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**Climatic, Hydrological, and Topographic Services**  
**U.S. ARMY AVIATION CENTER OF EXCELLENCE (USAACE) WEATHER SUPPORT**

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\*This regulation supersedes USAACE Reg 115-1, 7 September 2016.

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## CHAPTER 1

### FORT RUCKER WEATHER OPERATIONS (FRWXOPS) INTRODUCTION

1-1. **FRWXOPS MISSION.** FRWXOPS provides meteorological support to Fort Rucker, the USAACE, and other assigned and tenant units at Fort Rucker listed in this regulation.

1-2. **FRWXOPS OVERVIEW.** The official military organization of FRWXOPS is Operating Location (OL)-C of the 18th Weather Squadron (18 WS) at Fort Bragg, NC. OL-C, 18 WS is a team of meteorological technicians (forecasters) and electronic technicians (maintenance) located at Cairns AAF. Locally, FRWXOPS is aligned under the USAACE G3 Air.

1-3. **CONTACT INFORMATION.** FRWXOPS is located in building 30101D Wallace Street, Fort Rucker, AL 36362. The telephone numbers are DSN 558-8385/8397 (commercial 334-255-8385/8397). The fax number is DSN 558-8521 (commercial 334-255-8521).

1-4. **FRWXOPS RESPONSIBILITIES.** FRWXOPS's primary responsibilities are to provide tailored mission planning and execution weather services for USAACE aviation flight training and to augment the automated observing sensor as needed. These services are outlined in chapters 2 and 3. Reciprocal support and responsibilities are outlined in chapter 4. All weather services provided by FRWXOPS are accomplished in accordance with (IAW) the duty priorities listed in appendix A. The maintenance work center maintains the Doppler weather radar located in Echo, AL, in addition to the automated weather sensors at Cairns AAF, Hanchey Army Heliport (AHP), Lowe AHP, and Shell AHP. The general responsibilities of the Air Force and Army with regard to weather support are outlined in Army Regulation (AR) 115-10, Weather Support and Services for the U.S. Army, 24 February 2017, and AR 5-25, Army Weather Functional Activities, 21 October 2016.

1-5. **RELEASE OF WEATHER INFORMATION TO NON-DOD AGENCIES/INDIVIDUALS.** FRWXOPS will not release weather information to non-Department of Defense (DOD) agencies or individuals without prior coordination with the Fort Rucker Installation Operations Center (IOC) for severe weather events or the Public Affairs Office (PAO) for routine weather information. The IOC or PAO will provide written evidence of coordination before any release of information.

1-6. **RELEASE OF WEATHER INFORMATION TO DOD AGENCIES/INDIVIDUALS.** FRWXOPS is required to release a significant event report in the event of a weather-related aircraft mishap (Class A, B, or C) or upon occurrence of a severe weather event where damage has occurred to the post. These reports are prepared and disseminated to the appropriate agencies as soon as possible. In case of a severe weather event, the weather summary will be sent to the IOC. All reports will be sent to the 18 WS, Air Combat Command (ACC), 26th Operational Weather Squadron (26 OWS), and USAACE G3. Basic climatology for Cairns AAF, Hanchey AHP, and Lowe AHP is available on the FRWXOPS homepage at <http://www.rucker.army.mil/6weather/index.htm>. Any other request for data should be made to FRWXOPS, in writing or electronically, with a minimum of 3 hours' notice.

## CHAPTER 2

### OBSERVING PRODUCTS AND SERVICES

**2-1. OVERVIEW.** An FMQ-19 automated meteorological observing system at Cairns AAF automatically collects and disseminates weather observations. The Cairns AAF FMQ-19 observation is the official observation for the Cairns AAF Class D (control tower is operational) or Class E (control tower is not operational) airspace. Additional weather sensors are located at Hanchey AHP, Lowe AHP, and Shell AHP. The Shell AHP FMQ-23 observation is the official observation for Shell AHP.

a. **FRWXOPS.** Meteorological technicians are available to augment the FMQ-19, IAW Air Force Manual (AFMAN) 15-111, Surface Weather Observations, 27 February 2013, incorporating through change 2, 21 January 2016, from 0100L Monday through 0100L Saturday (excluding federal holidays). During all other hours, a meteorological technician is on call and will be available to augment the FMQ-19 automated capability when recalled to implement severe weather action procedures (SWAP) described in paragraph 3-4f. When the automated sensor requires augmentation, a basic weather watch (BWW) is conducted IAW AFMAN 15-111. A BWW means that weather personnel will recheck weather conditions at intervals not to exceed 20 minutes since the last observation or check to determine the need for a SPECI observation when certain criteria are occurring or forecast to occur within 1 hour. FRWXOPS also provides “eyes forward” feedback to the 26 OWS as part of a Fort Rucker weather support partnership.

b. **Cooperative Weather Watch (CWW).** FRWXOPS has established a CWW with the air traffic control (ATC) towers at Troy Municipal Airport (MAP) and all basefields and stagefields. ATC personnel will notify the meteorological technician when they observe significant weather conditions that differ from those reported in official observations, and the meteorological technician will incorporate that information into local flight briefings. Pilot reports (PIREPs) are another crucial element of the CWW (see paragraph 2-7). FRWXOPS will reevaluate weather conditions whenever a reliable source reports weather that differs from the last observation to determine if a new observation is required and if automated weather sensors require troubleshooting. The CWW is detailed in paragraph 4-2c.

**2-2. SURFACE OBSERVATION PRODUCTS.** The FMQ-19 provides METAR and SPECI weather observations IAW the criteria and guidelines in AFMAN 15-111. METAR observations are disseminated at approximately 58 past each hour. SPECI observations are disseminated whenever significant weather changes occur (see appendix B for SPECI criteria).

**2-3. SURFACE OBSERVATION EQUIPMENT.** FRWXOPS uses the FMQ-19 automated observing system to provide observing services to the Cairns AAF Class D airspace. Additionally, there are several automated surface observing systems (ASOSs) and three FMQ-23s in the local flying area that provide surface observations.

a. Fixed Meteorological Instrumentation. Electronic technicians maintain the instrumentation and displays of all fixed meteorological equipment; however, there may be instances when various Fort Rucker agencies must assist in repairing equipment when an outage involves aspects that are beyond the responsibility and capability of the meteorological technicians (i.e., communication or power lines).

(1) The Air Force owns and maintains the following meteorological equipment in and around Cairns AAF:

<b>Equipment</b>	<b>Measures</b>	<b>Location</b>
ML-17 <sup>(1)</sup>	Precipitation	Cairns AAF
Kestrel 5500 <sup>(1)</sup>	Temperature, dew point, wind speed, pressure	Cairns AAF
FMQ-19	Pressure, cloud height, winds, temperature, dew point, visibility, present weather, precipitation	Cairns AAF
FMQ-23	Pressure, cloud height, winds, temperature, dew point, visibility, present weather, precipitation	Hanchey AHP Lowe AHP

Note:

(1) Backup Weather Equipment. Measurements taken by the meteorological technician are a backup to other weather equipment; pressure and winds will be considered estimated.

(2) ASOS. There are several Army-owned ASOSs in the local area. The National Weather Service (NWS) provides maintenance service via an agreement with the Army. ASOSs provide continuous readouts of pressure, altimeter, temperature, dew point, wind direction and speed, present weather, visibility, cloud height, and cloud amount (up to 12,000 feet). ASOSs always operate in automated mode without augmentation. For ASOS limitations, see paragraph 2-6b. Data from the ASOSs may be accessed on very high frequencies (VHF) or telephonically. The ASOSs' VHF frequencies and telephone numbers are also listed below.

<b>Location</b>	<b>ICAO</b>	<b>VHF Frequency</b>	<b>Telephone Number</b>
South Alabama Regional Airport (RAP), AL	K79J	134.875	334-222-9770
Greenville MAP, AL	KPRN	120.000	334-383-9676
Eufaula (Weedon Field), AL	KEUF	128.35	334-687-5596
Floralia MAP, AL	K0J4	124.175	334-858-4843
Bonifay (Tri-County) MAP, FL	K1JO	None	850-547-1431

b. FMQ-13 Wind Measuring Equipment. The 1st Battalion, 11th Aviation Regiment (1-11th Avn Regt) owns and maintains FMQ-13 wind measuring equipment at most basefields and stagefields. Maintenance is performed by Navigational Aids (NAVAIDS).

c. FMQ-23. The Army owns an FMQ-23 located at Shell AHP. The Army and Air Force have signed an Exception to Policy (ETP) to allow Air Force maintainers at Cairns AAF to provide touch maintenance on this system. This ETP will be reviewed every two years and will remain in effect unless cancelled by either proponent.

d. The priority for equipment maintenance/restoral is as follows:

- (1) Radar
- (2) FMQ-19
- (3) FMQ-23 (Hanchey AHP, Lowe AHP)
- (4) FMQ-23 (Shell AHP)

**2-4. SURFACE OBSERVATION DISSEMINATION.** Surface observations are disseminated locally and long line. Procedures vary at each location and are described below.

a. Local Dissemination. The primary means for agencies to receive the Cairns AAF observation is through the Joint Environmental Toolkit (JET) via the Army Airfield Automation System (AAAS). For non-ATC customers, there are secure and non-secure hyperlinks on the FRWXOPS homepage. The JET, via the AAAS, provides local and area observations, forecasts, and weather watches, warnings, and advisories to ATC agencies at Cairns AAF (Army radar approach control [ARAC], HUB Radio, and tower) and the towers at Hanchey AHP, Lowe AHP, and Shell AHP. If the JET is not working, weather observations will be accessed by ATC agencies using the respective JET ATC Portal, which is linked from the FRWXOPS aviation web page. When the local area network (LAN) and the JET are both inoperative, Cairns AAF meteorological technicians will relay observations to the ARAC and HUB along with Cairns AAF, Hanchey AHP, Lowe AHP, and Shell AHP control towers telephonically using the red weather phone.

b. Long Line Dissemination. IAW Air Force directives, FRWXOPS meteorological technicians augment the FMQ-19 observations (when required) and long line dissemination is accomplished via the JET. In the event of a JET outage, observations will be transmitted long line via the Air Force Weather Web Service (AFW-WEBS). In the event of an LAN outage, the observation will be transmitted by another weather station or OWS as prescribed in AFMAN 15-111.

c. Aircrews with a VHF radio or telephone may access real-time ASOS weather observation data at area locations with an ASOS (see paragraph 2-3a). These systems are not augmented and should be used with caution. As stated in Fort Rucker Regulation 95-2, Directory of Aviation Training Facilities and Procedures, 19 January 2018, the official observation for Fort Rucker basefields inside Cairns AAF Class D airspace is the Cairns AAF observation.

2-5. **SURFACE OBSERVATION CODE.** Official surface weather observation abbreviations and codes are documented in AFMAN 15-111. Examples of a long line METAR, JET Automated Sensor Display, and JET ATC Portal follow below.

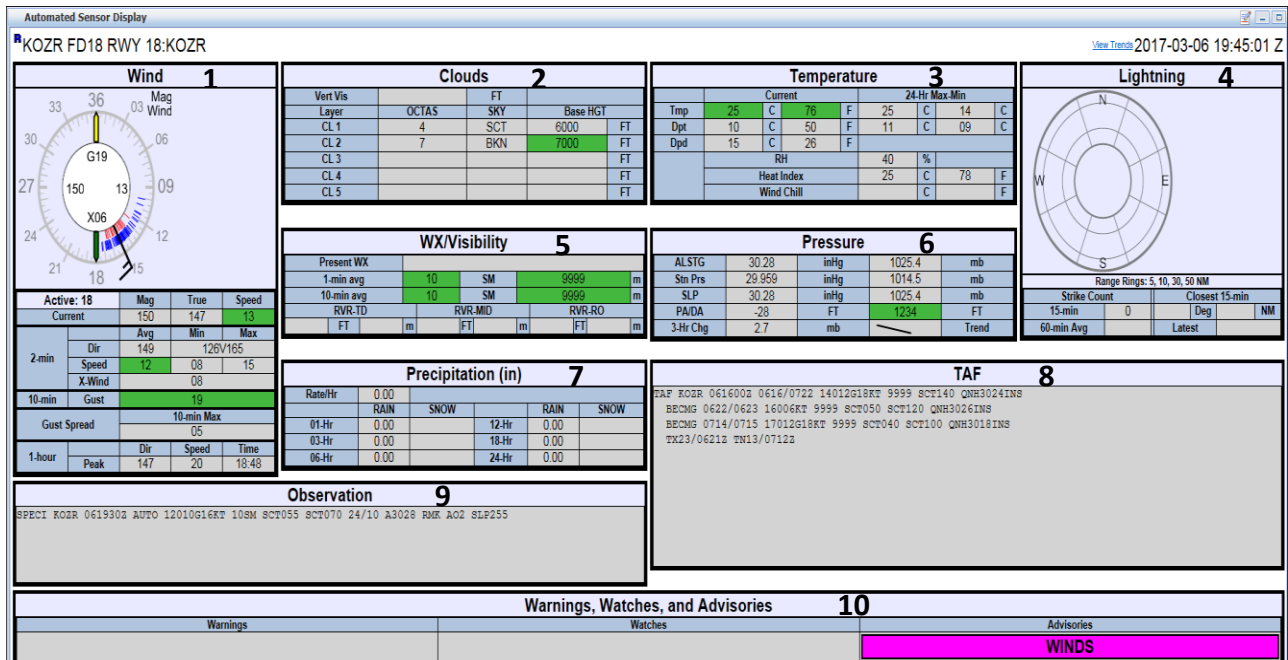
a. Example of a Long Line METAR Observation:

**KOZR (1) 181958Z (2) AUTO (3) 24015G30KT (4) 2 SM (5) +TSRA (6) SCT005 BKN020 OVC250 (7) 29/27 (8) A2990 (9) RMK AO2 SLP195 T01950092 10196 20105 58011 (10)**

Notes:

- (1) Location Identifier: This observation is from Cairns AAF (KOZR).
- (2) Date/Time Group: The date/time of this observation is the 18th at 1958Z.
- (3) AUTO: This indicates the observation is from an automated reporting site that is not being augmented.
- (4) Wind Direction/Speed: In this observation, the winds are from 240 (southwest) at 15 knots with gusts to 30 knots.
- (5) Visibility: In this observation, the visibility is 2 statute miles (SM).
- (6) Present Weather: In this observation, the present weather is a thunderstorm (TS) with heavy rain (+RA).
- (7) Sky Condition: In this observation, the sky condition is SCT005 BKN020 OVC250.
- (8) Temperature/Dew point: In this observation, the temperature is 29 degrees Celsius and the dew point is 27 degrees Celsius.
- (9) Altimeter (ALSTG): In this observation, the ALSTG is 29.90.
- (10) Remarks: Any applicable long line remarks would be entered on this line. These remarks are automatically generated and generally mean little to aviators. Note a remark of AO2 indicates the observation was fully automated, while AO2A indicates the observation was augmented.

b. Example of a JET Automated Sensor Display:



Notes:

- (1) Sensor Wind: This shows real-time winds for KOZR.
- (2) Sensor Clouds: This shows the current cloud height.
- (3) Sensor Temperature: This shows the current temperature, dew point, relative humidity, heat index, and wind chill.
- (4) Sensor Lightning: This shows the current lightning strikes centered on KOZR.
- (5) Sensor WX/Visibility: This shows the current present weather, visibility, and runway visual range (RVR).
- (6) Sensor Pressure: This shows the current altimeter, pressure altitude (PA), and density altitude (DA).
- (7) Sensor Precipitation: This shows the current rain or snow amounts.
- (8) TAF: This shows the current terminal aerodrome forecast (TAF) for KOZR.
- (9) Observation: This shows the current official observation for KOZR.
- (10) Warnings, Watches, and Advisories: This shows all warnings, watches, and advisories in effect for KOZR.



c. Example of the JET ATC Portal:

The screenshot displays the JET ATC Portal interface with the following elements:

- 1**: RWY In Use: 06
- 2**: Wind: 286/04 275V304
- 3**: Altimeter: 30.21
- 4**: 06 RVR: P6000FT
- 5**: Weather: KOZR SPECI 1533Z AUTO 29004KT 5SM HZ BKN018 BKN150 BKN200 28/23 ALSTG 30.21 RMK AO2 CIG 018V180 BKN018 V SCT PA +28 DA +1907
- 6**: Active watches, warnings, and advisories, including a blue bar for MEF (Weather Advisory 07-027 for Fort Rucker (KOZR) Valid 9/1205Z (9/0705L) to 9/1730Z (9/1230L) MEF AMD 1 has BEEN ISSUED. PLEASE RELAY TO AIRCREWS.) and another blue bar for MEF in the ADVISORY section.

Notes:

- (1) Active runway.
- (2) Current winds.
- (3) Current altimeter. Note the altimeter only updates upon receipt of a METAR or SPECI observation.
- (4) RVR.
- (5) Current observation.
- (6) Active watches, warnings, and advisories.

2-6. **OBSERVING LIMITATIONS.** The official point of observation at Cairns AAF is the FMQ-19 sensor. Buildings located at Cairns AAF limit the meteorological technician’s ability to take complete representative weather observations when augmenting the FMQ-19.

a. FRWXOPS Limitations.

(1) The backup observation point is located approximately 30 feet off the southeast corner of building 30101. From this vantage, the Cairns AAF meteorological technician does not have a full 360 degree view of the airfield. Buildings obstruct the meteorological technician’s view of the aerodrome from the southwest through the northwest. This limits the meteorological technician’s ability to accurately determine prevailing visibility when backing up the FMQ-19.

(2) Emergency evacuation of the weather station temporarily disrupts observing and forecasting services. Meteorological technicians relocate to the alternate operating location (AOL): a location with a Class A telephone, a computer with a LAN connection, and a view of the airfield (normally building 30311, the FLATIRON facility). Observing and forecasting services will be available at the AOL. The telephone number at the AOL is DSN 558-8157 (commercial 334-255-8157). While operating from the AOL, backup equipment may be used to record the observation.

(3) Pilot to metro service (PMSV) and the weather information frequency (WIF) are subject to the limitations inherent in the use of VHF and ultra-high frequencies (UHF). Pilots in the local area may not be able to reach the FRWXOPS meteorological technicians via PMSV due to various circumstances that prevent the signal from reaching the radio tower. See paragraph 3-5 for the PMSV frequency and backup procedures.

b. General Limitations of the ASOS.

(1) Cloud height and coverage are determined by a laser beam ceilometer and dependent on what is directly above the sensor. The ASOS attempts to determine sky condition but may provide an incorrect cloud coverage amount if clouds are stationary or moving very slowly. Additionally, the ASOS systems cannot determine cloud height above 12,000 feet.

(2) Visibility is determined using a forward scatter visibility meter; ASOS reported values may be highly variable and not representative for the entire airfield.

(3) The freezing rain sensor does not report occurrence until ice has accumulated to  $\geq 0.01$  inch. Aircraft operations may be affected before the ASOS reports the occurrence of freezing rain (i.e., icing).

(4) An ASOS may not detect all thunderstorms or hail occurrences. An ASOS cannot detect virga (precipitation not reaching the ground), sector visibility, tower visibility, or tornadoes.

c. General Limitations of the FMQ-19/FMQ-23. As with any automated system, the FMQ-19/FMQ-23 has inherent weaknesses. However, FRWXOPS has developed procedures to mitigate any weaknesses of the system.

(1) Cloud height and coverage are determined by a laser beam ceilometer, which looks at the small portion of the atmosphere directly above the sensor. Algorithms use time averaging and weighting in order to determine the sky condition. This sensor-derived sky condition is considered functionally equivalent to a manually-generated sky condition; the sensor samples the atmosphere directly above the sensor and the algorithms calculate the sky condition which simulates that of the entire celestial dome. The FMQ-19/FMQ-23 measures cloud heights between 100 feet and 25,000 feet.

(2) Visibility is determined at the sensor group, so it may not always be representative of the entire airfield. Furthermore, the FMQ-19/FMQ-23 cannot report visibility less than 1/4 SM. All reportable visibility values less than 1/4 SM are reported as "M1/4 SM."

(3) The FMQ-19/FMQ-23 may not detect all thunderstorms and lightning and cannot report thunderstorm and lightning remarks. Furthermore, the system cannot detect hail, virga, tower visibility, volcanic ash, cloud types, or tornadoes/funnel clouds/waterspouts. Fort Rucker's FMQ-23s do not have freezing precipitation sensors.

(4) Due to the characteristics of the algorithms, the FMQ-19/FMQ-23 may be slow to respond and report accurate sky condition, visibility, and present weather during periods of rapidly changing weather conditions.

d. Other Equipment Limitations. Because the FMQ-13 at Runkle Stagefield is 70 feet high, the surface wind speeds are generally lower than the sensor-reported values.

2-7. **PIREPs.** The local training area is approximately 29,000 square miles and is a data-sparse region in which weather can vary widely over short distances. PIREPs are an extremely important source of weather information provided by aircrews operating in the local area.

a. Criteria. FRWXOPS disseminates all PIREPs received.

b. PIREP Format and Dissemination. At a minimum, a PIREP must contain location, time, altitude, type of aircraft, and at least one weather element such as winds, temperature, icing, turbulence, low level wind shear (LLWS), visibility, or present weather in order to be disseminated. However, any reports of significant weather elements are useful and important to meteorological technicians. PIREPs may be reported to the weather station via PMSV radio or relayed to the weather station through ATC agencies. Meteorological technicians also include PIREPs, as appropriate, in flight weather briefings.

## CHAPTER 3

### FORECAST PRODUCTS AND SERVICES

3-1. **OVERVIEW.** Forecasting support is provided by the Air Force and organized in tiers to serve various levels of military organizations and operations. The 26 OWS, located at Barksdale Air Force Base (AFB) in LA, and is at the operational level focusing on meteorology and the production of weather products for the southeastern portion of the U.S. FRWXOPS partners with the 26 OWS to produce weather products for Fort Rucker, but also tailors these products into decision-quality weather information focused on the mission needs of operational customers at Fort Rucker.

a. Onsite forecasting services from FRWXOPS are available from 0100L Monday through 0100L Saturday (excluding federal holidays). The 110th Aviation Brigade (110th AB) will inform FRWXOPS of any weekend flying not later than 1600L by Thursday of each week, and a forecaster will be scheduled for overtime. In the event of weekend flying, FRWXOPS will coordinate the MEF publish time with the 110th AB S3 shop. Weather services will be provided by the 26 OWS whenever onsite forecasting services are not available.

(1) A meteorological technician is on call during non-duty hours and prepared to respond when recalled to implement SWAP described in paragraph 3-4f. Contact information will be provided to the 26 OWS to notify the on-call severe weather manager whenever a weather watch or warning is issued for Fort Rucker.

(2) Should onsite forecasting services not be available for aviation support, customers should call the 26 OWS for flight weather briefings (DSN 331-2651/2652/2653).

(3) For any other onsite forecasting support including major outdoor events (e.g., Freedom Fest) that are outside normal hours of operation, a written request should be made to FRWXOPS at least 14 calendar days in advance so overtime support can be coordinated.

b. FRWXOPS produces various forecasts to assist mission planning, training operations, and resource protection. FRWXOPS is responsible for mission execution forecasts (MEFs) and Department of Defense (DD) Form 175-1 (Flight Weather Briefings) for flights originating from Cairns AAF. FRWXOPS provides flight weather information to authorized aircrew members and pilots upon request. Flight weather briefing products are produced for display on the FRWXOPS homepage. FLATIRON search and rescue crews are supported on non-training missions as a priority service.

c. The 26 OWS produces the TAF for Cairns AAF, in addition to regional scale weather forecasts and analysis for the southeastern U.S. The 26 OWS, in conjunction with FRWXOPS, is responsible for resource protection in the form of weather watches, warnings, and advisories. FRWXOPS collaborates with the 26 OWS during the production of all products for Fort Rucker. The 26 OWS will continue these services when FRWXOPS forecasting services are not available, along with flight weather briefing support. In the event that the 26 OWS is unable to perform any of these services, FRWXOPS will act as a backup to 26 OWS. FRWXOPS provides “eyes forward” for the 26 OWS.

**3-2. FORECAST PRODUCTS.** The MEF and DD Form 175-1 are issued at the beginning of each flying period and valid until the end of that period. See paragraph 3-3b for issue times and valid times for each flying period. These products are primarily disseminated via the Fort Rucker LAN on the FRWXOPS homepage. In the event of a LAN outage, the MEF will be emailed to each operations section and posted to the official FRWXOPS Facebook and Twitter pages. Expect delays when the MEF must be disseminated using backup procedures.

a. MEF.

(1) The MEF primarily focuses on weather conditions affecting the USAACE local flight training areas and is tailored to specific criteria that impact local aviation operations. It contains a separate forecast for each of the six MEF forecast areas (see appendix G) within the USAACE local flying area and is amended or updated as required (see appendix H).

(2) The format of the MEF may change occasionally based on local requirements and feedback from aviators. However, the MEF will always contain the forecasted information below. All times on the MEF are in Zulu time, except as noted.

(a) Present weather such as precipitation or obstructions to visibility.

(b) Surface winds.

(c) Aviation hazards within 150 nautical miles (NM) such as LLWS, icing, or turbulence.

NOTE: Turbulence intensity in the MEF is for Category I aircraft (gross weight < 12,500 lbs).

(d) Thunderstorms and the amount of coverage. Coverage amounts are Isolated (1 percent-10 percent), Few (11 percent-25 percent), Scattered (26 percent-49 percent), and Numerous (> 50 percent).

(e) Sky condition (above ground level [AGL]).

(f) Flight level winds provided in 1,000-foot intervals from 1,000 feet to 8,000 feet. Wind data is valid for the midpoint of the flying period.

(g) Flight level temperatures (in degrees Celsius).

(h) Forecast maximum and minimum temperatures (in degrees Celsius) for the period for Cairns AAF and the local flying area.

(i) Forecast maximum PA and DA (in feet) for the period for Cairns AAF and the local flying area.

(j) Solar and lunar data, including end evening nautical twilight, sunrise, sunset, moonrise, moonset, percent of maximum lunar illumination, and lunar azimuth and elevation. These events are listed in local time. Lunar azimuth and elevation data is valid for 2100L.

(k) Any weather watches, warnings, or advisories that are in effect, or will be in effect, at any time during the period.

NOTE: Only weather watches, warnings, and advisories that affect flight operations will be included. The observed lightning warning/advisory and the heavy precipitation watch/warning will not be included.

(l) Time of issuance for any amendments or updates to the MEF.

(m) Planning data for the next period, which will include the forecast maximum temperature (in degrees Celsius) and PA (in feet) for Cairns AAF, along with a forecast of visual flight rules (VFR) or instrument flight rules (IFR) for each MEF forecast area.

(3) The MEF is continuously monitored for accuracy and amended as needed IAW the criteria listed in appendix H.

b. DD Form 175-1. The standard flight weather briefing is a DD Form 175-1. FRWXOPS produces a DD Form 175-1 for flights within 150 NM of Cairns AAF, including those filing IFR flight plans and cross-country flights. The DD Form 175-1 includes terminal weather for locations within 100 NM of Cairns AAF. During the AM and PM flying periods, a DD Form 175-1 Continuation Sheet is also produced with weather for locations outside 100 NM but within the Fort Rucker local flying area of 150 NM. These products are primarily disseminated via the Fort Rucker LAN on the FRWXOPS homepage. The DD Form 175-1 is posted to the homepage at the beginning of each period with valid times concurrent with the MEF. The DD Form 175-1 may not have information in all blocks, as it is available elsewhere. See appendix E for a breakdown of the DD Form 175-1. Sometimes, meteorological technicians will use all stops or all stations (A/S) within 100 NM rather than a list of individual location identifiers. Note that A/S refers to all stations within 100 NM of Cairns AAF when all forecast conditions are similar. If a customer requires a DD Form 175-1 for locations outside the local flying area or airfields not listed on the DD Form 175-1, contact the FRWXOPS meteorological technician for assistance. Meteorological technicians can provide these flight weather briefings over-the-counter, over the telephone, or via e-mail. For routine or scheduled flights, aircrews should submit their DD Form 175-1 request at least 2 hours prior to desired brief time for the timeliest service. Note that FRWXOPS will not provide a planning DD Form 175-1. FRWXOPS meteorological technicians perform other duties that take priority over routine weather briefings (see appendix A). This policy does not apply to emergency FLATIRON flights.

c. MEF/DD Form 175-1 Updates/Amendments. The MEF/DD Form 175-1 will be updated/amended IAW FRWXOPS's duty priorities (see appendix A) when it becomes evident that the forecast is not on target and the criteria of appendix H are met. When the MEF/DD Form 175-1 is amended, FRWXOPS will print copies for the students at Cairns AAF and post it to the FRWXOPS homepage. FRWXOPS will also issue a weather advisory to notify the Fort Rucker base field ATC agencies and operations of the change. Basefield control towers will ensure airborne crews within their control are notified. HUB Radio will contact all active stagefields, to include Molinelli Control Tower, Troy Control Tower, and all other airborne crews within HUB remote radio control. Furthermore, when the basefields' operations sections call for a weather void time, FRWXOPS will brief them on any amendments.

d. TAF. Every 8 hours, the 26 OWS produces a TAF for a 5 NM radius centered on Cairns AAF, valid for 30 hours. The 26 OWS and FRWXOPS will coordinate to ensure the TAF and the forecast for forecast area Goldfish are consistent. The TAF is available to ATC agencies via the JET display on the AAAS and to other customers via secure and non-secure hyperlinks on the FRWXOPS homepage.

### 3-3. FORECAST PRODUCT DISSEMINATION TO AIRCREWS.

a. The primary means of disseminating forecast products to aircrews is via the Fort Rucker LAN on the FRWXOPS homepage. The FRWXOPS homepage contains various products and links to products depicting current and forecast weather worldwide, to include radar imagery, satellite imagery, surface observations, and TAFs. All locally-generated products are also posted to the homepage. These local products are described below.

(1) A secure link to JET from the website provides access to current observations, TAFs, and all Fort Rucker watches, warnings, and advisories in effect.

(2) The AM, PM, and N1 MEFs are posted to the website at 0500 central daylight time (CDT) (0445 central standard time (CST)), 1045 CDT (1015 CST), and 1715 CDT (1630 CST). Between postings, the MEF will be amended or updated as appropriate, and the amendments or updates will be posted to the website.

(3) The AM, PM, and N1 DD Forms 175-1 are posted to the website at 0500 CDT (0445 CST), 1045 CDT (1015 CST), and 1715 CDT (1630 CST). Between postings, the DD Form 175-1 will be amended or updated as appropriate, and the amendments or updates will be posted to the website.

(4) MEF/DD Form 175-1 amendments, along with weather watches, warnings, and advisories, are also disseminated via the Fort Rucker weather mobile application and Facebook/Twitter accounts. This additional networking capability helps reach as many people as possible in a short amount of time. Customers can configure Facebook to receive e-mails when products are posted, while Twitter can be set up to receive text messages. The mobile application can be used on any smart phone to gather pertinent weather data on the go. The scrolling banner quickly alerts customers to important changes.

(5) The WIF on 348.8 broadcasts a continuous recorded loop containing the details of all MEF amendments. If there are no MEF amendments, meteorological technicians will update the WIF hourly with a new void time and initials. The WIF is updated during USAACE flying hours.

(6) Climatology data for Cairns AAF, Hanchey AHP, Lowe AHP, and Shell AHP is available on the FRWXOPS website.

(7) The 7-day outlook is posted to the website every Monday, Wednesday, and Friday morning, normally NLT 1000L. This product is for planning purposes only.

(8) Night vision goggle information is posted to the website every Monday morning for the next week. Additionally, a 30-day illumination planning chart is posted.

(9) Hurricane information may also be found on the website when a storm is threatening. Updates will be posted every 6 hours in the Hurricane Central section.

b. Briefing Schedule. The issue times and valid times of forecast products for each period are as follows:

- (1) AM Period (CDT): Issued at 0500L; valid 0630L-1300L  
AM Period (CST): Issued at 0445L; valid 0630L-1300L
- (2) PM Period (CDT): Issued at 1045L; valid 1300L-1930L  
PM Period (CST): Issued at 1015L; valid 1300L-1930L
- (3) N1 Period (CDT): Issued at 1715L; valid 1930L-0230L  
N1 Period (CST): Issued at 1630L; valid 1930L-0230L

c. Backup Procedures. The primary means of receiving aviation weather forecasts is via the Fort Rucker LAN on the FRWXOPS aviation homepage. In the event that the webpage is nonoperational, FRWXOPS meteorological technicians will email the MEF and DD Form 175-1 to the Base Operations section of each basefield and posted to the official FRWXOPS Facebook and Twitter pages. Base Operations is responsible for disseminating the flight weather briefing to those sections without access to the data. Expect delays when the MEF must be disseminated using backup procedures.

**3-4. RESOURCE PROTECTION PRODUCTS.** The 26 OWS and FRWXOPS issue weather watches, weather warnings, terminal weather advisories (TWAs) (forecast and observed), and area weather advisories (AWAs) (forecast and observed). All watches, warnings, and advisories are issued IAW AFMAN 15-129, Volume 1, Air and Space Weather Operations – Characterization, 6 December 2011, incorporating Change 1, 21 March 2017. See appendix D for weather watch, warning, and advisory criteria. Post officials and aviators can use these products to make informed risk decisions about resource protection and flight training operations.

a. Weather Watches. The 26 OWS issues forecast weather watches for a 60 NM radius centered on Cairns AAF. Weather watches alert post agencies to the potential for severe or hazardous weather to occur within 60 NM of Cairns AAF. The 26 OWS issues a forecast weather watch for lightning potential within a 15 NM radius centered on Cairns AAF. The 26 OWS also issues a forecast lightning watch for a 5 NM radius centered on Troy MAP during duty hours. The 26 OWS will cancel a watch when the potential for the condition for which it was issued no longer exists or when upgraded to a weather warning, if required.

b. Weather Warnings. The 26 OWS issues forecast weather warnings for a 15 NM radius centered on Cairns AAF. FRWXOPS issues observed weather warnings (e.g., observed lightning within 5 NM) for Cairns AAF. The 26 OWS issues forecast and observed weather warnings for a 5 NM radius centered on Troy MAP during duty hours, along with observed lightning warnings for a 5 NM radius centered on Hanchey AHP, Knox AHP, Lowe AHP, Shell AHP, and Molinelli FARP. Weather warnings alert post agencies to the occurrence or imminent



occurrence of severe or hazardous weather conditions requiring specific actions to ensure safety of flight, life, and/or property. Only one weather warning will be in effect for a particular site at any time. The exception is the lightning warning; while in effect, another warning may also be in effect. The 26 OWS forecaster will cancel a weather warning when the condition for which it was issued no longer exists. The FRWXOPS meteorological technician will cancel the lightning warning when lightning is no longer observed within 5 NM of Cairns AAF.

c. Weather Advisories. The 26 OWS and FRWXOPS issue observed and forecast TWAs and AWAs. Weather advisories alert post agencies to weather conditions which could affect flight operations or post support. Forecast weather advisories are issued when the conditions within the advisory are expected to occur within the valid times of the advisory. Depending on the criteria, these advisories may be issued by the 26 OWS or FRWXOPS. Observed weather advisories are issued when the condition is first observed within the specified area. Observed weather advisories are issued by FRWXOPS and valid until the condition is no longer occurring. The only exceptions are advisories issued for specific flying periods. N1 advisories will expire or be canceled at the end of the flying period even if the conditions are still occurring. Low instrument flight rules (LIFR) advisories are issued during AM and PM periods and will expire or be canceled at the end of the PM flying period even if the conditions are still occurring.

(1) TWAs. These advisories alert post agencies to the occurrence or forecast of weather within 15 NM of Cairns AAF potentially affecting flight operations or post support.

(2) AWAs. These advisories alert post agencies to the occurrence or forecast of weather within 60 NM of Cairns AAF potentially affecting flight operations.

d. Dissemination of Watches, Warnings, and Advisories. All watches, warnings, and advisories are disseminated to ATC agencies at Cairns AAF, Hanchey AHP, Lowe AHP, and Shell AHP through the JET via the AAAS. Non-ATC customers may access watches, warnings, and advisories via a secure hyperlink to JET on the FRWXOPS homepage. For all watches, warnings, and advisories issued or canceled by FRWXOPS, follow-up telephone calls are made to certain customers, depending on the criteria of the watch, warning, or advisory. During duty hours, FRWXOPS will notify Cairns AAF Base Operations telephonically to confirm receipt of any watch, warning, or advisory that is issued. During duty hours, FRWXOPS will notify IOC telephonically to confirm receipt of any watch or warning that is issued. Additionally, the IOC is notified via e-mail when any watch, warning, or advisory is issued.

e. Backup Dissemination of Watches, Warnings, and Advisories. In the event of a local JET outage, the 26 OWS will issue all watches, warnings, and advisories that FRWXOPS would normally issue. When complete JET dissemination capabilities are lost, FRWXOPS will locally disseminate all watches, warnings, and advisories via the red weather phone. Watches, warnings, and advisories may also be obtained from the MEF/DD Form 175-1 on the FRWXOPS homepage as well as the WWA PPT located on the aviation webpage.

f. SWAP. These procedures are in place to ensure sufficient personnel are available to augment automated weather sensors and to collaborate and partner with the 26 OWS to monitor and manage potential/actual severe weather events and meteorological/operational

events critical to mission success. For the purposes of these procedures, severe weather is defined as any weather phenomenon considered critical enough by the customer to require advance/special notice and subsequent actions to prevent serious injury or damage to personnel, property, or resources. It is imperative that timely and accurate weather watches, warnings, and advisories are disseminated to all Fort Rucker agencies to ensure personnel and resource protection. FRWXOPS will perform SWAP responsibilities as defined in AFMAN 15-129, Volume 2, Air and Space Weather Operations – Exploitation, 7 December 2011, incorporating Air Combat Command Supplement, 6 August 2013.

(1) Activation. SWAP will be activated when any of the following occur: a severe thunderstorm or tornado watch is issued for the local flying area; a tornado,  $\geq$  45-knot wind,  $\geq$  1/2-inch hail, freezing precipitation, or snow warning is issued for Cairns AAF; or a hurricane or tropical storm is forecast to affect the area.

(2) Notification. During FRWXOPS operating hours, the on-duty meteorological technician will implement SWAP by notifying the on-call severe weather manager. The on-duty meteorological technician will coordinate with the on-call severe weather manager to determine the level of support required. The on-call severe weather manager will report to the weather station when it appears severe weather is imminent and will, time permitting, conduct a meteorological conference with the 26 OWS forecaster/regional weather supervisor. The on-call severe weather manager will remain at the weather station until the watch or warning is canceled or it is determined the threat has passed. During non-duty hours, the on-call severe weather manager will be contacted by the 26 OWS and report to the weather station. Upon arrival at the weather station, the on-call meteorological technician will partner with the 26 OWS to monitor and manage the weather threat when any of the conditions in the preceding paragraph occur and remain at the weather station until the watch or warning is canceled or it is determined the threat has passed. The on-call meteorological technician will contact the IOC upon arriving at and departing the weather station.

(3) Severe Weather Reporting Procedures. FRWXOPS will provide a significant event report via e-mail to the 18 WS, ACC, 26 OWS, IOC, and USAACE G3 for any weather-related casualties, injuries, property damage, and/or significant impact to operations.

(4) Severe Weather Summary Content. The significant event report will include the following information: executive summary; relevant observations +/- 1 hour of the event; TAF; MEF; forecast hazards, watches, warnings, and advisories with lead times/timing errors; damage/casualty assessment and cost estimates if known; weather discussion, and status of equipment. Significant event reports are normally distributed the same day or within 24 hours of the event unless it occurs over the weekend or on a holiday, in which case the report is distributed the next staff duty day.

**3-5. OTHER FORECAST SERVICES.** FRWXOPS provides the following forecast products and services in addition to those previously described:

a. Hurricane Support. When a hurricane threatens the Gulf Coast or upon initial notification from the IOC, Cairns AAF meteorological technicians begin providing post leadership with tropical updates via the FRWXOPS homepage and via e-mail to the IOC four

times daily. These updates will contain the following information: storm name; date/time; if/when Fort Rucker will be impacted within the next 72 hours; how Fort Rucker will be impacted within the next 72 hours; onset/duration of 50-knot sustained winds; time of maximum winds at Fort Rucker; onset of precipitation at Fort Rucker, and total rainfall expected at Fort Rucker. A graphic showing the current storm position, storm information block, 5-day storm track, and wind swath will also be posted. NOTE: Per Air Force policy, FRWXOPS will not deviate from official forecasts issued by the 26 OWS's Tropical Cyclone Threat Assessment Products and the National Hurricane Center (NHC). The updates will be posted and e-mailed as soon as storm information is updated by the 26 OWS and NHC (normally by 0445L, 1045L, 1645L, and 2245L). Visit the website <http://www.rucker.army.mil/6weather/hurr.htm> and select "Hurricane Briefing Update" in the Hurricane Central section. Additionally, FRWXOPS will provide a brief to the IOC when the Battle Staff convenes or as requested. Aircraft evacuation planning/mission forecasts will be produced as needed. FRWXOPS will provide a significant event report via e-mail to the 18 WS, ACC, 26 OWS, IOC, and USAACE G3 if aircraft are evacuated due to a storm.

b. PMSV Support. PMSV support is available at Cairns AAF from 0100L Monday through 0100L Saturday (excluding federal holidays). The frequency is 134.1 KHz on the VHF channel. Meteorological technicians will provide requested forecast support and solicit PIREPs from all airborne aircrews. In the event of a PMSV outage and during non-duty hours, aircrews should utilize pilot to dispatch radio on 371.35 MHz (UHF) and 126.2 KHz (VHF). A notice to airmen (NOTAM) will be coordinated with USAACE G3 in the event of a lengthy PMSV outage.

c. Aircraft Mishaps/Incidents. Weather information for aircraft mishaps (Class A, B, or CB) or incidents within 60 NM of Cairns AAF is available upon request from an authorized agency. Upon notification of an aircraft mishap, FRWXOPS will coordinate with the 26 OWS to perform a data save and prepare a preliminary weather summary containing the observed and forecast weather in the area at the time of the accident. These weather summaries are prepared and disseminated to the appropriate unit's safety office as soon as possible. FRWXOPS will provide a significant event report via e-mail to the 18 WS, ACC, 26 OWS, IOC, and USAACE G3 for any weather-related aircraft mishap. It is important to notify FRWXOPS immediately of a suspected Class A, B, or C incident, as certain data is perishable.

d. 7-Day Outlook. FRWXOPS will provide a 7-day outlook every Monday, Wednesday, and Friday, normally NLT 1000L. The outlook will be posted to the FRWXOPS homepage.

NOTE: This product is for planning purposes only and does not meet requirements for a flight weather briefing or MEF.

e. Weekend Flying Planning Forecast. FRWXOPS will issue a weather (Go/No Go) planning forecast by 1400L Thursday and again at 0700L Friday if USAACE weekend flying is scheduled. 110th AB will include FRWXOPS in weekend flight planning correspondence.

f. Semiannual Weather Briefings. Briefings highlighting weather patterns and unique hazards for each season are available upon request. Requests for semiannual briefings should be made at least 3 days in advance, if possible. When FRWXOPS personnel present briefings to groups, it is the responsibility of the unit requesting the briefing to have a computer with PowerPoint and a projector available for the briefer.

g. Presidential Weather Support. Presidential weather support will be provided IAW Air Force directives.

h. Staff Weather Briefings. Weather risk discussions are provided to senior leaders through the IOC whenever significant weather threatens the Fort Rucker area. In-person weather briefings are given to the command group, battle staff, and other staffs upon request.

i. Pre-deployment Planning Support. Upon request, FRWXOPS will provide weather planning information and climatology data to any Fort Rucker agency or unit preparing for deployment. Requests should be submitted at least 1 week in advance, as some data may take time to research and collect.

j. Climatological Services. Climatological studies and information are available upon request. Climatology for Cairns AAF, Hanchey AHP, Lowe AHP, and Shell AHP is provided on the FRWXOPS homepage. Requests for additional data should be made with a minimum of 3 days' notice. Due to their complex nature, some requests for climatology must be submitted to the Climate Service Center at the 14th Weather Squadron. Such requests may take longer to complete.

k. ATC Weather Training. FRWXOPS provides initial and recurring training on limited observing procedures to all ATC personnel using Land War Net e-University, the Army's web-based sustainment training capability. This training includes Fort Rucker unique CWW requirements. FRWXOPS maintains the training material, while the individual training at each location is managed by the ATC location.

l. OWS Briefing Responsibilities. Time and mission permitting, FRWXOPS will provide weather briefings to transient aircrews. Otherwise, transient aircrews may contact the 26 OWS for weather support.

m. Emergency/Crisis Action Response. FRWXOPS will provide emergency/crisis action response such as weather information and/or briefing support as requested. This includes weather subject matter expertise during chemical, biological, radiological, nuclear, and high-yield explosive operations.

n. Ranger/Tomahawk Fury Briefings. For Ranger and Tomahawk Fury missions, FRWXOPS will provide planning weather (PPT slides), a DD Form 175-1 on the day of the mission, and in-person briefing support as requested. Requests for planning weather, DD Form 175-1, and in-person briefing should be made to management at least 3 days in advance. FRWXOPS will not provide a DD Form 175-1 for planning purposes.

**3-6. FORECAST PRODUCT LIMITATIONS.** The following forecast product limitations should be considered:

a. Generally, forecast accuracy decreases as the length of the forecast term increases. Additionally, if the weather station loses capabilities for a period of time (e.g., communications outage, weather station evacuation, etc.), forecast accuracy worsens as weather information becomes obsolete and no updated information is available to forecasters. Forecast performance metrics are available upon request.

b. Meteorological technicians cannot always provide forecasting service on a first-come, first-served basis, or they may be unable to quickly handle every request for weather service during periods of adverse weather or heavy workloads. FRWXOPS's duty priority list, provided in appendix A, ensures tasks are performed according to their importance using a risk management approach.

## CHAPTER 4

### RECIPROCAL SUPPORT AND RESPONSIBILITIES

4-1. **FRWXOPS ROLES AND RESPONSIBILITIES.** FRWXOPS accomplishes the following tasks:

- a. Provide the weather forecasting and observing services described in chapters 2 and 3 and appropriate appendixes of this regulation.
- b. Notify the IOC upon opening and closing operations.
- c. Provide peacetime weather support to Army Reserve components assigned to Fort Rucker, using products and procedures described in this regulation.
- d. Submit a weather summary or significant event report to the IOC and 18 WS whenever a severe weather-related mishap or aircraft accident occurs.
- e. Notify Cairns AAF Base Operations of all PMSV outages and returns to service. Since FRWXOPS does not have the ability to conduct a daily radio check, FRWXOPS will use the first PMSV contact of the day as a radio check and so document.
- f. Provide ATC weather support.
  - (1) FRWXOPS will provide initial and recurring training on limited observing procedures to ATC personnel on its Blackboard ATC Wx Course at [https://sigcoe.llc.army.mil/webapps/blackboard/content/listContentEditable.jsp?content\\_id= 519271\\_1&course\\_id= 2810\\_1&mode=cpview](https://sigcoe.llc.army.mil/webapps/blackboard/content/listContentEditable.jsp?content_id= 519271_1&course_id= 2810_1&mode=cpview).
  - (2) Establish a CWW with 1-11th Avn Regt personnel.
- g. Upon request, provide assistance to investigating officials reviewing Fort Rucker aircraft mishaps.
- h. Notify the USAACE G3 Air, of any limitations in providing weather support and provide information in order to update the NOTAMs and DOD flight information publications (FLIP) accordingly.
- i. Release weather information to DOD agencies upon request (see paragraph 1-6).
- j. Coordinate with the 26 OWS on all issues related to weather support provided to Fort Rucker by the 26 OWS.
- k. Conduct a monthly tornado siren test when directed by the IOC.
- l. Operate the tornado siren during duty hours.

4-2. **FORT RUCKER ACTIVITY REQUIREMENTS.** FRWXOPS requires support from various units assigned to Fort Rucker.

a. USAACE G3 will:

- (1) Inform the site supervisor, in writing, of any weather support requirement changes.
- (2) Provide the site supervisor and other FRWXOPS personnel access to all plans that require or impact weather support.
- (3) Notify the site supervisor if an alert or contingency requires weather support.
- (4) Notify the site supervisor at least 7 days in advance if an exercise requires weather support.
- (5) Budget funds for the support of FRWXOPS as prescribed in AR 115-10.
- (6) Submit changes in weather operations (e.g., PMSV frequencies or operating hours) to DOD FLIP and NOTAMs.
- (7) Provide administrative support.

b. Directorate of Plans, Training, Mobilization, and Security (DPTMS) will:

- (1) Disseminate weather watches, warnings, and advisories through the IOC IAW the Fort Rucker All Hazards Installation Protection Plan, appendix H (Weather Plan).
- (2) Promptly report significant events that involve FRWXOPS services or reports of damage caused by a weather event.
  - (a) Coordinate with FRWXOPS prior to submitting a report concerning such events.
  - (b) Include ACC LANGLEY AFB VA in message reports, with information copies to A3W LANGLEY AFB VA//DIW//.
  - (c) Provide FRWXOPS an information copy of any command-level event or incident report that involves weather.
- (3) Relay EMERGENCY ACTIONS MESSAGES which affect the post to FRWXOPS.
- (4) Notify FRWXOPS of all force protection condition changes.
- (5) Coordinate with FRWXOPS to conduct a monthly tornado siren test.

c. The 1-11th Avn Regt will—

(1) Conduct a CWW at all ATC facilities. Notify the weather station when the following occur:

(a) Winds  $\geq$  25, 35, or 50 knots occur at any basefield or stagefield with wind measurement capability.

(b) There are significant weather phenomena, such as fog or thunderstorms that may affect flight operations.

(c) Cairns AAF tower will notify the weather station when tower visibility is  $<$  4 SM and different from the visibility reported on the current Cairns AAF observation (i.e., the surface visibility).

(d) Hanchey AHP, Lowe AHP, and Shell AHP towers will notify the weather station when their ceiling is  $\leq$  1,000 feet and/or visibility  $\leq$  3 SM and different from the observation at Cairns AAF.

(e) Hanchey AHP, Lowe AHP, and Shell AHP towers will notify the weather station if a cloud ceiling forms below, decreases to less than, or, if below, increases to equal or exceed 500 feet. Additionally, notify the weather station when visibility decreases to less than or, if below, increases to equal or exceed 1/2 SM.

(f) Relay all PIREPs received to weather personnel within 5 minutes. If air traffic responsibilities cause delays beyond 5 minutes, relay as soon as possible. It is very important to relay local PIREPs and any occurrence of previously unreported weather conditions that could affect flight safety, or be critical to the safety and efficiency of other local operations and resources.

(2) Disseminate weather watches, warnings, and advisories and any other significant information IAW the Fort Rucker All Hazards Installation Protection Plan, appendix H (Weather Plan).

(3) Maintain the PMSV Radio and monitor it during short-duration outages. Provide a radio check upon request.

(4) ATC tower personnel at Cairns AAF, Hanchey AHP, Lowe AHP, and Shell AHP will notify the weather station upon opening and closing. Cairns AAF tower will provide the active runway upon opening the airfield and changing runways and inform the weather station of the current runway light setting upon opening, closing, or changing the light setting.

(5) Provide orientation tours of ARAC and ATC operations to newly assigned weather personnel upon request.

(6) Notify the weather station of meteorological equipment outages, communications outages, and aircraft mishaps. Provide the weather station a copy of the initial mishap report upon request or when a Class A, B, or C accident occurs.



(7) ARAC/HUB will relay PIREPs, weather watches, warnings, and advisories, and weather reports to and from all basefields, stagefields, and airborne aircraft.

(8) HUB Radio will relay all MEF amendments to all active stagefields (including Molinelli Tower) and airborne crews.

(9) Provide backup radar support upon request.

d. 110th AB will notify FRWXOPS, in writing, of:

(1) Additional briefing or weather services needed due to changing aircraft or training requirements.

(2) Weekend flight training activities by 1600L Thursday. Include a courtesy copy of any weekend flight training coordination that takes place during the week leading up to Thursday at 1600L.

e. Army Reserve components will notify FRWXOPS when:

(1) Weather or weather service may be a factor in a Class A, B, or C mishap being investigated.

(2) Flying is planned for the weekend.

f. Cairns AAF Operations will relay all MEF amendments to Cairns AAF tower, Hanchey AHP/Knox AHP/Lowe AHP/Shell AHP/FLATIRON Operations, and HUB Radio.

g. FRWXOPS personnel require support from various agencies at Fort Rucker to complete official duties and provide for unit members' quality of life. All requirements concerning Fort Rucker responsibilities with regard to training, operations, communications, administration, budget, and logistics are outlined in AR 115-10. Units providing support services to FRWXOPS include, but are not limited to, the following:

(1) The Network Enterprise Center (NEC) provides telephone/communication lines, and communications/administrative support, and computer network services (LAN access and e-mail accounts). The NEC provides commercial, long distance, and DSN telephone access. NEC technicians repair FRWXOPS network capability 24 hours a day, 7 days a week, at a priority just below that given to airfield NAVAIDS and the IOC's communications capabilities.

(2) The Logistics Readiness Center-Rucker provides Government vehicles and refuel generators.

(3) The Directorate of Public Works (DPW) provides and maintains FRWXOPS facilities (at Cairns AAF and the weather radar facility in Echo, AL – building 81001) and restores/maintains backup generators at high priority.

(4) NAVAIDS maintains/repairs the PMSV Radio and WIF of FRWXOPS.

h. Each Fort Rucker agency and tenant unit will—

(1) Provide FRWXOPS feedback on its forecasting, observing, and training products and services.

(a) Aviation customers will debrief IAW locally established policies and procedures. Weather information from the debriefing will be routed to the weather station through local communication channels (e-mail).

(b) All non-aviation customers may use a Fort Rucker Weather Operations Customer Satisfaction Survey to tell FRWXOPS how satisfied they are with various products and services. This form may be found on the FRWXOPS webpage.

(2) Review weather support requirements at least annually. Notify FRWXOPS through USAACE G3 when changes are required.

(3) Notify the NEC whenever an LAN-related outage occurs affecting weather support.

(4) (All aviators) Pass significant flight weather information to FRWXOPS via HUB, PMSV, ATC, Base Operations, or telephone.

(5) Notify FRWXOPS when weekend flying is planned.

The proponent agency of this regulation is Air Division, USAACE G3. Users are invited to send comments and suggested improvements to the CG, USAACE, ATTN: ATZQ-OPA, Fort Rucker, AL 36362-5105.

FOR THE COMMANDER:

BRIAN T. HUGHES  
Colonel, AV  
Chief of Staff

OFFICIAL:



LYNN R. LOTT  
Director of Human Resources

Appendixes  
A-J

## APPENDIX A

### WEATHER STATION DUTY PRIORITIES

FRWXOPS provides weather support on a priority basis to ensure tasks are performed in the order of their importance. Tasks are accomplished with the following priority as a guide unless the meteorological technician's operational risk management assessment dictates otherwise:

1. Operate tornado siren.
2. Execute weather station evacuation.
3. Respond to aircraft and ground emergencies (i.e., aircraft emergencies and mishaps, accidental release of toxic chemicals, or any operation involving the safety of aircraft, materiel, or personnel).
4. Respond to PMSV contacts.
5. Respond to telephone HOTLINES (FLATIRON medical evacuation [MEDEVAC] missions, ARAC, Cairns AAF, Hanchey AHP, Lowe AHP, HUB, IOC).
6. Augment and disseminate FMQ-19 observations for mandatory items.
7. Provide "eyes forward"/collaborate with the 26 OWS.
8. Disseminate weather watches, warnings, and advisories.
9. Perform SWAP duties.
10. Relay urgent PIREPs and air reports (AIREPs) to the 26 OWS.
11. Prepare and transmit MEFs.
12. Disseminate PIREPs and AIREPs.
13. Perform MISSIONWATCH activities.
14. Respond to other telephones (non-HOTLINES).
15. Provide flight weather briefings to local aircraft departing Cairns AAF.
16. Provide assistance to transient aircraft departing Cairns AAF.
17. Provide weather function training.
18. Provide other briefing support.
19. Accomplish administrative tasks.

## APPENDIX B

### SPECI CRITERIA (CAIRNS AAF)

1. Ceilings: The ceiling is observed to form below, decrease to less than, or, if below, increase to equal or exceed:

- 3,000 feet (AFMAN 15-111)
- 2,000 feet (AFMAN 15-111)
- 1,500 feet (AFMAN 15-111)
- 1,000 feet (AFMAN 15-111)
- 800 feet (AFMAN 15-111)
- 700 feet (AFMAN 15-111)
- 600 feet (DOD FLIP)
- 500 feet (AFMAN 15-111 and DOD FLIP)
- 400 feet (DOD FLIP)
- 300 feet (AFMAN 15-111 and DOD FLIP)
- 200 feet (AFI 13-204, Volume 3, Airfield Operations Procedures and Programs, 1 September 2010, with Corrective Actions applied on 3 May 2018, and DOD FLIP)

2. Sky Condition: A layer of clouds or obscuring phenomena aloft is observed 600 feet or below and no layer was reported in a previous METAR or SPECI (AFMAN 15-111).

3. Prevailing visibility is observed to decrease to less than or, if below, increase to equal or exceed:

- 3 SM (AFMAN 15-111)
- 2 SM (AFMAN 15-111, AFI 13-204, Volume 3, and DOD FLIP)
- 1 1/2 SM (AFMAN 15-111 and DOD FLIP)
- 1 1/4 SM (DOD FLIP)
- 1 SM (AFMAN 15-111 and DOD FLIP)
- 3/4 SM (DOD FLIP)
- 1/2 SM (AFI 13-204, Volume 3, and DOD FLIP)
- 1/4 SM (AR 95-1, Flight Regulations, 22 March 2018)

4. A tornado or funnel cloud is observed or disappears from sight (single element SPECI) (AFMAN 15-111).

5. Precipitation begins or ends.

NOTE: Unless noted below, a SPECI is not required for changes in type or the beginning or ending of one type while another is in progress (AFMAN 15-111).

6. Freezing precipitation begins, ends, or changes intensity (AFMAN 15-111).

7. Ice pellets begin, end, or change intensity (AFMAN 15-111).

8. Thunderstorms begin or end (AFMAN 15-111).

9. Squall: Speed increases 16 knots and is  $\geq 22$  knots for at least 1 minute (AFMAN 15-111).
10. Hail begins or ends (AFMAN 15-111).
11. Wind Shift: When the direction changes by 45 degrees or more in less than 15 minutes with sustained winds (or gusts) of 10 knots or more throughout the shift (AFMAN 15-111).
12. Upon Resumption of Observing Function (only when supplementing or operating in backup mode): Take a SPECI within 15 minutes of returning following a break in coverage.
13. Aircraft Mishap (ACFT MSHP) (only when the FMQ-19 archive capability is not operating or when operating in backup mode): Include ACFT MSHP in the remarks section of Air Force (AF) Form 3803 (Surface Weather Observations [METAR/SPECI]) or AF Form 3813 (Federal Meteorological Surface Weather Observations [METAR/SPECI]) but do not disseminate the remark.
14. RVR decreases to less than or, if below, increases to equal or exceed:
  - 2,000 feet (AFMAN 15-111)
  - 2,400 feet (AFMAN 15-111 and DOD FLIP)
  - 4,000 feet (DOD FLIP)
  - 5,000 feet (AFMAN 15-111 and DOD FLIP)
  - 6,000 feet (AFMAN 15-111 and DOD FLIP)

RVR conditions (Runway 06 only) are unavailable (RVRNO), first determined, or RVRNO is no longer applicable.

Prevailing visibility is first observed to be  $\leq 1$  SM and again when prevailing visibility goes above 1 SM.

NOTE: RVR is only reported long line for Runway 06, when active.

15. Tower Visibility: When notified by ATC that tower visibility has decreased to less than or, if below, increased to exceed 1, 2, or 3 SM and the tower visibility differs from the prevailing visibility.

## APPENDIX C

### FMQ-19 AUGMENTATION PARAMETERS

1. On 13 June 2007, the FMQ-19 automated observing system was commissioned, thereby transitioning Cairns AAF from a manual reporting station to an automated reporting station. IAW Air Force directives, the FMQ-19 must remain in AUTO mode at all times unless the meteorological technician is performing augmentation for criteria listed in AFMAN 15-111. Augmentation consists of supplementing and/or backing up. Supplementing is the process of manually adding data to an observation generated by an automated surface weather observing system that is beyond that system's capability to measure and report. Backing up is the process of manually providing meteorological data, documentation, and/or communication of an automated weather observation when the primary automated method is unavailable or unrepresentative. All manually observed elements will be observed from the weather station's backup observation point. The meteorological technician is responsible for ensuring the validity of all augmented data. Augmentation will not normally occur when the weather station is closed unless tornadic activity is occurring or forecast to occur.
2. The following elements will be supplemented (AFMAN 15-111):
  - a. Tornado, funnel cloud, or waterspout.
  - b. Volcanic ash.
  - c. Hail.
  - d. Ice pellets.
  - e. Dust storm or sandstorm.
  - f. Snow depth.
3. The following is a list of the most commonly used mandatory parameters of the FMQ-19 (and equipment used) which will be backed up when conditions impact operations based on criteria in appendixes H, I, and J:
  - a. Wind speed and direction (Kestrel 5500).
  - b. Visibility (meteorological technician and visibility chart).
  - c. Present weather elements and obscurations (meteorological technician).
  - d. Sky cover, up to and including 12,000 feet (meteorological technician, Skew-T, local observations).
  - e. Temperature/dew point (Kestrel 5500).
  - f. Altimeter setting (Kestrel 5500).

- g. Lightning location (AFW-WEBS, OWS TAF Manager, Allison House).
- h. Layer of clouds or obscuring phenomena aloft observed at or below 600 feet SPECI (meteorological technician, Skew-T, local observations).
- i. Other remarks.
- j. Additive data.

## APPENDIX D

### WEATHER WATCH/WARNING/ADVISORY CRITERIA

- Forecast Weather Watch Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.1 - Forecast Weather Watch Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Tornado	As potential warrants
Severe Thunderstorm: winds $\geq$ 45 knots and/or hail $\geq$ 1/2 inch	As potential warrants
Damaging Winds $\geq$ 45 knots	As potential warrants
Heavy Rain ( $\geq$ 2 inches in 12 hours)	As potential warrants
Snowfall $\geq$ 1/2 inch accumulation	As potential warrants
Freezing Precipitation	As potential warrants
Lightning within 15 NM	60 minutes

NOTE: Unless otherwise noted, weather watches are issued for a 60 NM radius around Cairns AAF.

- KTOI Forecast Weather Watch Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.2 - Forecast Weather Watch Criteria and Desired Leadtime (KTOI)</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Lightning within 5 NM	30 minutes

- Forecast Weather Warning Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.3 - Forecast Weather Warning Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Tornado	5 minutes
Severe Thunderstorm: winds $\geq$ 45 knots and/or hail $\geq$ 1/2 inch	60 minutes
Moderate Thunderstorm: winds 30-44 knots and/or hail $<$ 1/2 inch	60 minutes
Damaging Winds $\geq$ 45 knots	60 minutes
Strong Winds 30-44 knots	60 minutes
Freezing Precipitation	60 minutes
Heavy Rain $\geq$ 2 inches in 12 hours	60 minutes
Snowfall $\geq$ 1/2 inch accumulation	60 minutes

NOTE: Forecast warnings are issued for a 15 NM radius around Cairns AAF.



4. KTOI Forecast Weather Warning Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.4 - Forecast Weather Warning Criteria and Desired Leadtimes (KTOI)</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Tornado	5 minutes
Severe Thunderstorm: winds $\geq$ 45 knots and/or hail $\geq$ 1/2 inch	60 minutes
Damaging Winds $\geq$ 45 knots	60 minutes

NOTE: Forecast warnings are issued for a 5 NM radius around Troy MAP during ATC duty hours at Troy only.

5. Observed Weather Warning Criteria (issued by FRWXOPS with the 26 OWS as a backup).

<b>Table D.5 - Observed Weather Warning Criteria and Desired Leadtime</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Lightning within 5 NM	Observed

NOTE: Observed warnings are issued for a 5 NM radius around Cairns AAF.

6. KTOI Observed Weather Warning Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.6 - Observed Weather Warning Criteria and Desired Leadtime</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Lightning within 5 NM	Observed

NOTE: Observed warnings are issued for a 5 NM radius around Troy MAP during ATC duty hours at Troy only.

7. Forecast AWA Criteria (issued by FRWXOPS with the 26 OWS as a backup).

<b>Table D.7 - Forecast AWA Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Forecast Predominant IFR conditions (< 1000/3) within 60 NM during the N1 flying period	60 minutes
Forecast IFR conditions associated with thunderstorms within 60 NM during the N1 flying period	60 minutes
Forecast Predominant LIFR conditions (< 500/1) within 60 NM during the AM and/or PM flying period	30 minutes
Forecast severe or greater TURBC within 60 NM (below 10,000 feet)	60 minutes
Forecast icing (any type/amount) within 60 NM (below 10,000 feet)	60 minutes

NOTE: Forecast AWAs are issued for a 60 NM radius around Cairns AAF.

8. Observed AWA Criteria (issued by FRWXOPS with the 26 OWS as a backup).

<b>Table D.8 - Observed AWA Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Winds $\geq$ 20 knots observed within 60 NM (not associated with thunderstorms)	Observed
Moderate or greater TURBC observed within 60 NM (below 10,000 feet)	Observed
LLWS observed within 60 NM (below 2,000 feet)	Observed
Falling snow occurring at or below 2,000 feet	Observed
IFR conditions ( $<$ 1000/3) observed within 60 NM during the N1 flying period	Observed
Cig/Vis $\leq$ 1500/5 observed in Goldfish during the N1 flying period	Observed

NOTE: Unless otherwise noted, observed AWAs are issued for a 60 NM radius around Cairns AAF.

9. Forecast TWA Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.9 - Forecast TWA Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Temperature $\leq$ 0 degrees Celsius for $\geq$ 5 hours	60 minutes
Temperature $\leq$ -6 degrees Celsius	60 minutes

NOTE: Forecast TWAs are issued for a 15 NM radius around Cairns AAF.

10. Forecast TWA Criteria (issued by FRWXOPS with the 26 OWS as a backup).

<b>Table D.10 - Forecast TWA Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Forecast Predominant IFR conditions ( $<$ 1000/3) within 15 NM during the N1 flying period	60 minutes
Forecast IFR conditions associated with thunderstorms within 15 NM during the N1 flying period	60 minutes
Forecast Predominant LIFR conditions ( $<$ 500/1) within 15 NM during the AM and/or PM flying period	30 minutes

NOTE: Forecast TWAs are issued for a 15 NM radius around Cairns AAF.

11. Observed TWA Criteria (issued by FRWXOPS with the 26 OWS as a backup).

<b>Table D.11 - Observed TWA Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Gust Spread $\geq$ 15 knots	Observed
Lightning observed within 10 NM	Observed
$\geq$ 25-knot crosswind	Observed
IFR conditions (< 1000/3) observed within 15 NM during the N1 flying period	Observed

NOTE: Unless otherwise noted, observed TWAs are issued for a 15 NM radius around Cairns AAF.

12. Observed Weather Warning Criteria for basefields (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.12 - Observed Weather Warning Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Lightning within 5 NM of Hanchey AHP	Observed
Lightning within 5 NM of Knox AHP	Observed
Lightning within 5 NM of Lowe AHP	Observed
Lightning within 5 NM of Shell AHP	Observed
Lightning within 5 NM of Molinelli FARP	Observed

NOTE: Observed warnings for Molinelli FARP are only required during its operating hours, 0800L-0100L, Monday through Friday. Observed warnings for the basefields are required 24/7.

13. Observed Weather Advisory Criteria for basefields (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.13 - Observed Weather Advisory Criteria and Desired Leadtimes</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Lightning within 10 NM of Hanchey AHP	Observed
Lightning within 10 NM of Knox AHP	Observed
Lightning within 10 NM of Lowe AHP	Observed
Lightning within 10 NM of Shell AHP	Observed
Lightning within 10 NM of Molinelli FARP	Observed

NOTE: Observed advisories for Molinelli FARP are only required during its operating hours, 0800L-0100L, Monday through Friday. Observed advisories are required for the basefields 24/7.

14. KDHN Observed Weather Warning Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.14 - Observed Weather Warning Criteria and Desired Leadtime</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Lightning within 5 NM	Observed

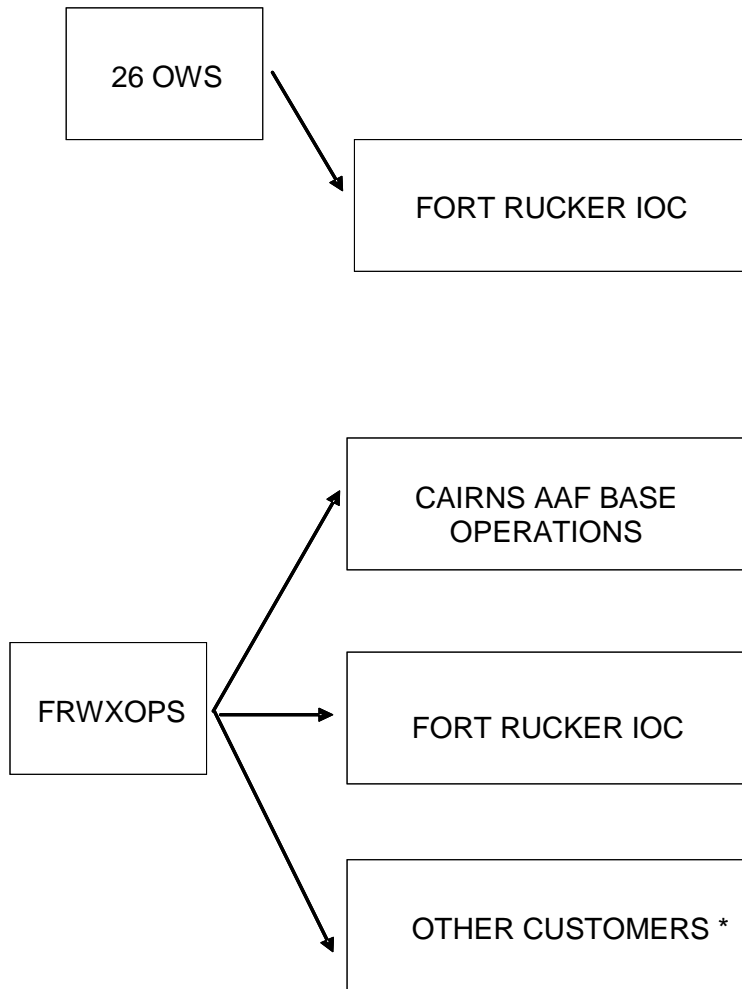
15. KDHN Observed Weather Advisory Criteria (issued by the 26 OWS with FRWXOPS as a backup).

<b>Table D.15 - Observed Weather Advisory Criteria and Desired Leadtime</b>	
<b>Criteria</b>	<b>Desired Leadtime</b>
Lightning within 10 NM	Observed
Gust Spread $\geq$ 15 knots	Observed
$\geq$ 25-knot crosswind	Observed

16. Weather watches, warnings, and advisories are each numbered sequentially by month; e.g., the first weather watch in August would be #08-001, the third weather warning in November would be #11-003, and the tenth weather advisory in December would be #12-010.

**FIGURE 1**

**RESOURCE PROTECTION NOTIFICATION CHAIN**



\* For freezing precipitation/snow/heavy rain/temperature watches, warnings, and advisories, the Emergency Management Control Section, DPW, will be notified. For lightning within 10 NM and 5 NM, Refuel will be notified. For N1 IFR advisories and AM and PM LIFR advisories, ARAC and HUB Radio will be notified. For the N1 Goldfish advisory, ARAC will be notified. For the falling snow advisory, the Primary Division will be notified.

Generally, Cairns AAF Base Operations disseminates watches, warnings, and advisories through operational channels via the weather telephone. The IOC disseminates watches and warnings through administrative channels. For details on how Cairns AAF Base Operations and the IOC disseminate watches, warnings, and advisories and a further breakdown of dissemination through individual organizations, see the Fort Rucker All Hazards Installation Protection Plan, appendix H (Weather Plan).

## APPENDIX E

### BREAKDOWN OF THE DD FORM 175-1

1. Takeoff Data.

PM		FLIGHT WEATHER BRIEFING						PM	
PART I - TAKEOFF DATA (VALID AT 14)									
1. DATE (YYMMDD)	2. ACFT TYPE/NO.	3. DEP PT/ELD	4. RUNWAY TEMP	5. DEWPOINT	6. TEMP DEV	7. PRESSURE ALT	8. DENSITY ALT		
120628		z	34 °C	15 °C	°C	170 FT	FT		
13. REMARKS / TAKEOFF ALTN FCST / LOCAL WWAS									

Block  
Number

- 1 - Date of mission (Zulu).
- 2-3 - Typically not included on the DD Form 175-1; available upon request.
- 4 - Runway temperature for specific flight period times (AM - 0800L, PM - 1400L, N1 - 2000L).
- 5 - Dew point temperature for specific flight period times (AM - 0800L, PM - 1400L, N1 - 2000L).
- 6 - Typically not included on the DD Form 175-1; available upon request.
- 7 - PA for specific flight period times (AM - 0800L, PM - 1400L, N1 - 2000L).
- 8 - Typically not included on the DD Form 175-1; available upon request.
- 9-12 - Not included on the DD Form 175-1.
- 13 - Any watch, warning, or advisory (that affects flight operations) in effect at takeoff.  
Exceptions: Lightning observed within 10 NM and 5 NM; heavy rain warning.

2. Enroute & Mission Data.

PART II - ENROUTE & MISSION DATA (ALL HEIGHTS ARE MSL)																		
14. FLT LEVEL/WIND/TEMP				15. SPACE WEATHER				16. SOLAR / LUNAR (24)										
010	030	060	090	010	030	060	090	NO IMPACT	MARGINAL	SEVERE	RMNT	0500L	AB Times	Local				
020	02005KT / 18 C	060	31010KT / 12 C	FREQ	X			SS	0550L	MR	0900L							
030	30005KT / 16 C	070	33010KT / 12 C	GFS	X			SS	1040L	MR	2140L							
040	30005KT / 15 C	080	34010KT / 12 C	RAD	X			RMNT	2038L	ILLUM	10	%						
17. OBSERVATIONS AT FLT LEVEL RESTRICTING VISIBILITY																		
TH-675: VISIBLE MOISTURE & TEMPS ≥ 4 C / NO																		
19. MINIMUM CEILING - LOCATION				20. MINIMUM FREEZING LVL - LOCATION														
ALL NONE #T AGL				ALL 155 #T MSL														
22. THUNDERSTORMS				23. TURBULENCE (ACFT ≤ 12,500 LBS)				24. ICING				25. PRECIPITATION						
X	NONE	AREA	LINE	X	NONE	IN CLEAR	IN CLOUD	X	NONE	RIME	WING	CLEAR	X	NONE	DZ	RAIN	SNOW	FLLY
HAIL, SEV TURB & ICING, HEAVY PRECIP, LIGHTNING & WIND SHEAR EXPECTED IN/NEAR THUNDERSTORMS				LOCATION				LOCATION				LOCATION						
PART III - AERODROME FORECASTS (ALL HEIGHTS ARE AGL)																		

Block  
Number

- 14 - Flight level winds and temperatures (degrees Celsius). For USAACE operations, flight levels typically range 010-080 feet and will be listed in this block. Flight level winds and temperatures are for 150 NM.

Block

Number

- 15 - Space weather.
- 16 - Solar/Lunar data. Sunrise, sunset, begin morning nautical twilight, end evening nautical twilight, moonrise, moonset, and percent illumination are included in this block. Lunar azimuth and elevation data is valid for 2100L.
- 17 - Blank.
- 18 - Obscurations at flight level restricting visibility within 150 NM. If flight visibility is < 7 SM, an obstruction will be indicated.
- 19 - Minimum ceiling (AGL) within 150 NM.
- 20 - Maximum cloud tops (mean sea level [MSL]) en route. Typically not included on the DD Form 175-1; available upon request.
- 21 - Minimum freezing level (MSL) within 150 NM.
- 22 - Thunderstorms within 150 NM. Includes the type, coverage, maximum tops, and location.
- 23 - Turbulence (Category I aircraft) within 150 NM. Includes the type, intensity, levels, and location.
- 24 - Icing within 150 NM. Includes the type, amount, levels, and location.
- 25 - Precipitation within 150 NM. Includes the type, intensity, and location.

3. Aerodrome Forecasts.

PART III - AERODROME FORECASTS						PART IV - COMMENTS/REMARKS
26. AIRPORT	27. VALID TIME		28. SFC WIND	29. VISIB/WEX	30. CLOUD LAYERS	31. ALTIMETER
DEST/ALTN KOZR	1730	1930	VRB06	6 -SHRA	BKN020 OVC060	30.00
DEST/ALTN TEMPO	1730	1930	VRB12G20	2 TSRA	BKN008 OVC015	INS
DEST/ALTN FROM	1930	0000	VRB06	7	BKN030 OVC250	29.94
DEST/ALTN TEMPO	1930	0000	VRB15G25	1 +TSRA	BKN015 OVC030	INS
DEST/ALTN						INS
DEST/ALTN						INS
DEST/ALTN						INS
DEST/ALTN						INS
DEST/ALTN						INS
DEST/ALTN						INS
DEST/ALTN						INS

Block

Number

- 26 - Destination or alternate destination for the mission. The DD Form 175-1 contains all locations within 100 NM.
- 27 - Valid time. On the DD Form 175-1, the valid time begins at the beginning of the flying period and ends when significant changes occur which require additional lines to the forecasts. The end of the forecast period is the end of the scheduled flying period.
- 28 - Forecast surface wind in DDDSSGSS. DDD indicates the direction from which wind is forecast to be blowing; SS indicates wind speed in knots; G indicates gusts, if any, and SS indicates maximum forecast wind gust in knots.

- 29 - Forecast visibility and any weather or obstructions which limit visibility to < 7 SM. Thunderstorms will be forecast using specific codes to articulate the level of risk/probability as follows:  
 No thunderstorms = no thunder or low probability (<10 percent).  
 VCTS = small possibility of thunder (10-30 percent).  
 TEMPO condition = moderate to high possibility (> 30 percent); timing confidence low.  
 Predominant condition = high possibility (> 50 percent); timing confidence high.
- 30 - Forecast cloud layers in METAR code.
- 31 - Forecast minimum ALSTG.

NOTE: Large blocks to the right will indicate destinations in the local flying area that are within 100 NM and have the same or similar forecast. If all locations are the same, there will be a remark stating A/S, or all stations, are the same or better.

NOTE: Locations in the local flying area outside 100 NM but within 150 NM will be listed on a Continuation Sheet. These include Jack Edwards (KJKA), Bay Minette (K1R8), Foley Muni (K5R4), Tuscaloosa (KTCL), Chilton County (K02A), Crisp County (KCKF), LaGrange (KLGK), Moody AFB (KVAD), Valdosta (KVLD), and Tifton (KTMA).

4. Comments/Remarks.

PMSV OZR: 134.1 WIF: 348.8 PMSV LOR: 243.35	OZR WX: 334-255-8385 LOR WX: 334-255-4024	FACEBOOK: /FTRUCKERWX TWITTER: @FTRUCKERWX	WWW.RUCKER.ARMY.MIL/6WEATHER/INDEX.HTM FREE MOBILE APP AVAILABLE AT: FTRUCKER.MOBI
KOZR MAXIMUMS:		MAX TEMP: 23°C	MAX PA: 420 FT
			MAX DA: 1630 FT
35. REMARKS:			

Block  
Number

- 35 - Remarks. Used to comment on significant phenomena not covered elsewhere. Includes KOZR maximum temperature, PA, and DA for the flying period.

NOTE: This area includes several methods to contact FRWXOPS for updates, including PMSV frequencies, telephone numbers, and social media sites.

5. Briefing Record.

PART V - BRIEFING RECORD					
36. WX BRIEFED TIME E 15:45Z	37. FLIMS Y BRIEFING PM (1730-0000Z)	38. FORECASTER'S INITIAL AB	40. VOID TIME 17:15 Z	41. EXTENDED TO/INITIAL Z	42. WX REBRIEF TIME/INITIAL Z

Block  
Number

- 36 - WX briefed time. Initial weather brief time (Zulu) for each applicable flying period.
- 37 - Flimsy briefing number. The applicable flying period and valid times are entered in this block.



- 38 - Forecaster's initials.
- 39 - Not included on the DD Form 175-1.
- 40 - Void time. Initial weather void time (Zulu) for each applicable flying period.
- 41 - Extended to/initials. The new void time is entered in this block, along with the forecaster's initials.
- 42 - WX rebrief time/initials. The new brief time is entered in this block, along with the forecaster's initials.
- 43 - Not included on the DD Form 175-1.

## APPENDIX F

### BREAKDOWN OF THE MEF

1. Part I: Date/Valid Time/Briefer.

<b>AMENDED @ 1400 Z</b>		<b>MISSION EXECUTION FORECAST</b>		<b>UPDATED @ 1410 Z</b>	
DATE:	30- Jul-14	VALID PERIOD: AM 1130Z-1800Z	FORECASTER INITIALS: TS		

2. Part II: Flight level winds and temperatures (degrees Celsius) are listed 010-080. Flight level winds and temperatures are for 150 NM.

3. Part III: KOZR & Area Forecast Data. This block lists the maximum/minimum temperatures (degrees Celsius) at KOZR and in the local flying area, the minimum ALSTG at KOZR and in the local flying area, the maximum PA/DA at KOZR and in the local 150 NM flying area, the minimum ceiling at KOZR and in the local flying area, and the minimum visibility/weather at KOZR and within 150 NM.

4. Part IV: Solar & Lunar Data (Local Time). Lunar azimuth and elevation data is valid for 2100L.

FLIGHT LEVEL WINDS & TEMPS (MSL)		FCST DATA:		KOZR	AREA	SOLAR/LUNAR	
FLT LEVEL	WIND / TEMP	MAX TEMP (°C):	MIN TEMP (°C):			BMNT	0500L
010	03010 KT / 22 °C	18	18	30	32	SUNRISE	0558L
020	02005 KT / 18 °C	16	17	18	17	SUNSET	1940L
030	30005 KT / 16 °C	30.00	30.00	30.00	30.00	EENT	2038L
040	30005 KT / 15 °C	230	430	230	430	MOONRISE	0912L
050	30010 KT / 14 °C	2250	2780	2250	2780	MOONSET	2140L
060	31010 KT / 12 °C	NONE	NONE	NONE	NONE	AZIMUTH	265.5 °
070	33010 KT / 12 °C	7	2	7	2	ELEVATION	7.6 °
080	34010 KT / 12 °C	NONE	BR	NONE	BR	% ILLUM	10 %

5. Part V: Any flight hazards are identified in this block. Turbulence (Category I aircraft) is identified by type, intensity, and levels. Icing is identified by type, intensity, and levels. Thunderstorms are identified by type, coverage, and maximum tops. Flight hazards are for 150 NM.

FLIGHT HAZARDS W/IN 150NM (All heights are MSL)	
TURBULENCE (Cat I)	NONE
ICING	NONE
THUNDERSTORMS	NONE
LOW LEVEL WIND SHEAR	NO

6. Part VI: MEF Area Forecasts. This block breaks down the forecast for each MEF forecast area for the entire period. Grid lines will be used to divide areas further when weather conditions dictate the need for greater detail. If thunderstorms are forecast, the maximum instantaneous coverage for each area is listed in the blocks to the right. There is also a space for remarks to expand on any area forecast and/or briefly describe amendments or updates.

AREA FORECASTS (All heights are AGL)		TS COVERAGE
GOLDFISH	34008KT 7SM SKC	NONE
VANGUARD N AMD 1 @ 1400 Z	34008KT 7SM SKC ISOLD 1400-1500Z: 2SM BR	NONE
VANGUARD C	34008KT 7SM SKC	NONE
VANGUARD S	34008KT 7SM SKC	NONE
HAWK	34008KT 7SM SKC	NONE
BEARCAT	34008KT 7SM SKC	NONE
REMARKS:	AMEND TO INCLUDE PATCHY FOG IN VANGUARD NORTH	

7. Part VII: Planning Data. This block gives planning data for the next flying period. Planning data includes a forecast condition for each forecast area (VFR, marginal VFR, or IFR), as well as maximum temperature (degrees Celsius) and maximum PA (in feet) for KOZR and a forecast for thunderstorms.

PM PLANNING						
FORECAST AREA:	GOLDFISH	VANGUARD N	VANGUARD C	VANGUARD S	HAWK	BEARCAT
FORECAST CATEGORY/TIMING:	VFR ALL PD	VFR ALL PD	VFR ALL PD	VFR ALL PD	VFR ALL PD	VFR ALL PD
KOZR MAX TEMP: 32 °C	KOZR MIN ALSTG: 30.04		KOZR MAX PA: 190 FT		TSTORMS: NO	

8. Part VIII: Contact Information. This block lists FRWXOPS's commercial/DSN telephone and fax numbers, PMSV and WIF frequencies, and social media contact information.

CONTACT INFORMATION			
FORECASTER PHONE	PMSV	WIF	SOCIAL MEDIA: FB: /ftruckerwx TWITTER: @ftruckerwx APP: ftrucker.mobi
334-255-8385 (DSN 558)	134.1 (V)	348.8 (U)	ON THE WEB: <a href="http://www.rucker.army.mil/6weather/index.htm">http://www.rucker.army.mil/6weather/index.htm</a>

9. Part IX: Weather Watches, Warnings, and Advisories. This block lists all weather watches, warnings, and advisories (affecting flight operations) that are in effect or forecast to be in effect during the period. Exceptions: Lightning observed within 10 NM and 5 NM; heavy rain warning.

WEATHER WATCHES, WARNINGS, ADVISORIES							
TYPE	NUMBER	VALID TIME			CRITERIA	MAX WIN	MAX HAIL
WW	07-003	1600	Z	TIL 1730	Z	WIND 30-44KT FCST W/IN 15NM	35

## APPENDIX G

### MEF FORECAST AREAS DEFINED

1. The MEF includes six forecast areas. Grid lines will be used to divide areas further when weather conditions dictate the need for greater detail. In the context of this regulation and all forecast products issued by FRWXOPS, these six forecast areas are:

a. BEARCAT. Synonymous with Area of Operations (AO) Bearcat as defined in Fort Rucker Reg 95-2. Specific airfields include High Falls Stagefield, Tri-County MAP, and Marianna MAP.

b. HAWK. Synonymous with AO HAWK as defined in Fort Rucker Reg 95-2. Specific airfields include Molinelli Range, Tabernacle Stagefield, Hunt Stagefield, Hatch Stagefield, Hooper Stagefield, Ech Stagefield, and Goldberg Stagefield.

c. VANGUARD. The boundaries of VANGUARD are the same as AO VANGUARD as defined in Fort Rucker Reg 95-2. However, in an effort to provide a more detailed forecast, VANGUARD NORTH, VANGUARD CENTRAL, and VANGUARD SOUTH, as defined below, will be used.

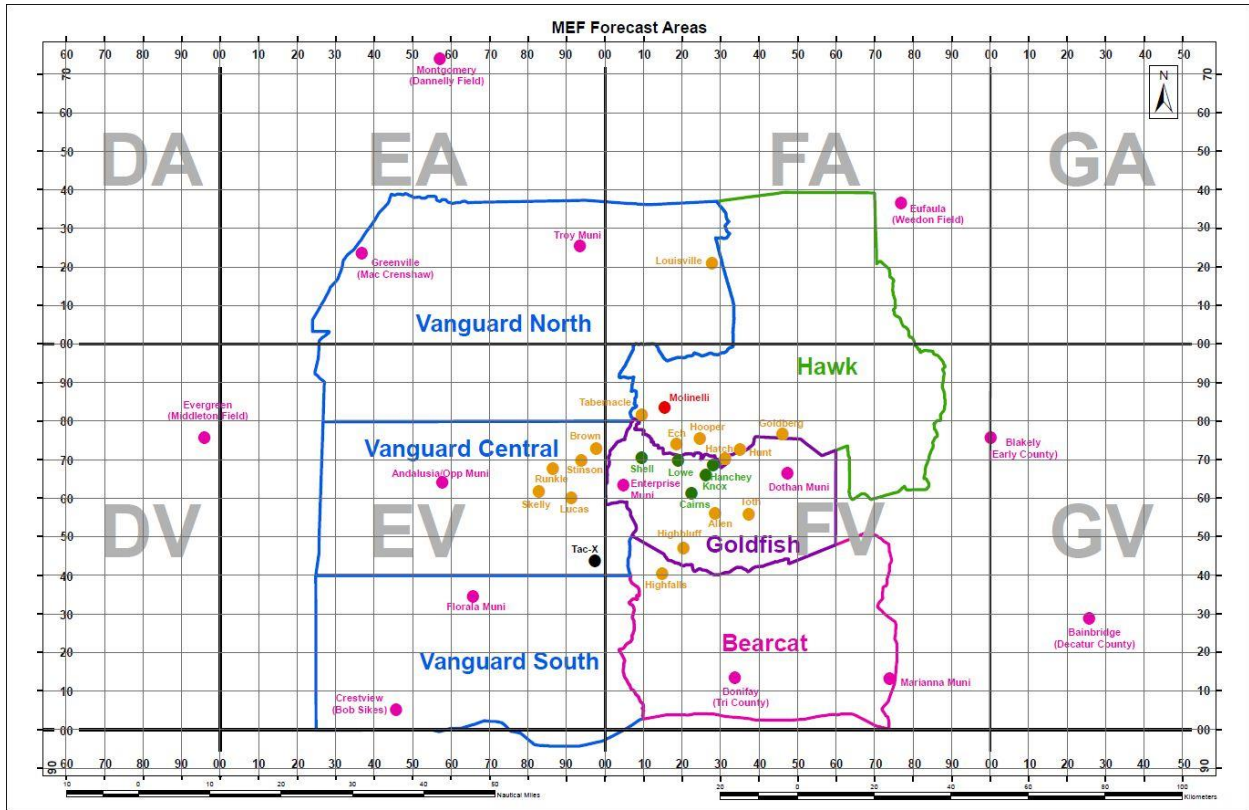
(1) VANGUARD NORTH. The southern boundary is the EV 80 east-west grid line. Specific airfields include Troy MAP, Louisville Stagefield, and Greenville MAP.

(2) VANGUARD CENTRAL. The northern boundary is the EV 80 east-west grid line and the southern boundary is the EV 40 east-west grid line. Specific airfields include South Alabama RAP, Stinson Stagefield, Runkle Stagefield, Skelly Stagefield, Brown Stagefield, Lucas Stagefield, and TAC-X training site.

(3) VANGUARD SOUTH. The northern boundary is the EV 40 east-west grid line. Specific airfields include Florala MAP and Crestview, FL.

d. GOLDFISH. Specific airfields include Hanchey AHP, Knox AHP, Dothan MAP, Cairns AAF, Lowe AHP, Shell AHP, Highbluff Stagefield, Allen Stagefield, Toth Stagefield, and Enterprise MAP.

2. The six MEF forecast areas are depicted below.



## APPENDIX H

### MEF SPECIFICATION CRITERIA

1. Specification Criteria. The VFR MEF specifies the onset and duration of the following elements:

- a. Thunderstorms. Timing and coverage.
- b. Weather watches, warnings, and advisories that are in effect or will be in effect during the period.
- c. Surface winds gusting to  $\geq 20$  knots within the local flying area.
- d. Ceiling. When a ceiling decreases to less than or, if below, increases to equal or exceed:

1,700 feet (Low MTP)

1,000 feet (Primary Division launch minimum, Head Hunter day minimum, Advanced Division, 23d Flying Training Squadron [23d FTS], FLATIRON, AH-64D/E, OH-58A/C, UH-60, UH-72A, TH-67, CH-47 night training minimum)

700 feet (Primary Division launch minimum and stagefield training minimum, 23d FTS day training minimum)

600 feet (Advanced Division alternate minimum)

500 feet (FLATIRON night training on Cairns AAF minimum, AH-64D/E, OH-58A/C, UH-60, TH-1, UH-72A, TH-67, CH-47 day training minimum)

300 feet (FLATIRON day training minimum, Advanced Division Special VFR minimum)

200 feet (C-12 Reserves launch minimum, Advanced Division day training minimum)

100 feet (MEDEVAC launch minimum)

- e. Visibility. When visibility decreases to less than or, if below, increases to equal or exceed:

3 SM (Primary Division launch minimum, Advanced Division, 23d FTS, FLATIRON, AH-64D/E, OH-58A/C, UH-60, UH-72A, TH-1, TH-67, CH-47 night training minimum; Head Hunter day/night minimum)

2 SM (23d FTS day training minimum)

1 SM (Primary Division launch minimum and stagefield training minimum, FLATIRON night training on Cairns AAF minimum, AH-64D/E, OH-58A/C, UH-60, TH-67, UH-72A, TH-1, CH-47 day training minimum)

1/2 SM (Advanced Division Special VFR minimum, C-12 Reserves launch minimum, FLATIRON, AH-64D/E, UH-72A, UH-60 day training minimum)

1/4 SM (Advanced Division day training minimum, MEDEVAC launch minimum)

## MEF AMENDMENT CRITERIA

2. Amendment Criteria. The VFR MEF is amended when any of the following elements have been incorrectly forecast:

- a. Thunderstorms. Timing and/or coverage of few or greater.
- b. Weather Watches, Warnings, or Advisories. Weather watch, warning, or advisory criteria are met and were not forecast or, if specified, are no longer expected to occur.
- c. Surface Winds. When the forecast surface wind speed, including gusts, is in error by 10 knots or more.
- d. Surface Winds. When the direction of the forecast surface winds is in error by 30 degrees or more and the predominant wind speed, including gusts, is over 15 knots.
- e. Ceiling and Visibility. When ceilings decrease to less than or, if below, increase to equal or exceed the following categories (category is determined by the lower ceiling or visibility value):

Category F: Ceiling  $\geq$  1,000 feet; visibility  $\geq$  3 SM.

Category E: Ceiling  $<$  1,000 feet and  $\geq$  700 feet; visibility  $<$  3 SM and  $\geq$  2 SM.

Category D: Ceiling  $<$  700 feet and  $\geq$  600 feet; visibility  $<$  2 SM and  $\geq$  1 1/4 SM.

Category C: Ceiling  $<$  600 feet and  $\geq$  500 feet; visibility  $<$  1 1/4 SM and  $\geq$  1 SM.

Category B: Ceiling  $<$  500 feet and  $\geq$  200 feet; visibility  $<$  1 SM and  $\geq$  1/4 SM.

Category A: Ceiling  $<$  200 feet; visibility  $<$  1/4 SM.

NOTE: Categories B, C, and D are required during AM and PM periods only.

## APPENDIX I

### USAACE WEATHER SUPPORT REQUIREMENTS/CUSTOMER ACTIONS

The following table lists weather events and thresholds that impact or potentially impact Fort Rucker operations. Customer actions for these weather events and thresholds are also listed.

<u>Weather Event</u>	<u>Affected Unit</u>	<u>Impact</u>	<u>Customer Action</u>
<b>Tornadoes</b>			
Tornado	All	Threat to post populace, resources	Sound alarm; take cover, cancel flight ops.
<b>Wind Thresholds</b>			
Wind $\geq$ 45 knots	IOC	Possible damage to post	Override CCTV; implement HURCON Plan, if appropriate. Cancel flights; recover aircraft, hangar/secure aircraft. Run up limit for UH-72A, UH-60, AH-64D/E, TH-67, and OH-58A/C.  Stack, hangar, or secure aircraft.  Secure flight line equipment.  Secure job sites and materials.
	110th AB	Possible aircraft damage	
	Aircraft Logistics Mgmt Div	Possible damage to aircraft and equipment	
	DPW	Damage to unsecured job sites	
Wind 35-44 knots	110th AB	Possible aircraft damage	Cancel or hold flights.
Wind $\geq$ 30 knots	110th AB	Hazard to rotary wing aircraft during runup	Delay flights. Affects TH-67 and UH-1 aircraft.
Gust Spread $\geq$ 15 knots	110th AB	Hazard to rotary wing aircraft during runup	Delay flights. Affects TH-1, TH-67, and OH-58A/C models.
Wind $\geq$ 20 knots	110th AB	Decision point	Alert crews that winds could approach airframe limits. Limit training on autorotation landings. Aircraft cannot be on jacks.
Gusty	Chief of Staff (CoS)/Secretary of the General Staff (SGS)	Outdoors formation undesirable	Move formation indoors.
LLWS	110th AB	Hazard to light aircraft	Cancel or hold flights.
X wind $\geq$ 25 knots	110th AB	Aircraft restriction	Cancel or hold flights.



<u>Weather Event</u>	<u>Affected Unit</u>	<u>Impact</u>	<u>Customer Action</u>
<b>Flight/Ground Hazards</b>			
Turbulence			
Moderate+	110th AB	Hazard to light aircraft	Cancel student solo flights.
Severe+	110th AB	Hazard to aircraft	Cancel flights.
Icing			
Moderate+	110th AB	Hazard to rotary wing aircraft	Cancel flights.
Lightning within 5 NM	110th AB	Hazardous to operations	Suspend operations.
Lightning within 15 NM	All	All	SA for ground operations
<b>Precipitation</b>			
Hail ≥ 1/2 inch	Aircraft Logistics Mgmt Div	Aircraft damage	Hangar part of USAACE fleet.
≥ 2 inches rain in 12 hours	IOC	Flooding threat	Command and control for flood control.
	DPW	Affects outside activity	Defer outside work.
Freezing precipitation	DPW	Affects outside activity and road conditions	Defer outside work; sand bridges/roads.
≥ 1/2 inch snow	IOC	Road conditions	Coordinate snow removal.
Falling snow	110th AB	Hazard for TH-67s	Suspend or cancel flights.
Any type	CoS/SGS	Outdoors formation undesirable	Move formation indoors.
<b>Other</b>			
< 500 feet/ 1 SM (AM and PM period)	110th AB	Affects launch/recovery during daytime operations	Cancel flights <sup>(1)</sup> ; recover aircraft. <sup>(1)</sup>
< 1,000 feet/ 3 SM (N1 period)	110th AB	Prevents VFR recovery	Cancel flights <sup>(1)</sup> ; recover aircraft. <sup>(1)</sup>
< 1,500 feet/ 3 SM (N1 period)	ARAC	Impacts hours of operations	Extend operating hours in order to recover Army aircraft (radar approached, low altitudes, etc.)
<b>Temperatures</b>			
≤ 00 degrees Celsius for 5+ hours	DPW	Outdoor pipes may freeze.	Make provisions to prevent freezing and bursting.
< M06 degrees Celsius for 1+ hour	DPW	Outdoor pipes may freeze.	Alert standby crews during nonduty hours for emergency repairs and cleanup.

Notes:

<sup>(1)</sup> As applicable for the pilots scheduled for training.

**APPENDIX J**

**CUSTOMER MISSION-LIMITING WEATHER THRESHOLDS**

<b>Aircraft Weather Thresholds on MEF</b>			
<b>TH-1 KOZR CAT 1 23D</b>	<b>RESTRICTIONS</b>	<b>NO GO DAY</b>	<b>NO GO NIGHT</b>
X WIND		≥ 30 KNOTS HOVER	≥ 30 KNOTS HOVER
TAILWIND		≥ 30 KNOTS	≥ 30 KNOTS
WIND VELOCITY		≥ 30 KNOTS	≥ 30 KNOTS
GUST SPREAD		≥ 15 KNOTS	≥ 15 KNOTS
ICING		ALL	ALL
TURBULENCE	MDT	SVR/EXT	SVR/EXT
THUNDERSTORMS/LIGHTNING		ANY	ANY
CEILINGS		<700/<300 FI/<100 MV	<1,000/<500 FI/<100 MV
VISIBILITY		<2/<1/2 FI/<1/4 MV	<3/<1 FI/< 1/4 MV
<b>TH-67/UH-72A KOZR CAT 1 P/A</b>	<b>RESTRICTIONS</b>	<b>NO GO</b>	<b>NO GO</b>
X WIND		> 35 KNOTS HOVER	> 35 KNOTS HOVER
TAILWIND		> 35 KNOTS	> 35 KNOTS
WIND VELOCITY		> 45 KNOTS	> 45 KNOTS
GUST SPREAD		> 15 KNOTS	> 15 KNOTS
ICING		ALL	ALL
TURBULENCE	MDT	SVR/EXT	SVR/EXT
THUNDERSTORMS/LIGHTNING		ANY	ANY
CEILINGS		<1,000PO/<700P F/<500S/<200AO	<1,000
VISIBILITY		<2	<3
<b>UH-60 Klor CAT 2 (&amp; FI MEDEVAC KOZR)</b>	<b>RESTRICTIONS</b>	<b>NO GO</b>	<b>NO GO</b>
WIND VELOCITY		≥ 45 KNOTS	≥ 45 KNOTS
ICING	TRACE/LGT/MDT	SVR	SVR
TURBULENCE		SVR/EXT	SVR/EXT
THUNDERSTORMS/LIGHTNING		ANY	ANY
CEILINGS		<500/<1,000 HUNTERS	<1,000/<1,500 HUNTERS
VISIBILITY		<1/2/<3 HUNTERS	<3
<b>CH-47 KFHK CAT 2</b>	<b>RESTRICTIONS</b>	<b>NO GO</b>	<b>NO GO</b>
WIND VELOCITY		≥ 40 KNOTS	≥ 40 KNOTS
ICING	TRACE/LGT	MDT/SVR	MDT/SVR
TURBULENCE	MDT	SVR/EXT	SVR/EXT
THUNDERSTORMS/LIGHTNING		ANY	ANY
CEILINGS		<500	<1,000
VISIBILITY		<1	<3

<b>OH-58 KSXS CAT 1 AH-64D/E KHEY CAT 2</b>	<b>RESTRICTIONS</b>	<b>NO GO</b>	<b>NO GO</b>
WIND VELOCITY		> 45 KNOTS	> 45 KNOTS
ICING		ALL	ALL
TURBULENCE	MDT	SVR/EXT	SVR/EXT
THUNDERSTORMS/LIGHTNING		ANY	ANY
CEILINGS		<500	<1,000
VISIBILITY		<1 OH-58/<1/2 AH-64D/E	<3
<b>C-12 (BE20) KOZR</b>	<b>RESTRICTIONS</b>	<b>NO GO</b>	<b>NO GO</b>
X WIND		≥ 25 KNOTS	≥ 25 KNOTS
ICING		SVR	SVR
TURBULENCE		SVR/EXT	SVR/EXT
THUNDERSTORMS/LIGHTNING		ANY	ANY
CEILINGS	-	<200	<200
VISIBILITY		<1/2	<1/2

## GLOSSARY

### ACRONYMS/ABBREVIATIONS

AAAS	Army Airfield Automation System
AAF	Army Airfield
ACC	Air Combat Command
ACFT MSHP	Aircraft Mishap
AFB	Air Force Base
AFMAN	Air Force Manual
AFW-WEBS	Air Force Weather Web Service
AGL	above ground level
AHP	Army Heliport
AIREPs	air reports
ALSTG	altimeter
AOL	alternate operating location
AR	Army Regulation
ARAC	Army radar approach control
ASOS	automated surface observing system
ATC	air traffic control
AWA	area weather advisories
BWW	basic weather watch
CDT	central daylight time
CST	central standard time
CWW	cooperative weather watch
DA	density altitude

DD	Department of Defense
DOD	Department of Defense
DPTMS	Directorate of Plans, Training, Mobilization, and Security
DPW	Directorate of Public Works
ETP	Exception to Policy
FLIP	flight information publications
FRWXOPS	Fort Rucker Weather Operations
IAW	in accordance with
IFR	instrument flight rules
IOC	Installation Operations Center
JET	Joint Environmental Toolkit
LAN	local area network
LLWS	low level wind shear
MAP	Municipal Airport
MEF	mission execution forecasts
METAR	Meteorological Terminal Air Report
NAVAIDS	Navigational Aids
NEC	Network Enterprise Center
NHC	National Hurricane Center
NM	nautical miles
NOTAMs	notice to airmen
NWS	National Weather Service
OL	Operating Location
OWS	Operational Weather Squadron

PA	pressure altitude
PAO	Public Affairs Office
PIREPs	pilot reports
PMSV	Pilot-to-Meteorological Service
RAP	Regional Airport
RVR	runway visual range
RVRNO	runway visual range not available
SM	statute miles
SPECI	selected special weather report
SWAP	severe weather action procedures
TAF	terminal aerodrome forecast
TS	thunderstorm
TWA	terminal weather advisories
UHF	ultra-high frequency
USAACE	U.S. Army Aviation Center of Excellence
VFR	visual flight rules
VHF	very high frequency
WIF	weather information frequency
WWA PPT	Western Water Assessment PowerPoint Presentation
1-11 Avn Regt	1st Battalion 11th Aviation Regiment
18 WS	18th Weather Squadron
26 OWS	26th Operational Weather Squadron
110th AB	110th Aviation Brigade