the deliberate manipulation of natural processes) the dynamics, composition, or structure of the Earth, including its biota, lithosphere, hydrosphere, and atmosphere or of outer space.

2. The terms “widespread,” “long lasting,” and “severe” will be interpreted as follows:

a. Widespread. Encompassing an area on the scale of several hundred square kilometers.

b. Long lasting. Lasting for a period of months or approximately a season.

c. Severe. Involving serious or significant disruption or harm to human life, natural and economic resources, or other assets.

3. The United States occasionally receives requests for assistance with weather modification operations in foreign nations, some of which are proposed initially to U.S. military commands or agencies located in those nations. In the event that foreign nations or international organizations request assistance with weather modifications, they should be informed to forward their request through diplomatic channels to the Department of State. No encouragement or commitment should be indicated by the receiving military organization.

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ENCLOSURE E

REFERENCES

PART I — REFERENCES

- a. DoDD 5100.01, 21 December 2010, “Functions of the Department of Defense and Its Major Components”
- b. CJCSI 5123.01 Series, “Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and Development System (JCIDS).
- c. DoDD 5143.01, 24 October 2014 (Incorporating Change 1, Effective 22 April 2015), “Under Secretary of Defense for Intelligence (USD(I))”
- d. DoDD 7045.20, 25 September 2008 (Incorporating Change 1, Effective 25 May, 2017), “Capability Portfolio Management”
- e. JROCM 057-18, 7 June 2018, “2018 Refinement of the Joint Capability Area Taxonomy and Definitions”
- f. CJCSI 2700.01 Series, “Rationalization, Standardization, and Interoperability (RSI) Activities”
- g. Title 10, U.S. Code, Chapter 5, Section 153, 1 March 2012, “Chairman: functions”
- h. CJCSI 3500.01 Series, “Joint Training Policy for the Armed Forces of the United States”
- i. DoDD 3000.06, 27 June 2013 (Incorporating Change 1, Effective 8 July, 2016), “Combat Support Agencies (CSAs)”
- j. CJCSM 3219.01 Series, “Interruption of Remote Sensing Space System Data Collection and Distribution During Periods of National Security Crisis”
- k. Joint Publication 3-13.1, 8 February 2012, “Electronic Warfare”
- l. CJCSI 6130.01 Series, “2016 Chairman of the Joint Chiefs of Staff Master Positioning, Navigation, and Timing Plan”
- m. DoDD 5000.59, 8 August 2007, “DoD Modeling and Simulation (M&S) Management”

- n. DoDD 3100.10, 18 October 2012 (Incorporating Change 1, Effective 4 November 2016), “Space Policy”
- o. CJCSM 3130.03, 18 October 2012, “Adaptive Planning and Execution (APEX) Formats and Guidance”
- p. CJCSM 3122.01 Series, “Joint Operation Planning and Execution System (JOPES) Volume I, Planning Policies and Procedures”
- q. CJCSM 3130.06 Series, “Global Force Management Allocation Policies and Procedures”

## PART II — RELATED

- 1. Title 10, U.S. Code, Section 113, “Secretary of Defense”
- 2. Title 10, U.S. Code, Section 181, “Joint Requirements Oversight Council”
- 3. DoDI 5100.73, 1 December 2007 (Incorporating Change 2, Effective 12 June 2012), “Major Department of Defense Headquarters Activities”
- 4. DoDD 5101.16E, 27 May 2015 (Incorporating Change 2, Effective 17 August 2017), “DoD Executive Agent (EA) for Support to the National Science Foundation (NSF) Division of Polar Programs (PLR)”
- 5. Joint Publication 2-01.3, 21 May 2014, “Joint Intelligence Preparation of the Operational Environment”
- 6. Joint Publication 3-0, 17 January 2017, “Joint Operations”
- 7. Joint Publication 3-59, 10 January 2018, “Meteorological and Oceanographic Operations”
- 8. Joint Publication 5-0, 16 June 2017, “Joint Planning”

## GLOSSARY

### PART I-ABBREVIATIONS AND ACRONYMS

*Items marked with an asterisk (\*) have definitions in PART II*

AOR	area of responsibility
AAR	after action report
AFI	Air Force Instruction
AR	Army Regulation
CCDR	Combatant Commander
CCMD	Combatant Command
CDR	commander
CJCS	Chairman of the Joint Chiefs of Staff
CONOPS	concept of operations
CONPLAN	concept plan
DoD	Department of Defense
ENMOD	environmental modification
JFC	Joint Force Commander
JMO	Joint METOC Officer
JOA	joint operations area
JOAF	Joint Operations Area Forecast
METOC*	Meteorological and Oceanographic
OPLAN	operation plan
OPORD	operation order
SMO	Senior METOC Officer

TPFDD time-phased force deployment data  
TTP tactics, techniques, and procedures

USG United States Government  
USSOCOM U.S. Special Operations Command

## PART II-DEFINITIONS

METOC - A term used to convey all environmental factors, from the sub-bottom of the Earth's oceans through maritime, land areas, airspace, ionosphere, and outward into space.

METOC Forces and/or Personnel - Personnel trained to conduct meteorological, oceanographic, or space environmental operations. This does not imply individual personnel are capable of performing all three aspects of METOC operations.

METOC Information - Actionable information to include meteorological, climatological, oceanographic, and space environment observations, analyses, prognostic data or products, and meteorological and oceanographic effects.

METOC Operations - Characterizing the past, current, or future state of the meteorological, oceanographic, or space environment and/or exploiting that information.

Military Hydrology - A specialized field of hydrology that deals with those characteristics of surface and subsurface water that may affect the planning and conduct of military operations.

NOTE: Unless otherwise stated, the terms and definitions contained in this glossary are for the purposes of this document only.

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