BY ORDER OF THE COMMANDER
KIRTLAND AIR FORCE BASE

KIRTLAND AIR FORCE BASE
INSTRUCTION 15-101

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Weather

WEATHER SUPPORT

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This instruction implements Air Force Instruction (AFI) 15-128, *Weather Force Structure*. 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 377th Air Base Wing (377 ABW), subordinate units, and units assigned, attached, or supported by Kirtland Air Force Base (KAFB). This publication does not apply to Air Force Reserve Command (AFRC) Units. This publication does not apply to the Air National Guard (ANG). Ensure that all records created as a result of processes prescribed in this publication are maintained In Accordance With (IAW) AFI 33-322, *Records Management and Information Governance Program*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route Air Force (AF) Forms 847 from the field through the appropriate functional's chain of command. This publication may not be supplemented or further implemented/extended. Commanders (CCs) or civilian directors may submit written waiver requests seeking relief from compliance through 377 ABW chain of command (T-3). Failure to comply with the publication is punishable as a violation of Article 92, of the Uniform Code of Military Justice (UCMJ).

SUMMARY OF CHANGES

This revision of KIRTLANDAFBI15-101 adds more specifics to 25 Operational Weather Squadron (OWS) and KAFB Weather Flight interaction, revises 377 Maintenance Squadron/Maintenance Operations Weather (MXS/MXOW) hours of operations and duty priorities, support provided to the 58 Special Operations Wing (SOW), and revises 58 SOW mission limiting parameters. All references to AFMAN 15-129V1&2 have been replaced with AFMAN 15-129 *Incorporating Change (IC) 1, Air and Space Weather Operations,* to reflect its new title. This document has been substantially revised and must be completely reviewed. This instruction provides major rewrite/reorganization from the previous version, KIRTLANDAFBI 15-101, 10 July 2019.

Chapter 1

OPERATIONAL WEATHER SQUADRON & WEATHER FLIGHT INTERACTIONS

1.1. General. The 377 MXS/MXOW Weather Flight (WF) earns its 6 weather positions to support the 377 ABW, specifically for Kirtland Underground Munitions Maintenance and Storage Complex (KUMMSC) and staff support. The WF will establish hours of operation and flex or surge to meet the operational mission needs of the parent/host unit to the maximum extent possible, (AFMAN 15-129 IC-1, paragraph 2.22.7). The WF provides and/or arranges for weather support to the operational mission needs of the 377 ABW IAW duty priorities (**Table 1.1**). During normal duty hours, the WF provides and/or arranges for weather support to the 58 SOW, subordinate units and units assigned, attached, or supported by 377 ABW when able, IAW duty priorities (**Table 1.1**). The 377 MXS/MXOW is commonly referred to as the WF throughout this document and is the focal point for all weather-related issues on KAFB. This instruction will be reviewed at least every two years or IAW host/parent unit procedures.

1.2. Concept of Operations.

1.2.1. The 25 OWS at Davis-Monthan Air Force Base (AFB), Arizona, is assigned the Southwest region of the Continental United States (CONUS) as a primary area of interest aligned with geographic and functional combatant commands. OWSs are regional centers of expertise providing theater support, aviation services, and overwatch functions supporting WF/Detachments (Dets) in the primary area of interest. OWSs conduct operations as distributed nodes in the production enterprise and provide weather analyses and forecast for AF, Army, Joint, Coalition and Allied partners operations within the geographical combatant commands.

1.2.2. The WF is the primary source of tailored weather services in support of the operational mission needs of the 377 ABW. The WF will provide tailored weather services to the 58 SOW, subordinate units and units assigned, attached, or supported by KAFB and transient aircrews when able during normal hours of operation and IAW duty priorities (**Table 1.1**). The WF will make every effort to ensure that mission-limiting weather is anticipated and exploited, and that safety and Resource Protection (RP) are maintained.

1.2.3. **Meteorological Watch (METWATCH).** The 25 OWS performs a continuous METWATCH for KAFB. WF personnel act as the “eyes forward” for the 25 OWS by providing immediate feedback on current or short-term anticipated changes in weather conditions.

1.3. Responsibilities.

1.3.1. General responsibilities of the 25 OWS and WF are outlined in AFI 15-128, and AFMAN 15-129 IC-1.

1.3.1.1. The 25 OWS has issuance authority for all weather watch, warnings, and advisories (WWA) for KAFB, and may provide weather briefings to transient aircrews passing through KAFB. The OWS will issue observed warnings and advisories when the WF is closed.

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

1.3.1.3. The WF will create Weather Products (WPs) that fuse theater scale products with local mission requirements to enable the direct inject of weather impacts into warfighter planning and/or execution. The operational WPs will only cover the timeframe of the WF's normal hours of operation (**paragraph 1.5.1**). Upon request and during normal hours of operation, the WF will also provide flight weather briefings for transient aircrews IAW the WF duty priorities listed in **Table 1.1** Outside of WF normal duty hours, pilots will call the 25 OWS for flight weather briefings IAW AFH 11-203V2, *Weather For Aircrews – Products and Services.*

1.3.1.4. The 25 OWS and KAFB WF will continuously coordinate on forecast reference material, forecast techniques, and rules of thumb as they become known or need adjusting. The WF will forward newly created or updated documents to the 25 OWS and the 25 OWS will review and maintain the material for KAFB. This enables applicable information to be integrated into the forecast process.

1.3.2. **KAFB Installation Data Page (IDP).** The 25 OWS and KAFB WF will coordinate and maintain a IDP detailing WWA thresholds, desired lead times, mission impacts, unit information, Joint Environmental Toolkit (JET) back-up contacts and local outage back-up information. The KAFB IDP is maintained on the 25 OWS website.

1.3.3. **Eyes Forward & Collaboration.** The WF will act as the eyes forward for the 25 OWS by relaying significant, time-sensitive meteorological information not found in coded meteorological reports to the 25 OWS to assist in forecast operations. The 25 OWS and WF will collaborate on all forecast WWAs during WF operating hours. Severe weather after normal WF duty hours will require the 25 OWS to call the stand-by forecaster prior to any RP actions.

1.4. Duty Priorities. IAW AFMAN 15-129 IC-1, paragraph 3.1.1., the WF has created the following duty priorities based on 377 ABW mission requirements.

Table 1.1. 377 MXS/MXOW Duty Priority Listing.

Priority	Duties
1	Perform Emergency War Order (EWO) 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 and Advisories
6	Severe Weather Action Procedures (SWAP) Operations
7	Provide support to Protection Level 1 Missions
8	Disseminate Urgent Pilot Reports (PIREPs) and Special Air Reports (AIREPs) Locally and to the 25 OWS
9	Provide coordinated WPs
10	Provide Weather Information to Supervisor of Flying (SOF)
11	Provide Flight Weather Briefings
12	Provide "Eyes Forward" / Collaborate with 25 OWS
13	Disseminate routine PIREPs locally and to the 25 OWS (as required)
14	Perform MISSIONWATCH activities / Amend WPs
15	Provide Staff Briefings / Non-standard WPs
16	Weather Functional Training
17	Accomplish Administrative Tasks/Additional Duty Tasks

1.5. Hours of Operation & Contact Information.

1.5.1. **WF.** Normal WF airfield and mission services hours of operations are Monday - Friday, 0500L-1700L; and closed during the weekends, holidays, military down days and Air Force Global Strike Command (AFGSC) family days (See contact information in **Table 1.2**). Check the current Local Flight Information Publication (FLIP) for the WF's most current hours of operations. In addition, WF personnel will be on duty when SWAP has been activated as outlined in **paragraph 2.8.2** and will stand up operations as directed by the 377 ABW/CC. Staff services are available during normal duty hours (0730-1630L) or as required. A web-based aircrew-briefing terminal is located in Base Operations, Flight Planning Room. This briefing terminal allows aircrews to self-brief or schedule a flight weather briefing from the 25 OWS (See contact info in **Table 1.3**).

1.5.1.1. Prior to closing the station, the WF will notify the 25 OWS, 58 SOW Wing Operations Center, (WOC), Airfield Management (when open), and the 377 ABW Command Post (377 ABW/CP).

1.5.2. **25 OWS.** Hours of operation are 24/7, 365 days a year. (See contact info in **Table 1.3**)

Table 1.2. WF Contact Information.

377 MXS/MXOW 3400 Clark Ave SE, Bldg. 333 KAFB, NM 87117	
Duty Forecaster	(505) 846-9707 / Defense Switched Network (DSN) (312) 246-9707
Flight Chief	(505) 846-1475 / DSN (312) 246-1475
Standby Forecaster	(505) 274-2161
Alternate Operating Location (AOL)	(505) 846-9482 / DSN 246-9482
PMSV	342.3 Megahertz (MHz)

Table 1.3. 25 OWS Contact Information.

25 OWS 3880 S. Phoenix St. Davis-Monthan AFB, AZ 85707	
Senior Duty Officer/NCO (SDO)	(520) 228-7655 / DSN (312) 228-7655
Director of Operations	(520) 228-1022 / DSN (312) 228-1022
Operations Superintendent	(520) 228-4069 / DSN (312) 228-4069
Regional Flight Leadership	(520) 228-7655 / DSN (312) 228-7655
Flight Weather Briefer	(520) 228-6604 / DSN (312) 228-6604

1.6. Continuity of Operations Plan (COOP).

1.6.1. **WF COOP and WF AOL.** In the event of a building evacuation, the WF will move to building 1017 (58 SOW Operations Bldg), basement floor, room C10 to continue operational support and "eyes forward" support for the 25 OWS. The phone number at this location is Comm. (505) 846-9482 / DSN 246-9482. WF members will follow duty-specific Standard Operating Procedures (SOPs) and evacuation checklists and resume services at the AOL as soon as possible. Observations will continue to be provided by the Federal Aviation Administration (FAA), in the event FAA observers must evacuate their facility they will move to the FAA controlled Air Traffic Control Tower (ATC) for Albuquerque International Sunport (505) 856-4935. For flight safety reasons, the WF will not evacuate during exercises; however will exercise AOL operations annually.

1.6.2. **25 OWS COOP.**

1.6.2.1. For short term outages (< 24 hours), the WF will assume responsibility for forecasted WWA support for KAFB. Transient units needing flight weather support will be supported via provide or arrange for concept.

1.6.2.2. For long-term outages (> 24 hours), the 25 OWS plan is to resume all support from an alternate location.

1.6.2.3. **COOP Exercises**. In coordination with WFs, the 25 OWS conducts periodic COOP exercises, however, the WF will not assume responsibility for forecasted or observed WWA support outside of normal operating hours located in **paragraph 1.5** unless approved by the WF Leadership.

Chapter 2

AIRFIELD SERVICES

2.1. General. During duty hours, airfield services include monitoring/reporting weather phenomena affecting KAFB (defined within 5 Statute Miles (SM) of the airfield).

2.2. Observations. Surface weather observations are fundamental to all meteorological services. Observations are the basic information upon which forecasts and warnings are made in support of a wide range of weather sensitive activities within the public and private sectors.

2.2.1. **Equipment.** The FAA has an Automated Surface Observing System (ASOS) serving as the primary surface weather observing network.

2.2.2. **Responsibilities.** For KAFB, the FAA is responsible for weather observations at KAFB/Albuquerque International Sunport 24 hours a day, 7 days a week, and 365 days a year. A certified, contracted observer augments, as necessary, the ASOS and provides backup when required. Observations are created and disseminated utilizing the International Civil Aviation Organization (ICAO) identifier **KABQ.**

2.2.2.1. **Meteorological Terminal Aviation Routine Report (METAR).** The METAR is a routine scheduled observation containing a complete report of wind, visibility (VIS), runway visual range (RVR), present weather and obscurations, sky condition, temperature, dew point, and altimeter setting. In addition, encoded and/or plain language information that elaborates on data in the body of the report may be appended to the METAR. METARs are disseminated both locally and longline between H+45 to H+59 past the hour.

2.2.2.2. **Aviation Selected Special Weather Report (SPECI).** SPECI is an unscheduled observation completed and transmitted when any of the KAFB special criteria listed in **Table 2.1** has been observed or detected.

Table 2.1. Albuquerque International Sunport Special Weather Report Criteria.

Albuquerque International Sunport Special Weather Report Criteria IAW JO 7900.5D ***Surface Weather Observing***	
Wind Shift	Wind direction changes by 45 degrees or more in less than 15 minutes and the wind speed is 10 knots (KTs) or more throughout the wind shift
VIS	VIS as reported in the body of the report decreases to less than, or if below, increases to equal or exceed: (1) 3 miles. (2) 2 miles. (3) 1 mile. (4) The lowest standard instrument approach procedure minimum as published in the U.S. Terminal Procedures. If none published, use 1/2 mile.
RVR	The highest value from the designated RVR runway decreases to less than, or if below, increases to equal or exceed 2,400 foot/feet (FT) during the preceding 10 minutes.
Tornado, Funnel Cloud, or Waterspout	(1) Is observed. (2) Disappears from sight or ends.
Thunderstorm (TSTM)	(1) Begins (a SPECI report is not required to report the beginning of a new TSTM if one is currently reported). (2) Ends.
Precipitation	(1) Hail begins or ends. (2) Freezing precipitation begins, ends, or changes intensity. (3) Ice pellets begin, end, or change intensity.
Squall	Wind speed suddenly increases by at least 16 KTs and is sustained at 22 KTs or more for at least one minute.

Ceiling (CIG)	The height of the base of clouds covering five eighths or more (for example, broken and overcast) of the sky forms or dissipates below, decreases to less than or, if below, increases to equal or exceed: (1) 3,000 FT. (2) 1,500 FT. (3) 1,000 FT. (4) 500 FT. (5) The lowest standard instrument approach procedure minimum as published in the U.S. Terminal Procedures. If none published, use 200 FT.
Sky Condition	A layer of clouds or obscuring phenomenon aloft is present below 1,000 FT and no layer aloft was reported below 1,000 FT in the preceding METAR or SPECI observation.
Volcanic Eruption	When eruption is first noted
Aircraft Mishap	Upon notification of an aircraft mishap, unless there has been an intervening observation.
Miscellaneous.	Any other meteorological situation that, in the opinion of the observer, is critical.

2.2.2.3. **Official Observer Contact Information** .

Table 2.2. Observing Services Contact Information.

Albuquerque International Sunport Observing Services - Vero Technical Support 3400 Clark Ave SE, Bldg. 333 KAFB, NM 87117	
FAA Observer	(505) 433-4200 / DSN (312) 246-4200
Automated ASOS observation	(505) 242-4044
FAA Observer back up Tower Cab	(505) 856-4935

2.2.2.4. **Limitations.** The WF has no command authority over the submitted content, dissemination, or submitting organization for official airfield observing services. The FAA does augment sensors when there is a failure. Their official observing point is located on the south side of hangar 333 as seen in **Figure 2.1** The view from this observation point is restricted by flight line facilities, shelters and trees from northwest through northeast. **Attachment 2** contains observing criteria used by FAA observers at Albuquerque International Sunport.

Figure 2.1. Albuquerque International Sunport FAA Observing Point.

2.3. Terminal Aerodrome Forecast (TAF) Support. TAFs are a critical element of National Weather Service (NWS) aviation weather services because they are a key product in decisions for flight planning and for aircraft movement. **Attachment 3** contains an example of a typical Albuquerque International Sunport TAF.

2.3.1. **Responsibilities.** The NWS produces the official TAF for Albuquerque International Sunport which is connected to KAFB through the Albuquerque Forecast Office. Four forecasts are issued daily at 0000, 0600, 1200, and 1800 Zulu time, each covering a 30-hour period under ICAO identifier KABQ. Additionally, each TAF issued will be amended three hours after the initial forecast is issued (NWS mandatory requirement). Each TAF specifies the time of occurrence to the nearest hour, duration and intensity (if applicable) of weather conditions expected to occur.

2.3.2. **Guidance** . The Albuquerque Forecast Office is governed by National Weather Service Instruction (NWSI) 10-813, *Terminal Aerodrome Forecasts.* A complete TAF will include a forecast of surface wind (speed and direction), surface VIS, weather, obstructions to vision (if any), clouds (or vertical VIS into a surface-based obscuration), Low Level Wind Shear (LLWS), and any expected significant change(s) to one or more of these elements during the specified time period.

2.3.3. **Contact Information.**

Table 2.3. Forecast Services Contact Information.

NWS Albuquerque Forecast Office 2341 Clark Carr Loop SE, Albuquerque, NM 87106	
Aviation Forecaster	(505) 244-9148

2.3.4. **Limitations.** The WF has no command authority over the submitted content, dissemination, or submitting organization for official airfield forecasting services.

2.4. RP Support. RP is accomplished through a joint effort between the 25 OWS and the WF. Watches and warnings provide advance 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 4**.

2.4.1. **Responsibilities.** The overall goal is to provide the best possible RP to KAFB.

2.4.1.1. **25 OWS** . The 25 OWS is responsible for issuing all WWAs IAW AFMAN 15-129 IC-1, paragraph 6.2.1. During WF hours of operation, the 25 OWS will call the WF prior to issuance, cancellation, or extension of all WWAs. For added fidelity to RP, the WF will issue all observed warnings and advisories during normal duty hours. Additionally, outside of WF normal duty hours, observed advisories and warnings will be issued by the 25 OWS.

2.4.1.2. **WF.** The WF acts as the "eyes forward" for the 25 OWS and is responsible for issuing all ***OBSERVED*** warnings and advisories during normal duty hours. However, 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 25 OWS when time permits and will also be responsible for disseminating the information to locally supported agencies. If the WF is closed, a forecaster will be on recall duty for SWAP RP actions.

2.4.2. **Special Weather Statements (SWS) & Significant Weather Messages (SWM)** . SWSs are special notices issued by the 25 OWS to assist military decision makers with RP decisions and SWMs are issued by the WF leadership to assist military decision makers and KAFB planners with RP decisions but the criteria may not fall into traditional WWA categories.

2.4.2.1. **25 OWS** . SWSs provide advance notice of widespread hazardous weather conditions that have the potential to affect military installation(s) and is a stand-alone product normally issued 48-72 hours in advance of the forecast event. SWS will be an alphanumeric (A/N) product, or may also include a graphical depiction, describing the type, onset, duration, and area impacted by the event and will be disseminated via common user communications.

2.4.2.1.1. OWSs will communicate the potential of significant weather events to supported WFs (as applicable) for evaluation, prior to dissemination of SWSs to the WF's supported parent/host unit(s).

2.4.2.2. **WF.** SWMs are issued by the WF when WF leadership believes expected weather conditions warrant an additional level of preparation and a "heads up" above and beyond that provided by a watch, warning, or advisory. Examples of conditions requiring a WF significant weather message include a widespread threat of damaging winds and dust or the threat of freezing precipitation and/or heavy snow.

2.4.3. **Weather Watches.** A weather watch is a special notice to installation personnel/supported units of a potential for environmental conditions of such intensity as to pose a hazard to life or property. They are used by installation personnel/supported units to make force protection and risk management decisions. Watches are issued for a 5 Nautical Mile (NM) radius of the center point of the KAFB runway complex and are defined in **Table 2.4**.

Table 2.4. Weather Watches.

Watch Type	Criteria	Desired Lead Time
Tornado (SWAP)	within 5NM	As potential warrants
Severe TSTMs (SWAP)	Winds $\geq$ 50 kts and/or Hail $\geq$ 3/4 inch	As potential warrants
Moderate Thunderstorms	Winds >= 40 knots but < 50 knots and/or Hail >= 1/2 but < 3/4 inch	As potential warrants
Damaging Winds (SWAP)	Winds ($\geq$ 50 kts) – not associated with t-storms	As potential warrants
Lightning	within 10NM	30 Minutes
Strong Winds	$\geq$ 40 but < 50 kts not associated with t-storms	As potential warrants
Heavy Snow	$\geq$ 2 inch accumulation in $\leq$ 12 hours	As potential warrants
Freezing Precipitation	Any Intensity	As potential warrants

2.4.4. **Weather Warnings.** A weather warning is a special notice to notify installation personnel/supported units when an established weather condition of such intensity as to pose a hazard to life or property is occurring or is expected to occur. Weather warnings provide concise information outlining environmental threats and are used by CCs and personnel to make RP decisions and take protective action. Warnings are issued for a 5NM radius from the center point of the runway and are defined in **Table 2.5** Deviations from the standard warning criteria and lead times located in AFMAN 15-129 IC-1 are based on KAFB requirements and have been coordinated with all KAFB customers.

Table 2.5. Weather Warnings.

Warning Type	Criteria	Desired Lead Time
Tornado (SWAP)	Expected within 5NM	30 minutes
Severe TSTMs (SWAP)	Winds ≥ 50 KTs and/or Hail ≥ 3/4 inch	1 hour
Moderate Thunderstorms	Winds >= 40 knots but < 50 knots and/or Hail >= 1/2 but < 3/4 inch	1 hour
Damaging Winds (SWAP)	Winds (≥ 50 KTs) – not associated with t-storms	1 hour
Lightning	within 5NM within 10NM within 15NM	Observed
Strong Winds	≥ 40 but < 50 kts not associated with t-storms	1 hours
Heavy Snow	≥ 2 inch accumulation in 12 hours	90 minutes
Freezing Precipitation	Any Intensity	30 minutes

2.4.5. **Observed Weather Warnings** . Observed warnings issued for KAFB extends 5NM, 10NM, and 15NM in all directions from the airfield and are defined in **Table 2.6** Lightning warnings are not issued until lightning is observed, either visually, via the Air Force Weather-Web Services (AFW-WEBS), or back-up lightning applications. The lightning warning will remain valid until lightning is no longer observed within range for at least 15 minutes. Exception: A lightning warning will not be cancelled if a TSTM is within 5NM (as indicated on radar).

Table 2.6. Observed Weather Warnings.

Warning Type	Desired Lead Time
Lightning w/in 5 NM	Observed
Lightning w/in 10 NM	Observed
Lightning w/in 15 NM	Observed

2.4.6. **Forecast Weather Advisories** . Forecast weather advisories are special notices sent to supported customers that provide advance notice of a predefined weather event that may impact operations. Forecast advisories are issued for a 5NM radius from the center point of the KAFB runway complex. Forecast advisories, with their desired lead times, are contained in **Table 2.7**.

Table 2.7. Forecast Weather Advisories.

Advisories Type	Criteria	Desired Lead Time
Surface Winds	≥ 25 but < 40 kts	30 minutes
Heavy Rain	≥ 1 inch within 6 hours	30 minutes
Snow	≥ Trace	2 hours
Snow	≥ 1 but < 2 inches	2 hours

2.4.7. **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 later attachments.

2.4.8. **WWA Upgrades/Downgrades.** WWAs will be upgraded (i.e., winds increase from 35 KTs to 50 KTs) or downgraded as required. Upgrades should meet the desired lead times specified in Tables **2.5, 2.6, and 2.7** Only one weather forecast warning or advisory will be in effect at any given time for the same criteria. This does not prohibit the use of a watch, a forecast warning, and an observed advisory being valid at the same time for different thresholds of the same criteria (e.g., A watch for greater than or equal (GTE) 50kts, a warning for 40-49kts, and an observed advisory for GTE 25kts all valid at the same time.

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

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

2.4.11. **WWA Cancellation.** WWAs 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 has not occurred in the last 30 minutes. See **paragraph 2.4.5** for cancellation of observed lightning warnings.

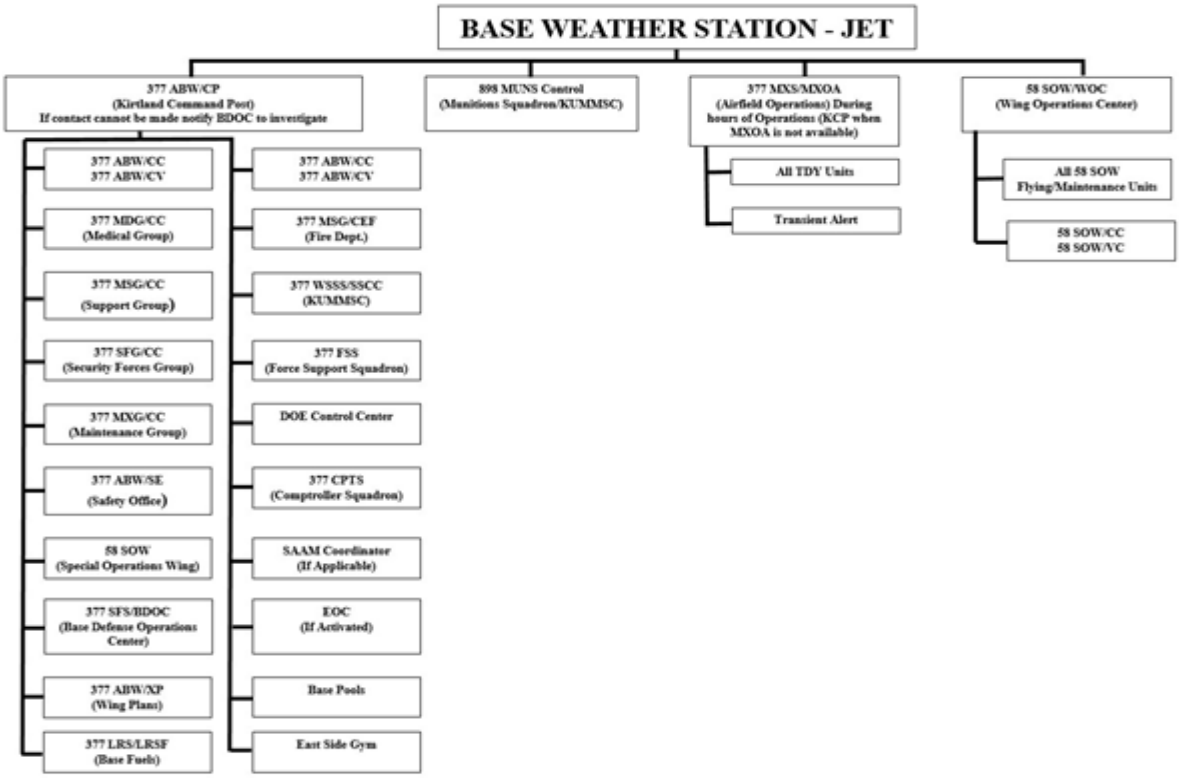
2.5. Dissemination Process.

2.5.1. **Observations and TAFs.** The FAA and NWS transmit observations and forecasts through the National Oceanic and Atmospheric Administration (NOAA) Weather Wire Service (NWWS).

2.5.2. **SWS & SWM.** SWS and SWM provide advance notice of hazardous weather conditions that have the potential to affect KAFB. The 25 OWS transmits SWSs to WF leadership via E-mail. WF leadership forwards SWSs to base leaders. SWM's, authored by the WF, are disseminated via E-mail to base leaders.

2.5.3. **WWAs.** The 25 OWS or WF will enter WWAs into JET which will disseminate the information to 377 ABW/CP, 58 SOW/WOC, and Airfield Management (377 MXS/MXOA). If JET is out-of-service, 25 OWS or the WF will make back-up calls. Upon notification, these units will further disseminate all WWAs using the pyramid notification scheme shown in **Figure 2.2**.

Figure 2.2. Weather Pyramid Alerting.



2.5.3.1. **Tornado Warnings.** 377 ABW/CP has the sole responsibility to activate the Giant Voice/base siren when a tornado warning is issued.

2.6. Cooperative Weather Watch (CWW). The FAA contracted observer, FAA contracted ATC and NWS have established procedures within their respective channels; because the WF does not have an observing function, the Albuquerque Sunport ATC does not participate in a CWW, however, if WF personnel notice an issue with observations they will contact the FAA observer listed in **Table 2.1**.

2.7. PMSV Support. Weather information is available via PMSV during duty hours on frequency 342.3 MHz. The duty forecaster will monitor PMSV traffic for all aircraft contacts during normal WF hours. Aircraft outside the range of the Kirtland WF PMSV can contact another weather station or reach the WF through a phone patch via the 377 ABW/CP (DSN 246-3777/Commercial (505) 846-3777). When the Kirtland WF PMSV is inoperative (INOP), the WF will notify 377 MXS/MXOA so they can place the outage on local Airfield Advisories and Notice to Airmen (NOTAMS). The message will read similar to "PMSV RADIO 342.3 INOP; contact 377 ABW/CP DSN 246-3777 C 505-846-3777 for phone patch, during non-duty hours 25 OWS DSN 228-6598 C520-228-6598". FLIPs also document procedures for in-flight aircrews to receive real-time weather information during PMSV outages.

2.8. Emergency Action(s) Response.

2.8.1. **Aircraft Mishap.** When notified on an 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.

2.8.1.1. If the WF provided a WP, the WF will notify the 25 OWS Operations Floor Production Supervisor of all aircraft mishap as soon as possible after notification of the event. The WF will coordinate with 25 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.

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

2.8.2. **Severe Weather Action Plan (SWAP).** The WF will initiate SWAP IAW criteria listed in **Table 2.8** SWAP ensures sufficient manpower is available to meet the increased demand for timely weather information from its supported unit(s) during significant weather events. The WF will provide 24/7 standby capabilities for SWAP activation. It is imperative that timely and accurate weather watches, warnings, and advisories are disseminated to all agencies to ensure personnel and RP. The WF will initiate a heightened METWATCH and actively coordinate WWAs with the 25 OWS. The WF forecaster will notify the WF Chief of SWAP activation during normal staff duty hours. During non-duty hours, the 25 OWS will notify the WF standby forecaster when conditions listed in **Table 2.8** have been met and the WF technician will activate SWAP.

Table 2.8. Conditions Requiring SWAP Activation.

Weather Watch	**Desired Lead Time**
Tornado	As potential warrants
Severe TSTM (Winds ≥ 50 KTs and/or Hail ≥ ¾ Inch)	As potential warrants
Severe Winds not associated with TSTMs (Winds ≥ 50 KTs)	As potential warrants
Weather Warning	**Desired Lead Time**
Tornado	30 minutes
Severe TSTM (Winds ≥ 50 KTs and/or Hail ≥ ¾ Inch)	60 minutes
Severe Winds not associated with TSTM s (Winds ≥ 50 KTs)	60 minutes
NWS/Storm Prediction Center (SPC) issued Watch or Warning for Bernalillio County	**Desired Lead Time**
Tornado Watch or Warning	When Issued
Severe TSTM Watch or Warning	When Issued
NOTES: **1. Any other event or situation that the Duty Technician, Stand-by Forecaster, or Flight Leadership deems necessary for notification.**	

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

2.8.3.1. The 25 OWS notifies the on-call forecaster prior to issuing any SWAP related watch or warning for KAFB.

2.8.3.2. The NWS/SPC places KAFB in any type of severe TSTM watch or warning.

2.8.3.3. As directed by the 377 ABW/CC in support of Emergency Operations Center (EOC), or other priority events.

2.8.3.4. As directed by the WF Chief for mission critical purposes.

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

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

2.8.4.2. Work closely with EM or other functions to ensure the supported CC gets a consistent picture.

2.8.4.3. Upon request from EM or other applicable agency, obtain/provide Chemical Downwind Messages from the servicing OWS.

Chapter 3

MISSION SERVICES

3.1. General. The WF provides and/or arranges support for the mission needs of the 377 ABW. The WF will establish daily hours of operation and flex or surge to meet the needs of the parent/host unit to the maximum extent possible. During normal duty hours, the WF provides and/or arranges for weather support to the 58 SOW, subordinate units and units assigned, attached, or supported by 377 ABW when able. This chapter identifies the flying and non-flying missions and the weather support provided.

3.2. Flying Missions. The WF provides weather support to the flying units listed in **Attachment 4, Table A4.2**.

3.3. WP. WPs fuse theater scale products with local mission requirements enabling the direct inject of weather impacts into warfighter planning and/or execution. WPs are living documents and any/all feedback is applied to internal MISSIONWATCH/METWATCH processes to enhance training, forecast proficiency, and product accuracy. WPs include flight weather briefings, intelligence preparation of the operational environment (IPOE) products, mission planning briefs, environmental inputs to mission analysis, environmental staff estimates, and any other WP prepared to meet the needs of a supported unit. WPs are primarily developed by WFs/Dets utilizing the Administrative and Operational Mission Execution Forecast (MEF) Process (MEFP) outlined in AFMAN 15-129 IC-1 and supplemented by the WF's internal MEF Process. The result is a product designed to provide timely, accurate, and relevant weather intelligence to various customers. The WPs must be horizontally consistent with (but not necessarily mirror) products issued by any OWS and 557th Weather Wing.

3.3.1. **KAFB MEF** . The daily web-based MEF is designed to provide critical go/no-go weather information for all phases of local flying customers' sorties (see **Attachment 5** for sample product). It includes Take-Off/Landing Data (TOLD), solar/lunar data, flight hazards, and flight level winds for supported customers' mission operating areas. The MEF is available through the WFs Air Force Portal webpage: **https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?channelPageId=s6925EC1356C90FB5E044080020E329A9** (Under Aviation Weather). In the event of a Portal/Local Area Network (LAN) outage, the MEF will be E-mailed upon request. Updates can be obtained by contacting the WF at DSN 246-9707/Commercial (505) 846-9707.

3.3.1.1. **Issue Times.** The MEF will be issued during normal duty days at NLT 0700L. Any changes with MEF dissemination time will be coordinated between the WF and the 58 SOW. The MEF will cover the 58 SOW day-line flying which falls during the WFs normal hours of operation (1000L-1700L). It will not be issued when local flying is not occurring, during days when no flying missions are scheduled, or outside of the WF's normal hours of operation.

3.3.1.2. **Amendments/Updates.** The MEF will be monitored continuously and updated as required. The MEF will be amended when the TOLD is out of category and/or the Route/Orbit/Air Refueling forecast changes mission limiting thresholds and could adversely impact the scheduled sortie. Any amendments will be called out to the SOF and impacted operations desk in addition to being posted to the WFs AF Portal Page.

3.3.1.3. **Formal Briefing.** Aircrews will call the WF forecaster at DSN 246-9707/9722 to receive an official briefing of the MEF and gain a full understanding of expected weather impacts to their mission. The pilot will then receive a formal brief time, and the forecaster's initials. The forecaster will also ask for the pilot's or an aircrew members initials as record of the formal briefing.

3.3.2. **Flight Weather Briefings (175-1s)** . Weather personnel will provide verbal or traditional flight weather briefings (DD Form 175-1, *Flight Weather Briefing*) to aircrews as requested and IAW the flight's duty priorities as listed in **Table 1.1** Briefings will be provided either at the weather station, or via E-mail/phone. Please provide 24 hours advance notice of DD 175-1 request by calling DSN 246-9707 or E-mailing a request to **377MXS.MXOW.KirtlandWeather@us.af.mil**. Out-of-station mass briefings for special missions require 48-72-hours advance notice, are subject to staffing availability, and must be coordinated with WF leadership at DSN 246-1475. Outside of WF normal duty hours, pilots will call the 25 OWS for flight weather briefings IAW AFH11-203V2. Transient aircrews can receive flight weather briefings from either the WF (during normal duty hours in line with WF duty priorities) or the 25 OWS. The 25 OWS can be contacted by phone (DSN 228-6604), fax (DSN 228-7361), or via the web at **https://25ows.us.af.mil/**. The 25 OWS requests 2 hours advance notice of DD 175-1 briefings.

3.4. MISSIONWATCH. This is a deliberate process for monitoring terrestrial weather and/or the space environment for specific mission-limiting environmental factors. Traditional methods of mission following will be employed, including knowledge of flight schedules, tactics, and close contact with SOF and Operations Cells. Other meteorological and commercial data sources will be used to accomplish this task at the discretion of the Weather Forecaster. During rapidly changing weather, the WF will amend/update WPs as required and contact the applicable agencies to pass on critical changes and recommend alternatives to exploit mission weather. The SOF will pass this information to the aircrew. Forecasters continually monitor the flight routes of each mission departing and returning to KAFB, and will immediately notify the aircrew/SOF if weather develops in their route that was not previously briefed/forecast. The 25 OWS will perform flight and route MISSIONWATCH for transient flights they brief which depart from KAFB. The WF will perform flight and route MISSIONWATCH for transient flights departing KAFB that were briefed by WF personnel.

3.5. Post-Mission Analysis. In conjunction with post-mission analysis, Operational Verification (OPVER) of MWPs is the single most important mission-oriented, operational effectiveness assessment requirement for a WF. As part of the Post-Mission Analysis, the WF will conduct and provide Go/No Go Metrics on the WPs upon request. Additionally, the WF will ensure WPs and services conform to customer needs, meet or exceed established standards, and produce customer satisfaction. Data collected from Quality Assurance (QA) assessments will be used to identify adverse trends, improve procedures, and focus training efforts on key problem areas. Data collected from OPVERs and technical evaluations of WPs and services will be used to measure and assess, and act to continuously improve, WPs.

3.5.1. **Mission Weather Support Feedback.** Per AFMAN 15-129 IC-1, the WF will gather feedback from supported units and review weather products as necessary to verify WP MEF. The WF will utilize this data to refine their mission support and gauge unit strengths and challenges. WF leadership will utilize feedback to tailor the MEF Process, aiding continuous improvement of WF products. Formal/informal feedback methods include:

3.5.1.1. Completion of 377MXS/MXOW feedback worksheet or feedback solicitation E-mail.

3.5.1.2. E-mail and/or phone calls to the WF.

3.5.1.3. Face-to-face feedback in conjunction with briefings and/or mission completion.

3.6. Transient Aircrew Support. Weather technicians will provide or arrange for weather support for transient aircrews IAW the duty priorities listed in **Table 1.1** The WF may provide flight weather briefings (175-1s), and/or updates to aircrews. Weather technicians may arrange for weather support from the 25 OWS briefing cell when other duty priorities take precedence. The 25 OWS briefing cell can be reached at DSN 228-6604/6599, commercial (520) 228-6604/6599 FAX DSN 228-7361, or via web access from the aircrew briefing terminal located in the flight planning room. (**https://25ows.us.af.mil/**).

3.7. Aero Club Activities. The WF will provide flight weather briefings to Aero Club members upon request and IAW the duty priorities listed in **Table 1.1** The WF will not remain open on weekends or times outside normal published operating hours to provide briefings for Aero Club flying activities. The WF will advise Aero Club members performing official flight duties of the 25 OWS web page request process and self-briefing capabilities.

3.8. Non-Flying Missions. The WF supports various non-flying missions (e.g., Wing Picnic, change of command ceremonies, Morale Welfare and Recreation) through RP (WWAs/SWMs). Specific support to non-flying missions is identified in **Chapter 4**. Specialized weather information can be provided to support any Department of Defense (DoD) non-flying mission upon request. However, weather information will not be released to non-DoD agencies or the general public without approval from the 377 ABW Public Affairs (PA) and Legal offices (JA). Any questions/ clarifications will be coordinated through the flight chief (DSN 246-1475).

3.9. Space Weather Impacts. KAFB missions have a wide-variety of parameters affected by various space-weather conditions (High Frequency (HF) and Ultra High Frequency (UHF) communication, radar, Global Positioning System (GPS) communications, etc.). The WF provides space impacts on their WPs when requested. Examples of the products utilized to inject space weather impacts are provided in **Attachment 6**.

3.10. Tactical Decision Aids (TDA). At this time, no parent/host units require TDAs or electro-optical aids such as the Target Acquisition Weather Software (TAWS). WF leadership requires that parent/host units inform them of changes to their TDA needs so that procedures, training, and software can be generated accordingly.

Chapter 4

STAFF SERVICES

4.1. General. Staff services are typically accomplished by WF leadership and include meteorological functions (briefings) and cultivating relationships with base agencies to ensure WF support is optimal.

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

4.2.1. **Staff Briefings.** Staff weather briefings for 377 ABW (wing stand up) will be provided as required. Standard information includes surface analysis, satellite/radar image, and local 5-day weather outlook. Briefing slides may be tailored to meet specific weather requirements. A daily weather slide presentation will be provided to the 377 Maintenance Group. Standard information includes a 5-day KAFB weather outlook.

4.2.2. **Installation Control Center (ICC) / Crisis Action Team (CAT) Briefings.** The WF will provide weather support as required for ICC/CAT briefings. When the CAT and/or EOC are activated, the WF will receive notification via E-mail and will prepare a "standard" weather briefing consisting of local surface analysis, satellite/radar image, and 5-day weather outlook. Specific requirements beyond these standard slides will be requested by the function being activated. This includes mission, exercise, natural disaster, other emergencies, and deployment briefings.

4.2.3. **Instrument Refresher Course (IRC) Briefings.** The WF provides IRC briefings as required by course scheduling IAW AFMAN 11-210 *Instrument Refresher Program,* and AFMAN 15-129 IC-1. The weather portion of the briefing consists of an overview of the WF's Mission Services, WF capabilities, WF and 25 OWS responsibilities, RP, seasonal/regional weather and space weather impacts (when applicable). The WF requires host units to request these briefings on an as-needed basis.

4.2.4. **Pre-deployment Planning Briefings.** The WF will provide pre-deployment weather briefings as requested, however, it is uncommon as the 377 ABW provides mainly in-garrison support and the 58 SOW is a training Wing. 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 will receive a briefing on surface temperatures, wind speed, potential for blowing sand and dust, and precipitation.

4.2.5. **Climatology Services.** Upon request from an authorized agency, the WF will provide specific climatology data for KAFB and other locations, for example end of month climatology or historical climatology. Requests may be made to WF leadership (DSN 246-1475).

4.3. Staff Integration Functions. WF leadership will make every effort to ensure that the unit is adequately resourced to meet both operational and staff requirements. In addition to leadership and management of unit activities, members will also function as a direct interface with the supported unit CCs and staff, and will provide direct support to command, control and planning functions. Specific integration with base agencies is outlined below.

4.3.1. **377 ABW Support.**

4.3.1.1. **Plans and Programs (377 ABW/XP).** The WF will:

4.3.1.1.1. Assist in periodic exercises tailored to upcoming seasonal weather or other environmental concerns and will serve as the subject matter expert (SME) regarding weather to educate base agencies on the purpose and applicability of weather watches, warnings and advisories and the integration of weather services for operational missions.

4.3.1.1.2. Where applicable, prepare the necessary weather annex/appendices for KAFB Contingency Plans.

4.3.1.2. **377 ABW/CP.** The WF will:

4.3.1.2.1. Notify the CP whenever the base weather station is evacuated and/or the AOL is activated.

4.3.1.2.2. Coordinate with the CP for weather related Operational Report 3 (OPREP-3) and provide the CP any pertinent weather information.

4.3.1.2.3. The WF will provide an updated roster of leadership for recall to include the on-call forecaster and Flight Chief.

4.3.1.3. **377 ABW/PA.** The WF provides tours of the base weather station for community groups and others when coordinated by PA.

4.3.1.4. **377 MXS/MXOA.**

4.3.1.4.1. The WF will notify the MXOA whenever the WF is evacuated and/or the AOL is activated.

4.3.1.4.2. WF leadership will participate as a member of the Airfield Operations Board as directed in AFMAN13-204V1_AFGSCSUP, *Management of Airfield Operations.*

4.3.1.4.3. The 25 OWS or WF will provide notification of all forecasted weather watches, warnings, and advisories via Integrated Weather Warnings Capability (IWWC), telephone, E-mail, or in-person during hours of operations.

4.3.1.4.4. The WF will notify MXOA of any changes to PMSV frequency or operability so that it may be updated in the FLIPs and provide a NOTAM for dissemination.

4.3.1.5. **Mission Support Group Civil Engineering Division (377 MSG/CE).** The WF will provide local weather data, chemical downwind messages, effective downwind messages, and/or upper air winds as requested. DAFI 10-2501, *Emergency Management Program*, outlines WF actions for major accidents, natural disasters, and incidents involving terrorist use of weapons of mass destruction.

4.3.1.5.1. IAW DAFI 10-2501, the WF will assist in developing the Natural Hazard Appendix for the KAFB 10-2, *Installation Emergency Management Plan*.

4.3.2. **58 SOW.** The WF will:

4.3.2.1. Provide in-person briefings upon request and with 48 hour advance notice for the following 58 SOW functions:

4.3.2.1.1. CAT activations.

4.3.2.1.2. Higher Headquarters missions.

4.3.2.1.3. Notify the 58 SOW/WOC whenever the base weather station is evacuated and/or the AOL is activated.

4.3.3. **All Supported Flying Units.** The WF will provide services as outlined throughout this publication when able, during normal hours of operations.

4.3.4. **377 ABW/JA.** The WF will:

4.3.4.1. Refer all requests or subpoenas for weather information, including requests for WF response actions to severe weather related to weather causing damage or injury that may be associated with civil claims or court action to 377 ABW/JA.

4.3.4.2. For any request for synoptic weather records kept IAW record disposition schedule, the WF will compile the records recorded in regular course of WF operations and release IAW Freedom of Information Act (FOIA) procedures after coordination with 377 ABW/JA.

4.3.4.3. For any request of a weather observation records including a supplemented or augmentation remarks, the WF will provide FAA contact information to 377 ABW/JA.

4.3.5. **377 ABW Operational Medical Readiness Squadron (377 OMRS).** The WF will:

4.3.5.1. Support the Thermal Injury Prevention Program (TIPP) by providing weather data IAW AFI 48-151, *Thermal Injury Prevention Program*. The WF does not have an observing mission or own observing equipment; current weather data can be obtained from the Albuquerque Sunport FAA observer 24 hours a day (See **table 2.2**) or the Sandia Labs weather station link (**http://photovoltaics.sandia.gov/weather/Weather.htm**) if needed.

4.3.5.2. Assist the TIPP with obtaining and interpreting historical weather data and information.

4.4. Reciprocal Support.

4.4.1. **377 ABW Support.**

4.4.1.1. **377 ABW/XP.** Will:

4.4.1.1.1. Provide at least 14 days advance notification to the WF of real-world contingencies and joint exercises.

4.4.1.1.2. Notify WF Chief of all rewrites in association with Operation Plans (OPLANs) and Concept of Operation Plans (CONOPs) to provide updated weather support.

4.4.1.1.3. Provide advance notification/coordination to the WF of transient units and operations requiring weather support.

4.4.1.2. **377 ABW/CP.** Will:

4.4.1.2.1. Ensure dissemination of WWAs as outlined in **Chapter 2** of this instruction.

4.4.1.2.2. Notify the WF when any other agency or credible source (i.e. Fire Department, Bernalillo County EM, or New Mexico State Patrol) reports a funnel cloud, tornado or any other significant weather event.

4.4.1.2.3. Notify the WF forecaster-on-duty immediately of all emergencies, incidents, or accidents that would require OPREP-3 weather information.

4.4.1.2.4. CP will run applicable Quick Reaction Checklists to notify wing leadership and various base agencies of severe weather when notified by the 25 OWS or the WF.

4.4.1.2.5. Immediately activate the Giant Voice/base siren for a tornado when a tornado WARNING is issued.

4.4.1.2.6. Notify Squadron Unit Control Centers of pertinent weather events when activated.

4.4.1.2.7. Disseminate as required Special Weather Notices issued by the 377 MXS/MXOW.

4.4.1.2.8. Coordinate requirements for operations orders or plans relevant to a specific operations requiring weather support with the 377 MXS/MXOW Flight Chief.

4.4.1.2.9. Contact the standby forecaster when notified by the 25 OWS of one of the following warning or watch criteria: tornado, wind $\geq$ 50 KTs, hail $\geq$ ¾", and heavy snow $\geq$ 2" in 12 hours.

4.4.1.2.10. Notify 377 MXS/MXOW when new or unique weather support becomes known.

4.4.1.2.11. Include the WF on their dissemination/notification list for any weather related OPREP-3s or incidents as required by AFMAN 10-206, *Operational Reporting*.

4.4.1.2.12. Conduct daily PMSV radio checks during normal duty hours.

4.4.1.3. **377 ABW/PA.** Will:

4.4.1.3.1. Coordinate tours of the base weather station by community groups and others with the WF Chief.

4.4.1.3.2. When requested, provide approval of public release of weather information.

4.4.1.4. **377 MXS/MXOA.** Will:

4.4.1.4.1. Notify WF immediately of all aircraft emergencies, incidents, or accidents and termination via the secondary crash net (SCN).

4.4.1.4.2. Notify WF of all changes to published approach weather minimums at KAFB (published in FLIPs). The WF will provide amendments/updates to this document and update all internal SOPs based upon changes in the FLIPs as required.

4.4.1.4.3. Ensure dissemination of weather warnings and advisories as outlined in **Chapter 2** of this instruction.

4.4.1.4.4. Will notify the WF if there are any issues or concerns with the web-based aircrew-briefing terminal that is located in base operations, Flight Planning Room.

4.4.1.4.5. FLIP Manager will submit updates provided by the WF to Air Force Flight Standards Agency/Operating Location-D (AFFSA)/(OL-D).

4.4.1.4.6. Disseminate weather warnings via SCN to all transient units and Transient Alert (TA) during published duty hours.

4.4.1.4.7. Disseminate runway surface condition data to the WF in line with duty priorities.

4.4.1.5. **Communication Division (377 MSG/SC).** Will:

4.4.1.5.1. Ensure scheduled maintenance does not degrade METWATCH and/or MISSIONWATCH performed by the WF during periods of inclement weather and notify the WF prior to routine maintenance (Notifications are sent out to Squadron Information Assurance Officers (IAO) to achieve this).

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

4.4.1.5.3. Ensure established maintenance response times are met.

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

4.4.1.5.5. Coordinate with WF Chief prior to taking any equipment down for maintenance.

4.4.1.6. **377 MSG/CE.** Will:

4.4.1.6.1. Contact the WF Chief to request climatological data and specialized support for projects on KAFB.

4.4.1.6.2. Provide emergency power for weather equipment located in building 333 on KAFB.

4.4.1.6.3. Coordinate the Installation Emergency Management Plan (IEMP) 10-2 changes concerning weather support requirements with the WF Chief.

4.4.1.6.4. Contact the WF when Plume modeling and CBRNE support is required.

4.4.1.7. **377 Security Forces Squadron (SFS)/Weapon Systems Security Squadron (WSSS) SFS Base Defense Operations Center (BDOC)** will promptly inform the WF of any hazardous weather (tornado, hail, winds, etc.) observed or reported by Security Forces personnel.

4.4.1.8. **377 OMRS** will provide and disseminate Thermal Injury Notices (i.e. Wet-Bulb Globe Temperatures (WBGT), heat index, flag conditions, cold stress determinations, frostbite risk levels, fighter index of thermal stress and equivalent chill temperatures) for KAFB when requested or required IAW AFI 48-151.

4.4.1.8.1. Monitor TIPP through WBGT program daily in the summer months and communicate that information and control recommendations to the shop supervisors and CCs to prevent heat injuries. 377 OMRS has equipment to monitor the wet bulb temperature during the summer months and will provide that information daily to unit supervisors and CCs.

4.4.1.9. **898 Munitions Squadron (898 MUNS).** 898 MUNS Plans and Scheduling will provide:

4.4.1.9.1. Dates and times for Special Assignment Airlift Missions (SAAM) and other PL-1 operations with at a minimum of 72 hours notice.

4.4.1.9.2. Weather requirements to the WF for real world missions, operation and exercises requiring weather support, to include starting and ending of support.

4.4.1.10. **377 ABW Inspector General for Investigations (377 ABW/IGI).** Will: Provide advance notification to the WF of joint exercises and inspections (e.g., readiness, tropical, Unit Efficiency Inspection (UEI)).

4.4.2. **58 SOW.** Will:

4.4.2.1. Ensure Aircrews receive weather briefing prior to each flight and aircrews provide PIREPS to the WF either during flight or post-flight debriefs, as time permits.

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

4.4.2.3. Notify the WF of required additional support as soon as it becomes known to include monitoring of alternate observations/forecasts and tracking of previously unspecified weather criteria.

4.4.2.4. Provide timely notification (at least 24 hours in advance) of changes to scheduled operations that affect weather support requirements as soon as changes are identified.

4.4.2.5. Provide the WF a weekly/daily flying schedule via fax, E-mail, or webpage. At a minimum, the schedule must include take-off and landing times, orbit/route name and valid times, and flight level.

4.4.2.6. Ensures WF is notified of changes to briefing schedules, exercises, and EWO requirements.

4.4.2.7. Ensures WF is notified of new or unique weather support requirements.

4.4.2.8. Notify the WF of communication outages/web page discrepancies as soon as identified.

4.4.2.9. Flying squadrons and the 58th Training Squadron provide at least a 96-hour notice (one week in advance is preferred) to the WF regarding any weather training/educational requirements (IRC), or changes in requirements, if applicable.

4.4.2.10. Ensure an alternate work area with a DSN capable telephone, LAN, and Internet connectivity is available for weather personnel in the basement of Building 1017 of KAFB, 58 WOC, if the WF must evacuate Building 333.

4.4.2.11. Provide PIREPS either directly to the WF via phone (246-9707), through the PMSV, or via 377 ABW/CP. PIREPs will include the location and flight level of the aircraft, time of the observation, type of aircraft, and a description and the extent of meteorological elements. Conditions at takeoff, en-route, and upon arrival at the destination are requested within 5 minutes of receipt of said PIREP, or as soon as operations allow.

4.4.2.12. The 58 SOW/WOC disseminates weather watches, warnings, and advisories via phone/E-mail to agencies as required, upon notification by JET and/or the weather forecaster. During emergency situations, such as a tornado, lightning etc., controllers will activate emergency notification procedures.

4.4.2.13. The 58 SOW/WOC disseminates as required, SWMs issued by the WF.

4.4.2.14. Provide post-mission feedback to the WF if able for all missions, especially those considered non-effective due to weather. See **paragraph 3.5** for more details.

4.4.3. **All Weather Support Recipients.** Will:

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

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

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

4.4.3.4. Will take all necessary precautions in advance of, or during, inclement weather.

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. The WF uses advanced meteorological equipment to determine the current state of the atmosphere. These critical systems provide customers the most timely, accurate and relevant weather intelligence possible.

5.2.1. **GIBSON-RIDGE SOFTWARE.** The WF utilizes Gibson Ridge Software as its primary source of radar data. Weather technicians use software 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 WPs and RP actions. Back-up sources for radar provided through WeatherTap, NWS, and 25 OWS websites.

5.2.2. **M625 Advanced Micro Weather Sensor (MWS).** The MWS is a low-cost, lightweight, ruggedized, and highly integrated unattended ground sensor capable of being deployed globally in remote or denied locations for meteorological monitoring to improve situational awareness. The MWS will be employed for different operations on KAFB in order to increase environmental awareness and enhance safety of personnel and property.

5.3. Communications Equipment. The following systems are the backbone of the WF communications network:

5.3.1. **JET.** As discussed in **paragraph 2.5** of this instruction, JET is the primary system for disseminating watches, warnings, and advisories. It is a software program that uses normal internet connections with severs located at the 25 OWS at Davis Monthan AFB. When JET is out-of-service, telephones are used to contact key aircraft and command controlling agencies.

5.3.2. **PMSV Radio.** The PMSV (342.3 MHz) allows the WF to communicate with aircrews, both on the ground and flying, as well as 377 ABW/CP personnel. If the PMSV is out-of-service, aircrews can contact the WF or the 25 OWS via phone patch (where possible) to get weather data.

5.3.3. **Phones/Hotlines.** Phones and hotlines serve primarily for rapidly passing along critical, time-sensitive information, and also serve as a backup for passing along information when other dissemination systems fail (specifically the 58 SOW/WOC DSN 246-9482, and the 377 ABW/CP DSN 246-3777).

5.3.4. **LAN.** The WF relies heavily on the LAN to guarantee the timeliness and accuracy of weather intelligence to our customers (Specific websites that are always needed are the AF Portal, AFW-WEBS, and the 25 OWS webpage located at **https://25ows.us.af.mil/index.cfm?fuseaction=main&userfunction=M&bandwidth=H&aor=2&aoi=1**.

5.4. Maintenance. **Table 5.1** Identifies which organizations provide preventive maintenance and repairs for weather and communications equipment.

Table 5.1. Equipment Maintenance List.

Organization	Equipment
557th Weather Wing Fielded Systems	JET
Telephone Maintenance (377 MSG/SCOIV)	Phones/Hotlines
Network Maintenance (377 MSG/SCOOS)	LAN/Internet Connectivity

5.4.1. **Restoral Priorities.** Priorities for restoring critical systems exist in the event that a natural disaster or any other anomaly simultaneously impacts systems base wide. Significant indicates a situation where the equipment is completely INOP, while minimal means the equipment is in limited operation. The priorities for weather equipment are listed in **Table 5.2** below (priorities may be adjusted based on forecasted weather):

Table 5.2. Equipment Restoral Priorities.

Equipment	Organization	Response priority/no later than (subject to change via ABW priority restoral list)
PMSV Radio	Radio Maintenance (377 MSG/SCOIR)	Immediate/Next duty day
LAN/Internet Connectivity/Phones/Hotlines/JET	377 MSG/SCOOS	1/1.5 hours

5.5. Building Power. Building 333 is equipped with a back-up generator. The generator will start automatically when power is cut-off to building 333.

JASON F. VATTIONI, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFMAN 11-202V3, *Flight Operations*, 10 June 2020

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

AFH 11-203V2, *Weather for Aircrews-Products and Services*, Change 4, 23 October 2020

DAFI 10-2501_DAFGM2021-01, *Emergency Management (EM) Program*, 17 June 2021

AFMAN 13-204V1_AFGSCSUP, *Management of Airfield Operations*, 24 June 2021

AFI 15-128, *Weather Force Structure*, 21 June 2019

AFI 48-151, *Thermal Injury Prevention Program*, 22 April 2020

AFMAN 10-206, *Operational Reporting (OPREP)*, IC 1, 01 September 2020

AFMAN 11-210, *Instrument Refresher Program (IRP)*, 4 October 2019

AFMAN 15-129 IC-1, *Air and Space Weather Operations*, 16 June 2021

JO 7900.5D, *Surface Weather Observing*, 20 December, 2016

NWSI 10-813, *Terminal Aerodrome Forecasts*, 18 November, 2020

KAFB 10-2, *Installation Emergency Management Plan*, 18 November, 2020

KAFB and 25 OWS *Weather Installation Data Page*:
https://25ows.us.af.mil/ows_unique/25data/moa/Kirtland_AFB_Data_Page.pdf

Adopted Forms

DD Form 175-1, *Flight Weather Briefing*

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ABW—Air Base Wing

AFB—Air Force Base

AFI—Air Force Instruction

AFFSA—Air Force Flight Standards Agency

AFGSC—Air Force Global Strike Command

AFMAN—Air Force Manual

AFRC—Air Force Reserve Command

AFRIMS—Air Force Records Information Management System

AFW-WEBS—Air Force Weather-Web Services

AIREP—Air Report

A/N—Alpha Numeric

ANG—Air National Guard

AOL—Alternate Operating Location

ASOS—Automated Surface Observing System

ATC—Air Traffic Control

BDOC—Base Defense Operations Center

CAT—Crisis Action Team

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

CB—Cumulonimbus

CC—Commander

CE—Civil Engineering Division

CIG—Ceiling

CONOPs—Concept of Operations

CONUS—Continental United States

COOP—Continuity of Operations Plan

CP—Command Post

CWW—Cooperative Weather Watch

Det—Detachment

DoD—Department of Defense

DSN—Defense Switched Network

EM—Emergency Management

EOC—Emergency Operations Center

EWO—Emergency War Orders

FAA—Federal Aviation Administration

FOIA—Freedom of Information Act

FT—Foot/Feet

FLIP—Flight Information Publication

GPS—Global Positioning System

GTE—Greater than or Equal

GTIMS—Graduate Training Information Management System

HF—High Frequency

IAO—Information Assurance Officer

IAW—In Accordance With

ICAO—International Civil Aviation Organization

ICC—Installation Control Center

IDP—Installation Data Page

IEMP—-Installation Emergency Management Plan

IGI—Inspector General for Investigations

INOP—--Inoperative

INS—Inches of Mercury (Hg)

IPOE—Intelligence Preparation of the Operational Environment

IRC—Instrument Refresher Course

IWWC—Integrated Weather Warnings Capability

JA—Judge Advocate (KAFB Legal Office)

JET—Joint Environmental Toolkit

KAFB—Kirtland AFB

KT(S)—Knot(s)

KUMMSC—Kirtland Underground Munitions Maintenance and Storage Complex

LAN—Local Area Network

LLWS—Low Level Wind Shear

M—Meter

MDS—Mission Design Series

MEF—Mission Execution Forecast

MEFP—Mission Execution Forecast Process

METAR—Meteorological Terminal Aviation Routine Report

METWATCH—Meteorological Watch

MHz—Megahertz

MSG—Mission Support Group

MSL—Mean Sea Level

MUNS—Munitions

MWS—Micro Weather Sensor

MXOA—Airfield Management

MXOW—Maintenance Operations Weather

MXS—Maintenance Squadron

NM—Nautical Miles

NOAA—National Oceanic and Atmospheric Administration

NOTAM—Notice to Airmen

NWS—National Weather Service

NWSI—National Weather Service Instruction

NWWS—Weather Wire Service

OCONUS—Outside the Continental United States

OL-D—Operating Location-D

OPLAN—Operations Plan

OPR—Office of Primary Responsibility

OPREP-3—Operational Report 3

OPVER—Operational Verification

OMRS—Operational Medical Readiness Squadron

OWS—Operational Weather Squadron

PA—Public Affairs

PIREP—Pilot Report

PL-1—Protection Level 1

PMSV—Pilot-to-Metro Service

QA—Quality Assurance

RDS—Records Disposition Schedule

RP—Resource Protection

RVR—Runway Visual Range

SAAM—Special Assignment Airlift Missions

SATCOM—Satellite Communications

SC—Communication Squadron

SCN—Secondary Crash Net

SCOIV—Telephone Maintenance

SCOIR—Radio Maintenance

SCOOS—Network Maintenance

SDO—Senior Duty Officer

SFS—Security Forces Squadron

SGPB—**-**-Bioenvironmental Engineering

SM—Statute Mile

SME—Subject Matter Expert

SOF—Supervisor of Flying

SOP—Standard Operating Procedure

SOS—Special Operations Squadron

SOW—Special Operations Wing

SPC—Storm Prediction Center

SPECI—Aviation Selected Special Weather Report

SR—Slow Speed Low Altitude Training Routes

SWAP—Severe Weather Action Procedures

SWM—Significant Weather Messages

SWS—Special Weather Statements

TA—Transient Alert

TAF—Terminal Aerodrome Forecast

TAWS—Target Acquisition Weather Software

TCU—Towering Cumulus

TDAs—Tactical Decision Aids

TIPP—Thermal Injury Prevention Program

TOLD—Take-Off/Landing Data

TSTM—Thunderstorm

UCMJ—Uniform Code of Military Justice

UEI—Unit Efficiency Inspection

UHF—Ultra High Frequency

VIS—Visibility

WF—Weather Flight

WOC—Wing Operations Center

WP—Weather Product

WSSS—Weapon Systems Security Squadron

WWA—Watch, Warning and Advisory

XP—Plans and Programs Office

Attachment 2

TERMINAL AERODROME FORECAST (TAF) SPECIFICATION AND AMENDMENT CRITERIA

A2.1. Specification/ Amendment Criteria. The TAF will specify the time of occurrence, the duration, and the intensity (if applicable) of expected weather conditions. NWS issues the KABQ TAF based on NWSI 10-813. The following weather criteria will be specified and/or amended in the TAF if expected to occur during the forecast period:

A2.1.1. CIG and/or VIS is forecast to decrease to less than, or if below, is forecast to equal or exceed any of the following levels:

Table A2.1. CIG/VIS Forecast Categories.

CIG	VIS	Category
< 2,000 FT	≥ 3 SM (4,800 M)	E
< 3,000 FT but ≥ 1,000 FT	< 5 SM (4,800 M) but ≥ 3 SM (4,800 M)	D
< 1,000 FT but ≥ 600 FT	< 3 SM (4,800 M) but ≥ 2 SM (3,200 M)	C
< 600 FT but ≥ 200 FT	< 2 SM (3,200 M) but ≥ 1/2 SM (800 M)	B
< 200 FT	< 1/2 SM (800 M)	A

A2.1.2. Additional U.S. NWS TAF Amendment Criteria:

A2.1.2.1. A change in wind speed of 10 KTs or more and:

A2.1.2.1.1. The original mean wind speed was GTE (greater than or equal) 12 KTs, or (NWS only).

A2.1.2.1.2. The newly expected mean wind speed is GTE 12 KTs (NWS only).

A2.1.2.2. A change in the onset, duration, and intensity of wind gusts.

A2.1.2.2.1. Forecast peak gust (or forecast of no gust): GTE 10 KTs above observed gust (or above the observed mean wind speed if no gusts are forecast) occur or are expected (NWS only).

A2.1.2.3. A change in prevailing wind direction of more than 30 degrees when the predominant wind speed or gusts are expected to be more than 12 KTs.

A2.1.2.4. Weather. If TSTMs, freezing precipitation or ice pellets occur and are not forecasted, or, if forecasted, do not occur.

A2.1.2.5. Non-Convective LLWS (up to 2,000 FT). Amend the TAF if non-convective LLWS is forecasted and does not occur, or if LLWS occurs and is not forecast. LLWS is always assumed to be present in convective activity.

Attachment 3

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

Table A3.1. Sample Weather Observation.

1 2 **3** 4 **5** 6 **7** 8 **9**		
SPECI KABQ **221506Z** AUTO **17013G22KT** 2SM **RVRNO** TSRA **BKN015CB**		
09/08 **A29.99** RMK AO2 TS OHD MOV NE		
10 **11** 12		
Body of Report and Remarks		
Group	Reference	Brief Description
Type of Report	A3.1.	Indicates type of report.
Station Identifier	A3.2.	A four-character group used to identify the observing location.
Date and Time of Report	A3.3.	Date and time of the report.
Report Modifier	A3.4.	A report modifier **(COR**) identifying report as a correction, or **AUTO** indicating the weather observation is a fully automated report with no human intervention.
Wind	A3.5.	Indicates wind direction and speed. Gusts are appended if available.
VIS	A3.6.	Provides prevailing VIS from the designated point of observation in SMs (CONUS) or meters (M) Outside the Continental United States (OCONUS).
RVR	A3.7.	10-minute RVR or varying RVR in hundreds of FT or Ms.
Present Weather	A3.8.	Any weather occurring at the observing location, obscurations to vision, or other phenomena.
Sky Condition	A3.9.	State of the sky in terms of sky cover, layers and heights, CIGs and obscurations.
Temperature and Dew Point	A3.10.	Measure of hotness/coldness of ambient air. Dew point measures saturation point temperature.
Altimeter	A3.11.	Indicates altitude above mean sea level (MSL) of an aircraft on the ground.
Remarks	A3.12.	Remarks generally elaborate on parameters reported in the body of the report, and will be included in all METAR and SPECI observations.

A3.1. Type of Report. METAR or SPECI.

A3.2. Station identifier, also called the ICAO. This code identifies the location of the observation (in this case Albuquerque International Sunport).

A3.3. Date and Time of Report. This is in Zulu (GMT) of the last element of the observation.

A3.4. Report Modifier. The report modifier can be either of the following two elements:

A3.4.1. COR is entered into the report modifier group when a corrected METAR or SPECI is transmitted.

A3.4.2. AUTO identifies the report as a fully automated report with no human intervention.

A3.4.2.1. AUTO is automatically included in reports when the weather technician signs off the AMOS indicating the observations are no longer being augmented.

A3.4.2.2. 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.

A3.5. Wind. The true direction the wind is blowing from 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.

A3.5.1. **Gust.** The wind gust is encoded in two or three digits immediately following the wind speed. The wind gust is encoded in whole KTs using the units and tens digits and, if required, the hundreds digit.

A3.5.2. **Variable Wind Direction (speeds 6 KTs or less).** Variable wind direction with wind speed 6 KTs or less may be encoded as VRB in place of the direction.

A3.5.3. **Variable Wind Direction (speeds greater than 6 KTs).** Wind direction varying 60 degrees or more with wind speed greater than 6 KTs 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 KTs, it would be encoded 21010KT 180V240.

A3.5.4. **Calm Wind.** Calm wind is encoded as 00000KT.

A3.6. VIS. The furthest predominant distance (at least 50% of the aerodrome) seen from the airfield reported in SMs (CONUS) or Ms (OCONUS).

A3.7. RVR. An instrumentally derived value that represents the horizontal distance that a pilot can see down the runway. RVRNO indicates that RVR information is not available during periods when prevailing VIS is 1 mile (1600 Ms) or less or RVR is 6,000 FT (1830 Ms) or less.

A3.8. Present weather. Any weather phenomenon occurring on the airfield. This is mandatory anytime the VIS is less than 7 miles. **Table A3.2** lists the present weather codes:

Table A3.2. 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 (TSTMs)	GR (Hail)	HZ (Haze)	
	FZ (Freezing)	GS (Small Hail or Snow Pellets)	PY (Spray)	
		UP (Unknown Precip)		

A3.9. 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:

A3.9.1. SKC/CLR – Sky Clear.

A3.9.2. FEW – 1/8 to 2/8 coverage.

A3.9.3. SCT – Scattered; 3/8 to 4/8 coverage.

A3.9.4. BKN – Broken; 5/8 to 7/8 coverage.

A3.9.5. OVC – Overcast; 8/8 coverage.

A3.9.6. VV – Vertical VIS; normally used during heavy fog, indicates the distance that weather personnel can see vertically upward into the obscuring phenomena.

A3.9.7. FEW000 – Surface-based obscuration.

A3.9.8. **Cloud Height.** Three-digit number provides the height of the base of the cloud in hundreds of FT (e.g., 015 equals 1,500 FT). The CB and TCU descriptors may be appended to the cloud height to indicate the cloud is a cumulonimbus or towering cumulus.

A3.10. Temperature and Dew Point (in degrees Celsius).

A3.11. Altimeter Setting. The pressure value to which an aircraft altimeter scale is set so that the altimeter indicates the altitude above MSL of an aircraft on the ground at the location for which the value was determined. The altimeter is measured in inches (INS) of mercury. (These groups are not included in NWS TAF's, but are in Military TAF's.)

A3.12. Remarks. **Figure A3.1** Contains some of the most commonly seen remarks in observations:

Figure A3.1. Sample Remarks Listing.

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

A3.13. TAF.

Figure A3.2. Sample TAF.

```
KABQ 0113/0219 31005KT 9999 SCT015 SCT250 QNH3015INS
FM011500 36006KT P6SM SCT080
BECMG 0117/0118 VRB06KT 4800 SHRA SCT010 BKN025 OVC080 QNH3005INS
TEMPO 0119/0122 13020G35KT 1600 +TSRA SCT008 BKN015CB OVC030
T24/0120Z T10/0210Z
```

A3.13.1. The forecast follows the same general format as the observation with the following exceptions noted:

A3.13.1.1. **Valid Date/Time.** Forecasts are valid for a 24-hour period. In this example, the forecast is valid from the 1st at 1300Z until the 2nd at 1300Z.

A3.13.1.2. **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 that follows the BECMG code (1700 to 1800Z in the example above) (these groups are rarely seen in NWS TAFs, and are common in Military TAFs).

A3.13.1.3. **FM** . This is a code to indicate the predominant conditions will change to (or From) the conditions listed in the line of the forecast. The conditions will change starting at the time that follows the FM code (i.e. 2000 equals 2000Z in the example above) (these groups are not seen in Military TAFs, but are in NWS TAFs).

A3.13.1.4. **TEMPO** . This code means the conditions listed on the line may occur temporarily for periods of an hour or less (1 hour and 15 minutes or less for TSTMs) anytime between the time frame following the TEMPO code (1900Z to 2200Z in this example).

A3.13.1.5. **Max Temp/Min Temp.** T24 indicates a maximum temperature in Celsius to occur on the 1st at 20Z. T10 indicates a minimum temperature of 10 Celsius to occur on the 2nd at 10Z (***NOTE:*** M indicates a minus sign in front of the number: M05 = -5 C) (These groups are not included in NWS TAFs, but are in Military TAFs.).

A3.14. Weather Warnings, Watches, and Advisories (WWAs).

Figure A3.3. Sample WWAs.

1. OBSERVED WEATHER ADVISORY.

KAFB WEATHER ADVISORY 07-067
VALID 27/1730Z (17/1130L) TO UFN (until further notice)
OBSERVED HEAT STRESS INDEX >= 80 but < 90 F. OBSERVED at 80 F. OCCURRING

2. OBSERVED WEATHER WARNING.

KAFB WEATHER WARNING 07-001
VALID 17/1921Z (17/1421L) TO UFN
OBSERVED LIGHTNING IS OCCURRING WITHIN 5NM OF KAFB

3. WEATHER WATCH.

KAFB WEATHER WATCH 05-015
VALID 15/1858Z (15/1358L) TO 15/2100Z (15/1600L)
POTENTIAL FOR TORNADIC ACTIVITY EXISTS AT KAFB.

4. FORECAST WEATHER ADVISORY.

KAFB WEATHER ADVISORY 02-012
VALID 10/0500Z (10/0000L) TO 10/1400Z(10/0900L)
FORECASTED SURFACE WINDS >= 25 but < 41 KTs. FORECAST VALUE 30 KTs.

5. FORECAST WEATHER WARNING.

KAFB WEATHER WARNING 11-051
VALID 10/1500Z (10/1000L) TO 10/2200Z (10/1700L)
SEVERE TSTMs WITH HAIL ≥ ¾ IN. (FORECAST VALUE 1 IN.) AND DAMAGING
WINDS ≥ 50 KTS (FORECAST VALUE 65 KTS) IS FORECAST TO OCCUR AT KAFB.

Attachment 4

CUSTOMER RESPONSE MATRIX

Table A4.1. Customer Response Matrix.

Weather Phenomena	Lead Time	Impact	Customer Action
Tornado	30 min	Personal injury/death Equipment damage	Seek shelter; hangar or divert aircraft (OPR: 58 SOW, 150 SOW, 377 ABW)
Severe TSTMs w/Damaging Hail GTE 3/4" and/or Winds GTE 50 KTs	60 min	Personal injury/death Equipment damage	Seek shelter; hangar or divert aircraft; secure flight line; protect/cover equipment (OPR: 58 SOW, 377 ABW, 150 SOW)
Hail GTE 1/2" < 3/4"	90 min	Personal injury; flight hazard; equip. damage	Seek shelter; hangar or divert aircraft; secure flight line; protect/cover equipment (OPR: 58 SOW, 377 ABW, 150 SOW)
Freezing Precipitation	30 min	Personnel hazard delay or cease operations	Cease flying and maintenance operations (377 ABW, 58 SOW, 150 SOW)
Surface winds $\geq$ 50 KTs (not associated with TSTMs)	60 min	Personal injury; flight hazard; equip. damage	Seek shelter; hangar, tie down or divert aircraft; secure flight line (OPR: 58 SOW, 377 ABW, 150 SOW)
Surface winds GTE 41 but < 50 KTs	120 min	Flight hazard Equipment damage	Point aircraft into wind; space out or tie down aircraft; secure flight line, limit fuel ops (OPR: 58 SOG, 58 MXS, 377 MXS)
Surface winds GTE 25 KTs but < 41 KTs	30 min	Equipment damage	Secure flight line, limit some fuel/mx ops (OPR: 58 SOG, 58 MXS, 377 MXS)
Lightning w/in 5 NM of KAFB	Observed	Personnel hazard; delay operations	Evacuate personnel from flight line; divert or hold aircraft; clear pool/golf course (OPR: 58 SOW, 377 ABW, 150 SOW)
Lightning w/in 10 NM of KAFB	Observed	Personnel hazard; delay operations	Prepare to cease flight-line work (OPR: 58 MXS, 898 MUNS, 377 MXS)
Lightning w/in 15 NM of KAFB	Observed	Personnel hazard; delay operations	Cease MUNS work, Prepare to cease flight-line work (OPR: 898 MUNS)

Snow accumulation GTE 2” w/in 12 hours	90 min	Delay or cease operations	Activate snow removal plan Hangar aircraft; Prepare aircraft for de-icing; cease flight line operations; cease facility and grounds maintenance (OPR: 58 MXS, 377 MXS, 377 MSG)
Weather Phenomena	Lead Time	Impact	Customer Action
Snow accumulation GTE 1”< 2” w/in 12 hours	120 min	Delay or cease operations	Activate snow removal plan Hangar aircraft; Prepare aircraft for de-icing; cease flight line operations; cease facility and grounds maintenance (OPR: 58 MXS, 377 MXS, 377 MSG)
Snow accumulation GTE Trace	120 min	Delay operations	Activate snow removal plan Hangar aircraft; Prepare aircraft for de-icing. (OPR: 58 MXS, 377 MXS, 377 MSG)
Heavy rain GTE 1” w/in 6 hours	30 minutes	Personnel hazard equipment damage	Prepare base for possible flash flooding. (377 MSG)

A4.1. Flying Units Supported & Mission Limiting Environmental Conditions.

Table A4.2. Flying Units Supported.

Organization	Flight Training Mission
415 SOS (C-130J)	Trains Special Tactics.
71 SOS (CV-22)	Trains Special Tactics.
512 RQS (HH-60G/W) (UH-1N)	Trains Special Tactics.

A4.1.1. **Common Routes, Operating, and Training areas.**

A4.1.1.1. **Flight Routes.** Slow Speed Low Altitude Training Routes **(**SR)200/201, SR210/211, SR212, VR176, IR137/308, IR109, RED DIAMOND, AR117/125, AR674, AR672, AR602.

A4.1.1.2. **Drop Zones and Remotes.** Isleta, Center Fire, Melrose, Auxiliary Field, Oscura/Red Rio, SW Remote, NW Remote, SE Remote, Stallion, Belen.

A4.2. Mission Limiting Thresholds.

A4.2.1. **Airframe-Specific Weather Limitations.** General airframe weather limitations based on AFMAN 11-202V3, *Flight Operations,* and the limitations from aircraft specific instructions. The WF will coordinate annually with supported units to ensure weather sensitivities are updated and correct.

Table A4.3. USAF General Flight Rules Weather Limitations.

(Ref: AFMAN 11-202V3)		
Weather Condition	Impact	Customer Action
Cig/Vis < 2,000 / 3 (Fixed Wing)	Alternate required	Add fuel to allow divert
Cig/Vis < 1,000/ 2 (Rotary Wing)	Alternate required	Add fuel to allow divert
Cig/Vis < 1,000 / 2 (Fixed Wing)	Terminal not suitable for alternate	Select another alternate
Cig/Vis < 200/ 1 (Rotary Wing)	Terminal not suitable for alternate	Select another alternate

A4.2.2. **Supported Aircraft Go/No Go Weather Limitations.**

A4.2.2.1. **UH-1N Go/No Go Weather Limitations.** The UH1-1N is not equipped with a de-ice kit. **Figure A4.1** will be used by the WF as a guide of potential mission impacts (i.e. Go/No-Go) only.

Figure A4.1. UH-1N Go/No Go Weather Limitations.

Mission Weather Thresholds UH-1N (512 RQS)			
Parameter	**Significant Risk - Red (NO/GO)**	**Marginal Risk - Yellow**	**No Risk - Green (GO)**
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
Tornado	Observed Warning	Forecast Watch	No WWA's
Volcanic Ash	Observed or Forecast w/in 50 NM		No VA Observed/Forecast
SFC Winds	≥ 40kts	39-25kts	< 25kts
LLWS < 2,000ft		Observed Advisory	
Ceilings	< 200	200-2999ft	≥3000ft
Visibility(ILS)	≤ 1/2sm		> 3sm
Day Missions	< 500/2sm		≥ 500/2sm
Thunderstorms	Thunderstorms w/in 5nm	Thunderstorms w/in 25nm	Thunderstorms outside 25nm
Freezing Precipitation	Observed/Forecast		Not Forecast or Observed
All Operations	≥ LGT Icing > MDT Turb Forecast or observed Freezing Precipitation	Trace Icing LGT-MDT Turb	No Icing ≤ LGT Turb
Night NVG	< 500 / 2sm		> 1000/ 2sm
Night (Unaided)	< 1000 / 2sm		> 700/ 2sm
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 Meter Error	15-50 Meter Error	< 15 Meter Error

A4.2.2.2. **HH-60G/W Go/No Go Weather Limitations.** The HH60G have de-ice equipment but it is not connected due to high maintenance. The HH60W de-ice equipment is fully operational. **Figure A4.2** Will be used by the WF as a guide of potential mission impacts (i.e. Go/No-Go) only.

Figure A4.2. HH-60G/W Go/No Go Weather Limitations.

Mission Weather Thresholds HH-60G/W (512 RQS)			
Parameter	**Significant Risk - Red (NO/GO)**	**Marginal Risk - Yellow**	**No Risk - Green (GO)**
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
Tornado	Observed Warning	Forecast Watch	No WWA's
Volcanic Ash	Observed or Forecast w/in 50 NM		No VA Observed/Forecast
SFC Winds	≥ 45kts	44-25kts	< 25kts
LLWS < 2,000ft		Observed Advisory	
Ceilings	< 200ft	200-2999ft	≥ 3000ft
Visibility(ILS)	≤ 1/2sm	> 1/2 < 3sm	≥ 3sm
In-Flight Refueling	< 1 sm	≥ 1 < 3 sm	≥ 3sm
Thunderstorms	Thunderstorms w/in 5nm	Thunderstorms w/in 25nm	Thunderstorms outside 25nm
All Operations	> MDT Icing > MDT Turb Forecast or Observed Freezing Precipitation	MDT Icing LGT-MDT Turb	LGT Icing LGT Turb
Day	< 700 / 1sm		≥ 700 / 1sm
Night NVG	< 700 / 2sm		≥ 700/ 2sm
Night Unaided	< 1000 / 3sm		≥ 1000 / 3sm
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 Meter Error	15-50 Meter Error	< 15 Meter Error
GPS PRAIM (HH-60W only)		Terminal or NPA without Baro aiding unavailable	Availible for all modes (area/terminal/approach)

A4.2.2.3. **CV-22 Go/No Go Weather Limitations. Figure A4.3.** will be used by the WF as a guide of potential mission impacts (i.e. Go/No-Go) only.

Figure A4.3. CV-22 Go/No Go Weather Limitations.

Mission Weather Thresholds CV-22 (71 SOS)			
Parameter	**Significant Risk - Red (NO/GO)**	**Marginal Risk - Yellow**	**No Risk - Green (GO)**
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
Tornado	Observed Warning	Forecast Watch	No WWA's
Volcanic Ash	Observed or Forecast w/in 50 NM		No VA Observed
SFC Winds	≥ 45kts	44-25kts	< 25kts
LLWS < 2,000ft		Observed Advisory	
Ceilings	< 200ft	200-2999ft	≥3000ft
Visibility(ILS)	< 1 sm	> 1 < 3sm	> 3sm
Thunderstorms	Thunderstorms w/in 5nm	Thunderstorms w/in 10nm	Thunderstorms outside 20nm
In-Flight Refueling	< 3sm		> 3sm
All Operations	≥ LGT Icing > MDT Turb	Trace Icing LGT-MDT Turb	No Icing No Turb
Day/NVG	< 1sm in Rotary Wing Mode	< 500 / 2sm	≥ 1000 / 3sm
Night unaided	< 1500 / 3sm		≥1500 / 3sm
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 Meter Error	26-50 Meter Error	< 26 Meter Error

A4.2.2.4. **HCMC-130J Go/No Go Weather Limitations. Figure A4.4.** will be used by the WF as a guide of potential mission impacts (i.e. Go/No-Go) only. Aircrews will adhere to Mission Design Series (MDS)-specific AFI's, Technical Orders, and local Risk Management procedures.

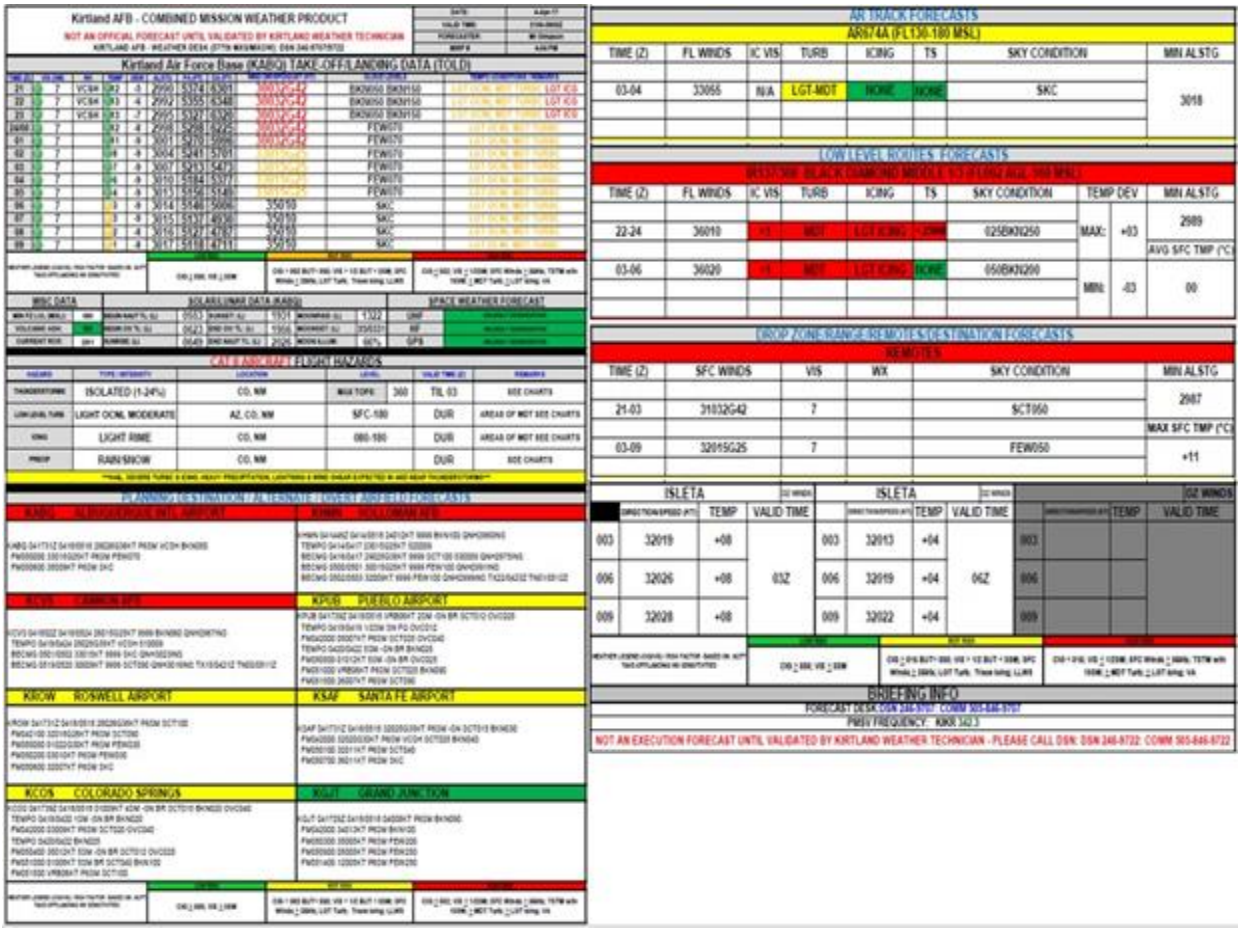
Figure A4.4. HC/MC-130P/H/J Go/No Go Weather Limitations.

Mission Weather Thresholds HC/MC-130J (415 SOS)			
Parameter	**Significant Risk - Red (NO/GO)**	**Marginal Risk - Yellow**	**No Risk - Green (GO)**
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
Tornado	Observed Warning	Forecast Watch	No WWA's
Volcanic Ash	Observed		No VA Observed
Cross Winds	≥ 35kts	≥ 16 < 34kts	< 16kts
LLWS < 2,000ft		Observed Advisory	
In-Flight Refueling	< 1 sm	≥ 1 < 3sm	≥ 3sm
Ceilings	<200ft	200-2999ft	≥ 3000ft
Visibility(ILS)	< 1/2sm	> 1/2 < 3sm	≥ 3sm
Tactical low-level operations	Thunderstorms w/in 5 NM		Thunderstorms outside 5 NM
Thunderstorms	w/in 20 NM at or above FL 230 w/in 10NM below FL 230	w/in 25NM	outside 25NM
All Operations	> MDT Icing > MDT Turb	MDT Icing MDT Turb (Flight into areas of MDT or Greater Mountain Wave Turb should be avoided)	< MDT Icing < MDT Turb
Freezing Precipitation	Observed/Forecast		Not Forecast or Observed
Day VFR	< 1500/3sm		≥ 1500/3sm
Night NVG/unaided	< 1500/3sm		≥ 1500/3sm
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 100 Meter Error	>25 ≤ 100 Meter Error	≤ 25 Meter Error

Attachment 5

KAFB MWP EXAMPLE

Figure A5.1. Mission Weather Forecast.



A5.1. KAFB MWP. In addition to the example shown in **Figure A5.1** The WF attaches relevant hazard charts, flight level winds, drop zone winds, prognosis charts, and applicable SIGMETs. The WF will also brief current weather as it relates to radar, satellite, and real-time conditions.

Attachment 6

SPACE WEATHER IMPACTS

A6.1. Space Weather Impact. Figure A6.1. – A6.5. provides a general product overview that the WF utilizes to provide space weather impacts. These products are available through AFW-WEBS.

Figure A6.1. Aircraft Space Weather Impacts.

Space Weather (All aircraft)			
Parameter	No Risk - Green	Marginal Risk -Yellow	Significant Risk - Red
UHF / VHF Communications	No Degradation	Marginal Degradation	Severe Degradation
GPS Error	< 15 Meter Error	15-50 Meter Error	> 50 Meter Error

Figure A6.2. HF Communications Impacts.

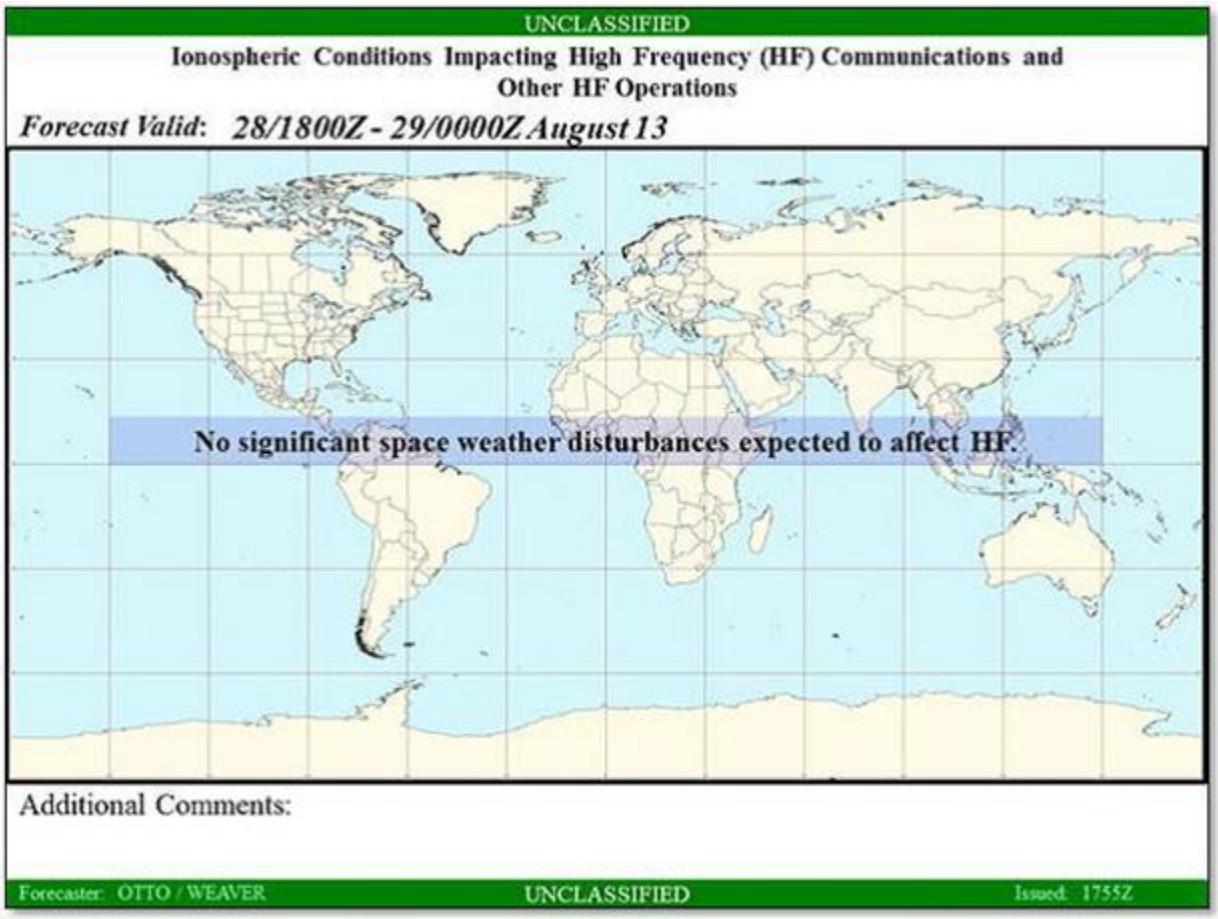


Figure A6.3. UHF Satellite Communications (SATCOM) Impacts.

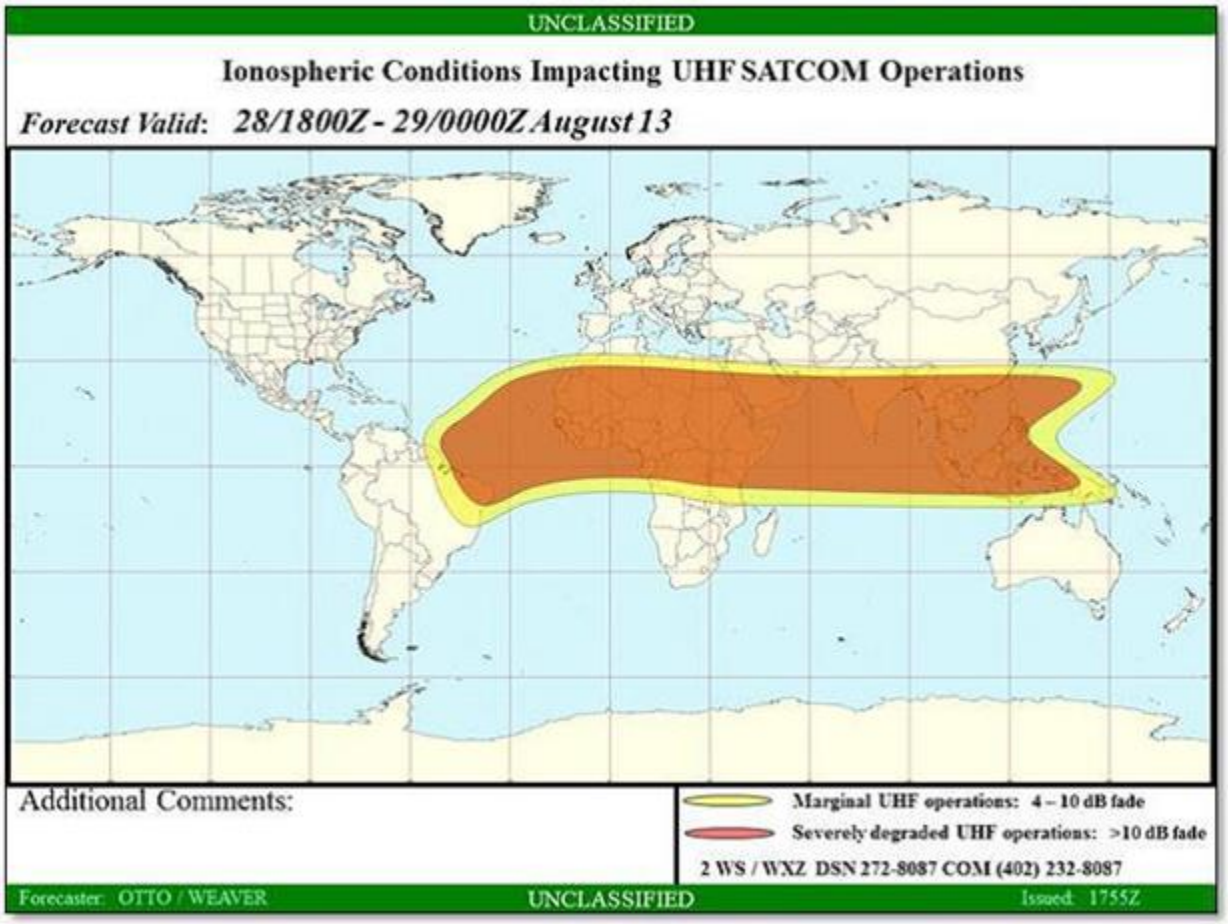
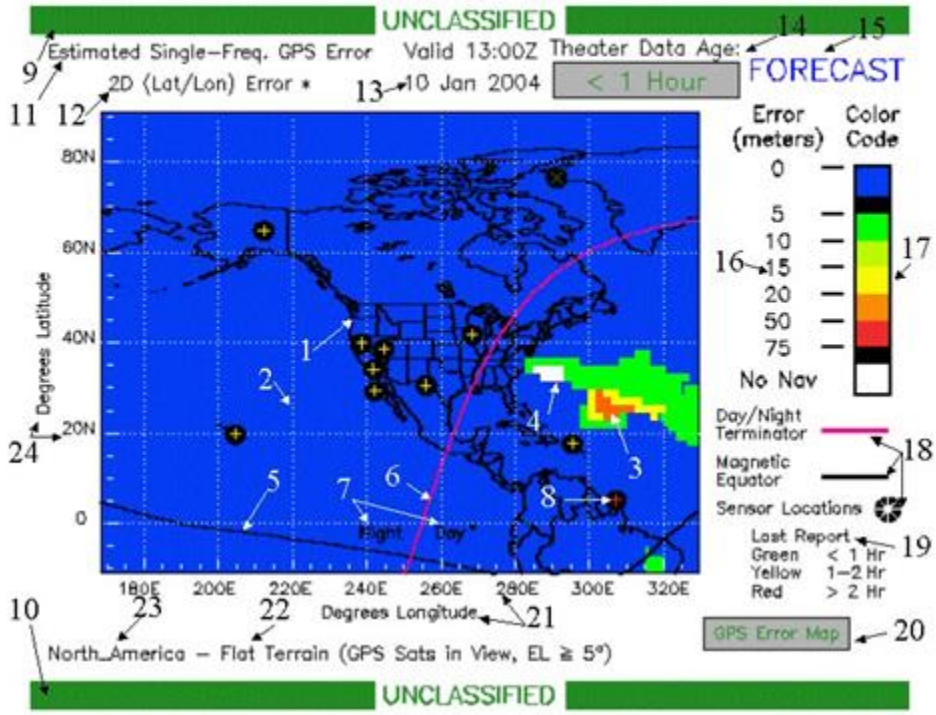


Figure A6.4. GPS Error Impact Chart.



LEGEND	
1. Continental and political boundaries (black)	13. Valid date and time
2. Area of low error (blue)	14. Data age
3. Area of high error (orange)	15. Cast label (NOWCAST or FORECAST)
4. Area without data (white)	16. Values for color bar
5. Geomagnetic equator (black)	17. Color bar
6. Day/Night terminator (pink)	18. Map legend
7. "Night and "Day" labels	19. "Last Report" legend for data type
8. IMS sensor (black with red X)	20. Data type (based on data age)
9. Upper classification banner	21. X-axis labels
10. Lower classification banner	22. Terrain
11. Title	23. Theater name
12. Error Type	24. Y-axis labels

Figure A6.5. Space Weather Events and Impacts Stop Light Chart.