

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

AIR FORCE INSTRUCTION 15-128

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Weather

**AIR FORCE WEATHER ROLES
AND RESPONSIBILITIES**

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This instruction implements Air Force Policy Directive (AFPD) 15-1, *Air Force Weather Operations*. This instruction applies to all organizations in the US Air Force (USAF) with weather forces assigned, to include Air Force Reserve Command (AFRC), Air National Guard (ANG) and government-contracted weather operations if stated in the Statement of Work (SOW) or Performance Work Statement (PWS). This instruction defines the mission, organization, roles and responsibilities of Air Force Weather (AFW) organizations. Major commands (MAJCOMs), field operating agencies (FOAs) and direct reporting units (DRUs), send one copy of supplements to HQ USAF/A3O-W, 1490 Air Force Pentagon, Washington DC 20330-1490 for coordination. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the AF IMT 847, *Recommendation for Change of Publication*; route AF IMT 847s from the field through the appropriate functional chain of command. MAJCOMs, FOAs, and DRUs send one copy of implementing instructions to AF/A3O-WP, 1490 Air Force Pentagon, Washington, DC 20330-1490 for review and coordination.

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Chapter 1

MISSION

NOTE: The Acronym “AFW” Is Used As A Convenience Term Throughout This Document. It Refers To The Af’s Weather Functional Community That Supports National, Joint, Af, And Army Operations. It Is Inclusive Of All Forces, Units, And Specialties That Are Involved In Conducting Weather Operations And Providing Weather Services. It Does Not Imply Any Organizational Or Unit Alignment, Nor An Air Force Specialty (AFS) Alignment. Specific Organizations, Specialties, And Units Will Be Cited When Critical To Understanding And Technical Accuracy Within This Document.

1.1. Mission. AFW forces, as part of the joint team, deliver accurate, consistent, relevant and timely environmental information, products and services, anywhere in the world. Executing their core competencies to collect, analyze, predict, tailor, and proactively integrate environmental threat information into commanders’ decision cycles [i.e., Joint Operational Planning Process (JOPP), Military Decision Making Process (MDMP), Intelligence Preparation of the Battlespace (IPB), operational risk management (ORM) processes, Common Operating Picture (COP)] and C4ISR systems, AFW forces enable commanders at all levels to anticipate, mitigate the impact of, and exploit the weather; optimizing air, space, cyberspace, and ground operations to the advantage of allied objectives and the detriment of the adversary.

1.1.1. Characterization. Characterization encompasses the “collect, analyze and predict” weather core competencies. Characterization depends on the ability to collect accurate data, to effectively, correctly analyze that data, and to use the results to produce a coherent picture of the present and future state of the air and space environment.

1.1.2. Exploitation. Exploitation is the ability to minimize the impact of environmental threats to friendly forces while simultaneously capitalizing on environmental conditions that maximize the operational advantage over enemy forces. AFW enables decision makers to plan and execute weather-optimized courses of action through timely injection of mission-tailored environmental threat information at every decision point in the mission planning and execution process.

1.1.2.1. Tailoring. Tailoring is the extraction of data that is pertinent to a specific mission profile from the overall characterization of the air and space environment. This information can be spatial, temporal or both, but will always focus on the mission profile and the associated mission-limiting weather thresholds. Tailoring does not mean *changing* the characterization of the air and space environment. Weather organizations charged with tailoring and exploitation will use the characterized data provided to them.

1.1.2.2. Integration. Integration is the ability to inject the right information at the right time every time. The foundation of exploitation, integration is built upon two tenets: knowledge and relationships.

1.1.2.2.1. Knowledge. Missions are affected by a wide variety of environmental threats, requiring operational commanders and mission planners to understand the threats most likely to impair their mission’s effectiveness. AFW leaders must

identify and understand specific impacts of the environment on those missions, translate those impacts into the mission-language of their supported warfighters for action, and impart this expertise to their subordinate weather personnel through enduring training, processes, and procedures. It is crucial to understand not only the capabilities and sensitivities of mission platforms, equipment and systems but also mission processes (e.g., mission analysis, planning, course of action (COA) development/comparison/ selection, and execution) and the points where weather processes must intersect or work in parallel with these mission processes. For example, when supporting the Army, one needs to be intimately involved in the MDMP process, and know key decision points that will influence the process and optimize the outcome. It is the responsibility of AFW leaders and their subordinates to actively seek this knowledge using every available resource, starting with their supported warfighters.

1.1.2.2.2. **Relationships.** AFW leaders must be proactively involved with their supported organizations, building trust through the skillful application of weather and mission-based expertise to maintain commanders' environmental awareness, optimize mission planning, and achieve mission success. To be effective, these relationships must be established and actively maintained with the supported organizations' key operational decision makers, operators, intelligence specialists, tactical-level mission planners, schedulers, and weapons and tactics experts. Once established, AFW personnel will be able to quickly adapt to process and/or mission changes.

Chapter 2

ORGANIZATION

2.1. Weather Functional Staff Organizations.

2.1.1. Headquarters, United States Air Force, Director of Weather (AF/A3O-W). AF/A3O-W organizes and functionally manages weather services and support for the Air Force and Army. The AF/A3O-W staff oversees organizing, training and equipping weather organizations AF-wide. This includes the following functions that are applicable across the scope of AFW operations:

2.1.1.1. Develops doctrine, policy, standards and requirements for weather support to the AF, Army, designated unified commands, national programs, and emergency response operations.

2.1.1.2. Interfaces with Headquarters, Department of the Army (HQDA) concerning weather support provided by Battlefield Weather (BW) Airmen to Army forces IAW AR 115-10/AFI 15-157(IP), *Weather Support to the U.S. Army*. Coordinates with HQDA, Deputy Chief of Staff (DCS), Intelligence (G-2) on Army weather doctrine, policy, standards and requirements as well as Army installation and aviation/airfield support resources, programs, and priorities.

2.1.1.3. Evaluates effectiveness of weather forces by maintaining oversight of AFW's most critical operational processes through the AFW Standardization and Evaluation Program for Weather Operations (SEPWO) and other AF evaluations and inspection programs.

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

2.1.1.5. Plans, programs, and budgets for AF resources.

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

2.1.1.7. Advocates and oversees fielding of standardized AF weather equipment.

2.1.1.8. Advises MAJCOM functional managers regarding career field, manpower, personnel utilization, training, operations policy and procedures, and technology acquisition issues.

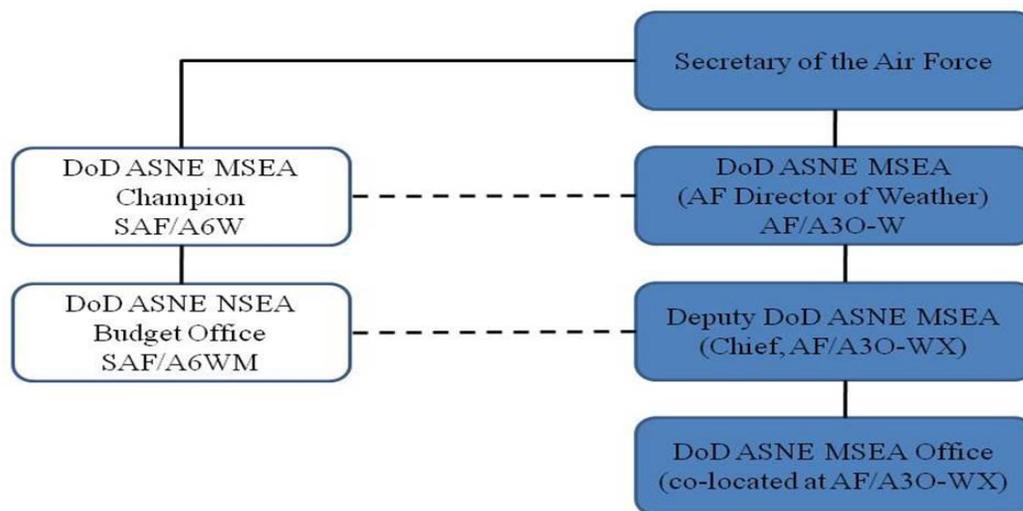
2.1.1.9. Directs the Air Force Weather Agency (AFWA) FOA.

2.1.1.10. AF/A3O-W is delegated the function of Air and Space Natural Environment (ASNE) Modeling and Simulation Executive Agent (MSEA) for the Department of Defense (DoD). An MSEA is the DoD component given responsibility across the department for a specific Modeling and Simulation (M&S) area. The AF is responsible to the Under Secretary of Defense (USD) for Acquisition Technology and Logistics (AT&L) for all designated ASNE MSEA responsibilities. The AF is also obligated to

establish a budget to carry out those designated tasks and responsibilities inherent to being an MSEA.

2.1.1.10.1. IAW AFPD 16-10, *Modeling and Simulation*, AFPD 15-1, *Air Force Weather Operations*, DoD 5000.59, *DoD Modeling and Simulation Management* and DoD 5000.59-P, *Modeling and Simulation (M&S) Master Plan*, the Air Force acts on behalf of USD (AT&L) to coordinate all aspects of DoD M&S related to the representations of the ASNE. These areas include management, planning, programming, coordinating, monitoring, and reporting on all aspects of DoD M&S within the ASNE domain. Some tasks include the shaping of DoD M&S policy for ASNE; assessing M&S requirements, environmental capabilities, and resulting gaps; establishing ASNE-Terrain-Ocean processes with the other designated Environmental MSEAs (Navy and NGA); promulgating ASNE M&S standards; championing and leveraging required technology development; collaborating with government, industry, and academia for operational support as well as research and development; and developing, testing, validating, and transitioning capabilities relevant to M&S. For the Air Force to execute the responsibilities described above, it implements the following organizational structure and roles:

Figure 2.1. Air Force Relationships for DoD ASNE MSEA Functions



2.1.1.10.2. ASNE MSEA: The Director of Weather (AF/A3O-W) has been delegated by the Secretary of the Air Force (SECAF) to execute its DoD ASNE MSEA responsibilities and functions.

2.1.1.10.3. Deputy ASNE MSEA: The Directorate of Weather, Integration, Plans, and Requirements Division (AF/A3O-WX) oversees fiscal year development plans,

shapes policy, coordinates requirements across the AF, and serves on the AF M&S Council of Colonels.

2.1.1.10.4. ASNE MSEA Office: The AF established this office as the focal point for DoD communities with M&S based activities, and government and industry atmosphere and space-weather resource providers who can provide tools, data, or services for such activities. AF/A3O-W designated a staff officer to lead and manage M&S program activities. Additionally, the M&S office has four liaison officers, one on the Air Staff, one in the M&S Coordination Office, one at Joint Forces Command, and one in Orlando, Florida.

2.1.1.10.5. ASNE MSEA Budget Office: The AF Modeling and Simulation Policy Division (SAF/A6WM) manages the program element which funds required Operations and Maintenance (O&M) and Research and Development (R&D) of DoD ASNE MSEA activities.

2.1.1.10.6. ASNE MSEA Champion: AF Warfighter Systems Integration (SAF/A6W) serves as the primary ASNE MSEA champion on the DoD M&S Steering Committee, a DoD Flag-Level governance structure.

2.1.1.11. Participates on the Joint Meteorological and Oceanographic (METOC) Board with AF/A3O-W acting as Executive Committee member, Deputy AF/A3O-W as Steering Group member, and Directorate of Weather, Policy and Exploitation Division (AF/A3O-WP) as Operations Effect Working Group co-Chair and Steering Group co-Secretariat.

2.1.2. MAJCOM weather staffs. MAJCOM weather staffs will:

2.1.2.1. Provide weather functional area management (FAM) to organize, train, equip, and sustain weather forces as well as manage AEF deployment taskings for weather resources within its MAJCOM.

2.1.2.2. Engage in planning programming, and budgeting for MAJCOM weather resources.

2.1.2.3. Implement contracts for required weather support and ensure contract oversight.

2.1.2.4. Manage execution of MAJCOM weather programs.

2.1.2.5. Provide staff weather support to its MAJCOM.

2.1.2.6. Provide staff assistance, technical training assistance, and technical consultant assistance to weather organizations upon request.

2.1.2.7. Conduct evaluations on aligned weather organizations IAW AFI 15-180, *Standardization and Evaluation Program for Weather Operations* and AFI 13-218, *Air Traffic System Evaluation Program*.

2.1.2.8. Facilitate inter-MAJCOM coordination of changes to subordinate Operational Weather Squadrons' (OWS) products or services that may require process changes by organizations supported by said OWS.

2.1.2.9. Develop and crossfeed MAJCOM-specific technical training materials.

2.1.2.10. Coordinate with weather organizations to implement mission weather product (MWP) verification metrics program IAW AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*.

2.2. Operational Organization. AFW is organized to provide a seamless transition from garrison/home-base operations to wartime/contingency operations. Organizations operate on global, regional and local scales.

2.2.1. AFWA. This FOA provides a wide array of products used by weather personnel in the field to identify environmental threats in the battlespace. Produces training products and technical services to ensure the latest techniques, skills and resources are translated into operational excellence and decision superiority in the field. Refer to Air Force Mission Directive 52 (AFMD 52), *Air Force Weather Agency*, and Chapter 3 of this publication for a complete overview of AFWA roles and responsibilities.

2.2.2. Component Numbered Air Force (C-NAF). Operations-focused staff supporting a Unified Combatant Command, or subordinate unified command, when appropriate. The C-NAF weather staff has oversight of operational requirements in their AOR to include identification of manpower needs during contingency, sourcing, and equipment logistics to meet the needs of assigned resources. The C-NAF must identify/coordinate these needs to the MAJCOM weather functional for action. In the event that the C-NAF has no weather personnel assigned, the parent MAJCOM will assume these roles and responsibilities.

2.2.3. Weather Squadron (WS). OWSs characterize; Battlefield Weather Squadrons (BWS; e.g., 3WS, 18WS), special operations weather squadrons (i.e., 10 CWS), spacelift support weather squadrons (e.g., 45 WS), etc., tailor and integrate air and space environmental weather information in support of regional, theater and/or functional areas of responsibility as detailed in Chapter 4.

2.2.4. Weather Specialty Team (WST). Exploit air and space environmental information in support of specialized, Joint, and Air and Space Operations Centers (AOC) as detailed in Chapter 5.

2.2.5. Weather Flight (WF). WF as used throughout this publication describes weather organizations aligned beneath their respective squadrons (OSS, BWS, etc.) and include detachments, operating locations, Operations Support Squadron WFs, etc. WFs evaluate environmental threats to missions and provide exploitation alternatives to key decision makers throughout the planning and execution phases of operations. WFs support the full-spectrum of operations at AF/Army installations, aircraft and missile test ranges, space launch facilities and field locations as detailed in Chapter 6.

2.2.6. Air National Guard (ANG) and Air Force Reserve Command (AFRC) weather resources will primarily support AF and Army active and reserve component wartime deployment/employment requirements. Selected ANG or AFRC resources will support rotational (i.e., Air and Space Expeditionary Force) taskings on a volunteer basis and sustainment missions as active duty or mobilization requirements dictate. All deployable ANG and AFRC 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 organizations.

2.2.6.1. ANG and AFRC personnel will provide direct support to their assigned/aligned missions IAW the roles and responsibilities set forth in Chapter 6 of this instruction when activated for training or contingency.

2.2.6.2. Use of the term “parent/host organization” in this publication may not apply to those ANG weather organizations who are tenants on an installation but support a unit(s) not part of that installation. In these situations, ANG weather organizations will substitute “habitually aligned organization” to refer to that organization they directly support but may not be physically collocated with.

Chapter 3

AIR FORCE WEATHER AGENCY

3.1. AFWA. In support of the roles and responsibilities listed in AFMD 52, *Air Force Weather Agency (AFWA)*, AFWA plans and produces a wide range of terrestrial and space weather products. AFWA provides dedicated climatology, global weather, and space environment forecast support to both Intelligence Community and weather operators whether in garrison or deployed. AFWA will:

3.1.1. Provide support for Joint Operations as tasked by supported agencies.

3.1.2. Collect, analyze, process, and format weather data and products for further distribution and access. Develop, acquire, evaluate, maintain, operate, and provide output of regional-scale numerical weather prediction (NWP) meteorological models, gridded databases, and visualizations to weather organizations and other agencies. Provide specialized weather products and services upon submission of a support assistance request.

3.1.3. Use in-house, U.S. government agency, university, and domestic and international scientific community innovations for global weather model output, space weather data, weather equipment, forecasting techniques, and mesoscale weather prediction models. Incorporate these new data sources, techniques, tools, and equipment into its operation to improve its global-scale forecasting capability.

3.1.4. Manage air and space science and technology exploitation activities to enhance weather capabilities and operations. Upon MAJCOM request and as resources permit, provide direct assistance to Air Force weather organizations through on-site meteorological process reviews and needs assessments.

3.1.5. Provide a centralized computing resource for high-resolution global and regional-scale NWP/specialized modeling and automated graphics production for each OWS.

3.1.5.1. Provide and maintain a web portal for classified and unclassified access to a complete, worldwide weather product suite.

3.1.5.2. Maintain a web portal in the public domain containing selected products.

3.1.5.3. Assist in processing foreign national requests for access to Air Force weather systems IAW AFI 33-200, *Information Assurance (IA) Management* and local directives.

3.1.5.4. Coordinate foreign national requests for weather data, satellite imagery, technical information, and software tools through the appropriate Foreign Disclosure Officer (FDO) and Scientific and Technical Information Officer (STINFO).

3.1.5.5. Submit AF Form 525, *Records Disposition Recommendation*, through the proper channels and in accordance with AFI 33-364, Records Disposition: Procedures and Responsibilities, when changes, additions, or deletions to the tables and rules of the AF Records Disposition Schedule are required."Submit AF Form 1341, *Electronic Record Inventory*, through the proper channels and in accordance with AFMAN 33-363, *Management of Records*, when records are stored in electronic record-keeping systems such as data in IT systems.

3.1.6. Chair a working group to manage and maintain the Air Force Weather Portal. This working group will consist of webmasters and stakeholders from across the Air Force Weather enterprise.

3.1.7. Provide a 24-hour per day, 7-days per week customer service center to act as the single point of contact for weather organizations requiring technical assistance and equipment outage coordination support.

3.1.8. Ensure appropriate subordinate weather organizations develop, coordinate, formally document and exercise not less than annually a Continuity of Operations program IAW AFI 10-208, *Continuity of Operations (COOP) Program* to continue providing mission-essential functions during a national security emergency or other disruptive condition such as major equipment or communications outage or evacuation.

3.1.9. Collect and maintain an “all source” central repository of weapons system environmental impacts and sensitivities for US Department of Defense, coalition partners, and potential adversaries’ weapons systems. This repository may exist at all levels of classification depending on the source. At a minimum, collect weapon system sensitivities from AFWA Det 3, 46th Weather Squadron (46 WS), and 412 OSS WF.

3.1.10. Provide web-based capability, which leverages numerical model data, for weather organizations to generate chemical downwind messages (CDM) and effective downwind messages (EDM), for Air Force installation CBRN Control Center Emergency Managers and Army installation-level Directors of Emergency Services IAW AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, AFMAN 10-2503, *Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Operations* and equivalent joint guidance.

3.1.11. Provide weather data (observations, forecasts, and gridded forecast meteorological data files) to appropriate agencies running DoD-approved Chemical, Biological, Radiological, and Nuclear (CBRN) dispersion models for CBRN consequence assessment, consequence management, and contamination avoidance IAW AFI 10-2501, AFMAN 10-2503, and equivalent joint guidance.

3.1.12. Install, manage and support weather systems at the 335th Training Squadron at Keesler AFB, MS.

3.1.13. Assist AF/A3O-W Career Field Manager (CFM) in managing AFW career field training requirements process and development of policy/guidance to meet those requirements.

3.1.14. Provide direct support to AF/A3O-W CFM in managing the AFW Utilization and Training Workshops (U&TW).

3.1.15. Manage weather training programs and develop training solutions to address operational and non-formal training requirements.

3.1.16. Serve as the focal point to manage and define strategies for Advanced Distributive Learning (ADL) programs and systems for AFW.

3.1.17. Maintain oversight of AFW training resources and ensure cross-feed of training material.

- 3.1.18. Provide direct assistance, as requested, to AFW OWSs through on-site meteorological process reviews and needs assessments.
- 3.1.19. Serve as the focal point for managing the Air Force Weather Technology Integration (AFWTI) Consortium.
- 3.1.20. Develop weather-unique training material and standards evaluation of field units.
- 3.1.21. Assist in managing the Utilization and Training Workshop (U&TW) process and developing training resources.
- 3.1.22. Write, publish, and distribute meteorological technique applications and technology exploitation publications. Until superseded, AFWA TN-98/002, *Meteorological Techniques*, is the definitive source for Air Force approved meteorological techniques.
- 3.1.23. Manage the COMET program as a source to develop technical training materials.
- 3.1.24. Develop, maintain, and operate the main web sites for Air Force Training Records (AFTR), Advanced Distributed Learning Service (ADLS), and Air Force Weather Knowledge Center (AFWKC) for weather training and field support information and services.
- 3.1.25. Under direction of the weather CFM, manage Air Force Job Qualification Standard (AFJQS) 1W0XX and QTPs identified in the 1W0XX CFETP. **Note:** Local or MAJCOM-unique items may be added to the AFJQS or QTPs as appropriate. Mandatory items cannot be deleted or modified without weather CFM approval.
- 3.1.26. Identify specific technical and professional development training material for hosting on Air Force distance learning systems. Management of training material will be conducted IAW separate Memorandums of Understanding or letters of agreement with respective Air Force agencies responsible for distance learning.
- 3.1.27. Collaborate on training and policy issues arising from the development and fielding of emerging systems/capabilities, and identify/collect new and existing MAJCOM-identified weather training requirements. Through a requirements process, AFWA/A3T will develop the specific training needed to support and/or exploit fielded systems, new equipment, and new software platforms, as necessary.

3.2. 1st Weather Group (1 WXG). 1 WXG will direct activities of the 15th, 25th and 26th OWSs.

- 3.2.1. 15 OWS will provide backup capability for the National Weather Service's Storm Prediction Center and Aviation Weather Center IAW established support agreements.
- 3.2.2. Further roles and responsibilities of OWSs can be found in Chapter 4 of this publication.

3.3. 2d Weather Group (2 WXG). 2 WXG will direct the activities of its subordinate squadrons, detachments and other organizations and will ensure their active participation in the weather web enterprise working group as appropriate.

- 3.3.1. **2d Systems Operations Squadron (2 SYOS).** Will direct the delivery of reliable and timely global environmental intelligence products and services for DoD and its global

interests through the continuous operation, sustainment and maintenance of AFW's computer complex, production network, and applications. In addition, 2 SYOS will:

3.3.1.1. Provide AFW Senior Leaders situational awareness on continuous operations impacting Joint Staff, Unified Commands, Intelligence Community, Special Operations Forces, Numbered Air Forces, regional weather centers, and national/international agencies.

3.3.1.2. Operate a 2 WXG software/product change management process to oversee handling of operational needs, project management, software testing, and configuration management.

3.3.1.3. Serve as the AFWA single point of operations and control for all production-related communications and information equipment and dataflow into, from, and internal to AFWA, 24 hours per day/7 days per week.

3.3.1.4. Provide 24-hour per day/7-day per week technical systems support for AFW fielded hardware and software systems worldwide.

3.3.1.5. Provide 24-hour per day/7-day per week command and control (C2) functions for the AFWA Commander.

3.3.1.6. Ensure operational viability of software for collection, processing, and dissemination of terrestrial and space weather information during peace/wartime.

3.3.1.7. Operate and maintain software that ingests, processes, and validates weather data and deliver products and data to users, perform net-centric data management and routing functions.

3.3.1.8. Maintain KQ identifier lists, provide KQ identifiers, and recall KQ identifiers in support of field users.

3.3.2. 2d Combat Weather Systems Squadron (2 CWSS). 2 CWSS will not only provide AF Combat Weather Forces maintenance and logistical support for deployable weather equipment within any theater, but will also train weather warriors and direct test and evaluation activities on new fixed and deployable weather and communications equipment, technologies, and capabilities. In addition, 2 CWSS will:

3.3.2.1. Support AEF operations as the force provider for the Weather Systems Support Cadre (WSSC) mission and assist with deployable weather system maintenance troubleshooting and repair that is beyond the scope of the local operator.

3.3.2.2. Develop weather techniques and procedures for AFW fixed and deployable weather and communications systems.

3.3.2.3. Develop, maintain and conduct, in coordination with AFWA/A3T, a Just-In-Time-Training (JITT) capability for all AFWA deployable weather and communications systems supporting deployed operations. AFWA/A3T will coordinate between MAJCOMs and 2 CWSS for JITT course requirements.

3.3.2.4. Develop, with AFWA/A3T as the primary, training and certification standards for all weather systems both fixed and deployable.

3.3.2.5. Provide Initial Skills Course follow-on-training for ANG weather personnel at the Weather Readiness Training Center.

3.3.2.6. When deployed, provide 24-hour, on-call central point of contact for weather system maintenance and system administration support at the deployed location.

3.3.2.7. Identify and report system outage trends to AFWA/A3.

3.3.3. 2d Weather Squadron (2 WS). 2 WS will continuously support Joint warfighters, DoD decision-makers, the intelligence community, space operators and aviators, with accurate, relevant, timely and specialized global, terrestrial, volcanic and space observations, analyses, forecasts and alerts. In addition, 2 WS will:

3.3.3.1. Operate, maintain and manage the Solar Electro-Optical Network, which includes the oversight and management of Detachment 1 (Learmonth, Australia), Detachment 2 (Sagamore Hill, Massachusetts), Detachment 4 (Holloman AFB NM), and Detachment 5 (Hawaii).

3.3.3.2. Serve as the DoD focal point for surveillance, analyses and forecasts of volcanic ash hazards.

3.3.3.3. Advise AFW organizations of potential volcano related incidents.

3.3.3.4. Provide backup capability to Space Weather Prediction Center (SWPC) and Washington Volcanic Ash Advisory Center (W-VAAC) IAW with documented support agreements. Will also provide liaison services to SWPC, along with Operating Location P (OL-P).

3.3.3.5. Produce the official forecast for AFW organizations in the event the regional VAAC's products are unavailable. In the event the regional VAAC's forecast is significantly different from AFWA's, 2 WS will take action via pre-established National Oceanic and Atmospheric Administration (NOAA) lines of communication to help coordinate refinement of the responsible regional VAAC's forecast.

3.3.3.6. Tailor terrestrial and space data to meet documented requirements of regional commanders, planners, or operators.

3.3.3.7. Provide worldwide broadcast-quality public weather services and planning forecasts to the American Forces Radio and Television Service (AFRTS) for overseas DoD and Department of State personnel and dependents. In addition, provide unclassified weather forecasts to Stars and Stripes newspaper.

3.3.4. 14th Weather Squadron (14 WS). 14 WS will develop and disseminate customized applied climatological and historical weather information to maximize combat effectiveness of DoD personnel and weapon systems, through receipt, quality control, storage, and tailoring of earth environmental data. In addition, 14 WS will:

3.3.4.1. Provide scientific, modeling, technique development and operational climatology services, to include climatologically based worldwide weather intelligence and mission-tailored decision aids, in support of DoD full-spectrum operations, mission profiles, and weapon systems based on critical environmental threshold criteria.

3.3.4.2. Provide forensic support to the IC through the use of the Point Analysis Intelligence System (PAIS).

3.3.4.3. Operate and manage the Air Force Weather Technical Library.

3.3.4.4. Coordinate production and provide data and analysis to support weather scenario development and simulations to support operational training and exercises.

3.3.5. 16th Weather Squadron (16 WS) including Detachment 3, Wright Patterson AFB OH. 16 WS will provide scientific services to improve AFW support to the warfighter and the intelligence community. In addition, 16 WS will:

3.3.5.1. Develop weather visualization concepts and prototypes to meet customer needs.

3.3.5.2. Develop and monitor fine-scale and specialized (clouds, land surface, aerosols, etc) modeling capabilities to meet warfighter and intelligence community needs.

3.3.5.3. Make user-selected CDM/EDM generation available to AFW organizations and other AF organizations for CBRN operational use. Parameters selectable by user will include generation using any model employed by OWS forecasters to produce installation terminal aerodrome forecasts (TAFs) [e.g., WRF, GFS, MM5, UKMO/ECMWF (Europe), NOGAPS, COAMPS, JMA (Japan), KMA (Korea)].

3.3.5.4. Perform or support research and development, acquisition, testing and sustainment of AF weapon systems and capabilities to include identifying and documenting environmental sensitivities.

3.3.5.5. Interface with the National Air and Space Intelligence Center (NASIC) for access to adversary weapon systems, capabilities, and environmental sensitivities.

3.3.5.6. Provide operational M&S support for training, acquisition and testing as required by DoD and act as AFW's subject matter expert for M&S operational support.

Chapter 4

WEATHER SQUADRONS

4.1. Operational Weather Squadrons. OWSs are the authoritative source for environmental characterization in their respective AORs as identified in AFVA 15-136, *Air Force Operational Weather Squadron Areas of Responsibility - CONUS* and AFVA 15-137, *Air Force Operational Weather Squadron Areas of Responsibility*. OWSs are responsible for collection of atmospheric data/information, analysis and prediction of the atmosphere, and generation of products based on this analysis and prediction for use by WFs and other agencies. OWSs are also responsible for the upgrade and on-the-job training of weather apprentices and new officer accessions. **Note:** It is to be assumed that the roles and responsibilities of an OWS described below apply to its AOR. OWSs will:

4.1.1. Coordinate, maintain, annually review and electronically host installation data pages defining specific environmental support requirements, technical data, reference material, and contact information for each organization receiving TAF and WWA support from the OWS. This installation data page will take the place of the OWS-WF MOA. Where multiple WFs exist on one installation, separate data pages will be hosted.

4.1.2. Perform meteorological watch (METWATCH) for supported installations.

4.1.3. Produce, disseminate, and amend TAFs to support military operations. Specification/amendment (SPEC/AMD) criteria will be driven by supported mission and/or installation specific thresholds and will be applied to the entire TAF period. These criteria, for each installation, will be coordinated between the OWS and the responsible WF using the electronic data page on that installation's tailored web-page. If there is no WF responsible to support an organization, the supporting OWS will liaise directly with the supported organization to determine SPEC/AMD criteria.

4.1.4. Produce forecast reviews based on objective criteria IAW AFMAN 15-129, *Air and Space Weather Operations – Processes and Procedures*, and make the products available for use external to the OWS.

4.1.5. Produce, disseminate, and amend forecast weather watches, warnings, and advisories (WWA) for locations with documented WWA requirements. OWSs will also issue special weather statements (SWS) to keep supported organizations apprised of possible future atmospheric conditions that are under evaluation and could pose a serious threat to the warfighter's capability to operate.

4.1.5.1. Produce and disseminate observed weather warnings and observed weather advisories as required and coordinated for WFs if sensing capability exists.

4.1.5.2. Disseminate SWS to WF personnel for evaluation and possible further dissemination/integration into the parent/host unit's risk management decision cycle.

4.1.5.3. For those installations/organizations without a supporting WF, the OWS may disseminate the SWS directly to installation/organizational leadership.

4.1.6. Provide summaries of current OWS-issued SWS and WWA via Non-Classified Internet Protocol Router Network (NIPRNet) and SECRET Internet Protocol Router Network (SIPRNet) homepages.

4.1.7. Document specific actions or plans executed to focus support when severe weather is expected or occurring in their AOR (e.g., SOPs describing reallocation of OWS resources from other tasks to focused support to a specific region in their AOR).

4.1.8. Ensure all OWS weather products and visualizations are horizontally consistent.

4.1.9. Coordinate forecast areas along the borders of standardized OWS-produced regional visualizations to facilitate meshing of regions into large-scale visualizations resulting in an integrated picture of weather features.

4.1.9.1. Ensure graphics products that overlap an adjacent OWS's AOR either depict features from the adjacent AOR as forecasted by the adjacent OWS or gray out areas outside their assigned AOR on graphic products.

4.1.10. Where applicable, OWSs may use/post other US Government agency or host nation products within their designated AOR, provided they are not used in lieu of OWS created/mandated products.

4.1.11. Produce and disseminate automated Air Refueling Route Forecasts and Military Operating Area Forecasts for further use by WFs and WSTs.

4.1.12. Produce FITL (first 48 hours)/automated hybrid five-day site forecasts for all TAF sites and other point locations documented with supported agencies. The first 24 hours of the five day forecast will match the TAF for that location and will be amendable to maintain horizontal consistency with the TAF. The last three to five days will be automated. **Note:** Sites or point locations which have no WF, but for which the OWS has resource protection responsibility, may have an automated five-day if no requirement for FITL/hybrid 5-day is stated by the supported agency.

4.1.13. Respond to Special Assistance Requests (SARs) to provide meteorological data and produce meteorological products for non-routine missions and areas.

4.1.13.1. Upon request from installations without a supporting WF, OWS's will serve as weather SME to the installation Civil Engineering Squadron Readiness Flight (CEXR), Fire Emergency Services (CEF), and Medical Group's Bioenvironmental Engineering Flight. Information will be provided to help optimize weather data input to CDMs, EDMs, and CBRN hazard-prediction models used by the above emergency support functions (ESF). This information will help enhance decision making capability within the installation EOC, CBRN Control Center, and at the incident site.

4.1.13.2. Provide the most accurate and representative observed and/or forecast alphanumeric and gridded meteorological data-type, appropriate to a particular CBRN event, to users employing ALOHA, CAMEO, and CBRN hazard-prediction (i.e., "plume") models resident in the Joint Warning and Reporting Network (JWARN)/Joint Effects Model (JEM)/Joint Operational Effects Federation (JOEF) architecture, IAW AFI 10-2501, AFMAN 10-2503 and equivalent Joint guidance, to ensure consistency between CBRN hazard area predictions and the installation forecast.

- 4.1.14. Provide gridded data fields from post-processed model data output to WFs and other agencies when requested.
- 4.1.15. Where applicable (i.e., when equipment is operated in an OWS's AOR), participate as the AF voting member on the Unit Radar Committee for Weather Surveillance Radar-1988 Doppler, IAW FMH 11, *Doppler Radar Meteorological Observations*. OWSs may request the local WF to represent the OWS at the Unit Radar Committee.
- 4.1.16. Provide weather support and weather products to theater, joint task force, and component commanders as required. Function as the Joint METOC Coordination Organization (JMCO) IAW Joint Publication 3-59 when designated by the Senior METOC Officer (SMO) or Joint Meteorological Officer (JMO).
- 4.1.17. If formally coordinated, provide meteorological inputs to specific tactical decision aids for ANG and AFRC units not supported by a collocated WF.
- 4.1.18. Provide flight weather briefings to military aircrews operating within their AOR without home base support (including transient aircrews, ANG, AFRC, and sister services), or when the flying unit's weather organization has arranged the support from the OWS.
- 4.1.19. The OWS supporting an Army support WF will provide flight weather briefing support to those VFR flights conducted outside normal squadron/battalion operations when airfield is closed and/or weather personnel are unavailable.
- 4.1.20. Acquire pilot reports (PIREPS) and significant meteorological information (SIGMETs) and apply them to analysis and METWATCH. Where capability exists and no US Government agency already generates, OWSs will produce automated near-real-time graphics of PIREPS and SIGMETs to facilitate and enhance mission-scale meteorological watch (MISSIONWATCH) capability.
- 4.1.21. Coordinate foreign national requests for weather data, satellite imagery, technical information (e.g., techniques, algorithms), software tools and/or access to AF systems through appropriate Foreign Disclosure Officer (FDO) and/or Scientific and Technical Information Officer (STINFO).
- 4.1.22. Collect and provide metrics data and reports IAW AFI 15-114.
- 4.1.23. Develop, coordinate, formally document and exercise not less than annually a COOP to continue providing mission-essential services during significant outages and evacuation of the OWS facilities. At a minimum, the COOP will include:
- 4.1.23.1. Tier 1 products and services supporting wartime, contingency and/or force protection missions that must be backed up via immediate transfer to backup organization, including: Combined/Joint Operations Area Forecast (C/JOAF); forecast weather watches, warnings and advisories, and space warnings; flight weather briefings; military operating area forecasts (MOAF); Controlling Mission Weather Products (CMWP); flight weather hazards in the combatant command AOR; TAFs; CBRN hazard products (CDMs/EDMs); classified products and services.
 - 4.1.23.2. Tier 2 products and services supporting peacetime and/or exercise missions that will be backed up to the greatest extent possible after satisfying Tier 1 requirements including CONUS JOAFs, flight weather briefings, MOAFs, CMWPs, flight weather hazards, TAFs and other products and services.

4.1.23.3. Tier 3 products and services supporting peacetime mission planning that will be backed up as resources permit after satisfying Tier 1 and Tier 2 requirements, including long range forecasts, space weather, climatology, staff support and other products and services.

4.1.24. Provide METSAT imagery and data in appropriate formats for WFs within its AOR.

4.1.25. Create and maintain a METSAT imagery reference file (MIRF) and a radar imagery reference file (RIRF) containing location and region specific imagery as well as general synoptic scale imagery.

4.1.26. Develop processes, procedures and training to support execution of wartime, contingency and/or exercise operations within its AOR per existing OPLANS/CONPLANS. At a minimum, OWSs will be prepared to collaborate with deployed weather organizations to create and issue C/JOAFs in agreed upon graphical and/or textual formats.

4.1.27. Develop and maintain forecast reference material (FRM) on each location for which the OWS produces TAF-coded forecast products and/or WWAs within its AOR. Each locations reference material will be available electronically.

4.1.27.1. For established sites (i.e. those that have been in operation for over one year) for which observational data is available, this material should include items listed in Table 4.1. For newly established sites (less than one year), information will be gathered and a new FRM built within one year of initiating a TAF and/or WWA support. **Note:** Asterisked items may take more than one year to collect and validate.

Table 4.1. Established Sites.

Site location (i.e., latitude, longitude, elevation)
Runway headings (if applicable)
Type and location of meteorological sensors and identified limitations (e.g., sensor blockage) if available
*Site climatology, if available
Local area topography (e.g., topographic map, relief chart, navigation chart) focusing on local effects on weather due to terrain, moisture sources and atmospheric pollution sources
*Local weather patterns
*Forecast techniques
*Formal studies
*Forecast rules of thumb (including those under development).
MIRF and RIRF data if available

4.1.27.2. OWS leadership will ensure this material is integrated into qualification training and day-to-day forecast processes (e.g., worksheets, decision aids).

4.1.27.3. OWSs will forward significantly updated, validated forecasting techniques to 14 WS for inclusion in the Air Force Weather Technical Library to ensure the most current reference materials are on file and the latest techniques are incorporated into AFWA TN-98/002.

4.1.28. Support U.S. Navy and U.S. Marine missions on Joint Bases where the AF has the lead for base operations and sustainment support, provided those missions do not require

specialized support and are akin to support normally given to AF and Army units. This support will not drive additional manpower or other costs to the AF without an inter-service agreement coordinated at HQ USAF/A3O-W.

4.1.29. Produce a Tropical Cyclone Threat Analysis Product (TCTAP) that predicts hourly sustained wind and gust forecasts for OWS TAF and WWA locations projected to receive sustained winds greater than or equal to 35 knots due to a tropical cyclone within the next 96 hours.

4.1.30. Be active participants in the weather web enterprise working group. OWSs will develop squadron-unique content within the weather web enterprise baseline, and cross-feed these capabilities for the benefit of the weather web portal as a whole. They will also submit requirements to the working group for new capabilities to be developed, as appropriate.

4.2. Expeditionary Weather Squadrons (EWXS). For steady state long-term contingency operations, a theater commander may stand up an EWXS. The EWXS is organized to consolidate weather personnel (and augmentation forces) supporting either AF or Army missions into a coherent AF chain of command. These personnel are expected to have the training and expertise necessary (prior to arriving in theater) to support combat operations with minimal in-theater “spin up” training.

4.3. Weather Squadrons supporting Space Launch, Missile, and Test Operations. These squadrons will take/provide weather observations, forecasts, watches, observed weather warnings/advisories, weather information for launch sites, specified ranges, abort landing sites, prepare and disseminate MWPs, and provide staff support (as required) for DoD and civilian space and ballistic missile launch and aircraft operations.

4.4. Weather Squadrons Supporting Army Operations. These squadrons, (to include EWXSs where applicable) will:

4.4.1. Provide operational and Staff Weather Officer (SWO) support to designated Army Service Component Command, supported land force commander(s) and aligned units, both in garrison and in tactical environments. Supported/supporting relationships are defined in AR 115-10/AFI 15-157 (IP), *Weather Support for the US Army*.

4.4.2. If required, take observations, prepare and disseminate MWPs, provide resource protection through observed weather advisories and warnings.

4.4.3. If required and equipped by parent/host unit, provide pilot-to-Metro Service (PMSV) support and prepare and disseminate PIREPS IAW AFMAN 15-124.

4.4.4. Review weather support documents, MOAs, and other service support agreements established by subordinate WFs.

4.4.5. Task organize, facilitate standards and training, and work with parent chain of command (e.g., air ground operations wing, C-NAF, etc.) to posture forces and equipment for subordinate WFs to satisfy deployed and home station Army weather support requirements.

4.4.5.1. Train for and maintain worldwide deployment readiness to integrate weather into IPB, MDMP, C4ISR systems, and the COP in support of the Army’s full-spectrum operations.

4.4.6. The 10th Combat Weather Squadron (10 CWS) provides support to United States Army Special Operations Command (USASOC) forces as described throughout section 4.4. of this instruction. In addition, Special Operations Weather Team (SOWT) personnel provide additional support including, but not limited to, Environmental Special Reconnaissance (ESR), Terrain Reports (TERREPS), Avalanche Assessments and Riverine Assessments as outlined in AFI 15-135 Volume 3, *Special Operations Weather Team Operations*.

4.5. Weather Squadrons Supporting SOF.

4.5.1. 23d Weather Squadron (23 WS) will:

4.5.1.1. Provide a single reachback source for METOC products and data in support of all Special Operations Forces (SOF) training and operations worldwide. The 23 WS is capable of providing point and area MWP's precisely tailored to meet SOF mission requirements. Since 23 WS works for SOF operators deployed across all Geographic Combatant Commands (GCCs), 23 WS must closely coordinate product development with affected OWSs to ensure horizontal consistency within the GCC Area of Operations. 23 WS will support the OWS by assuming responsibility for development of high-fidelity products for SOF operating within the OWS's geographic area of responsibility. In the event that a Joint exercise, mission, or operation is predominately SOF, the 23 WS is capable of functioning as the JMCO when requested by the SMO or JMO, through United States Special Operations Command (USSOCOM) for GCCs, and coordinated with the appropriate OWS.

4.5.1.2. Provide mission planning and mission execution forecasts (MEFs) to deployed SOF operators without direct support weather personnel.

4.5.1.3. Provide tailored mission forecasts and/or tailored METOC data to deployed Air Force Special Operations Command (AFSOC) weather and Special Operations Weather Team (SOWT) personnel. Tailor data and products to meet exacting format requirements and deployed bandwidth restrictions.

4.5.1.4. Assist and augment Joint SOF METOC operational support when tasked by USSOCOM.

4.5.1.5. Provide point-specific MEF products, to include TAF and resource protection products, for SOF-controlled deployed airfields and operations bases. When designated as the JMCO, will provide Joint Operations Area Forecasts/Mission Control Forecasts, in coordination with appropriate OWSs, for SOF training and operations.

4.5.1.6. Provide daily planning and operations support to the 623 AOC Commander and staff. When tasked, deploy weather personnel to provide direct support to the Combined/Joint Special Operations Air Component (C/JSOAC).

4.5.1.7. Support the 1W052 Upgrade Training process (the "SOWT Pipeline") when tasked by HQ AFSOC/A3.

4.5.2. 10th Combat Weather Squadron (10 CWS) will:

4.5.2.1. Employ special operations weather teams (SOWT) to conduct METOC and space environmental operations with special operations organizations as directed.

4.5.2.2. Provide support to USASOC IAW section 4.4. of this instruction (**Weather Squadrons Supporting Army Operations**) and AFI 15-135 Volume 3, *Special Operations Weather Team Operations*.

4.6. All Weather Squadrons. All Weather Squadrons described in this chapter will:

4.6.1. Conduct seasonal continuation training, at least quarterly, concentrating on environmental threats to operations associated with the upcoming season. OWSs will make their seasonal training packages available for world-wide consumption. EWXSs are exempt (personnel should be current prior to their deployment), but should focus on the seasonal threats relative to their respective theaters (through daily discussions, chats, etc).

4.6.2. Perform qualification, upgrade, and mobility training to ensure all deployable personnel can achieve and maintain the proficiency required to support tasked deployed operations. EWXSs are exempt (personnel should be current prior to their deployment) but will evaluate all personnel arriving in-theater to determine if they possess appropriate/documented skills and qualifications needed to meet mission requirements. **Note:** Personnel can be sent home from the theater if they do not possess the appropriate skills/qualifications needed to support the mission.

4.6.3. Conduct and document initial certification checkrides and annual recertification checkrides on primary duty position. Checkrides completed as part of pre-deployment preparation satisfy this requirement if the evaluated tasks cover those tasks performed in the primary duty position. This section does not apply to EWXSs.

4.6.4. Conduct and document training and certification in the Air Force Training Record (AFTR) IAW the 1W0XX Career Field Education and Training Plan (CFETP).

4.6.5. Squadron Commanders will perform a unit self-inspection within 90 days of assumption of command and annually thereafter. Weather-specific self-inspections will be accomplished using the applicable portions of the HQ USAF, AFWA and parent MAJCOM (if applicable) weather compliance performance checklists. This section does not apply to EWXSs.

Chapter 5

WEATHER SPECIALTY TEAMS

5.1. Weather Specialty Teams (WST). WSTs exist to exploit the environment by integrating into the full spectrum of operations and intelligence, providing environmental situational awareness and enabling decision superiority for commanders. WSTs use the characterized weather information and data provided by other weather organizations (i.e. AFWA, OWSs, etc.) to build a 3-D picture of the battlespace and the environmental threats affecting it.

5.2. WSTs supporting Air and Space Operations Centers (AOC) . These organizations will:

5.2.1. Tailor and integrate environmental impacts to meet the short-, medium- and long-range mission needs of the Combined/Joint Forces Air Component Commander (C/JFACC) staff and each of the divisions and specialty/support functions within the AOC.

5.2.2. Evaluate the impact of METOC and space environmental effects on weapons systems and operations of both friendly and enemy forces across the spectrum of mission profiles.

5.2.3. Execute processes and procedures identified in AFI 13-1AOC Vol 3, *Operational Procedures--Air and Space Operations Center*.

5.2.4. Coordinate and document Joint Environmental Toolkit (JET) data requirements with the supporting OWS.

5.3. The 618th Air and Space Operations Center (Tanker Airlift Control Center) Weather Operations Directorate [618 AOC (TACC)/XOW]. 618 AOC (TACC)/XOW provides weather services to the 618 AOC (TACC) to include mission execution forecasts for United States Transportation Command (USTRANSCOM)-tasked missions and other selected missions flown by AMC and AMC-gained Air Reserve Component flying organizations. 618 AOC (TACC)/XOW will:

5.3.1. Provide tailored staff weather briefing support to 618 AOC (TACC), 18 AF, AMC, and USTRANSCOM IAW 618 AOC (TACC)/CC, AMC/A3, and USTRANSCOM J3 Memorandum of Agreement.

5.3.2. Provide support to 618 AOC (TACC) planning functions for operations, exercises, contingencies, special assignment airlift, and channel operations.

5.3.3. Assess and assist in the mitigation and management of weather impacts/risks to AMC global mobility operations.

5.3.4. Provide MEFs and weather risk assessments for:

5.3.4.1. All missions under 618 AOC (TACC) command and control (C2), except contract commercial carriers. IAW AFI 11-207, *Combat Aircraft Delivery*, all CORONET tanker support missions are under 618 AOC (TACC) C2.

5.3.4.2. AMC and AMC-gained ARC flying units/missions based on AMC installations, except for:

5.3.4.2.1. Flying units whose predominant missions are Very Important Person Special Airlift Mission (VIPSAM) and individual VIPSAM missions.

5.3.4.2.2. Operational and exercise Task Force 294 (TF-294) missions.

5.3.4.3. AMC and AMC-gained ARC flying units not based on AMC installations as directed by 18 AF/CC.

5.3.5. Provide subject matter expertise in support of Mobility Air Forces (MAF) C2 system requirements development, design reviews, and testing plan development.

5.3.6. Identify MAF C2 system capabilities required to integrate weather information into 618 AOC (TACC) planning, C2, and execution processes.

5.3.7. Provide personnel to support operational testing of MAF C2 systems.

5.4. HQ ACC Air Operations Squadron Weather Flight (HQ ACC AOS/AOSW). The HQ ACC AOS/AOSW is the lead organization providing tailored weather support to AOS-controlled missions (which includes all CORONET movements) and may also be called upon to support other non-AOS controlled missions as required (e.g. ACC GLOBAL POWER, E-3 AWACS/E-8 JSTARS). ACC AOS/AOSW will:

5.4.1. Determine and document weather support requirements for all aircraft movements under control of the ACC AOS.

5.4.2. Assume Lead Weather Unit role and inherent responsibilities for all AOS-controlled missions.

5.4.3. Provide MISSIONWATCH services to the AOS Mission Control Center from launch minus 6 hours (L-6) until mission completion (AOS-controlled movements only).

5.5. Air Force Operations Group (AFOG) Weather Division (AF/A3O-AOW). IAW AFMD 23, *Air Force Operations Group*, the AFOG Weather Division provides weather support to members of Congress, the Secretary of State, the Secretary of Defense, senior DoD officials, the Joint Staff, National Military Command Center (NMCC), HQ USAF, HQ US Army, the Air Force Operations Group, the Army Operations Center. It also provides, primarily through its Joint Presidential Weather Support Unit (JPWSU) at AFOG's Operating Location A, weather support to the President, Vice President, Raven Rock Mountain Complex, and Camp David.

5.5.1. AF/A3O-AOW will:

5.5.1.1. Tailor and integrate air, space, land, and oceanographic environmental information into situational awareness products in support of HQ USAF, HQ US Army, Joint Staff, Office of the Secretary of Defense (OSD), NMCC, and other senior Pentagon staff organizations as required.

5.5.1.2. Provide staff weather support to the Air Force Crisis Actions Team (AFCAT) and Army Crisis Action Team (ACAT) during contingencies, emergencies and exercises.

5.5.1.3. Provide climatology reports, planning weather and other staff weather support as required.

5.5.1.4. Coordinate with and assist 15 OWS with weather watch, warning, and advisory support as required for the White House, Pentagon, Raven Rock Mountain Complex, Camp David, and the Alternate Joint Communications Center (AJCC).

5.5.2. The JPWSU will:

5.5.2.1. Provide operational weather support to the President, Vice President, White House Military Office (WHMO), and other military units supporting WHMO as required.

5.5.2.2. Provide mission planning support, MEFs, and MISSIONWATCH services for Marine One Helicopter Squadron (HMX-1) airlift missions worldwide.

5.5.2.3. Act as lead forecast unit (LFU) for any airlift operations where Marine Helicopter Squadron One and Air Force One (AF-1) mission execution time frames and geographic locations overlap.

5.5.2.4. Coordinate point weather warnings and other specialized weather support with AFWA or the appropriate OWS for presidential missions worldwide.

5.6. Contingency Response Group (CRG). CRG weather personnel will:

5.6.1. Provide/arrange for weather watches, warnings, and advisories (WWAs) for deployed locations.

5.6.2. Provide/disseminate weather observations at deployed locations using AFWA provided KQ identifier. USTRANSCOM-tasked CRG weather personnel will request KQ identifiers through 618 AOC (TACC)/XOW.

5.6.3. Coordinate with co-located weather personnel (e.g. NATO personnel, indigenous, etc) at deployed location, as required. USTRANSCOM-tasked CRG weather personnel will coordinate TAF support with the appropriate OWS through 618 AOC (TACC)/XOW.

5.6.4. Coordinate with and assist responsible AOC (618 AOC (TACC)/XOW for USTRANSCOM-tasked missions) with weather-related risk management decisions pertaining to the deployed location.

5.6.5. Coordinate with and assist responsible OWS with TAF and weather warning/advisory support as required.

5.7. Responsibilities applicable to all WSTs. All WSTs will:

5.7.1. Conduct seasonal continuation training, at least quarterly, concentrating on environmental threats to operations associated with the upcoming season.

5.7.2. Perform qualification, upgrade, and mobility training to ensure all deployable personnel can achieve and maintain the proficiency required to support tasked deployed operations.

5.7.3. Conduct and document initial certification checkrides and annual recertification checkrides on primary duty positions.

5.7.4. Conduct and document training and certification in the AFTR IAW the 1W0XX CFETP.

Chapter 6

WEATHER FLIGHTS, DETACHMENTS AND OPERATING LOCATIONS

6.1. Weather Flights (WF). WF is the generic term used in this document to describe WFs, detachments, and operating locations whose primary purpose is to facilitate exploitation of the environment through integration into every phase of operations-planning and execution processes. WFs assess the mission environment to determine environmental threats, and where possible, find alternatives to mitigate those threats. Each flight has unique characteristics and functions based on its parent/host unit's mission, geographic location and level of command. Core roles, responsibilities, processes and procedures will largely be the same. WFs support the entire spectrum of Air Force, Army, and Special Operations' Active and Reserve Component mission types including but not limited to: aviation and ground operations conducted at home station and deployed locations. WFs are also responsible to support other parent/host unit operations where success may depend on mitigation of environmental threats (Civil Engineering, Logistics, Communications, etc.). WF functions include the Staff Integration function, Mission Integration function and the Airfield Support function.

6.2. General. WFs will:

6.2.1. Provide direct staff, mission planning and execution weather support in garrison and at deployed locations. WFs should, when possible, deploy with their parent/host units to provide support (e.g., contingency, exercise, off-station employment, etc.).

6.2.1.1. If unable to support deployed parent/host unit directly, accomplish support via reachback to home station. **Note:** When parent/host unit assets deploy across COCOMs (e.g., a Combat Aviation Brigade or F-16 Squadron deploys to Iraq from CONUS), reachback support is not required from the parent/host WF. Daily weather support to the deployed unit(s) will be provided through the respective COCOM WFs.

6.2.1.2. If unable to support deployed parent/host unit via reachback to home station, arrange for support to be provided by the supporting OWS or by the WF in-place at the operating location.

6.2.2. Comply with AR 115-10/AFI 15-157 (IP) when providing support to Army units as required.

6.2.3. Establish daily hours of operation and flex/surge to meet the operational mission needs of the parent/host unit. Reachback to the OWS, while an acceptable practice during manning constraints, will not be routinely substituted in place of direct support with which the WF is tasked/responsible. Therefore, WFs will schedule their personnel around mission requirements, not airfield hours of operation, unless required to manually take or augment automated observations as required by AFMAN 15-111, *Surface Weather Observations*.

6.2.3.1. Personnel will be on duty during published airfield hours (at a minimum) *if* the WF is augmenting the observation or is operating as a manual station.

6.2.3.2. WFs are not required to have personnel on duty when airfield is closed unless the Severe Weather Action Plan (SWAP) has been implemented and/or support to parent/host unit operational mission dictates.

- 6.2.3.3. When possible, coordinate requirements with the supporting OWS for flight weather briefing support to those Army VFR flights conducted outside normal squadron/battalion operations when the airfield is closed and/or weather personnel are unavailable.
- 6.2.3.4. WFs will coordinate requests for briefing support with the supporting OWS on larger operations when the weather organization cannot provide exploitation products to the host unit due to manning levels or Temporary Duty (TDY) commitments.
- 6.2.4. WFs will not have personnel on duty solely to provide briefings for Aero Club flying activities. During normal operating hours, WFs will provide flight weather briefings to Aero Club members performing official Air Force operational duties (e.g., Civil Air Patrol and Initial Flying Training Programs). Aero Club members performing official flight duties outside of normal operating hours should be advised of remote and self-briefing capabilities.
- 6.2.5. Provide service IAW posted duty priorities for walk-in requests from transient aircrews. When transient or staged aircrews request briefing support, WFs will:
- 6.2.5.1. Provide a briefing or update an existing briefing form as time and resources allow. EXCEPTION: Refer flight weather briefing requests for AMC, USAFE, and PACAF integrated flight-management (IFM) missions to the appropriate IFM weather support agency (e.g. 618 AOC (TACC)/XOW, 21 OWS, and 17 OWS respectively). WFs may provide access to meteorological satellite imagery, take off data, and other perishable weather data for IFM crews upon request, but will refer the aircrew to their supporting IFM weather organization for weather updates to the actual mission package.
 - 6.2.5.2. If unable to provide a briefing or update an existing briefing, provide contact information for the supporting OWS and direct the aircrew to Airfield Operations-provided terminals for online access to weather support. Assist aircrew as time permits.
- 6.2.6. Relay pertinent information to supporting OWS concerning changing local conditions that significantly diverge from forecasted conditions, especially affecting resource protection or the TAF.
- 6.2.7. Provide PMSV when contacted by aircrew via phone patch or any other communications device.
- 6.2.8. If equipped as a Solar Electro-Optical Network site, provide solar observations IAW AFWAI 15-2, *Space Environmental Observations, Solar Optical And Radio Observing*.
- 6.2.9. Provide upper air observations IAW FMH 3, *Rawinsonde and Pibal Observations*, as required to support garrison/deployed operations, if equipped with upper air observing equipment. Disseminate observations to AFWA and the appropriate OWS to supplement other upper air observations or provide observations in data-sparse regions.
- 6.2.10. Forward requests from foreign nations for DoD weather data, imagery, technical information, and software tools through appropriate FDO and STINFO to respective MAJCOM weather functional.
- 6.2.11. Incorporate the MIRF and RIRF managed by the supporting OWS into qualification and continuation training. WFs will contribute pertinent METSAT imagery or radar signatures that may be of training value to the supporting OWS for consideration for inclusion into the MIRF/RIRF.

6.2.12. Identify local or fine scale influences on weather parameters yielding empirical evidence that may support establishment of a rule of thumb (ROT) for the installation and military operating areas. These will be identified as observed and passed on to the supporting OWS for validation. The WF role will not exceed gathering and furnishing of information.

6.2.13. Conduct seasonal continuation training, at least quarterly, concentrating on environmental threats to operations associated with the upcoming season. Training should focus on environmental sensitivity thresholds pertinent to DoD full-spectrum operations including, but not limited to, supported weapons systems, platforms, mission profiles, TTPs, mission-essential task lists (METLs), and integration of environmental threats into JOPP, MDMP, IPB, C4ISR systems, ORM processes and the COP. WFs will leverage seasonal training material from their supporting OWS.

6.2.14. Perform qualification, upgrade, and mobility training to ensure all deployable personnel can achieve and maintain the proficiency required to support tasked deployed operations.

6.2.15. Conduct initial certification checkrides and annual recertification checkrides on primary duty position(s). Document initial certification and recertification on AF Form 1098, *Special Task Certification and Recurring Training*, regardless of rank. All personnel will be position qualified to operate from an Alternate Operating Location (AOL).

6.2.16. Conduct and document training and certification in the AFTR IAW the 1W0XX CFETP.

6.2.17. Support U.S. Navy and U.S. Marine missions on Joint Bases where the AF has the lead for base operations and sustainment support provided those missions do not require specialized support and are akin to support normally given to AF and Army units. This support will not drive additional manpower or other costs to the AF without an interservice agreement coordinated at HQ USAF/A3O-W.

6.2.18. Coordinate support for Air Force remotely piloted aircraft (RPA), controlled via remote split operations (RSO), with the WF directly supporting the RSO C2 center (e.g., 432 OSS/OSW, 9 OSS/OSW, 3 SOS/WX). For go/no-go weather recommendations affecting the RSO phase of a mission (e.g., pre-mission planning, weather recall or dynamic re-tasking of an airborne RPA), WFs will defer to the WF directly supporting the RSO C2 center. MWP's for launch and recovery element (LRE) and divert locations, whether provided by a collocated WF or OWS via reachback, will include RPA mission-limiting weather thresholds as determined by the RSO C2 center. To ensure combat forces at all echelons receive consistent information, the WF supporting the RSO C2 element will inform other weather elements involved in the mission (e.g., WF collocated with a LRE, AOC WST, JOC, etc.) when RPA operations are affected by weather as soon as practical.

6.2.19. Ensure RPAs tasked to deploy without organic weather forces receive weather support from gaining weather team assigned to the deployed C2 function. Only Group 3 (e.g., RQ-7B Shadow, MQ-5B Hunter, MQ-1C Grey Eagle) or larger RPA will receive mission-specific aviation weather support (i.e., similar to a UH-60, AH-64, etc.); Group 2 or smaller RPA (e.g., RQ-11B Raven, Scan Eagle) will receive general weather support (i.e., "area forecasts" not tailored to specific missions), as defined in AR 115-10/AFI 15-157 (IP).

Weather products for launch/recovery (L/R) locations, whether provided by a collocated WF or OWS via reachback, will include critical RPA environmental sensitivity thresholds as determined by the C2 entity responsible for the RPA. To ensure combat forces at all echelons receive consistent information, the WF supporting RPA operations will inform other weather elements involved in the mission [e.g., BCT WF, Division WF, AOC WST (if the RPA mission was included on the ATO), JOC/TOC, etc.] when RPA operations are affected by weather as soon as practical. **Note:** Refer to *Joint Concept of Operations for Unmanned Aircraft Systems* (25 Nov 08) for definitions of RPA Groups. In addition, for the purpose of this publication RPA and UAS are synonymous.

6.3. WF Commander/WF Chief and NCOIC. For brevity, the term “WF leadership” will be used in place of WF Commander, WF Chief, OIC and NCOIC unless duties specific to individual positions apply. One of the essential responsibilities of WF leadership is to gain an intimate knowledge of the various missions their parent/host unit is tasked with supporting or executing, identify and understand specific impacts of the environment on those missions, and impart this to their subordinates through enduring processes and procedures. This is accomplished through establishing relationships with key decisionmakers in the supported agencies based on open, continuing communication. *Leadership must be proactively involved with these agencies, building trust through the consistent application of weather skills and mission-based knowledge to enhance and achieve mission success.* WF leadership will:

6.3.1. Engage with base/post agencies to determine weather support requirements.

6.3.1.1. To the maximum extent possible, document weather support in appropriate existing parent/host unit plans and directives [e.g., Installation Emergency Management Plan 10-2 (IEMP 10-2) and any other applicable plans containing an Annex H or weather appendix]. Stand-alone weather support documents covering specific support, unable to be documented elsewhere, are allowed but should be kept to a minimum.

6.3.1.2. Determine parent/host organization WWA criteria, required lead-times and notification requirements. This information will be coordinated with the supporting OWS and documented on the installation data page.

6.3.1.3. Assist parent/host unit in creation of a dissemination plan for WWA information to ensure base/post agencies consistently receive timely notification of potential and/or forecasted significant weather events that may impact local operations and/or damage base/post resources.

6.3.1.3.1. AF WFs will assist in creation of the IEMP 10-2 Appendix A IAW AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*.

6.3.1.4. Coordinate dissemination plan with supporting OWS for use with an automated warning dissemination system and document in the installation data page.

6.3.2. Establish outage reporting procedures for weather equipment and communications systems with the appropriate garrison/deployed maintenance unit and with the AFWA Consolidated Support Center (CSC).

6.3.3. Coordinate with parent/host command structure to ensure WF personnel have appropriate security clearance for, and are granted access to, mission planning and execution

information required to properly exploit air and space environmental information and mitigate environmental threats to mission success.

6.3.4. Document supported operations' (1) mission profiles, (2) planning and execution phases, and (3) environmental sensitivities and train all personnel on them.

6.3.5. Use the applicable portions of the HQ USAF, AFWA and parent MAJCOM (if applicable) weather compliance performance checklists to perform a unit self-inspection within 90 days of a change in senior WF leadership and annually thereafter.

6.3.6. Complete all AF-directed and locally determined training and certification requirements for all local WF duty positions within 120 days of assignment.

6.3.7. Schedule operations (opening/closing hours, manpower allocation, etc) around the battle rhythm of the supported mission. Operations must be flexible enough to respond to daily changes in battle rhythm.

6.3.8. Coordinate deployment posturing and logistic requirements through appropriate channels (e.g. MAJCOM FAM, Unit Deployment Manager, Logistics Squadron, Army G-4/S-4 or G-2/S-2).

6.3.9. Develop and implement SWAP operations to ensure sufficient personnel are available during potential/actual severe weather events or during meteorological/operational events critical to mission success. WF leadership will determine which environmental conditions require SWAP. For garrison operations, SWAP may be linked to watch/warning products (reference AFI 10-229, *Responding To Severe Weather Events*, for additional guidance). At expeditionary locations, SWAP is integral to resource protection; exact processes and procedures may be limited at austere locations or during combat/maneuver phases of military operations. See also AFMAN 15-111, *Surface Weather Observations*, for guidance on augmentation of automated weather observing systems during SWAP.

6.3.10. Develop procedures to provide appropriate information to the installation agency (usually the command post) that prepares Operational Report 3 (OPREP-3) reports for the installation commander IAW AFI 10-229. For AF WFs, severe weather events are reported to the command agency of the supported location IAW OPREP-3 reporting procedures in AFMAN 10-206, *Operational Reporting*. Army support WFs will follow locally coordinated procedures. Ensure the OWS and the parent MAJCOM weather functional (or equivalent) are aware of the OPREP-3 report.

6.3.11. Develop an evacuation/relocation plan that provides continuity of operations in the event normal work centers are unavailable. Use parent/host unit plans where possible, and coordinate actions with other agency evacuation plans [Air Traffic Control (ATC), Airfield Operations, Flying Squadrons, etc.].

6.3.12. Coordinate with ATC agencies to develop ATC local procedures to ensure weather technicians receive PIREPs relayed to ATC. Local operating procedures should include timeliness requirements [e.g., ATC/supervisor of flying (SOF) will relay pilot report (PIREP) information to weather not later than 5 minutes after receipt].

6.3.13. Provide information to the Airfield Manager or appropriate base/post agency for Flight Information Publications (FLIPs). WFs will validate the accuracy of the information each time the FLIP is published and take immediate steps to correct erroneous data.

6.3.14. Ensure MWP's meet the operational requirements of the installation supervisor of flying (SOF) or Army equivalent.

6.3.15. Ensure newly assigned WF personnel are given a thorough orientation before position qualification including at a minimum:

6.3.15.1. Physically visit all meteorological sensors on the airfield and discuss site limitations and their effects on operations.

6.3.15.2. Tour ATC facilities (tower and radar facility) and discuss cooperative weather watch procedures and how local weather impacts flight operations.

6.3.15.3. Visit operational supported agencies and discuss mission and weapons systems' weather sensitivities. At a minimum, this will include flying squadrons, aviation operation centers, command posts, Emergency Operations Centers (EOC), CBRN Control Centers, Brigade Combat Teams (BCT), Support Brigades, Divisions and Corps.

6.3.15.4. Visit the SOF and/or flight safety duty section(s) to discuss SOF/flight safety processes and how timely and accurate weather information enhances flight safety.

6.3.16. Determine parent/host organization SPEC/AMD criteria and coordinate this support with the supporting OWS. This information will be documented on the installation data page.

6.4. Staff Integration Function. Personnel executing the Staff integration function will:

6.4.1. Liaise directly with the parent/host unit commander and staff to relay pertinent information on environmental threats to parent/host unit mission.

6.4.2. Evaluate SWSs issued by the supporting OWS for environmental threats to the parent/host unit and integrate the resulting information into risk management decision cycles.

6.4.3. Liaise directly with supported base/post agencies to determine new mission requirements, validate current requirements and evaluate effectiveness of current support (planning meetings, training/exercise hotwashes, individual requirement meetings, etc.)

6.4.4. Evaluate support requirements and determine the most efficient/best solution to meet validated requirements.

6.4.5. Provide direct support to command, control, and planning functions.

6.4.6. Coordinate logistics for movement of personnel and equipment during exercises and deployments.

6.4.7. Provide meteorological parameters, data, and subject matter expertise to installation Disaster Response Force elements, EOC Emergency Support Functions (ESF), and any/all Installation Emergency Management Plans.

6.4.7.1. Partner with the Civil Engineering Squadron Readiness Flight (CEXR), Fire Emergency Services (CEF), installation Medical Group's Bioenvironmental Engineering Flight, Army Installation Directors of Emergency Services, and National Guard Civil Support Teams for ANG weather organizations, as the Weather SME responsible for optimizing weather data input to CDMs, EDMs, and CBRN hazard-prediction models used by these ESFs for decision assistance in the EOC, CBRN Control Center, and at the incident site.

- 6.4.7.1.1. Weather SME will advise and provide the most accurate and representative observed and/or forecast alphanumeric and gridded meteorological data type appropriate to a particular CBRN event to users employing ALOHA, CAMEO, and CBRN hazard-prediction (i.e., “plume”) models resident in the Joint Warning and Reporting Network (JWARN)/Joint Effects Model (JEM)/Joint Operational Effects Federation (JOEF) architecture IAW AFI 10-2501, AFMAN 10-2503 and equivalent Joint guidance, to ensure consistency between CBRN hazard area predictions and the installation forecast.
- 6.4.7.1.2. Provide real-time observations as well as forecast alphanumeric and gridded model data files used to generate the affected installation’s Terminal Aerodrome Forecast (TAF) as the primary weather input to users generating automated or manual location-/installation-specific CDMs and EDMs to ensure consistency between CBRN hazard area predictions and the installation forecast.
- 6.4.7.2. Provide or arrange for delivery of CDMs and EDMs generated from AFWA or OWS webpages.
- 6.4.8. Provide weather expertise for Instrument Refresher Program briefings upon request. See AFMAN 11-210, *Instrument Refresher Program*, for further information.

6.5. Mission Integration Function. Mission integration requires gaining an in-depth understanding of supported mission platforms, equipment, and systems capabilities/sensitivities as well as mission processes (e.g., JOPP, MDMP, IPB, ORM, COP, tactics, etc.) to be able to reliably inject timely, accurate, and relevant environmental information at every decision point in the mission planning process in an effort to optimize mission execution. To ensure maximum mission integration, personnel executing the Mission Integration function will:

- 6.5.1. Configure personnel/operations in whatever manner maximizes the WF’s ability to reliably “inject the right information at the right time every time” into their supported flying and non-flying organizations’ mission planning, execution and assessment processes. **Note:** Optimal configurations may or may not require collocation with the supported organization(s). Therefore, collocation decisions will be left to the discretion of senior WF leadership.
- 6.5.2. Establish and actively maintain working relationships with supported organizations’ key operational decision makers, operators, intelligence specialists, tactical-level mission planners, schedulers, and weapons and tactics experts. Once established, WF personnel will be able to quickly adapt to process and/or mission changes.
- 6.5.2.1. Maintain operational situational awareness through active participation in supported customers’ battle rhythms which include, but are not limited to, joint planning group(s), threat working group(s), ISR synchronization, mission planning, rehearsals, mission execution, and operations updates.
- 6.5.2.2. Pass information on operations schedule, sensitivity threshold, or support requirement changes to WF/CC or NCOIC.
- 6.5.3. Provide operators with the capability to exploit favorable environmental windows of opportunity and gain asymmetrical advantage by exercising keen knowledge of environmental sensitivity thresholds impacting mission profiles, weapon systems, TTPs,

METLs, and other operationally relevant factors across the full spectrum of operations. Inject as appropriate throughout the planning, execution, and assessment phases of the continuous operations cycle.

6.5.3.1. Provide environmental estimates based on combat critical environmental thresholds to assess feasibility of missions as well as anticipate effectiveness of air and ground combat systems, platforms, weapon systems, and munitions.

6.5.3.2. Focus on mitigation of environmental threats, offering weather-optimized alternatives to existing courses of action that will help shape the mission profile and increase the likelihood of mission success.

6.5.4. Provide MWP as coordinated with supported units, including tenant organizations. MWPs include MEFs, IPB products, mission planning products, environmental inputs to mission analysis, environmental staff estimates, running environmental staff estimates, and any other weather product prepared to meet the needs of a supported unit.

6.5.5. Use an established, repeatable process to create deliverable MWPs and provide decision-quality environmental information for all stages of the planning and execution phases of operations. Multiple MWPs may be created to support the needs of different mission profiles (air, ground maneuver, fixed sensor, EOC and Civil Engineering CBRN Control Center operations, Civil Engineering Fire Emergency Services, etc.).

6.5.6. Interpret and apply space weather data and forecasts to support applicable unit missions. This includes alerting the supported unit to the impacts of space weather on their operations, weapons, and communication systems.

6.5.7. Provide weather input to Tactical Decision Aids as coordinated with the host/parent unit. This includes working proactively with the installation CES/CEXR to ensure that the most accurate and representative meteorological data type is input correctly into the JWARN/JEM/JOEF suite of CBRN models as well as ALOHA and CAMEO to produce CBRN Control Center and/or EOC hazard plume decision aids that are consistent with the DoD-approved installation forecast (TAF).

6.5.8. Apply sound ORM practices to processes covering MISSIONWATCH within designated areas of operations across the spectrum of air and ground mission profiles and for the duration of those missions. This will include:

6.5.8.1. Developing procedures to determine critical thresholds requiring intensified MISSIONWATCH and updating parent/host unit on changes to environmental conditions critical to the mission.

6.5.8.2. Maintaining a MISSIONWATCH tailored to the mission(s) of the day.

6.5.8.3. Assigning risk, allocating resources and directing activities to conduct MISSIONWATCH for parent/host unit missions.

6.5.8.4. Conducting MISSIONWATCH for critical portions of every mission placed at risk due to environmental threats.

6.5.8.5. Informing the supporting OWS when weather products issued by the OWS do not accurately reflect observed conditions, particularly when conditions impact safety of flight.

6.6. Airfield Support Function. The airfield support function focuses on providing decision makers and supported organizations with highly perishable, timely, accurate, and relevant observed environmental information essential to flying and non-flying operations, both in garrison and at deployed locations. Personnel executing the airfield support function will:

6.6.1. Use the procedures in AFMAN 15-111 to take, record and disseminate surface weather observations at those locations requiring an observation for airfield operations.

6.6.2. Relay significant, time-sensitive meteorological information (e.g., tactical radar data, significant surface observations) to OWS technicians conducting forecast/METWATCH operations IAW a locally established duty priority list. **Note:** This responsibility is still required in circumstances where US National Weather Service or a host nation issues the aerodrome forecast.

6.6.3. While deployed, relay (to the supporting OWS) pertinent observations from forward/combined operating bases, tactical or fixed radars, upper air soundings, and other meteorological information described in the JMO Letter of Instruction, Theater Sensing Strategy or local EWXS procedures.

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

6.6.4.1. The WF assigned to the airfield and supporting the host unit is responsible for the local surface weather observation and will issue observed weather warnings/advisories for the installation as required. If sensing capability exists, the supporting OWS may issue and/or cancel observed weather warnings/advisories provided it has been coordinated and is documented on the installation data page.

6.6.5. Issue WWs for forecast phenomena when imminent weather conditions pose a hazard to life or property, and immediate coordination with the supporting OWS is not possible.

6.7. Adopted Forms: AF Form 525, *Records Disposition Recommendation*

AF Form 1341, *Electronic Record Inventory*

AF Form 1098, *Special Task Certification and Recurring Training*

HERBERT J. CARLISLE, Lt Gen, USAF
DCS, Operations, Plans and Requirements

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

- DoD 5000.59, *Modeling and Simulation Management*, 8 August 2007
- DoD 5000.59-P, *Modeling and Simulation Master Plan*, 17 October 1995
- JP 3-59, *Joint Doctrine, Tactic, Techniques, and Procedures for Meteorological and Oceanographic Operations*, 24 September 2008
- AFDD 1, *Air Force Basic Doctrine*, 17 November 2003
- AFDD 3-59 (formerly AFDD 2-9.1), *Weather Operations*, 3 May 2006
- AFPD 15-1, *Air Force Weather Operations*, 19 February 2010
- AFPD 90-10, *Total Force Integration Policy*, 16 June 2006
- AFI 10-208, *Continuity of Operations (COOP) Program*, 1 December 2005
- AFI 10-229, *Responding to Severe Weather Events*, 15 October 2003
- AFI 10-403, *Deployment Planning and Execution*, 13 January 2008
- AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, 24 Jan 2007
- AFI 11-202 Vol 3, *General Flight Rules*, 5 April 2006
- AFI 11-207, *Combat Aircraft Delivery*, 24 October 2007
- AFI 13-1AOC Vol 3, *Operational Procedures--Air and Space Operations Center*, 1 August 2005
- AFI 13-218, *Air Traffic System Evaluation Program*, 10 Oct 2003
- AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*, 7 December 2001
- AFI 15-135, Vol 1, *Special Operations Weather Training*, 13 July 2010
- AFI 15-135, Vol 2, *Special Operations Weather Standardization and Evaluation*, 13 July 2010
- AFI 15-135, Vol 3, *Special Operations Weather Team Operations*, 13 July 2010
- AFI 15-157 (IP), *Weather Support for the U.S. Army*, 6 February 2010
- AFI 15-180, *Standardization and Evaluation Program for Weather Operations*, 23 July 2007
- AFI 16-201, *Air Force Foreign Disclosure and Technology Transfer Program*, 1 December 2004
- AFI 25-201, *Support Agreements Procedures*, 1 May 2005
- AFI 33-101, *(Communications and Information) Commanders Guidance and Responsibilities*, 18 November 2008
- AFI 33-104, *Base-Level Planning and Implementation*, 10 May 2001
- AFI 33-200, *Information Assurance (IA) Management*, 23 December 2008

AFMAN 10-206, *Operational Reporting*, 15 October 2008

AFMAN 10-2502, *Air Force Incident Management System (AFIMS) Standards and Procedures*, 25 September 2009

AFMAN 10-2503, *Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Operations*

AFMAN 10-2504, *Air Force Incident Management Guidance for Major Accidents and Natural Disasters*, 1 December 2009

AFMAN 11-210, *Instrument Refresher Program*, 3 February 2005

AFMAN 15-111, *Surface Weather Observations*, 10 March 2009

AFMAN 15-124, *Meteorological Codes*, 28 October 2009

AFMAN 33-363, *Management of Records*, 1 March 2008

AFMD 23, *Air Force Operations Group*, 1 March 1999

AFMD 52, *Air Force Weather Agency (AFWA)*, 16 March 2010

AF Records Disposition Schedule in the Air Force Records Information Management System (AFRIMS)

AFVA 15-136, *AF Weather OWS AORs – CONUS*, 4 June 2008

AFVA 15-137, *AF Weather OWS AORs – OCONUS*, 4 June 2008

AFWAI 15-2, *Space Environmental Observations, Solar Optical And Radio Observing*, 20 April 2010

AR 95-1, *Flight Regulations*, 12 November 2008

FMH 3, *Rawinsonde and Pibal Observations*, August 2006

FMH 11, *Doppler Radar Meteorological Observations*, May 2009

FM 34-81/AFJPAM 15-127, *Weather Support for U.S. Army Tactical Operations*, 31 August 1989

Abbreviations and Acronyms

18 AF—Eighteenth Air Force

A30-W—Director of Weather

ACAT—Army Crisis Action Team

ACC—Air Combat Command

ADL—Advanced Distributive Learning

ADLS—Advanced Distributive Learning System

AEF—Air and Space Expeditionary Force

AF—Air Force

AF-1—Air Force One

AFB—Air Force Base

AFCAT—Air Force Crisis Action Team

AFDW—Air Force District of Washington

AFGSC—Air Force Global Strike Command

AFI—Air Force Instruction

AFJI—Air Force Joint Instruction

AFMC—Air Force Material Command

AFMAN—Air Force Manual

AFMD—Air Force Mission Directive

AFOG—Air Force Operations Group

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFRIMS—Air Force Records Information Management System

AFRTS—American Forces Radio and Television Service

AFS—Air Force Specialty

AFSOC—Air Force Special Operations Command

AFTR—Air Force Training Record

AFVA—Air Force Visual Aid

AFW—Air Force Weather

AFWA—Air Force Weather Agency

AFWKC—Air Force Weather Knowledge Center

AFWTI—Air Force Weather Technology Integration

AFWWS—Air Force Weather Weapon System

AJCC—Alternate Joint Communications Center

ALOHA—Areal Locations of Hazardous Atmospheres; an Air Force software program designed to assist in identification and analysis of HAZMAT

AMC—Air Mobility Command

ANG—Air National Guard

AO—Area of Operations

AOC—Air and Space Operations Center

AOL—Alternate Operating Location

AOR—Area of Responsibility

AOS—Air Operations Squadron

AR—Army Regulation

ARC—Air Reserve Component

ASNE—Air and Space Natural Environment

ATC—Air Traffic Control

ATO—Air Tasking Order

AT&L—Acquisition Technology and Logistics

AWACS—Airborne Warning and Control System

BCT—Brigade Combat Team

BW—Battlefield Weather

BWS—Battlefield Weather Squadron

C2—Command and Control

C4ISR—Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance

CAB—Combat Aviation Brigade

CAMEO—Computer Aided Management of Emergency Operations; an Air Force software program designed to assist in identification and analysis of HAZMAT

CBRN—Chemical, Biological, Radiological, and Nuclear

CBRNE—Chemical, Biological, Radiological, Nuclear, and High-yield Explosive

CDM—Chemical Downwind Message

CES—Civil Engineering Squadron

CEXR—Civil Engineering Squadron Readiness Flight

CEF—Civil Engineering Squadron Fire Emergency Services Flight

CEMP—Comprehensive Emergency Management Plan

CFETP—Career Field Education and Training Program

CFM—Career Field Manager

C/JFACC—Combined/Joint Forces Air Component Commander

C/JOAF—Combined/Joint Operational Area Forecast

C/JSOAC—Combined/Joint Special Operations Air Component

CMWP—Controlling Mission Weather Products

C-NAF—Component Numbered Air Force

COA—Course of Action

COCOM—Combatant Command

CONPLAN—Concept Plan

CONUS—Continental United States

COOP—Continuity of Operations Plan

COP—Common Operating Picture

CRG—Contingency Response Group

CSC—Consolidated Support Center

CWS—Combat Weather Squadron

CWSS—Combat Weather Systems Squadron

DCS—Deputy Chief of Staff

DET—Detachment

DoD—Department of Defense

DRF—Disaster Response Force; the organization used for disaster, accident, or incident response, command and control, and recovery.

DRU—Direct Reporting Unit

EDM—Effective Downwind Message

EM—Emergency Management/Manager

EOC—Emergency Operations Center

ESF—Emergency Support Function

ESR—Environmental Special Reconnaissance

EWXS—Expeditionary Weather Squadron

FAM—Functional Area Manager/Management

FDO—Foreign Disclosure Officer

FITL—Forecaster-in-the-Loop

FLIP—Flight Information Publication

FM—Field Manual

FMH—Federal Meteorological Handbook

FOA—Field Operating Agency

FRM—Forecast Reference Material

FWA—Forecast Weather Advisory

G-2—Army Intelligence

GCC—Geographic Combatant Command

GSC—Global Synchronization Center

HMX-1—Marine One Helicopter Squadron

HQ—Headquarters

HQDA—Headquarters, Department of the Army
IA—Information Assurance
IAW—In Accordance With
IEMP—Installation Emergency Management Plan
IFM—Integrated Flight Management
IP—Interservice Publication
IPB—Intelligence Preparation of the Battlefield/Battlespace
JAAWIN—Joint Air Force and Army Weather Information Network
JEM—Joint Effects Model
JET—Joint Environmental Toolkit
JFACC—Joint Forces Air Component Commander
JITT—Just-In-Time-Training
JIPOE—Joint Intelligence Preparation of the Operational Environment
JMCO—Joint Meteorological and Oceanographic Coordination Organization
JMO—Joint Meteorological and Oceanographic Officer
JOAF—Joint Operational Area Forecast
JOC—Joint Operations Center
JOEF—Joint Operational Effects Federation
JOPP—Joint Operational Planning Process
JPWSU—Joint Presidential Weather Support Unit
JSTARS—Joint Surveillance Target Attack Radar System
JWARN—Joint Warning and Reporting Network
LFU—Lead Forecast Unit
L/R—Launch/Recovery
LRE—Launch and Recovery Element
MAJCOM—Major Command (Air Force)
MAF—Mobility Air Forces
M&S—Modeling and Simulation
MDMP—Military Decision Making Process
MEF—Mission Execution Forecast
METL—Mission Essential Task List
METOC—Meteorological and Oceanographic

METSAT—Meteorological Satellite
METWATCH—Meteorological Watch
MIRF/RIRF—METSAT Information Reference File/Radar Information Reference File
MISSIONWATCH—Mission-Scale Meteorological Watch
MOA—Memorandum of Agreement
MOAF—Military Operating Area Forecast
MSEA—Modeling and Simulation Executive Agent
MWP—Mission Weather Product
NASIC—National Air and Space Intelligence Center
NATO—North Atlantic Treaty Organization
NCOIC—Non-commissioned Officer In Charge
NGA—National Geospatial-Intelligence Agency
NIPRnet—Non-Classified Internet Protocol Router Network
NMCC—National Military Command Center
NOAA—National Oceanographic and Atmospheric Administration
NWP—Numerical Weather Prediction
O&M—Operations and Maintenance
OCONUS—Outside the Continental United States
OIC—Officer In Charge
OL—Operating Location
OPLAN—Operations Plan
OPR—Office of Primary Responsibility
OPREP—Operational Report
OSD—Office of the Secretary of Defense
OSS—Operations Support Squadron
OWS—Operational Weather Squadron
PAIS—Point Analysis Intelligence System
PIREPS—Pilot Reports
PMSV—Pilot-to-Metro Service
PWS—Performance Work Statement
R&D—Research and Development
RDS—Records Disposition Schedule

ROT—Rule of Thumb
RPA—Remotely Piloted Aircraft
RSO—Remote Split Operations
SAR—Support Assistance Request
SECAF—Secretary of the Air Force
SEC—Space Environment Center
SIGMET—Significant Meteorological Information
SIPRnet—SECRET Internet Protocol Router Network
SME—Subject Matter Expert
SMO—Senior Meteorological and Oceanographic Officer
SOCOM—Special Operations Command
SOF—Supervisor of Flying
SOF—Special Operations Forces
SOP—Standard Operating Procedure
SOWT—Special Operations Weather Team
SOW—Statement of Work
SPEC/AMD—Specification/Amendment
STINFO—Scientific and Technical Information Officer
SWAP—Severe Weather Action Plan
SWO—Staff Weather Officer
SWPC—Severe Weather Prediction Center
SWS—Special Weather Statement
SYOS—Systems Operations Squadron
TACC—Tanker Airlift Control Center
TACOM—Tactical Communications
TACMET—Tactical Meteorological Equipment
TAF—Terminal Aerodrome Forecast
TCTAP—Tropical Cyclone Threat Analysis Product
TDY—Temporary Duty
TERREP—Terrain Report
TF—Task Force
TTPs—Tactics, Techniques, and Procedures

U&TW—Utilization and Training Workshop
USA—United States Army
USAF—United States Air Force
USASOC—United States Army Special Operations Command
USD—Undersecretary of Defense
USN—United States Navy
USSTRATCOM—United States Strategic Command
USTRANSCOM—United States Transportation Command
VAAC—Volcanic Ash Advisory Center
VFR—Visual Flight Rules
VIPSAM—Very Important Person Special Airlift Mission
WF—Weather Flight
WHMO—White House Military Office
WS—Weather Squadron
WSSC—Weather Systems Support Cadre
WST—Weather Specialty Team
WWA—Weather Warning and Weather Advisories
W-VAAC—Washington Volcanic Ash Advisory Center
WXG—Weather Group

Terms

Decision Cycles—Joint Operational Planning Process (JOPP), Military Decision Making Process (MDMP), Joint Intelligence Preparation of the Operational Environment, Intelligence Preparation of the Battlespace (IPB), Operational Risk Management (ORM) process, and Common Operating Picture (COP).

Battlefield Weather Airman—Air Force Weather 1W0X1 and 15WX personnel assigned to a conventional Army support weather unit or any weather personnel with either the 1W0X2 or 15WXC AFSC.

Battlefield Weather Squadron—conventional army-support weather squadron.

Habitual Alignment—A documented standing support relationship between two organizations, or personnel and an organization.

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.

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.

Mission Execution Forecast (MEF)—Mission-tailored environmental information used in the execution of a mission. MEFs describe the meteorological mission environment and concentrate on environmental threats given specific operating thresholds. Where possible, courses of action to mitigate these threats are offered. WFs and WSTs 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.

Mission Integration—The ability to understand mission platforms, equipment, and systems capabilities/sensitivities as well as mission processes (e.g., JOPP, MDMP, IPB, ORM, COP, tactics, etc.) and inject the right information at the right time every time, enabling mitigation of environmental threats as early as possible in the mission planning process, ultimately optimizing mission execution.

Mission Profile—describes a mission's operating platform(s), route, flight level(s), weapons systems, equipment, target(s), tactics/techniques/procedures (TTPs), and timing.

MISSIONWATCH—A deliberate process of monitoring terrestrial weather or the space environment for specific mission-limiting environmental factors that may adversely impact missions in execution. The MISSIONWATCH process is performed by WFs and WSTs and is intended to identify previously unidentified environmental threats and alert decision-makers at the operational unit and/or airborne mission commanders, enabling dynamic changes to mission profiles that may mitigate the environmental threat and optimize the chance of mission success.

Mission Weather Product (MWP)—Any weather product or group of weather products generated by a WF or WST that is integrated into the military decision making process. MWPs may be planning or execution products and are not limited to aviation missions.

Special Weather Statement (SWS)—An OWS notice to supported customers of meteorological effects which could impact future operations. This notice is for situational awareness purposes only and does not require action by supported customers.

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 Flight (WF)—Weather flights, detachments, and operating locations whose primary purpose is to facilitate exploitation of the environment through integration at every step of the operations planning and execution process. The WF 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.

Weather Warning—A special weather product to facilitate resource 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 resource 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.