BY ORDER OF THE COMMANDER
MCCONNELL AIR FORCE BASE

MCCONNELL AIR FORCE BASE
INSTRUCTION 15-101

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Weather

MCCONNELL AIR FORCE BASE
WEATHER SUPPORT

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This instruction implements Air Force Policy Directive (AFPD) 15-1, *Air Force Weather Operations, Air Force Strategic Plan on Weather Reengineering,* Air Force Instruction (AFI) 10-206, *Operational Reporting*, AFI 10-229, *Responding to Severe Weather Events*, AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*, AFI 15-128, *Air Force Weather Roles and Responsibilities,* AFI 15-128, AMC Sup, *Aerospace Weather Operations – Roles and Responsibilities,* AMCI 15-101, *Weather Operations And Support,* AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, Air Force Manual (AFMAN) 15-111, *Surface Weather Observations,* AFMAN 15-124, *Meteorological Codes,* AFMAN 15-129V1, *Air and Space Weather Operations - Characterization,* AFMAN 15-129V2, *Air and Space Weather Operations - Exploitation*. It establishes responsibilities and weather support procedures. It also provides general information for weather services, including weather observations and forecasts, weather warnings, watches, and advisories; space weather data, information dissemination, and base-wide reciprocal support. It applies to units assigned to the 22nd Air Refueling Wing (22 ARW), subordinate units, and units assigned, attached, or supported by McConnell Air Force Base. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Information 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 functional' s chain of command.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include the re-arrangement of information and consolidation of chapters to properly align the specific services provided by Airfield Services, Mission Services and Staff Services. Chapter 1 of this publication implements changes in Weather Flight priorities, Alternate Operating Location procedures and, inclusion of the TACC Continuity of Operations Plan. Chapter 2 reflects changes in augmentation procedures and criteria, Special observation criteria, TAF specification and amendment criteria and, Cooperative Weather Watch responsibilities. Additionally, Chapter 2 implements changes to Weather Watch, Warning and Advisory criteria and lead times, aircraft mishap procedures, and CBRNE requirements. Chapter 3 incorporates all Mission Weather Products provided by the Weather Flight for flying and non-flying missions. Chapter 4 identifies the roles, responsibilities, and requirements of Weather Flight leadership and reciprocal support. Chapter 5 incorporates new weather equipment. Attachments 2-9 have been revised to include the criteria, products and product interpretation outlined in Chapters 2 and 3 of this document.

Chapter 1

GENERAL INFORMATION

1.1. General. The 26th Operational Weather Squadron (26 OWS), 618th Air & Space Operations Center, Tanker Airlift Control Center (TACC) and 22nd Operations Support Squadron Weather Flight (22 OSS/OSW), commonly referred to as the Weather Flight (WF), are the official weather information agencies for McConnell Air Force Base, Kansas. These agencies provide weather information in support of the 22nd Air Refueling Wing (22 ARW), the 931st Air Refueling Group (931 ARG, Reserve), the 184th Intelligence Wing (KS ANG), subordinate units and units assigned, attached, or supported by McConnell AFB. The WF is the focal point for all weather-related issues. This instruction will be reviewed and revised no greater than biennially or IAW with host/parent unit procedures if the time is less than biennially. Additionally, the WF will initiate an out-of-cycle formal review to accurately reflect operational changes resulting from supported unit mission changes, equipment upgrades or significant changes in overarching guidance.

1.1.1. OPSEC Concerns: Information gathered during the execution of this plan may be sensitive or "For Official Use Only" and must be protected accordingly.

1.2. Concept of Operations (Characterization Unit (CU) & Exploitation Unit (EU) Interactions).

1.2.1. The OWS is considered the characterization unit. Characterization encompasses the "collect, analyze and predict" weather core competencies. Characterization depends on Air Force Weather's ability to collect accurate data, correctly analyze that data, and use the results to produce a coherent picture of the present and future state of the air and space environment.

1.2.1.1. The 26 OWS at Barksdale AFB, Louisiana will provide regional and operational-level weather products and information to Air Force units in the Midwest-SE region of the Continental United States (CONUS) and for Air Force and Army forces operating in US Northern Command's Area of Responsibility (AOR).

1.2.2. The WF and TACC are considered exploitation units. Exploitation is the ability to minimize the impact of environmental threats to friendly forces while simultaneously capitalizing on environmental conditions that maximize the operational advantage over enemy forces. Exploitation units tailor the characterization provided by the characterization unit. Tailoring is the extraction of data that is pertinent to a specific mission profile from the overall characterization of the air and space environment. Tailoring does not mean changing the characterization. To the greatest extent possible exploitation units will use the characterized data provided to them.

1.2.2.1. The WF and TACC are the primary source of tailored weather services in support of the 22 ARW, 931 ARG, 184 KSANG, and visiting aircrews. The WF and TACC will make every effort to ensure that mission-limiting weather is anticipated and exploited, and that safety and resource protection are maintained.

1.3. Responsibilities. General responsibilities of the OWSs and WFs are outlined in AFI 15-128, *Air and Space Weather Operations – Roles and Responsibilities*. Specific responsibilities of

the 26 OWS and McConnell's WF are defined in the McConnell AFB Installation Data Sheet and in this instruction.

1.3.1. McConnell AFB Installation Data Sheet. The 26 OWS and McConnell WF will coordinate and maintain a McConnell AFB Installation Data Sheet detailing TAF specification and amendment criteria, WWA thresholds, desired lead times, mission impacts, unit information, Joint Environmental Toolkit (JET) back-up contacts and local outage back-up information.

1.3.2. The 26 OWS issues McConnell's Terminal Aerodrome Forecasts (TAFs), forecast weather warnings and watches and may provide flight weather briefings (FWBs) to transient aircrews passing through McConnell AFB. The OWS will issue observed warnings and advisories when the WF is closed.

1.3.3. The WF issues all observed advisories and warnings when the WF is open.

1.3.4. The WF creates Mission Weather Products (MWPs) that fuse theater scale products with local mission requirements to produce tailored products focused on local missions.

1.3.5. The WF will support the base in thoroughly educating agencies on the purpose, applicability and operating procedures of weather products and operations.

1.3.6. The WF will provide FWBs for transient aircrews IAW the WF duty priorities listed in Table 1.1.

1.3.7. TACC will provide all FWB support, via GDSS, for all missions from McConnell AFB except TURBO 85/86 and others by rare operational exception.

1.4. Duty Priorities. 22 OSS/OSW Duty Priorities. WF duty priorities are listed in Table 1.1. and exist to balance limited manning and mission critical tasks. Flight personnel will use good judgment in complying with these duty priorities, especially when there is imminent danger to life and/or property.

Table 1.1. 22 OSS/OSW Duty Priorities.

Priority	Duties
1	Perform OPLAN/emergency war order tasking
2	Execute WF Evacuation
3	Respond to Aircraft/Ground Emergencies
4	Respond to Pilot to Metro Service (PMSV) Contacts
5	Issue Observed Weather Warnings or Advisories
6	Severe Weather Action Plan (SWAP) Operations
7	Disseminate Urgent Pilot Reports (PIREPs) and Special AIREPs Locally and to the 26 OWS
8	Augment Automated Meteorological Observing System (AMOS) Observation for Mandatory Elements (transmit locally and to the 26 OWS if required)
9	Provide "Eyes Forward" / Collaborate with OWS

10	Mission Execution Forecast Process – Produce and Disseminate Scheduled Mission Weather Products
11	Disseminate Routine PIREPs Locally and to the 26 OWS (as required)
12	Transmit Surface Observations and all PIREPs/AIREPs Longline
13	Perform MISSIONWATCH/Situational Awareness
14	Provide Staff Weather Briefings
15	Provide other Weather Products, Information and Weather Briefings
16	Weather Functional Training
17	Accomplish Administrative Tasks

1.5. Hours of Operation & Contact Information.

1.5.1. **WF.** Normal Airfield and Mission Services hours of operations are Monday-Friday from 0300L-2100L and on weekends, holidays, and down-days as required. WF personnel will be on duty when the airfield is open and no automated observing system capability exists, when SWAP has been implemented, when required for Operational Risk Management (ORM), or when required for mission support, as outlined in Chapters 2 (Airfield Services) and 3 (Mission Services). Staff services are available during normal duty hours or as required (exercises, contingencies, etc.).

1.5.1.1. Contact Information

1.5.1.1.1. WF (316) 759-3707/4311 DSN 743-3707/4311

1.5.1.1.2. PMSV 374.2 MHz

1.5.1.1.3. AOL (316) 759-1697/1698/ DSN 743-1697/1698

1.5.2. **OWS and TACC**. Hours of operation are 24/7, 365 days a year.

1.5.2.1. Contact Information

1.5.2.1.1. 26 OWS (318) 529-2614/ DSN 331-2614

1.5.2.1.2. TACC (618) 229-0353/ DSN 779-0353

1.6. Continuity of Operations Plan(s) (COOP). Continuity of support to the installation is susceptible to communication outages, evacuations, etc., at the WF, 26 OWS, and/or TACC.

1.6.1. **WF COOP/Alternate Operating Location (AOL)**. In the event of a building evacuation, Airfield and Mission Services will move to the Air Traffic Simulator Facility (Building 72) to continue operational support and the WF's "eyes forward" responsibilities to the 26 OWS. WF members will follow duty specific SOPs and Weather Flight Evacuation Checklists (including a list of required backup equipment) and resume services at the alternate location as soon as possible. Most WF services/support will be provided, but will require a case-by-case assessment depending on communication line status, equipment status, etc. Expect services to be somewhat degraded (weather products, pilot briefings, etc.) due to limited facilities and potential loss of dedicated data services, including sensors and various data types (radar imagery, etc.). Staff services will also move to building 72. See Chapter 2.13 and Chapter 5 for details on dissemination back-up procedures.

1.6.1.1. Official Observing Site. The official observing point is the location of the FMQ-19 sensors. However, if access to observing sensing equipment readouts is lost, back-up equipment will be used to augment observations. During augmentation, the official observing site becomes the physical location from which the duty technician visually determines sky condition, present weather and prevailing visibility. If augmentation is required at the AOL, the official observation point is in the grass, east of Bldg. 72. WF personnel may have to move around to obtain accurate visibility, as buildings and aircraft hangars on the West side of the runway impede the view of the horizon. If augmentation is required, weather technicians will complete and transmit an observation within 15 minutes of arrival at the AOL. The WF contact numbers for the AOL are (316) 759-1697/1698/DSN: 743-1697/1698.

1.6.1.2. For flight safety reasons, the WF will not evacuate for exercises.

1.6.2. 26 OWS COOP.

1.6.2.1. For short term outages (up to 72 hours), the WF will assume local TAF and weather watch, warning and advisory responsibility.

1.6.2.2. For long-term outages (greater than 72 hours), the 26 OWS' plan is to resume all support from an alternate location.

1.6.2.3. Exercises. In coordination with WFs, the 26 OWS conducts monthly COOP exercises.

1.6.3. **TACC COOP.**

1.6.3.1. IAW AMCI 15-101, if TACC loses the capability to provide flight weather briefing (FWB) services, the WF will assume responsibility for all McConnell AFB Integrated Flight Management (IFM) and non-IFM weather packages. If the WF is unable to provide the required support, briefing responsibility will be transferred to the servicing OWS.

1.6.3.2. Global Decision Support System (GDSS) Outages. In the event of a GDSS outage, the WF provides FWBs via DD Form 175-1 or verbal briefing. Servicing OWSs provide DD Form 175-1s via email or verbal briefing,

1.6.3.3. Exercises. In coordination with WFs, TACC conducts monthly COOP exercises, for a period of two consecutive days, during which the WF provides all non-IFM FWBs through GDSS or alternate means, if a GDSS outage is simulated or occurring. The WF will coordinate with supported units as required.

1.7. Release of Weather Information to Non-DoD Agencies and Individuals. Most general weather parameters are available to be given to the general public, such as temperature, winds, humidity, and sky condition. However, specific weather information will not be released to non-DoD agencies/non-base agencies without approval from the 22 ARW Public Affairs (22 ARW/PA) and Legal offices, such as total number of days with precipitation during a specific month.

Chapter 2

AIRFIELD SERVICES

2.1. General. Airfield services include those actions affecting the McConnell aerodrome (defined within 5NM of the airfield) or the base as a whole. Examples include weather observations, terminal aerodrome forecasts (TAF), Pilot-to-Metro Service (PMSV), resource protection and emergency action responses.

2.2. Operational Hours. Airfield Services are provided Monday-Friday and from 0300L-2100L and as required on weekends, holidays, and down days. Services will be provided 24-hours a day during exercises, real-world contingencies and when directed by 22 ARW/CC. During periods of closure, the FMQ-19 automated observing system will record and disseminate weather observations automatically.

2.2.1. Weather personnel will open/remain on shift for ORM, as outlined in para 2.3.7.

2.2.2. Weather personnel will open/remain on shift to fulfill SWAP requirements as outlined in para 2.12.2.

2.3. Observations. Observations are taken, recorded, and disseminated IAW AFMAN 15-111, *Surface Weather Observations*, utilizing the FMQ-19 AMOS. Most observations are taken automatically by the FMQ-19 with no human intervention. Observations typically contain the following elements: observation type; date/time; winds; visibility; present weather; cloud groups; temperature/dew-point; altimeter setting; and additional remarks. At times, it is necessary for a weather forecaster to augment the system. Automated and augmentation processes are outlined in paragraphs 2.3.5 and 2.3.6. There are three types of observations (described below) that are seen by customers on McConnell AFB. Attachment 4.1 contains an example of an observation and interpretation.

2.3.1. **Aviation Routine Weather Report (METAR).** METAR observations are created between 45 and 59 minutes after every hour. METARs are disseminated both locally and long-line between 55 and 59 minutes after the hour. A METAR observation could also indicate that special weather criteria were met during the observing period (see Attachment 2 for special observing criteria). METAR observations are disseminated both locally and longline.

2.3.2. **Aviation Selected Special Weather Report (SPECI).** SPECI is an unscheduled observation completed and transmitted whenever certain weather events, defined in AFMAN 15-111 or identified as special criteria (see Attachment 2), have been observed or sensed at McConnell AFB. SPECI will contain all data elements found in a METAR plus additional remarks that elaborate 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. These observations are disseminated both locally and longline. Attachment 4 contains an example SPECI weather observation.

2.3.3. **Aviation Selected Local Weather Report (LOCAL).** During augmentation, the WF will take single element LOCAL observations for altimeter setting changes.

2.3.4. **Official Observing Site.** The official observing point is the location of the FMQ-19 sensors. However, during periods of augmentation, when outdoor elements require

evaluation, the official observing site becomes the physical location from which the duty technician visually determines sky condition, present weather and prevailing visibility. McConnell's official observation site, during augmentation from the weather station, is located approximately 150 feet away from the flight line side of building 1112 at the edge of the DV "Red Carpet."

2.3.4.1. **Observing Point Limitations.**

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

2.3.4.1.2. The following physical limitations may impact the representation of McConnell AFB weather observations, taken at the primary site (Bldg. 1112), when augmentation is required.

2.3.4.1.2.1. Buildings, hangars, parked aircraft and trees block portions of the sky as well as ground visibility reference markers, especially clockwise from north to south.

2.3.4.1.2.2. There are few adequate ground visibility reference markers beyond 1 mile. This especially degrades determination of nighttime visibility.

2.3.4.1.2.3. Nearby lighting contaminates and complicates observing nighttime sky condition.

2.3.4.1.2.4. The south end of the runway is not visible from the observation point. When fog and (or) low clouds are present over the approach end of Runway 01 (south of the field), conditions reported from the observation point may not be representative.

2.3.4.1.2.5. Lightning. Lightning may not be seen due to distance, low clouds, or poor visibility. Thunder may not be heard because of flight-line noise. The lightning detection system only detects cloud to ground lightning.

NOTE: *The Cooperative Weather Watch (CWW), section 2.9., exists to help alleviate the deficiencies identified in 2.3.4.1.2.1 – 2.3.4.1.2.5.*

2.3.5. **Automated Observation.** An automated observation is any observation having been evaluated, prepared, and transmitted by an observing system without human intervention. In automated mode, the FMQ-19 observing system will record and disseminate weather observations. The FMQ-19 uses time averaging of sensor data. In an automated observation, sky condition will be an evaluation of sensor data gathered during the 30-minute period ending at the actual time of the observation. All other elements evaluated are based on sensor data that is within 10 minutes or less of the actual time of the observation. Automated stations are always considered automated, even when a weather technician augments an observation.

2.3.6. **Augmentation.** Augmentation is the process of having a certified weather forecaster manually add or edit data to an observation generated by the FMQ-19. The two augmentation processes used are supplement and backup.

2.3.6.1. **Supplement (definition).** The method of manually adding meteorological information to an observation, generated by the FMQ-19, that is beyond the system's capability to measure and report. For example, the sensor cannot sense a tornado or hail.

2.3.6.1.1. **Supplementation procedures during duty hours.** WF personnel will be ready to supplement observations when the weather station is open and any of the weather conditions in **Table 2.1** are occurring or forecast to occur within 1 hour.

Table 2.1. Mandatory Supplementary Weather Conditions

Mandatory Supplementary Weather Conditions – Body of Report
Tornado (**+FC**)
Funnel Cloud (**FC**)
Waterspout (**+FC**)
Hail (**GR**)
Volcanic Ash (**VA**)
Ice Pellets (**IP**)
Visibility <1/4 mile
Mandatory Supplementary Weather Conditions – Remarks Section of Report
Funnel Cloud (Tornadic Activity_B/E(hh)mm_LOC/DIR_(MOV)) Hail Size Snow Depth (Only reported during airfield operating hours AND if heavy snow warning has been issued AND snowfall is occurring)

2.3.6.2. **Backup (definition).** The process of manually providing meteorological data and/or dissemination of an FMQ-19 generated observation when the primary automated method is not operational or is unavailable due to sensor and/or communication failure.

2.3.6.2.1. **Backup procedures.** In the event of FMQ-19 malfunction or failure, or communications failure, back-up procedures will be implemented. WF personnel will use back-up equipment to take, encode and/or disseminate METAR and SPECI observations IAW AFMAN 15-111. When utilizing back-up equipment for wind/pressure, all wind and pressure values are estimated. Due to a known system limitation, the WF will always back-up the precipitation sensor when freezing rain is observed or forecast to occur.

2.3.7. **ORM for back-up/supplementation during station closure hours.** WF personnel will remain on shift/fulfill stand-by requirements, whether or not any 22 ARW missions are flying, to augment the FMQ-19 if any of the following criteria are met.

2.3.7.1. **Backup procedures** will be implemented for the following sensor/system malfunction when the following criteria are met.

2.3.7.1.1. Lightning Sensor: If thunderstorms observed or forecast during closure

2.3.7.1.2. Ceiling/Vis Sensor: If Visibility/Ceilings observed or forecast $\leq$ 1000'/3SM during closure

2.3.7.1.3. Wind Sensor: If winds are observed or forecast to be $\geq$ 35 Knots during closure

2.3.7.1.4. Precipitation Sensor: Anytime freezing precipitation is observed or forecast

2.3.7.1.5. Communication Outage (FMQ-19, JET or LAN)

2.3.7.2. **Supplementation** will be implemented for the following criteria.

2.3.7.2.1. Tornadic Activity observed or forecast during closure

2.3.7.2.2. Hail $\geq$ ¾" observed or forecast during closure

2.3.7.2.3. Anytime Ice Pellets are observed or forecast

2.3.7.2.4. Snow Depth: If heavy snow is observed or forecast and the airfield is open

2.3.8. **WF Forecaster Recall Requirements.** The WF forecaster will be notified/recalled under the following circumstances:

2.3.8.1. The 26 OWS notifies the standby forecaster prior to issuing any watch or warning for McConnell AFB.

2.3.8.2. ATC or the 26 OWS notifies the standby forecaster when automated weather sensor display data is unavailable.

2.3.8.3. ATC or the 26 OWS notifies the standby forecaster when observations are not being transmitted or are not representative of current conditions.

2.4. TAF Support. McConnell AFB TAFs are produced and disseminated by the 26 OWS IAW AFI 15-128, AFMAN 15-124, AFMAN 15-129V1, and the McConnell AFB Installation Data Sheet. The TAF for McConnell AFB is required 24 hours a day, every day, unless there is a scheduled airfield closure. Forecast specification and amendment criteria are listed in Attachment 3. TAFs are valid for 30 hours, apply to the area within a 5-nautical mile (NM) radius of the McConnell AFB airfield complex, and will be issued at 0400L, 1200L and 2000L during Local Standard Time and 0500L, 1300L and 2100L during Daylight Savings Time. Attachment 4.2 contains an example of a McConnell AFB TAF and an explanation of TAF elements. The 26 OWS disseminates TAFs via JET**.** If JET is nonoperational, the WF will disseminate TAFs to ATC and 22 ARW/CP via telephone, fax, or e-mail.

2.5. Meteorological Watch (METWATCH). The term METWATCH is used to describe an organized approach for weather personnel to maintain situational awareness of the current/future meteorological situation within a designated area(s). It is a deliberate, continuous process. The purpose of a METWATCH is to identify when and where observed conditions significantly deviate from forecast conditions, determine courses of action to update or amend a forecast product or group of products, and notify designated agencies. The 26 OWS will perform a continuous Terminal METWATCH for McConnell AFB, via monitoring the FMQ-19. WF personnel will act as the "eyes forward"‖ for the 26 OWS by providing immediate feedback on current or short-term anticipated changes in weather conditions.

2.6. Eyes Forward & Collaboration. This is the WF's role in allowing for the integration of weather data, meteorological satellite imagery, lightning detection readouts and non-standard weather data systems to create an integrated weather picture and near-term forecast for the OWS. The WF relays significant, time-sensitive meteorological information not contained in the coded observations to the 26 OWS as an integral part of the METWATCH process. Additionally, the WF integrates the current state of the atmosphere into an understanding of future impacts on

forecast conditions and communicates the impacts/information to the 26 OWS to assist in forecast operations.

2.7. Continuous Weather Watch. A continuous weather watch is the process by which weather personnel or an automated observing system continuously monitor weather conditions without performing any other duties. The FMQ-19 performs an automatic continuous weather watch for McConnell AFB.

2.8. Basic Weather Watch (BWW). When augmentation is required WF personnel will perform a BWW during operating hours. WF personnel will also perform a BWW when SWAP is activated. During a BWW, weather technicians will recheck weather conditions, at intervals not to exceed 20 minutes since the last observation/recheck, to determine the need for a SPECI observation, when any of the following conditions are observed to be occurring or are forecast to occur within 1 hour:

2.8.1. Ceiling forms below or decreases to less than 1,500 feet.

2.8.2. Ceiling dissipates, or increases to equal or exceed 1,500 feet.

2.8.3. Visibility decreases to less than 3 miles (4800 meters).

2.8.4. Visibility increases to equal or exceed 3 miles (4800 meters).

2.8.5. Precipitation (any form).

2.8.6. Thunderstorms

2.8.7. Fog or Mist.

2.8.8. All mandatory supplemental criteria specified in Table 2.1.

2.8.9. During mandatory back-up (IAW AFMAN 15-111 and this document).

2.8.10. In addition to the above minimum requirements, weather technicians will remain alert for any other changes in weather conditions that will require a SPECI observation. Weather technicians will also monitor local area observations and forecast products as often as necessary to keep abreast of changes expected to affect their area of responsibility. Forecasters will augment the FMQ-19 as required by AFMAN 15-111.

2.9. Cooperative Weather Watch (CWW). CWW is the process of ATC personnel, flying units, and Security Forces personnel reporting observed weather conditions to a weather forecaster. Of primary concern is the report of tower visibility differing from the prevailing surface visibility, local PIREPs**,** and any occurrence of previously unreported weather conditions that could affect flight safety or be critical to the safety or efficiency of other local operations and resources. IAW AFI 13-204V3 and AFMAN 15-111, the WF and ATC have established a CWW. The agreement outlines each unit's responsibilities when specific meteorological phenomena are observed.

2.9.1. McConnell AFB Tower personnel will notify weather personnel when any of the following are seen or occur:

2.9.1.1. Tornadoes or funnel clouds.

2.9.1.2. Thunder is heard and/or lightning is seen.

2.9.1.3. ATC personnel task certified to evaluate tower visibility will report changes in tower prevailing visibility when tower visibility is less than 4 statute miles (6000 meters) and different from the surface prevailing visibility. They will also notify the weather technician when the observed tower prevailing visibility decreases to less than or increases to equal or exceed 4 statute miles (6000 meters). **NOTE:** This information is not included in observations produced by the FMQ-19.

2.9.1.4. Any weather information received from pilots for inclusion into a PIREP will be relayed within 30 minutes of receipt.

2.9.1.5. Any other meteorological condition that could have significant impact to the airfield (hail, wind damage, etc).

2.9.2. McConnell AFB weather technicians will:

2.9.2.1. If augmenting the FMQ-19 visibility sensor, notify the tower, as soon as possible, whenever the prevailing visibility at the official weather observation point decreases to less than or increases to equal or exceed 4 statute miles.

2.9.2.2. Re-evaluate surface prevailing visibility, as soon as practicable, upon initial receipt of a differing control tower value and upon receipt of subsequent reportable changes at the control tower level. Note: automated stations do not include tower visibility in observation remarks however; the information may lead to the WF performing backup of the visibility sensors.

2.9.2.3. If augmenting the FMQ-19 visibility sensor, use control tower values of prevailing visibility as a guide in determining the surface visibility when the view of portions of the horizon is obstructed by buildings, aircraft, etc.

2.10. PMSV Support. Weather information is available via PMSV during duty hours on frequency 374.2 MHz. The duty forecaster will monitor PMSV traffic for all aircraft contacts. For aircraft outside the range of our PMSV system, the McConnell WF or 26 OWS can provide PMSV support through a phone patch to the 22 ARW/CP (DSN 743-1850/Commercial (316) 759-1850). PMSV outages are discussed in para 5.3.2.

2.11. Resource Protection (RP). Resource protection is accomplished through a joint effort between the 26 OWS and the McConnell WF. The 26 OWS conducts a continuous meteorological watch to identify and assess emerging and imminent threats to McConnell AFB and is responsible for issuing all forecast weather watches, warnings and advisories. The WF acts as the "eyes forward" for the 26 OWS and is responsible for issuing all observed warnings and advisories during WF duty hours, after WF duty hours the 26 OWS assumes control of observed warnings and advisories. The WF can issue any forecast warning if there is an immediate threat to life and/or property. In these cases, the WF will back brief the OWS when time permits and will also be responsible for dissemination to local supported agencies. Conversely, the WF will act as the alternate dissemination/notification source for the OWS. The goal is to provide the best possible resource protection to McConnell AFB. Special Weather Statements (SWS)/Significant Weather Alerts, Watches, Warnings, and Advisories (WWAs) are special notices resulting from both the forecast and METWATCH processes to assist military decision makers with resource protection decisions. Watches and warnings provide notice of weather events posing a hazard to life or property. Advisories provide specific notice to an operational agency of environmental

phenomena with the potential to impact operations. Customer responses to WWAs are listed in Attachment 5.

2.11.1. **Special Weather Statements (SWS)**. SWSs are special notices issued by the 26 OWS to assist military decision makers with resource protection decisions.

2.11.2. **Significant Weather Alert, Email Updates:** WF leadership, as able, provides a weather summary, timeline, and expected impacts/anticipated WWAs for the following criteria which may threaten McConnell AFB:

2.11.2.1. Tornadic Activity

2.11.2.2. Significant Winter Storms (significant snowfall, freezing precipitation, or blizzard conditions)

2.11.2.3. Significant Convective Storms (large hail, winds ≥ 50 knots, flooding potential)

2.11.3. **Weather Watches.** A special notice to notify installation personnel/supported units of a potential for environmental conditions of such intensity as to pose a hazard to life or property. Weather Watches indicate a potential for environmental threats and are used by installation personnel/supported units to make force protection and risk management decisions. Watches are issued for a 5 NM radius of the center-point of the McConnell runway complex (10 NM for lightning). They are used by installation personnel/supported units to make force protection and risk management decisions. Table 2.2 contains all of the weather watches and desired lead-times issued for McConnell AFB.

Table 2.2. McConnell AFB Weather Watch Criteria.

Criteria	**Desired Lead Time**	
Tornado	As potential warrants.	
Damaging winds ≥50 kts	As potential warrants.	
High Winds ≥ 35 but < 50 kts	Not Required	
Large Hail ≥ ¾ inches	As potential warrants.	
Hail ≥ ½ but < ¾ inches	Not Required	*
Heavy Rain ≥ 2 inches within 12 hrs	As potential warrants.	
Heavy Snow ≥ 2 inches within 12 hrs	As potential warrants.	
Freezing Precipitation (Any Intensity)	As potential warrants.	
Blizzard Conditions	As potential warrants.	
Visibility less ≤ 5/8 sm in blowing sand/dust is forecast to occur on station	Not Required	*
Lightning within 5NM	30 minutes prior to start of thunderstorm	
***** Denotes deviation from standard criteria as defined in AMCI 15-101.		

2.11.4. **Weather Warnings.** A special notice to notify installation personnel when an established weather condition, which will pose a threat 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 RP decisions and take protective action. Warnings are issued for a 5 nm radius of the center-point of the McConnell runway complex. Forecast warnings, with their desired lead-times, are contained in Table 2.3.

Table 2.3. McConnell AFB Weather Warning Criteria.

Criteria	**Desired Lead-Time**	
Tornado	**30 minutes** prior to occurrence	
Damaging winds ≥ 50 kts	**1 hour** prior to occurrence.	
High Winds ≥ 35 but < 50 kts	Not Required	*
Large Hail ≥ ¾ inches	**1 hour** prior to occurrence.	
Hail ≥ ½ but < ¾ inches	Not Required	*
Heavy Rain ≥ 2 inches within 12 hrs	**1 hour** prior to occurrence.	
Heavy Snow ≥ 2 inches within 12 hrs	**1 hour** prior to occurrence.	
Freezing Precipitation (Any Intensity)	**1 hour** prior to occurrence.	
Blizzard Conditions	**1 hour** prior to occurrence.	
Visibility less ≤ 5/8sm in blowing sand/dust is forecast to occur on station	Not Required	*
Lightning within 5NM	Observed	
***** Denotes deviation from standard criteria as defined in AMCI 15-101.		

2.11.5. **Observed Weather Warnings**. Lightning warnings are the only observed warning issued for McConnell AFB. They extend 5NM in all directions from the airfield. Lightning warnings are not issued until lightning is observed, either visually or via the FMQ-19 sensor. The lightning warning will remain valid until lightning is no longer observed within 5NM for at least 15 minutes. Exception: A lightning warning will not be cancelled if a thunderstorm is within 5NM (as indicated on radar).

2.11.6. **Forecast and Observed Weather Advisories.** A forecast weather advisory is a special notice sent to customers alerting them that a predefined weather phenomenon, which may impact operations, is occurring or expected to occur on McConnell AFB. An observed weather advisory is a special notice sent to customers alerting them that a predefined weather phenomenon, which may impact operations, is occurring on McConnell AFB. Forecast/observed weather advisories can be found in Table 2.4.

Table 2.4. McConnell AFB Weather Advisory Criteria.

Criteria	Desired Lead-Time
Frost	12 Hours
Surface Winds ≥ 35 but < 50 Knots	30 minutes
Lightning within 10NM	Observed
Crosswinds ≥ 15 Knots	Observed
Crosswinds ≥ 25 Knots	Observed
Surface Winds ≥ 25 Knots	Observed
Wind Chill ≤ -20F (-29C) [DANGER]	Observed
Observed Surface Visibility ≤ ¼ SM	Observed

2.11.7. **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. Examples of different messages are contained in Attachment 4.3.

2.11.8. **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 Table 2.3. Only one warning will be in effect at a given time (and will include multiple warning criteria as required) except for forecast and/or observed lightning warnings. Lightning warnings will be separate from all other warnings. If a warning is issued for one criteria and it becomes necessary to warn for another criteria, a new warning and new number will be issued, to include all criteria expected. A separate valid time may be specified for each criterion if necessary.

2.11.9. **WWA Amendments.** Amendments to weather warnings and watches will only be issued to change the valid time and will be issued before the original watch or warning expires. New warnings and watches will be issued for any change in weather criteria.

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

2.11.11. **WWA Cancellation.** Warnings and watches are canceled when the weather phenomena is no longer occurring or expected to occur. Warnings not extended or canceled will automatically expire at the end of the valid period. Observed advisories will be canceled when the criteria is no longer occurring and have not occurred in the last 30 minutes. See para 2.11.5 for cancellation of observed lightning warnings.

2.12. Emergency Action(s) Response.

2.12.1. **Aircraft Mishap.** When notified on an emergency or aircraft mishap, the WF will initiate a save of applicable data used in the development of any weather products provided and provide this data to investigating agencies upon request. The WF will coordinate with the applicable OWS and, if necessary, the Air Force Weather Agency (AFWA) to save all applicable data and products that may have been used in support of the mission or mishap. Enough data before and after the mishap will be archived to fully reconstruct the environmental conditions. The WF will follow the Aircraft Mishap procedures IAW AFMAN 15-129V2.

2.12.1.1. If the WF provided the FWB, the WF will coordinate with 26 OWS to save all applicable data and products. If products from other OWSs were used, the WF will coordinate with all applicable OWSs to ensure data is saved. Enough data covering weather conditions before and after the mishap will be saved to fully reconstruct environmental conditions.

2.12.1.2. If an OWS, TACC, or another WF provided the FWB, they will conduct the data save in coordination with any other Air Force Weather units involved.

2.12.2. **Severe Weather Action Plan (SWAP).** SWAPs are in place to ensure sufficient personnel are available during potential or actual severe weather events to meet the increased demand for timely weather information from its supported unit(s). The WF and 26 OWS will cooperatively initiate and maintain a heightened meteorological watch (METWATCH/Eyes Forward), an enhanced MISSIONWATCH, and augmentation of observing equipment. SWAP will be implemented IAW AFMAN 15-129V2 and this document for the criterion listed in Table 2.5. By having additional personnel provide an increased focus on weather, forecasters at the WF and the 26 OWS can ensure quality support before and during rapidly changing conditions.

2.12.2.1. Activating SWAP.

2.12.2.1.1. The WF will implement SWAP for tornadoes, large hail, damaging wind, heavy snow and/or freezing precipitation. During SWAP activation, WF personnel will augment the automated observations IAW AFMAN 15-111 and this document. Safety of flight and resource protection are the highest priorities. Augmentation and "eyes forward" support to the 26 OWS ensure all aspects of severe weather are fully identified, reported, and recorded.

Table 2.5. SWAP Activation Criteria

SWAP Activation Criteria
1. One of the following is issued by the 26 OWS:
Tornado Watch/Warning
Severe Thunderstorm (wind $\geq$ 50 kts and/or Hail $\geq$ 3/4 inch) Watch/Warning
Winds $\geq$ 50 kts (not associated w/Thunderstorms) Warning
Heavy Snow Warning
Freezing Precipitation Warning

2.12.2.1.2. When the WF is open, the 26 OWS will call both the WF and their respective Command Post (CP) when any watch or warning is issued. The WF forecaster will notify the Severe Weather Action Team (SWAT) Leader (flight leadership) of any watch or warning that meets the criteria identified in Table 2.5. The SWAT Leader will determine if additional WF personnel need to be recalled to ensure implementation of applicable SWAP. The WF will remain open and SWAP will remain in effect until the expiration or cancellation of watches and/or warnings.

2.12.2.1.3. When the WF is closed, 26 OWS will notify the WF standby forecaster via the WF provided Standby Roster when a severe weather watch or warning (identified in Table 2.5) is issued for the installation, no later than 2 hours before the expected occurrence of severe weather. The WF will also provide their respective CP with up-to-date standby contact lists. Upon notification of a severe watch or warning, the WF standby forecaster will contact the 26 OWS and discuss the current weather situation. The WF standby person will then contact the SWAT Leader and relay the details of the watch or warning. If warranted, both the SWAT Leader and the WF standby person will report to the WF work center. After a thorough assessment of the situation, the SWAT Leader will determine if additional SWAT members are necessary and recall additional personnel if necessary.

2.12.2.2. Post event procedures will include a verbal review of the actions taken by the WF and OWS. If deemed necessary by the WF or OWS, or if damage occurs requiring an OPREP-3 report, a full forecast review will be accomplished IAW WF and OWS SOPs.

2.12.3. **Severe Weather Damage Reporting/OPREPS.** IAW AFMAN 15-129V2, AFI 10-229 and AFI 10-206, the WF will provide the 22 ARW/CP any pertinent weather information for OPREP-3 inclusion. The CP, in turn, will provide the WF with a copy of any weather related OPREPs. The WF will provide damage reports and OPREP-3s to the 26 OWS and HQ AMC/A3AW headquarters as soon as possible. **Note:** The 22 ARW/CC is the releasing authority for OPREP-3s. A courtesy copy to higher headquarters is acceptable, but not an "official" OPREP.

2.12.4. Chemical, Biological, Radiological, Nuclear, and High-yield Explosive (CBRNE) Response.

2.12.4.1. The WF will serve as the weather SME to CBRN operations, IAW AFI 10-2501 and AFI 15-128.

2.12.4.2. The WF will routinely meet with Readiness, Fire Emergency Services, and Bioenvironmental Engineering Flights to achieve appropriate mission immersion.

2.12.4.3. The WF will recommend and provide the appropriate weather data type for EM and other ESFs to use to run their chosen CBRN plume model.

2.12.4.4. The WF will work closely with Emergency Management and other ESF functions to ensure the supported commander gets a consistent picture.

2.12.4.5. The WF will provide meteorological parameters, data, and subject matter expertise to all Disaster Response Force elements, EOC Emergency Support Functions (ESF), and any/all Installation Emergency Management Plans.

2.12.4.6. If surface observations or alphanumeric forecasts are requested, WF personnel will make sure that observations and forecasts provided are representative of the location/time of the CBRN event.

2.12.4.7. The WF is the primary unit for providing Chemical Downwind Messages (CDM) and Effective Downwind Message (EDM) support. Upon request, the WF will obtain/provide CDMs from the servicing CU. CDMs are used to determine the spread of chemical and biological agents that are released.

2.12.4.8. The WF is the primary unit for providing Effective Downwind Message (EDM) support. Upon request, the WF will obtain/provide EDMs from AFWA. The EDM is used for forecasting threat areas for fallout from a nuclear detonation.

2.13. Dissemination Process.

2.13.1. **Observations.** Observations taken by either the FMQ-19 automated observing system or the weather technician are disseminated via the Joint Environmental Toolkit (JET). When the JET is out of service, observations will be disseminated longline, via the LAN, on Air Force Weather Web Services (AFW-WEBS). If all longline transmission resources are out of service, the WF will call via telephone (voice relay) another weather station or supporting hub (26 OWS) for longline transmission. Locally, when JET is nonoperational, the WF will relay observations to the following local organizations in the order of priority listed in Table 2.6.

Table 2.6. Notification Priority.

1. Tower (Hotline or x-6046; commercial (316) 759-2106)
2. 22 ARW/CP (Hotline or x-3251; commercial (316) 759-3251)
3. AMOPS (Hand Carried or x-3701; commercial (316) 759-3701)
4. 26 OWS DSN 331-2615; commercial (318) 529-2614

2.13.2. **TAFs.** The 26 OWS disseminates TAFs via JET**.** If JET is nonoperational, the WF will disseminate the information locally via standard telephone lines or email to the command post and tower.

2.13.3. **Special Weather Statement (SWS).** 26 OWS transmits SWSs to WF leadership via email and through Threat Assessment Discussions. WF leadership tailors SWS information and provides information to 22 ARW leadership via email (as able), as Significant Weather Alerts.

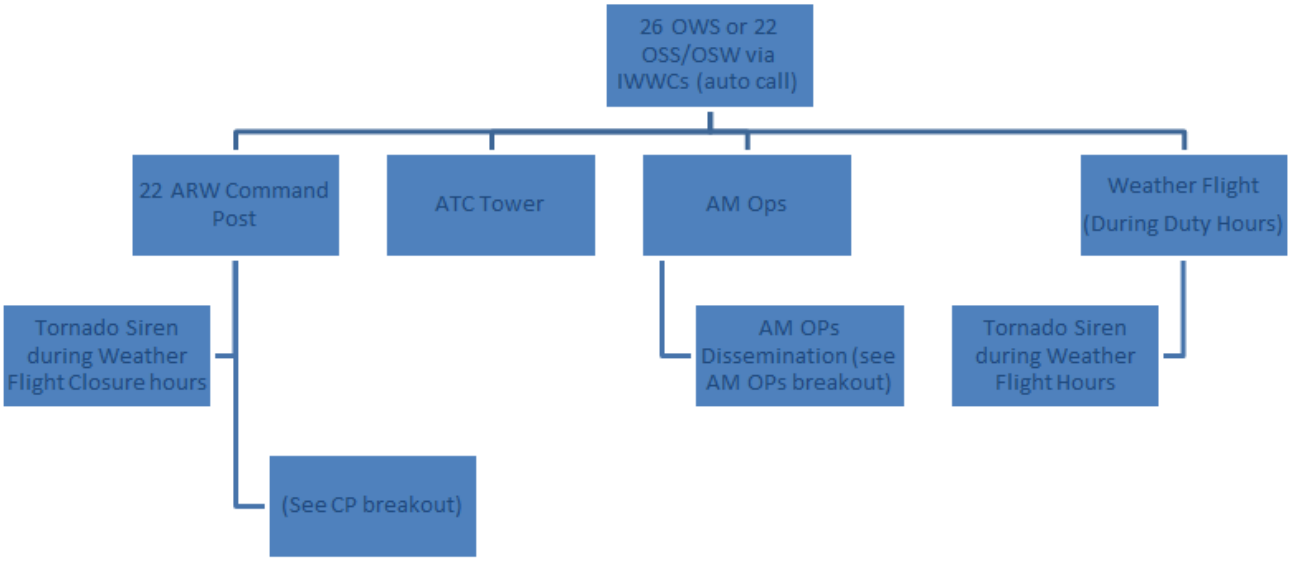
2.13.4. **Significant Weather Alerts:** The WF transmits Significant Weather Alerts and updates via email (as able) to 22 ARW CCs/Superintendents Group, 22 AMOPS, 931 ARG CCs and Chiefs, KSANG/CP, TACC, and the NWS (for info only). The email cc's 26 OWS REGION 1 and 22 OSS/OSW (to maintain continuity and consistency).

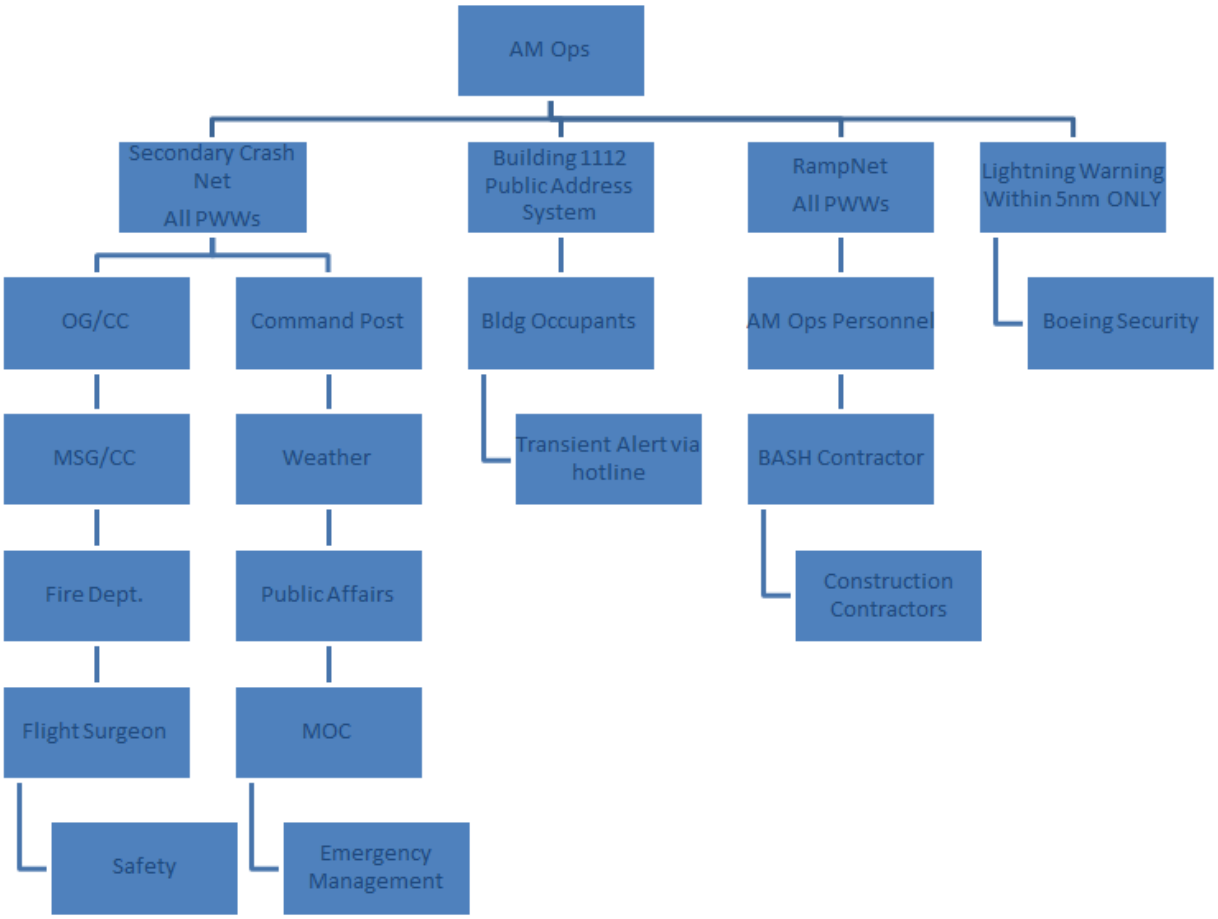
2.13.5. **WWAs.** The 26 OWS or WF will enter WWAs into JET which will disseminate the information to Tower, 22 ARW/CP, AM Ops and TACC weather. If JET is out-of-service, the WF (26 OWS if the WF is closed) will call each agency in Table 2.6 to pass information. Tower disseminates all weather watches, warnings and advisories to airborne and taxiing

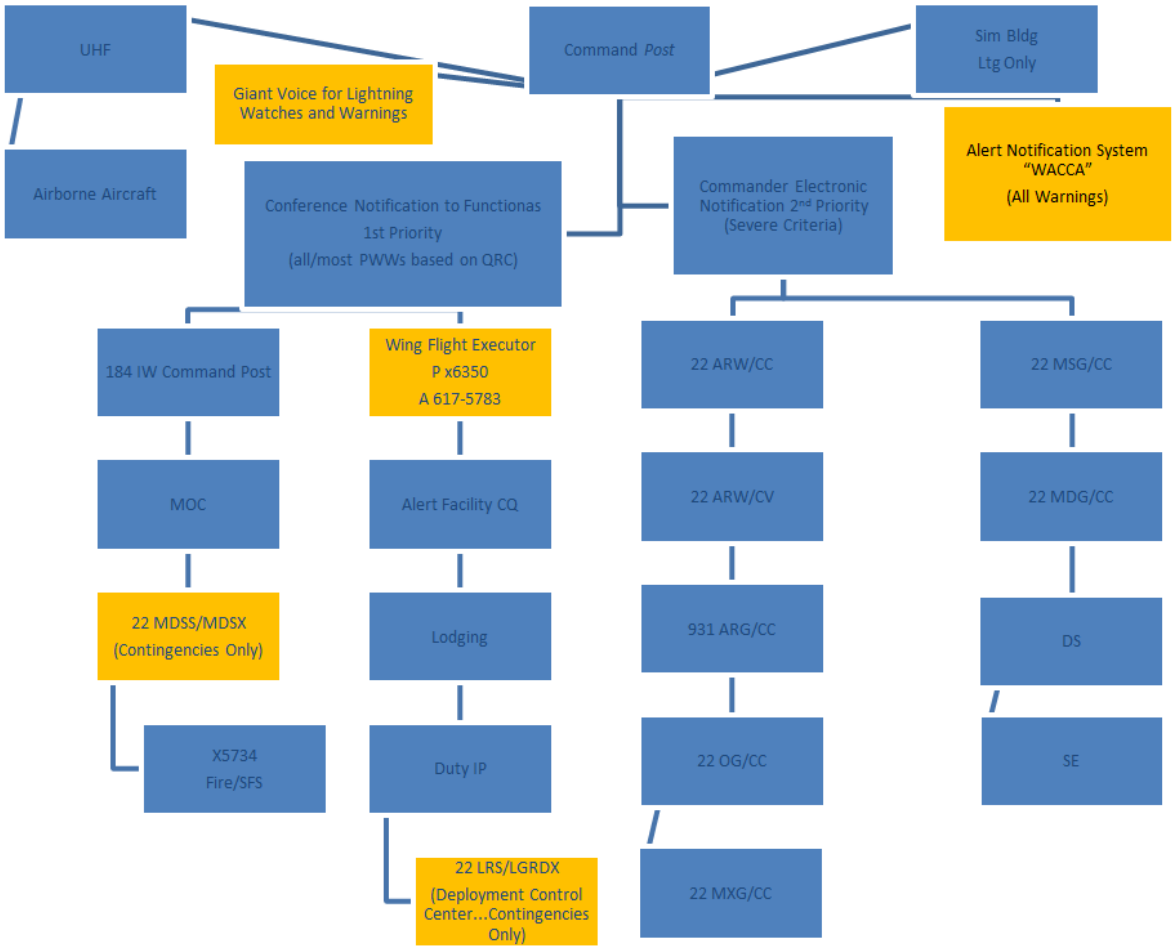
aircraft. Command Post and AM Ops will further disseminate all WWAs using the pyramid notification scheme shown in Figure 2.1.

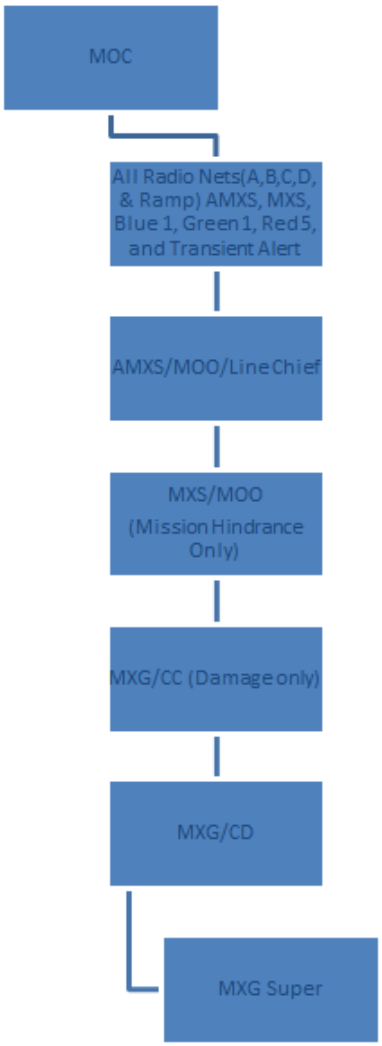
2.13.6. **Tornado Warnings/Siren.** The WF has the primary responsibility for alerting the base population in the event of a tornado warning. The siren will be tested each Friday at 1200L (March-November) as long as the weather conditions and mission permits it. If the WF is closed or the WF siren malfunctions, 22 ARW/CP assumes responsibility for the tornado siren (or notification via the Giant Voice System).

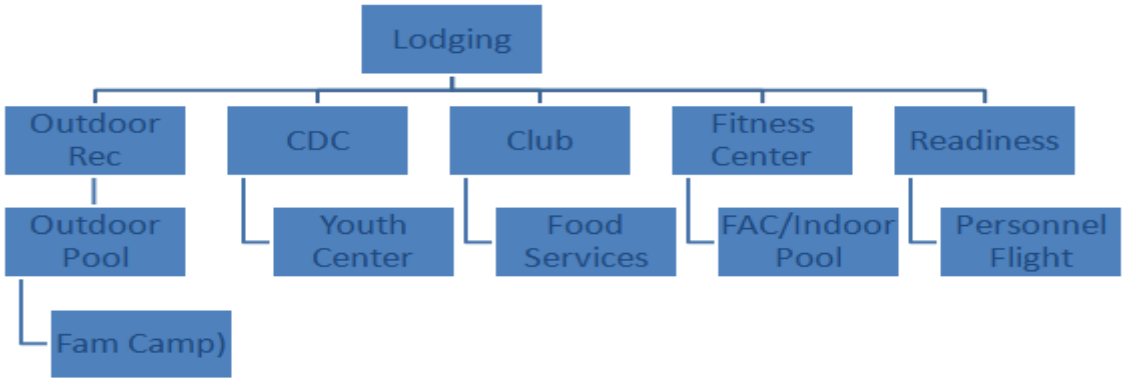
Figure 2.1. Weather Pyramid Alerting




AM Ops
Secondary Crash Net
All PWWs
Building 1112 Public Address System
RampNet
All PWWs
Lightning Warning Within 5nm ONLY
OG/CC
Command Post
Bldg Occupants
AM Ops Personnel
Boeing Security
MSG/CC
Weather
Transient Alert via hotline
BASH Contractor
Fire Dept.
Public Affairs
Construction Contractors
Flight Surgeon
MOC
Safety
Emergency Management


UHF
Airborne Aircraft
Giant Voice for Lightning Watches and Warnings
Command Post
Sim Bldg Ltg Only
Alert Notification System "WACCA" (All Warnings)
Conference Notification to Functionas 1st Priority (all/most PWWs based on QRC)
Commander Electronic Notification 2nd Priority (Severe Criteria)
184 IW Command Post
MOC
22 MDSS/MDSX (Contingencies Only)
X5734 Fire/SFS
Wing Flight Executor P x6350 A 617-5783
Alert Facility CQ
Lodging
Duty IP
22 LRS/LGRDX (Deployment Control Center...Contingencies Only)
22 ARW/CC
22 ARW/CV
931 ARG/CC
22 OG/CC
22 MXG/CC
22 MSG/CC
22 MDG/CC
DS
SE


MOC
All Radio Nets(A,B,C,D, & Ramp) AMXS, MXS, Blue 1, Green 1, Red 5, and Transient Alert
AMXS/MOO/Line Chief
MXS/MOO (Mission Hindrance Only)
MXG/CC (Damage only)
MXG/CD
MXG Super


Lodging
Outdoor Rec
CDC
Club
Fitness Center
Readiness
Outdoor Pool
Youth Center
Food Services
FAC/Indoor Pool
Personnel Flight
Fam Camp)

Chapter 3

MISSION SERVICES

3.1. General. The WF, TACC, and the 26 OWS support the McConnell AFB flying and non-flying missions. The Mission Weather Product (MWP) is the primary tool used to accomplish these tasks. MWPs are tailored to individual customer requirements and may be anything from a web-based flight weather briefing (FWB) to a change-of-command weather forecast. Any event, both flying and non-flying, that will be affected by weather normally requires some sort of MWP.

3.2. Operational Hours. WF Mission Services are provided Monday-Friday from 0300L-2100L and as required on weekends, holidays, and down days. TACC and 26 OWS provide 24-hour support as indicated in 1.5.2. The WF's Mission Services personnel will be available 24-hours a day during exercises, real-world contingencies and when directed by 22 ARW/CC. Missions Services will also open to support flying missions for the following criteria.

3.2.1. The WF will open to provide brief/PMSV services, regardless of weather conditions, for all scheduled 22 ARW missions, if the mission is/was not briefed by TACC.

3.2.2. **Flight Mission ORM**. WF personnel will be available from 2 hours prior to 30 minutes after mission departure and/or open 30 minutes prior to arrival to provide TACC liaison/ service/PMSV support for all scheduled aircraft arrivals/departures outside normal duty hours when any of the criteria below are met.

3.2.2.1. Ceilings/Visibility observed or forecast to be $\leq$ 1000'/3SM

3.2.2.2. Winds observed or forecast $\geq$ 35 Knots

3.2.2.3. Crosswinds observed or forecast $\geq$ 25 Knots

3.3. Supported Organizations/Missions/Requirements. The WF provides weather support to the 22 ARW and the 931st ARG (and their associated units). See Attachment 6 for airframe/mission requirements and limitations. See Chapter 2 and Attachment 5 for all watches, warnings and advisories.

3.3.1. The 22 ARW operates/maintains KC-135 Stratotankers supporting worldwide aerial refueling and airlift operations, provides Global Reach for troops, equipment and supplies with mobility requirements and, supports global contingency and conventional operations and USSTRATCOM OPLAN 8010.

3.3.2. The 931ARG flies McConnell AFB KC-135R aircraft providing mission ready reservists to maintain and support Global Reach for America.

3.4. Mission Weather Products (MWPs). MWPs are mission-specific forecasts that tailor and fuse strategic and theater scale products with information supplied by local units (e.g., flying schedule, wing calendar) and agencies enabling the direct inject of weather impacts into planning and/or execution. The end result is a product/information designed to provide timely, accurate and relevant weather intelligence to various customers by whatever means proves most effective (Web-Based, verbally, person-to-person, 175-1, etc.). MWPs will be horizontally consistent with

(but not necessarily mirror) products issued by any OWS and the Air Force Weather Agency (AFWA).

3.5. Flying Missions. The WF and TACC provide mission-tailored weather support to the 22 ARW and 931st ARG flying units.

3.5.1. Geographic Area of Responsibility**.** Mission-tailored weather support is provided for flying areas used by McConnell AFB's assigned and attached units. Most McConnell missions are served by TACC Weather who assumes the same AOR for FWBs via GDDS2.

3.5.2. Training Missions, Operating Areas and Weather Sensitivities. Due to the size of the training areas there are very few instances when weather will make an operating area completely unusable. Pilot discretion is used to determine mission go/no-go regardless of the weather phenomena listed in the MWP.

3.5.3. **Flight Planning MWPs.** The WF produces two flight planning MWPs (2-Day Planning and AR Planning) to provide aviators with a first look at anticipated weather and associated impacts (see attachment 8). Planning MWPs do not take the place of an official flight forecast; they are not updated or amended. They are available through the One-Stop share-point page at **https://eim.amc.af.mil/org/22oss/OneStop/default.aspx** under KIAB WX Forecast Products. Both products are also available directly through the WF share-point page at **https://eim.amc.af.mil/org/22oss/Weather/default.aspx.**

3.5.3.1. 2-Day Planning MWP. The 2-Day Planning MWP provides a planning forecast for the airfield. It details criteria such as; ceilings, visibility, cross winds, thunderstorms, icing and turbulence. It is designed to provide critical go/no-go planning information for the following two days to the flying squadrons. The 2-Day Planning MWP will be issued once a day NLT 1430L Monday-Friday.

3.5.3.2. AR Planning MWP. The AR Planning MWP is a first glance at anticipated weather for the next day's scheduled AR tracks. Monday's AR track data will be available Friday afternoon, provided route information is updated in GDSS. The AR Planning MWP is designed to provide aviators a first glance at criteria such as clouds/visibility, thunderstorms, icing and turbulence for each 22 ARW scheduled AR track. The AR Planning MWP will be issued once a day NLT 1500L Monday–Friday.

3.5.4. **Flight Weather Briefs (FWBs)**. GDSS is the primary command and control (C2) system used to request and receive weather briefings to AMC owned/gained flying units. It is designed to provide critical go/no-go weather information, for all phases of each mission, to the flying squadrons. GDSS provides a unique product that incorporates the requirements of all McConnell-based flying units into a common format (see Attachment 7). Updates can be obtained by calling TACC at DSN 779-0353, Commercial (618) 229-0353, or by contacting the WF at DSN 743-3707/4311, Commercial (316) 759-3707/4311.

3.5.4.1. For most 22 ARW and Total Force missions departing McConnell AFB, TACC Weather provides FWBs via GDSS. The WF provides FWBs via GDSS during TACC COOPs IAW para 1.6.3.

3.5.4.2. For TURBO 85/86 missions and 8010 missions, WF personnel will provide a FWB to aircrews at the alert facility, via E-mail, or at the weather flight prior to launch.

3.5.5. **MISSIONWATCH.** This is a deliberate process for monitoring terrestrial weather and/or the space environment for specific mission-limiting environmental factors identified in attachment 6. Transient missions (cross country, etc.) are not considered "local" though the mission's origins may have started/ended at McConnell AFB. It is through this method that FWB amendments/updates are accomplished.

3.5.5.1. **WF Briefed Sorties.** FWBs will be monitored continuously and updated as required. During rapidly changing weather, the WF will inform the OWS when weather products issued by the OWS do not accurately reflect observed conditions and impact flight safety. Updates to the FWB, provided by the WF, may precede the issuance of the OWS's TAF but must be verbally coordinated between the WF and the OWS prior to any FWB changes. The WF will amend/update the FWB as necessary. In addition, when previously un-forecast weather conditions develop that place a mission at risk, the WF will contact the 22 ARW/CP with updates. The CP will pass this information to the aircrew. MISSIONWATCH will be conducted and logged.

3.5.5.2. **TACC Briefed Sorties.** TACC weather will perform MISSIONWATCH for all sorties they support. If significant changes to weather occur, TACC will update the Weather Threat Assessment (WTA). IAW AMCI15-101, the 22 ARW/CP subscribes to WTAs to receive MISSIONWATCH alerts. The CP will pass Weather Threat Assessments (WTA) information to the aircrew. The WF will:

3.5.5.2.1. Maintain situational awareness of the weather impacting all non-IFM McConnell AFB sorties.

3.5.5.2.2. Coordinate with TACC weather if weather deviates from the published WTA.

3.5.5.2.3. Backup TACC weather IAW para 1.6.3.

3.5.6. **Transient Aircraft Weather Briefings**. Weather personnel will provide or arrange for weather support for transient aircrews IAW the duty priorities listed in Table 1.1. The WF will provide verbal briefings, full FWBs (175-1), or updates to transient aircrew as requested following the flight's duty priorities. These missions are not provided MISSIONWATCH. Transient aircrew briefs are low on the priority list and may have to be referred to the 26OWS briefing cell. Additionally, a web-based aircrew-briefing terminal is located in the Flight Planning Room. This briefing terminal allows aircrews to self-brief or schedule a flight weather briefing from the 26 OWS. The 26 OWS briefing cell can be reached at DSN 331-2651 or via web access from the aircrew briefing terminal. Contact information is provided at the aircrew briefing terminal.

3.6. Non-Flying Missions. The WF and 26 OWS support various non-flying missions (e.g., Wg picnic, change of command ceremonies, Morale Welfare and Recreation) through WWAs. Primary organizational weather limitations and customer actions are identified in Attachment 5 Additionally, the WF produces a four-day forecast to support non-flying missions and events (see Attachment 8). Specific support to McConnell's non-flying missions is identified in **Chapter 4**. Specialized weather information can be provided to support any non-flying mission upon request. Non-governmental agencies should request weather information and support through 22 Public Affairs (PA).

3.6.1. **Four-Day Forecast.** The Four-Day Forecast provides McConnell AFB personnel with an outlook of sensible weather expected on base for the next 96 hours. It is designed to provide general weather conditions such as max/min temps; wind chill/heat index, precipitation, sunrise/sunset/lunar illumination and ORM for operations, maintenance, and Airman (see Attachment 8). It is produced and issued daily NLT 0530L Monday-Friday. It is available on the WF share-point page at **https://eim.amc.af.mil/org/22oss/Weather/default.aspx**.

3.7. Space Weather. Many of our weapons and communications systems use satellites and radio waves (High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF) and Satellite Communications (SATCOM)), that can be rendered useless by electro-magnetic radiation from the sun. McConnell's missions have a wide-variety of parameters possibly affected by various space weather conditions (HF and UHF communication, radar, Global Positioning System communications, etc.). Space weather products are available from the 26 OWS at **https://ows.barksdale.af.mil/by_type/space/index.cfm?fuseaction=space_weather&id**= SPWXSUM2&brief_type=SPACE&UID=&BW=H&UF=O&AOR=1&USEHF=1.

3.7.1. Like terrestrial weather, there are numerous factors that influence space weather. One of the biggest limitations we have in identifying and forecasting space weather is a lack of sensors. Additionally, given the speed of solar wind and light, our ability to provide lead-times for significant space events is extremely limited. Note that GPS products are primarily "now-casts"‖and/or <1 hour forecasts. Due to frequent refresh required to monitor these products, weather technicians will only monitor these products when specifically requested by the customer.

3.7.2. The WF and TACC weather provide space impacts on their FWBs.

3.7.3. An example of space weather situational awareness and more detailed list of potential space weather impacts are provided in Attachment 9.

Chapter 4

STAFF SERVICES AND RECIPROCAL SUPPORT

4.1. General. Staff services are typically accomplished by WF leadership. They include meteorological functions (specialized briefings focused on a particular event/audience), ensuring the WF is trained and equipped for day-to-day operations, and cultivating relationships with base agencies to ensure WF support is optimal.

4.2. Operational Hours. Staff services are provided during normal duty hours (0730-1630L). Contingency, emergency and exercise briefings are provided as required.

4.3. Staff Meteorological Functions. Staff meteorological functions are provided by WF leadership to aid McConnell leadership in identifying and understanding specific weather and environmental impacts. The WF is available to assist commanders in determining weather support requirements and impacts to operations. Staff service briefings are a specialized type of MWP focused on a particular event/audience. Examples of staff meteorological functions provided are:

4.3.1. **22 ARW Staff Briefings.** Staff weather briefings (i.e., wing stand up) will be provided as required. Standard information includes a 4-day McConnell AFB weather outlook with a focus on ORM and any affected Wing events.

4.3.2. **Crisis Action Team (CAT) Briefings.** The WF will provide weather briefings as required/requested for CAT meetings. This includes but is not limited to real-world emergency, exercise and deployment briefings. Each briefing will be tailored to provide the appropriate weather intelligence required by wing leadership.

4.3.3. **Instrument Refresher Course (IRC) Briefings.** In accordance with AFMAN 11-210, *Instrument Refresher Course (IRC) Program,* computer based training is available. The WF provides IRC briefings IAW AFMAN 15-129 to discuss more detailed local weather effects and impacts. The weather briefing consists of an overview of the WF's Airfield and Mission Services, WF capabilities, WF/OWS/TACC responsibilities, resource protection, seasonal/regional weather and space weather impacts (when applicable).

4.3.4. **Pre-deployment Planning Briefings.** The WF will provide pre-deployment weather briefings as requested by deploying units. Briefing content will be tailored to meet customer requirements. For example, an aviation unit will receive weather impacts at the deployed location on their flying mission, in addition to the standard surface weather information usually presented to ground units. A ground-based unit, like security forces, will receive a briefing on surface temperatures, wind speed, potential for blowing sand and dust, and precipitation.

4.3.5. **OPEN SKIES Briefings.** During OPEN SKIES exercises and activations, the WF will provide, when requested, a briefing giving local, take-off, en-route and arrival weather and be prepared to brief/provide local weather for other OPEN SKIES Airfields (OSA) and OPEN SKIES Refueling Airfields (OSRA). The WF will provide daily stand-up weather briefings detailing the current and forecast weather for the entire mission period to include applicable satellite and radar imagery, current and forecast surface maps and an outlook for the local area and other OSA/OSRA, as requested.

4.3.6. **Climatology Services.** The WF will provide climatology information as requested. Upon request from an authorized agency (as deemed appropriate by unit management), the WF will provide data, such as end of month of historical climatology, for McConnell AFB and/or other locations. Requests may be made by phone, e-mail, letter, or in person.

4.3.7. **Mass Briefings**. Out-of-station mass briefings require 72-hours advanced notice, are subject to staffing availability and must be coordinated with WF leadership at DSN 743-3845 or 3706.

4.4. Staff Integration Functions. In addition to leadership and management of unit activities, WF leadership functions as the direct interface with the supported unit commander and staff, and provides direct support to command, control and planning functions. The integration function combines unique local requirements, submitted by various organizations throughout McConnell AFB and verified by the WF leadership, and Air Force instructions. The integration function includes coordination of reciprocal support to allow the WF to accomplish its daily mission. Local requirements will be reviewed annually by the requesting unit and updated as required. The supported unit is responsible for contacting the WF should their requirements change. Units will coordinate with the WF Superintendent to change this instruction or request special or additional support not addressed in this instruction. Specific integration with base agencies is outlined below.

4.4.1. **22 ARW (XP).** The WF 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.

4.4.2. 22 ARW CP.

4.4.2.1. The WF will notify the CP whenever the base weather station is evacuated and/or the AOL is activated.

4.4.2.2. The WF will provide data to complete CP initiated OPREP-3 BEELINE reports.

4.4.2.3. The WF or OWS provides notification of all-weather watches, warnings and advisories via JET and/or telephone.

4.4.3. **22 ARW/PA.** The WF provides tours of the base weather station for community groups and others when coordinated by PA.

4.4.4. 22 OSS/OSAA (AM OPS).

4.4.4.1. The OWS or WF provides notification of all forecast weather watches, warnings, and advisories via JET and/or telephone.

4.4.4.2. The WF will notify the OSAA whenever the base weather station is evacuated and/or the AOL is activated.

4.4.4.3. WF leadership will participate as a member of the Airfield Operations Board (AOB) as directed in AFI 13-204 Vol III, Airfield Operations Procedures and Programs.

4.4.4.4. **Flight Information Publication (FLIP) Weather Updates.** The WF is responsible for ensuring all weather information in the FLIP is accurate. The WF will review all FLIPs for currency and accuracy as soon as possible after receiving updates from AM OPS. All weather related updates will be requested through the Airfield Management FLIP Manager.

4.4.5. 22 OSS/OSAB.

4.4.5.1. The WF provides notification of all weather watches, warnings, and advisories via JET and/or telephone.

4.4.5.2. The WF will notify the OSAB whenever the base weather station is evacuated and/or the AOL is activated.

4.4.5.3. The WF will manually change weather sensors to match the active runway settings, if when notified by ATC of PAPI Light change the FMQ-19 does not automatically make the change.

4.4.5.4. **ATC Limited Observation Training.** The WF will provide ATC Limited Observing Training. The ATC trainer or watch supervisor will call the weather flight and schedule an appointment with either the WF Superintendent (x-3845) or NCOIC (x-3706) to receive training. After ATC personnel complete the training they will take a short test on the information and receive a familiarization tour of the weather station.

4.4.6. **22 ARW/SE (Safety).** The WF will provide meteorological data and/or personnel to assist in the investigation of ground or aircraft mishaps, as required. The WF will provide seasonal weather briefings, upon request.

4.4.7. **931 ARG/SE (Safety).** The weather flight will provide seasonal weather briefings, upon request.

4.4.8. **22 CS (Communications Sq).** WF will provide feedback and operator updates on systems maintained by the communications squadron, as requested.

4.4.9. **22 CONS (Contracting Sq).** WF will provide climate data upon request.

4.4.10. **22 CES (Civil Engineering Sq).** WF will provide climate data and specialized support for projects on McConnell AFB upon request.

4.4.11. 22 CES/CEXR (Readiness).

4.4.11.1. The WF will routinely meet with 22 CES/CEXR to achieve appropriate mission immersion

4.4.11.2. The WF will provide chemical downwind messages (CDM) and/or effective downwind messages (EDM) upon request.

4.4.12. 22 CES/CEF (Fire Dept).

4.4.12.1. The WF will routinely meet with 22 CES/CEF to achieve appropriate mission immersion

4.4.12.2. The WF will provide wind data to Fire Superintendent to determine accurate toxic corridor information.

4.4.13. 22 **AMDS/SGPB (Bioenvironmental Flight)**. The WF will routinely meet with 22 AMDS/SGPB to achieve appropriate mission immersion.

4.4.14. **22 SFS (Security Forces).** WF will provide temperature, wind and equivalent wind chill advisories as specified in this document.

4.4.15. **All flying units.** WF will provide services as outlined throughout this publication.

4.5. Reciprocal Support.

4.5.1. 22 ARW/CP.

4.5.1.1. Will notify wing leadership and various base agencies of severe weather when notified by the OWS or the WF.

4.5.1.1.1. Disseminate weather warnings, watches and advisories according to established procedures and Figure 2.1.

4.5.1.1.2. Use Giant Voice as part of dissemination for Lightning Watches and Warnings.

4.5.1.2. Notify the WF when any other agency reports a funnel cloud, tornado, or any other significant weather event.

4.5.1.3. Assume responsibility for the tornado siren (or provide notification via the Giant Voice System), if the WF is closed or the WF siren malfunctions.

4.5.1.4. Notify the WF of any significant weather related event (material damage, injuries, etc.)

4.5.1.5. Include the WF on their dissemination/notification list for any weather related OPREP-3s or incidents.

4.5.1.6. Immediately notify the WF of any changes to McConnell alternate airfields.

4.5.1.7. Provide time during training meetings for 22 OSS/OSW to present information and training on weather subjects on which CP personnel are involved, as applicable.

4.5.1.8. Subscribe to and monitor the Weather Threat Assessment notifications for 22 ARW

4.5.1.9. After WF duty hours, immediately contact the stand-by Weather Forecaster when notified by TACC Weather that GDSS is inoperable.

4.5.2. **22 ARW/PA.** Will coordinate tours of the base weather station by community groups and others with the WF Superintendent or NCOIC.

4.5.3. **22 OSS/OSAA (Airfield Management)**

4.5.3.1. Will ensure dissemination of weather warnings and advisories as outlined in Chapter 2 of this instruction.

4.5.3.2. Notify the WF immediately of all aircraft emergencies, incidents, or accidents.

4.5.3.3. Notify WF personnel of ground emergencies via the secondary crash network.

4.5.3.4. Notify WF Superintendent of all changes to published approach minimums at McConnell AFB (FLIP).

4.5.3.5. The FLIP Manager will submit FLIP updates provided by the WF to Air Force Flight Standards Agency/Operating Location-D (AFFSA)/OL-D. AFFSA/OL-D. Updates will fall in one of three categories: revisions, changes, or corrections

4.5.3.6. Provide Runway Condition Readings/Runway Surface Condition (RCR/RSC) to WF mission services personnel for local briefings. Weather will be notified of initial conditions and all changes in RCR/RSC.

4.5.4. **22 OSS/OSAB (Air Traffic Control).**

4.5.4.1. Disseminate all weather watches, warnings and advisories to airborne and taxiing aircraft.

4.5.4.2. Participate in Cooperative Weather Watch

4.5.4.3. Advise the WF of all changes in active runway.

4.5.4.4. Relay pilot weather reports to WF personnel.

4.5.4.5. Notify the WF of any light setting changes on the high-intensity (PAPI) runway lights.

4.5.4.6. Provide control tower orientation training for weather personnel.

4.5.4.7. Conduct radio checks to ensure proper PMSV operation after WF initiates.

4.5.5. **22 ARW/SE.** Will request a McConnell AFB WF briefer for seasonal weather briefings. 22 ARW/SE contact and provide WF leadership at least 72 hours advance notice when a briefer will be needed.

4.5.6. **931 ARG/SE.** Will request a McConnell AFB WF briefer for seasonal weather briefings. 931 ARW/SE will contact and provide WF leadership at least 72 hours advance notice when a briefer will be needed.

4.5.7. **22 CS.** 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 hardware).

4.5.7.1. Maintain and update all technical orders and will advise operators of any significant changes, as received.

4.5.7.2. Utilize the restoration priorities for weather communications and meteorological sensing equipment. The weather shift supervisor, dependent on the weather conditions and mission requirements, may alter restoration priority.

4.5.7.3. As the single point of contact, Comm Focal Point, issues job control numbers for all outages reported.

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

4.5.7.5. Coordinate with off-base agencies to repair off base lines

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

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

4.5.7.8. Ensure established maintenance response times are met

4.5.7.9. Ensure a 24-hour point of contact for reporting outages and assigning Job Control numbers is available.

4.5.7.10. Coordinate with McConnell Weather Flight shift supervisor prior to taking any equipment down for scheduled maintenance. The weather shift supervisor, dependent on the weather conditions and mission requirements, may delay scheduled maintenance.

4.5.8. **22 CES.** Contact the WF Superintendent to request climatological data and specialized support for projects on McConnell AFB.

4.5.9. **22 SFS.** Promptly inform the WF of any hazardous weather reported by Security Forces personnel (tornado, hail, etc.).

4.5.10. **22 AMDS/SGPB (Bioenvironmental Flight).** Provide the base populace with the Wet Bulb Globe Temperature (WBGT) as required.

4.5.11. **22 OSS/OSO.** Notify weather technician of current and planned weather alternates and any special considerations affecting duration of tour (i.e., weather categories, exercise/deployment considerations, etc.).

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

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

4.5.11.3. Notify the WF of GDSS outages/discrepancies as soon as identified.

4.5.12. **All Supported Flying Units**

4.5.12.1. Provide PIREPS, either directly to the WF (x3707/4311) or through the PMSV, Tower, or CP.

4.5.12.2. Provide feedback (via e-mail, survey, or webpage) to the WF or TACC Weather for all missions considered non-effective due to weather. See para 3.5.6 for more details.

4.5.12.3. Respective squadron DOs will act as liaison contact for providing in person feedback from their unit.

4.5.12.4. Provide guidance (at least 2 weeks in advance) to WF Superintendent regarding any weather training/educational requirements (or changes in requirements) if applicable

4.5.13. **All Weather Support Recipients will.**

4.5.13.1. Notify WF through proper chain of command when new weather support requirements are identified.

4.5.13.2. Coordinate changes/additions to weather support requirements as soon as they are identified.

4.5.13.3. Notify 22 OSS/OSW of problems with their JET equipment after performing troubleshooting measures.

4.5.13.4. Provide a minimum of 72-hours notice for known weather support requests entailing out of station support.

Chapter 5

WEATHER EQUIPMENT

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

5.2. Meteorological Equipment & Software Systems. The WF uses a wide range of equipment and software systems to determine the current state of the atmosphere. These critical systems are used continuously to provide customers the most timely, accurate and relevant weather intelligence possible.

5.2.1. **FMQ-19**. The FMQ-19 is an integrated automated weather system consisting of multiple weather sensors and information technology components that continually measure the environment near the surface of the earth. It automatically generates surface aviation weather observations based on user-defined events, either by time or occurrence of a particular weather element or category. The FMQ-19 is the primary source for recording elements in the official observation. Backup systems include the Kestrel 4500 and TMQ-53.

5.2.2. **Kestrel 4500**. The Kestrel is a hand-held weather observing device that measures wind speed, temperature, and pressure. It does not have the precision of other equipment and will be used as a short-term backup device only.

5.2.3. **TMQ-53 (TMOS).** The TMQ-53 TMOS is a tactical weather observing instrument suite able to measure everything the FMQ-19 can measure. During long-term FMQ-19 outages, the TMQ-53 can be used as backup.

5.2.4. **Gibson Ridge Radar (GR).** The WF utilizes the web-based GR software application system as its primary source of radar data. This system allows weather technicians 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 latest radar information into all mission weather products and Resource Protection products. The WF utilizes the 26 OWS web-page (or another OWS) and AFW-WEBS as back-up sources for radar products. Without internet connectivity (LAN), the WF does not have the capability to access radar data.

5.2.5. **Mark IV-B**. The WF utilizes the web-based Mark IV-B software application system as its primary source of satellite data. This system allows weather technicians to view weather systems as they develop and progress. It provides weather technicians the ability to determine cloud patterns locations, and movements critical to the forecast and eye's forward processes. The WF utilizes the 26 OWS web-page (or another OWS) and AFW-WEBS as back-up sources for satellite imagery. Without internet connectivity (LAN), the WF does not have the capability to access satellite data.

5.3. Communications Equipment. Just as vital as meteorological equipment, communications equipment allows the WF to get the right information to the right customer. The following systems are the backbone of the WF communications network.

5.3.1. **Joint Environmental Toolkit (JET).** The WF uses JET as its primary method of disseminating observations, forecasts, warnings, watches and advisories. The JET consists of

a series of dedicated computer terminals in the tower and the WF connected through the base LAN to the JET server. Other agencies requiring direct access to JET have a JET connection installed on a self-provided computer. Agencies without JET access will receive critical weather information through their unit's own dissemination system. JET is installed in the following locations: 22 ARW/CP, Tower, AMOPS, 26 OWS, 184 IW/CP, MOC, and Base Weather Station. In the event that JET terminals are inoperative, the WF utilizes AFW-WEBS to disseminate observations and forecasts (if required) longline. Telephones are used as a backup for key aircraft controlling agencies.

5.3.2. **PMSV Radio.** The Pilot-To-Metro-Service Radio (374.2 MHz) allows the WF to communicate with aircrews, both on the ground and flying, as well as tower personnel. If the PMSV is out of service aircrews can contact the WF, TACC or 26 OWS via phone patch (where possible) to get weather data. WF personnel will ensure information on outages is included in local Airfield Advisories and Notices to Airmen (NOTAMs).

5.3.3. **Phones/Hotlines.** Phones and hotlines serve primarily for rapidly passing along critical, time-sensitive information, as well as to backup systems. Hotlines are installed between the WF and the command post and tower. Normal phone lines will be used in the event of a hotline outage.

5.3.4. **Local Area Network (LAN).** The WF relies heavily on the LAN for receipt of weather data and to improve the timeliness and accuracy of weather intelligence to our customers. The LAN is the primary method used for receiving all weather information and disseminating web-based MWPs (located on SharePoint, see Chapter 3). Additionally, it is the conduit between the JET server and JET computer terminals (see 5.3.1). Internet connectivity is integral to the WF's ability to disseminate observations (longline only) and access back-up web-sites used in the event of a JET outage. In the event of an internet outage, the WF will relay observations via phone to ATC personnel and request the 26 OWS or another WF send the information longline. FWBs will be coordinated/faxed to requestors or verbally updated with current airfield information. Forecast/Observed WWAs will be relayed via telephone IAW Table 2.6. The 26 OWS will fax or verbally relay meteorological information, as able. Without internet connectivity, the WF does not have JET, satellite, or radar capability and, lighting detection is limited to cloud to ground strikes within 30nm of the FMQ-19 sensors.

5.4. Maintenance. All equipment requires some sort of maintenance from time to time. The following organizations provide preventive maintenance and repair weather and communications equipment:

Table 5.1. Equipment Maintenance List.

Organization	Equipment
22 CS/SCOA (Airfield Systems)	FMQ-19
AFWA Fielded Systems	JET
Comm Focal Point	JET Server
22 CS/SCOA (Airfield Systems)	PMSV
Comm Focal Point	Phones/Hotlines
Comm Focal Point	LAN/Internet Connectivity

5.4.1. **Restoral Priorities.** Priorities for restoring critical systems have been established in the event natural disasters, or any other anomaly, simultaneously impact systems base-wide. The priorities for weather equipment are listed in Table 5.2. (priorities may be adjusted based on forecast weather). The response time is broken down into the following codes:

5.4.1.1. Code A--Within 30 minutes during duty hours; however, a 1-hour response time is permitted during non-duty hours. Deferment of maintenance may occur only with the concurrence of both the Superintendent of Maintenance and the user.

5.4.1.2. Code C--A response time of 30 minutes during duty hours only--single shift maintenance unless otherwise requested.

Table 5.2. Equipment Restoral Priorities.

Equipment	Organization	Response Time: (Duty/Non-Duty)
PMSV Radio	22 CS/SCOA	A/A
FMQ-19	22 CS/SCOA	A/A
LAN/Internet Connectivity/ /JET Server	Comm Focal Point	A/A

5.5. Building Power. Bldg. 1112 is equipped with a back-up generator. The generator should start up automatically when power is cut-off to Bldg. 1112. CE performs quarterly tests to ensure the generator is working properly.

JOEL D. JACKSON, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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

AMCI 15-101, *Weather Operations and Support*, 27 October 2010

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Prescribed Forms

None

Adopted Forms

DD Form 175-1, *Flight Weather Briefing*

Abbreviations and Acronyms

AIREP—Air Report

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFB—Air Force Base

AFPD—Air Force Policy Directive

AFFSA—Air Force Flight Standards Agency

AFWA—Air Force Weather Agency

AFW—WEBS—Air Force Weather Web Services

AGL—Above Ground Level

AMC—Air Mobility Command

AMOPS—Airfield Management Operations

AMOS—--Automated Observing System

AOL—Alternate Operating Location

AOR—Area of Responsibility

ARW—Air Refueling Wing

ATC—Air Traffic Control

BWW—Basic Weather Watch

CAT—--Crisis Action Team

CB—Cumulonimbus

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

CC—Commander

CDM—Chemical Downwind Message

CEF—Fire Department

CES—Civil Engineering Squadron

CIG—Ceiling

CONS—Contracting Squadron

CONUS—Continental United States

COOP—Continuity of Operations Plan

CP—Command Post

CS—Communications Squadron

CU—Characterization Unit

CWW—Cooperative Weather Watch

DA—Density Altitude

DO—Director of Operations

DSNT—Distant

EDM—Effective Downwind Message

EM—Emergency Management

ESTMD—Estimated

EU—Exploitation Unit

FLIP—Flight Information Publication

FROPA—Frontal Passage

FTU—Formal Training Unit

FWB—Flight Weather Brief

GDSS—Group Decision Support Systems

GPS—Global Positioning System

GMT—Greenwich Mean Time

GR—Gibson Ridge Radar

GSU—Geographically Separated Unit

HF—High Frequency

HQ—Headquarters

IAW—In Accordance With

ICAO—International Civil Aviation Organization

IRC—Instrument Refresher Course

FRQ—Frequent

JET—Joint Environmental Toolkit

KSANG—184th Intelligence Wing, Kansas Air National Guard

KT—Knots

LAN—Local Area Network

LTG—Lightning

LWR—Lower

MAFB—McConnell Air Force Base

METAR—Meteorological Terminal Aviation Routine Report

METCON—Meteorological Conference

METSAT—Meteorological Satellite

METWATCH—Meteorological Watch

MOC—Maintenance Operations Center

MOV—Moving

MOVD—Moved

MWP—Mission Weather Product

NCOIC—Noncommissioned Officer in Charge

NLT—No Later Than

NM—nautical mile

NWS—National Weather Service

OCNL—Occasional

OG—Operations Group

OHD—Overhead

OPSEC—Operation Security

OPR—Office of Primary Responsibility

OPREP—Operational Report

OSA—Open Skies Airfields

OSAA—Airfield Management

OSAB—Air Traffic Control

OSRA—Open Skies Refueling Airfields

OSS—Operations Support Squadron

OSW—Weather Flight

ORM—Operational Risk Management

OWS—Operational Weather Squadron

PA—Public Affairs

PA—Pressure Altitude

PAPI—Precision Approach Path Indicator

PIREP—Pilot Report

PK WND—Peak Wind

PMSV—Pilot-to-Metro Service

POC—Point of Contact

PRESFR—Pressure Falling Rapidly

PRESRR—Pressure Rising Rapidly

RCR—Runway Condition Readings

RDS—Records Disposition Schedule

RP—Resource Protection

RSC—Runway Surface Condition

RVR—Runway Visual Range

RWY—Runway

SATCOM—Satellite Communications

SE—Safety Office

SFS—Security Forces Squadron

SM—Statute Mile

SOF—Supervisor of Flying

SOP—Standard Operating Procedure

SPECI—Special Meteorological Observation Report

SWAP—Severe Weather Action Plan

SWAT—Severe Weather Action Team

TACC—Tanker Airlift Control Center

TAF—Terminal Aerodrome Forecast

TCU—Towering Cumulus

TWR—Tower

UFN—Until Further Notice

UHF—Ultra High Frequency

UNKN—Unknown

VFR—Visual Flight Rules

VHF—Very High Frequency

VIS—Visibility

WF—Weather Flight

WSHFT—Wind Shift

WTA—Weather Threat Assessment

Attachment 2

SPECIAL WEATHER OBSERVATION CRITERIA

A2.1. A Special weather observation will be taken and disseminated for listed criteria:

A2.1.1. **Ceiling/Visibility/RVR**. Take, disseminate and record a special observation whenever the following threshold decreases to less than, or if below, increases to equal or exceed:

Table A2.1. Criteria

Ceiling (ft AGL)	**Visibility (SM)**	**RVR (in hundreds of feet)** **(Reported when Prevailing Visibility is first observed ≤ 1SM and again when Prevailing Visibility goes above 1SM)**
3000 (AFMAN)	3 (AFMAN)	60 (AFMAN)
2000 (AFMAN)	2 ¾ (FLIP, circling)	55 (FLIP)
1500 (AFMAN)	2 ½ (FLIP)	50 (AFMAN/FLIP)
1000 (AFMAN)	2 ¼ (FLIP)	45 (FLIP)
900 (FLIP, circling)	2 (AFMAN/FLIP)	40 (FLIP)
800 (AFMAN/FLIP)	1 ½ (FLIP)	35 (FLIP)
700 (AFMAN)	1 3/8 (FLIP)	24 (AFMAN/FLIP)
600 (FLIP)	1(AFMAN/FLIP)	20 (AFMAN)
500 (AFMAN/FLIP)	7/8 (FLIP)	
400 (FLIP)	¾ (FLIP)	
200 (AFMAN/FLIP)	5/8 (FLIP)	
	½ (FLIP)	
	¼ (AFMAN)	
		- All published RVR minima applicable to the runway in use. - During augmentation, RVRNO will be appended to observations if prevailing visibility requires an RVR report (the WF does not have the capability to determine RVR).

A2.1.2. **Sky Condition.** A layer of clouds or obscuring phenomena aloft is observed below 900 ft. and no layer was reported below 900 ft. in the previous METAR or SPECI observation.

A2.1.3. **Wind.**

A2.1.3.1. **Wind Shift.** 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.

A2.1.3.2. **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.

A2.1.4. **Volcanic Ash**. Eruption or volcanic ash cloud first noted.

A2.1.5. Tornado, Funnel Cloud, or Waterspout.

A2.1.5.1. Observed and/or disappears from sight.

A2.1.6. **Thunderstorm.**

A2.1.6.1. Begins (**Note:** A SPECI is not required to report the beginning of a new thunderstorm if one is currently reported).

A2.1.6.2. Ends (**Note:** 15 minutes after the last occurrence of criteria for a thunderstorm; an audible sound of thunder, lightning within five NM of the airfield, etc.).

A2.1.7. **Precipitation.**

A2.1.7.1. Hail begins or ends.

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

A2.1.7.3. Ice pellets begin, end, or change in intensity.

A2.1.7.4. Any other type of precipitation begins or ends. **Note:** Except for freezing precipitation, 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. **Upon Resumption of Observing Services.** If operating in augment mode, a full element SPECI will be taken 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.

A2.1.9. When notified of an aircraft mishap, if operating in augment (backup) mode, the WF will immediately take a SPECI observation IAW AFMAN 15-111.

Attachment 3

FORECAST SPECIFICATION AND AMENDMENT CRITERIA

A3.1. Specification Criteria. The TAF will specify the time of occurrence, duration, and the intensity (if applicable) of expected weather conditions. The 26 OWS forecasters issue TAFs using the following specification criteria:

A3.1.1. **Ceiling and/or visibility** is forecast to decrease less than or if below, is forecast to equal or exceed any of the following levels:

Table A3.1. Ceiling/Visibility Forecast levels.

Ceiling	Visibility	Category
≥ 2,000 FT	≥ 3 SM (4,800 M)	E
≥ 1,000 FT	≥ 2 SM (3,200 M)	D
≥ 700 FT	≥ 2 SM (3,200 M)	C
≥ 200 FT	≥ 1/2 SM (800 M)	B
< 200 FT	< 1/2 SM (800 M)	A

A3.1.2. **Wind:**

A3.1.2.1. A change in wind speed of 10 knots or more

A3.1.2.2. An onset, duration, and intensity of wind gusts by 10 knots or more.

A3.1.2.3. A change in prevailing wind direction of more than 30 degrees when the predominant wind speed or gusts are expected to be more than 15 knots.

A3.1.3. **Thunderstorm**. Onset, duration, type and intensity.

A3.1.4. **Icing.** The onset, duration, type and intensity of icing, not associated with thunderstorms, from the surface to 10,000 feet Above Ground Level (AGL).

A3.1.5. **Turbulence** (for Cat II aircraft). The onset, duration, type and intensity of turbulence, not associated with thunderstorms, from the surface to 10,000 feet AGL.

A3.1.6. **Any weather warning and or forecast weather advisory** criteria that can be specified in the TAF are expected to occur during the forecast period.

A3.1.7. **Altimeter Setting.** The lowest altimeter setting forecast for the period.

A3.2. Amendment Criteria. Forecasters will ensure the TAF is representative of expected or actual conditions. 26 OWS Forecasters will amend the TAF if:

A3.2.1. **Ceiling and/or visibility** is observed, or later forecast, to increase to or exceed, or decrease to less than any of the levels listed in Table A3.1 and was not specified in the TAF.

A3.2.2. **Wind:**

A3.2.2.1. If the difference between the predominant wind speed (or gust) and the forecast wind speed (or gust) is 10 knots or more.

A3.2.2.2. If prevailing wind direction is in error by more than 30 degrees AND winds are ≥ than 15 knots.

A3.2.3. **Thunderstorms.** If the start or end time of the thunderstorm is incorrectly specified.

A3.2.4. **Icing** (not associated with thunderstorms, from the surface to 10,000ft Above Ground Level (AGL). The beginning or ending of icing first meets, exceeds, or decreases to less than moderate (or greater) threshold and was not specified in the TAF.

A3.2.5. **Turbulence** (for weather category II aircraft, not associated with thunderstorms from the surface to 10,000 ft. AGL). If the beginning or ending of turbulence meets, exceeds, or decreases to less than moderate (or greater) intensity and was not specified in the TAF.

A3.2.6. **Weather Warning Criteria:**

A3.2.6.1. If weather warning criteria occurs, or is expected to occur, during the forecast period, but was not specified in the forecast.

A3.2.6.2. If specified in the forecast, but is no longer occurring or expected to occur during the forecast period.

A3.2.7. **Forecast Weather Advisory Criteria.** If the forecast weather advisory criteria is improperly specified, occurs and was not forecast, or is no longer expected to occur during the forecast period.

A3.2.8. Altimeter Setting.

A3.2.8.1. If the altimeter setting meets or exceeds 31.00 INS and was not specified in the forecast or if above, drops below 31.00 INS and was not specified during the forecast period.

A3.2.8.2. If the altimeter setting meets or exceeds 28.00 INS and was not specified in the forecast or if above 28.00 INS, drops below 28.00 INS and was not specified in the forecast

A3.2.9. **Temporary Conditions:**

A3.2.9.1. Amend if temporary conditions become predominant.

A3.2.9.2. Amend if temporary conditions do not occur as forecast.

A3.2.9.3. Amend if temporary conditions are no longer expected to occur.

A3.2.10. **Changes to Predominant Conditions.** Amend if forecast change conditions occur before the specified period of change and are expected to persist, do not occur within 30 minutes after the specified time, or are no longer expected to occur.

A3.2.11. **Representative Conditions.** 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 assistance to in-flight aircraft.

Attachment 4

SAMPLE WEATHER PRODUCT DISSEMINATION FORMAT/INTERPRETATION OBSERVATION/TAF/WWAS

A4.1. Observation Example and Interpretation.

Table A4.1. Sample Weather Observation.

1	2	**3**	4	**5**	6	**7**	8	**9**	10
SPECI KIAB **1506Z** AUTO **17013G22KT** 2 1/2 **RVRNO** TSRA **BKN015CB OVC030** 76/75									
ALSTG 29.99 RMK AO2 TS OHD MOV NE									
11			12						

Body of Report - Consists of 11 Groups		
Group	Reference	Brief Description
Type of Report	A4.1.1.	Indicates type of report.
Station Identifier	A4.1.2.	A four-character group used to identify the observing location.
Date and Time of Report	A4.1.3.	Date and time of the report.
Report Modifier	A4.1.4.	A report modifier **(COR**) identifying report as a correction, or **AUTO** indicating the weather observation is a fully automated report with no human intervention. Gusts are appended if available.
Wind	A4.1.5.	Indicates wind direction and speed.
Visibility	A4.1.6.	Provides prevailing visibility from the designated point of observation in statute miles or meters.
Runway Visual Range	A4.1.7.	10-minute RVR or varying RVR in hundreds of feet or meters.
Present Weather	A4.1.8.	Any weather occurring at the observing location, obscurations to vision, or other phenomena.
Sky Condition	A4.1.9.	State of the sky in terms of sky cover, layers and heights, ceilings and obscurations.
Temperature and Dew Point	A4.1.10.	Measure of hotness/coldness of ambient air. Dew point measures saturation point temperature.
Altimeter	A4.1.11.	Indicates altitude above MSL of an aircraft on the ground.
Remarks	A4.1.12.	Remarks generally elaborate on parameters reported in the body of the report, and will be included in all METAR and SPECI observations.

A4.1.1. **Type of Report.** METAR or SPECI.

A4.1.2. **Station identifier, also called the ICAO.** This code identifies the location of the observation (in this case McConnell AFB).

A4.1.3. **Date and Time of Report.** This is in Zulu (GMT) of the last element of the observation.

A4.1.4. **Report Modifier.** The report modifier can be either of the following two elements:

A4.1.4.1. COR is entered into the report modifier group when a corrected METAR or SPECI is transmitted.

A4.1.4.2. AUTO identifies the report as a fully automated report with no human intervention.

A4.1.4.2.1. AUTO is automatically included in reports when the weather technician signs off the AMOS indicating the observations are no longer being augmented.

A4.1.4.2.2. AUTO and COR will not be seen in the same observation. If the term COR is used, the observation cannot be reported as AUTO, since a weather technician is manually correcting the observation.

A4.1.5. **Wind.** The true direction the wind is blowing from is encoded in tens of degrees using three figures. Directions less than 100 degrees are preceded with a "0." The wind speed is entered as a two or three digit group immediately following the wind direction.

A4.1.5.1. **Gust.** The wind gust is encoded in two or three digits immediately following the wind speed. The wind gust is encoded in whole knots using the units and tens digits and, if required, the hundreds digit.

A4.1.5.2. **Variable Wind Direction (speeds 6 knots or less).** Variable wind direction with wind speed 6 knots or less may be encoded as VRB in place of the direction.

A4.1.5.3. **Variable Wind Direction (speeds greater than 6 knots).** Wind direction varying 60 degrees or more with wind speed greater than 6 knots will be encoded. The variable wind direction group will immediately follow the wind group. The directional variability will be encoded in a clockwise direction. For example, if the wind is variable from 180 degrees to 240 degrees at 10 knots, it would be encoded 21010KT 180V240.

A4.1.5.4. **Calm Wind.** Calm wind is encoded as 00000KT.

A4.1.6. **Visibility.** The furthest predominant distance seen from the airfield sensors (during augmentation of the visibility sensors, it is the predominant distance covering 50% of the aerodrome), reported in statute miles.

A4.1.7. Runway Visual Range.

A4.1.8. **Present weather.** Any weather phenomenon occurring on the airfield. This is mandatory anytime the visibility is less than 7 miles. Table A4.2. lists the present weather codes:

Table A4.2. Weather Phenomena Codes.

Qualifier	**Weather Phenomena**			
Intensity Or Proximity	Descriptor	Precipitation	Obscuration	Other
- Light	MI (Shallow)	DZ (Drizzle)	BR (Mist)	PO (Developed Dust/Sand Whirls)
Moderate	PR (Partial)	RA (Rain)	FG (Fog)	SQ (Squall)
+ Heavy	BC (Patches)	SN (Snow)	FU (Smoke)	FC (Funnel Cloud, Tornado, or Water Spout)
VC (Vicinity)	DR (Low Drifting)	SG (Snow Grains)	VA (Volcanic Ash)	SS (Sandstorm)
	BL (Blowing)	IC (Ice Crystals)	DU (Dust)	DS (Dust Storm)
	SH (Showers)	PL (Ice Pellets)	SA (Sand)	
	TS (Thunderstorms)	GR (Hail)	HZ (Haze)	
	FZ (Freezing)	GS (Small Hail or Snow Pellets)	PY (Spray)	
		UP (Unknown Precip)		

A4.1.9. **Sky Condition and Cloud Height.** Describes the amount of clouds present at the airfield and the base of each cloud deck. They fall into the following categories:

A4.1.9.1. **Sky Condition**. The amount of cloud coverage is as follows:

A4.1.9.1.1. SKC – Sky Clear.

A4.1.9.1.2. FEW – 1/8 to 2/8 coverage.

A4.1.9.1.3. SCT – Scattered; 3/8 to 4/8 coverage.

A4.1.9.1.4. BKN – Broken; 5/8 to 7/8 coverage.

A4.1.9.1.5. OVC – Overcast; 8/8 coverage.

A4.1.9.1.6. VV – Vertical visibility; normally used during heavy fog, indicates how far up into the fog can be seen.

A4.1.9.1.7. FEW000 – Surface-based obscuration.

A4.1.9.2. **Cloud Height.** Three-digit number provides the height of the base of the cloud in hundreds of feet (e.g., 015 equals 1,500 feet). The CB and TCU descriptors may be appended to the cloud height to indicate the cloud is a cumulonimbus or towering cumulus.

A4.1.10. **Temperature and Dew Point (**can be in degrees, either Fahrenheit or Celsius).

A4.1.11. **Altimeter Setting.** The current value aircraft altimeters must be set at to read an elevation of zero. The altimeter is measured in inches of mercury (INS).

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

Table A4.3. Remarks Listing.

AO2—Automated sensor indicator
AO2A—Augmented Observation
CB—Cumulonimbus
DSNT—Distant
ESTMD—Estimated
FROPA—Frontal Passage
LTG—Lightening
LWR—Lower
MOV—Moving
MOVD—Moved
OHD—Overhead
PK WND—Peak Wind
PRESFR—Pressure Falling Rapidly
PRESRR—Pressure Rapidly Rising
RWY—Runway
TCU—Towering Cumulus
TWR—Tower
UNKN—Unknown
VIS—Visibility
WSHFT—Wind Shift
PA—Pressure Altitude
DA—Density Altitude

A4.2. TAF.

Table A4.4. Sample TAF.

TAF KIAB 2410/2516 17010KT 9999 SCT050 QNH2989INS
BECMG 2414/2415 19015KT 9999 FEW010 SCT015 BKN030 QNH2987INS
TEMPO 2420/2423 19018G25KT 9999 SCT008 BKN015CB OVC030
BECMG 2501/2502 17012KT 9999 SCT100 QNH2992INS TX24/2420Z TN10/2510Z

A4.2.1. The forecast follows the same general format as the observation with the following exceptions:

A4.2.1.1. **Valid Date/Time.** Forecasts are valid for a 30-hour period. In this example, the forecast is valid from the twenty-fourth at 1000Z until the twenty-fifth at 1600Z.

A4.2.1.2. BECMG – This is a code to indicate the predominant conditions will change to (or become) the conditions listed in the line of the forecast. The conditions will change during the time period follows the BECMG code (1400 to 1500Z in the example above).

A4.2.1.3. TEMPO – This code means the conditions listed on the line may occur for periods of an hour or less (1 hour and 15 minutes or less for thunderstorms) anytime between the time frame following the TEMPO code (2000Z to 2300Z in this example).

A4.2.1.4. **Max Temp/Min Temp.** TX24 indicates a maximum temperature in Celsius to occur at 242000Z. TN10 indicates a minimum temperature of 10 Celsius to occur at 251000Z (**Note:** M indicates a minus sign in front of the number: M05 = -5 C).

A4.3. Weather Warnings, Watches, and Advisories.

Table A4.5. Observed Weather Warning.

MCCONNELL AFB WEATHER WARNING 05-001
VALID 17/1921Z (17/1321L) TO UFN LIGHTNING IS OBSERVED WITHIN 5NM
08/RS
1. FORECAST WEATHER WARNING.
MCCONNELL AFB WEATHER WARNING 11-051
VALID 10/1500Z(10/0900L) TO 10/2200Z(10/1600L)
SEVERE THUNDERSTORMS WITH DAMAGING WINDS GREATER TO OR EQUAL 50KTS AND/OR HAIL GREATER THAN OR EQUAL TO ¾ INCH IS FORECAST TO OCCUR AT MCCONNELL. MAXIMUM GUST EXPECTED: 51 KNOTS 18/THB MAXIMUM HAIL EXPECTED: 1 INCH 18/THB

2. WEATHER WATCH.
MCCONNELL AFB WEATHER WATCH 05-215
VALID 15/1858Z (15/1358L) TO 15/2100Z (15/1600L)
A LIGHTNING WATCH IS NOW IN EFFECT FOR MCCONNELL AFB UNTIL 1600L.
A WARNING WILL BE ISSUED LATER IF REQUIRED.
58/GO

3. OBSERVED WEATHER ADVISORY.
MCCONNELL AFB WEATHER ADVISORY 09-134
VALID 08/1408Z (080908L) TO UFN
CROSSWINDS OBSERVED TO BE EQUAL TO OR GREATER THAN 25KTS
44/ST

Attachment 5

CUSTOMER RESPONSE MATRIX

Weather Phenomena	Lead Time	Impact	Customer Action
Tornado	30 min	Severe damage to aircraft, structures and personnel.	Cease flying and seek immediate shelter; hangar or divert aircraft.
Surface winds ≥ 50 knots	60 min	Personal injury, structure and equipment damage. Flight hazard.	Cease flying; point aircraft into wind direction, secure or hangar aircraft if possible. Remove/secure lose objects and shelter personnel.
Hail (3/4" or more)	60 min	Personal injury, structure and equipment damage.	Cease flying and seek shelter; hangar or divert aircraft.
Freezing Precipitation	60 min	Flight and vehicle operations hazard. Personnel slipping hazard.	Cease flying; hangar or protect aircraft if possible. Consider delayed reporting and/or early release. Implement deicing procedures.
Heavy Rain/Snow (≥ 2 Inches in ≤ 12 Hours)	60 minutes prior to start of event	Aircraft takeoff and landing hazard. Base roads and walkways affected.	Prepare for flood abatement or implement base snow removal plan.
Blizzard (wind ≥ 30 knots and visibility ≤ 1/4 NM and lasting more than 3 hours).	60 min	Severely effects flight operations, vehicular and pedestrian traffic.	Consider delayed reporting and/or early release.
Frost	12 Hours	Can cause light to moderate rime icing impacting flight operations.	Implement deicing procedures.
Surface winds ≥ 35-49 knots	30 min	Personal injury, structure and equipment damage. Flight hazard.	Cease unnecessary flying; point light, transient aircraft into wind direction or tie-down as possible. Remove/secure lose objects and shelter personnel.
Surface wind ≥ 25 but < 35 knots	Observed	Personnel hazard.	Cease wing walking on large aircraft.
Crosswinds ≥ 25 knots	Observed	Affects aircraft performance (especially when runway is not dry). Adjust/plan flights accordingly.	Cease flying without OG approval.

Crosswinds ≥ 15 knots but < 25 knots	Observed	Affects aircraft performance (especially when runway is not dry). Adjust/plan flights accordingly.	Cease touch and go landings. Cease simulated engine out training.
Thunderstorms within 10nm of McConnell AFB	Observed	Flight and personnel hazard.	Increase situational awareness for potential to cease flight line Operations and outdoor activities. Potentially modify takeoff/landing due to lightning proximity.
Lightning w/in 5 NM of McConnell AFB	Observed	Flight and personnel hazard.	Cease flight line work and outdoor activities.
Wind Chill Temp ≤ -20F (-29C)	Observed	Affects all outdoor activity. Outside personnel must use protective clothing to cover exposed portions of body.	Consider delayed reporting and/or early release. Modify work outdoor work cycles.
Observed Surface Visibility ≤ ¼ SM	Observed	Affects ground safety/security	Implement low visibility OI's/procedures

Attachment 6

MISSION LIMITING ENVIRONMENTAL CONDITIONS

A6.1. Mission Limiting Thresholds.

A6.1.1. **Airframe-Specific Weather Limitations.** Tables A6.1 – A6.4 provide the general airframe weather limitations based on AFI 11-202V3, *General Flight Rules* and the limitations from AFI 11-2KC-135V3, *Flying Operations*.

Table A6.1. USAF General Flight Rules Weather Limitations.

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

Table A6.2. KC-135R Weather Sensitivities (Ref: AFI 11-2KC-135V3)

Max X-Wind Comp: **25KT (dry) 15KT (wet)**			
RCR	**0 to 5**	**6 to 8**	**> 8**
Max X-Wind for RCR #:	**No Ops**	**20 (waiver required)**	**20**
Induction Icing Thresholds: Engine anti-icing must be used in ice fog or when the temperature is below 50°F (10°C) and standing water is visible on the ramp or taxiways or visible moisture is present.			
Icing: May operate up to 10 min in MDT, must avoid observed or forecast SVR. Avoid any flight through freezing rain (clear). Avoid clouds within the ± 5,000 ft of freezing level.			
Turbulence: Avoid areas of moderate or greater, observed or forecast CAT or mountain wave.			
Lightning/TSTMS: Avoid by 10NM below FL230 and 20 NM at and above FL230.			
In-Flight Refueling: VSBY ≥ 1 NM.			
Remarks: Cannot take off with > .5 inches of slush or water on the runway. Pilots may need height/temperature of tropopause and temperature at flight level. Crew may need air refueling (AR) route forecast. KC-135 aircraft may take off and land when airfield is below published weather minimums.			

A6.2. Mission-Specific Weather Limitations. The following tables provide a summary of weather minimums for KC-135R aircraft associated with McConnell AFB missions.

Table A6.3. KC-135R Training Maneuver Restriction Summary

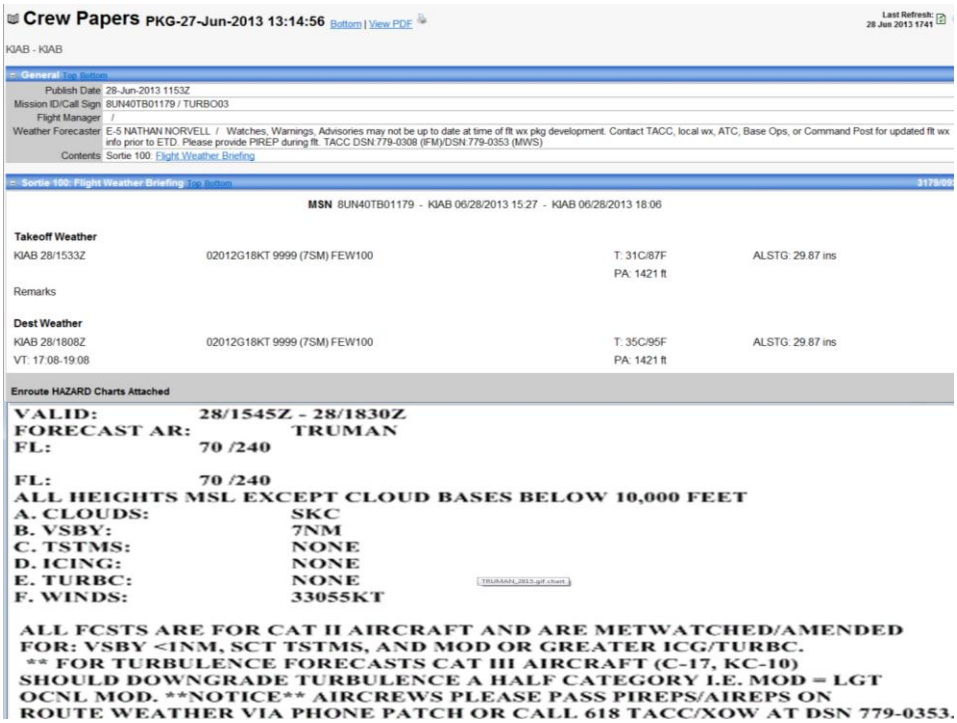
(Ref: AFI 11-2KC-135, Volume 3, *KC-135 Operations Procedures*)		
Maneuver	Ceiling/Visibility Minimums	Other Restriction
Air Refueling	VSBY > 1 NM.	1. Thunderstorms w/in 10 NM. 2. Moderate or greater Turbulence.
Touch-and-go landings	1. Minimum ceiling of 1,000 AGL and visibility of 2 SM for A/Cs. 2. Minimum ceiling of 300 AGL and RVR 4000 (3/4 SM visibility with direct IP supervision).	1. Wet runway, or RCR measured 9 or greater 2. Max crosswind 15 knots with direct IP supervision (10 kts for non-instructors). 3. Not accomplished on slush-covered runways.
Engine out simulations	Day: Circling mins for approach being flown (<600/2 if none published). Night: <1,000/2 or circling mins (higher of the 2)	Maximum crosswind is 15 knots.
Low Altitude A/R	Perform only during day, under VFR conditions.	1. Forecast, reported, or observed winds less than or equal to 30 knots. 2. Less than forecast, reported, or observed moderate turbulence.

Table A6.4. KC-135R Take-off/Landing Minimums (Ref:

Mission	**Visibility Minimums**	**Remarks**
ALL		1. No freezing precipitation. 2. Max crosswind 25 knots (dry). 3. The maximum allowable headwind is 40 knots. 4. RCR measured 4 or greater. 5. Severe Icing/Turbulence.
Operational	RVR 1000	When less than RVR 1600, but equal to or greater than RVR 1000, the crew may take off if mission priority dictates, provided the runway has dual RVR readouts and displays (minimum RVR 1000 on both) and runway centerline lighting is operational. If the previous conditions cannot be satisfied but visibility is at or above 1000 RVR, the agency responsible for mission execution may authorize takeoff when mission priority dictates. For any takeoff below 1600 RVR, the crew must be fully qualified.
All Others	RVR 1600	For runways with more than one operating RVR readout, RVR must read 1600 minimum on all.

Attachment 7

FLIGHT WEATHER BRIEF EXAMPLE



Crew Papers PKG-27-Jun-2013 13:14:56 Bottom | View PDF

Last Refresh: 28 Jun 2013 17:41

KIAB - KIAB

General Top Bottom

Publish Date	28-Jun-2013 1153Z
Mission ID/Call Sign	8UN40TB01179 / TURBO03
Flight Manager	/
Weather Forecaster	E-5 NATHAN NORVELL / Watches, Warnings, Advisories may not be up to date at time of flt wx pkg development. Contact TACC, local wx, ATC, Base Ops, or Command Post for updated flt wx info prior to ETD. Please provide PIREP during flt. TACC DSN:779-0308 (IFM)/DSN:779-0353 (MWS)
Contents	Sortie 100: Flight Weather Briefing

Sortie 100: Flight Weather Briefing Top Bottom 3179/09

MSN 8UN40TB01179 - KIAB 06/28/2013 15:27 - KIAB 06/28/2013 18:06

Takeoff Weather

KIAB 28/1533Z	02012G18KT 9999 (7SM) FEW100	T: 31C/87F PA: 1421 ft	ALSTG: 29.87 ins

Remarks

Dest Weather

KIAB 28/1808Z	02012G18KT 9999 (7SM) FEW100	T: 35C/95F	ALSTG: 29.87 ins
VT: 17:08-19:08		PA: 1421 ft	

Enroute HAZARD Charts Attached

VALID: 28/1545Z - 28/1830Z
FORECAST AR: TRUMAN
FL: 70 /240

FL: 70 /240
ALL HEIGHTS MSL EXCEPT CLOUD BASES BELOW 10,000 FEET
A. CLOUDS: SKC
B. VSBY: 7NM
C. TSTMS: NONE
D. ICING: NONE
E. TURBC: NONE
F. WINDS: 33055KT

TRUMAN_2813.gif chart

ALL FCSTS ARE FOR CAT II AIRCRAFT AND ARE METWATCHED/AMENDED FOR: VSBY <1NM, SCT TSTMS, AND MOD OR GREATER ICG/TURBC.
**** FOR TURBULENCE FORECASTS CAT III AIRCRAFT (C-17, KC-10) SHOULD DOWNGRADE TURBULENCE A HALF CATEGORY I.E. MOD = LGT OCNL MOD. **NOTICE** AIRCREWS PLEASE PASS PIREPS/AIREPS ON ROUTE WEATHER VIA PHONE PATCH OR CALL 618 TACC/XOW AT DSN 779-0353.**

Attachment 8

PLANNING MISSION WEATHER PRODUCT (MWP) EXAMPLES

A8.1. 2-Day Planning MWP

McConnell AFB 2-DAY PLANNING DATA

Updated: JUNE 19, 2013 1310L TWL

June 20, 2013				
	0000- 0600Z	0600-1200Z	1200-1800Z	1800-2359Z
CEILING	CIG > 030	CIG > 030	CIG > 030	CIG > 030
VISIBILITY	VIS > 3	VIS > 3	VIS > 3	VIS > 3
CROSS WINDS	X-WIND < 15KTS	X-WIND < 15KTS	X-WIND < 15KTS	X-WIND < 15KTS
THUNDERSTORMS	NONE	NONE	NONE	TSTMS W/I 25NM
TURBULENCE	NONE OR LGT	NONE OR LGT	NONE OR LGT	MDT
ICING	NONE OR LGT	NONE OR LGT	NONE OR LGT	NONE OR LGT

June 21, 2013				
	0000- 0600Z	0600-1200Z	1200-1800Z	1800-2359Z
CEILING	CIG > 030	CIG > 030	CIG > 030	CIG > 030
VISIBILITY	VIS > 3	VIS > 3	VIS > 3	VIS > 3
CROSS WINDS	X-WIND < 15KTS	X-WIND < 15KTS	X-WIND < 15KTS	X-WIND < 15KTS
THUNDERSTORMS	NONE	NONE	NONE	NONE
TURBULENCE	MDT	NONE OR LGT	NONE OR LGT	MDT
ICING	NONE OR LGT	NONE OR LGT	NONE OR LGT	NONE OR LGT

*** FOR PLANNING PURPOSES ONLY ***

U.S. AIR FORCE

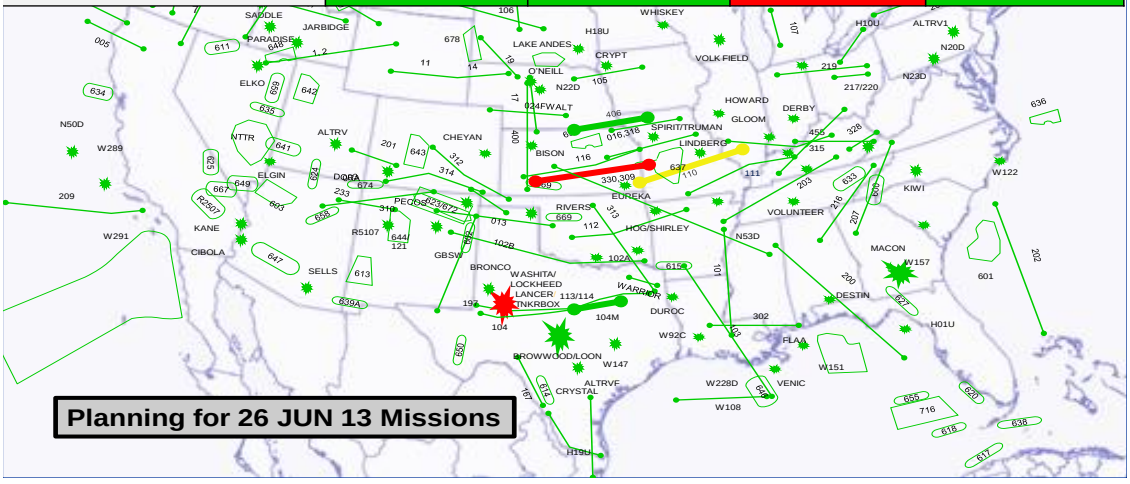
A8.1.1. The 2-Day Planning MWP is broken into 6-hour time periods (GMT). It provides worst case conditions for the airfield during the given time periods.

A8.2. AR Planning MWP

FOR PLANNING PURPOSES ONLY

FAVORABLE:	FEW-SCT / ≥ 3 SM	None- Light	None - Light	None
MARGINAL:	SCT-BKN / 3-1 SM	MDT	MDT	ISOLD-FEW
UNFAVORABLE:	BKN-OVC / <1 SM	Severe	MDT-Severe	SCT-NMRS

AR Track/Area	Clouds/Vsby	Icing	Turbulence	Thunderstorms
BRWNWOOD, 330 (EARLY), 104M, 406, MACON				
110 (EARLY, LATE)				
330 (LATE)				
LANCER				



A8.2.1. The AR Planning MWP highlights scheduled AR routes for the following day. Color codes are used to highlight the AR tracks where the potential for mission limiting conditions exist the following day. The MWP indicates worst case conditions during the scheduled track times. If the AR track is used multiple times during the day, and conditions are expected to change, the route will be divided by timeframe (i.e., Early/Late or AM/PM).

A8.3. 4-Day Forecast

MCCONNELL WEATHER

Date	WEDNESDAY 19 JUN 13		THURSDAY 20 JUN 13		FRIDAY 21 JUN 13		SATURDAY 22 JUN 13	
Time	AM	PM	AM	PM	AM	PM	AM	PM
Temps	67°F	86°F	69°F	88°F	71°F	91°F	71°F	92°F
Weather	Mostly Cloudy w/ Isol'd T-Storms Late AM	Mostly Cloudy w/ Isol'd T-Storms Early PM	Mostly Cloudy	Mostly Cloudy w/ Isol'd T-Storms Late AFTN-Early Evening	Partly Cloudy	Partly Cloudy	Partly Cloudy	Mostly Cloudy
PRECIP	Trace - .25"		Trace - .25"		None		None	
Winds	SW-SE 10-20G25KT S 15-25G35KT (STORMS)		SE-S 10-15G35KT		S 15-25G32KT		S 10-15G27KT	
Wind Chill Heat Index	88°F		93°F		94°F		96°F	
Sunrise/ Sunset	06:07	20:53	06:08	20:54	06:08	20:54	06:08	20:54
Lunar (%)	76%		85%		92%		98%	
Min Cig/Vis	020 / 5		070 / 7		None / 7		250 / 7	

	OPS	MX	Airmen	OPS	MX	Airmen	OPS	MX	Airmen	OPS	MX	Airmen
ORM (AM)												
ORM (PM)												

A8.3.1. The 4-Day forecast provides worst case conditions and distinguishes between AM (0000L-1200L) and PM (1201L-2359L) for cloud cover and associated weather. In the event wind direction (from) and/or speed (including gusts) is expected to change during the day, the data will be divided and an annotation to identify when it will occur (i.e., AM, PM, Storms) will be included. Ceiling and visibility data are the forecast worst case condition for the 24-hour period. ORM is based on worst case conditions for the AM (0000L-2359L) and PM (1201L -2359L). It is tailored to Operations, maintenance and Airmen based on the ORM criteria listed in Table A8.1.

Table A8.1. Operational Risk Management (ORM)

ORM LEGEND	RED	YELLOW
FLYING OPERATIONS	SURFACE WINDS ≥ 50 KTS CROSS WIND ≥ 25 KT LIGHTNING W/IN 5NM CLOUD CEILING ≤ 200 FT SURFACE VISIBILITY < ½ MILE SEVERE ICING SEVERE TURBULENCE HEAVY SNOW FREEZING RAIN / DRIZZLE	SURFACE WINDS ≥ 35 KT < 50 KTS CROSS WIND ≥ 15 KT LIGHTNING W/IN 10NM CLOUD CEILING ≤ 2,000 FT SURFACE VISIBILITY < 3 MILES MODERATE ICING MODERATE TURBULENCE MODERATE SNOW BLOWING OR DRIFTING SNOW
MAINTENANCE	SURFACE WIND ≥ 35 KT LIGHTNING W/I 5 NM WIND CHILL ≤ -20°F	SURFACE WIND ≥ 25 BUT < 35 KT TS OR LTG POTENTIAL TEMP ≤ 32°F WIND CHILL ≤ 10°F
PERSONNEL	SURFACE WIND ≥ 35 KT TS OR LTG W/I 5 NM HEAVY PRECIP FREEZING PRECIP WIND CHILL ≤ 10°F HEAT INDEX ≥ 100°F	SURFACE WIND ≥ 25 BUT < 35 KT TS OR LTG POTENTIAL MODERATE PRECIP WIND CHILL ≤ 32°F HEAT INDEX ≥ 90°F

Attachment 9

SPACE WEATHER IMPACTS