

**BY ORDER OF THE COMMANDER
WRIGHTPATTERSON AIR FORCE
BASE**

**WRIGHTPATTERSON AIR FORCE
BASE INSTRUCTION 15-101**

21 JULY 2023

Weather

WEATHER SUPPORT



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available on the e-Publishing web site at e-Publishing.af.mil for downloading or ordering

RELEASABILITY: There are no releasability restrictions on this publication

OPR: 88OSS/OSW

Certified by: 88OSS/CC
(Lt Col Donald E. Roley)

Supersedes: WRIGHTPATTERSONAFBI15-101,
19 May 2019

Pages: 46

This instruction establishes and defines Wright-Patterson Air Force Base (WPAFB) weather support requirements and responsibilities and implements Air Force Policy Directive (AFPD) 15-1, Weather Operations, AFMAN 15-111, Surface Weather Observations, AFMAN 15-124, Meteorological Codes, AFMAN 15-129, Air and Space Weather Operations, AFMAN 10-206, Operational Reporting (OPREP), AFI 10-2501, Emergency Management Program, and the Memorandum of Agreement (MOA)/Data Page between the Weather Flight and the 15th Operational Weather Squadron at Scott AFB. This instruction establishes responsibilities and weather support procedures and provides general information for weather services, including weather observations and forecasts, weather watches, warnings and advisories, information dissemination, base-wide reciprocal support, and space weather data. It applies to units assigned to the 88th Air Base Wing (88 ABW), subordinate units, and units assigned, attached, or supported by WPAFB. This publication applies to Active, Air National Guard, and Air Force Reserve Forces. All records created because of processes prescribed in this publication are maintained in accordance with (IAW) AFI 33-322, Records Management & Information Governance Program, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). 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 chain of command to 88 OSS/OSW.

SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. Significant changes were made throughout this publication. Resource Protection Support and Watches, Warnings, and Advisories (WWA) were move to a separate **Chapter 5**. Many Air Force manuals and instructions were recently rewritten, and those changes were included into this update as appropriate. Removed references to Exploitation and Characterization Unit. The Weather Flight responsibility for issuing and amending Terminal Aerodrome Forecast was added. Updated Weather Watch, Warning, and Advisory responsibilities/criteria IAW AFMAN 15-129. Most references to 15 OWS as a contingency have been removed. Changed all references of AMOS to FBWOS (Fixed Based Weather Observing System). Other minor administrative changes were made throughout the instruction.

Chapter 1—GENERAL INFORMATION	5
1.1. General.....	5
1.2. Operating Hours.....	5
1.3. Weather Contact Information.	5
1.4. Concept of Weather Operations.....	5
Table 1.1. Weather Flight Duty Priority.	7
1.5. Release of Weather Information.	7
Chapter 2—AIRFIELD WEATHER SERVICES	8
2.1. General.....	8
2.2. Weather Observations.....	8
Table 2.1. Mandatory Supplementary Weather Conditions.....	10
Table 2.2. Local Supplementary Weather Conditions.	10
2.3. Terminal Aerodrome Forecast (TAF) Support.	11
2.4. Observation/TAF Dissemination Process.	11
Table 2.3. Notification Priority.	11
2.5. Meteorological Watch (METWATCH).....	11
2.6. Cooperative Weather Watch (CWW).....	12
2.7. Pilot to Metro Service (PMSV) Support.....	12
2.8. Emergency Action(s) Response.....	13
2.9. Flight Information Publication (FLIP) Reviews.	13
Chapter 3—MISSION INTEGRATION	14
3.1. General.....	14
3.2. Flying Missions.....	14

3.3.	Lead Weather Unit (LWU).	15
3.4.	Mission Weather Products (MWP).	15
3.5.	MISSIONWATCH.	16
3.6.	Post-Mission Analysis/Feedback.	16
3.7.	Transient Aircrew Support.	16
3.8.	Non-Flying Missions.	16
3.9.	Space Weather.	16
Table 3.1.	Local Space Weather Criteria.	17
Chapter 4—STAFF INTEGRATION		19
4.1.	General.	19
4.2.	Staff Meteorological Functions.	19
4.3.	Reciprocal Support.	20
4.4.	Operating Plan (OPLAN) Review/Support.	24
Chapter 5—RESOURCE PROTECTION SUPPORT		25
5.1.	Resource Protection Support.	25
5.2.	Weather Watches.	25
Table 5.1.	Weather Watches.	25
5.3.	Weather Warnings.	26
Table 5.2.	Weather Warnings.	26
5.4.	Weather Advisories.	27
Table 5.3.	Weather Advisories.	27
5.5.	WWA Numbering Scheme.	27
5.6.	Severe Weather Action Procedures (SWAP).	28
Table 5.4.	Conditions Requiring SWAP Activation.	29
5.7.	Dissemination Process.	29
5.8.	Special Weather Statement (SWS).	29
Chapter 6—WEATHER EQUIPMENT		30
6.1.	General.	30
6.2.	Meteorological Equipment.	30
6.3.	Communications Equipment.	30
6.4.	Maintenance.	30
Table 6.1.	Equipment Maintenance List.	31

Table 6.2.	Equipment Restoral Priorities.	31
6.5.	Backup Power.	31
Attachment 1—	GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION	32
Attachment 2—	SPECIAL WEATHER OBSERVATION CRITERIA	37
Attachment 3—	TERMINAL AERODROME FORECASTS (TAF) SPECIFICATION AND AMENDMENT CRITERIA	40
Attachment 4—	CUSTOMER RESPONSE MATRIX	44
Attachment 5—	FLYING UNIT MISSION LIMITING ENVIRONMENTAL CONDITIONS	46

Chapter 1

GENERAL INFORMATION

1.1. General. The 88th Operational Support Squadron Weather Flight (88 OSS/OSW) provides weather support to the 88th Air Base Wing, 445th Airlift Wing, Air Force Materiel Command, Air Force Life Cycle Management Center, Air Force Research Laboratory, Air Force Institute of Technology, National Museum of the USAF, Wright Patterson Medical Center, and all subordinate units, units assigned, attached, or supported by WPAFB. This instruction establishes requirements and procedures for weather support which must be coordinated at the local level to meet mission needs. It consolidates weather support requirements and procedures for peace time operations. It does not cover weather support procedures for emergency war order operations or certain other special operations and procedures. This OI eliminates the need for written agreements between the Weather Flight and supported operations.

1.2. Operating Hours. Airfield Services and Mission Services hours of operations are 24 hours a day, 7 days a week, and 365 days per year unless Air Traffic Control hours dictate an airfield closure. The Site Manager will establish appropriate staffing to meet operational requirements of the 88 ABW. Staff Weather Services are available during normal duty hours, M-F, 0800 – 1600, or as needed.

1.3. Weather Contact Information.

1.3.1. Weather Flight Main Line: (937)-257-7779 / DSN 787-7779

1.3.2. Forecaster Warnings/Advisories: (937) 257-3260 / DSN 787-3260

1.3.3. Forecaster Mission Briefer: (937) 257-3102 / DSN 787-3102

1.3.4. Site Manager: (937) 257-6801 / DSN 787-6801

1.3.5. Assistant Site Manager: (937) 257-4270 / DSN 787-4270

1.3.6. Fax: (937) 257-1205 / DSN 878-1205

1.3.7. Alternate Operating Location: (937) 904-3935 / DSN 674-3935

1.3.8. Email: 88oss.osw.weather.flight@us.af.mil

1.3.9. Address: 88 OSS/OSW, 5291 Skeel Ave, Bldg 206 Rm 1, Wright-Patterson AFB, OH 45433-5232

1.4. Concept of Weather Operations. The Weather Flight will focus on providing tactical level weather products and information needed for mission planning and execution during peacetime operations, contingency, and exercise. They are the go-to weather subject matter experts (SME) to provide tailored weather products to WPAFB.

1.4.1. Alternate Operating Location (AOL). The Weather Flight maintains an AOL to continually provide weather support requirements when the primary duty location is evacuated. However, the mission essential Forecasters will NOT evacuate during exercises and will be available to provide weather support operations.

1.4.1.1. Relocation. In the event of an actual evacuation, emergency or communication outage, the Weather Flight will move to building 101 (445 AW Logistics Readiness Squadron (LRS), Room L116). The Weather Forecasters will follow duty-specific standard operating procedures (SOPs) for evacuation and back-up equipment checklists and resume operations at the AOL as soon as possible. During AOL operations the following functions may be impacted.

1.4.1.1.1. Communications. Weather Flight is forced to evacuate by loss of power or lack of connectivity to the Joint Environmental Toolkit (JET) system (the primary means of disseminating weather information). If JET cannot be updated with current weather information, then weather personnel will transmit weather updates via AFW-WEBS, Information Display System (IDS5), and telephone to select base agencies.

1.4.1.1.2. Pilot-to-Metro Service (PMSV). There is no direct PMSV capability for weather personnel at the AOL. After evacuating the Weather Flight and immediately upon relocating to the AOL, the weather technician will contact the ATC tower and request that ATC tower personnel pass PMSV contacts to Weather Flight personnel via phone patch. For long term outages, contact Grissom (KGUS) to take over WP PMSV calls.

1.4.1.1.3. Mission Integration. Mission execution forecast products and briefing support may be limited. Units who do not have access to the AOL will receive their mission execution forecast products and briefs via Weather Flight share point site, telephone, e-mail, printer, or fax. Briefing and/or forecasting services may be curtailed or suspended until additional manning can be recalled and establish duty priorities, **Table 1.1**. Aircrews can expect some briefing delays due to limited resources. or referred to the 15 OWS for planning and weather briefing support.

1.4.1.1.4. Staff Integration. Limited staff support will be available during AOL operations.

1.4.1.1.5. Weather Observations/Forecast. Weather observation support will be degraded if the AN/FMQ-19 is unavailable during AOL operations. At a minimum, all weather elements in the observation will be taken using backup/tactical equipment. Wind direction, wind speed, and altimeter setting will be estimated due to use of the equipment limitation. Runway Visual Range (RVR) reading will not be available. Use of tactical meteorological equipment and limited access to lightning detection, and Gibson Ridge radar equipment will likely degrade the accuracy and timeliness of some forecasts and observations.

1.4.2. Continuity of Operations (COOP). In the event of an evacuation, support limitations will be highly dependent upon the operational status of LAN communications, the Joint Environmental Toolkit (JET), and/or the AN/FMQ-19 (the primary Fixed Based Weather Observing System (FBWOS)). Moving to the AOL will occur as quickly as possible to resume operations. Prior to departure, the forecaster will place the JET in AUTO so the JET can transmit weather observations until the AOL is operating. The priority for the weather technician upon arrival at the AOL is to take and disseminate an augmented weather observation within 15 minutes. If the JET is not operating and no communication interface is available to augment the observation, use the Kestrel 5500 and other back up meteorological equipment to prepare the observation. All wind and pressure data will be estimated.

1.4.3. WPAFB Weather Data Page. The Weather Flight along with the 15 OWS will coordinate and maintain a WPAFB Installation Data Page detailing TAF specification and amendment criteria, WWA thresholds, desired lead times, mission impacts, unit information, JET back-up contacts, and local outage back-up information (https://15ows.us.af.mil/tech_ref/idp/index.cfm?icao=KFFO).

1.4.4. Duty Priorities. IAW AFMAN 15-129 the Weather Flight created the following duty priorities based on mission requirements. The Weather Flight leadership will include the principles of risk management process of operational and unique mission needs of WPAFB units.

Table 1.1. Weather Flight Duty Priority.

Priority	Duties
1	Complete Emergency War Order - Support 88 ABW Mobility Personnel; Support to Green Mission Alert Activities.
2	Execute Weather Flight Evacuation / Continuity of Operations
3	Issue/Disseminate Imminent Hazardous Weather Warnings – Perform Severe Weather Action Team (SWAT) Operations
4	Respond to Aircraft/Ground Emergencies
5	Issue/Disseminate Imminent Advisories
6	Respond to Airborne Aircraft (PMSV)
7	Disseminate Weather Observation
8	Disseminate Urgent (UUA) Pilot Reports (PIREPs)
9	Disseminate Terminal Aerodrome Forecasts (TAF)/Amendments
10	Provide Flight Weather Briefings – Mission Execution Forecast
11	Perform METWATCH / Amend Weather Products
12	Perform MISSIONWATCH
13	Disseminate Routine PIREPs
14	Provide Staff Weather Briefings

1.5. Release of Weather Information. OPSEC (Operations Security) and COMSEC (Communications Security) will be considered prior to any release of weather information. Specific restrictions do not exist on the dissemination of weather information to other military agencies. Information exchange between Weather Flight and the local National Weather Service (NWS) office is encouraged in the interest of public safety and resource protection. Support to other non-military agencies, foreign governments or individuals will be coordinated with the Staff Judge Advocate and/or Public Affairs offices before information is provided. This restriction does not include routine weather information passed on automated weather circuits or information passed through the NWS in the interest of public safety.

Chapter 2

AIRFIELD WEATHER SERVICES

2.1. General. The airfield support function focuses on providing decision makers and supported organizations with timely, accurate, and relevant observed environmental information essential to flying and non-flying operations. Airfield support includes those functions affecting the WPAFB aerodrome (defined within 5NM of the base as a whole). The airfield weather services consist of weather observing, Terminal Aerodrome Forecast (TAF) generation, Cooperative Weather Watch (CWW), Basic Weather Watch (BWW), Pilot to Metro Service (PMSV), Emergency Actions, and Flight Information Publication (FLIP).

2.2. Weather Observations. Observations will be taken and disseminated IAW AFMAN 15-111. The AN/FMQ-19 (FBWOS) is the AF standard system for automated observations, with weather technicians augmenting the system when required. While in automated mode, the FBWOS continually senses and reports the following weather elements: wind, visibility (obstructions to vision), precipitation, cloud height, sky cover, temperature, dewpoint, altimeter (ALSTG), and lightning. Note: The FBWOS reports weather elements over a more limited area, concentrating on the approach end of the active runway. The FBWOS takes readings every minute and uses time averaging of elements for more consistent observations.

2.2.1. Types of Observations. There are three types of observations: Aviation Routine Weather Report (METAR), Special (SPECI) Observations, and Local (LOCAL) Observations. All observations are taken from the official observation point.

2.2.1.1. METAR (Routine Meteorological Observation Report). A METAR is a regularly scheduled observation taken and disseminated every hour at 55-59 minutes after the hour. A METAR observation may also include special weather criteria that were met during the given observing period. METAR observations are disseminated locally and longline. Longline is the process of submitting an observation through JET and eventually to DoD (GOV), non-DOD (.COM), private (.NET), and educational (.EDU) weather sites requesting weather information.

2.2.1.2. SPECI (Aviation Selected Special Weather Report). A SPECI is an unscheduled observation completed and transmitted when any of the WPAFB Special criteria listed in [Attachment 2](#) have been observed. SPECIs will contain all data elements found in a METAR plus additional remarks that elaborates on data in the body of the report. All SPECI reports will be prepared and transmitted as soon as possible after the relevant criteria are observed.

2.2.1.3. LOCAL (Local Observation). A LOCAL is an unscheduled observation, reported to the nearest minute during back-up of the FBWOS pressure sensor. LOCAL altimeter setting observations are taken at an interval not to exceed 35 minutes when there has been a change of 0.01-inch Hg (0.3 hPa) or more since the last ALSTG value. A METAR or SPECI taken within the established time interval will meet this requirement. LOCALs are taken and disseminated to ATC agencies as soon as possible after the relevant altimeter setting change is observed.

2.2.2. Official Observing Points. The official observing point is the location of the FMQ-19 sensors located on the North and South ends of the airfield. Under normal circumstances the sensor on the North end of the airfield will be used. During periods of augmentation, the observation point will be approximately 50 feet away from the north side of building 206. If augmentation is required during relocations to the Alternate Operating Location (AOL) the observation point is the north side of Building 101 on the flight-line next to the metal drainage grate. The AOL elevation is the same as the official observing elevation of 823 feet.

2.2.2.1. Observing Point Limitations. Augmented observations taken at the primary augmentation site are degraded because the observer's view to the east through the south is blocked by an aircraft hangar and surrounding buildings. Additional limitation is thunder may not be heard due to flight line noise. Augmented observations taken at the AOL are degraded because view to the east is blocked by buildings.

2.2.3. Automated Observation. An automated observation is any observation having been evaluated, prepared, and transmitted by an observing system without human interaction. In automated mode, the FBWOS observing system will record and disseminate weather observations. In an automated observation all other elements evaluated are based on sensor data that is within 10 minutes or less of the actual time of the observation. The FMQ-19 sky condition will be an evaluation of sensor data gathered during the 30-minute period ending at the actual time of the observation.

2.2.4. Augmentation Observation. Augmentation is the process of having a position qualified weather forecaster add or edit data to an automated observation generated by the FBWOS. The visual observations from the duty forecaster will ensure accuracy. Individual elements entered must reflect conditions existing at the actual time of observation.

2.2.4.1. Supplementing FBWOSs. Supplemental observations are defined as manually editing/adding meteorological information to an observation generated by the FBWOS that is beyond that system's capability to measure and report. For example, the sensor cannot sense a tornado or hail.

2.2.4.2. Supplementing Procedures. Weather technician will supplement observations when the weather conditions in **Table 2.1.**, Mandatory Supplementary Weather Conditions or **Table 2.2.**, Local Supplementary Weather Conditions, are observed or forecast to occur within one hour. Weather personnel are prepared to supplement observations whenever a watch or warning has been issued for tornadic activity.

Table 2.1. Mandatory Supplementary Weather Conditions.

Tornado (+ FC) (Notes 1 & 2)
Funnel Cloud (FC) (Notes 1 & 2)
Waterspout (+ FC) (Notes 1 & 2)
Freezing Precipitation (FZRA/FZDZ)
Ice Pellets (PL)
Hail (GR)
Volcanic Ash (VA)
Tower Visibility Remark (Report in remarks if Tower visibility is less than 4 miles and differs from surface visibility by at least one category.)
Any weather element deemed operationally significant that is beyond the capabilities of the automated weather observing system.
Notes:
1. The immediate reporting of tornadic activity takes precedence over all other phenomena.
2. Be prepared to supplement whenever a tornado watch is valid, or warning has been issued; regardless of airfield closure status.
3. Based on local weather warning criteria.
4. All Remarks and Additive Data references are provided in AFMAN 15-111.

Table 2.2. Local Supplementary Weather Conditions.

Ceiling forms below or decreases to less than 2000 feet
Visibility decreases to less than 3 statute miles
Thunderstorm activity within 10nm of WPAFB
All Precipitation occurring
Extenuating Local conditions that impact operations / flight safety

2.2.5. Backup Procedures. In the event of an FMQ-19 malfunctions or fails, back-up procedures will be implemented. Back-up is the process of manually editing/adding data when the primary method is not operational, unavailable or suspected to be providing erroneous data (e.g., sensor/comm failures). The weather technician will manual input (augment) the observation using local backup procedures (SOPs). All element entries must be observed within 15 minutes of the actual time of the observation. Unrepresentative values from any equipment, regardless of the method used, will not be included in the observation, and will be considered missing if they cannot be determined through other methods. When utilizing back-up equipment all wind and pressure values must be recorded as estimated.

2.3. Terminal Aerodrome Forecast (TAF) Support. The on-duty Forecaster is responsible for creating and issuing a TAF every eight hours. (0300, 1100, and 1900 Zulu time) Each TAF will cover a 30-hour period. The International Civil Aviation Organization (ICAO) airport code for WPAFB is KFFO. These forecasts apply to an area within a five nautical mile (NM) radius of the center of the runway complex. An aviation forecast formatted as a TAF according to AFMAN 15-124 Meteorological Codes, provides official meteorological information for flight planning and command and control activities at KFFO. Weather Flight establishes logical and repeatable processes for TAF construction.

2.3.1. Specification and Amendment Criteria. TAF amendments are unscheduled forecast updates which revise the content of the current forecast. The Weather Flight will amend the TAF as required. TAF forecast specification and amendment criteria are specified in **Attachment 3** of this document.

2.3.2. Airfield Closure. During a scheduled airfield closure, the Weather Flight will not disseminate the scheduled TAFs. The last TAF prior to the closure will annotate the expected time the next TAF will be issued. If the airfield opens prior to the predetermined time, a TAF will be issued with the reopen time of airfield. A TAF that aligns with the predetermined TAF times will be issued at the scheduled time.

2.4. Observation/TAF Dissemination Process.

2.4.1. Observations. Automated and/or Augmented observations are disseminated by the JET for longline transmission and/or the IDS5 for local dissemination. If/when JET is non-operational, the duty forecaster will relay observations using AFW-WEB for longline transmission and IDS-5 for local dissemination. **Table 2.3.**, Notification Priority, will be used to phone out observation when all other systems have failed.

2.4.2. TAFs. The weather technician will disseminate the TAF via JET for longline dissemination and/or IDS5 for local dissemination. When JET is non-operational, the Weather Forecaster will relay TAF to Control Tower via IDS5, via telephone, fax, or e-mail.

Table 2.3. Notification Priority.

1. Air Traffic Control (ATC) (88 OSS/OSAT) commercial (937) 257-1713
2. AFMC Command Center commercial (937) 257-6314
3. 445 AW Command Post commercial (937) 257-3551
4. Airfield Operations (88 OSS/OSAM) commercial (937) 257-4492
5. 15 OWS: (DSN) 312-576-9699 or (COMM) 618-256-9699

2.5. Meteorological Watch (METWATCH). The Weather Flight (WF) will conduct METWATCH to provide controlled and organized situational awareness of the current and future meteorological situation for WPAFB. During METWATCH the weather forecaster/observers will recheck weather conditions at intervals not to exceed 20 minutes since the last observation/recheck, to determine the need for a SPECI observation.

2.5.1. METWATCH will be performed when any of the following conditions are observed or are forecast to occur within 1 hour:

- 2.5.1.1. Ceiling forms below or decreases to less than 2000 feet.
 - 2.5.1.2. Visibility decreases to less than 3 miles.
 - 2.5.1.3. Thunderstorms
 - 2.5.1.4. Precipitation (any form)
 - 2.5.1.5. Fog or Mist
 - 2.5.1.6. All supplemental criteria specified in **Table 2.1** and **Table 2.2**.
 - 2.5.1.7. During mandatory back-up of FBWOS IAW AFMAN 15-111, paragraph 5.3
 - 2.5.1.8. In addition to the above minimum requirements, technicians will remain alert for any other changes in weather conditions requiring a SPECI observation as listed in AFMAN 15-111 Attachment 2, and Attachment 2 of this publication.
- 2.5.2. Weather personnel will also monitor local area observations and forecast products as often as necessary to keep abreast of changes expected to affect the local area.
- 2.5.3. The METWATCH will be conducted regardless of FBWOS operating mode using sound risk management (RM) practices.

2.6. Cooperative Weather Watch (CWW). The CWW is a program where qualified non-weather personnel (ATC) monitor the weather to assist in the reporting of weather conditions. The Weather Flight and ATC have established a CWW as required by AFMAN 15-111, Surface Weather Observations and AFMAN 13-204V1. The agreement outlines ATC's responsibility to notify the weather forecaster when ATC personnel observe specific meteorological phenomena. The primary concern is for the tower to report 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 effectiveness of other local operations and resources. All Weather Forecasters must thoroughly understand and be able to execute every element in the local cooperative weather watch agreement. Weather Flight will maintain standard operating procedures (SOP) for supporting the CWW program.

- 2.6.1. Weather forecasters will reevaluate the weather conditions whenever a reliable source (control tower, pilots, local law enforcement, etc.,) reports weather conditions different from the last disseminated observation. Weather personnel will report on the next SPECI OR METAR all conditions not reported on previous observation.

2.7. Pilot to Metro Service (PMSV) Support. The Weather Flight operates a PMSV radio or global phone patch (DSN 787-7779) to provide updated weather information to airborne aircrews and to receive PIREPS (Pilot Reports). Weather information is available via PMSV during duty hours on frequency 348.4 Megahertz (MHz). The duty forecaster will monitor PMSV traffic for all aircraft contacts. No backup PMSV capability currently exists; however, Grissom AFB will provide alternate PMSV service.

- 2.7.1. The forecaster will pass to the aircrew only current, complete, and relevant information to aircrews. Warn aircrews of weather hazards along their flight and relay any position and movement of hazardous weather. Ask the aircrews to report significant weather conditions encountered during takeoff/climb-out, approach, landing, and in the local pattern.

2.7.2. In the interest of flight safety, it is important for all dangerous or un-forecasted weather conditions to be promptly reported. ATC or SOF (Supervisor of Flying) will relay PIREPS to the Weather Flight within five minutes of receipt. These conditions include, but are limited to, low-level wind shear, icing of any type or intensity, moderate or greater turbulence, or any other significant weather phenomena.

2.7.3. Forecaster will log all PMSV contacts with aircraft call sign and a brief summation of the information given or received from the aircrew.

2.8. Emergency Action(s) Response.

2.8.1. Aircraft Mishap. When notified of an aircraft mishap, the duty forecaster will initiate a save of applicable data (Mission Execution Forecast (MEF) or the Flight Weather Briefing (FWB) 175-1) used in the development of any weather products provided to the aircraft. The weather technician/observer, when operating in a back-up mode, will immediately take a SPECI observation IAW AFMAN 15-111. Provide this information to the Site Manager who will consolidate and forward the information to the appropriate agency.

2.8.1.1. The WF will notify the 15 OWS Senior Duty Officer to save all applicable data and products. If products from other OWSs or Weather units were used, the Weather Flight will coordinate with all applicable OWSs/WFs to ensure data is saved. There should be enough data covering weather conditions before and after the mishap to fully reconstruct environmental conditions.

2.8.2. Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Response.

2.8.2.1. If surface observations or alphanumeric forecasts are requested, make sure that observations and forecasts provided are representative of the location/time of the CBRNE event.

2.8.2.2. Work closely with Emergency Management or other functions to ensure the supported commander gets a consistent picture.

2.8.2.3. Upon request from Emergency Management or other response agencies, obtain/provide Chemical Downwind Messages.

2.9. Flight Information Publication (FLIP) Reviews.

2.9.1. The Weather Flight will coordinate FLIP data changes with the Airfield Manager or designee. FLIP changes are required for the following criteria.

2.9.1.1. Change in ceiling or visibility thresholds, operating hours, PMSV frequency; change in contact numbers for supporting OWS.

2.9.1.2. Change in pertinent information to observing operations (values being estimated due to primary equipment outage, restricted visibility due to trees, buildings, etc.).

2.9.2. A Notice to Airmen (NOTAM) will be sent until requested changes have been incorporated into the appropriate publication.

2.9.3. Contractor's Officers Representative (COR), Weather Flight Site Manager or designee will review all applicable FLIP entries every time an update is issued.

Chapter 3

MISSION INTEGRATION

3.1. General. Mission integration requires an in-depth understanding of supported mission platforms, equipment, and systems capabilities/sensitivities as well as mission processes. This understanding will also lead to reliably inject timely, accurate, and relevant environmental information at every decision point in the mission planning and execution process in an effort to optimize mission success. The Weather Flight operations are configured in a manner to maximize the ability to reliably “inject” accurate weather information at the right time into the 88 ABW and tenant units flying and non-flying organizations mission planning, execution, and assessment processes.

3.2. Flying Missions. The Weather Flight provides weather support to the flying units. The 445th Airlift Wing, C-17 airlift is the primary home station flying mission. The flying unit mission limiting environmental conditions are listed in [Attachment 5](#). National Airborne Operations Center and strategic level defense missions frequently operate at, or near, WPAFB. Due to the sensitive nature of the Green Mission missions, they are not listed but are published in their own instructions and local Weather Flight SOPs.

3.2.1. To effectively provide operational weather intelligence to commanders and mission planners, the Weather Flight must be included in supported units planning processes at the appropriate time.

3.2.2. The Weather Flight will focus training on commonly used Military Operating Areas (MOA) and Air Refueling (AR) tracks provided by mission planners.

3.2.2.1. During training missions, some of the more commonly used MOAs are BUCKEYE 1, BUCKEYE 2, IR618, VR163, and VR1632. Some of the more common AR tracks used are AR455, AR315, AR321, AR220, and AR110.

3.2.2.2. Common alternate airfields used by Wright Patterson AFB flying units are Grissom ARB, IN (KGUS); North Field, SC (KXNO); Rickenbacker ANGB, OH (KLCK), and Dayton International Airport (KDAY).

3.2.2.3. Weather Flight will dedicate one or more weather technicians to perform mission integration functions throughout the entire mission planning/execution process. The Forecaster is responsible for providing tailored mission forecast products.

3.2.3. 445th Airlift Wing Support. The 445 AW provides global airlift capabilities for military and humanitarian operations. The Weather Flight provides Mission Weather Products (MWP) to include 175-1s, hazard charts, route of flight weather, and other products as necessary. When a Weather Watch, Warning, or Advisory is received, the 445th Command Post implements a local checklist to notify all personnel and vehicles who require notification of impending severe or inclement weather.

3.2.4. National Airborne Operations Center Support. Green Mission provides National Command Authority with the means to conduct offensive and defensive operations. Primary aircraft is the E-4 based at Offutt AFB, Nebraska. Missions are frequently staged out of WPAFB.

3.2.5. Flight Weather Briefings (175-1s). Flight Weather Briefings can be requested by phone, via fax, or in-person. The Weather Flight has established processes for disseminating products to standard customers and can work with transient aircrew to deliver products (although in-person briefings are preferred). Updates can be obtained by contacting the Weather Flight at DSN 787-3102 & Commercial (937) 257-3102. The Weather Flight will not turn away any transient aircrew who ask for a weather briefing.

3.3. Lead Weather Unit (LWU).

3.3.1. When WPAFB units operate with one or more other military units (e.g., air refueling wings, Tanker Airlift Control Center (TACC), etc.) a Lead Weather Unit (LWU) will be identified IAW AFMAN 15-129. As the LWU, the Weather Flight will at a minimum.

3.3.1.1. Coordinate with all operational units providing weather services to the mission.

3.3.1.2. The weather technician will define mission weather products (MWP) (e.g., Joint Operating Area Forecast charts, etc.), format (e.g., text, graphics), delivery method/times, and amendment and update criteria (if required) based on mission critical air and space thresholds for all weapons systems in the mission.

3.3.1.3. Provide MISSIONWATCH and update the controlling Mission Execution Forecasts (MEF) as required based upon mission critical thresholds.

3.4. Mission Weather Products (MWP). MWPs are designed to fuse theater scale products with WPAFB mission requirements to exploit weather conditions. The MWP is a mission-specific forecast developed using a continuous cycle that adapts as the supported unit's needs change. MWPs are "living documents" and any/all feedback will be applied to internal processes to enhance training, forecast proficiency, and product accuracy.

3.4.1. MWPs can include Mission Execution Forecasts (MEFs), long range forecasts, mission planning briefs, and environmental inputs to mission analysis, weather staff estimates, climatology analysis, and any other weather products which meet the need of WPAFB units.

3.4.2. MWPs are developed utilizing the Mission Execution Forecast Process (MEFP). The WPAFB MEFP is defined by local SOPs and AFMAN 15-129.

3.4.3. The forecaster fuses and tailor products from operational weather centers and local units to produce and amend the MWP, as needed or when rapidly changing conditions exist or when conditions threaten resource protection. It is through MISSIONWATCH and METWATCH that MWP amendments/updates are accomplished. The Forecaster will amend/update the MWP as necessary. The result is a product designed to provide timely, accurate, and relevant environmental information for planning and execution. These products must be horizontally consistent with (but not necessarily mirror) products issued by any OWS and the 557th Weather Wing.

3.5. MISSIONWATCH. MISSIONWATCH is a deliberate process used for monitoring weather and/or the space environment for specific mission-limiting environmental factors that may adversely impact mission's execution. The forecaster performs MISSIONWATCH duties by following each assigned flying unit's aircraft during their missions. Forecasters focus on weather that significantly deviates from the original MEF with specific emphasis on mission limiting weather thresholds for the mission or airframe. The weather forecaster on duty will advise the 445 AW/CP, (937) 257-3551, when any of the mission-impacting conditions occur that were not previously forecast. Notify transient aircrews through the Control Tower or Base Operations of any adverse weather conditions that have been forecasted or observed in the area. The Forecaster will actively MISSIONWATCH all non-IFM WPAFB sorties.

3.6. Post-Mission Analysis/Feedback. Aircrew should contact the Weather Flight with post-mission information and/or follow-up support. The Weather Flight will utilize customer feedback (verbal feedback or written forms) to improve internal processes and enhance training, forecast proficiency, and product accuracy. Formal/informal feedback methods include:

- 3.6.1. Completion of 88 OSS/OSW Feedback worksheet.
- 3.6.2. Phone call or an e-mail to the Weather Flight organizational email box; 88oss.osw.weather.flight@us.af.mil.
- 3.6.3. Face-to-face feedback after briefing and/or mission completion.
- 3.6.4. Interactive Customer Evaluation tool on page 2 of each Mission Execution Forecast product issued.
- 3.6.5. Contacting the Contracting Officer's Representative (COR) with any feedback, positive or negative. Comm: 937-257-5031.

3.7. Transient Aircrew Support. The Weather Flight will provide flight weather briefings (175-1s), verbal briefing, and/or updates to any current briefings for aircrews. Weather forecasters will arrange for weather support for transient aircrews IAW duty priorities list [Table 1.1](#). Provide the aircrews access to the Dave Egner Flight Planning Area for computer access to schedule a flight weather briefing from the 15 OWS.

3.8. Non-Flying Missions. The Weather Flight supports various non-flying missions (e.g., HQ AFMC staff, base exercises, AF Marathon, etc.) by focusing on resource protection and event safety, and issuing and broadcasting weather statements and watch, warnings, and advisories (WWAs). Specific support to non-flying missions is identified in [Chapter 4](#), Staff Integration. Specialized weather information can be provided to support any non-flying mission upon request. A Memorandum of Agreement (MOA)/Letter of Agreement (LOA) may be developed if the scope of the non-flying mission support exceeds normal staff weather service support. Non-governmental agencies should request weather information and support through 88 ABW Public Affairs (PA).

3.9. Space Weather. The weather technician provides space weather impacts on each MEF focusing on communications and navigation systems to include High Frequency (HF), Ultra High Frequency (UHF), and Global Positioning Systems (GPS).

3.9.1. Space Weather Impacts. WPAFB-supported missions have a wide-variety of parameters affected by various space-weather conditions (High Frequency and Ultra High Frequency communication, radar, Global Positioning System communications, etc.). The Weather Flight will provide standard or customized space impacts on MEFs. More detailed products are available at <https://owsjet15.us.af.mil/>.

3.9.1.1. Space weather products are produced and available directly from the Air Force Weather Web Service (AFW-WEBS) page. Sample space weather products and descriptions are found in **Table 3.1**. Local Space Weather Criteria.

3.9.1.2. The weather technician will submit any reported space weather impacts through the AFW-WEBS. For more information about space weather products, please contact the Weather Flight.

3.9.1.3. Local Space Weather Criteria. The criteria listed in **Tables 3.1** are used in the MEF and/or DD Form 175-1 to determine space weather impacts on operations.

Table 3.1. Local Space Weather Criteria.

HF IMPACTS Criterion	No Impact	Marginal	High
Frequency (Block 15 on 175-1) Global/Regional six Hours forecast of Ionosphere Conditions Impacting HF Propagation.	No color shading indicates no impact	HF Impacts to frequencies up to 20 MHz	Impacts to the entire HF spectrum (up to 30 MHz)
UHF IMPACTS Criterion	No Impact	Marginal	High
Frequency (Block 15 on 175-1) Global/Regional six hours forecast of Ionosphere Conditions Impacting UHF Radio Propagation, UHF SATCOM, *UHF SATCOM Scintillation.	No color shading indicates no impact *Light or weak Impacts depicted green for 1-4 dB fade	UHF Impacts experiencing 4-10 dB fade	UHF Impacts 10 dB fade
Products issued four times daily and available on AFW-WEBS. Identifies location where spaceweather conditions are expected to degrade UHF SATCOM.			
GPS IMPACTS CRITERION	No Impact	Marginal	High
GPS (Block 1 on 175-1) <u>Estimated GPS Single-Frequency GPSError Map</u>	Colors in the 0 - 15 range	Colors in the 15 - 50 range	Colors in the 50 - 75 range
GPS maps are issued every hour on AFW-WEBS. Identifies estimates of current single-frequency GPS accuracy based on calculations that take into account ionospheric-induced errors. This product is not valid for Dual Frequency GPS receivers. White on this product (values greater than 75) indicates no usable GPS navigation expected.			
HIGH ALTITUDE RADIATION DOSAGE Criterion	No Effects	Marginal	Severe
Radiation (Block 15 on 175-1) <u>High Altitude Radiation Dosage Charts</u>	0.0 – 9.9 mrem/hr	10.0 – 99.9 mrem/hr	100.0 or greater mrem/hr

Products/forecasts issued four times daily via AFW-WEBS based on cosmic radiation measurements. Quantifies the global level of radiation dosage at high altitudes based on background cosmic radiation. Followed up by faxed notification during high-energy particle events.

Product Source	Disseminated By	Update Frequency
AFW-WEBS Space Weather Web Site	2 WS	Instant
MEF/175-1	Weather Technician	Upon Request

Chapter 4

STAFF INTEGRATION

4.1. General. The staff weather support provides commanders, staff, and operations personnel with weather information for daily planning activities and critical operational decision making. Staff weather services are designed to be flexible and tailored to meet the customer's needs, providing direct support to command, control, and planning throughout the chain of command. The WF is available to assist commanders and their staff to determine their weather support requirements and impacts to their operations. The Site Manager or designated members are responsible for the content of staff briefings using customer's inputs. Staff weather services shall be made available during normal duty hours (0800 – 1700L, Monday – Friday, excluding Holidays), and can be extended as required.

4.2. Staff Meteorological Functions. The Site Manager serves as the Senior Meteorological Officer (SMO). Support includes, but is not limited to; staff weather briefings, airfield command and control briefings, mass deployment and other briefings, assisting in the planning and execution of exercises and special events, and HQ AFMC weather briefings. Examples of staff meteorological functions provided are:

4.2.1. Staff Briefings. Staff weather briefings for the 88 ABW are provided each week as required. Briefings will include, meteorological products as required to depict the current environmental situation, daily weather vision, and a 5-days WPAFB weather outlook with a focus on weather affecting Wing events. Standard weather information to including current conditions, 5-day forecast will be provided on the Weather Flight SharePoint. Additional staff weather products may be produced in support of ABW requirements. The briefing format will change to effectively describe weather impacts on the mission and to incorporate technological advancements.

4.2.2. Emergency Operations Center (EOC)/Crisis Action Team (CAT) Briefings. The Site Manager or Assistant will provide detailed weather briefings as required for EOC/CAT activations. This includes real-world emergency, exercise, and deployment briefings. Each briefing will be tailored to provide the appropriate weather intelligence required by the 88 ABW, the 445 AW, or other supported organizations as required.

4.2.3. Mobility Concept Briefing. During mobility concept briefs and/or deployment briefs, the Site Manager or Assistant will provide mobilizing personnel pre-deployment weather briefings as requested. Briefings will be tailored with WPAFB and the deployed location(s); current weather, five days forecast and climatic data. For example, an aviation unit will receive weather impacts of their flying mission at the deployed location, ground units will use standard surface weather information.

4.2.4. Climatology Services. Monthly climatic data for WPAFB will be posted to the Weather Flight SharePoint. The Weather Flight will provide climatology information when requested by DoD organizations located at or supported by WPAFB. Common products include monthly and annual climatology products to include light data, sunrise/sunset, and moon phases with illumination. The Weather Flight will coordinate with the 14th Weather Squadron, Strategic Climatic Information Service, for climatology studies as well as access to and assistance with raw climatology data.

4.2.5. Air Operations Board (AOB) Support. Weather Flight management will participate as a member of the WPAFB AOB as directed in AFMAN 13-204V1.

4.2.6. HQ AFMC, 88 ABW & 445 AW Plans and Programs (XP) Support. The Weather Flight will assist in periodic exercises tailored to upcoming seasonal weather or other environmental concerns and will educate base agencies on the purpose and applicability of weather watches, warnings, and advisories. The Weather Flight will coordinate/conference with supported organizations to document requirements, criteria, and thresholds for severe or inclement weather notification to meet mission requirements at least annually.

4.2.7. Tropical Cyclone. The National Hurricane Center (NHC) is the governing authority for all hurricane advisories, watches, and warnings in the continental United States. Hurricane season lasts from June through November. However, hurricanes have occurred at other times throughout the year. While Wright Patterson is not in the hurricane threat zone, many assets from other bases will use Wright Patterson for safe harbor location. Weather Flight will arrange for weather support for all transient aircrew evacuated to WPAFB.

4.2.8. Unit Radar Committee (URC). Weather Flight will attend the URC either in person or via teleconference to address requirements and operational concerns according to the NEXRAD Memorandum of Agreement, March 2021. The URC will be convened at least biannually. The goal of the URC shall be to meet the radar information needs, operational concerns per principal user requirements, and ensure operations procedures are in accordance with FMH 11 Part A.

4.2.9. OPREP-3 Reporting. When weather occurs and results in damage, Base Weather leadership will assist CP with weather-related OPREP-3 reports and provide the CP with all pertinent weather information as requested. Weather inputs to the OPREP-3 will be sent to AFMC/A3OW.

4.2.10. Winter Snow & Ice Team Member. The forecaster will call Snow Control, Base Operations, and the Site Manager when snow or ice is forecasted or un-forecasted occurrence.

4.3. Reciprocal Support. The Weather Flight supports numerous units with diversified missions assigned to WPAFB. Most units have common requirements regarding MWPs, TAFs, and WWA support for resource protection, as listed in other Chapters. Units with more specific requirements are listed below. Impacts and base responses to weather conditions warranting a WWA are listed in [Attachment 4](#). The agencies listed in this chapter will also provide services and information to Weather Flight as described below.

4.3.1. Staff Integration Functions. Site Manager/Assistant will ensure their unit is adequately resourced to meet airfield, mission, resource protection, and staff weather requirements. The Site Manager/Assistant will function as a direct weather forecasting interface with the supported unit commander and staff, and provide direct weather support to command, control, and planning functions. Specific integration with base agencies and the Weather Flight is outlined below.

4.3.2. Weather Support to 88 ABW & 445 AW.

4.3.2.1. Advises the staffs on all matters pertaining to weather.

4.3.2.2. Presents weather briefings at requested meetings and/or briefing.

4.3.2.3. Keep the staffs informed of the status of weather phenomena, particularly tropical cyclones, severe weather, winter storms threatening the base.

4.3.2.4. Provide informational emails to the staffs (and the top 10).

4.3.3. AFMC Command Center & 445 AW Command Post. The Weather Flight will ensure all WWAs are disseminated through the AFMC Command Center. The Weather Flight will notify the AFMC Command Center and 445 AW Command Post whenever the Weather Flight is evacuated and/or the AOL is activated.

4.3.3.1. Each Command Post will ensure dissemination of weather watches, warnings, and advisories (WWA) (**Chapter 5** Resource Protection). A critical time determination is essential in sending out the WWAs. Warning will be sent immediately; Watch and Advisories will be sent within 5 minutes after received. This will ensure the Base personnel will receive critical information so individuals can take appropriate action. Also, severe weather watches & warnings require elevation to senior staff for possible further dissemination and integration into the 88 ABW risk management decisions.

4.3.3.2. Each Command Post will run applicable Quick Reaction Checklists (QRCs) to notify Wing leadership and various base agencies of severe weather when notified by the Weather Flight.

4.3.4. 445 AW Command Post. Will notify the duty forecaster immediately of all aircraft emergencies, incidents, or accidents.

4.3.5. AFMC Command Center. Serves as the 24-hour point of contact for acknowledging receipt, and then contacting designated WPAFB agencies to ensure receipt of all WWAs. Activate sirens immediately upon notification that a tornado WARNING was issued. The Command Center is also responsible for the coordination of snow calls IAW the WPAFB Snow and Ice Plan.

4.3.6. 88 ABW/PA Support.

4.3.6.1. The Weather Flight will support media requests and tours of the Weather Flight for community groups and others.

4.3.6.2. Support other approved programs such as Job Shadow or Youth Development programs.

4.3.6.3. Coordinates with the Weather Flight on weather related stories for the base paper.

4.3.7. Support to National Airborne Operations Center.

4.3.7.1. Weather Flight will provide or arrange for general weather briefings, flight planning information, and flight weather briefings as requested.

4.3.7.2. Disseminates information to the Green Mission watch officer when any WWA is issued, extended, upgraded, downgraded, or canceled.

4.3.7.3. Whenever the klaxon alarm sounds, or when an alert notification is received from the CP, the forecaster disseminates an alert weather observation over JET within 30 seconds. An alert weather observation is not required during CP klaxon alarm test.

4.3.8. 88th Operations Support Squadron Airfield Operations Flight (OSA). The Weather Flight provides notification of all forecasted weather watches, warnings, and advisories via JET, IDS-5, telephone, e-mail, or in-person during airfield hours of operations. NOTE: This section serves as the Cooperative Weather Watch (CWW) Letter of Agreement (LOA) that is required by AFMAN 15-111. The Duty Forecaster will notify AMOPS whenever the Weather Flight is evacuated and/or the AOL is activated.

4.3.8.1. AMOPS (Base Operation) (88 OSS/OSAM).

4.3.8.1.1. Notify Duty Forecaster of in-flight and ground emergencies, or mishaps, and termination via the secondary crash network.

4.3.8.1.2. Ensure dissemination of severe weather warnings (forecasted and observed) are transmitted over the Base Ops radio network. Ensure all tornado warnings are issued over the secondary crash net.

4.3.8.1.3. Flight Information Publication (FLIP) Manager **para 2.9.** The FLIP manager will submit FLIP updates provided by the Weather Flight to Air Force Flight Standards Agency/Operating Location-D (AFFSA)/OL-D.

4.3.8.1.4. Notify Base Weather on the arrival and departures of Green Mission or any distinguished visitors.

4.3.8.2. Air Traffic Control (88 OSS/OSAT).

4.3.8.2.1. Participate in Cooperative Weather Watch (CWW).

4.3.8.2.2. Notify the Duty Forecaster of all changes in active runway.

4.3.8.2.3. Notify the Duty Forecaster of any light setting changes on the high-intensity runway lights.

4.3.8.2.4. Relay pilot weather reports to weather personnel within five minutes.

4.3.8.2.5. Provide Base Weather personnel with Control Tower orientation training.

4.3.8.2.6. Initiate radio checks to ensure proper PMSV operation daily.

4.3.8.2.7. Tower will relay visibility when less than 4SM, and any significant weather (lightning, funnel clouds, tornado) back to the weather forecaster.

4.3.8.3. Weather Flight will provide to OSAT.

4.3.8.3.1. Initial training and certification to controllers to take limited weather and visibility observations. Duty forecaster providing the training will document Initial Limited Weather Observation training on AF Form 3622, Air Traffic Control/Weather Certification and Rating Record (LRA), IAW AFMAN 13-204V1.

4.3.8.3.2. Coordinate prevailing visibility with the tower when visibility is less than 4SM and is different from the surface prevailing visibility.

4.3.9. Airfield Systems (ATCAL) (88 OSS/OSM).

4.3.9.1. Provide, coordinate, or arrange for the installation, maintenance, and repair of all-weather communication and meteorological sensing equipment, except for the communication and meteorological equipment maintained by contract (i.e., JET).

4.3.9.2. Ensure scheduled maintenance does not degrade METWATCH and/or MISSIONWATCH performed by the weather personnel during periods of inclement weather.

4.3.9.3. Utilize the restoration priorities for weather communications and meteorological sensing equipment outlined in [Table 6.2](#).

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

4.3.9.5. Coordinate with off-base agencies to repair off base lines, if needed.

4.3.9.6. Perform necessary follow-up actions as required until full service is restored.

4.3.9.7. Ensure weather data and telephone circuits are assigned repair priorities.

4.3.9.8. Ensure established maintenance response times are met.

4.3.9.9. Ensure a 24-hour point of contact for reporting outages and assigning job control numbers is available.

4.3.9.10. Coordinate with Weather Flight duty forecaster prior to taking any equipment down for maintenance.

4.3.10. 88 ABW/CEG (Civil Engineering). The Weather Flight will post on the SharePoint a summary of the daily climate data for the previous month, at the beginning of each month, and upon request. Provide periodic no-heat/no-cool long range temperature outlook during both the Fall and Spring transitions. Contact the Weather Site Manager to request additional climatological data and specialized support for energy conservation or other special projects on WPAFB. The Weather Flight will participate in CBRN threat response planning, evaluation, and exercises whenever possible by providing weather observations, forecasts, and Chemical Downwind Message (CDM) as required. Weather will issue Observed Weather Advisories [Table 5.3](#) for local river flood gauge (Mad River near Dayton/Huffman Dam) reaches 15 feet and a second advisory when the gauges reach 18 feet. Both Weather Advisories will be issued through JET and a call over to confirm receipt.

4.3.11. 88 Security Forces Squadron (SFS). Promptly inform the AFMC Command Center of any hazardous road conditions reported by Security Forces personnel (snow/ice, fog, etc.).

4.3.11.1. Road Conditions/Levels.

4.3.11.1.1. **Level 1** – Roadways are hazardous due to accumulated snow or ice. Drive cautiously.

4.3.11.1.2. **Level 2** – Roadways are hazardous due to blowing and drifting snow and/or ice cover. Only those who believe it is necessary to drive should be on the roadways. Contact your employer to determine if you should report to work.

4.3.11.1.3. **Level 3** – Roadways are closed to all non-emergency travel due to extremely hazardous conditions.

4.3.11.2. Weather forecasters will reevaluate the weather conditions whenever a reliable source (control tower, pilots, local law enforcement, etc.,) reports weather conditions different from the last disseminated observation. Weather personnel will report on the next SPECI or METAR all conditions not reported on previous observation.

4.3.12. Supported Flying Units (89th Airlift Squadron (89 AS)).

4.3.12.1. Notify weather technician of current and planned weather alternates and any special considerations affecting duration and route of flight operations (i.e., weather categories, exercise/deployment considerations, etc.).

4.3.12.2. Notify the weather personnel of required additional support as soon as it becomes known, to include monitoring of alternate observations/forecasts, changes to low level routes, refueling tracks, and tracking of weather conditions affecting local flying operations (MISSIONWATCH).

4.3.12.3. Provide support items, maps, or data relevant to flight planning and operations. Examples include but are not limited to flight schedules, low level routes, air refueling tracks, Military Operations Areas (MOAs), and other items as required. These items enhance mission planning, Operations Risk Management (ORM), and mission execution.

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

4.3.12.5. Provide PIREPS directly to the duty forecaster through the PMSV, the Control Tower, or Supervisor of Flying (SOF) if weather cannot be contacted.

4.3.12.6. Provide feedback on flight weather briefing(s) verbally, e-mail, hard-copy survey on-back of briefing, and through the COR.

4.3.12.7. Provide guidance (at least 2 weeks in advance) to the Weather Flight regarding any weather training/educational requirements (or changes in requirements) if applicable.

4.3.13. Bioenvironmental Flight (88 OMRS/SGXB). Provide the base populace with the Wet Bulb Globe Temperature (WBGT) as required. The Weather Flight will provide the current temperature and dew point upon request.

4.3.14. All Weather Support Recipients.

4.3.14.1. Notify the Weather Flight through proper chain of command or via the 88 OSS Workflow mailbox when weather support requirements need to be added, changed, or removed from supporting documentation.

4.3.14.2. Coordinate changes/additions to weather support requirements as soon as they are foreseen.

4.4. Operating Plan (OPLAN) Review/Support. The Site Manager or his/her representative (through the COR) will provide inputs to applicable OPLANs during an OPLAN review. The Site Manager will ensure the flight is postured to support all OPLAN required tasking and support requirements.

Chapter 5

RESOURCE PROTECTION SUPPORT

5.1. Resource Protection Support. The Weather Flight conducts a continuous meteorological watch to identify and assess emerging and imminent threats to WPAFB. Special Weather Statements (SWS) and Watches, Warnings, and Advisories (WWAs) are special notices provided by the Weather Flight resulting from both the forecast (TAF) and METWATCH processes to assist military decision-makers with operational safety and resource protection decisions. Advisories provide specific notice to an operational agency of environmental phenomena with the potential to impact their operations. Watches and warnings provide notice of weather events posing a hazard to life or property. Customer responses to WWAs criteria are listed in [Attachment 4](#).

5.1.1. All Watches, Warnings, and Advisories (WWAs) are issued for the immediate vicinity (within 5NM) of WPAFB aerodrome complex (10NM for Lightning).

5.1.2. WWAs should give base agencies sufficient notice (Desired Lead Time) to implement preventative safety measures.

5.2. Weather Watches. A weather watch is a special notice provided to supported WPAFB units alerting them to the potential for hazardous weather conditions. The weather watch is a “heads up” and should trigger consideration for implementing required force protection and risk management decisions. Watches are issued for a 5NM radius from the center point of the Wright Patterson airfield but there is an additional 10NM watch for lightning due to the AMMO facility and OSHA Standards. Watches normally precede a weather warning.

5.2.1. Weather Watches are used by installation personnel/supported units to make force protection and risk management decisions. Watches are issued for the criteria listed in [Table 5.1](#). Deviations to the standard weather watch criteria are due to local requirements.

Table 5.1. Weather Watches.

Watch Type	Criteria	Desired Lead Time
Tornado		As Potential Warrants
Severe Thunderstorms with Damaging Hail/Wind	Hail ≥ 1/2 inch AND OR Winds ≥ 50kts	As Potential Warrants
Damaging Winds	≥ 50kts	As Potential Warrants
Freezing Precipitation	Any Intensity	As Potential Warrants
Heavy Snow	Accumulation ≥ 2 in ≤ 12 hrs.	As Potential Warrants
Blizzard	Duration ≥ 3 hrs., sustained winds or gusts ≥ 30kts, considerable falling and/or blowing snow, with prevailing visibility frequently ≤ 1/4 SM (all criteria must be met)	As Potential Warrants
Lightning	exists w/in 10 NM	30 Minutes
Heavy Rain	≥ 2 inches of rain in ≤ 12 Hours	As Potential Warrants

5.3. Weather Warnings. A special notice to notify 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. Weather warnings provide concise information outlining environmental threats and are used by commanders and personnel to make resource protection decisions and take protective action. Weather warnings are issued for the criteria listed in [Table 5.2](#). Deviations to the standard weather warning criteria are due to local requirements.

Table 5.2. Weather Warnings.

Warning Type	Criteria	Desired Lead Time
Tornado or Funnel Cloud	Is observed	15 minutes
Severe Thunderstorms with Damaging Hail/Wings	Hail \geq 1/2 inch. Winds \geq 50kts	90 minutes
Moderate Thunderstorms Large Hail High Winds	Any Hail LT 1/2" Winds \geq 35kts but $<$ 50kts	60 minutes
Damaging Winds	\geq 50kts	60 minutes
Strong Winds	\geq 35kts but $<$ 50kts	60 minutes
Freezing Precipitation	Any Intensity	60 minutes
Heavy Snow	\geq 2" in within \leq 12 hrs.	60 minutes
Blizzard	Duration \geq 3 hrs., sustained winds/gusts \geq 30kts, considerable falling and/or blowing snow, with prevailing visibility frequently \leq 1/4 SM (all criteria met)	60 minutes
Heavy Rain	\geq 2" in within \leq 12 hrs.	60 minutes
OBSERVER WARNINGS		
Observed Lightning	within 10NM	As Observed
Observed Lightning	within 5NM	As Observed

5.3.1. Observed Weather Warnings. Lightning warnings are the only observed warning issued for WPAFB and extends 10NM in all directions from the airfield. Lightning warnings are not issued until lightning is observed, either visually or via the National Lightning Detection Network. TSTMS Ends 15 minutes after the last occurrence of an audible sound of thunder on the airfield or the Lightning Detection System (LDS) indicates the lightning threat has moved to beyond 10NM of the airfield, moving in a direction away from the airfield, and there is no further lightning threat.

5.4. Weather Advisories. Weather advisories are a special message which notifies Wright Patterson users of an established weather condition(s) effecting operations is observed or is expected to occur.

5.4.1. There are two forecasted wind advisories. Equivalent Wind Chill Temperature and Winds greater than or equal to 25kts but less than 35kts. The remaining advisories are issued for the observed criteria listed in **Table 5.3** and once an observed advisory is issued it is valid UFN (until further notice).

5.4.2. More than one advisory may be in effect at the same time, but only one will be in effect for a particular phenomenon at the same time.

Table 5.3. Weather Advisories.

Criteria	Forecast/ Observed	Desired Lead Time
Equivalent Wind Chill Temperature is $\leq 0^{\circ}\text{F}$	Forecast	180 minutes
Winds $\geq 25\text{kts}$ but $< 35\text{kts}$	Forecast	30 minutes
Observed Crosswinds $\geq 20\text{kts}$	Observed	N/A
Observed LLWS occurring below 2000 ft. AGL	Observed	N/A
Snow Accumulation $\geq 18''$	Observed	N/A
*TS w/n 50 NM	Observed	N/A
*TS w/n 25 NM	Observed	N/A
*Icing \geq Mod below 10,000 ft. AGL	Observed	N/A
*Turbulence \geq Mod below 10,000 ft. AGL	Observed	N/A
*Visibility < 1 SM	Observed	N/A
Mad River flood gauge near Dayton $\geq 15\text{ft}$	Observed	N/A
Mad River flood gauge near Dayton $\geq 18\text{ft}$	Observed	N/A
The * denote advisory for Green Mission support.		

5.5. WWA Numbering Scheme. Advisories, watches, and warnings 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.

5.5.1. WWA Upgrades/Downgrades. WWAs will be upgraded (i.e., winds increase from 35 knots to 50 knots) or downgraded as required. Upgrades should meet the desired lead times specified in **Tables 5.1.**, **Table 5.2.**, and **Table 5.3.** Only one warning will be in effect at a given time and will include multiple warning criteria as required. A separate valid time may be specified for each criterion if necessary. If a warning is issued for one criterion and it becomes necessary to warn for another criteria, a new warning and new number will be issued, to include all criteria expected. Forecast tornado warnings and/or observed lightning warnings will be separate warnings.

5.5.2. WWA Amendments. When WWAs no longer adequately describe the phenomenon's expected occurrence, a completely new WWA with a new number will be issued. The amendment will clearly state how the amendment or extension affects any previously issued notices.

5.5.3. WWA Extensions. WWAs may be extended provided the extension is issued prior to the expiration of the original notice.

5.5.4. WWA Cancellation. WWAs are canceled when the weather phenomena is no longer occurring or expected to occur. WWAs not extended or canceled will automatically expire at the end of the valid period. Observed advisories will be canceled when the criteria are no longer occurring and have not occurred in the last 30 minutes.

5.6. Severe Weather Action Procedures (SWAP). The Weather Flight will initiate SWAP activities in accordance with criteria listed in **Table 5.4** and local procedures. Severe weather procedures ensure sufficient manpower is available to meet the increased demand for timely weather information to supported unit(s) during significant weather events. It is imperative that timely and accurate weather watches, warnings, and advisories are disseminated to all agencies to ensure personnel and resource protection. The SWAT Forecaster will initiate a heightened METWATCH. The Site Manager/Assistant is responsible for SWAP activation.

Table 5.4. Conditions Requiring SWAP Activation.

SWAP ACTIVATION Criteria
1. One of the following is issued by the Weather Flight:
Tornado Watch
Tornado Warning
Severe Thunderstorm: Hail \geq 1/2-inch Warning
Winds \geq 50kts Warning
Heavy Snow Warning
Freezing Precipitation Warning
Ice Pellets Observed or Forecast Within 1 Hour
The National Weather Service issues a severe thunderstorm and/or tornado watch/warning for Montgomery, Preble, Drake, Miami, or Greene counties.
Any situation, in the opinion of the duty forecaster, requiring additional personnel (a surge in the workload, winter storm, hurricane evacuation, etc.).

5.7. Dissemination Process.

5.7.1. Watch, Warnings, & Advisories (WWAs). The Weather Flight will enter WWAs into JET to publish the information directly into IDS5 for dissemination to AFMC CP, 445 AW/CP, Tower, and Airfield Management and others. If JET is out-of-service, the Weather Flight will make or coordinate back-up calls. The AFMC Command Center disseminates all WWAs via E-Mail and/or Command Post’s automated notification systems.

5.7.2. Lightning Warning Notification. All lightning warnings are disseminated by the AFMC Command Center to the base populace via email, WPAFB automated notification systems, and the base’s Giant Voice system, allowing members on base to be prepared for dangerous weather.

5.7.3. Tornado Warning Notification. The AFMC Command Center has the primary responsibility for sending base-wide notifications (including giant voice) of tornado warnings/watches and sounding the base siren when a tornado warning has been issued.

5.8. Special Weather Statement (SWS). SWS are special notices issued by the 15 OWS to assist military decision makers of widespread severe weather events affecting military installations in their Area of Responsibility (AOR). SWSs will be routinely updated as conditions warrant. A SWS is a stand-alone product normally issued 48-72 hours in advance of the forecasted event. SWS will be an alphanumeric product describing the type, onset, duration, and area impacted by the event and will be disseminated via common user communications. SWS may also include graphical depiction of the forecast event. The 15 OWS disseminates SWS to WPAFB Weather Flight for evaluation and possible further dissemination/integration into the 88 ABW risk management decisions.

Chapter 6

WEATHER EQUIPMENT

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

6.2. Meteorological Equipment. The Weather Flight uses the FMQ-19 (FBWOS), Joint Environmental Toolkit (JET), DoD and Air Force military web sites, commercial, and educational weather products to determine the current state of the atmosphere. These systems provide forecasters the most timely, accurate, and relevant weather data and products available.

6.2.1. FMQ-19 (FBWOS) (Fixed Based Weather Observing System). 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 (local conditions) that comply with applicable various reporting standards and protocols defined in the Federal Meteorological Handbook (FMH-1), the World Meteorological Organization (WMO), the Federal Aviation Administration (FAA), National Weather Service (NWS), and military reporting standards.

6.2.2. Gibson Ridge (GR) Radar Products. The Weather Flight utilizes the 557th Weather Wing procured GR Doppler weather radar output as its primary source of radar data. Weather technicians use GR to analyze complex radar signatures and obtain detailed information on storm intensity, movement, internal circulation, and general wind flow. Weather technicians will routinely incorporate the radar information into MEFs and resource protection products. Radar products are used extensively during severe weather events.

6.3. Communications Equipment. The following systems are the backbone of the Weather Flight communications network:

6.3.1. Joint Environmental Toolkit (JET). As discussed in previous paragraphs of this instruction, the JET is the primary system for disseminating forecast, observations, warnings, watches, and advisories.

6.3.2. PMSV Radio. The PMSV Radio (348.4MHz) allows the weather technician to communicate with aircrews, both on the ground and airborne. Tower personnel will use this frequency for radio checks. If the PMSV is out-of-service at WPAFB, aircrew can contact Grissom ARB, using the same frequency, 348.4 MHz for assistance with gathering meteorological information.

6.3.3. Phones/Hotlines (ISSO Support). Phones and hotlines function primarily for rapid passing along critical, time-sensitive information, as well as to serve for backup services.

6.3.4. Local Area Network (LAN) (ISSO Support). The Weather Flight relies heavily on the LAN to improve the timeliness and accuracy of weather information to our customers.

6.4. Maintenance. [Table 6.1](#). Equipment Maintenance List identifies which organizations provide preventive maintenance and repair weather and communications equipment. 865

Table 6.1. Equipment Maintenance List.

Organization	Equipment
88 OSS/OSM (Airfield Systems - ATCALs)	FMQ-19
JET Helpdesk	JET
88 th Comm (https://www.tsf.wpafb.af.mil)	Phones/Hotlines
88 th OSS/ISSO	LAN/Internet Connectivity

6.4.1. Restoral Priorities. Priorities for restoring critical systems are documented below in the event natural disasters or any other anomaly, simultaneously impact weather systems and capabilities. Significant indicates a situation where the equipment is completely inoperative, while minimal means the equipment is in limited operation. The priorities for weather equipment are listed in **Table 6.2**, below (priorities may be adjusted based on forecasted weather).

Table 6.2. Equipment Restoral Priorities.

Equipment	Organization	Response Times Significant/Minimal
PMSV Radio	88 OSS/OSM	Immediate/24 hours
FMQ-19	88 OSS/OSM	Immediate/24 hours
LAN/Internet Connectivity/Phones/Hotlines/JET	88 CS/	Immediate/12 hours

6.5. Backup Power. In the event of a commercial power interruption, weather equipment housed in Bldg 206 will automatically switch to backup generator power. Critical weather systems are also supported by an Uninterrupted Power Supply (UPS), that will provide extended power to critical systems if both commercial and generator power are lost. 881

CHRISTOPHER B. MEEKER, Colonel, USAF
Commander

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

AFMAN 10-206, *Operational Reporting (OPREP)*, 18 Jun 2018,
AFI 10-2501, *Air Force Emergency Management (EM)*, 10 March 2020
AFMAN 11-202V3, *Flight Operations*, 10 Jan 2022
AFMAN 11-2C-17, Volume 3, *C-17 Operations Procedures*, 30 July 2019
AFI 15-127, *Weather Training*, 27 January 2021
AFI 15-128, *Weather Force Structure*, 21 June 2019
AFMAN 11-210, *Instrument Refresher Program (IRP)*, 21 December 2021
AFMAN 13-204V1, *Management of Airfield Operations*, 22 July 2020
AFMAN 15-111, *Surface Weather Observations*, 12 March 2019
AFMAN 15-124, *Meteorological Codes*, 16 January 2019
AFMAN 15-129, *Air and Space Weather Operations*, 9 July 2020
AFPD 15-1, *Weather Operations*, 14 November 2019
AFI 33-322, *Records Management & Information Governance Program*, 28 Jul 2021
WPAFBI 13-201, *Airfield Operations*, under rewrite
WPAFB Installation Data Page: https://15ows.us.af.mil/tech_ref/idp/index.cfm?icao=KFFO

Adopted Forms

DD Form 175-1, *Flight Weather Briefing*
88 OSS Form 445 REV, *Mission Execution Forecast*

Abbreviations And Acronyms

ABW—Air Base Wing
ACC—Air Combat Command
AF—Air Force
AF-WEBS—Air Force Weather Web Services
AFB—Air Force Base
AFFSA—Air Force Flight Standards Agency
AFI—Air Force Instruction
AFMAN—Air Force Manual
AFPD—Air Force Policy Directive

AFRIMS—Air Force Records Information Management System
AFWA—Air Force Weather Agency
AGL—Above Ground Level
AIREP—Air Report
ALSTG—Altimeter Setting
ALT—Alternate (Airfield)
AOB—Air Operations Board
AOL—Alternate Operating Location
AOR—Area of Responsibility
ATC—Air Traffic Control
AUTO—Automated Observation
AW—Airlift Wing
BWW—Basic Weather Watch
BECMG—Becoming (Terminal Forecast)
CBRNE—Chemical, Biological, Radiological, Nuclear, and High-yield Explosive
CDM—Chemical Downwind Message
CEG—Civil Engineering Group
COMSEC—Communications Security
CONUS—Continental United States
COOP—Continuity of Operations Plan
CP—Command Post
COR—Contracting Officer’s Representative
CS—Communications Group
CS—Communications Squadron
CU—Characterization Unit
CWW—Cooperative Weather Watch
DSN—Defense Switch Network
DTRA—Defense Threat Reduction Agency
EU—Exploitation Unit
EWO—Emergency War Orders
FAA—Federal Aviation Administration
FBWOS—Fixed Based Weather Observing System

FLIP—Flight Information Publication
FMH—Federal Meteorological Handbook
FMQ—Fixed Meteorological Equipment
GT—Greater Than
GTE—Greater Than or Equal To
HF—High Frequency
HIRL—High Intensity Runway Lights
IAW—In Accordance With
ICAO—International Civil Aviation Organization
IDS5—Information Dissemination System
INS—Inches
JET—Joint Environmental Toolkit
KT—Knots
LAN—Local Area Network
LLWS—Low Level Wind Shear
LOA—Letter of Agreement
LOCAL—Aviation Selected Local Weather Report
LT—Less Than
LTE—Less Than or Equal To
MEF—Mission Execution Forecast
METAR—Aviation Routine Weather Report
METSAT—Meteorological Satellite
METWATCH—Meteorological Watch
MH—Megahertz
MISSIONWATCH—Mission Watch
MOA—Memorandum of Agreement
MWP—Mission Weather Product
NHC—National Hurricane Center
NM—Nautical Miles
NWS—National Weather Service
OL-D—Operating Location-D
OMO—One Minute Observation

OPORD—Operations Order
OPR—Office of Primary Responsibility
ORM—Operations Risk Management
OSAM—Airfield Management
OSAT—Tower
OSS—Operations Support Squadron
OWS—Operational Weather Squadron
PA—Public Affairs
PIREP—Pilot Report
PMSV—Pilot-to-Metro Service
QRC—Quick Reaction Checklist
RDS—Records Disposition Schedule
RP—Resource Protection
RVR—Runway Visual Range
RVRNO—Runway Visual Range Unavailable
RW—Reconnaissance Wing
RWY—Runway
SE—Safety Office
SFS—Security Forces Squadron
SM—Statute Mile
SOF—Supervisor of Flying
SOP—Standard
SPECI—Aviation Selected Special Weather Report
SWAP—Severe Weather Action Procedures
SWS—Special Weather Statement
TAF—Terminal Aerodrome Forecast
TEMPO—Temporary Condition (Terminal Forecast)
TS—Thunderstorm
TWR—Tower
VCTS—Vicinity Thunderstorms
VIS—Visibility
VRB—Variable (Wind Direction)

WBGT—Wet Bulb Globe Temperature

WF—Weather Flight

WPAFB—Wright Patterson AFB

WSHFT—Wind Shift

WWA—Weather Watch, Warning or Advisory

XP—Wing Plans and Programs

Attachment 2

SPECIAL WEATHER OBSERVATION CRITERIA

A2.1. A Special weather observation will be taken and disseminated for the criteria listed below. Details are included in the AFMAN 15-11 Attachment 2, and Weather Flight’s local Standard Operating Procedure (SOP) for SPECIAL Observations.

A2.1.1. Visibility. When the surface prevailing visibility in the body of the report decreases to less than or, if below, increases to equal or exceeds any of the values listed below:

Table A2.1. Visibility Levels.

Visibility (Statue Miles)	*3	<u>2³/₄</u>	<u>2¹/₂</u>	* <u>2</u>	<u>1 3/4</u>	<u>1 5/8</u>	* <u>1¹/₂</u>	<u>1 3/8</u>	<u>1¹/₄</u>	* <u>1</u>	* <u>3/4</u>	* <u>1/2</u>	*# <u>1/4</u>	
--	----	-----------------------------------	-----------------------------------	------------	--------------	------------------	-------------------------------------	--------------	-----------------------------------	------------	--------------	--------------	---------------	--

Notes: Items in bold/underline indicate criteria found in the high and low altitude FLIPs.
 * AFMAN 15-111 Standard
 # Blizzard Warning criteria/verification
 -- When notified by control tower that tower visibility has decreased to LT or, if below, increased to equal or exceed 1, 2, 3 SM and the control tower differs from the surface prevailing visibility

A2.1.2. Ceiling. When the ceiling (rounded off to reportable values) forms or dissipates below, decreases to less than, or if below, increases to equal or exceed any of the values listed below.

Table A2.2. Ceiling Levels.

Height (feet)	*3,000	*2,000	*1,500	*1,000	* <u>800</u>	* <u>700</u>	<u>600</u>	* <u>500</u>	300	* <u>200</u>	100	
--------------------------	--------	--------	--------	--------	--------------	--------------	------------	--------------	-----	--------------	-----	--

Notes: Items in bold/underline indicate criteria found in the high and low altitude FLIPs.
 * AFMAN 15-111 Standard

A2.1.3. 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. Wind:

A2.1.4.1. 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.

A2.1.4.2. 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. A SPECI is not required to report a squall if one is currently in progress.

A2.1.5. Volcanic Ash. Eruption or volcanic ash cloud first noted. Only a single-element special observation is needed.

A2.1.6. Thunderstorm (TSTMS)

A2.1.6.1. TSTMS Begins: 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. Thunderstorms begin with Vicinity Thunderstorms - VCTS (5-10 NM from station) or Thunderstorms on station – TS (0-5NM).

A2.1.6.2. TSTMS Ends: 15 minutes after the last occurrence of an audible sound of thunder on the airfield or the Lightning Detection System (LDS) indicates the lightning threat has moved to beyond 10NM of the airfield, moving in a direction away from the airfield, and there is no further lightning threat.

A2.1.7. Precipitation.

A2.1.7.1. Hail begins and ends.

A2.1.7.2. Freezing precipitation or ice pellets begins, ends, or changes intensity.

A2.1.7.3. 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).

A2.1.8. Tornado, Funnel Cloud, or Waterspout. Single-element special observation is needed when observed and/or disappears.

A2.1.9. Runway Visual Range (RVR). Weather technician will provide RVR output according to the specifications listed in [Table A2.3](#).

Table A2.3. Runway Visual Range (RVR) Reporting.

Runway Visual Range (RVR)	
- Prevailing visibility first observed < 1SM/1600 meters, again when prevailing visibility goes above 1SM/1600 meters.	
- RVR for active runway decrease to less than or, if below, increase to equal or exceed:	
*6,000 feet	*2,000 feet
*5, 500 feet	*1,600 feet
*5,000 feet	*1,200 feet
*4,000 feet	*1,000 feet
*2,400 feet	*600 feet
- All published RVR minima applicable to the runway in use.	
- 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.	

A2.1.10. Tower Visibility: When notified by the control tower that tower visibility has decreased to less than or, if below, increased to equal or exceed 1SM (1600M), 2SM (3200M), and 3SM (4800M). See [Table A2.1](#).

A2.1.11. 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.

A2.1.12. Aircraft Mishap. When notified of an aircraft mishap, the weather technician will check the latest AN/FMQ-19 observation (i.e., METAR/SPECI/OMO (one minute observation) and perform augmentation/back-up if required. When operating in a back-up mode weather technician will immediately take a SPECI observation IAW AFI 15-111.

A2.1.13. Miscellaneous. Any other meteorological situation that in the weather technician's opinion is critical.

A2.1.13.1. Upon request from the ATC tower.

A2.1.13.2. Ten minutes prior to the landing or departure of Air Force One.

A2.1.13.3. Wind observations when suspected FMQ-19 erroneous readings. The weather forecaster will inform Air Traffic Control (ATC) once the FMQ-19 winds are suspected to be erroneous. If no SPECI criteria are met during the period of suspect winds, the forecaster will disseminate a full element special observation at 15, 30, and 45 minutes past the hour for ATC to use until the FMQ-19 is deemed reliable again.

A2.1.14. ALERT WEATHER OBSERVATION. Take and disseminate an ALERT WEATHER OBSERVATION within 1 minute of alert notification, either verbal or by the flashing alert beacon in the operations area.

A2.1.15. Nuclear Accident. When notified of a real-world nuclear accident, take and disseminate (locally and longline) a SPECI. Append the remark "AEROB" as the last remark on the SPECI.

Attachment 3

**TERMINAL AERODROME FORECASTS (TAF) SPECIFICATION AND
AMENDMENT CRITERIA**

A3.1. When developing Terminal Aerodrome Forecasts (TAFs). The encoding is outlined in AFMAN 15-124, Meteorological Codes, and for processes focus TAF-coded Forecast Specification and Amendment use AFMAN 15-129.

A3.2. Specification Criteria. The TAF will specify the time of occurrence, duration, and the intensity (if applicable) of expected weather conditions. The following weather criteria will be specified in TAFs if expected to occur during the forecast period.

A3.2.1. Ceiling and/or visibility is forecast to decrease less than or if below, is forecast to or equal exceed any of the following levels.

Table A3.1. Standard Specification and Amendment for Ceiling and Visibility.

CIGS	VIS	Category
Ceiling or Visibility observed or expected to decrease to less than, or if below, increase to equal or exceed:		
GTE 2000 FT	GTE 3 SM (4800 M)	E
GTE 1000 FT	GTE 2 SM (3200 M)	D
GTE 700 FT	GTE 2 SM (3200 M)	C
GTE 200 FT	GTE 1/2 SM (800 M)	B
LT 200 FT	LT 1/2 SM (800 M)	A

Table A3.2. Standard Specification and Amendment Criteria Other Than Ceiling and Visibility.

Specification		Amendment
Surface Wind Speeds	Specify wind speed changes of 10 knots or more.	Amend if the difference between the predominant wind speed (or gust) and the forecast wind speed (or gust) is 10 knots or more.
Surface Wind Gusts	Specify onset, duration, and intensity of wind gusts.	Amend if wind gust speed is in error by 10 knots or more.
Surface Wind Direction	Specify a change in prevailing wind direction of more than 30 degrees when the predominant wind speed or gusts are expected to be 15 knots or greater.	Amend if prevailing wind speed is in error by more than 30 degrees when the predominant wind speed or gusts are expected to be 15 knots or greater.
Icing , not associated with thunderstorms, from the surface to 10,000 feet AGL.	Onset, duration, type and intensity.	Amend if beginning or ending of icing meets, exceeds, or decreases to less than moderate (or greater) intensity and was improperly specified in the forecast.
Turbulence (for Cat II aircraft), not associated with thunderstorms, from the surface to 10,000 feet AGL.	(Weather Category II Aircraft) Onset, duration, type, and intensity.	Amend if the beginning or ending of turbulence meets, exceeds, or decreases to less than moderate (or greater) intensity and was improperly specified in the forecast.
Weather Warning Criteria (that can be specified in the TAF) - including non-convective low-level wind shear. NOTES: Watches issued for an area may or may not be specified in a TAF-coded forecast for an installation depending on situation.	Occur, or are expected to occur, during the forecast period. A forecast WW has been issued ensures consistency between forecast WW and/or WA and the TAF.	Amend if weather warning criteria occurs, or is expected to occur, during the forecast period, but was not specified in the forecast. Was specified in the forecast but is no longer occurring or expected to occur during the forecast period.
TS will be specified in the TAF if a lightning watch is issued.		

Altimeter Setting	Specify the onset of altimeter settings meeting or exceeding 31.00 INS or altimeter settings 28.00 INS or less. If less than the threshold specified when altimeter settings equal or exceed the thresholds. If greater than, specify when altimeter settings will decrease to equal or less than the thresholds.	Amend if the altimeter setting meets or is expected to meet the threshold and was not specified in forecast.
Forecast Weather Advisory Criteria (issued for TAF amendable criteria) - including non-convective low- level wind shear.	Occur, or are expected to occur, during the forecast period. A forecast WA has been issued (ensures consistency between forecast WW and/or WA and the TAF).	Amend if the forecast weather advisory criteria are improperly specified, occurs and was not forecast, or is no longer expected to occur.
Thunderstorms	Specify onset, duration, type, and intensity of thunderstorms at the aerodrome complex.	Amend if the start or end time of the thunderstorm is incorrectly specified.
Temporary Conditions	Specify the onset and duration of temporary conditions.	<ol style="list-style-type: none"> 1. Amend if temporary conditions become predominant. 2. Amend if temporary conditions do not occur as forecast. 3. Amend if temporary conditions are no longer expected to occur.

<p>Changes to Predominant Conditions</p>	<p>Specify the onset, duration, and intensity (if applicable) of changes to predominant conditions.</p>	<p>Amend if forecast changes conditions occur before the specified period of change, do not</p>
		<p>occur, or are no longer expected to occur. Forecast change conditions do not occur within 30 min after the specified time. Forecast change conditions are no longer expected to occur.</p>
<p>Representative Conditions</p>		<p>Amend if forecast conditions are not considered representative of the characterized state of the atmosphere and an amendment improves safety, flight planning, operational efficiency, or assists in-flight aircraft.</p>

A3.3. Amendment Criteria. The Weather Flight forecasters will issue/amend the TAF IAW the Criteria in Table [A3.1](#) and [A3.2](#). The TAF specification criteria include standard thresholds listed in AFMAN 15-129 and specific mission needs of units at WPAFB. Forecasters will ensure the TAF is representative of expected or actual conditions.

Attachment 4

CUSTOMER RESPONSE MATRIX

Table A4.1. customer Response Matrix.

Weather Phenomena	Desired Lead Time	Impact	Customer Action
Tornado	15 min	Personal injury/death Equipment damage.	Seek shelter, hangar or divert aircraft.
Moderate Thunderstorms -Hail < 1/2" -Winds \geq 35kts, LT 50kts	60 min	Personal injury/ Equipment damage.	Seek shelter; cease unnecessary flying, secure of hangar aircraft, secure light objects outside.
Severe Thunderstorms -Damaging Hail \geq 1/2" -Damaging Winds \geq 50kts	90 min	Personal injury/ Equipment damage.	Seek shelter; hangar or divert aircraft.
Strong Winds -Winds \geq 35kts thru 49kts	60 min	Personal injury, flight hazard & Equipment damage.	Seek shelter; cease unnecessary flying, secure of hangar aircraft, secure light objects outside.
Damaging Winds -Winds \geq 50kts	60 min	Personal injury, flight hazard, & equipment damage	Seek shelter; cease unnecessary flying, secure of hangar aircraft, secure light objects outside.
Freezing Precipitation -Any intensity	60 min	Delay or cease operations.	Delay or cease operations. Activate snow removal plan.
Heavy Snow -Accumulation \geq 2" in 12 hrs.	60 min	Hazardous movement for personnel/equipment.	Delay or cease flying operations. Hangar or protect aircraft, base early release, activate snow removal plan.
Blizzard -Duration \geq 3 hrs. -Winds/Gusts \geq 30kts	60 min	Flight hazard Equipment damage.	Cease unnecessary flying; secure or hangar aircraft; secure light objects outside.

-Considerable falling/blowing snow -Visibility frequently LTE 1/4SM			
Heavy Rain $\geq 2''$ in 12 hrs.	60 min	Possible airfield and base flooding.	CEG assess impacts/ institute action plans.
Observed Lightning w/in 10 NM	N/A	Personal injury/death, delay operations.	Notify personnel performing flight-line operations; clear pool/golf course/ munitions storage area.
Observed Lightning w/in 5 NM	N/A	Personal injury/death, delay operations.	Cease flight-line operations; clear pool/golf course/ munitions storage area.
Crosswinds ≥ 15 knots but < 25 knots	Observed	Flight hazard.	Cease take-off /landings for small private aircraft; no touch and goes.
Low Level Wind Shear	Observed	Delay or cease operations.	Delay or cease take-off/landing; evaluate shear conditions.
Equivalent Wind Chill Temp -20 to -29 F	Observed	Personal injury slow/delay outside work.	Work 45 minutes; Rest 15 minutes in heated area.
Equivalent Wind Chill Temp -30 to -39 F	Observed	Personal injury/death slow/delay outside work.	Work 30 minutes; rest 30 minutes in heated area.
Equivalent Wind Chill Temp -40 to -49 F	Observed	Personal injury/death slow/delay outside work.	Work 15 minutes; Rest 45 minutes in heated area.
Equivalent Wind Chill Temp -50 F or colder	Observed	Personal injury/death, stop outside work.	Stay indoors.
Ice Pellets	Observed	Reduces de-icing effectiveness.	Evaluate de-icing effectiveness.

Attachment 5

FLYING UNIT MISSION LIMITING ENVIRONMENTAL CONDITIONS

A5.1. Mission Limiting Thresholds for the 445th Airlift Wing (C-17).

A5.1.1. Airframe-Specific Weather Limitations. Tables A5.1 and A5.2. Provide the general airframe weather limitations based on AFMAN 11-202V3, *General Flight Rules* and the limitations from aircraft specific AFI 11-2 instructions.

Table A5.1. USAF General Flight Rules Weather Limitations for Fixed-Wing Aircraft.

(Ref: AFMAN 11-202V3, <i>General Flight Rules</i>)		
Weather Condition	Impact	Customer Action
Cig/Vis < 2,000/3SM	Alternate required	Add fuel to allow divert
Cig/Vis <1,000/2SM, if MAJCOM approved	Alternate required	Add fuel to allow divert
Cig/Vis < 500/2SM	Terminal not suitable for alternate	Select another alternate

Table A5.2. C-17 Operations and Training Weather Sensitivities.

(Ref: AFMAN 11-2C-17, Volume 3, C-17 Operations Procedures)		
Maneuver	Ceiling/Visibility Minimums	Other Restriction
Surface Wind (Takeoff/Landing)	>40KT Headwind >30KT Crosswind	Delay or proceed to ALT
Touch-and-go landings	Minimum ceiling of 300 AGL and RVR 4000 (3/4 SM) vis	Maximum crosswind is 25 knots
Night Vision (NVG)	Minimum ceiling of 600 AGL and 2SM	Maximum crosswind is 15 knots