

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE INSTRUCTION 15-128

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Weather

***AIR AND SPACE WEATHER OPERATIONS -
ROLES AND RESPONSIBILITIES***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive (AFPD) 15-1, *Atmospheric and Space Environmental Support*. This instruction applies to all organizations in the US Air Force (USAF) with weather personnel assigned. This instruction defines the mission, organization, roles and responsibilities of Air Force weather units. Other 15-series Air Force instructions and manuals provide specific guidance on how weather operations are conducted. Major commands (MAJCOMs), Field Operating Agencies (FOAs) and Direct Reporting Units (DRUs) send one copy of supplements to HQ USAF/XOO-W, 1490 Air Force Pentagon, Washington DC 20330-1490 for coordination. Ensure that all records created as a result of this publication are maintained in accordance with AFMAN 37-123, *Management of Records* and disposed in accordance with AFMAN 37-139, *Records Disposition Schedule*.

Chapter 1

MISSION AND ORGANIZATION

1.1. Mission. AFW provides high-quality, mission-tailored terrestrial and space environment observations, forecasts, and services to the United States Air Force (USAF), United States Army (USA), and a variety of United States Government departments and agencies.

1.2. Air Force Weather (AFW) Organization. AFW services and support are organized under the functional management of the Director of Weather, Directorate of Operations and Training, Deputy Chief of Staff for Air and Space Operations, Headquarters United States Air Force (HQ USAF/XOO-W). AFW operates through a three-tier operational structure corresponding to the three levels of military operations: strategic, operational, and tactical.

1.2.1. AFW Functional Organization.

1.2.1.1. HQ USAF/XOO-W is the weather functional manager. As functional manager, the XOO-W staff oversees USAF-wide training, organizing, and equipping of AFW units. This includes the following functions that are applicable across AFW:

1.2.1.1.1. Develops doctrine, policy, requirements, and standards for weather support to the Air Force, Army, designated unified commands, and national programs.

1.2.1.1.2. Evaluates weather support effectiveness.

1.2.1.1.3. Directs the AFWA FOA.

1.2.1.1.4. Acts as functional manager for the enlisted, officer, and civilian weather career fields.

1.2.1.1.5. Develops and implements mid- and long-range plans for the organization, equipment, manpower, and technology necessary to meet future USAF and Army weather requirements. Acts as Air Force advocate for weather requirements.

1.2.1.1.6. Advises director's staff and MAJCOM functional managers regarding career field, manpower, personnel utilization, training, operations policy and procedures, and technology acquisition issues.

1.2.1.1.7. Plans, programs, and budgets for USAF resources; manages execution of the USAF weather programs.

1.2.1.1.8. Advocates and oversees fielding of standardized USAF weather equipment.

1.2.1.1.9. Interfaces with the Department of the Army concerning operational weather support to Army forces.

1.2.1.2. MAJCOM weather staffs will:

1.2.1.2.1. Provide staff weather support to its MAJCOM.

1.2.1.2.2. Coordinate with Operational Weather Squadrons (OWSs), Weather Squadrons (WSs), and Weather Flights/Detachments to implement AFW metrics programs and ensure supported MAJCOMs and base/post customers have access to metrics data to evaluate the quality of OWS and CWT weather support.

- 1.2.1.2.3. Assist aligned units developing Memoranda of Agreement detailing weather requirements between MAJCOMs, OWSs, WSs, and supported CWTs.
 - 1.2.1.2.4. Coordinate significant changes to products or services provided by OWSs with affected MAJCOMs.
 - 1.2.1.2.5. Develop and crossfeed MAJCOM-specific technical training materials.
 - 1.2.1.2.6. Provide technical training assistance and Technical Consultant Visits to CWTs upon request.
 - 1.2.1.2.7. Conduct Standardization and Evaluation visits on aligned CWTs in accordance with (IAW) AFI 15-180, *Air Force Weather Standardization and Evaluation Program*. MAJCOM weather staff will also augment AFWA/XOP during Standardization and Evaluation visits on OWSs.
 - 1.2.1.2.8. Implement contract weather support when required and ensure contract oversight IAW guidance in AFI 15-128 and AFMAN 15-129, *Air and Space Weather Operations – Processes and Procedures*.
 - 1.2.1.2.9. Provide Functional Area Management for weather personnel and equipment within its MAJCOM.
 - 1.2.1.2.10. Plan, program, and budget for MAJCOM resources. Manage execution of MAJCOM weather programs.
- 1.2.1.3. As the HQ USAF/XOO-W FOA, HQ AFWA will:
- 1.2.1.3.1. Execute Lead Command responsibilities for the Air Force Weather Weapon System IAW AFI 10-901, *Lead Operating Command--Communications And Information Systems Management*.
 - 1.2.1.3.2. Direct the acquisition, configuration management, modification, logistics, funding, and life-cycle support of all standard (dedicated) weather communications systems.
 - 1.2.1.3.3. Direct all system acquisition and sustainment activities associated with the life-cycle of standard systems used to support Air Force and Army weather support requirements.
 - 1.2.1.3.4. Plan, provide, and manage end-to-end communication programs to ensure interoperability with common user systems. Coordinate activities with USAF, USA, United States Navy (USN), DoD, MAJCOM, and associated federal civilian weather agencies.
 - 1.2.1.3.5. Provide AFW Chief Architect and chair for the AFW Architecture Council. Direct and manage the AFW architecture process IAW DoD and AF policies.
 - 1.2.1.3.6. Provide and maintain the Joint Air Force and Army Weather Information Network (JAAWIN) and the Secure JAAWIN (JAAWIN-S, JAAWIN-SCI).
 - 1.2.1.3.7. Maintain a homepage in the public domain containing selected JAAWIN products.
 - 1.2.1.3.8. Manage the distribution of temporary location identifiers (KQs).
 - 1.2.1.3.9. Assist in processing foreign national requests for access to AFW systems IAW AFI 33-202, *Network and Computer Security* and local directives.

1.2.1.3.10. Coordinate foreign nations' requests for weather data, satellite imagery, technical information, and software tools through appropriate Air Staff, MAJCOM, and AFW's Foreign Disclosure Officer (FDO) and Scientific and Technical Information Officer (STINFO).

1.2.1.3.11. Assist AFW Career Field Manager in developing, managing, standardizing, and coordinating AF weather training programs and requirements.

1.2.1.3.12. Develop, issue, and evaluate standardized procedures for weather forces.

1.2.1.3.13. Execute and assist in developing the AFW Standardization and Evaluation Program IAW AFI 15-180.

1.2.1.3.14. Manage air and space science and technology exploitation activities to enhance AFW capabilities and operations. Upon MAJCOM request, provide direct assistance to Operational Weather Squadrons through on-site meteorological process reviews and needs assessments.

1.2.1.3.15. Manage AFW Metrics Program IAW AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*.

1.2.1.3.16. Submit AF Form 525, *Records Disposition Recommendation*, through the proper channels, to the National Archives and Records Administration when changes, additions, or deletions to the tables and rules of the Records Disposition Schedule are required. Submit AF Form 1341, *Electronic Record Inventory*, when records are stored in electronic record-keeping systems.

1.2.2. AFW Operational Organization.

1.2.2.1. Strategic Level. AFW's strategic weather units are centers of expertise in providing strategic-level terrestrial, space weather products, and support necessary to plan and conduct military operations. AFWA, an Air Force FOA under HQ USAF/XOO-W, is the principal strategic weather center in AFW. In addition to strategic-level weather support, AFWA also provides select operational- and tactical-level support to special operations and performs resource management functions for standard weather systems and centrally managed AFW contracts and programs.

1.2.2.2. Operational Level. OWSs are theater or regional centers of expertise. The eight OWSs provide operational-level weather products and support to theater Commanders based on defined graphical Areas of Responsibility (AORs). Refer to AFVA 15-137 and AFVA 15-136 for a graphical depiction of OWS AORs. In addition, Staff Weather Officers assigned to USAF MAJCOMS, USA Major Commands, and Unified Commands provide direct support to these Headquarters and oversee AFW support aligned with the Command's subordinate operating forces.

1.2.2.3. Tactical Level. AFW support to operational USAF and USA field units is organized for tactical, mission-specific operations. A CWT is a generic term used to describe a weather team that provides mission-tailored weather products and services to a supported unit in garrison or at a deployed location. For USAF operations, CWTs are normally organized as Weather Flights under Operations Support Squadrons. For US Army operations, CWTs are normally organized as Detachments or Weather Flights under Air Support Operations Squadrons and Combat Weather Squadrons under Air Support Operations Groups. Detachments supporting Army operations in the European theater are organized under the 7WS and Detachments supporting Army operations in the Korean theater are organized under the 607WS. During contingencies, CWTs deploy with operational warfighters. In addition, the 10CWS supports US Army Special Operations Command

(USASOC), the 30WS supports the Western Missile Test Range, and the 45WS supports the Eastern Missile Test Range. Each has unique mission responsibilities. In addition, select weather field units perform unique space weather missions. Nonetheless, the CWT is the cornerstone of AFW support to operational field unit mission activities.

1.2.3. Air National Guard (ANG) and Air Force Reserve (AFR) weather resources will primarily support Air Force and Army active and reserve wartime deployment and employment requirements. Selected ANG or AFR resources will support rotational (i.e., Aerospace Expeditionary Force) taskings on a volunteer basis and sustainment missions as active duty or mobilization requirements dictate. All deployable Guard and Reserve personnel will be trained and equipped to the same level as their active duty counterparts. To the maximum extent possible, Air Reserve Component personnel will train with and support their wartime units.

1.2.4. AFW is organized to plan and execute weather operations the same in peacetime as during war and operations other than war.

1.2.5. AF Materiel Command (AFMC) research, acquisition, and test meteorologists are comprised of advanced-degree officers and civilians assigned to organizations within the AF Research Laboratory and AFMC Product Centers and Test Centers. These personnel, collectively known as "staff meteorologists" or "staffmets", perform or support basic research and support the development, acquisition, and testing of AF weapon systems and capabilities by identifying, documenting, and helping resolve environmental sensitivity issues and weather support requirements. Two of the larger "staffmet" units are the 88WS at Wright-Patterson AFB OH, designated the staffmet hub, and the 46WS at Eglin AFB, FL, which performs or supports basic research.

1.3. Utilization of AF Weather Personnel. Weather personnel provide critical products and services to facilitate force protection decisions and execution of air and ground operations in peace and war. Tasking or assigning weather personnel to non-weather duties conflicting with their primary duties degrades operational decision-making processes. Commanders will avoid assigning weather personnel to non-weather duties that conflict with primary duties and undermine mission effectiveness of the weather unit.

1.3.1. Unit leadership will ensure personnel:

1.3.1.1. Perform mission essential tasks.

1.3.1.2. Shall not be designated as augmentees of other base/post functions that will detract from accomplishing the primary mission of the wing.

1.3.2. Impact of "career broadening" on small weather units. Air Force Manpower Standard 34A1 determines the manpower necessary to perform mission-critical functions by weather forces; actual manning is based on the worldwide average availability of weather officers and enlisted personnel and is normally less than the authorized whole. Release of 15W or 1W0X1A personnel for "career broadening" in non-weather duties (e.g., executive officer, First-term Airman's Center Superintendent) may have a detrimental effect on the mission effectiveness of the weather unit. Commanders should consider the manning situation of the particular weather unit and weigh long-term impact on operations tempo and morale resulting from removal of personnel from their primary duties along with the benefit to the unit and individual of the "career broadening" opportunity.

Chapter 2

STRATEGIC WEATHER CENTERS

2.1. Air Force Weather Agency Roles. AFWA is the Air Force's principal strategic weather center and DoD Center of Excellence for Meteorological Satellite imagery. AFWA plans and produces a wide range of terrestrial weather products and centralized space weather products and provides dedicated climatology, strategic weather, and space environment forecast support to Special Operations and National Intelligence Community customers.

2.2. Air Force Weather Agency Responsibilities:

- 2.2.1. Provides support for Joint Operations as tasked by supporting units.
- 2.2.2. Collects, analyzes, processes, and formats global weather data and products for further distribution and access. Develops, acquires, evaluates, maintains, operates, and provides output of regional theater-scale numerical weather prediction (NWP) meteorological models, gridded databases, and visualizations to operational- and tactical-level weather units. Provides specialized weather products and services upon request IAW AFMAN 15-129.
- 2.2.3. Uses National Oceanographic and Atmospheric Administration (NOAA), Federal Aviation Agency, USN, USA, university, and the scientific community (domestic and international) innovations for global weather model output, space weather data, weather equipment, forecasting techniques, and mesoscale weather prediction models. Incorporates these new data sources, techniques, tools, and equipment into its operation to improve its strategic-level forecasting capability.
- 2.2.4. Provides a centralized computing resource for AFW high resolution theater-scale NWP and global coverage specialized models.
- 2.2.5. Produces and disseminates strategic- and operational-level automated weather products based on output from hemispheric and mesoscale NWP models.
- 2.2.6. Issues and disseminates strategic-level weather threat assessments to OWSs and CWTs for evaluation, further dissemination, and initiation of appropriate actions.
- 2.2.7. Processes and provides tailored Meteorological Satellite imagery to operational and tactical AFW units.
- 2.2.8. Provides space weather products, services, and training tools.
 - 2.2.8.1. Acquires, manages, and maintains space weather databases.
 - 2.2.8.2. Operates space weather models and uses output to produce space weather products and forecasts.
 - 2.2.8.3. Provides space weather support to all DoD organizations.
 - 2.2.8.3.1. Analyzes, monitors, and disseminates space weather observations from ground- and space-based sensors.
 - 2.2.8.3.2. Provides specification products describing current conditions of the ionosphere and magnetosphere.

2.2.8.3.3. Produces, monitors, and amends forecasts for solar flares, geomagnetic activity, radio signals, and other space weather phenomena.

2.2.8.3.4. Issues, monitors, and amends warnings for solar particle events, short-wave fades due to solar flares, solar radio bursts, geomagnetic storms, and other ionospheric and magnetospheric disturbances.

2.2.8.3.5. Evaluates the space environment and provides system anomaly assessments.

2.2.8.4. Tailors space weather products for the needs of specific regional commanders, planners, or operators.

2.2.8.5. Provides specialized space weather products and services upon request IAW AFMAN 15-129.

2.2.8.6. Jointly produces space weather products with NOAA Space Environment Center.

2.2.8.7. Operates and manages the Solar Electro-Optical Network.

2.2.8.8. Provides backup capability to NOAA's Space Environment Center.

2.2.9. Provides satellite imagery surveillance and specialized analysis products to the JTWC, National Hurricane Center, and the Central Pacific Hurricane Center.

2.2.10. Provides weather support to classified National Programs as directed by the Secretary of the Air Force.

2.2.11. Provides worldwide, mission-tailored forecasts to USAF, USA, and USN Special Operations Forces.

2.2.12. Provides Effective Downwind Messages for CONUS and OCONUS, as required.

2.2.13. Provides weather data, tailors operational-level forecast products, and presents on-air broadcasts for the American Forces Radio and Television Services network.

2.2.14. Provides backup capability for aviation weather products for the National Weather Service's (NWS) Aviation Weather Center, severe weather products for the Storm Prediction Center, and NWP outputs and volcanic ash dispersion forecasts for the National Center for Environmental Prediction.

2.2.15. Provides backup capability to JTWC satellite operations in coordinating tropical cyclone reconnaissance for the Pacific Tropical Cyclone Reconnaissance Network in the event of an outage at JTWC.

2.2.16. Provides weather data to appropriate agencies running Nuclear, Biological, and Chemical (NBC) dispersion models for NBC consequence assessments.

2.3. Air Force Combat Climatology Center (AFCCC) Roles: AFCCC is assigned to AFWA and provides centralized climatological database services, produces specialized weather-impact information for DoD and allied nations, and warehouses and distributes atmospheric sciences-related technical information.

2.4. AFCCC Responsibilities:

2.4.1. Provides centralized weather and climatological database services.

- 2.4.2. Reviews NOAA, USN, and foreign national climatological data resources for application to the aerospace mission.
- 2.4.3. Provides statistical weather and climatological studies for engineering design, weapons systems employment, and operational planning purposes.
- 2.4.4. Operates and manages the Air Force Weather Technical Library.
- 2.4.5. Operates specialized models to support the national intelligence community.
- 2.4.6. Archives critical weather and space environment effects data for friendly and enemy weapons systems.

2.5. Air Force Combat Weather Center (AFCWC) Roles: AFCWC is assigned to AFWA and develops techniques, procedures, operational concepts, and transitions technology to CWTs.

2.6. AFCWC Responsibilities:

- 2.6.1. Assists in the development of combat weather Tactics, Techniques, and Procedures for USAF and USA operations.
- 2.6.2. Serves on Army's Software Configuration Control Board for Army tactical weather systems and serves on Army weather equipment New Equipment Training Teams.
- 2.6.3. Investigates, evaluates, and develops new and innovative battlespace meteorological systems and associated technologies, leveraging commercial off-the-shelf and government off-the-shelf systems where appropriate.
- 2.6.4. Develops new and innovative methods for the integration of CWT systems and processes.
- 2.6.5. Facilitates the integration of CWT systems for force- and unit-level activities within the Joint and AF Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance enterprise, and identifies methodologies for delivery of weather data and/or transformation of weather information for the warfighter.
- 2.6.6. Directs Test and Evaluation activities on standard and select commercial off-the-shelf, government off-the-shelf, and innovative AF weather battlespace meteorological and communication equipment, technologies, and capabilities.
- 2.6.7. Exploits maximum capabilities of AFW standard and non-standard tactical and fixed meteorological systems and technologies. As advocate for the CWT, assists in the transition of innovative tactical systems, applications, and solutions to AFW in support of the CWT.
- 2.6.8. Conducts selective hands-on tactical and fixed meteorological equipment training to Air Force, Army, and DoD personnel.
- 2.6.9. Serves as liaison to the ANG Weather Readiness Training Center.

2.7. Joint Typhoon Warning Center (JTWC) Roles: JTWC is a consolidated USAF and USN agency specializing in tropical cyclone reconnaissance and forecasting tropical cyclone tracks and intensities.

2.8. JTWC Responsibilities:

- 2.8.1. The AF is solely responsible for the tropical cyclone reconnaissance function.

2.8.2. JTWC's forecast AOR extends from 180 degrees, westward to the east coast of Africa in the Northern Hemisphere and from South America to the east coast of Africa in the Southern Hemisphere. JTWC satellite operations' tropical cyclone fix AOR also includes the Pacific Ocean east of 140 degrees west. JTWC's metwatch area includes the entire Pacific and Indian Ocean basins.

2.8.3. JTWC tailors information for DoD use from Central Pacific Hurricane Center and National Hurricane Center products in the Northern Hemisphere region east of 180 degrees.

2.8.4. Specific JTWC roles and responsibilities are defined in USCINCPACINST 3140.1, *Tropical Cyclone Operations Manual*, and PACAFI 15-102, *Tropical Cyclone Reconnaissance*.

2.9. Special Operations Forces Weather Operations Center. As a Special Operations force multiplier, the Special Operations Forces Weather Operations Center provides first-in weather support with high-side SECRET Internet Protocol Router Network dissemination capabilities.

Chapter 3

OPERATIONAL WEATHER SQUADRONS

3.1. Roles: OWSs are the theater or regional centers of meteorological expertise. The OWS is responsible for providing and arranging operational-level weather forecast products and support to units assigned within and/or deployed into its AOR. When collocated with the appropriate headquarters, the OWS will also provide staff weather briefings to Numbered Air Force, Air Operations Center, and Echelon Above Corps. The OWS provides flight weather briefings to aircrews operating within their AOR without home base support or when the CWT has requested the support from the OWS.

3.2. Responsibilities:

3.2.1. The OWS will produce, disseminate, metwatch, and amend forecasts in the appropriate formats to support military operations in its AOR. It will interrogate all available data to produce mesoscale products in support of the CWTs and direct-support customers.

3.2.2. Terminal Aerodrome Forecasts will be in a World Meteorological Organization (WMO)-compliant format IAW coding conventions specified in AFMAN 15-124, *Meteorological Codes*.

3.2.2.1. Airfield forecasts encoded in the WMO [*Terminal*] *Aerodrome Forecast* (TAF) code will be specified and amended IAW procedures in AFMAN 15-129 for weather criteria based on general flight rule criteria in AFI 11-202, (Volume 3), *General Flight Rules*, and in AR 95-1, *Flight Regulations*.

3.2.2.2. Collaborate with the CWT on meteorological reasoning and forecast content. The OWS retains final authority and responsibility for the content and accuracy of all products issued.

3.2.3. Produce, disseminate, and amend Weather Warnings, Weather Watches, and Forecast Weather Advisories.

3.2.3.1. Disseminate Weather Warnings IAW AFMAN 15-129 to populate JAAWIN weather warning situation display.

3.2.3.2. Produce, disseminate, and amend observed Weather Warnings and Weather Advisories when a CWT is not on duty, if capability exists.

3.2.4. Ensure that standardized regional and theater-unique weather products and visualizations are technically consistent with other weather products and visualizations.

3.2.5. Coordinate forecast areas along the borders of selected, standardized OWS-produced regional visualizations to permit generation of standardized large-scale visualizations in order to provide an integrated picture of global weather features.

3.2.6. Produce, disseminate, METWATCH, and amend Military Operating Area Forecasts for its AOR IAW AFMAN 15-129.

3.2.7. Respond to Special Assistance Requests to produce meteorological data for non-routine missions and areas IAW AFMAN 15-129.

3.2.8. Provide gridded data fields from post-processed model data output for its AOR to CWTs and AF and Army command and control units when requested.

- 3.2.9. Participate as the USAF voting member on the Unit Radar Committee for NWS-controlled Weather Surveillance Radar-1988 Doppler in its AOR IAW FMH 11, *Doppler Radar Meteorological Observations*. OWSs may request the local CWT to represent the OWS at the Unit Radar Committee.
- 3.2.10. Provide direct staff weather support to its MAJCOM/Air and Space Operations Center/Numbered Air Force commander and staff; provide indirect staff support and weather products to theater, joint task force, and component commanders as required.
- 3.2.11. Provide meteorological inputs to specific tactical decision aids for weapons systems of ANG and AFR units not supported by a combat weather team. This support will be outlined in a Memorandum of Agreement between the two units.
- 3.2.12. Provide flight weather briefings to ANG, Army Guard, AFR, and Army Reserve units without a collocated, assigned weather unit and aircrews transiting their AOR.
- 3.2.13. Provide Pilot-to-Metro service to airborne aircrews within its AOR via radio, phone patch, Satellite Communication, L-Band, or other modes of communication.
- 3.2.14. Acquire, analyze, evaluate, and disseminate Pilot Reports (PIREPS) and Air Reports (AIREPS).
- 3.2.15. Provide weather data (observations and forecast) to appropriate agencies running DoD NBC dispersion models for NBC consequence assessments in its OCONUS AOR.
- 3.2.16. Make available Effective Downwind Messages.
- 3.2.17. Make available information necessary for production of Chemical Downwind Messages.
- 3.2.18. Coordinate and maintain detailed documentation/agreements that define specific terrestrial and space weather support requirements for each supported unit. Agreements may be documented in an Operations Plan, Unit/Agency Regulations IAW AFI 13-203, *Air Traffic Control* and AFI 13-213, *Airfield Management* or, in the case of cross-Command agreement, in a Memorandum of Agreement IAW AFI 25-201, *Support Agreements Procedures*.
- 3.2.19. Maintain a Non-Classified Internet Protocol Router Network and SECRET Internet Protocol Router Network homepage containing weather data and products for its AOR.
- 3.2.20. Acquire, disseminate, and post space weather data and products on its homepage and/or other communication links for use by units within its AOR.
- 3.2.21. Coordinate requests from foreign nations for weather data, satellite imagery, technical information (e.g., techniques, algorithms), and software tools through appropriate MAJCOM staff, Air Staff, and AFW's FDO and STINFO.
- 3.2.22. Forward requests by foreign nationals for access to AF systems to MAJCOMs.
- 3.2.23. Training:
- 3.2.23.1. Provide qualification, upgrade, and continuation training for enlisted weather apprentices, new officer accessions, and all personnel newly assigned to the OWS requiring this training.
 - 3.2.23.2. Develop meteorological technical training/assistance materials for its AORs and make them available to outside agencies.
- 3.2.24. Maintain and provide metrics data and reports IAW AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*.

3.2.25. Develop and maintain a technical library and forecast reference material for forecast locations within its AOR.

3.2.26. Develop, coordinate, and periodically exercise a plan to maintain continuity of operations during outages and evacuation of the OWS facilities.

3.2.26.1. Notify MAJCOM weather staff, AFWA, HQ USAF/XOO-W, and supported units in AOR when it is not operational or experiencing an outage. Include information pertaining to units providing backup operations and estimated time for recovery in the initial notification.

3.2.27. OWSs will post meteorological satellite imagery to their web page.

Chapter 4

COMBAT WEATHER TEAMS

4.1. Roles: CWTs provide or arrange tactical-level weather support for assigned USAF and USA units in-garrison and deployed. CWTs provide weather and solar observations and mission execution forecasts (MEFs) for tactical and in-garrison operations. CWTs apply meteorology and space physics to the specific needs of operational missions, translating terrestrial and space weather conditions into operational mission impacts. They interface with field commanders, planners, and operational personnel; they reach back to an OWS for centralized weather products and then tailor the products into decision-grade environmental information for supported units.

4.2. Responsibilities: CWTs will:

4.2.1. Take, record, and disseminate surface weather observations, when required, in support of military operations IAW AFMAN 15-111, *Surface Weather Observations*.

4.2.1.1. Augment automated surface observing systems, when required IAW AFMAN 15-111.

4.2.1.2. Arrange dissemination of battlefield observations from Artillery, PIREPS, Forward Area Limited Observing Program, Remote Miniature Weather System and storm reports (USASOC SAV SER SUP 6) back to the supporting OWS via appropriate means.

4.2.1.3. CWTs will not take, record, or disseminate a separate observation if the NWS or a host nation is responsible for the official airfield observation, provided host nation weather observations meet operational requirements.

4.2.1.3.1. CWTs may supplement the official airfield observation with weather parameters not included in the observation (e.g., altimeter, SPECI criteria unique to AF/Army Operations).

4.2.1.3.2. CWTs will document all supplemental support to the official airfield observation in local plans, annexes, or a stand-alone weather support document.

4.2.2. Provide solar observations IAW AFWAI 15-2, *Space Environmental Observations, Solar Optical And Radio Observing*, if equipped as a Solar Electro-Optical Network site. Disseminate solar observations to AFWA and appropriate agencies to provide space weather forecasts, warnings, and support.

4.2.3. Provide upper air observations IAW FMH 3, *Rawinsonde and Pibal Observations*, if equipped with upper air observing equipment. Disseminate observations to AFWA and the appropriate OWS to supplement other upper air observations or provide observation in data-sparse regions.

4.2.4. Provide MEFs for operational missions, including tenant organizations, as coordinated with customers.

4.2.5. Provide tailored weather effects products from Tactical Decision Aids and the Integrated Weather Effects Decision Aid to predict go/no go weather thresholds as coordinated with the host/parent unit.

4.2.6. Interpret and apply space weather data and forecasts to support customers' missions. This includes alerting customers to the impacts of space weather on their operations, weapons, and communication systems.

- 4.2.7. Apply sound operational risk management processes to conduct mission-scale meteorological watch (MISSIONWATCH) for host/parent unit operating areas, flying areas, routes, and flights throughout the course of a mission.
- 4.2.8. Serve as the “eyes forward” for the OWS. Provide the OWS with real-time interpretation of local weather information, including data from local weather offices and weather spotters. Notify the OWS when forecasts require amendment based on established criteria. The CWT designates a single point of contact (i.e., airfield services element duty position) responsible for contacting and coordinating with the OWS in the “eyes forward” role.
- 4.2.8.1. Notify the OWS if weather events impacting flight safety occur, or are imminent, so that the OWS may amend the TAF-coded forecast product immediately.
 - 4.2.8.2. Issue a weather warning if weather imminently threatens life or property and there is insufficient time for the OWS to issue the weather warning. The CWT gives top priority to notifying the necessary units on the installation, followed immediately by notifying the OWS.
- 4.2.9. Issue, amend, and cancel all observed weather advisories and observed lightning warnings for their location during CWT operating hours.
- 4.2.10. Develop and implement Severe Weather Action Procedures.
- 4.2.11. Develop and conduct a mission execution forecast process to tailor weather products for operational users. For large force employment missions, with force packages from different locations, the weather unit supporting the Command and Control element will act as lead for planning purposes. The lead weather unit coordinates with all other weather units to ensure a coordinated and common weather forecast is available to build the MEFs to support the mission.
- 4.2.12. Provide weather data to airborne aircrews via radio, phone patch, satellite communication, L-Band, or other modes of communication.
- 4.2.13. Acquire, analyze, evaluate, and disseminate PIREPS and AIREPS.
- 4.2.14. Provide or arrange staff, mission planning, and mission execution weather support to assigned commanders and units in-garrison and at deployed locations.
- 4.2.14.1. Deploy with parent/host units to provide direct weather support, as required.
 - 4.2.14.2. Arrange weather support if a CWT does not deploy with parent/host unit.
- 4.2.15. Provide meteorological parameters to installation disaster control agencies, as required.
- 4.2.16. Provide meteorological information necessary for the production of Chemical Downwind Messages.
- 4.2.17. Coordinate with appropriate base or post agencies and parent command to arrange installation and maintenance of a web-based aircrew weather briefing system in operations/flight planning area(s). This briefing system is for transient aircrews to obtain weather data from the appropriate OWS when the CWT is unable to provide briefings.
- 4.2.18. Develop a plan to relocate the CWT from normal work centers and continue weather operations in the event the work center is evacuated.
- 4.2.19. Provide mission verification metrics information and reports IAW AFI 15-114.

4.2.20. Perform qualification, upgrade, continuation, and mobility training to ensure all deployable personnel can achieve and maintain the required USAF and USA proficiency IAW AFMAN 15-129.

4.2.20.1. Conduct unit-level orientation for newly assigned personnel.

4.2.20.2. Ensure assigned personnel receive training required to understand and support the host/parent unit's missions and weapons systems.

4.2.21. Comply with Air Force Weather Standardization and Evaluation Program IAW AFI 15-180.

4.2.22. Establish procedures for operating and reporting outages of weather equipment and communications systems with the appropriate local and deployed maintenance units.

4.2.23. Forward requests from foreign nations for terrestrial and space weather data, satellite imagery, technical information, and software tools through appropriate MAJCOM staff, Air Staff, and AFW's FDO and STINFO.

4.2.24. Document local weather requirements in appropriate support documents or agreements and coordinate with supporting OWS, when required, on support issues involving the OWS.

4.2.25. Coordinate with other MAJCOM CWTs operating from the same in-garrison or deployed location to ensure weather support is consistent and weather functions are not duplicated by the other CWT.

4.2.25.1. The CWT assigned to the installation or supporting the host unit provides the surface weather observation and issues observed weather warnings and advisories for the installation.

4.2.25.2. Each CWT is responsible for providing or arranging support to its assigned unit.

4.3. Forms Adopted : AF Form, Records Disposition Recommendation; AF Form 1341, Electronic Records Inventory.

RONALD E. KEYS, Lt Gen, USAF
DCS/Air and Space Operations

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

Joint Pub 3-59, *Joint Doctrine, Tactic, Techniques, and Procedures for Meteorological and Oceanographic Operations*

USCINCPACINST 3140.1(series), *Tropical Cyclone Operations Manual*

AFDD 1, *Air Force Basic Doctrine*

AFMD 52, *Air Weather Service*

AFPD 15-1, *Atmospheric and Space Environmental Support*

AFPD 16-2, *Disclosure of Military Information to Foreign Governments and International Organizations*

AFPD 61-2, *Management of Scientific and Technological Information*

AFI 10-229, *Responding to Severe Weather Events*

AFI 10-403, *Deployment Planning*

AFI 11-202 Vol.3, *General Flight Rules*

AFI 13-203, *Air Traffic Control*

AFI 13-213, *Airfield Management*

AFMAN 15-111, *Surface Weather Observations*

AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation.*

AFMAN 15-124, *Meteorological Codes*

AFMAN 15-129, *Air and Space Weather Operations - Processes and Procedures*

AFJI 15-157, *Weather Support for the U.S. Army*

AFMAN 15-180, *Air Force Weather Standardization and Evaluation Program*

AFI 25-201, *Support Agreements Procedures*

AFI 32-4001, *Disaster Preparedness Planning and Operations*

AFMAN 32-4004, *Emergency Response Operations*

AFMAN 37-123, *Management of Records*

AFMAN 37-139, *Records Disposition Schedule*

AFI 33-101, *Communications and Information Management Guidance and Responsibilities*

AFI 33-104, *Base-Level Planning and Implementation*

AFI 33-202, *Network and Computer Security*

AFMAN 37-139, *Records Disposition Schedule*

AFWAI 15-2 *Space Environmental Observations, Solar Optical And Radio Observing*

AFMD 52, *Air Force Weather Agency Mission Directive*

AR 115-10/AFJI 15-157, *Weather Support for the U.S. Army*

AR 95-1, *Flight Regulations*

FM 34-81/AFJPAM 15-127, *Weather Support for U.S. Army Tactical Operations*

FMH 11, *Doppler Radar Meteorological Observations*

Abbreviations and Acronyms

AF—Air Force

AFB—Air Force Base

AFCCC—Air Force Combat Climatology Center

AFCWC—Air Force Combat Weather Center

AFI—Air Force Instruction

AFJI—Air Force Joint Instruction

AFMAN—Air Force Manual

AFMC—Air Force Material Command

AFMD—Air Force Mission Directive

AFPD—Air Force Policy Directive

AFR—Air Force Reserve

AFW—Air Force Weather

AFWA—Air Force Weather Agency

AIREPS—Air Reports

ANG—Air National Guard

AOR—Areas of Responsibility

AR—Army Regulation

CONUS—Continental United States

CWT—Combat Weather Team

DoD—Department of Defense

FDO—Foreign Disclosure Officer

FM—Field Manual

FMH—Federal Meteorological Handbook

FOA—Field Operating Agency

HQ—Headquarters

IAW—In Accordance With

JAAWIN—Joint Air Force and Army Weather Information Network

JAAWIN-S/JAAWIN-SCI—Secure Joint Army Air Force Weather Information Network

JTWC—Joint Typhoon Warning Center

MAJCOM—Major Command (Air Force)

MEF—Mission Execution Forecast

METWATCH—Meteorological Watch

MISSIONWATCH—Mission Watch

NBC—Nuclear, Biological and Chemical

NOAA—National Oceanographic and Atmospheric Administration

NWP—Numerical Weather Prediction

NWS—National Weather Service

OCONUS—Outside the Continental United States

OWS—Operational Weather Squadron

PIREPS—Pilot Reports

STINFO—Scientific and Technical Information Officer

TAF—Aerodrome Forecast

USA—United States Army

USAF—United States Air Force

USASOC—United States Army Special Operations Command

USCINCPACINST—United States Commander-In-Chief Pacific Command Instruction

USN—United States Navy

WS—Weather Squadron

XOO-W—Director of Weather

Terms

Combat Weather Team (CWT)—A weather unit that mission tailors operational and/or strategic level weather products for an operational user. Combat Weather Teams provide decision-grade information on environmental impacts to military operations for military decision-making processes. The unit may be located with the supported unit on an Air Force base, Army post, remotely located in another weather unit, or at a deployed location.

Meteorological Watch (METWATCH)—A deliberate process for monitoring the terrestrial weather or space environment in an area or region. The purpose of a METWATCH is to identify when and where observed conditions significantly diverge from forecast conditions and determine courses of action to update or amend a forecast product or group of products and notify designated agencies. Strategic and operational level weather units typically conduct METWATCH activities.

Mission Execution Forecast (MEF)—Mission-tailored environmental information describing a specific impact to an operational mission. A mission execution forecast provides decision-grade environmental information for military decision-making processes. CWTs and specialized weather teams conduct deliberate forecast processes to develop, deliver, monitor, and amend mission execution forecasts by fusing perishable data with operational and strategic level weather forecast products.

Military Operating Area Forecast—A forecast guidance product that provides the weather or space environmental conditions for a specific area in which military operations are occurring.

MISSIONWATCH—A deliberate process for monitoring terrestrial weather or the space environment for specific mission-limiting environmental factors. The MISSIONWATCH process is performed by CWTs and is intended to identify and alert decision-makers at the operational unit to changes that impact mission success.

Terminal Aerodrome Forecast (TAF)—A coded weather bulletin providing forecast information for an aerodrome complex to facilitate flight planning and command and control. TAF products are formatted IAW AFMAN 15-124 and amended IAW procedures specified in AFMAN 15-129.

Weather Advisory—A special weather product to alert an end user of the occurrence of, or imminent occurrence of weather conditions impacting operations.

Weather Warning—A special weather product to facilitate force protection decisions. Weather Warnings alert designated agencies to the imminent or actual occurrence of weather conditions of such intensity as to pose a hazard to life or property for which the agency must take immediate protective actions.

Weather Watch—A special weather product to facilitate force protection decisions. Weather Watches provide advance notice to designated agencies of the existence of a potential for weather conditions of such intensity as to pose a hazard to life or property for which the agency should consider taking protective measures.