BY ORDER OF THE COMMANDER
JOINT BASE ANDREWS

JOINT BASE ANDREWS INSTRUCTION 15-101

3 APRIL 2020

Weather

WEATHER SUPPORT

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This instruction implements AFI 15-114, Weather Technical Readiness Evaluation, AFI 15-128, Weather Force Structure, AFI 10-206, Operational Reporting (OPREP), AFI 10-2501, Air Force Emergency Management (EM) Program, AFI IP 11-208, Department of Defense Notice to Airmen (NOTAM) System, AFMAN 10-2502, Air Force Incident Management System (AFIMS) Standards and Procedures, AFMAN 15-111, Surface Weather Observations, AFMAN 15-124, Meteorological Codes, AFMAN 15-129V1, Air and Space Weather Operations - Characterization, AFMAN 15-129V2, Air and Space Weather Operations - Exploitation, and Air Mobility Command Instruction (AMCI) 15-101, Weather Operations and Support, AFI 13- 204V3, Airfield Operations Procedures and Programs, AFI 11-202V3, General Flight Rules, AFMAN 15-129V2, Air and Space Weather Operations – Exploitation, JBAI 13-204, Airfield Operations and Local Flying Procedures. It establishes responsibilities, weather support procedures and provides general information for weather services, including weather observations and forecasts, weather warnings, watches, and advisories (WWA); space weather data, information dissemination, and base-wide reciprocal support. It applies to units assigned to the 89 Air Wing (89 AW) and units assigned, attached, or supported by Joint Base Andrews. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) AFMAN 33-363, Management of Records, and disposed of IAW the Air Force Records Information System (AFRIMS) Records Disposition Schedule (RDS) located at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm**. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form

847, Recommendation for Change of Publication; route AF Forms 847 from the field through the appropriate functional's chain of command.

SUMMARY OF CHANGES

This document has been substantially revised and rewritten. Major changes include: The 89 OSS/OSW now has ownership of the Terminal Aerodrome Forecast (TAF). Elements have been added into the document showing how the 89 OSS/OSW is also responsible for all non- Integrated Flight Management (IFM) sorties that originate out of Joint Base Andrews (JBA) in accordance with the Air Mobility Command Instruction (AMCI) 15-101 Weather Operations and Support. Clarification has also been made in regards to how the 89 OSS/OSW supports the Emergency Operations Center (EOC). Due to their mission closing down, all mentions of the 375th OSS/OSW and the 457th Airlift Squadron have been removed. Hurricane Conditions (HURCONs) have been updated to reflect AFMAN 206 Operational Reporting. All briefing templates have been updated for Attachment 6. A new Cooperative Weather Watch agreement has been signed by the FAA tower the 89 OSS/CC and has been uploaded to the 89 OSS Sharepoint. Special weather observing criteria has been updated to reflect what is in the FLIPs for JBA.

Chapter 1

CHARACTERIZATION UNIT (CU) & EXPLOITATION UNIT (EU) INTERACTIONS

1.1. General.

1.1.1. The 15th Operational Weather Squadron (15 OWS), the 618th Air Operations Center (Tanker Airlift Control Center) Weather Directorate, (618 AOC (TACC)/XOW), and the 89th Operations Support Squadron Weather Flight (89 OSS/OSW) are the official weather information agencies for JBA Maryland. These agencies provide weather information in support of the 11th Wing (11 WG), 89th Airlift Wing (89 AW), 113th Wing (DCANG), 459th Air Refueling Wing (459 ARW), United States Army Priority Air Transport (USAPAT), and Naval Air Facility (NAF) Washington. The 618 AOC (TACC)/XOW is commonly referred to as TACC/XOW throughout this document. The 89 OSS/OSW is commonly referred to as the Weather Flight (WF) and is the focal point for all weather-related issues. This instruction is reviewed and revised no greater than biennially or IAW with host/parent unit procedures if the time is less than biennially.

1.1.2. Meteorological Watch (METWATCH). The 15 OWS performs a continuous METWATCH for JBA. METWATCH is a deliberate process for monitoring terrestrial weather or the 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, determine courses of action to update or amend a forecast product or group of products, and notify designated agencies.

1.1.3. The WF and TACC/XOW are the primary source of tailored weather services in support of the 11 WG, the 89 AW, DCANG, the 459 ARW, USAPAT, NAF Washington, the Presidential Airlift Group (PAG), various headquarters elements, and visiting aircrews. The WF and TACC/XOW make every effort to ensure mission-limiting weather is anticipated and exploited, and that safety and Resource Protection (RP) are maintained.

1.2. Concept of Operations. The 15 OWS at Scott AFB provides regional and operational- level weather products and information to Air Force and Army units in the northeast region of the Continental United States (CONUS).

1.3. Responsibilities. General responsibilities of the 15 OWS and WF are outlined in the Installation Date Page located at **https://15ows.us.af.mil/tech_ref/idp/index.cfm?icao=KADW**.

1.3.1. The 15 OWS issues forecasted Weather Watches (w/exemption to Lightning Watches), and may provide flight weather briefings to transient aircrews passing through JBA.

1.3.2. The WF issues all observed and forecasted advisories, warnings, lightning watches and TAFs.

1.3.3. The WF creates the Mission Weather Product (MWPs) that fuse theater scale products with local mission requirements to enable the direct inject of weather impacts into warfighter planning and/or execution. Upon request, the WF provides flight weather briefings and operational weather support for the 11 WG, the 89 AW, DCANG, USAPAT, NAF Washington, and the PAG. The WF also provides flight weather briefings for transient aircrews IAW the WF duty priorities listed in Table 1.1.

1.3.4. WF and TACC/XOW provides flight weather briefings and operational weather support for the 459 ARW. Per AMCI 15-101 Weather Operations and Support, WFs are assigned the responsibility for weather support to all Non-IFM, United States Transportation Command assigned, Air Mobility Command, Air National Guard, and Air Force Reserve Command sorties on the WF's respective base. Please reference chapter two and attachments four and five. The AMCI 15-101 can be located on EPUBs.

1.3.5. JBA Installation Data Page. The 15 OWS and WF coordinate on and maintain the JBA Installation Data Page. Data page details include TAF specification and amendment criteria, WWA thresholds, desired lead times, mission impacts, unit information, Joint Environmental Toolkit (JET) backup contacts and local outage backup information. KADW Data Page

1.3.6. Eyes Forward & Collaboration. The Eyes Forward and Collaboration is a shared responsibility for the 15 OWS and the WF. Both entities relay significant, time-sensitive meteorological information not found in coded meteorological reports to assist in forecast operations to each other.

1.3.7. Duty Priorities. All WF tasks cannot be accomplished simultaneously. Therefore, IAW AFMAN 15-129V2 the WF has established the duty priorities listed in Table 1.1 based on their order of relative importance to mission accomplishment. Since not all situations affecting operations at JBA can be anticipated, WF personnel use sound risk management principles to determine the need to recall additional personnel to assist in meeting surges in operations.

Table 1.1. 89 OSS/OSW Duty Priority Listing.

Priority	Duties
1	Respond to Single Integrated Operations Plan (SIOP) and Emergency War Order Taskings/Alert Missions
2	Execute EU Evacuation/Shelter In-Place/Lock Down
3	Respond to Aircraft/Ground Emergencies
4	Answer Pilot-to-Metro Service (PMSV) calls
5	Perform Severe Weather Action Procedures (SWAP)
6	Issue Forecast/Observed Weather Watch, Warnings, or Advisories (WWA)
7	Disseminate Urgent Pilot Reports (PIREP) Locally and to 15 OWS
8	Augment AMOS and Disseminate Surface Weather Observations
9	Provide Back-up Support to 15 OWS via Continuity of Operations (COOP)
10	Provide "Eyes Forward" Support to the 15 OWS
11	Collab on WWAs/MWPs with the 15 OWS
12	Disseminate Routine Pilot Reports (PIREP) Locally and to 15 OWS
13	Other Local Unit Support
14	Perform MISSIONWATCH
15	Accomplish Administrative, Training and Routine Tasks

1.4. Hours of Operation.

1.4.1. WF, Presidential Weather Support, Airfield and mission services are available 24/7, 365 days a year. Staff services are available Monday-Friday 0730L-1630L or as required.

1.4.2. 15 OWS and TACC/XOW. Hours of operation are 24/7, 365 days a year.

1.5. Contact Information.

1.5.1. WF (301) 981-2840/5826 / DSN 858-2840/5826

1.5.2. WF AOL (301) 981-2840 / DSN 858-2840

1.5.3. PMSV 344.6 MHz

1.5.4. TACC/XOW (618) 229-0353 / DSN 779-0353

1.5.5. 15 OWS (618) 256-9699 / DSN 576-9699

1.6. Business Continuity Rules.

1.6.1. Continuity of support to the installation and flying operations is susceptible to equipment and communication outages at the 15 OWS, TACC, and WF. The WF participates in various wing, 15 OWS, and AMC Business Continuity Rules exercises to maintain procedures for and proficiency at tasks necessary to ensure continuity of operations.

1.6.2. WF Business Continuity Rules. If an evacuation of the primary weather station becomes necessary, operations will be reestablished at the Alternate Operating Location (AOL). Upon activation, the WF's phone numbers will be DSN 858-2840 (voice, same as primary) and DSN 858-7007 (fax, different from the primary). Forecasting and observing support from this location is limited and governed by locally generated WF procedures. The limitations include not having access to the AMOS Operational Interface Display (OID), the WSR-88D via Gibson Ridge (GR) software and lack of face to face briefings with pilots. Once in place, the forecaster will establish telephone contact with Air Traffic Control (ATC), 11 WG/CP and the 15 OWS, continue operational support, and resume eyes-forward responsibilities for the 15 OWS. The WF notifies the AirField Management (OSAA) whenever the WF primary facility is evacuated and/or the AOL is activated. Most 89 OSS/OSW services/support will be provided, but will require a case-by-case assessment depending on communication line status, equipment status, etc. Service degradation might occur due to limited facilities and loss of dedicated data services, including sensors and various data types (radar imagery). For flight safety purposes, mission-essential forecasters will not evacuate facilities during exercises.

1.6.2.1. 15 OWS Business Continuity Rules.

1.6.2.2. For short-term disruptions in 15 OWS support (up to 72 hours), the WF assumes all WWA responsibility.

1.6.2.3. For long-term disruptions in 15 OWS support (greater than 72 hours), the 1 WXG will assume responsible and make a capacity determination and either transition support to another OWS or move 15 OWS operations to another facility and/or location and resume support.

1.6.3. AMC Weather Business Continuity Rules Exercises. AMC weather units typically conduct coordinated exercises every month of the year. The WF may conduct exercises at other times to maximize training opportunities. AMC/A3AW issues Special Instructions (SPINS)

outlining the functions and capabilities that are to be exercised. As a courtesy, the WF coordinates timelines and potential impacts with supported units prior to all scheduled Business Continuity Rules.

Chapter 2

AIRFIELD SUPPORT

2.1. General. Airfield support includes those actions affecting the JBA aerodrome (defined within a 5NM radius of the airfield) or JBA as a whole. These functions include, but may not be limited to, weather observing, meteorological watch, and resource protection.

2.2. Observations. The FMQ-19 AMOS works in concert with JET to evaluate, prepare, and transmit weather observations for JBA. IAW AFMAN 15-111 automated systems at Air Force and Army controlled airfields are to operate in full-automated mode to provide the official airfield observation. The three basic types of observations provided are METAR, SPECI, and LOCAL. Attachment 2 lists all special weather observation (SPECI) criteria for JBA. Attachment 3 provides an example of a typical SPECI observation.

2.2.1. Point Of Observation. On JBA, the point of observation is where the FMQ-19 sensors are located. During periods of augmentation, the observation point will be on the roof of building 1220 to obtain a 360- degree view of the sky. During relocations to the AOL, and when augmentation is required, the official observation point is on the airfield side of Hangar 2 at the end of the concrete sidewalk and approximately 4 paces in front of the fire hydrant.

2.2.2. Observing Location Limitations.

2.2.2.1. The FMQ-19 is properly sited and no limitations are currently noted.

2.2.2.2. Visibility beyond 3 miles is restricted by trees.

2.2.2.3. Andrews Tower obstructs the view to the southeast.

2.2.2.4. During a ramp freeze, the duty forecaster is not allowed outside on the airfield side of any building or on the roof of building 1220. However, if critical mission-limiting weather conditions are occurring, the forecaster may walk on the roof after first gaining permission from the on-site security forces commander and Secret Service liaison.

2.2.2.5. If winds exceed 74 knots, the tower cab on building 1220 will not be used.

2.2.2.6. Stadium type lighting along the west ramp impedes observations of the eastern night sky. Stadium lighting at the intramural fields to the west also restrict night visibility.

2.2.2.7. Ramp noise can hinder recognizing the sound of thunder.

2.2.2.8. Augmented observations from the AOL are additionally limited by buildings to the west which obstruct the view of the horizon.

2.2.3. FMQ-19 Automated Observation. An automated observation is any observation evaluated, prepared, and transmitted by an observing system without human intervention. When operating in automated mode, the FMQ-19 determines sky condition based on an evaluation of sensor data gathered during the 30-minute period ending at the actual time of the observation. All other evaluated elements are based on sensor data that is within 10 minutes or less of the actual time of the observation.

2.2.4. FMQ-19 Augmentation. Augmentation is a method of having a weather technician manually add or edit data to an observation generated by the FMQ-19. The two augmentation processes used are supplementing and backup.

2.2.4.1. Supplementing. Supplementing is the process of manually adding meteorological information to an observation generated by the FMQ-19 that is beyond the system's capability to detect and/or report. For example, the sensor cannot sense tornadoes or hail.

2.2.4.2. Supplementing procedures. WF personnel supplement observations when the weather conditions in AFMAN15-111 Table 3.1 and Table 2.2 are observed or are forecast to occur within 1 hour.

2.2.4.3. Backup. Backup is a method of manually providing meteorological data and/or dissemination of an FMQ-19 generated observation when the primary automated method is not operational or unavailable due to sensor and/or communication failure.

2.2.4.4. Backup procedures. In the event of FMQ-19 malfunction or failure, WF personnel use manual observing procedures when performing backup operations. When required, the WF encodes and disseminates METAR and SPECI observations IAW AFMAN 15-111. All element entries are observed within 15 minutes of the actual time of the observation with the exception of wind gusts and squalls, which are reported only if they are observed within 10 minutes of the time of the observation. When backing up FMQ-19 wind sensors, the wind values will be reported as estimated. Unless a properly sited TMQ-53 is used to back-up the FMQ-19 pressure sensor, the pressure values will be reported as estimated.

2.3. TAFs. JBA TAFs are produced and disseminated by the 89 OSS/OSW IAW TAF Realignment Exception to Policy (ETP), TAF Realignment Implementation Guidance and TAF Realignment ETP Extension memos, signed by the Director of Weather. These memos can be found on the 89 OSS Sharepoint Letters of Procedure (LOP) page. TAFs are valid for 30 hours, apply to the area within 5NM of the center point of the JBA runway complex, and will be issued at 0100Z, 0900Z, and 1700Z. A complete list of TAF specification and amendment criteria can be found on the JBA Installation Data Page (KADW Data Page). Attachment 3 contains an example of a typical JBA TAF.

2.4. RP Products. Special Weather Statements (SWSs) and WWAs are special notices used to alert decision makers that hazardous weather is occurring or that there is a potential for hazardous weather to occur within the area of operations. Attachment 3 provides an example of a Watch, Warning, and Advisory. Customer responses to WWAs are listed in Attachment 4.

2.4.1. SWS. A notice issued by the 15 OWS to assist with RP decisions. SWS advise of the potential for widespread hazardous weather conditions in a specified geographical region. The WF utilizes the SWS to assist in maintaining situational awareness of environmental conditions that have the potential to negatively impact JBA or the local flying area.

2.4.2. Weather Watch. A special notice to notify installation personnel and supported units of a potential for environmental conditions of such intensity as to pose a hazard to life or property. Watches are issued for the criteria defined in the JBA Installation Data Page (KADW Data Page) and are valid for a 5NM radius from the center of the JBA runway complex.

2.4.2.1. Watches are standalone products based upon potential and are unaffected by warnings or advisories for the same phenomena.

2.4.2.2. Multiple watches may be in effect at the same time.

2.4.3. Weather Warning. A special notice to inform installation personnel when an established weather condition of such intensity as to pose a hazard to life or property is occurring or is

expected to occur. Warnings are issued for criteria defined in the JBA Installation Data Page (KADW Data Page) and are valid for a 5NM radius from the center of the JBA runway complex.

2.4.3.1. According to AFI 15-129 Table 4.2 item 7, warnings will no longer be bundled and will be issued separately. The only exception is when the OWS has to issue a convective which are pre-bundled in Integrated Weather Warning Capability (IWWC).

2.4.3.2. Warnings provide concise information outlining environmental threats. If a warning is issued for one weather criterion and it becomes necessary to warn for another weather criterion, a new warning, with a new number, is issued.

2.4.3.3. Forecasted warnings take precedence over advisories for the same phenomenon and should maintain horizontal consistency with TAFs and other forecasts products.

2.4.4. Observed Weather Warnings. Lightning warnings are the only observed warning issued for JBA and are issued for within 5NM and 10NM of the center point of the JBA runway complex. Lightning warnings are not issued until lightning is observed, either visually, via the FMQ-19 lightning sensor, or AFW-WEBS. The lightning warning will remain valid until 15 minutes after lightning is no longer observed. Exception: A lightning warning will not be cancelled if a thunderstorm is indicated by radar and within the specified range (5NM or 10NM). This is due to the strong possibility of lightning strikes occurring within 5NM of JBA.

2.4.5. Weather Advisories. A notice to inform end users when an established environmental condition affecting operations is occurring or is expected to occur at JBA. Observed/forecasted weather advisory criteria are defined in the JBA Installation Data Page (KADW Data Page).

2.4.6. WWA Numbering Scheme. WWAs are numbered consecutively by identifying the type of weather message (watch, warning, or advisory) followed by a five-digit number. The first two numbers indicate the current month while the second three numbers indicate the sequence number. For example, the message "Weather Warning 02-005" means the month is February (02) and this is the fifth (005) warning issued in the month. The message "Weather Advisory 12-013" means the month is December (12) and this is the thirteenth (013) advisory issued in the month.

2.4.7. WWA Upgrades/Downgrades. An upgrade is a change to an active WWA resulting from adding additional WWA phenomenon or an increase in phenomenon intensity that crosses to a higher threshold (e.g., winds increase from 35 knots to 50 knots). A downgrade is a change to an active WWA resulting from removing WWA phenomenon or a decrease in phenomenon intensity that crosses to a lower threshold (e.g., hail decreases from ¾ inch to ¼ inch).

2.4.8. WWA Amendments. Amendments are issued when an active WWA no longer adequately describes a phenomenon's expected occurrence. All amendments are issued with a new WWA number and should clearly state what affect the new WWA has on any previously issued notices.

2.4.9. WWA Extensions. Extensions are issued when a phenomenon's occurrence is expected to last longer than originally forecast. Extensions are issued prior to the expiration of the original WWA utilizing the same WWA number. Extensions should clearly state what effect they have on any previously issued notices.

2.4.10. WWA Cancellation. WWA are canceled when the weather phenomenon is no longer occurring or expected to occur. WWA not extended or canceled automatically expire at the end of the valid period. Observed advisories are canceled when the criteria has not occurred in the last 30 minutes. See para 2.4.4 for cancellation of observed lightning warnings.

2.5. Dissemination Process.

2.5.1. Observations. Observations taken by either the FMQ-19 or the weather technician are disseminated via JET. When JET/Base Network is nonoperational, the WF relays observations to the following organizations in order of priority listed in Table 2.1.

Table 2.1. Notification Priority.

1. Tower commercial (301) 735-5831 or hotline
2. 11 WG/CP commercial (301) 981-5058
3. Airfield Management commercial (301) 981-9442
4. 15 OWS commercial **(**618) 256-9699

2.5.2. TAFs. WF disseminates TAFs via JET. If JET is nonoperational, the WF disseminates the TAF to ATC via telephone, fax, or email.

2.5.3. SWSs. 15 OWS transmits SWSs to WF leadership via email. WF leadership forwards SWSs to 89 OSS leadership.

2.5.4. WWAs. The 15 OWS or the WF enters WWAs into JET for dissemination to ATC, 11 WG/CP, and 89 OSS/OSA Airfield Management. If JET is out-of-service, the 15 OWS or the WF disseminates WWAs via backup calls. Upon notification, units identified in Figure 2.1 further disseminate WWAs using the pyramid notification scheme. In addition, the 11 WG/CP disseminates all WWAs via email and/or AtHoc.

2.5.4.1. Lightning Warnings. All lightning warnings are disseminated by the 11 WG/CP to the base populace and local agencies.

2.5.4.2. Tornado Warnings. Warnings for tornadoes are disseminated to base populace by 11 WG/CP via the base warning system.

Figure 2.1. Weather Pyramid Alerting.

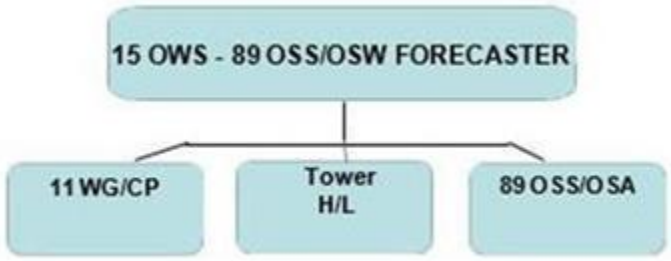


Figure 2.2. 11 WG/CP Notification Matrix.

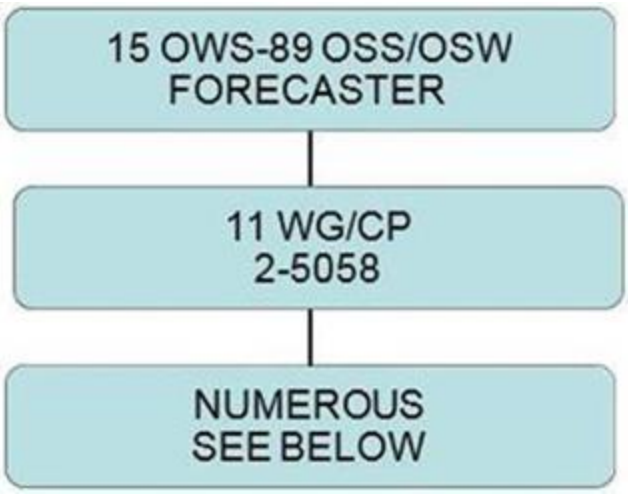
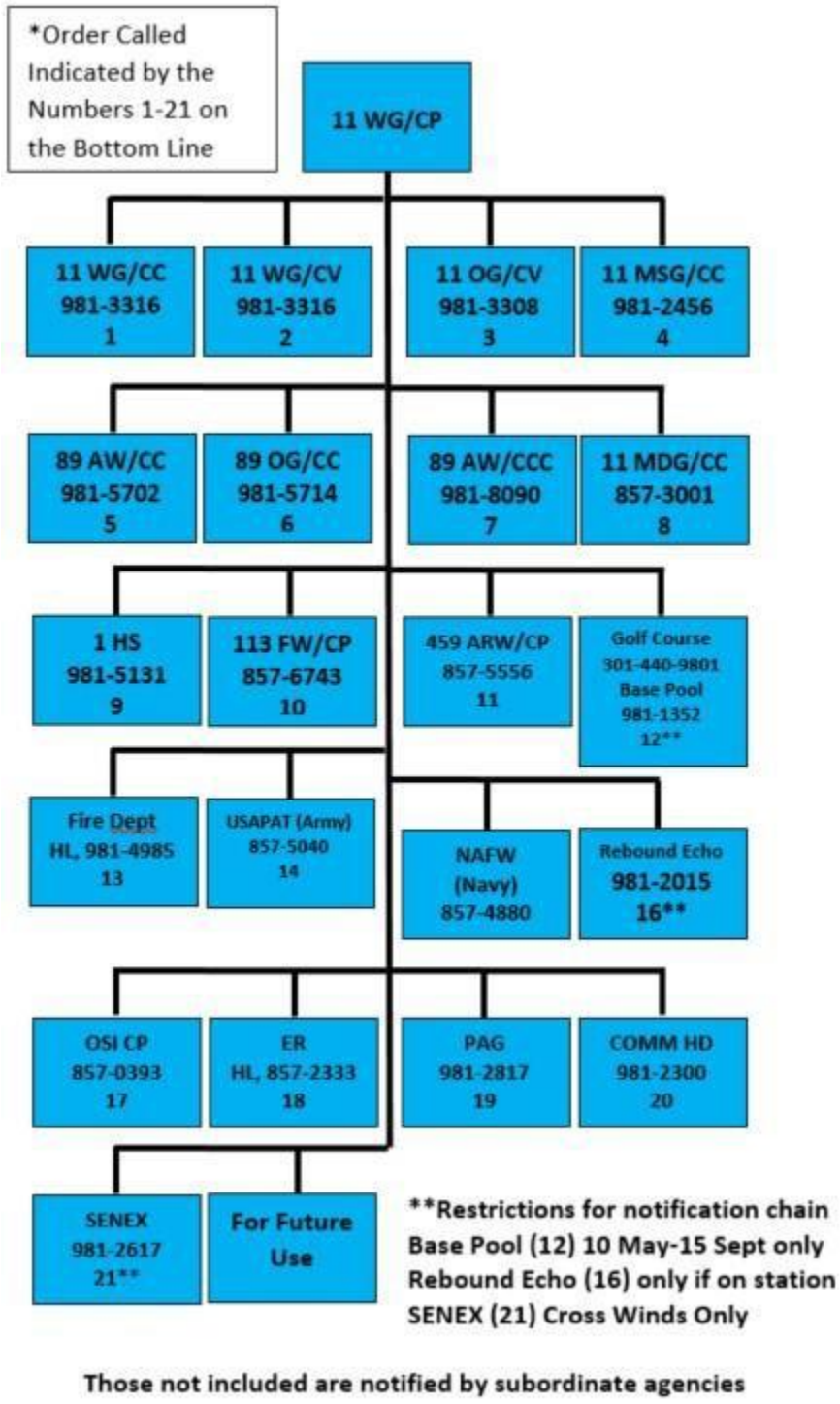


Figure 2.3. 11 WG/CP Notification Matrix Cont'd



2.6. Cooperative Weather Watch (CWW). The WF and ATC have established a Cooperative Weather Watch (CWW) IAW AFMAN 15-111. The agreement outlines each unit's responsibilities when specific meteorological phenomena are observed. Of primary concern is the report of tower visibility differing from the prevailing surface visibility, local PIREPs, and any occurrence of previously unreported weather conditions that could affect flight safety or be critical

to the safety or efficiency of other local operations and resources. WF technicians and ATC personnel should thoroughly understand and be able to execute the CWW agreement. The CWW can be located found at 89 OSS Sharepoint Letters of Procedure (LOP) page titled "CWW MOU 1 Dec 2019".

2.7. PMSV Support. PMSV contact is available 24/7 on frequency 344.6 MHz. PMSV is the primary means of disseminating weather information to airborne aircraft. All aircrews should use the PMSV for PIREPs and in-flight weather support. During base outages PMSV can also be obtained from Pope Air Field and Wright-Patterson AFB WFs or via phone patch to the WF or 15 OWS by contacting the 11 WG/CP. Daily PMSV radio checks are performed with JBA Tower.

2.8. Emergency Action(s) Response.

2.8.1. Aircraft Mishap. When notified of an aircraft mishap, the WF initiates a save of applicable data used in the development of any weather products provided. Archived weather data is available to investigating agencies upon request.

2.8.1.1. If the WF provided the MWP, the WF notifies the 15 OWS Senior Duty Officer of all aircraft mishaps as soon as possible after notification of the event. The WF coordinates with the 15 OWS to save all applicable data and products. If products from other OWSs were used, the WF coordinates with all applicable OWSs to ensure the correct data is saved. OWSs save sufficient data in order to fully reconstruct environmental conditions before and after the mishap.

2.8.1.2. If an OWS, TACC/XOW, or another WF provided the MWP, they are responsible for conducting the data save in coordination with any other Air Force Weather units involved.

2.8.2. SWAP. The SWAP ensures sufficient manpower is available to meet the increased demand for timely weather information during significant weather events. The WF duty forecaster initiates the SWAP when any of the criteria in Table 2.2 are forecast to occur.

Table 2.2. Conditions Requiring SWAP Activation.

SWAP ACTIVATION Criteria
Tornado Watch
Tornado Warning
Hail $\geq$ 1/2 inch Warning
Winds $\geq$ 50 kts Warning
Heavy Snow Warning
Freezing Precipitation Warning

2.8.3. Chemical, Biological, Radiological, Nuclear, and High-yield Explosive (CBRNE) Response. The WF works closely with Emergency Management (EM) to ensure supported commanders receive the relevant information needed to obtain a timely and accurate picture of the environmental situation. Upon request, the WF provides EM:

2.8.3.1. Surface observations and/or alphanumeric forecasts representative of the location and time of the CBRNE event.

2.8.3.2. The appropriate Chemical Downwind Messages obtained from the 15 OWS.

2.8.4. In accordance with AFI 10-2501 *Air Force Emergency Management Program*, the WF will coordinate weather services to support EM operations requirements by providing meteorological parameters, data, and subject matter expertise to installation Disaster Response Force elements and Emergency Operations Center (EOC) Emergency Support Functions (ESFs). The WF will partner with the Civil Engineering Squadron, Readiness Services, Explosive Ordnance Disposal, Bioenvironmental Engineering Flight, and National Guard Civil Support Team for Air National Guard weather organizations, as the weather subject matter expert responsible for optimizing weather data input to Chemical Downwind Messages (CDMs), Effective Downwind Messages (EDMs), and CBRNE hazard prediction models used by these ESFs for decision assistance in the EOC, CBRNE Control Center, and the incident site.

Chapter 3

MISSION SERVICES

3.1. General. The WF, 15 OWS and TACC/XOW support a large variety of flying and non-flying missions on JBA. This chapter focuses on routine products and services provided to aviation units. The primary weather provided and mission limiting weather thresholds are outlined in Attachment 5. Support to non-flying missions (e.g., Wing Picnic, Change of Command ceremonies, Morale Welfare and Recreation, etc.) are discussed in Chapter 4.

3.2. MWP.

3.2.1. MWP fuse theater scale products with local mission requirement to provide timely, accurate, and relevant environmental information for planning and execution. MWPs should be consistent with (but not necessarily mirror) products issued by any OWS and 557th Weather Wing (557 WW).

3.2.2. Mission Execution Forecasts (MEFs). Weather technicians provide MEFs in the form of a locally produced DD Form 175-1 when requested from supported agencies and transient aircrew. Because weather technicians do not have access to all supported agencies' scheduling systems, the primary method for aviators to request a MEF from the WF is via the following link hosted by the 15 OWS (MEF Request Form). Aviators requesting a MEF using the link above should contact WF personnel following the submission of the request to verify receipt. Requests for MEFs may also be submitted in person at the WF or via telephone. The request should be provided to the WF with a minimum of 2-hour notice prior to brief time.

3.2.3. 89 AW (1 AS and 99 AS). The WF will provide support to all flights in the form of a locally produced DD Form 175-1 and place top priority on providing alert forecasts (verbal or 175-1) when requested.

3.2.4. 1st Helicopter Squadron (1 HS). The WF prepares a MWP in the form of an amendable flimsy for the 1 HS. The flimsy is a MEF tailored specifically for the 1 HS and is updated two times a day at intervals based on operational requirements and amended as necessary. In addition, the WF will provide any verbal or DD Form 175-1 MEFs supporting alert aircraft activities and long-range missions as requested.

3.2.5. 121st Fighter Squadron (121 FS). The WF will prepare a flight weather briefing for the 121 FS working areas. This MWP will be provided based on the daily flight schedule and will be filled out IAW local standard operating procedures. In addition, WF will provide any verbal or DD Form 175-1 MWPs supporting alert aircraft activities as requested.

3.2.6. US Army Priority Air Transport (USAPAT). The WF will provide support to all USAPAT flights departing from JBA in the form of a locally produced DD Form 175-1. When necessary, WF will serve as a liaison to arrange for weather briefing services when services are not provided by WF personnel.

3.2.6.1. Presidential Airlift Group (PAG). The WF will provide:

3.2.6.2. 24/7/365 dedicated mission readiness. Presidential support personnel must be available for no-notice missions at all times.

3.2.6.3. Locally developed alphanumeric MEF.

3.2.6.4. Graphical turbulence forecast products valid for the specific time and route of flight (time phased) for areas of occasional light, light, occasional moderate, moderate, occasional severe, severe and extreme turbulence. All turbulence forecasts will be tailored to local requirements from applicable OWS forecasts.

3.2.6.5. Graphical icing forecast products valid for the specific time and route of flight (time phased) for areas of light, moderate and severe icing (all types). All icing forecasts will be tailored to local requirements from applicable OWS forecasts.

3.2.6.6. Graphical precipitation forecast products valid for the specific time and route of flight (time phased) for areas of isolated, few, scattered, and numerous thunderstorms, rain showers, ice pellets, rain, freezing rain, freezing drizzle, and areas of drizzle to include maximum tops and potential severe outbreaks. All precipitation forecasts (including thunderstorms) will be tailored to local requirements from applicable OWS forecasts.

3.2.6.7. Flight level winds at the preferred level for each mission leg and time.

3.2.6.8. Continuous Missionwatch from takeoff to touchdown (final stop) on mission days to include enroute updates of PIREPS, radar updates (e.g., convective wind gusts, hail, tornadoes), and changing conditions at destination/alternates.

3.2.6.9. Vertical cross sections for surface to 45,000 feet to aid in identifying areas of occasional light, light, occasional moderate, moderate, occasional severe, severe and extreme turbulence.

3.2.6.10. Mission planning briefings one business day prior to the scheduled mission which will include takeoff/landing conditions, forecast areas of turbulence, precipitation, and icing expected on the day of each Air Force One movement.

3.2.6.11. Locally developed MWP for all PAG training flights.

3.2.6.12. A phone call to PAS/XS (PAG/UCC) (981-6171) when RVR is < 1600 feet.

3.2.7. 459th Air Refueling Wing (459 ARW). The 89 OSS/OSW will provide the 459 ARW MEF support upon request during alert missions and exercises. The amendable MEF will be updated four times daily at 0700L, 1300L, 1900L, and 0100L. The MEF will include regional flying weather and hazards as required by local operating policy. The MEF will also include daily forecasted maximum and minimum temperature, pressure altitude, density altitude, and hourly wind data.

3.3. MISSIONWATCH.

3.3.1. METWATCH is a deliberate process for monitoring terrestrial weather or the space environment for specific mission-limiting environmental factors that may adversely impact missions in execution. The MISSIONWATCH process 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.

3.3.2. WF Briefed Sorties. The WF performs a continuous MISSIONWATCH for all WF briefed missions. When MWPs differ from observed conditions to the extent that it has the potential to impact operations, the WF coordinates MWP amendments/updates with the appropriate OWS. Additionally, when previously unforecasted weather conditions expose a

mission to potential risk, the WF will contact the requesting unit to relay the updated information. When the weather technician is unable to contact the requesting unit, the weather technician will contact 11 WG/CP. The CP will pass this information to the aircrew or provide the information to the unit's on-call personnel.

3.3.3. TACC/XOW Briefed Sorties, Per AMCI 15-101, WFs are assigned the responsibility for weather support to all Non-Flight Managed, United States Transportation Command assigned, Air Mobility Command, Air National Guard, and Air Force Reserve Command sorties on the WF's respective base. Please reference chapter two and attachments four and five. The AMCI 15-101 can be located on EPUBs.

3.4. Post-Mission Analysis/Feedback.

3.4.1. Aircrews should contact the 89 OSS/OSW with post- mission information and/or follow-up support. The 89 OSS/OSW will utilize customer feedback to improve internal processes and enhance training, forecast proficiency, and product accuracy. Formal/informal feedback methods include:

3.4.2. Completion of 89 OSW/OSW feedback worksheet.

3.4.3. Phone call or an email to TACC/XOW or the WF.

3.4.4. Face-to-face feedback after briefing and/or mission completion.

3.5. Transient Aircrew Support. Weather technicians will provide or arrange for weather support for transient aircrews IAW the duty priorities list Table 1.1. The WF may provide flight weather briefings (175-1s), and/or updates to aircrews. Weather technicians may arrange for weather support from the 15 OWS briefing cell when higher duty priorities take precedence. The 15 OWS briefing cell can be reached at DSN 576-9755/9702, commercial (618) 256-9755/9702, or via web access (please click here) from the aircrew briefing terminal, maintained by Airfield Management, located in the flight planning room.

3.6. Space Weather Impacts. JBA missions have a wide-variety of parameters affected by various space-weather conditions (e.g., High Frequency and Ultra High Frequency communication, radar, Global Positioning System communications, etc.). The WF and 15 OWS include space impacts into MWPs.

3.7. Hurricane MWP.

3.7.1. When tropical systems are within (or forecast to be within) 500 NM of JBA, the WF will issue a hurricane MWP after the National Hurricane Center (NHC) issues bulletins (typically every 6 hours). Hurricane MWPs are issued to alert using agencies of the potential for winds 50 knots hurricane conditions (HURCON) or greater within 96, 72, 48, or 24 hours at JBA. The hurricane MWP may be issued at any time deemed necessary by WF leadership and/or requested by base leadership. It will contain all the latest information regarding the movement and forecast track of the storm, as well as any impact on JBA. When briefing JBA leadership, there will be no deviations from the official NHC position, track, movement, or maximum wind speed. The NHC forecast will aid in the WF leadership determining what HURCON condition to recommend to JBA leadership. An example is provided in Attachment 7. The HURCON definitions are as follows based off of AFMAN 10-206 dated 18 June 2018:

3.7.2. HURCON 5: Destructive winds are possible within 96 hours.

3.7.3. HURCON 4: Destructive winds are possible within 72 hours.

3.7.4. HURCON 3: Destructive winds are possible within 48 hours.

3.7.5. HURCON 2: Destructive winds are anticipated within 24 hours.

3.7.6. HURCON 1: Destructive winds are anticipated within 12 hours.

3.7.7. HURCON 1E: Emergency: Winds of 58mph/50 knots sustained and/or gusts of 69 mph/60 knots or greater are occurring.

3.7.8. HURCON 1R: Recovery: Destructive winds have subsided and are no longer forecast to occur; survey and work crews are permitted to determine the extent of the damage and to establish safe zones around hazards (e.g. downed power lines, unstable structures). Non-essential personnel are asked to remain indoors.

Chapter 4

STAFF SERVICES

4.1. General. Staff services are typically accomplished by WF leadership and include meteorological functions (e.g., briefings), ensuring the WF is trained and equipped for day-to- day operations, and cultivating relationships with base agencies to ensure WF support is optimal.

4.2. Staff Meteorological Functions.

4.2.1. Staff meteorological functions aid leadership in identifying and understanding specific weather and environmental impacts. The WF is available to assist commanders in determining weather support requirements and impacts to operations. Examples of staff meteorological functions provided are:

4.2.2. Wing Stand Up. Briefings are provided Monday thru Friday via e-mail to AFDW/CC, 11 WG/CC, 89 AW/CC, and staff. Briefings are provided in person weekly on Monday, Wednesday and Friday at 0800L to the 89 AW/CC and the first and third Wednesday of each month at 1000L to the 11 WG/CC. For the 89 AW/CC brief, ensure to arrive at the 89 OG/CC office NLT 0740L for a pre-brief. Briefing content is based on location procedures and CC preferences.

4.2.3. Installation Control Center (ICC)/Crisis Action Team (CAT) Briefings. The WF provides weather support as required for ICC/CAT briefings. This includes real-world emergency, exercise, and deployment briefings. Each briefing is tailored to provide the appropriate weather intelligence required by the 11 WG and/or 89 AW leadership.

4.2.4. Instrument Refresher Course (IRC) Briefings. IAW AFMAN 11-210, Instrument Refresher Course (IRC) Program, computer-based training is available for the weather portion of the briefing. If requested, the WF can provide a briefer to discuss more detailed local weather effects and impacts. This briefing includes airfield and mission services, WF capabilities, RP, seasonal/regional weather and space weather impacts (when applicable).

4.2.5. Pre-deployment Planning Briefings. The WF provides pre-deployment weather briefings as requested. Briefing content is tailored to meet customer requirements. For example, an aviation unit receives weather impacts at the deployed location on their flying mission, in addition to the standard surface weather information usually presented to ground units. A ground-based unit receives a briefing on surface temperatures, wind speed, potential for blowing sand and dust, and precipitation.

4.2.6. Air Force District of Washington (AFDW) Commander & Staff. While not manned to routinely provide weather support to AFDW, the WF will provide weather briefings as mission workload permits and will respond to requests for emergency/CAT support if possible. The WF will provide weather intelligence at the local level. The AFDW Commander & Staff may request strategic/worldwide weather support from the 557 WW/XP as needed.

4.2.7. Additional Briefing Requests. WF will provide weather briefings upon request and as mission workload permits for Wing picnics, Change of Command ceremonies, Morale Welfare and Recreation, etc.

4.2.8. Climatology Services. The WF can provide a wide variety of climatology products upon request. Example products include but are not limited to historical surface observations, long-range outlooks, global cloud cover, and upper level wind climatology.

4.2.9. Flight Information Publication (FLIP) Weather Updates. The WF is responsible for ensuring all weather information in the FLIP is accurate. All weather-related updates will be requested through the 89 OSS/OSAA FLIP Manager. The FLIP Manager will process the information to the Air Force Flight Standards Agency.

4.3. Staff Integration Functions.

4.3.1. In addition to leadership and management of unit activities, these unit members also function as a direct interface with the supported unit commander and staff, and provide direct support to command, control and planning functions. Specific procedures/functions for integration with base agencies are outlined below.

4.3.2. 11 WG and 89 AW Plans (XP). The WF assists in periodic exercises tailored to upcoming seasonal weather or other environmental concerns and educates base agencies on the purpose and applicability of WWAs.

4.3.3. 11 WG/CP. The WF notifies the CP whenever the WF primary facility is evacuated and/or the AOL is activated.

4.3.4. 11 WG/Public Affairs. The WF provides tours of the WF facility for community groups and others when coordinated by Public Affairs.

4.3.5. WF leadership participates as a member of the Airfield Operations Board (AOB) as directed in AFI 13-204 Vol III.

4.3.6. 11 CES. The WF provides a monthly climatology report upon request

4.4. Reciprocal Support.

4.4.1. 11 WG/CP.

4.4.1.1. Ensure dissemination of all WWAs as outlined in Chapter 2 of this document and in accordance with AFMAN 10-206 Table 8.1.

4.4.1.2. Immediately notify the WF forecaster-on-duty of any aircraft or ground mishaps (weather- related or not) requiring OPREP-3 reporting or local reporting requirements IAW AFI 10-206.

4.4.1.3. Upon notification, by either the WF or 15 OWS, of the potential for severe weather, utilize applicable Quick Reaction Checklists (QRC) to alert wing leadership and various base agencies.

4.4.1.4. Coordinate changes in the WWA notification list/matrix with the WF.

4.4.1.5. Activate base emergency sirens when a tornado warning is issued. Disseminate all warnings via email and/or AtHoc.

4.4.2. 11 WG Public Affairs. Coordinate requests for weather information from non-DoD agencies and tours of WF facilities with the WF Chief.

4.4.3. 89 OSS/OSAA.

4.4.3.1. Notify WF personnel of in-flight, ground emergencies, or mishaps and termination via the secondary crash network.

4.4.4. 811 OSS Radar, Airfield and Weather Systems.

4.4.4.1. Provide, coordinate, or arrange for the installation, maintenance, and repair of weather communication and meteorological sensing equipment (FMQ-19).

4.4.4.2. Maintain current weather equipment technical orders for 89 OSS/OSW.

4.4.4.3. Coordinate all scheduled maintenance on meteorological equipment with 89 OSS/OSW. If weather conditions dictate caution, weather equipment will not be taken down for scheduled maintenance.

4.4.4.4. Perform AN/TMQ-53 Tactical Meteorological Observing System pressure sensor calibrations annually or when comparisons between the tactical pressure sensor and aircraft altimeters (or similar reliable sensors) indicate calibration is warranted.

4.4.4.5. 89 AW/SE and 11 WG/SE. Request a JBA WF briefer for seasonal weather briefings and provide 2 weeks advance notice when possible.

4.4.5. 744 CS.

4.4.5.1. Maintain and administer JET IAW the memorandum of agreement among 24 AF, AF Director of Weather, and the JET Program Manager.

4.4.5.2. Provide, coordinate, or arrange for the installation, maintenance, and repair of weather communication equipment except for the communication equipment maintained by contract.

4.4.5.3. Coordinate with the weather technician prior to performing maintenance on weather communications. Ensure routine maintenance does not degrade METWATCH and/or MISSIONWATCH performed by the WF during periods of inclement weather.

4.4.5.4. Notify the responsible service agents for weather communications and meteorological sensing equipment outages.

4.4.6. 11th Security Forces Group (SFG). Promptly inform the WF of any hazardous weather reported by Security Forces personnel (e.g., tornado, hail, etc.).

4.4.7. All Supported Flying Units (1 AS, 99 AS, PAG, 113 WG, 1 HS, USAPAT, and 459 ARW).

4.4.7.1. Notify the WF of current and planned weather alternates and any special considerations affecting the duration of the mission (e.g., weather categories, exercise/deployment considerations, etc.).

4.4.7.2. Notify the WF of required additional support as soon as it becomes known to include monitoring of alternate observations/forecast and tracking of weather conditions affecting local flying operations.

4.4.7.3. Provide timely notification of changes to scheduled operations affecting weather support requirements as soon as the change is identified.

4.4.7.4. Provide PIREPS either directly to the WF or through the PMSV, tower, or Supervisor Of Flying (SOF).

4.4.7.5. Provide feedback on weather briefings via email or survey to the WF or TACC/XOW.

4.4.7.6. Provide the WF a minimum of 2 weeks advanced notification of any requirement for training conducted by the WF or any changes in requirements to previously scheduled weather training.

4.4.8. Base Operations FLIP Manager. Submit FLIP updates provided by the WF to Air Force Flight Standards Agency/Operating Location-D (AFFSA)/OL-D.

4.4.9. 11 AMDS/SGPB (Bioenvironmental Flight). Provide the base populace with the Wet Bulb Globe Temperature (WBGT) as required.

4.4.10. All Weather Support Recipients. Notify the WF when new weather support requirements are identified or when changes to current weather support is deemed necessary

Chapter 5

WEATHER EQUIPMENT

5.1. General. This chapter provides a brief description of the meteorological and communications equipment used by the WF. Additionally, it provides information on backup systems, maintenance, and restoring priorities.

5.2. Meteorological Sensing.

5.2.1. The WF uses the FMQ-19 and WSR-88D weather radar to determine the current state of the atmosphere. These critical systems provide customers the most timely, accurate, and relevant weather intelligence possible. Note: TMQ-53 is a tactical automated observing system that is used by the WF during contingency and exercise operations. The TMQ-53 provides a capability that is very similar to the FMQ-19.

5.2.2. FMQ-19. The FMQ-19 samples, measures, and reports: temperature, wind speed and direction, visibility, cloud base height and amount of coverage, pressure, liquid equivalent precipitation accumulation, and ice accretion during freezing precipitation. These measurements are processed to create properly formatted, fully automated observations that comply with applicable reporting standards and protocols defined by the World Meteorological Organization (WMO), Federal Aviation Administration (FAA), National Weather Service (NWS), and military reporting standards.

5.2.3. Gibson Ridge Software (GRS). The WF utilizes the GRS applications to access WSR-88D, Weather Surveillance Radar (i.e., NEXRAD) data. This software allows technicians to observe a large variety of both meteorological and non-meteorological phenomena ranging from sunrise spikes to detailed information on complex thunderstorm circulations. Weather technicians routinely incorporate the latest radar information into all mission execution forecasts and RP products.

5.3. Communications Equipment.

5.3.1. The following systems are the backbone of the WF communications network:

5.3.2. JET. As discussed in para 2.5 of this instruction, JET is the primary system for disseminating forecast, observations, and WWAs. Telephones are used as a backup for key aircraft controlling agencies.

5.3.3. PMSV Radio. The PMSV Radio allows the WF to communicate time sensitive weather information with aircrews, both on the ground and in the air. Refer to paragraph 2.7 for information on PMSV support.

5.3.4. Phones/Hotlines. Phones and hotlines serve primarily for rapidly passing along critical, time- sensitive information, as well as to serve for backup services.

5.3.5. Local Area Network (LAN). The WF relies heavily on the LAN to improve the timeliness and accuracy of weather intelligence to our customers.

5.4. Maintenance.

5.4.1. Organizations providing preventive maintenance and repair of weather and communications equipment are listed in Table 5.1.

Table 5.1. Equipment Maintenance List.

Organization	Equipment
811 OSS/OSM (Radar, Airfield and Weather Systems)	FMQ-19
557 WW Fielded Systems Support Center	JET
744 CS/SCPSC (Telephone Systems)	Phones/Hotlines
744 CS/SCIN (Network Maintenance)	LAN/Internet Connectivity

5.4.2. Restoral Priorities. Priorities for restoring critical systems exist in the event of natural disasters or any other anomaly, simultaneously impacting systems base-wide. Significant indicates a situation where the equipment is completely inoperative, while minimal means the equipment is in limited operation. Response times for weather equipment are listed in Table 5.2 below (priorities may be adjusted based on forecasted weather).

Table 5.2. Equipment Restoral Priorities.

Equipment	Organizational	Response Times Significant/Minimal
PMSV Radio	744 CS	Immediate/24 hours
FMQ-19	811 OSS/OSM	Immediate/24 hours
LAN/Internet Connectivity/	744 CS	Immediate/24 hours

5.5. Building Power.

5.5.1. In the event of a commercial power interruption, Bldg 1220 automatically switches to generator backup power.

ANDREW M. PURATH, Colonel,
USAF Commander, 11 WG

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 10-2501, Air Force Emergency Management (EM) Program, 19 April 2016

AFMAN 10-2502, Air Force Incident Management System (AFIMS) Standards and Procedures, 13 September 2018

AFI 11-208 Department of Defense Notice to Airmen (NOTAM) System, 13 February 2018 AFI 13- 204V3, Airfield Operations Procedures and Programs, 1 September 2010

AFI 15-114, Weather Technical Performance Evaluation, 16 Mar 2017

AFI 15-128, Weather Force Structure, 21 June 2019 AFI 11-202V3, General Flight Rules, 10 Aug 2016

AFMAN 10-206, Operating Reporting (OPREP), 18 June 2018

AFMAN 15-111, Surface Weather Observations, 12 March 2019 AFMAN 15-124, Meteorological Codes

AFMAN 15-129V1, Air and Space Weather Operations - Characterization, 21 March 2017 AFMAN 15-129V2, Air and Space Weather Operations - Exploitation, 07 December 2011 JBAI 13-204, Airfield Operations and Local Flying Procedures, 16 December 2015

AMCI 15-101, Weather Operations and Support, 3 September 2019

Prescribed Forms

None

Adopted Forms

None

Abbreviations and Acronyms

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFB—Air Force Base

AGL—Above Ground Level

AOL—Alternate Operating Location

AMC—Air Mobility Command

AMOS—Automated Observing System

ARW—Air Refueling Wing

AS—Airlift Squadron

ATC—Air Traffic Control

AW—Airlift Wing

CAT—Crisis Action Team

CB—Cumulonimbus

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

CC—Commander

CES—Civil Engineering Squadron

CONUS—Continental United States

CP—Command Post

CS—Communications Squadron

CWW—Cooperative Weather Watch

EM—Emergency Management

EWO—Emergency War Orders

FLIP—Flight Information Publication

GDSS—Global Decision Support System

IAW—In Accordance With

ICAO—International Civil Aviation Organization

ICC—Installation Control Center

IRC—Instrument Refresher Course

JET—Joint Environmental Toolkit

KT—Knots

LAN—Local Area Network

METAR—Meteorological Terminal Aviation Routine Report

METWATCH—Meteorological Watch

MOV—Moving

MWP—Mission Weather Product

NOTAM—Notice to Airmen

NWS—National Weather Service

OG—Operations Group

OHD—Overhead

OL-D—Operating Location-D

OPR—Office of Primary Responsibility

OSAM—Airfield Systems

OSS—Operations Support Squadron

OWS—Operational Weather Squadron

PIREP—Pilot Report

PMSV—Pilot-to-Metro Service

RDS—Records Disposition Schedule

RP—Resource Protection

RVR—Runway Visual Range

SM—Statute Mile

SOF—Supervisor of Flying

SPECI—Special

SWAP—Severe Weather Action Plan

SWS—Special Weather Statement

TACC—Tanker Airlift Control Center

TAF—Terminal Aerodrome Forecast

TCU—Towering Cumulus

TWR—Tower

VFR—Visual Flight Rules

VIS—Visibility

WF—Weather Flight

WSHFT—Wind Shift

WSR-88D—Weather Surveillance Radar, 1988 Doppler

WWA—Watches, Warnings, and Advisories

Attachment 2

SPECIAL WEATHER OBSERVATION CRITERIA

A2.1. Special Weather Observation Criteria.

A2.1.1. A Special weather observation is taken and disseminated for listed criteria:

A2.1.2. Visibility. When the prevailing visibility decreases below or, if below, increases to equal or exceeds any of the thresholds listed below:

Table A2.1. Visibility Thresholds.

Visibility (Statue Miles)	1/4	**1/2**	**5/8**	**3/4**	**7/8**	**1**	**1 1/8**	**1 1/4**	**1 3/8**	**1 1/2**	**2**	3
Note: Items in bold/underline indicate criteria found in the high and low altitude FLIPs.												

A2.1.3. Ceiling. When the ceiling goes below or, if below, increases to equal or exceeds any of the thresholds listed below:

Table A2.2. Ceiling Thresholds.

Height (feet)	3,000	2,000	1,500	1,000	800	700	**600**	**500**	**400**	300	**200**	100
Note: Items in bold/underlined indicate criteria found in the high and low altitude FLIPs.												

A2.1.4. Sky Condition. A layer of clouds (it does not have to be a ceiling) or obscuring phenomena aloft is observed below 800 feet and no layer was reported below this height in the previous METAR or SPECI.

A2.1.4.1. Wind.

A2.1.4.2. Shifts. A directional change of 45 degrees or more in less than 15 minutes with sustained winds of 10 knots or more throughout the wind shift.

A2.1.4.3. Squall. A strong wind characterized by a sudden onset in wind speed increasing at least 16 knots and sustained at 22 knots or more for at least 1 minute.

A2.1.5. Volcanic Eruption. Eruption or volcanic ash cloud first noted. A2.1.6. Thunderstorm.

A2.1.5.1. Begins (Note: A Special observation is not required to report the beginning of a new thunderstorm if one is currently reported as in progress at the airfield).

A2.1.5.2. Ends (Note: 15 minutes after the last occurrence of criteria for a thunderstorm; an audible sound of thunder, lightning within five (5)NM of the airfield etc.).

A2.1.6. Precipitation.

A2.1.6.1. Hail begins or ends.

A2.1.6.2. Freezing precipitation begins, ends, or changes intensity. A2.1.7.3. Ice pellets begin, end, or change in intensity.

A2.1.6.3. Any other type of precipitation begins or ends. Note: Except for freezing rain, freezing drizzle, hail, and ice pellets, a Special observation is not required for changes in

type (e.g., drizzle changing to snow grains) or the beginning or ending of one type while another is in progress (e.g., snow changing to rain and snow).

A2.1.7. Tornado, Funnel Cloud, or Waterspout. When a tornado is first observed, disappears from sight, or ends.

A2.1.8. Runway Visual Range (RVR). WF provides RVR output according to the specifications listed in Table A2.3.

Table A2.3. RVR Reporting.

Runway Visual Range (RVR)
RVR for active runway decrease to less than or, if below, increase to equal or exceed:
- **6000 feet** - **5500 feet** - **5000 feet** - **4500 feet** - **4000 feet** - **3500 feet** - **2400 feet** - **2000 feet** - **1800 feet** - 1600 feet - **1200 feet** - 1,000 feet - **700 feet**
- All published RVR minima applicable to the runway in use. Items in bold/underlined indicate criteria found in the high and low altitude FLIPs.
- RVR is first determined as unavailable (RVRNO) for the runway is use, and when it is first determined that the RVRNO report is no longer applicable, provided conditions for reporting RVR exist.

A2.1.9. Tower Visibility. When notified by ATC that the tower prevailing visibility has decreased to less than or, if below, increased to equal or exceed 1, 2, or 3 statute miles and the tower prevailing visibility differs from the surface prevailing visibility.

A2.1.10. Upon Resumption of Observing Services. Take, disseminate, and record a SPECI within 15 minutes after returning to duty following a break in hourly coverage, if a METAR was not filed as scheduled during the 15-minute period.

A2.1.11. Aircraft Mishap. When notified of an aircraft mishap, the WF checks the latest AN/FMQ-19 observation (i.e., METAR/SPECI/OMO (one minute observation)) and performs augmentation/back-up if required. When operating in a back-up mode the WF immediately takes a SPECI observation IAW AFMAN 15-111.

A2.1.12. Any other meteorological situation that, in the weather technician's opinion, is critical.

Attachment 3

SAMPLE WEATHERPRODUCTDISSEMINATIONFORMAT/INTERPRETATION

A3.1. Observation.

Table A3.1. Sample Weather Observations.

Type	**ICAO**	**Time**	**Mod**	**Wind**	**Vis**	**RVR**	**Wx**
SPECI	AD W	1506Z	AUTO	17013G22KT	2 1/2	RVRNO	TSRA
BKN015 CB OVC030			76/75	ALSTG 29.99	RMK AO2 TS OHD MOV NE		
Sky Condition			**T/Td**	**Altimeter**	**Remarks**		

A3.1.1. Type of Report. METAR or SPECI.

A3.1.2. ICAO (Station identifier). This code identifies the location of the observation.

A3.1.3. Date and Time of Report. This is in Zulu (GMT) of the last element of the observation.

A3.1.4. Report Modifier. The report modifier can be either of the following two elements:

A3.1.4.1. COR is entered into the report modifier group when a corrected METAR or SPECI is transmitted.

A3.1.4.2. AUTO identifies the report as a fully automated report with no human intervention. It automatically included in reports when the weather technician signs off the AMOS indicating the observations are no longer being augmented.

A3.1.5. Wind. The true direction the wind is blowing from and is encoded in tens of degrees using three digits. Directions less than 100 degrees are preceded with a "0." The wind speed is entered as a two or three digit group immediately following the wind direction.

A3.1.5.1. Gust. The wind gust is encoded in two or three digits immediately following the wind speed. The wind gust is encoded in whole knots using the units and tens digits and, if required, the hundreds digit.

A3.1.5.2. Variable Wind Direction (speeds 6 knots or less). Variable wind direction with wind speed 6 knots or less may be encoded as VRB in place of the direction.

A3.1.5.3. Variable Wind Direction (speeds greater than 6 knots). Wind direction varying 60 degrees or more with wind speed greater than 6 knots are encoded as variable. The variable wind direction group is immediately following the wind group. The directional variability is encoded in a clockwise direction. For example, if the wind is variable from 180 degrees to 240 degrees at 10 knots, it would be encoded 21010KT 180V240.

A3.1.5.4. Calm Wind. Calm wind is encoded as 00000KT.

A3.1.6. Visibility. Visibility is the distance at which a given object can be seen and identified with the unaided eye. On weather observations, visibility is the furthest predominant distance (at least 50% of the aerodrome) seen from the point of observation and is reported in statute miles.

A3.1.7. Runway Visual Range.

A3.1.8. Present weather. Present weather is the type of weather observed at the reporting time. These conditions may include types and intensities of precipitation such as light rain or heavy snow, as well as the condition of the air environment such as foggy, hazy, or blowing dust. A list of all reportable weather phenomena can be found in AFMAN15-111 Table 13.1.

A3.1.9. Sky Condition and Cloud Height. Sky condition is a description of the amount of clouds or obscuration (smoke, ash, dust, etc.,) either aloft or in contact with the surface of the earth. The amount is based upon octants (eights) of the sky covered by opaque (not transparent) clouds. Sky condition falls into the following categories:

A3.1.9.1. SKC – Sky Clear.

A3.1.9.2. FEW – 1/8 to 2/8 coverage.

A3.1.9.3. SCT – Scattered; 3/8 to 4/8 coverage.

A3.1.9.4. BKN – Broken; 5/8 to 7/8 coverage.

A3.1.9.5. OVC – Overcast; 8/8 coverage.

A3.1.9.6. VV – Vertical visibility; normally used during heavy fog, indicates how far up into the fog can be seen.

A3.1.9.7. FEW000 – Surface-based obscuration.

A3.1.9.8. Cloud Height. A three-digit number describing the height of the base of cloud layers in hundreds of feet (e.g., 015 equals 1,500 feet). The CB and TCU descriptors may be appended to the cloud height to indicate the cloud is a cumulonimbus or towering cumulus.

A3.1.10. Temperature and Dew Point (i.e., can be in degrees, either Fahrenheit or Celsius).

A3.1.11. Altimeter Setting. The current value aircraft altimeters must be set at to read an elevation of zero. The altimeter is measured in inches (INS) of mercury.

A3.1.12. Remarks. Table A4.3 contains some of the most commonly seen remarks in observations:

Table A3.2. Remarks Listing.

AO2—Automated sensor indicator
CB—Cumulonimbus
DSNT—Distant
ESTMD—Estimated
FROPA—Frontal Passage
LTG—Lightening
LWR—Lower
MOV—Moving
MOVD—Moved
OHD—Overhead
PK WND—Peak Wind
PRESFR—Pressure Falling Rapidly
PRESRR—Pressure Rapidly Rising
RWY—Runway
TCU—Towering Cumulus
TWR—Tower
UNKN—Unknown
VIS—Visibility
WSHFT—Wind Shift
PA—Pressure Altitude
DA—Density Altitude

A3.2. TAF.

Table A3.3. Sample TAF.

TAF KADW 0313/0419 14006KT 9999 BKN040 OVC100 QNH2996INS
BECMG 0318/0319 20010G15KT 9999 BKN040 620406 QNH2993INS
BECMG 0320/0321 19015G20KT 8000 -SHRA FEW025 OVC040 610406 QNH2991INS
TEMPO 0323/0403 VRB10G20KT 3200 -TSRA BKN015CB BKN035
BECMG 0404/0405 21007KT 9000 -RA FEW025 BKN060 620604 QNH2992INS
BECMG 0417/0418 21012KT 9999 NSW FEW030 BKN050 620505 QNH2997INS
TX12/0322Z TN03/0313Z

A3.2.1. The forecast follows the same general format as the observation with the following exceptions noted:

A3.2.2. Valid Date/Time. Forecasts are valid for a 30-hour period. In this example, the forecast is valid from the third at 1300Z until the fourth at 1900Z.

A3.2.3. BECMG – This is a code to indicate the predominant conditions are going to change to (or become) the conditions listed in the line of the forecast. The conditions are changing during the time period following the BECMG code (1800 to 1900Z in the example above).

A3.2.4. TEMPO – This code means the conditions listed on the line may occur for periods of an hour or less (1 hour and 15 minutes or less for thunderstorms) anytime between the time frame following the TEMPO code (2300Z to 0300Z in this example).

A3.2.5. Max Temp/Min Temp. TX12 indicates a maximum temperature of 12° Celsius to occur at 22Z. TN03 indicates a minimum temperature of 03° Celsius to occur at 13Z (Note: M indicates a minus sign in front of the number: M05 = -5° Celsius).

A3.3. Weather Warnings, Watches, and Advisories.

Table A3.4. Observed Weather Warning.

KADW WEATHER WARNING 05-001
VALID 17/1921Z (17/1321L) TO UFN LIGHTNING IS OBSERVED WITHIN 5NM 08/RS
1. FORECAST WEATHER WARNING.
2. KADW WEATHER WARNING 11-51
VALID 10/1500Z(10/0900L) TO 10/2200Z(10/1600L)
WINDS ASSOCIATED WITH MODERATE THUNDERSTORMS ARE FORECAST TO BE 35-49 KNOTS AT JOINT BASE ANDREWS. MAXIMUM GUST EXPECTED: 41 KNOTS 18/THB
3. WEATHER WATCH.
KADW WEATHER WATCH 05-215
VALID 15/1858Z (15/1358L) TO 15/2100Z (15/1600L)
A LIGHTNING WATCH IS NOW IN EFFECT FOR KADW UNTIL 1600L.
A WARNING WILL BE ISSUED LATER IF REQUIRED.
58/GO
4. OBSERVED WEATHER ADVISORY.
5. KADW WEATHER ADVISORY 09-134
6. VALID 08/1408Z (080908L) TO UFN
CROSSWINDS OBSERVED TO BE EQUAL TO OR GREATER THAN 25KTS 44/ST

Attachment 4

CUSTOMER RESPONSE MATRIX

Table A4.1. Wind (Steady State or Gusting).

Wind	Unit	Reference	Action
15-25kts	89 APS	APS Manufacturer's Guidance	Green Catering Van: Use Extreme Caution
22-48kts	89 APS	APS OI	Wide body stair trucks require ATOC risk assessment/approval before placement next to aircraft.
30kts	89 MXG	AFOSH 12791-100 LOI 15-1 JOI 15-1 MXG OI 21-07 GAC-TO-1B-2-10 GAC-Ground Service and Handling Handbook	Close hangar doors and secure work area No operations using high lift equipment No outdoor jacking (axle jacking permitted if aircraft nose is headed into wind) No flight control or petal door removal/replacement Tie down aircraft w/less than 80K lbs of fuel Hangar C-37A/C-37B aircraft
40kts	89 APS	APS Manufacturer's Guidance	NGSL: Discontinue 60K: Use Caution Ambulift: Discontinue White/Blue Catering Van: Discontinue
45kts	811 OG	AFOSH 12791-100 LOI 15-1 JOI 15-1	Max wind for startup or shutdown of UH-1 rotors
47.8kts	89 APS	AMC operator Plan 89 APS	Ambulift Restricted from operations at aircraft Stiner Staircase Trucks - Model 5519C: Discontinue Wide Body Stiner Staircase - Model 5519B: Discontinue
50kts	89 MXG 89 OG 11 OG	AFOSH 12791-100 LOI 15-1 JOI 15-1 OPLAN 32-1 Attachment QRC to Basic Unit Supplement	Position flight control power switches to normal Raise Flaps Remove non-powered AGE from airfield Tie down fire bottles at nose of aircraft No ambulance service available Tie down transient aircraft Hangar C-40B aircraft
60kts	89 APS	T.O. 35A3-26-1 Para 1.1	Older Stiner Staircase Trucks – Model 3518: Discontinue
70kts	89 MXG	MXG OI 21-07	Hangar C-32A aircraft

Table A4.2. Lightning.

Lightning	**Unit**	**Reference**	**Action**

Observed w/in 10nm	11 WG/CP 11 OG 811 OG 89 OG 89 MXG 89 APS	Per unit procedures IAW AFMAN 91-201	Expedite servicing on scheduled aircraft Cease all explosives operations at locations (outdoor and indoor) not equipped with a Lightning Protection System (LPS) Begin preparations to cease all explosives at outdoor locations equipped with an LPS
Observed w/in 5nm	11 WG/CP 11 OG 811 OG 11 WG 89 MXG 89 APS	Per unit procedures IAW AFMAN 91-201	Cease all aircraft servicing Dyncorps determines suspending all maintenance activities Cease Fuel Operations Boarding and exiting of aircraft suspended 89 LRS vehicle operations suspended on runway Cease operations and provide personnel protection equivalent to Public Traffic Route Distance (PTRD) distance from explosive facilities containing exposed explosives, explosive dust, or explosive vapor, regardless of whether the facility is equipped with an LPS; this includes providing protection equivalent to PTR for all locations within the PTR arc

Table A4.3. Tornado.

Tornado	Unit	Reference	Action
Forecast or Observed	15 OWS, 89 OSS/OSW, 11 WG/CP JBA	Per unit procedures	Issue Weather Warning and SPECI Observation Required (once observed) Base siren sounded Base personnel stop activities and seek cover
Dissipates	89 OSS/OSW 11 WG/CP JBA	Per unit procedures	SPECI Observation Required Base siren silenced Base personnel implement recovery procedures

Table A4.4. Thunderstorms.

Thunderstorm	Unit	Reference	Action
Hail ≥ 1/2”	15 OWS, 89 OSS/OSW 89 MXG 11 WG/CP	Per unit procedures	Issue Weather Warning and SPECI Observation Required (once observed) 11 WG/89 AW flying units hangar aircraft

Table A4.5. Precipitation.

Freezing Precip	**Unit**	**Reference**	**Action**
Freezing Drizzle or Rain	89 OSS/OSW 89 OG 89 MXG 11 OG	Per unit procedures	11 WG flying units hangar aircraft 89 OSAA initiates Snow Removal Plan

Attachment 5

MISSION-LIMITING ENVIRONMENTAL CONDITIONS

Table A5.1. C-12 Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	Weather Parameter	Limitation
C-12	Max Cross Wind Component	25 kts
	Max Cross Wind/RCR	0 kts/2, 2 kts/3, 5 kts/4, 7 kts/5, 10 kts/6, 12 kts/7, 15 kts/8, 17 kts/9, 20 kts/10, 22 kts/11, 25 kts/12
	Takeoff RVR	<1600 ft
	Takeoff Visibility (When RVR is not available)	< ½ sm
	Icing	Must avoid forecast or observed SVR; prolonged operations in MDT should be avoided
	Freezing Rain	Takeoff prohibited
	Freezing Drizzle	Takeoff allowed once aircraft is properly de-iced/anti-iced
	Induction Icing Threshold	Critical for engine start: Temp ≤ 47 F w/ RH ≥ 50% and visible moisture present. (Visible moisture includes fog (vsby ≤ 1nm), rain, wet snow, etc.
	Turbulence	May operate in LGT/MDT
	Lightning/Thunderstorms/Cumulonimbus Clouds	If unable to vertically clear by 2,000 ft, avoid by 10 nm below FL230, 20 nm at or above FL230
	Volcanic Activity	Avoid volcanic activity by at least 20nm
	High Frequency Communications	Loss of HF capability could impact communications with ATC or C2 agencies
	In-flight Refueling	N/A

Table A5.2. C-12 Training Maneuver Restrictions.

(Ref: AFI 11-2C-12, Volume 3, *C-12 Operations Procedures*)	
Maneuver	**Restriction**
Touch-and-Go Landings	Ceiling ≥ 300 ft & Visibility ≥ ¾ sm

Table A5.3. VC-25A Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	Weather Parameter	Limitation
VC-25A	Max Cross Wind Component	Restricted Information
	Max Cross Wind/RCR	Restricted Information
	Icing	Must avoid SVR
	Induction Icing Threshold	Engine anti-icing must be used when temperature is ≤ 50F
	Turbulence	Must avoid SVR
	Lightning/Thunderstorms	Avoid by 10 nm below FL230, 20 nm at or above FL230
	In-flight Refueling	Visibility ≥ 1 nm

Table A5.4. C-32 Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	Weather Parameter	Limitation
C-32	Max Cross Wind Component	28 kts when landing on a wet, dry, or untreated snow when no melting is present runway 20 kts when landing with standing water or slush 17 kts when landing on untreated ice with not melting present 25 kts during take-off on a wet runway 40 kts when take-off is on a dry runway 20 kts when take-off runway condition is untreated snow and no melting is present 15 kts when take-off runway condition is untreated ice with no melting present, and standing water or slush
	Wind Speed	> 50 kts (takeoff and landing)
	Ceiling/Visibility	Takeoff permitted when weather is below published ceiling but RVR must be ≥ 1,600ft (visibility ≥ 1/4sm when RVR is not available) or approach end RVR is ≥ 1,200ft,
	Icing	Prolonged flight (cruise) in areas of forecast or reported severe icing (freezing rain) is prohibited.
	Turbulence	Must avoid ≥ MDT Mountain Wave and all SVR

	Lightning/Thunderstorms	Avoid vertically by ≥ 2,000ft; avoid by 5 nm for tactical low- level
	In-flight Refueling	Do not plan to refuel in areas where forecast visibility is less than 1 NM.

Table A5.5. C-32 Training Maneuver Restrictions.

(Ref: AFI 11-2C-32B, Volume 3, *C-32BV3 Operations Procedures*)	
Maneuver	**Restriction**
Touch-and-Go Landings	Ceiling ≥ 300 ft & Visibility ≥ ¾ sm (RVR 4,000 ft) with Instructor Pilot or Evaluator Pilot Ceiling ≥ 600 ft & Visibility ≥ 2 sm without Instructor Pilot or Evaluator Pilot
Category II ILS Approach Training	Ceiling ≥ 200 ft & Visibility ≥ ½ sm (RVR 2,400 ft) Crosswind > 25kts

Table A5.6. C-37A/B Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	**Weather Parameter**	**Limitation**
C-37A/B	Max Cross Wind Component	30 kts
	Max Cross Wind/RCR	15 kts/6-8, 20 kts/>8
	Icing	May operate in MDT for short periods
	Induction Icing Threshold	
	Turbulence	Must avoid ≥ MDT Mountain Wave and all SVR
	Lightning/Thunderstorms	Avoid by 10 nm below FL230, 20 nm at or above FL230
	In-flight Refueling	N/A

Table A5.7. C-40 Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	**Weather Parameter**	**Limitation**
	Max Cross Wind Component	33 kts when landing on wet/dry runway 25 kts during take-off on a wet runway 33 kts when take-off is on a dry runway

C-40	Max Cross Wind/RCR	15 kts for takeoff in standing water/slush 25 kts for takeoff on snow-no melting 15kts for takeoff on ice-no melting 20 kts for landing in standing water/slush 25 kts for landing in snow-no melting 17 kts for landing in ice-no melting
	Icing	Avoid SVR
	Induction Icing Threshold	Engine anti-icing must be used with temperatures below 50F
	Turbulence	Must avoid ≥ MDT Mountain Wave and all SVR
	Lightning/Thunderstorms	Avoid by 10 nm below FL230, 20 nm at or above FL230
	In-flight Refueling	N/A

Table A5.8. C-130 Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	Weather Parameter	Limitation
C-130	Max Cross Wind Component	30 kts
	Operational Mission Takeoff RVR	< 1000 ft (if RVR is not available VIS must by ≥1/2sm)
	All Other Missions Takeoff RVR	< 1600 ft (if RVR is not available VIS must by ≥1/2sm)
	Icing	Avoid areas of SVR
	Induction Icing Threshold	
	Turbulence	May operate in LGT/MDT, restricted from operating in SVR
	PAR Approach RVR	< 2400 ft (if RVR is not available VIS must be ≥ 1/2sm)
	Freezing Rain	Takeoff prohibited
	Freezing Drizzle	Takeoff allowed once aircraft is properlyde-iced/anti-iced
	Lightning/Thunderstorms	Avoid vertically by ≥ 2,000ft; avoid by 5 nm for tactical low- level
	Volcanic Activity	Avoid volcanic activity by at least 20nm
	In-flight Refueling	Visibility ≥ 1 nm

Table A5.9. C-130 Training Maneuver Restrictions.

(Ref: AFI 11-2C-130, Volume 3, *C-130 Operations Procedures*)	
Maneuver	**Restriction**
Touch-and-Go Landings	Ceiling ≥ 300 ft & Visibility ≥ ¾ sm with Instructor Pilot Ceiling ≥ 600 ft & Visibility ≥ 2 sm for touch-and-go certified aircraft commanders
Simulated Engine Failure Limitations	Night - Ceiling ≥ 1000 ft & Visibility ≥ 2 sm (or circling minimums for approach being flown)
Stop-and-Go Landings	Ceiling ≥ 300 ft & Visibility ≥ ¾ sm

Table A5.10. C-130 Formation Takeoff and Landing.

(Ref: AFI 11-2C-130, Volume 3, *C-130 Operations Procedures*)	
Maneuver	**Restriction**
Touch-and-Go Landings	Ceiling ≥ 200 ft & Visibility ≥ 1 sm (RVR ≥ 5000 ft)

Table A5.11. F-16 Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	**Weather Parameter**	**Limitation**
F-16	Max Cross Wind Component	25 kts
	Max Cross Wind/RCR	5 kts/5, 20 kts/23
	Icing	Must minimize exposure if possible
	Induction Icing Threshold	Values vary by unit operating aircraft; 40F may be critical
	Turbulence	May degrade mission/aircraft
	Lightning/Thunderstorms	Avoid if possible; flying through severe weather prohibited

Table A5.12. F-16 Maneuver Restrictions.

(Ref: AFI 11-2F-16, Volume 3, *F-16 Operations Procedures*)	
Maneuver	**Restriction**
Formation Takeoff	Crosswind or gust component exceeds 15 kts
Formation Approach and Landing	Crosswind or gust component exceeds 15 kts Ceiling <500 ft and visibility < 1 ½ sm
Over Water Training Missions	Surface winds > 25 kts or Sea State > 10 ft
Over Land Training Missions	Surface winds > 35 kts

Table A5.13. KC-135R Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	**Weather Parameter**	**Limitation**
KC-135R	Max Cross Wind Component	25 kts
	Max Cross Wind/RCR	Any x-wind/0-5, 20 kts/6-8, 20 kts/>8

	Icing	Flight into areas of forecast or reported severe icing is prohibited. Prolonged operation, such as cruise flight or holding, in areas of moderate icing should be avoided.
	Freezing Precipitation	Do not takeoff under conditions of freezing rain. Do not takeoff under conditions of freezing drizzleexcept when aircraft has been properly de-iced/anti-iced IAW flight manual procedures.
	Induction Icing Threshold	Engine anti-icing must be used with temperatures below 50F
KC-135R	Turbulence	Flight into areas of forecast or reported severe turbulence is prohibited. Flight into forecast/observed moderate or greater mountain wave turbulence is prohibited.
	Lightning/Thunderstorms	Do not fly directly above (within 2,000 feet) thunderstorms or cumulonimbus clouds. If unable to vertically clear thunderstorms or cumulonimbus clouds by at least 2000 feet, avoid them by at least 10NM below FL230 and by at least 20NM at and above FL 230
	Volcanic Ash	Do not operate within 5NM of volcanic ash.
	In-flight Refueling	Visibility $\geq$ 1NM

Table A5.14. UH-1 Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	**Weather Parameter**	**Limitation**
UH-1N	Max Wind for Start/Stop Rotors	45 kts
	Max Cross Wind/RCR	

	VFR Prevailing or Flight Visibility (per AFI11-202V3, Table 6.1)	Class E airspace, below FL100-3 sm Class E airspace, above FL100-5 sm Class G airspace, below FL012 (AGL) – Day ½ sm; Night 1 sm Class G airspace, above FL012 (AGL) and below FL100 (MSL) – Day 1 sm; Night 3 sm Class G airspace, above FL012 (AGL) and above FL100 (MSL) - 5sm
UH-1N	VFR Distance From Cloud (per AFI11-202V3, Table 6.1)	Per specific airspace requirement for visual flight rules.
	Icing	Avoid all icing
	Induction Icing Threshold	
	Turbulence	May operate in areas of LGT/MDT(Cat II)
	Lightning/Thunderstorms	Avoid all thunderstorms by 5 nm
	In-flight Refueling	N/A

Table A5.15. UH-1N Maneuver Restrictions.

(Ref: AFI 11-2UH-1N, Volume 3, *UH-1N Operations Procedures*)	
Maneuver	**Restriction**

Training/Exercise	Sustained winds ≥ 40 kts Day: Single-pilot ops – Ceiling < 700 ft/Visibility < 1 sm Day: Dual pilot-ops - Ceiling < 500 ft/Visibility < 1 sm Night: Unaided - Ceiling < 1,000 ft/Visibility < 2 sm Night: NVG Ops - Ceiling < 500 ft/Visibility < 1 sm

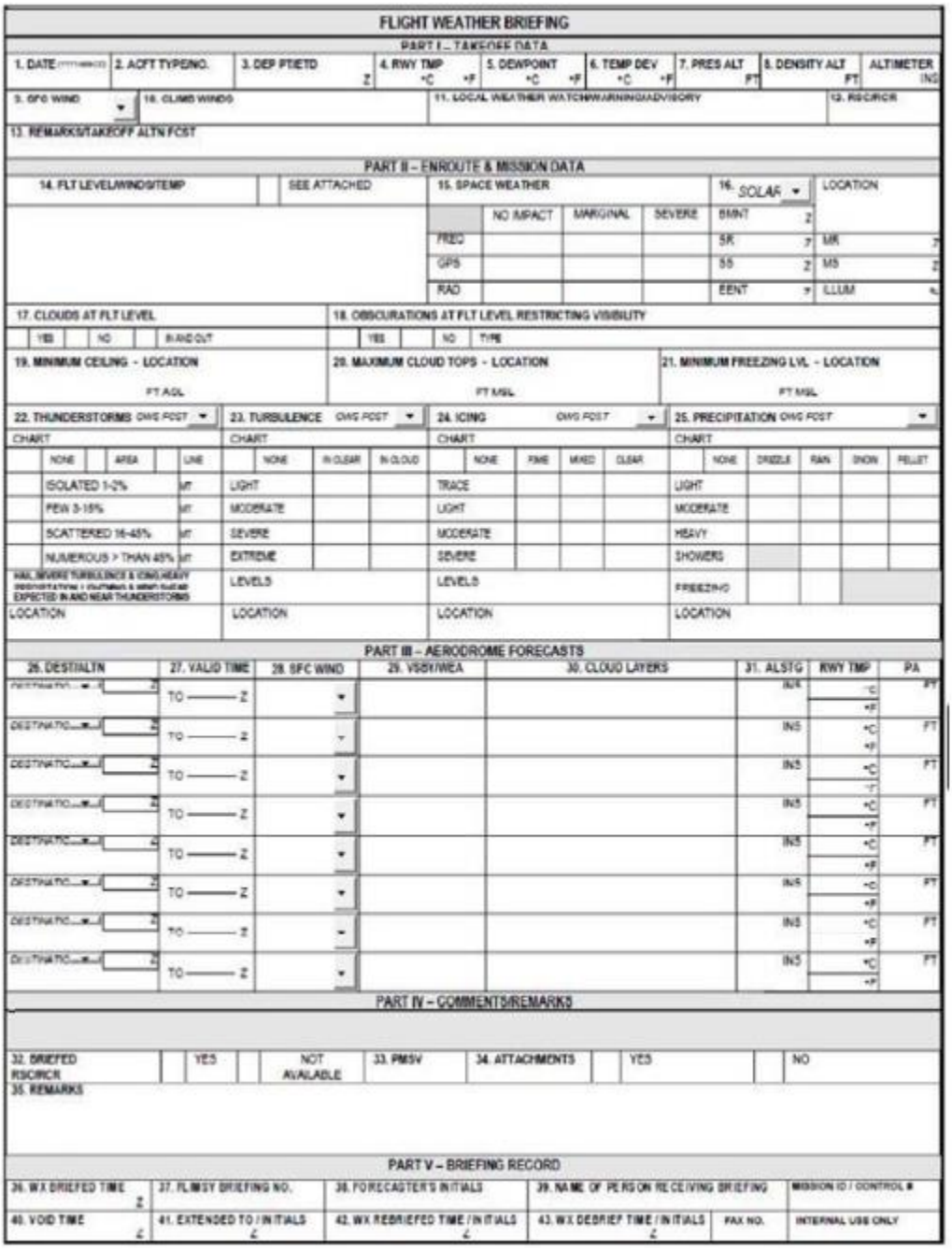
Table A5.16. UC-35A Mission-Limiting Weather/Weather Sensitivity.

Aircraft Type	**Weather Parameter**	**Limitation**
	Max Cross Wind Component	30 kts
	Max Cross Wind for RCR	
	RCR	
UC-35A	Icing	May operate in MDT or less
	Induction Icing Threshold	
	Turbulence	May operate in MDT or less
	Lightning/Thunderstorms	
	In-flight Refueling	

Attachment 6

WEATHER PRODUCT EXAMPLES

Figure A6.1. Sample Locally Produced DD Form 175-1.



FLIGHT WEATHER BRIEFING

PART I – TAKEOFF DATA

1. DATE	2. ACFT TYPE/NO.	3. DEP PT/ETD	4. RWY TMP	5. DEWPOINT	6. TEMP DEV	7. PRES ALT	8. DENSITY ALT	ALTIMETER
		Z	°C °F	°C °F	°C °F	FT	FT	INS

9. SFC WIND	10. CLIMB WINDS	11. LOCAL WEATHER WATCH/WARNING/ADVISORY	12. RSC/RCR

13. REMARKS/TAKEOFF ALTN FCST

PART II – ENROUTE & MISSION DATA

14. FLT LEVEL/WIND/SF/TEMP	SEE ATTACHED	15. SPACE WEATHER			16. SOLAR	LOCATION
			NO IMPACT	MARGINAL	SEVERE		
		FREQ				SMNT Z	
		GPS				SR Z	MR Z
		RAD				SS Z	MS Z
						EENT Z	ILLUM %

17. CLOUDS AT FLT LEVEL	18. OBSCURATIONS AT FLT LEVEL RESTRICTING VISIBILITY
YES NO IN AND OUT	YES NO TYPE

19. MINIMUM CEILING - LOCATION	20. MAXIMUM CLOUD TOPS - LOCATION	21. MINIMUM FREEZING LVL - LOCATION
FT AGL	FT MSL	FT MSL

22. THUNDERSTORMS OMG POST	23. TURBULENCE OMG POST	24. ICING OMG POST	25. PRECIPITATION OMG POST
CHART	CHART	CHART	CHART

22. NONE	AREA	LINE	23. NONE	IN CLEAR	IN CLOUD	24. NONE	RIME	MIXED	CLEAR	25. NONE	DRIZZLE	RAIN	SNOW	PELLET
	ISOLATED 1-2%	MT	LIGHT			TRACE				LIGHT				
	FEW 3-15%	MT	MODERATE			LIGHT				MODERATE				
	SCATTERED 16-45%	MT	SEVERE			MODERATE				HEAVY				
	NUMEROUS > THAN 45%	MT	EXTREME			SEVERE				SHOWERS				
HAIL, SEVERE TURBULENCE & (CB) HEAVY [illegible] EXPECTED IN AND NEAR THUNDERSTORMS			LEVELS			LEVELS				FREEZING				
LOCATION			LOCATION			LOCATION				LOCATION				

PART III – AERODROME FORECASTS

26. DEST/ALTN	27. VALID TIME	28. SFC WIND	29. VSBY/WEA	30. CLOUD LAYERS	31. ALSTG	RWY TMP	PA
[illegible] Z	TO Z				INS	°C °F	FT
DESTINATION Z	TO Z				INS	°C °F	FT
DESTINATION Z	TO Z				INS	°C °F	FT
DESTINATION Z	TO Z				INS	°C °F	FT
DESTINATION Z	TO Z				INS	°C °F	FT
DESTINATION Z	TO Z				INS	°C °F	FT
DESTINATION Z	TO Z				INS	°C °F	FT
DESTINATION Z	TO Z				INS	°C °F	FT

PART IV – COMMENTS/REMARKS

32. BRIEFED RSC/RCR	YES	NOT AVAILABLE	33. PMSV	34. ATTACHMENTS	YES	NO

35. REMARKS

PART V – BRIEFING RECORD

36. WX BRIEFED TIME Z	37. FLIMSY BRIEFING NO.	38. FORECASTER'S INITIALS	39. NAME OF PERSON RECEIVING BRIEFING		MISSION ID / CONTROL #
40. VOID TIME Z	41. EXTENDED TO / INITIALS Z	42. WX REBRIEFED TIME / INITIALS Z	43. WX DEBRIEF TIME / INITIALS Z	FAX NO.	INTERNAL USE ONLY

Figure A6.2. Sample 1ST Helicopter Squadron MEF.

JBA 1ST HELICOPTER SQUADRON FLYING MEF — PM MEF

MEF VALID WHN GRAPHIC BELOW FOR PLANNING PURPOSES. PLEASE CALL DSN 981-2048 FOR OPERATIONAL USE UPDATES.

Valid Time: 12-Nov-19 15L-00L | Post Time: 1345L

Forecast Conditions

TIME (L)	WINDS (KT)	VIS (SM) / WEATHER	SKY CONDITION
14-23	32015G25	7	FEW015 BKN060 BKN100
23-00	34010G20	7	SCT060

WWAs

ADVISORY: WINDS GTE 25KT LT 35KT TIL 23L

Space Weather

UHF	NONE
GPS	NONE

Hourly Data

Time	15L	16L	17L	18L	19L	20L	21L	22L	23L	00L
TMP	03C	03C	03C	02C	01C	01C	01C	01C	02C	03C
DPT	-06C	-07C	-07C	-07C	-07C	-07C	-07C	-08C	-08C	-09C
PA	+216FT	+197FT	+170FT	+151FT	+124FT	+96FT	+68FT	+41FT	+23FT	+4FT
DA	-1125FT	-1152FT	-1187FT	-1335FT	-1495FT	-1529FT	-1817FT	-1955FT	#######	-2160FT
RH	52%	48%	48%	52%	56%	56%	64%	59%	64%	64%

Max Temp: +03C | Min Temp: -04C | Max DA: -1125FT | Max RH: 04% | Overnight Temp: [redacted]

Min CIG: 005 (KFIC) | Min Vis (SM): 1-SN (KFIC) | Min FZ LVL: SFC | PRECIP: 4 TRACE

Hazards SFC - 05L (PO ET TIME +12HRS)

Area 1 (NCR Cedar)
MOD TURBC SFC-020

Area 2 (NW Maryland)
MOD TURBC SFC-020

Area 3 (N MD and PA)
MOD TURBC SFC-020

Area 4 (S MD and VA)
LGT OCNL MOD TURBC SFC-020
ISOLD -SN
LGT RIME ICING 020-060

Local Airfields

KHGR		KMDT	
WINDS TIL 15L		WINDS TIL 19L	
KOKV		KMRB	
WINDS TIL 15L		WINDS TIL 19L	
KFDK		KBWI	
WINDS TIL 15L		WINDS TIL 19L	
KIAD		KDCA	
WINDS TIL 15L		WINDS TIL 19L	
KNYG		KFIC	
WINDS TIL 15L		CIG TIL 15L	

Flight Level Winds (KT)

AGL	NCR	W73	KFIC
030	33030	32030	34030
020	33030	32030	34025
010	33025	32025	34020
005	32020	32020	34016

Remarks:

TAF AMD KADV 121852 1219/1323 [illegible] BKN100 QNH2990INS BECMG 1303/1304 34010G18KT 9999 SCT060 QNH3000INS BECMG 1309/1310 34008KT 9999 SKC QNH3025INS T1304/2102Z TNM04/1022

Limiters

CIGS	VIS	WINDS	VX
>005	>1SM	<25KT	<15KTS
<005	<1SM	>25KT	>15KTS

Illum 99.7%

BMCT	EECT	MRI
0618L	1725L	1722L
SR	SS	MS
0646L	1656L	0636L

KADV PMSV: 344.6 (5NM MAXIMUM RANGE) PLEASE CONTACT WITH PREPS

MEF Version: 2

Forecaster Init: ABC

IHS MEF Verbal Log

Pilot Initials		Briefer Initial		Time		

Remarks / Additional Ini

Figure A6.3. Sample 459 ARW Alert MEF.

459 ARW ALERT WX FLIMSY — AM MEF

Joint Base Andrews	Valid Time		Post Time
Latitude 38 49N Longitude 76 52W Altitude 282FT	12-Nov-19	06-18L	0500L

Forecast Conditions

Time	Winds	Visibility / Weather	Sky Condition
06L-07L	01009KT	5/ -RA	OVC005
07L-10L	34009KT	7	OVC007
10L-16L	29006KT	7	OVC015
16L-18L	29006KY	7	SCT015 BKN025

Local Watches, Warnings, & Advisories

Take-Off and Landing Data

Max Temp	06C	Max DA	-758	Min Cig	500	Max RH	100%
Min Temp	01C	Max PA	132	Min Vis	5	Min FZLVL	001

Divert Airfields

KFSD	MVFR		KGCC	IFR			
VIS AFTR 14L			VIS TIL 11L				
KDLH	VFR		KDDC	IFR			
			CLG				
KWRI	IFR		KBGR	VFR			
CLG TIL 14L							
CYHZ	VFR		CYYT	MVFR			
			WNDS				
CYQX	MVFR		BIKF	VFR			
WNDS							

SEE ATTACHED CHARTS FOR ALL HAZARDS

Flight Level Winds

MSL	KADW	AR777	USA/EUR
FL100	28035	27025	SEE CHARTS
FL150	28041	26039	
FL200	27047	26042	
FL250	27053	26053	
FL300	27061	26062	

Divert Threshold Criteria

CIG	≥ 030	≥ 010 / < 030	< 010
VIS	> 3SM	≥ 2SM / < 3SM	< 2SM
Winds	<25KT	>25KT / <45KT	>45KT

MEF ID	02-A-1
Forecaster Initials	GK

This brief is for planning purposes only. Please call 89 OSS Weather Flight DSN 981-2840 to validate for operational use.

KADW PMSV: CONTACT WX FLT VIA 11WG/CP PMSV 378.1 FOR PHONE PATCH	Additional Remarks:
Please contact with PIREPS	

459 ARW MEF Verbal Log

Pilot Initials		Briefer Initials		Time	
Remarks / Additional Info					
Pilot Initials		Briefer Initials		Time	
Remarks / Additional Info					

Figure A6.4. Sample Hurricane MWP.