

**BY ORDER OF THE COMMANDER
15TH WING**

15TH WING INSTRUCTION 15-101

6 OCTOBER 2016



Weather

WEATHER SUPPORT

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This instruction implements Air Force Policy Directive (AFPD) 15-1, *Air Force Weather Operations*, Air Force Instruction (AFI) 10-206, *Operational Reporting*, AFI 10-229, *Responding to Severe Weather Events*, AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*, AFI 15-128, *Air Force Weather Roles and Responsibilities*, AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, Air Force Manual (AFMAN) 15-111, *Surface Weather Observations*, AFMAN 15-124, *Meteorological Codes*, AFMAN 15-129V1, *Air and Space Weather Operations - Characterization*, AFMAN 15-129V2, *Air and Space Weather Operations - Exploitation*. This instruction establishes responsibilities and weather support procedures. It also provides general information for weather services, including weather observations and forecasts, weather warnings, watches, and advisories; space weather data, information dissemination, and base-wide reciprocal support. It applies to units assigned to 15th Wing, 154th Wing Hawaii Air National Guard (HIANG), subordinate units, and units assigned, attached, or supported by the 15th Wing. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-322, *Records Management Program*, and disposed of in accordance with the Air Force Records Information System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/gcss-af61a/afirms/afirms/>. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional' s chain of command.

SUMMARY OF CHANGES

The Alternate Operating Location (AOL) for the Hickam weather flight has been moved to the Hickam Ramp Facility, top floor, Commercial (808) 448-4782 / DSN (315) 448-4782. WF members will follow duty-specific standard operating procedures (SOPs) and evacuation checklists (including a list of required back-up equipment) and resume services at the AOL as soon as possible. The flight will continue operational support and resume eyes forward responsibilities for the OWS. Most WF services/support will be provided, but will require a case-by-case assessment depending on communication line status, equipment status, etc. Expect some services to be somewhat degraded (e.g., weather products, pilot briefings, etc.) due to limited facilities and loss of dedicated data services, including sensors and various data types (e.g., meteorological satellite (METSAT), radar imagery, etc.). For flight safety reasons, the WF will not evacuate during exercises; however will exercise AOL operations annually.

Unit Updates:

All references to the 96 ARS have been deleted from this document to reflect their deactivation in September 2015.

All references to JPAC (Joint POW/MIA Accounting Command) has been changed to DPAA (Defense POW/MIA Accounting Agency).

All references to Hickam Field Airfield Operations have been changed to Hickam Field.

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Chapter 1

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

1.1. General. The 15th Operations Support Squadron Weather Flight (15 OSS/OSW) provides and/or arranges for weather support to the 15th Wing (15 WG), 154th Wing (154 WG), subordinate units, and units assigned, attached, or supported by 15th Wing. The 15 OSS/OSW is commonly referred to as the Weather Flight (WF) throughout this document, and is the focal point for all weather-related issues in support of Joint Base Pearl Harbor-Hickam (JBPH-H) airfield operations. This instruction will be reviewed and revised biennially or in accordance with (IAW) host/parent unit procedures if the time is less than biennially.

1.2. Concept of Operations.

1.2.1. The 17 OWS at JBPH-H, HI, as the characterization unit, provides regional and operational-level weather products and information to Air Force and Army units to successfully plan and execute United States Pacific Command (USPACOM) military operations.

1.2.2. The WF, as the exploitation unit, is the primary source of tailored weather services in support of the 15 WG, 154 WG, various headquarters elements, and visiting aircrews. The WF will make every effort to ensure that mission-limiting weather is anticipated and exploited, and that safety and Resource Protection (RP) are maintained.

1.2.3. **Meteorological Watch (METWATCH).** The 17 OWS performs a continuous METWATCH for JBPH-H. WF personnel will perform METWATCH during operating hours and provide immediate feedback to the 17 OWS for current or short-term anticipated changes in weather conditions.

1.3. Responsibilities.

1.3.1. General responsibilities of the 17 OWS and WF are outlined in AFI 15-128.

1.3.1.1. The 17 OWS issues forecast weather warnings and watches, and may provide flight weather briefings to transient aircrews passing through JBPH-H. The OWS will issue observed warnings and advisories when the WF is closed.

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

1.3.1.3. The WF will create Mission Weather Products (MWP) that fuse theater scale products with local mission requirements to enable the direct inject of weather impacts into warfighter planning and/or execution. Upon request, the WF will provide flight weather briefings and operational weather support for the 15 WG and 154 WG and transient aircrews IAW the WF duty priorities listed in [Table 1.1](#)

1.3.2. **JBPH-H Installation Data Page.** The 17 OWS and WF will coordinate and maintain a JBPH-H Installation Data Page detailing Watch, Warning, and Advisory (WWA) thresholds, desired lead times, mission impacts, unit information, Joint Environmental Toolkit (JET) back-up contacts and local outage back-up information.

1.3.3. **Eyes Forward & Collaboration.** The WF will act as the eyes forward for the 17 OWS by relaying significant, time-sensitive meteorological information not found in coded meteorological reports to the assist in forecast operations. The 17 OWS and WF will collaborate on all forecast WWAs during WF operating hours.

1.4. **Duty Priorities.** IAW AFMAN 15-129V2, [paragraph 1.3.3.1](#), the WF has created the following duty priorities based on 15 WG mission requirements.

Table 1.1. 15 OSS/OSW Duty Priority Listing.

Priority	Duties
1	Perform Emergency War Order (EWO) taskings
2	Execute WF evacuation
3	Respond to Aircraft/Ground emergencies
4	Respond To Pilot-to-Metro Service (PMSV) Contacts
5	Issue Observed Weather Warnings or Advisories
6	Severe Weather Action Plan (SWAP) Operations
7	Disseminate Urgent Pilot Reports (PIREPs) and Special Air Reports (AIREPs) Locally and to the 17 OWS
8	Mission Execution Forecast Process – Produce and Disseminate (e.g., Local, 175-1, etc.)
9	Provide “Eyes Forward” / Collaborate with 17 OWS
10	Disseminate routine PIREPs locally and to the 17 OWS (as required)
11	Perform MISSIONWATCH
12	Provide Staff Weather Briefings (Integrated Wing Operations Center (IWOC), 515 th AMOW, Deployment)
13	Provide other weather products, information, and weather briefings (e.g., Next day planning forecast, DPAA, etc.)
14	Accomplish Weather Functional Training
15	Accomplish Administrative/Additional Duty Tasks

1.5. **Hours of Operation & Contact Information.** Airfield and mission services will be provided 24 hours a day, 7 days a week through the combined support of the WF and 17 OWS.

1.5.1. **WF.** Normal WF airfield and mission services hours of operations are Monday-Friday from 0400L-2200L or end of local flying; and closed during the weekends, holidays, and Pacific Air Force (PACAF) family days(except during local flying)(See contact info in Table 1.2.). In addition, WF personnel will be on duty when SWAP has been activated as outlined in [paragraph 2.8.2](#) and will stand up operations as directed by the 15 WG/CC. Staff services are available during normal duty hours (0730-1630L) or as required. A web-based aircrew-briefing terminal is located in Base Operations, Flight Planning Room. This briefing terminal allows aircrews to self-brief or schedule a flight weather briefing from the 17 OWS (See contact info in Table 1.3.).

1.5.1.1. During times when no flying is scheduled and no significant weather is expected, the Duty Forecaster may go on on-call (standby). Prior to closing the station, the Duty Forecaster will contact the 17 OWS, 15 Wing Command Post (15 WG/CP), 154 Wing Command Post (154 WG/CP), Hickam Ramp Facility (HRF), and Airfield Management and will be reachable via the on-call cell phone (published with 15 WG/CP). The weather technician will not leave the work center until all agencies have been notified.

1.5.1.2. The WF will notify the 17 OWS team lead identifying the on-call forecaster member NLT 1600 of the last duty day of the week.

1.5.2. **17 OWS.** Hours of operation are 24/7, 365 days a year. (See contact info in Table 1.3.)

Table 1.2. WF Contact Information.

15 OSS/OSW 375 Mamiya Ave, Bldg. 2140 JBPH-H, HI 96853-5244	
Duty Forecaster	(808) 449-2251 / DSN (315) 449-2251
Flight Commander	(808) 449-2250 / DSN (315) 449-2250
Flight Chief	(808) 449-1201 / DSN (315) 449-1201
Alternate Operating Location (AOL)	(808) 448-4782 / DSN (315) 448-4782 (808) 449-9005 / DSN (315) 449-9005
PMSV	346.6 MHz

Table 1.3. 17 OWS Contact Information.

17 th Operational Weather Squadron 25 E Street, Bldg. 1102, Ste. M202 JBPH-H, HI 96853-5492	
Senior Duty Officer/NCO (SDO)	(808) 449-8335 / DSN (315) 449-8335
Director of Operations	(808) 449-8339 / DSN (315) 449-8339
Operations Superintendent	(808) 449-6820 / DSN (315) 449-6820
Regional Flight Leadership	(808) 449-0564 / DSN (315) 449-0564

1.6. Continuity of Operations Plan (COOP).

1.6.1. **WF COOP and WF Alternate Operating Location (AOL).** In the event of a building evacuation, the WF will move to the Hickam Ramp Facility, top floor, Commercial (808) 448-4782 / DSN (315) 448-4782. WF members will follow duty-specific standard operating procedures (SOPs) and evacuation checklists (including a list of required back-up equipment) and resume services at the AOL as soon as possible. The flight will continue operational support and resume eyes forward responsibilities for the OWS. For flight safety reasons, the WF will not evacuate during exercises; however will exercise AOL operations annually.

1.6.2. 17 OWS COOP.

1.6.2.1. For short term outages (< 24 hours) the WF will assume responsibility for forecasted WWA support for Hickam Field, JBPH-H, and Bellows Air Force Station (AFS). **Table 2.3, 2.4, and 2.7** of this document outline the forecasted support the WF will assume responsibility during COOP operations. **Attachment 2** outlines the WWA support for Bellows AFS. If after duty hours, the 17 OWS will contact the on-call forecaster who will initiate COOP procedures.

1.6.2.2. For long-term outages (> 24 hours), the 17 OWS' plan is to resume all support from an alternate location.

1.6.2.3. **COOP Exercises.** In coordination with WFs, 17 OWS conducts periodic COOP exercises.

Chapter 2

AIRFIELD SERVICES

2.1. General. Airfield services include monitoring/reporting weather phenomena during duty hours affecting Hickam Field (defined within 5 Nautical Miles (NM) of the airfield).

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

2.2.1. **Equipment.** The Automated Surface Observing Systems (ASOS) serves as the primary surface weather observing network.

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

2.2.2.1. **Aviation Routine Weather Report (METAR).** A METAR is a measurement or evaluation of meteorological elements that describe the state of the atmosphere at the surface location(s) where the observation is taken.

2.2.2.2. **Aviation Selected Special Weather Report (SPECI).** A SPECI is a weather observation that is reported at other than a scheduled time. SPECI must be taken when any of the criteria for a special observation is observed or detected. (See Table 2.1. for Special Weather Criteria).

Table 2.1. Honolulu International Airport Special Weather Report Criteria.

Honolulu International Airport Special Weather Report Criteria IAW JO 7900.5C	
Wind Shift	Wind direction changes by 45 degrees or more in less than 15 minutes and the wind speed is 10 knots or more throughout the wind shift.
Visibility	Surface visibility as reported in the body of the report decreases to less than, or if below, increases to equal or exceed: 3 miles, 2 miles, 1 mile, and 1/2 mile or the lowest standard instrument approach procedure minimum as published in the National Ocean Survey (NOS) U.S. Terminal Procedures.
Runway Visual Range	The highest value from the designated RVR runway decreases to less than, or if below, increases to equal or exceed 2,400 feet during the preceding 10 minutes. Note: Criteria applies to automated RVR reporting only.
Tornado, Funnel Cloud, or Waterspout	Observed or disappears from sight.
Thunderstorm	Begins (a SPECI report is not required to report the beginning of a new thunderstorm if one is currently reported) or ends.
Precipitation	Hail begins or ends; freezing precipitation begins, ends, or changes intensity; ice pellets begin, end, or change intensity at manual stations.
Squall	Wind suddenly increases at least 16 knots and is sustained at 22 knots or more for at least one minute.
Ceiling	When the height of the base of clouds covering five oktas or more (for example, broken and overcast) of the sky forms or dissipates below, decreases to less than or, if below, increases to equal or exceed: 3,000 ft., 1,500 ft., 1,000 ft., 500 ft., and 200 ft. or the lowest standard instrument approach procedure minimum as published

	in the National Ocean Survey (NOS) U.S. Terminal Procedures.
Sky Condition	A layer of clouds or obscuring phenomena aloft is present below 1,000 feet and no layer aloft was reported below 1,000 feet in the preceding METAR or SPECI observation.
Volcanic Eruption	When eruption is first noted.
Aircraft Mishap	Upon notification of an Aircraft Mishap unless there has been an intervening observation.
Miscellaneous	Any other meteorological situation which, in the opinion of the observer, is critical.

2.2.3. Contact Information.

Table 2.2. Observing Services Contact Information.

Honolulu International Airport Observing Services - CJR Aviation, Inc. (FAA) 760 Worcester Avenue Honolulu, HI 96818	
FAA Observer	Commercial (808) 834-0694

2.2.4. **Limitations.** For the exception of requesting an observation involving an aircraft mishap, the WF has no command authority over the submitted content, dissemination, or submitting organization for official airfield observing services.

2.3. Terminal Aerodrome Forecast (TAF). TAFs are a critical element of National Weather Service (NWS) aviation weather services because they are a key product in decisions for flight planning and for aircraft movement within the NAS.

2.3.1. **Responsibilities.** The NWS produces the official TAF for Honolulu IAP which is connected to Hickam Field through the Honolulu Forecast Office. Four forecasts are issued daily at 0000Z (1400L), 0600Z (2000L), 1200Z (0200L), and 1800Z (0800L), each covering a 30-hour period under the International Civil Aviation Organization (ICAO) identifier PHNL. Additionally, each TAF issued will be amended three hours after the initial forecast is issued (NWS mandatory requirement). Each TAF specifies the time of occurrence to the nearest hour, duration and intensity (if applicable) of weather conditions expected to occur.

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

2.3.3. **Purpose.** Aviation forecasts in TAF code provide meteorological information for flight planning and command and control activities for a specific aerodrome complex.

2.3.4. **Contact Information.**

Table 2.3. Forecast Services Contact Information.

National Weather Service Honolulu Forecast Office 2525 Correa Rd, Ste 250 Honolulu, HI 96822	
Aviation Forecaster	Commercial (808)-973-5280

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

2.4. Resource Protection (RP) Support. The 17 OWS conducts a continuous meteorological watch to identify and assess emerging and imminent threats to JBPH-H and Hickam Field. Watches and warnings provide notice of weather events posing a hazard to life or property. Advisories provide specific notice to an operational agency of environmental phenomena with the potential to impact operations. Customer responses to WWAs are listed in **Attachment 4**.

2.4.1. **Responsibilities.** The overall goal is to provide the best possible resource protection to Hickam Field.

2.4.1.1. **17 OWS.** The 17 OWS is responsible for issuing Special Weather Statements (SWS) and all **FORECAST** Watches, Warnings, and Advisories. Watches, Warnings, and Advisories are special notices provided by the 17 OWS resulting from both the forecast and METWATCH processes to assist military decision makers associated with Hickam Field with resource and RP decisions. If the WF is closed, observed advisories and warnings will be issued by the 17 OWS if they have the capability to remotely monitor the observed advisory or warning criteria.

2.4.1.2. **WF.** The WF acts as the “eyes forward” for the 17 OWS and is responsible for issuing all Hickam Field **OBSERVED** warnings and advisories. The WF can issue any forecast warning if there is an immediate threat to life and/or property. In these cases, the WF will back-brief the 17 OWS when time permits and will also be responsible for disseminating the information to locally supported agencies. If the WF is closed, they will keep a forecaster on-call for resource protection actions (e.g., SWAP).

2.4.2. **Special Weather Statements (SWS).** SWSs are special notices issued by the 17 OWS to assist military decision makers with RP decisions.

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

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

2.4.3. **Weather Watches.** A weather watch is a special notice to installation personnel/supported units of a **potential** for environmental conditions of such intensity as to pose a hazard to life or property. They are used by installation personnel/supported units to make force protection and risk management decisions. Watches are issued outlining a 5NM radius of Hickam Field and are defined in **Table 2.4** *Note:* Watches, except lightning and tornado, funnel cloud, or waterspout will not be issued when Hickam Field or JBPH-H is in Tropical Cyclone Conditions of Readiness (TCCOR) 1.

Table 2.4. Weather Watches.

Criteria	Desired Lead Time
Tornado, Funnel Cloud, or Waterspout	As potential warrants
Severe Thunderstorm (Damaging winds \geq 50 knots and/or damaging hail \geq $\frac{3}{4}$ inch)	As potential warrants
Damaging winds \geq 50 knots	As potential warrants
Lightning w/ in 5 NM	30 minutes
Freezing Precipitation	As potential warrants
Heavy Rain \geq 2 inches in 12 hours	As potential warrants

2.4.4. **Forecast Weather Warnings.** A weather warning is to notify installation personnel/supported units when an established weather condition of such intensity as to pose a hazard to life or property is occurring or is expected to occur. Weather warnings provide concise information outlining environmental threats and are used by commanders and personnel to make RP decisions and take protective action. Warnings are issued to encompass a 5NM radius of Hickam Field and are defined in **Table 2.5** *Note:* Warnings, forecast or observed, except lightning and tornado, funnel cloud, or waterspout will not be issued when Hickam Field or JBPH-H is in Tropical Cyclone Conditions of Readiness (TCCOR) 1.

Table 2.5. Forecast Weather Warnings.

Criteria	Desired Lead Time
Tornado, Funnel Cloud, or Waterspout	30 minutes
Severe Thunderstorm (Damaging winds \geq 50 knots and/or damaging hail \geq $\frac{3}{4}$ inch. Set Condition Severe T1	60 minutes
Moderate Thunderstorm (Damaging winds \geq 35 knots but $<$ 50 knots and/or damaging hail \geq $\frac{1}{4}$ but $<$ $\frac{3}{4}$ inch ¹	60 minutes
Damaging winds \geq 50 knots	60 minutes
Strong winds \geq 35 knots but $<$ 50 knots	60 minutes
Heavy Rain \geq 2 inches in 12 hours	60 minutes
Freezing Precipitation	60 Minutes
Note 1: <i>Only issued in support of NAOC operations.</i>	

2.4.4.1. **Observed Weather Warnings.** Observed warnings issued for Hickam Field and JBPH-H extends 5NM in all directions from the airfield and is defined in **Table 2.6**. The lightning warning will remain valid until lightning is no longer observed within 5NM for at least 15 minutes. *Exception:* A lightning warning will not be cancelled if a thunderstorm is within 5NM (as indicated on radar).

Table 2.6. Observed Weather Warnings.

Criteria	Desired Lead Time
Lightning w/ in 5 NM	Observed

2.4.5. **Weather Advisories.** A special product notifying supported units when a predicted weather event effecting Hickam Field is observed or forecast to occur.

2.4.5.1. **Observed Weather Advisories.** Observed advisories are issued encompassing a 5NM radius of Hickam Field by the WF and cancelled as soon as the event is no longer occurring. Observed weather advisories can be found in **Table 2.7**.

Table 2.7. Observed Weather Advisories.

Criteria	Desired Lead Time
Thunderstorms in the Air Defense Identification Zone (ADIZ)	Observed
Low Level Wind Shear	Observed
Fighter Index of Thermal Stress (FITS) Danger	Observed
Crosswinds \geq 25 knots on runway 08/26 or 04/22	Observed
Ceilings < 600 feet and/or Visibility < 2 Statute Miles (SM)	Observed
Thunderstorms within 50 NM of Hickam Field ¹	Observed
Thunderstorms within 25 NM of Hickam Field ¹	Observed
Thunderstorms within 10 NM of Hickam Field ¹	Observed
Visibility < 1 SM ¹	Observed
Crosswinds > 20 knots ¹	Observed
Icing, moderate or greater below 10,000 Mean Sea Level (MSL) within 50 NM (outside of thunderstorms) ¹	Observed
Turbulence, moderate or greater below 10,000 MSL within 50 NM (outside of thunderstorms) ¹	Observed
Note 1: Only issued in support of NAOC operations.	

2.4.5.2. **Forecast Weather Advisories.** Forecast weather advisories are issued to encompass a 5NM radius of Hickam Field. Criteria and desired lead times are contained in **Table 2.8**.

Table 2.8. Forecast Weather Advisories.

Criteria	Desired Lead Time
Surface winds \geq 25 knots but < 35 knots	30

2.4.6. **WWA Numbering Scheme.** WWAs are numbered consecutively by identifying the type of weather message (watch, warning, or advisory) followed by a five-digit number. The first two numbers indicate the current month while the second three numbers indicate the sequence number. For example, the message “Weather Warning 02-005” means the month is February (02) and this is the fifth (005) warning issued in the month. The message “Weather Advisory 12-013” means the month is December (12) and this is the thirteenth (013) advisory issued in the month. Examples of different messages are contained in [Attachment 3](#).

2.4.7. **WWA Upgrades/Downgrades.** WWAs will be upgraded (i.e., winds increase from 35 knots to 50 knots) or downgraded as required. Upgrades should meet the desired lead times specified in [Table 2.3](#), [2.4](#), and [2.7](#). Only one warning will be in effect at a given time (and will include multiple warning criteria as required) except for forecast tornado warnings and/or observed lightning warnings. Tornado and lightning will be separate warnings. With the exception of tornado and lightning warnings, if a warning is issued for one criteria and it becomes necessary to warn for another criteria, a new warning and new number will be issued, to include all criteria expected. A separate valid time may be specified for each criteria if necessary.

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

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

2.4.10. **WWA Cancellation.** Warnings and watches are canceled when the weather phenomena is no longer occurring or expected to occur. Warnings and watches not extended or canceled will automatically expire at the end of the valid period. Observed advisories will be canceled when the criteria is no longer occurring and have not occurred in the last 15 minutes. Lightning watches are canceled only when the potential for lightning within the next 30 minutes is no longer forecast. See [paragraph 2.4.4.1](#) for cancellation of observed lightning warnings.

2.5. Dissemination Process.

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

2.5.2. **SWSs.** 17 OWS transmits SWSs to WF leadership via email and will post it via the 17 OWS website (<https://17ows.hickam.af.mil/>). WF leadership will forward SWSs to 15 WG/154 WG leadership and supported units as required.

2.5.3. **WWAs.** The 17 OWS or WF will enter WWAs into the Joint Environmental Toolkit (JET) which will disseminate the information to 15 WG/CP, 154 WG/CP, 15 OSS/OSAA, USAPAT, 735 Air Mobility Squadron (AMS), Commander Navy Region Hawaii Regional Operations Center (ROC), and 613 Air and Space Operations Center (AOC). If JET is out-of-service, 17 OWS or the WF will make back-up calls. Upon notification, these units will further disseminate WWAs using a notification scheme such as the pyramid notification diagram illustrated in [Attachment 5](#), a Quick Reaction Checklist (QRC), E-Mail and/or AtHoc.

2.5.3.1. **Lightning Warnings.** All lightning warnings are disseminated by the 15 WG/CP to the base populace including the flightline. Notifications will be disseminated via e-mails, AtHoc and giant voice as appropriate..

2.5.3.2. **Tornado Warnings.** The JBPH-H ROC has the primary responsibility for sounding the base siren for a tornado warning issuance.

2.6. PMSV Support. Weather information is available via PMSV during duty hours on frequency 346.6 MHz. The duty forecaster will monitor PMSV traffic for all aircraft contacts. For aircraft outside the range of our PMSV system, the WF or 17 OWS can provide PMSV support through a phone patch to the 15WG/CP (DSN 448-6900/Commercial (808) 448-6900). PMSV outages are discussed in [para 5.3.2](#)

2.7. Emergency Action(s) Response.

2.7.1. Aircraft Mishap. When notified on an aircraft mishap, the WF will initiate a save of applicable data used in the development of any weather products provided and supply this data to investigating agencies upon request.

2.7.1.1. If the WF provided the MWP, the WF will notify the 17 OWS Senior Duty Officer/NCOIC of all aircraft mishaps as soon as possible after notification of the event. The WF will coordinate with 17 OWS to save all applicable data and products. If products from other OWSs were used, the WF will coordinate with all applicable OWSs to ensure data is saved. Enough data covering weather conditions before and after the mishap will be saved to fully reconstruct environmental conditions.

2.7.1.2. If an OWS, TACC/XOW, or another WF provided the MWP, they will conduct the data save in coordination with any other Air Force Weather units involved. The WF will assist to the greatest extent possible.

2.7.2. Severe Weather Action Plan (SWAP). The WF will initiate SWAP in accordance with criteria listed in [Table 2.8](#) SWAP ensures sufficient manpower is available to meet the increased demand for timely weather information during significant weather events. It is imperative that timely and accurate WWAs are disseminated to all agencies to ensure RP of personnel and equipment. The WF will initiate a heightened METWATCH. The WF forecaster will notify the WF leadership of SWAP activation during normal staff duty hours. During non-duty hours, the 17 OWS will notify the WF on-call forecaster when conditions listed in [Table 2.9](#) have been met and the WF will activate SWAP.

Table 2.9. Conditions Requiring SWAP Activation.

Weather Watch	Desired Lead Time
Tornado, Funnel Cloud, or Waterspout	As potential warrants
Severe Thunderstorm (Damaging winds \geq 50 knots and/or damaging hail \geq $\frac{3}{4}$ inch)	As potential warrants
Damaging winds \geq 50 knots	As potential warrants
Weather Warning	Desired Lead Time
Tornado, Funnel Cloud, or Waterspout	30 minutes
Severe Thunderstorm (Damaging winds \geq 50 knots and/or damaging hail \geq $\frac{3}{4}$ inch)	60 minutes
Damaging winds \geq 50 knots	60 minutes
Note 1: <i>Only when NAOC is on station.</i>	
Tropical Cyclone Conditions of Readiness (TCCOR)	
JBPH-H is placed in TCCOR 5.	

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

2.7.3.1. The 17 OWS notifies the on-call forecaster prior to issuing any watch or warning for Hickam Field.

2.7.3.2. The 15WG/CP initiates the Integrated Wing Operations Center (IWOC) as directed by the 15 WG/CC.

2.7.3.3. The Joint Base Commander initiates the Emergency Operations Center (EOC)

2.7.3.4. Any special mission arrives on station. 15 WG/XP, Airfield Management Operations (AMOPS), or 15 WG/CP will notify the on-call forecaster of any unexpected special mission arrivals.

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

2.7.4.1. Due to joint basing, the WF is not the supporting weather organization for emergency management situations. According to JBPH-H 3440.17 Emergency Management (EM) Plan, Appendix 5, the JB37 Emergency Management is responsible for calculating an initial toxic corridor/downwind hazard area utilizing CBRN plume models. Additionally, the JB37 Emergency Management will rely on the Naval Maritime Forecast Center and Joint Typhoon Warning Center (Annex P) for all weather data

needed for emergency management issues; however, WF will serve as a backup, if necessary.

2.7.4.2. If surface observations or alphanumeric forecasts are requested, the WF will ensure that observations and forecasts provided are representative of the location/time of the CBRN event.

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

2.7.4.4. Upon request from Disaster Preparedness or any other agency, obtain/provide Chemical Downwind Messages from the servicing OWS.

Chapter 3

MISSION SERVICES

3.1. General. The WF and 17 OWS support the Hickam Field flying and non-flying missions. This chapter identifies the flying and non-flying missions and the weather support provided.

3.2. Flying Missions. The WF provides weather support to the flying units listed in [Attachment 6](#).

3.3. Mission Weather Products (MWP). MWPs fuse theater scale products with local mission requirements enabling the direct inject of weather impacts into warfighter planning and/or execution. MWPs are tailored to individual customer requirements and include flight weather briefings, mission planning briefs, and any other weather products prepared to meet the needs of a supported unit. MWPs are developed using the administrative and operational Mission Execution Forecast Process (MEFP) outlined in AFMAN 15-129V2 and supplemented by the WF's internal MEFP. The result is a product designed to provide timely, accurate, and relevant environmental information for planning and execution. The MWPs must be horizontally consistent with (but not necessarily mirror) products issued by any OWS and 557th Weather Wing.

3.3.1. Mission Execution Forecast (MEF). The daily web-based aviation MEF is designed to provide critical go/no-go weather information for all phases of local flying customers' sorties (see [Attachment 7](#) for sample product). It includes Drop-Zone (DZ) and air refueling (AR) forecasts, Take-Off/Landing Data (TOLD), solar/lunar data, flight hazards, and flight level winds for supported customers' mission operating areas. The MEF is available through the 17 OWS webpage and Hickam Weather Flight tailored page: <https://hickam.eis.pacaf.af.mil/15%20OG/OSS/OSW/layouts/15/start.aspx#/SitePages/Home.aspx>. In the event of a Local Area Network (LAN) outage, the web-based MEF will be faxed or emailed to the appropriate flying squadrons.

3.3.1.1. Issue Times. The web-based aviation MEF will be issued during normal duty days at 0600L and 1400L. Once issued, the MEF is valid for 24 hours. It will not be issued when local flying is not occurring.

3.3.1.2. Amendments/Updates. The web-based aviation MEF will be monitored continuously and updated as required. The MEF will be amended when TOLD is out of category and/or the Route/DZ/AR forecast is no longer representative of current or forecasted conditions and could adversely impact the scheduled sortie. Amendment conditions are constructed utilizing the mission limiting thresholds for supported aircraft in [Attachment 6](#). The following represents mandatory amendment criteria:

3.3.1.2.1. Ceilings. Any observed or forecasted ceiling conditions that increase to or exceed, or decrease to less than the following values in [Table 3.1](#).

Table 3.1. Ceiling Categories.

Ceiling Amendment Category					
3000	1500	700	500	300	200

3.3.1.2.2. **Visibility.** Any observed or forecasted visibility conditions that increase to or exceed, or decrease to less than the following values in [Table 3.2](#)

Table 3.2. Visibility Categories.

Visibility Amendment Category					
3	2	1 ½	1	¾	½

3.3.1.2.3. **Wind.** Any difference between the predominant wind speed and forecast wind speed is ≥ 10 knots (including gusts) or the difference in forecast wind direction of 30 degrees or more when the predominant wind speed (including gusts) is, or is forecast to be, in excess of 15 knots. Additionally, the MEF will be amended when the airdrop thresholds meet, exceed, or drop below thresholds listed in [Attachment 6](#) during the forecast period and was not correctly forecasted or if no longer occurring or expected to occur.

3.3.1.2.4. **Thunderstorms.** The time thunderstorms start or stop if not in the forecast or forecast for a different time.

3.3.1.2.5. **Turbulence and Icing.** For TOLD and DZ forecasts in which beginning or ending of the condition(s), not associated with thunderstorms, from the surface to 10,000 feet mean sea level (MSL) which first meet, exceed, or decrease below moderate or severe thresholds for CAT II aircraft and weren't specified in the forecast. For AR tracks, beginning or ending of conditions which first meet, exceed, or decrease below moderate or severe thresholds for CAT II aircraft and was not specified in the forecast.

3.3.1.2.6. **WWA.** Any established weather warnings or advisory (see [Table 2.4- 2.7](#)) which occur, or were expected to occur during the forecast period but was not correctly forecasted or if no longer occurring or expected to occur.

3.3.1.2.7. **Forecaster Discretion.** Any meteorological condition the forecaster feels is necessary to update due to safety of the mission.

3.3.1.3. **Decoding.** The MEF utilizes the standard meteorological coding for alphanumeric and graphical depiction using standard weather symbols, line types, color representations, and isopleths as outlined in AFH 11-203v2, *Weather For Aircrews*.

3.3.1.4. **Formal Briefing.** Aircrews should call the WF forecaster at 449-2251 to receive any updates to the web-based aviation MEF and gain a full understanding of expected weather impacts to their mission. Aircrews should call no later than (NLT) 1 1/2 hours before their designated take-off time to receive their briefing.

3.3.1.5. **Metrics.** The WF will provide metrics on MEF accuracy and status of products/services as requested.

3.3.2. **Flight Weather Briefings (175-1s).** Weather personnel will provide verbal or traditional flight weather briefings (DD Form 175-1, *Flight Weather Briefing*) to aircrews as

requested and in accordance with the flight's duty priorities as listed in **Table 1.1**. Briefings will be provided either through email/fax/phone. Please provide weather personnel as much lead time as possible to complete the DD 175-1 request by calling 449-2251 ahead of time. Out-of-station mass briefings for special missions require 48-hours advance notice, are subject to staffing availability, and must be coordinated with weather flight leadership at 449-2250/1201. Transient aircrews can receive flight weather briefings from either the WF (during normal duty hours) or the 17 OWS. The 17 OWS briefing cell can be contacted by phone (DSN (315) 449-8333), fax (DSN (315) 449-8336), or via the web: https://17ows.hickam.af.mil/wx_brief/index.cfm?fuseaction=request&AOI=1&UID=508&BW=H&UF=M&AOR=1&USEHF=1&TEST=0. The OWS requests 2 hours advance notice of DD 175-1 briefings.

3.4. Tropical Weather Support. Each year, tropical cyclones threaten US forces operating in the Pacific and Indian oceans. The Joint Typhoon Warning Center (JTWC), Pearl Harbor, HI, the Central Pacific Hurricane Center (CPHC), Honolulu, HI, and the National Hurricane Center (NHC), Miami, FL, issue tropical cyclone warnings and advisories. JTWC's area of responsibility (AOR) is from the East Coast of Africa to the West Coast of the Americas. CPHC issues civil tropical cyclone forecasts/advisories north of the equator between 180° and 140° W. NHC issues civil tropical cyclone forecasts/advisories north of the equator between 140° W and the West Coast of the Americas. In the CPHC and NHC AOR, JTWC will reissue the National Weather Service forecasts as warnings for DOD installation application/utilization. If CPHC or NHC disagree with JTWC's assessment that a warning should be issued, JTWC has the authority to issue its own warnings.

3.4.1. Tropical Cyclone-Threat Assessment Product (TC-TAP). During periods when tropical cyclones are threatening USPACOM installations, the National Military Command Center, Air Force Operations Center and major commands possessing assets or facilities on these installations continually monitor the weather and on-site actions taken to prevent or minimize damage. In addition to the JTWC or National Hurricane Center (NHC) Tropical Cyclone (TC) warnings, the TC-TAP bulletins serve as a vital source of TC forecast information for briefings to operational units at selected commands and operations centers.

3.4.1.1. The TC-TAP will contain, at a minimum, the following:

3.4.1.1.1. Time and date product was produced and the NHC/CPHC/Joint Typhoon Warning Center (JTWC) bulletin number/ identifier used to create the product.

3.4.1.1.2. Onset and duration of sustained 35-knot and 50-knot winds.

3.4.1.1.3. Peak wind and time of occurrence, including gusts.

3.4.1.1.4. Onset and duration of operationally significant (locally determined) crosswinds, including gusts for the primary instrumented runway. Use 25-knot crosswinds as the default.

3.4.1.1.5. Closest point of approach of the storm relative to the installation.

3.4.1.1.6. Forecast cone product.

3.4.1.2. OWS Responsibilities. The 17 OWS will produce TC-TAP bulletins for each installation in their AOR where they own Terminal Aerodrome Forecast (TAF) responsibility and/or provide site specific resource protection. All installations meeting

TC-TAP bulletin requirements will be reported on one bulletin. The 17 OWS will use the official storm forecast position, track, and intensity provided by either JTWC or the Central Pacific Hurricane Center (CPHC) as appropriate. Any additional locations will be based on command operational requirements and coordinated through appropriate organizations. At a minimum, the 17 OWS will prepare a bulletin whenever a TC-TAP location is expected to receive sustained winds greater than 35 knots in 96 hours or less due to a tropical cyclone, or if sustained winds of greater than 35 knots are already occurring due to a tropical cyclone. Any unit requirements for a bulletin beyond those listed above will be coordinated with the 17 OWS and should be limited to operational decisions such as evacuation, termination of exercise, etc.

3.4.1.3. **WF Responsibilities.** The WF will provide supported 15 WG/154 WG commander(s) or decision level authority with forecasts of the expected onset, intensity and end times of significant winds, and other weather associated with tropical cyclones affecting Hickam Field Air Operation's responsibility. The WF is not authorized to tailor TC-TAP bulletins without coordination with the issuing agency and should be fully engaged in the coordination process prior to the bulletin being issued.

3.4.2. **Tropical Cyclone Conditions of Readiness (TCCOR).** Commander, US Army Pacific maintains authority for the setting of TCCOR levels for the Hawaiian Islands. These conditions alert base agencies of the need to consider resource protection measures related to tropical weather.

3.4.2.1. TCCOR 5: 96 hours prior to possible arrival of sustained 50 KT/58 MPH winds

3.4.2.2. TCCOR 4: 72 hours prior to possible arrival of sustained 50 KT/58 MPH winds.

3.4.2.3. TCCOR 3: 48 hours prior to possible arrival of sustained 50 KT/58 MPH winds.

3.4.2.4. TCCOR 2: 24 hours prior to possible arrival of sustained 50 KT/58 MPH winds.

3.4.2.5. TCCOR 1: 12 hours prior to possible arrival of sustained 50 KT/58 MPH winds.

3.4.2.5.1. TCCOR 1E: Emergency. Winds sustained 50KT/58MPH occurring. Outside activity prohibited.

3.4.2.5.2. TCCOR 1R: Recovery Period.

3.4.2.6. ALL CLEAR – Base return to normal functions.

3.4.2.7. **WF Responsibilities.** When TCCOR 5 is initiated, the SWAP will automatically be activated. If requested, WF leadership will send a representative to the IWOC for real time weather updates for the Wing Commander(s) and coordinate weather support for the duration of the event and post-recovery period. When TCCOR 3 is initiated, JBPH-H begins to sortie all ships from the harbor and aircraft will begin to prepare to depart for evacuation.

3.5. MISSIONWATCH. This is a deliberate process for monitoring terrestrial weather and/or the space environment for specific mission-limiting environmental factors. The WF will ensure all facets of the mission has a deliberate MISSIONWATCH process utilizing the knowledge of flight schedules, tactics, and close contact with Supervisors of Flying (SOFs) and ops cells. During rapidly changing weather, the WF will amend/update MWP as required (see [paragraph 3.3.1.2.](#) for amendment thresholds) and contact the applicable agencies to pass on critical

changes and recommend alternatives to exploit mission weather. Forecasters continually monitor the flight routes of each mission departing and returning to Hickam Field, and will immediately notify the aircrew if weather develops in their route that was not previously briefed/forecast through the MWP amendment process (see [paragraph 3.3.1.2](#)). The 17 OWS will perform flight and route MISSIONWATCH for transient flights they brief which depart from Hickam Field. The WF will perform flight and route MISSIONWATCH for transient flights departing Hickam Field that were briefed by WF personnel.

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

3.6.1. Mission Weather Support Feedback. Aircrews should make a consistent and deliberate intent to make contact the WF with post-mission information and/or follow-up support. The WF will utilize customer feedback to improve internal processes and enhance training, forecast proficiency, and product accuracy. Formal/informal feedback methods include:

- 3.6.1.1. Completion of feedback worksheet located on the MEF or when directed via email solicitation.
- 3.6.1.2. Phone call or an e-mail to the WF.
- 3.6.1.3. Face-to-face feedback after briefing and/or mission completion.

3.7. Transient Aircrew Support. Weather technicians will provide or arrange for weather support for transient aircrews IAW the duty priorities list in [Table 1.1](#). The WF may provide flight weather briefings (175-1s), and/or updates to aircrews. Weather technicians may arrange for weather support from the 17 OWS briefing cell when greater duty priorities take precedence. The 17 OWS briefing cell can be reached at DSN 315 449-8333, commercial (808) 449-8333, or via web access from the aircrew briefing terminal located in the flight planning room.

3.8. Non-Flying Missions. The WF and 17 OWS support various non-flying missions (e.g., WG Picnic, change of command ceremonies, Morale Welfare and Recreation) through RP (WWAs). Specific support to non-flying missions is identified in [Chapter 4](#). Specialized weather information can be provided to support any non-flying mission upon request. Non-governmental agencies should request weather information and support through 15 WG Public Affairs (PA) and legal offices.

3.9. Space Weather Impacts. Hickam Field Air Operation's missions have a wide-variety of parameters affected by various space-weather conditions (e.g., High Frequency and Ultra High Frequency communication, radar, Global Positioning System communications, etc.). The WF will provide space impacts on their MWPs. Examples of the products utilized to inject space weather impacts are provided in [Attachment 9](#).

3.10. Tactical Decision Aids. Although the WF handles 19/199 Fighter Squadron (FS) (F-22) support, at this time, no parent/host units requires Tactical Decision Aids (TDA) or electro-optical aids such as the Target Acquisition Weather Software (TAWS) on a consistent basis. WF leadership requires that parent/host units inform them of changes to their TDA needs so that procedures, training, and updated software can be generated accordingly.

3.11. Alert Support. The WF will provide alert outlook for the 19/199 FS during periods of extended closure (i.e., weekends). This product will be developed on the last duty day of the week and will be valid through the closure period. This product is not intended to serve as an official weather brief or mission execution forecast and is simply an outlook for situational awareness. No amendments will be provided for this product and the mission limiting thresholds will be developed based on criteria listed in [Attachment 6](#). See [Attachment 8](#) for sample product.

Chapter 4

STAFF SERVICES

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

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

4.2.1. **Staff Briefings.** Staff weather briefings for 15/154th WGs (wing stand up), 515th Air Mobility Operations Wing (AMOW) will be provided as requested. Standard information includes, but not limited to, satellite picture, radar imagery, daily weather story, and a 5-day JBPH-H weather outlook with a focus on any affected Wing events. Briefing slides may be tailored to meet specific weather requirements.

4.2.2. **Integrated/Wing Operations Center (IWOC/WOC) or Emergency Operations Center (EOC) Briefings.** The WF will provide weather support as required for IWOC/WOC/EOC briefings. This includes real-world emergencies, exercises, and deployment briefings (*Note:* In-person exercise briefings will be conducted on a case-by-case basis due to manning constraints). Each briefing will be tailored to provide the appropriate weather intelligence required by the 15 WG leadership.

4.2.3. **Instrument Refresher Course (IRC) Briefings.** In accordance with AFMAN 11-210, *Instrument Refresher Course (IRC)*. When requested, the WF will provide a briefer to discuss more detailed local weather effects and impacts. This briefing will include airfield and mission services, WF and 17 OWS capabilities, RP, MEF structure and capabilities, seasonal/regional weather and space weather impacts (when applicable).

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

4.2.5. **Defense POW/MIA Accounting Agency (DPAA).** The WF will provide climatological services when requested. Briefing content will be tailored to meet customer requirements.

4.2.5.1. The WF will coordinate with DPAA for any weather support required and will provide or arrange for support worldwide.

4.2.5.2. The WF will provide briefings at the Commanding General (CG) decision briefings, predeployment briefings, and other briefings as needed.

4.2.6. **Climatology Services.** Upon request, provide climatology information such as end of month climatology or historical climatology. End of month climatology will be based on the available assistance from the PHNL Observing Services.

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

4.3.1. 15 WG Support.

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

4.3.1.1.1. **Open Skies Support.** The WF will:

4.3.1.1.1.1. Provide a weather briefing to the observation team upon its arrival, daily weather briefings as requested, and pilot weather briefings prior to missions and training activities.

4.3.1.1.1.2. If requested, provide daily weather briefings detailing the current and forecasted weather for the entire mission period to include applicable satellite and radar imagery, current and forecasted surface maps, an outlook for the local area and any other requested forecast data.

4.3.1.1.1.3. Develop a briefing providing local, take-off, en route, and arrival weather using DD Form 175-1, Flight Weather Briefing. Open Skies Treaty (OST) pilots must furnish aircraft type and call sign, time of departure, flight level, and planned primary and alternate destinations.

4.3.1.1.1.4. Provide weather parameters (surface pressure and flight level outside air temperature) for overflight areas as requested.

4.3.1.1.1.5. Arrange for weather support when support is not available locally.

4.3.1.1.1.6. Provide local weather support IAW the host airfield Compliance Plan, Instruction, or AFI 16-604, *Implementation of, and compliance with, the treaty of open skies.*

4.3.1.1.2. **NAOC Support.**

4.3.1.1.2.1. The 17 OWS or WF will provide notification of all forecasted weather watches, warnings, and advisories via Integrated Weather Warnings Capability (IWWC), telephone, e-mail, or in-person to CP during airfield hours of operations that affect Hickam Field. CP will notify the NAOC Watch Officer through applicable Quick Reaction Checklists (QRCs).

4.3.1.1.2.2. Arrange for weather support when support is not available locally (e.g., if the WF is closed, the WF will coordinate support with the 17 OWS).

4.3.1.2. **Command Post (CP).** The WF will notify the CPs whenever the base weather station is evacuated and/or the AOL is activated.

4.3.1.2.1. The 17 OWS or WF provides notification of all forecasted weather watches, warnings, and advisories via Integrated Weather Warnings Capability (IWWC), telephone, e-mail, or in-person during airfield hours of operations that affect Hickam Field.

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

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

4.3.1.3. **Public Affairs (PA).** The WF provides tours of the base weather station for community groups and others when coordinated by PA.

4.3.1.4. **Judge Advocate (JA).** Will refer to JA all requests or subpoenas for weather information, including requests for WF response actions to severe weather related to weather causing damage or injury that may be associated with civil claims or court action to 15 WG/JA.

4.3.1.4.1. For any request for synoptic weather records kept in accordance with record disposition schedule, the WF will compile the records recorded in regular course of WF operations and release IAW Freedom of Information Act (FOIA) procedures after coordination with 15 WG/JA.

4.3.1.4.2. For any request of weather observation record including a supplemented remark of Aircraft Mishap, the WF will provide FAA contact information to the Safety Board.

4.3.1.4.3. For any request or subpoena for weather observation record involving an augmented record for severe weather, including, e.g., comment of 'funnel cloud,' 'hail' (size over an inch in diameter), the WF will provide FAA contact information to the 15 WG/JA.

4.3.2. **15 Operations Group.**

4.3.2.1. **15 OSS/Operations Support Airfield Management (OSAA).** During hours of operation the 17 OWS or WF provides notification of all forecasted weather watches, warnings, and advisories via Integrated Weather Warnings Capability (IWWC), telephone, e-mail, or in-person to Airfield Management.

4.3.2.1.1. OSAA will disseminate weather warnings via secondary crash net (SCN) to the 15th Maintenance Group (MXG) and the 647th Air Base Group (ABG).

4.3.2.1.2. The WF will notify the OSAA whenever the WF is evacuated and/or the AOL is activated.

4.3.2.1.3. The WF will notify OSAA of any changes to PMSV frequency or operability so that it may be updated in the Flight Information Publication (FLIP) and provide a Notice to Airmen (NOTAM) for dissemination.

- 4.3.2.1.4. WF leadership will participate as a member of the Airfield Operations Board (AOB) as directed in AFI 13-204 Vol III, *Airfield Operations Procedures and Programs*.
- 4.3.2.2. **15 OSS/Operations Support Air Traffic (OSAT)**. The WF will notify Hickam Ramp Facility (HRF) of any changes to PMSV frequency or operability.
- 4.3.2.2.1. The WF will contact the HRF at least once daily to establish a radio check.
- 4.3.3. **647th Air Base Group (ABG)**.
- 4.3.3.1. **647th Civil Engineer Squadron (CES)**. The WF will provide a monthly climatology report when requested. See **paragraph 2.8.4** for CBRNE support.
- 4.3.3.1.1. The WF will routinely meet with installation EM and Bioenvironmental Engineering (BEE) to achieve appropriate mission immersion.
- 4.3.3.2. **647th Logistics Readiness Squadron (LRS)**. The WF will provide any predeployment/deployment briefings upon request.
- 4.3.3.3. **647th Communications Squadron (CS)**. The WF will abide by all local instructions for patches, upgrades, notices, security, and will ensure all equipment maintained by the 747 CS is logged out appropriately.
- 4.3.4. **766th Specialized Contracting Squadron (SCONS)**. The WF will provide a monthly climatology report when requested or any other climatological support for contracting as needed.
- 4.3.4.1. **154 WG Support (HIANG)**.
- 4.3.4.2. **Command Post**. The WF will notify the CP's whenever the base weather station is evacuated and/or the AOL is activated.
- 4.3.4.1.1. The 17 OWS or WF provides notification of all forecasted weather watches, warnings, and advisories via Integrated Weather Warnings Capability (IWWC), telephone, e-mail, or in-person to CP during airfield hours of operations that affect Hickam Field.
- 4.3.4.1.2. Will disseminate all Hickam Field WWAs to the 154th MXG, 154th Mission Support Group (MSG), 154th Operations Group (OG), and 169th Aircraft Control and Warning Squadron (ACWS)
- 4.3.4.1.3. Coordinate with the CP for weather related Operational Report 3 (OPREP-3) and provide the CP any pertinent weather information.

4.4. Reciprocal Support.

4.4.1. 15 WG Support.

- 4.4.1.1. **Plans and Programs (XP)**. Provide advance notification to the WF of real-world contingencies or periodic exercises (e.g., readiness, tropical, etc.)."
- 4.4.1.1.1. Notify Operations Noncommissioned Officer in Charge (NCOIC), Weather Flight Chief, or Flight Commander of all potential specialized support that may impact Hickam Field (e.g., NAOC, Opens Skies, etc.).

- 4.4.1.1.2. Notify Operations NCOIC, Weather Flight Chief, or Flight Commander of all rewrites in association with OPLANS to provide updated weather support.
 - 4.4.1.2. **Command Post (CP).** Ensure dissemination of weather watches, warnings, and advisories IAW applicable QRCs and activate the IWOC as required by the 15WG/CC.
 - 4.4.1.2.1. Notify the WF when activating the IWOC/WOC.
 - 4.4.1.2.2. Notify the WF when any other agency or credible source (i.e., Fire Department, City and County of Honolulu Department of Emergency Management, or Honolulu Police Department) reports a funnel cloud, tornado or any other significant weather event.
 - 4.4.1.2.3. Include the WF on their dissemination/notification list for any weather related OPREP-3s or incidents.
 - 4.4.1.3. **Public Affairs (PA).** Will coordinate tours of the WF by community groups and others with the WF leadership.
 - 4.4.1.4. **Judge Advocate (JA).** Will review all requests for weather information that are associated with civil claims or court cases and provide approval for public release of weather information.
- 4.4.2. **15th Operations Group.**
- 4.4.2.1. **15 OSS/OSAA.** Notify the WF immediately of all aircraft emergencies, incidents, or accidents.
 - 4.4.2.1.1. Notify Operations NCOIC, Weather Flight Chief, or Flight Commander of all changes to published approach weather minimums at Honolulu International/Hickam Field (published in FLIPs). The WF will provide amendments/updates to this document and update all internal SOPs based upon changes in the FLIPs.
 - 4.4.2.1.2. Advise the WF of all changes in the active runway.
 - 4.4.2.1.3. Relay pilot weather reports to weather personnel. Notification should be provided as soon as possible, and NLT 5 minutes after receipt.
 - 4.4.2.1.4. Will notify the WF if there are any issues or concerns with the web-based aircrew-briefing terminal that is located in base operations, Flight Planning Room.
 - 4.4.2.1.5. Contact the WF leadership to request climatological data and specialized support for projects affecting Hickam Field.
 - 4.4.2.2. **15 OSS/OSAT.** Conduct radio checks to ensure proper PMSV operation.
 - 4.4.2.2.1. If the WF PMSV is inoperable, will provide a UHF/VHF (*Thales*) handheld multiband radio to monitor PMSV calls.
 - 4.4.2.2.2. Provide access to work area, phone and LAN connection for the WF AOL in the Hickam Ramp Facility. WF actions in the AOL will take priority over routine training actions during weather station evacuations.
 - 4.4.2.3. **15 OSS/OSAA.** Maintain and repair the PMSV (OK-423 system) as required in accordance with published response times, and will assist WF in conducting the

barometric pressure comparison/calibration on the annual preventive maintenance inspection (PMI) for the TMQ-53.

- 4.4.2.3.1. Ensure scheduled maintenance does not degrade METWATCH and/or MISSIONWATCH performed by the WF during periods of inclement weather and notify the weather technician prior to routine maintenance.
 - 4.4.2.3.2. Utilize the restoration priorities for weather communications and meteorological sensing equipment outlined in this document.
 - 4.4.2.3.3. Notify the responsible service agents for weather communications and meteorological sensing equipment outages.
 - 4.4.2.3.4. Coordinate with off-base agencies to repair off base lines.
 - 4.4.2.3.5. Perform necessary follow-up actions as required until full service is restored.
 - 4.4.2.3.6. Ensure established maintenance response times are met.
 - 4.4.2.3.7. Ensure a 24-hour point of contact for reporting outages and assigning job control numbers is available.
 - 4.4.2.3.8. Coordinate with WF shift supervisor prior to taking any equipment down for maintenance.
- 4.4.2.4. **All Supported Flying Units (535 AS, 65 AS, 203 ARS and 19 FS).** Notify weather technician of current and planned weather alternates and any special considerations affecting missions (i.e., weather categories, exercise/deployment considerations, etc.).
- 4.4.2.4.1. Notify the WF of required additional support as soon as it becomes known to include monitoring of alternate observations/forecast and tracking of weather conditions affecting local flying operations.
 - 4.4.2.4.2. Provide the WF a weekly/daily flying schedule. At a minimum, the schedule must include take-off and landing times, orbit/route name and valid times, and flight level.
 - 4.4.2.4.3. Provide notification (at least 24 hours in advance) of changes to scheduled operations that affect weather support requirements. The WF may need to flex their manning requirements to support changes in flying schedules.
 - 4.4.2.4.4. Provide PIREPS either directly to the WF or through the PMSV, Airfield Management, or Supervisor of Flying (SOF).
 - 4.4.2.4.5. Provide post-mission feedback to the WF for all missions, especially those considered non-effective due to weather.
 - 4.4.2.4.6. Provide guidance (at least 2 weeks in advance) to the WF regarding any weather training/educational (e.g., IRC Briefings, etc.) requirements (or changes in requirements) if applicable.
 - 4.4.2.4.7. Coordinate with WF leadership to schedule in-person briefings for deploying aircrews, providing at least 48 hours notice.

4.4.2.4.8. Notify WF leadership when new weather support requirements are identified.

4.4.3. 15th Maintenance Group (MXG).

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

4.4.4. 647th Air Base Group (ABG). Will take all necessary precautions in advance of, or during, inclement weather.

4.4.4.1. Will notify WF when activating the EOC.

4.4.4.2. **647th Civil Engineer Squadron (CES).** Contact the WF leadership to request climatological data and specialized support for projects affecting Hickam Field.

4.4.4.2.1. Will contact the WF when backup CBRNE support is required.

4.4.4.3. **647th Logistics Readiness Squadron (LRS).** Coordinate changes/additions to weather support requirements as required.

4.4.4.4. **647th Security Forces Squadron (SFS).** As part of the JBPH-H Base Defense Operations Center (BDOC), promptly inform the WF of any hazardous weather reported by security forces personnel (e.g., tornado, hail, etc.).

4.4.5. 766 SCONS. Contact WF leadership to request climatological data and specialized support for projects.

4.4.6. 154 WG Support (HIANG).

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

4.4.6.2. Notify WF leadership when new weather support requirements are identified.

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

4.4.6.4. **All Supported Flying Units (204 AS, 203 ARS, and 199 FS).** Notify weather technician of current and planned weather alternates and any special considerations affecting missions (i.e., weather categories, exercise/deployment considerations, etc.).

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

4.4.6.4.2. Provide the WF a weekly/daily flying schedule. At a minimum, the schedule must include take-off and landing times, orbit/route name and valid times, and flight level.

4.4.6.4.3. Provide notification (at least 24 hours in advance) of changes to scheduled operations that affect weather support requirement. The WF may need to flex their manning requirements to support changes in flying schedules.

4.4.6.4.4. Provide PIREPS either directly to the WF or through the PMSV, Airfield Management, or Supervisor of Flying (SOF).

4.4.6.4.5. Provide post-mission to the WF for all missions, especially those considered non-effective due to weather.

- 4.4.6.4.6. Provide guidance (at least 2 weeks in advance) to the WF regarding any weather training/educational (e.g., IRC Briefings, etc.) requirements (or changes in requirements) if applicable.
 - 4.4.6.4.7. Coordinate with WF leadership to schedule in-person briefings for deploying aircrews, providing at least 48 hours notice.
 - 4.4.6.4.8. Notify WF leadership when new weather support requirements are identified.
- 4.4.7. United States Army Priority Air Transport Pacific Flight Detachment (USAPAT-PFD).** Notify weather leadership of current and planned weather alternates and any special considerations affecting missions (i.e., weather categories, exercise/deployment considerations, etc.).
- 4.4.7.1. Notify the WF of required additional support as soon as it becomes known to include monitoring of alternate observations/forecast and tracking of weather conditions affecting local flying operations.
 - 4.4.7.2. Provide the WF a weekly/daily flying. At a minimum, the schedule must include take-off and landing times, orbit/route name and valid times, and flight level.
 - 4.4.7.2.1. Provide notification (at least 24 hours in advance) of changes to scheduled operations that affect weather support requirements as soon as changes are identified. The WF may need to flex their manning requirements to support changes in flying schedules.
 - 4.4.7.3. Provide post-mission feedback to the WF for all missions, especially those considered non-effective due to weather.
 - 4.4.7.4. Provide guidance (at least 2 weeks in advance) to the WF regarding any weather training/educational (e.g., IRC Briefings, etc.) requirements (or changes in requirements) if applicable.
 - 4.4.7.5. Notify WF leadership when new operational weather support requirements are identified.
- 4.4.8. Executive Transport Detachment Pacific (ETD PAC).** Notify weather leadership of current and planned weather alternates and any special considerations affecting missions (i.e., weather categories, exercise/deployment considerations, etc.).
- 4.4.8.1. Notify the WF of required additional support as soon as it becomes known to include monitoring of alternate observations/forecast and tracking of weather conditions affecting local flying operations.
 - 4.4.8.2. Provide the WF a weekly/daily flying schedule. At a minimum, the schedule must include take-off and landing times, orbit/route name and valid times, and flight level.
 - 4.4.8.2.1. Provide notification (at least 24 hours in advance) of changes to scheduled operations that affect weather support requirements as soon as changes are identified. The WF may need to flex their manning requirements to support changes in flying schedules.

4.4.8.3. Provide post-mission feedback to the WF for all missions, especially those considered non-effective due to weather.

4.4.8.4. Provide guidance (at least 2 weeks in advance) to the WF regarding any weather training/educational (e.g., IRC Briefings, etc.) requirements (or changes in requirements) if applicable.

4.4.8.5. Notify WF leadership when new operational weather support requirements are identified.

4.4.9. **Defense POW/MIA Accounting Agency (DPAA).** Provide notification (at least 1 week in advance) to the WF regarding any weather support requirements for upcoming missions, or changes in requirements, to facilitate adequate planning and support.

4.4.9.1. Provide notification (at least 24 hours in advance) of changes to scheduled operations that affect weather support requirements. The WF may need to flex their manning requirements to support changes to mission support.

4.4.9.2. Notify WF leadership when new or changes to operational weather support requirements are identified.

4.4.10. **Base Operations Flight Information Publication (FLIP) Manager.** The FLIP manager will submit FLIP updates provided by the WF to Air Force Flight Standards Agency/Operating Location-D (AFFSA)/OL-D.

4.4.11. **All Weather Support Recipients.**

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

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

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

Chapter 5

WEATHER EQUIPMENT

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

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

5.2.1. **Video Display Unit (VDU).** The VDU that provides an up-to-date feed of the latest airfield conditions from Honolulu International Airport.

5.2.2. **Lightning Detection.** Vaisala TSS 928 provides local-area lightning tracking. Lightning-sensitive operations rely on TSS 928 to provide critical local lightning threat information to take advance precautions and initiate safety procedures. Back-up sources of national lightning data are available through the Air Force Weather-Web Services (AFW-WEBS).

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

5.3.1. **JET.** As discussed in [para 2.5](#) of this instruction, JET is the primary system for disseminating warnings, watches, and advisories. Telephones are used as a backup for key aircraft controlling agencies.

5.3.2. **PMSV Radio.** The PMSV Radio (346.6 MHz) allows the WF to communicate with aircrews, both on the ground and flying, as well as tower personnel. If the PMSV is out-of-service, aircrews can contact Wheeler Army Airfield (AAF) Weather at 125.1 MHz (if within range) or the WF and/or 17 OWS can provide PMSV support through a phone patch to the 15WG/CP (DSN 448-6900/Commercial (808) 448-6900).

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

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

5.4. Maintenance. [Table 5.1](#) identifies which organizations provide preventive maintenance and repair weather and communications equipment.

Table 5.1. Equipment Maintenance List.

Organization	Equipment
557 th Weather Wing Fielded Systems	JET
Navy N6 (Wake Light), Joint Hawaii Information Transfer Systems	Phones/Hotlines
747 CS/SCOI (Network Maintenance)	LAN/Internet Connectivity
15 OSS/OSAA	PMSV (OK-423 system)

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

Table 5.2. Equipment Restoral Priorities.

Equipment	Organization	Response Times Significant/Minimal
PMSV Radio	15 OSS/OSAA	Immediate/24 hours
LAN/Internet Connectivity/Phones/Hotlines/JET	747 CS/SCOI	Immediate/12 hours
PMSV (OK-423 system)	15 OSS/OSAA (Airfield Systems)	30 min report to site/Next Duty Day

RANDALL S. HUISS, Colonel, USAF
Commander

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

- AFI 10-206, *Operational Reporting*, 11 June, 2014
- AFI 10-229, *Responding to Severe Weather Events*, 20 January, 2012
- AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, 24 January, 2007
- AFH 11-203v2, *Weather for Aircrews*, 13 August, 2015
- AFI 11-202v3, *General Flight Rules*, 07 November, 2014
- AFI 11-2C-17v3, *C-17 Operations Procedures*, 16 November, 2011
- AFI 11-2F-22Av3, *F-22A Operations Procedures*, 08 December, 2009
- AFI 11-2KC-135v3, *KC-135 Operations Procedures*, 15 August, 2013
- AFI 11-2VIPv3, *VIP Operations Procedures*, 12 February, 2010
- AFMAN 11-210, *Instrument Refresher Program*, 03 February, 2005
- AFI 13-204V3, *Airfield Operations Procedures and Programs*, 01 September 2010
- AFI 13-217, *Drop Zone and Landing Zone Operations*, 10 May 2007
- AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*, 07 December, 2001
- AFI 15-128, *Air Force Weather Roles and Responsibilities*, 07 February, 2011
- AFMAN 15-111, *Surface Weather Observations*, 27 February, 2013
- AFMAN 15-124, *Meteorological Codes*, 28 February, 2013
- AFMAN 15-129V1, *Air and Space Weather Operations - Characterization*, 06 December, 2011
- AFMAN 15-129V2, *Air and Space Weather Operations - Exploitation*, 07 December, 2011
- AFFD 15-1, *Air Force Weather Operations*, 12 November, 2015
- AFI 16-604, *Implementation of, and compliance with, the treaty of open skies*, 28 March, 2012
- JBPH-H 3440.17, EM Plan, *Destructive Weather (Appendix 1)*, 01 August 2014
- JBPH-H 3440.17, EM Plan, *Hazardous Materials Spill/Release (Appendix 5)*, 01 August 2014
- JBPH-H 3440.17, EM Plan, *Naval Maritime Forecast Center/Joint Typhoon Warning Center (NMFC/JTWC) (Annex P)*, 01 August 2014
- JO 7900.5C, *Surface Weather Observing*, 21 December, 2012
- NWSI 10-813, *Terminal Aerodrome Forecasts*, 05 April, 2012
- PACAFI 15-101, *Weather Support for PACAF*, 23 April, 2014

Prescribed Forms

None

Adopted Forms

DD Form 175-1, *Flight Weather Briefing*, October 2002

AF Form 847, *Recommendation For Change of Publication*, 22 September 2009

Abbreviations and Acronyms

A/N—Alphanumeric

ABG—Air Base Group

ACWS—Aircraft Control and Warning Squadron

ADIZ—Air Defense Identification Zone

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFFSA—Air Force Flight Standards Agency

AFPD—Air Force Policy Directive

AFRIMS—Air Force Records Information System

AFS—Air Force Station

AFWA—Air Force Weather Agency

AFW-WEBS – Air Force Weather—Web Services

AIREP—Air Report

ALOHA—Area Locations of Hazardous Atmospheres

AMOPS—Airfield Management Operations

AMOW—Air Mobility Operations Wing

AMS—Air Mobility Squadron

AOB—Airfield Operations Board

AOC—Air and Space Operations Center

AOL—Alternate Operating Location

AOR—Area of Responsibility

AR—Air Refueling

AS—Airlift Squadron

ASOS—Automated Surface Observing System

ARC—Advanced Rescue Craft

ARS—Air Refueling Squadron

ATC—Air Traffic Control

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

CDS—Container Delivery System

CES—Civil Engineer Squadron

CG—Commanding General

COOP—Continuity of Operations

CP—Command Post

CPHC—Central Pacific Hurricane Center

CRRC—Combat Rubber Raiding Craft

CS—Communications Squadron

CU—Characterization Unit

DoD—Department of Defense

DPAA—Defense POW/MIA Accounting Agency

DZ – Drop—Zone

EM—Emergency Management

EOC—Emergency Operations Center

ETD—PAC – Executive Transport Detachment Pacific

EU—Exploitation Unit

EWO—Emergency War Order

FAA—Federal Aviation Administration

FITS—Fighter Index of Thermal Stress

FLIP—Flight Information Publication

FOIA—Freedom of Information Act

FS—Fighter Squadron

GDSS—Global Decision Support System

HAARS—High Altitude Airdrop Resupply System

HIANG—Hawaii Air National Guard

HRF—Hickam Ramp Facility

IAP—International Airport

IAW—In Accordance With

ICAO—International Civil Aviation Organization

IRC—Instrument Refresher Course

IWOC—Integrated Wing Operations Center

IWWC—Integrated Weather Warnings Capability
JA—Judge Advocate
JBPH-H – Joint Base Pearl Harbor-Hickam
JET—Joint Environmental Toolkit
JTWC—Joint Typhoon Warning Center
LAN—Local Area Network
LLWS – Low-Level Wind Shear
LRS—Logistics Readiness Squadron
MEF—Mission Execution Forecast
MEFP—Mission Execution Forecast Process
METAR—Meteorological Terminal Aviation Routine Report
METSAT—Meteorological Satellite
METWATCH—Meteorological Watch
MSL—Mean Sea Level
MWP—Mission Weather Products
MXG—Maintenance Group
NAOC—National Airborne Operations Center
NCOIC—Noncommissioned Officer in Charge
NHC—National Hurricane Center
NLT—No Later Than
NOAA—National Oceanic and Atmospheric Administration
NOTAM—Notice to Airmen
NM—Nautical Mile
NWS—National Weather Service
NWWS—NOAA Weather Wire Service
OG—Operations Group
OPLAN—Operational Plan
OPREP—Operational Report
OPS—Office of Primary Responsibility
OPSEC—Operations Security
OPVER—Operational Verification
OSAA—Operations Support Airfield Management

OSAT—Operations Support Air Traffic
OST—Open Skies Treaty
PA—Public Affairs
PIREP—Pilot Report
PACAF—Pacific Air Force
PMI—Preventive Maintenance Inspection
PMSV – Pilot-to-Metro Service
QA—Quality Assurance
QRC—Quick Reaction Checklist
RAM—Raised Angle Marker
RDS—Records Disposition Schedule
ROC—Regional Operations Center
RP—Resource Protection
RVR—Runway Visual Range
SATB—Standard Airdrop Training Bundle
SCN—Secondary Crash Net
SCONS—Specialized Contracting Squadron
SDO—Senior Duty Officer
SFS—Security Forces Squadron
SM—Statute Mile
SME—Subject Matter Expert
SOF—Supervisor of Flying
SOP—Standard Operating Procedure
SPECI—Special
SWAP—Severe Weather Action Plan
SWS—Special Weather Statements
TAF—Terminal Aerodrome Forecast
TC—Tropical Cyclone
TC-TAP – Tropical Cyclone-Threat Assessment Product
TCCOR—Tropical Cyclone Conditions of Readiness
TOC—Telecommunication Operations Center
TOLD—Takeoff/Landing

TDA—Tactical Decisions Aids

TAWS—Target Acquisition Weather Software

USAPAT-PFD – United States Army Priority Air Transport Pacific Flight Detachment

USPACOM—United States Pacific Command

VDU—Video Display Unit

WF—Weather Flight

WOC—Wing Operations Center

WWA—Watch, Warning, and Advisory

XP—Plans and Programs

Attachment 2

17 OWS COOP SUPPORT

A2.1. Bellows AFS Support

A2.1.1. **Watches.** The following watches are issued outlining a 5NM radius of Bellows AFS and are defined in [Table A2.1](#) *Note:* Watches, except lightning and tornado, funnel cloud, or waterspout will not be issued when Bellows AFS is in Tropical Cyclone Conditions of Readiness (TCCOR) 1.

Table A2.1. Watch Criteria.

Criteria	Desired Lead Time
Tornado, Funnel Cloud, Waterspout	As potential warrants
Severe Thunderstorm (Damaging Winds \geq 50 Knots and/or damaging hail \geq $\frac{3}{4}$ inch)	As potential warrants
Damaging Winds \geq 50 Knots	As potential warrants
Lightning within 5 NM	As potential warrants

A2.1.2. **Warnings.** The following watches are issued outlining a 5NM radius of Bellows AFS and are defined in [Table A2.2](#) *Note:* Warnings, except lightning and tornado, funnel cloud, or waterspout will not be issued when Bellows AFS is in Tropical Cyclone Conditions of Readiness (TCCOR) 1.

Table A2.2. Warning Criteria.

Criteria	Desired Lead Time
Tornado, Funnel Cloud, Waterspout	15 Minutes
Severe Thunderstorm (Damaging Winds \geq 50 Knots and/or damaging hail \geq $\frac{3}{4}$ inch)	60 Minutes
Damaging Winds \geq 50 Knots	60 Minutes
Lightning within 5 NM	Observed

Attachment 3

**SAMPLE WEATHER PRODUCT DISSEMINATION FORMAT/INTERPRETATION
WWAS**

A3.1. Weather Watches, Warnings, and Advisories.**Table A3.1. Sample WWAs.****1. WEATHER WATCH.**

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

2. FORECAST WEATHER WARNING.

HICKAM FIELD WEATHER WARNING 11-051
VALID 10/1500Z (10/1000L) TO 10/2200Z (10/1700L)
SEVERE THUNDERSTORMS WITH DAMAGING WINDS \geq 50 KTS (FORECAST VALUE
65 KTS) AND HAIL \geq $\frac{3}{4}$ IN. (FORECAST VALUE 1 IN.) IS FORECAST TO OCCUR.

3. OBSERVED WEATHER WARNING.

HICKAM FIELD WEATHER WARNING 05-001
VALID 17/1921Z (17/1421L) TO UFN
OBSERVED LIGHTNING IS OCCURRING WITHIN 5NM

4. FORECAST WEATHER ADVISORY.

HICKAM FIELD WEATHER ADVISORY 02-012
VALID 10/0500Z (10/0000L) TO 10/1400Z(10/0900L)
SURFACE WINDS \geq 25 KTS BUT $<$ 35 KTS IS FORECAST TO OCCUR.

5. OBSERVED WEATHER ADVISORY.

HICKAM FIELD WEATHER ADVISORY 09-037
VALID 08/1408Z (08/0908L) TO UFN
OBSERVED CROSSWINDS \geq 25KTS.

Attachment 4

CUSTOMER RESPONSE MATRIX

Figure A4.1. Customer Response Matrix.

Weather Phenomena	Lead Time (Warnings)	Impact	Customer Action
Tornado, Funnel Cloud, or Waterspout	30 Minutes	Immediate threat of catastrophic damage to personnel and property	Seek shelter; hangar or divert aircraft
Severe Thunderstorm (Damaging winds ≥ 50 knots and/or damaging hail $\geq \frac{3}{4}$ inch)	60 Minutes	Personal injury/death; High risk of damage to flightline activities, facilities and exposed personnel, aircraft or vehicles	Seek shelter; hangar, tie down or divert aircraft; secure flightline
Moderate Thunderstorm (Damaging winds ≥ 35 knots but < 50 knots and/or damaging hail $\geq \frac{1}{4}$ but $< \frac{3}{4}$ inch)	60 Minutes	Increased risk of damage to flightline activities, facilities and exposed personnel, aircraft or vehicles	Point aircraft into wind; space out or tie down aircraft; secure flightline
Damaging winds ≥ 50 knots	60 Minutes	Threat to exposed personnel; increased risk of damage to facilities and equipment	Cease unnecessary flying; secure or hangar aircraft; secure flightline and light objects outside
Strong winds ≥ 35 knots but < 50 knots	60 Minutes	Flight hazard; equipment damage	Cease unnecessary flying; secure or hangar aircraft; utilize ORM; limit elevated operations
Heavy Rain ≥ 2 inches in 12 hours	60 Minutes	Disrupts flightline and maneuver activities; imposes increased risk on personnel movement and base flooding	Personnel take shelter; use ORM to assess justified activities/maintenance
Surface winds ≥ 25 knots but < 35 knots	30 Minutes	Personnel hazard; potential operational impacts	Secure flight line; limit exposure to upper parts of aircraft; use ORM to assess justified activities/maintenance
Weather Phenomena	Lead Time	Impact	Customer Action

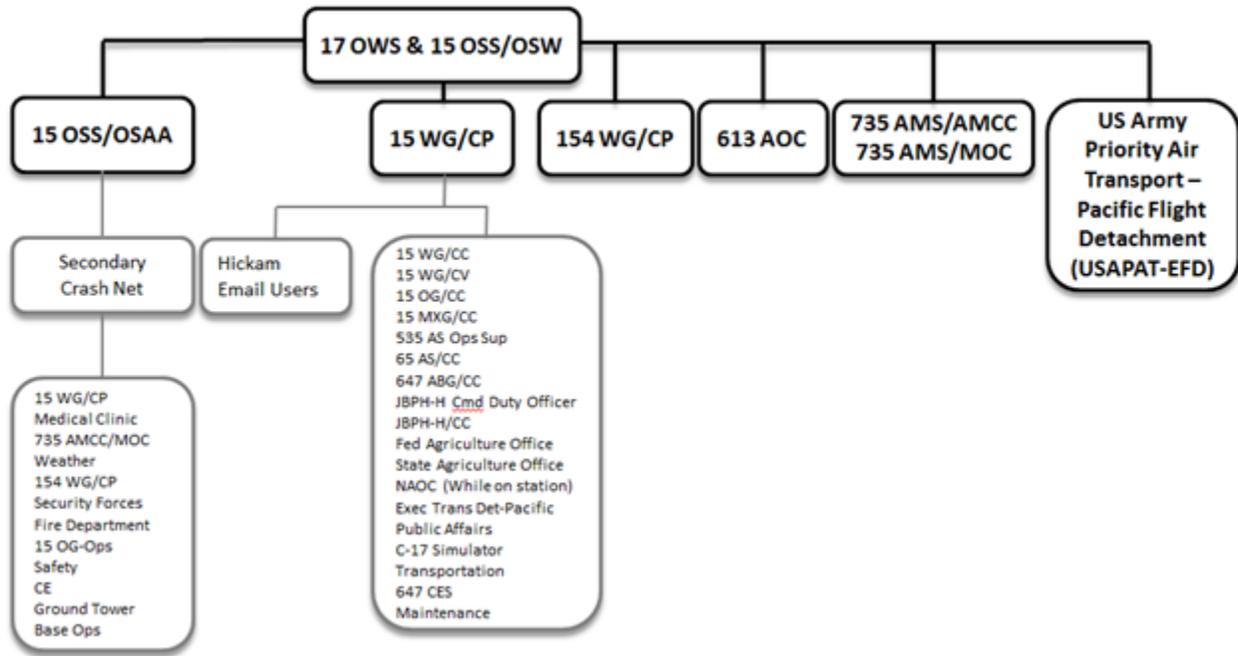
	(Advisories)		
Lightning w/ in 5 NM	Observed	Personal injury/death; delay operations	Seek shelter; evacuate personnel from flightline and cease work; divert or hold aircraft
Thunderstorms in the Air Defense Identification Zone (ADIZ)	Observed	Flight Hazard; potential disruption to aviation operations	Coordinate with WF for location
Low Level Wind Shear	Observed	Flight Hazard; disrupts aviation operations; delay/limit or cease takeoff and landings	Coordinate with WF to evaluate shear conditions
Fighter Index of Thermal Stress (FITS) Danger	Observed	Potential impact to flight crews; disruption to aviation operations	Limit ground time for crews on the ramp
Crosswinds \geq 25 knots on runway 08/26 or 04/22	Observed	Flight hazard; disruption to aviation operations	Cease/delay take-off for C-21A and KC-135E/R
Ceilings < 600 feet and/or Visibility < 2 SM	Observed	Flight hazard; disruption to aviation operations	Delay/limit takeoff and landings
Thunderstorms within 50 NM of Hickam Field	Observed	Flight hazard; disruption to aviation operations	Coordinate with WF for location/avoidance
Thunderstorms within 25 NM of Hickam Field	Observed	Flight hazard; disruption to aviation operations	Coordinate with WF for location/avoidance
Thunderstorms within 10 NM of Hickam Field	Observed	Flight hazard; disruption to aviation operations	Coordinate with WF for location/avoidance
Visibility < 1 SM	Observed	Disrupts personnel movement and aviation operations	Delay/limit takeoff and landings; use ORM to assess justified activities/movement
Crosswinds > 20 knots	Observed	Flight hazard; disruption to aviation operations	Cease/delay takeoff and landings for E-4B.
Icing, moderate or greater below 10,000 MSL within 50 NM (outside of	Observed	Flight hazard; disruption to aviation operations	Coordinate with WF for location/avoidance

thunderstorms)			
Turbulence, moderate or greater below 10,000 MSL within 50 NM (outside of thunderstorms)	Observed	Flight hazard; disruption to aviation operations	Coordinate with WF for location/avoidance

Attachment 5

WEATHER PYRAMID ALERTING

Figure A5.1. Weather Pyramid Alerting Diagram.



Attachment 6

FLYING UNITS SUPPORTED & MISSION LIMITING ENVIRONMENTAL
CONDITIONS

Table A6.1. Flying Units Supported.

Organization	Mission
15th Wing	To develop and sustain combat-ready Airmen, in partnership with the total force, to provide global mobility, global reach, precision engagement, and agile combat support ANYTIME, ANYWHERE.
535 th AS (C-17)	
65 th AS (C-37/C40)	
19 th FS (F-22)	
154th Wing (HIANG)	To provide organized, trained units to protect Hawaii's citizens and property, preserve peace, and ensure public safety in response to natural or human-caused disasters, while federally, provide operationally ready combat units, combat support units, and qualified personnel for active duty in the U.S. Air Force in time of war, national emergency, or operational contingency.
204 th AS (C-17)	
203 rd ARS (KC-135)	
199 th FS (F-22)	
Executive Transport Detachment – Pacific (C37A)	Executive Transport Detachment of Commander, Fleet Logistics Support Wing providing responsive, punctual C-37A air transportation, seamless in-flight communications, and superior in-flight service to Commander, U.S. Pacific Fleet and other required users.
U.S. Army Priority Air Transport (C-20)	To provide safe, secure, and reliable executive air transportation anywhere in the world.

A6.1. Mission Limiting Thresholds.

A6.1.1. **Airframe-Specific Weather Limitations.** Table A6.2 – A6.8 provide the general airframe weather limitations based on AFI 11-202V3, *General Flight Rules* and the limitations from aircraft specific AFI 11-2.

Table A6.2. USAF General Flight Rules Weather Limitations.

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

Table A6.3. C-17 Weather Sensitivities.

535 th / 204 th AS				
(C-17)				
Parameter	Limitation	No Risk - Green	Marginal Risk - Yellow	Significant Risk - Red
Touch & Go Training	Ceiling / Visibility	≥ 300 FT / ¾ SM with Instructor Pilot (IP)	N/A	< 300 FT / ¾ SM with IP
	Crosswind	< 25 KT	N/A	≥ 25 KT
Destination Overseas Destination	Ceiling / Visibility	≥ 3000 FT / 3 SM	N/A	< 3000 FT / 3 SM (1000 FT / 2 SM †)
	Ceiling / Visibility	≥ 1000 FT / 2 SM	N/A	< 1000 FT / 2 SM
Icing	Intensity	None/Light	Should not cruise in moderate or greater	Will not fly into forecasted or reported severe
Turbulence (CAT III aircraft)	Intensity	None/Light	Should not cruise in moderate or greater	Will not fly in forecasted or reported severe
Thunderstorms	Avoidance parameters	None	N/A	Above FL230: 20NM separation Below FL230: 10NM separation
Crosswinds	Intensity	< 30 KT	N/A	≥ 30 KT
Headwind	Intensity	< 40 KT	N/A	≥ 40KT
Approaches for Training Sorties (PHNL/PHHI)	Visibility	≥ 2 SM with instruments ≥ 3 SM without	N/A	< 2 SM with instruments < 3 SM without
Headwind	Ceiling	≥ 600 FT with instruments ≥ 1500 FT without	N/A	< 600 FT with instruments < 1500 FT without
Air Refueling	Visibility	≥ 1 NM (1 receiver) ≥ 2 NM (2+ receivers / tankers)	N/A	< 1 NM (1 receiver) < 2 NM (2+ receivers / tankers)
	Thunderstorms	None	N/A	Cannot refuel with TSTMS
Air Refueling Airdrop: Unilateral (AF) training Personnel Airdrops	Turbulence	None/Light	N/A	Cannot refuel in moderate or greater turbulence & will not takeoff with forecasted severe turbulence
	Icing	None/Light	N/A	Cannot refuel with

				moderate or greater
	Ceiling / Visibility (SM)	$\geq 300 / 1/2SM$	N/A	$< 300 / 1/2SM$
AF Static Line (land)	Winds (including gusts)	≤ 13 KT	N/A	> 13 KT
AF Static Line (water)				
> 3000 ft AGL (land)	Winds (including gusts)	≤ 18 KT	N/A	> 18 KT
> 3000 ft AGL (water)		≤ 25 KT	N/A	> 25 KT
Equipment Airdrops				
USAF Equipment		N/A	N/A	≥ 17 KT
USAF Container Delivery System (CDS) or Low Velocity Low Cost Aerial Delivery System (LV-LCADS) using G-12 parachutes				
USAF CDS using G-13/14 parachutes	Winds (including gusts)	N/A	N/A	≥ 20 KT
USAF Training Bundles Standard Airdrop Training Bundles (SATB)		N/A	N/A	≥ 25 KT
Raised Angle Marker (RAM)/Advance Rescue Craft (ARC)/Combat Rubber Raiding Craft (CRRC Bundles		N/A	N/A	≥ 25 KT IAW FXC Technical Manual change 4 dated Jun 2005
Non-USAF Equipment		N/A	N/A	Discretion of supported force Drop Zone Safety Officer (DZSO)
† = Alternate Location				

Table A6.4. KC-135 Weather Sensitivities.

203 rd ARS				
(KC-135)				
Parameter	Limitation	No Risk - Green	Marginal Risk - Yellow	Significant Risk - Red
Touch & Go Training	Ceiling / Visibility (SM)	≥ 300 ≥ 1000 / 2 (Aircraft Commander (AC) training certified)	N/A	< 300 < 1000 / 2 (AC training certified)
	Crosswinds (KT)	< 15 KT (IP), < 10 KT (Non-IP)	N/A	≥ 15 KT (IP), ≥ 10 KT (Non-IP)
Landing	Visibility	≥ ½ SM	N/A	< ½ SM
Destination	CIG/VIS (SM)	≥ 2000 / 3	N/A	< 2000 / 3 (1000 / 2 †)
Overseas Destination	CIG/VIS (SM)	≥ 1000 / 2	N/A	< 1000 / 2
Icing	Intensity	None/Light	Should not cruise in moderate or greater	Will not fly into forecasted or reported severe
Turbulence	Intensity	None/Light	N/A	No MDT or greater mountain wave. Will not fly in forecaster or reported severe
Thunderstorms	Avoidance parameters	None	N/A	Above FL230: 20NM separation Below FL230: 10NM separation
Crosswinds	Intensity	< 25 KT	N/A	≥ 25 KT
Air Refueling	Visibility	≥ 1 NM (Heavy receiver), ≥ 2 NM (2+ Heavy receivers)	N/A	< 1 NM (Heavy receiver), < 2 NM (2+ Heavy receivers)
	Thunderstorms	None	N/A	Cannot refuel with TSTMS
	Turbulence	None/Light	N/A	Cannot refuel in moderate or greater turbulence & will not takeoff with forecasted severe turbulence
	Icing	None/Light	N/A	Cannot refuel with moderate or greater

† = Alternate Location

Table A6.5. F-22 Weather Sensitivities.

19 th / 199 th FS				
(F-22)				
Parameter	Limitation	No Risk - Green	Marginal Risk - Yellow	Significant Risk - Red
Landing at PHLN	Ceiling / Visibility	≥ 1500 FT / 3 SM	≤ 700 FT / 2 SM	< 300 FT / 1 SM
Destination	Ceiling / Visibility	≥ 2000 FT / 3 SM	N/A	< 2000 FT / 3 SM (1000 FT / 2 SM †)
Overseas Destination	Ceiling / Visibility	≥ 1000 FT / 2 SM	N/A	< 1000 FT / 2 SM
Icing	Intensity (subsonic)	None/Light	Will not cruise in any icing	Will not fly into forecasted or reported severe
Turbulence	Intensity	None/Light	Should not cruise in moderate or greater	Will not fly in forecasted or reported severe
Thunderstorms	Avoidance parameters	None	N/A	Shall not operate in thunderstorms
Crosswinds	Intensity	< 25 KT	<30 KT	≥ 30 KT
Training Sorties	Visibility	≥ 3 NM	N/A	< 3 NM
Air Refueling	Visibility	≥ 1 NM	N/A	< 1 NM
	Thunderstorms	None	N/A	Cannot refuel with TSTMS
	Turbulence	None/Light	N/A	Cannot refuel in moderate or greater turbulence & will not takeoff with forecasted severe turbulence
	Icing	None/Light	N/A	Cannot refuel with moderate or greater
Target Acquisition	Ceiling / Visibility	≥ 3000 FT / 3 SM	N/A	< 3000 FT / 3 SM
Fighter Index of Thermal Stress (FITS) Danger	Temperature	≤ 89° F	90-99° F	≥ 100° F
† = Alternate Location				

Table A6.6. C-37 and C-40 Weather Sensitivities.

65 th AS				
(C-37 / C-40)				
Parameter	Limitation	No Risk - Green	Marginal Risk - Yellow	Significant Risk - Red
Touch & Go Training	Ceiling / Visibility	≥ 300 FT / ¼ SM	N/A	≤ 300 FT / ¼ SM
	Crosswinds	< 25 KT (Dry) < 20 KT (Wet)	N/A	≥ 25 KT (Dry) ≥ 20 KT (Wet)
Takeoff	Visibility	> ½ SM	N/A	≤ ½ SM
Icing	Intensity	None / Light	N/A	Will not fly into forecasted or reported severe
Turbulence	Intensity	None / Light	N/A	Will not fly into forecaster or reported severe or moderate or greater mountain wave
Winds	Any Direction	< 50 KT	N/A	≥ 50 KT
C-37 ONLY				
Crosswinds	Maximum (takeoff / landing)	< 30 KT	N/A	≥ 30 KT
	Maximum CAT II Approaches	< 20 KT (Autopilot on)	N/A	≥ 20 KT (Autopilot on)
C-40 ONLY				
Crosswinds	Maximum Takeoff	≤ 34 KT (Dry) ≤ 25 KT (Wet)	N/A	> 34 KT (Dry) > 25 KT (Wet)
	Maximum Landing	≤ 34 KT (Dry/Wet)	N/A	> 34 KT (Dry/Wet)
	Maximum CAT II / III Approaches	< 20 KT (Auto land)	N/A	≥ 20 KT (Auto land)
CAT II / III Approaches	Maximum Headwind	< 25 KT	N/A	≥ 25 KT

Table A6.7. C-37A Weather Sensitivities.

Executive Transport Detachment – Pacific				
(C-37A)				
Parameter	Limitation	No Risk - Green	Marginal Risk - Yellow	Significant Risk - Red
Takeoff	Ceiling / Visibility	≥ 0 FT / 0 SM †	N/A	N/A
Normal Landing	Ceiling / Visibility	≥ 100 FT / $\frac{1}{2}$ SM	N/A	< 100 FT / $\frac{1}{2}$ SM
Icing	Intensity	None/Light	N/A	Will not fly into forecasted or reported severe
Turbulence	Intensity	None/Light	N/A	Will not fly into forecaster or reported severe or moderate or greater mountain wave
Winds	Any Direction	< 50 KT	N/A	≥ 50 KT
Crosswinds	Maximum (takeoff / landing)	< 28 KT	N/A	≥ 28 KT
	Touch & Go Training	< 15 KT	N/A	≥ 15 KT
† Takeoffs may be performed down to 0/0 with the following stipulations: 1.) A suitable alternate (takeoff alternate) shall be available within 150NM. 2.) WX conditions at takeoff alternate <i>at takeoff time and for 1 hour after takeoff time</i> shall be equal to or greater than precision minimums (CAT I) PLUS 200-1/2 or non-precision minimums PLUS 300-1.				

Table A6.8. C-20 Weather Sensitivities.

U.S. Army Priority Air Transport				
(C-20)				
Parameter	Limitation	No Risk - Green	Marginal Risk - Yellow	Significant Risk - Red
Landing at PHNL	Visibility	$\geq \frac{1}{2}$ SM	N/A	$< \frac{1}{2}$ SM
Destination	CIG/VIS (SM)	≥ 3000 FT / 3 SM	N/A	< 3000 FT / 3 SM (1000 FT / 2 SM †)
Icing	Intensity	None/Light	Should not cruise in moderate or greater	Will not fly into forecasted or reported severe
Turbulence	Intensity	None/Light	N/A	Will not fly in forecasted or reported extreme, or into known severe
Thunderstorms	Avoidance parameters	None	N/A	Shall not operate in thunderstorms
† = Alternate Location				

Attachment 7

MISSION EXECUTION FORECAST/TOLD PLANNING EXAMPLE

Figure A7.1. Mission Execution Forecast/TOLD Planning Example.

Microsoft Excel - 10 June 13 0600 MEJ

MISSION EXECUTION FORECAST

FORECASTED 7 HOUR PERIOD

DATE/TIME: 06 0000 10 0600

MISSION: 15WG115-101

1. TAKE OFF/LANDING DATA (TOLD)

TIME	WINDS	SKY CONDITION	WEATHER / REMARKS	WEATHER RESTRICTIONS				CLIMB WINDS		MISC DATA		SPACE WEATHER IMPACTS	
				WIND	TEMP	CLIMB	CRUISE	CLIMB	CRUISE	TEMP	WIND	WIND	WIND
0600	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0605	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0610	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0615	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0620	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0625	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0630	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0635	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0640	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0645	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0650	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0655	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0700	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0705	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0710	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0715	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0720	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0725	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0730	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0735	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0740	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0745	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0750	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0755	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0
0800	06000	0	FEW050	15	20	10	10	10	10	0	0	0	0

2. DESTRUCTIONAL TERRAIN TAKE OFF/LANDING DATA

LOCATION	TIME	WIND	TEMP	CLIMB	CRUISE	WIND	TEMP	CLIMB	CRUISE
KANOE BAY	0600	06000	20	10	10	10	20	10	10
MHELLER	0600	06000	20	10	10	10	20	10	10
BARBERS POINT	0600	06000	20	10	10	10	20	10	10
KABULU	0600	06000	20	10	10	10	20	10	10
KONA	0600	06000	20	10	10	10	20	10	10
HILO	0600	06000	20	10	10	10	20	10	10
LEHUE	0600	06000	20	10	10	10	20	10	10
BARKING SANDS	0600	06000	20	10	10	10	20	10	10

3. HAZARDS

4. SOLAR/LUNAR

5. NORTH VALENG AREA

6. SOUTH VALENG AREA

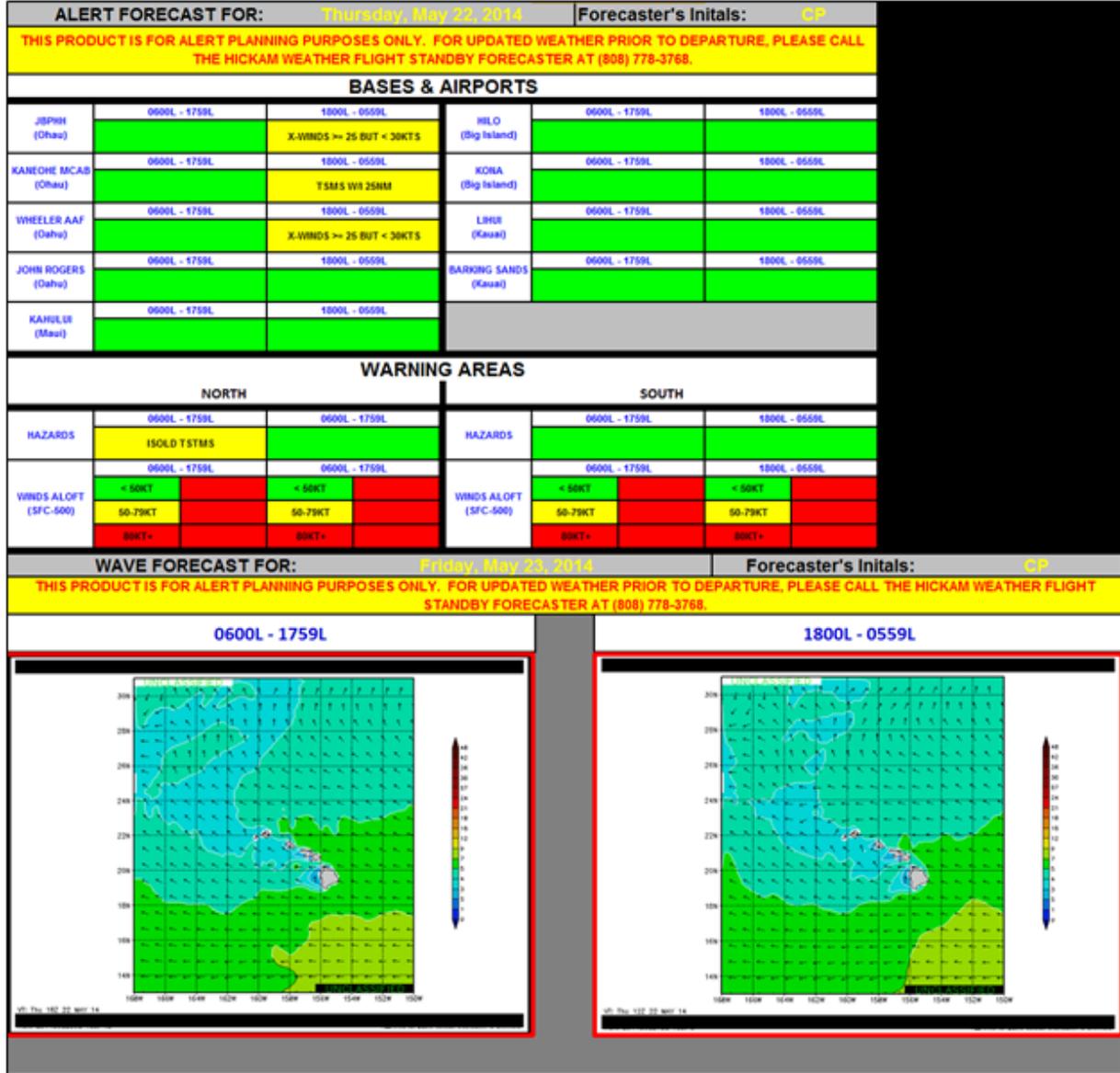
7. DESTRUCTIONAL TERRAIN TAKE OFF/LANDING DATA

LOCATION	TIME	WIND	TEMP	CLIMB	CRUISE	WIND	TEMP	CLIMB	CRUISE
KANOE BAY	0600	06000	20	10	10	10	20	10	10
MHELLER	0600	06000	20	10	10	10	20	10	10
BARBERS POINT	0600	06000	20	10	10	10	20	10	10
KABULU	0600	06000	20	10	10	10	20	10	10
KONA	0600	06000	20	10	10	10	20	10	10
HILO	0600	06000	20	10	10	10	20	10	10
LEHUE	0600	06000	20	10	10	10	20	10	10
BARKING SANDS	0600	06000	20	10	10	10	20	10	10

Attachment 8

19/199FS ALERT SUPPORT EXAMPLE

Figure A8.1. Alert Support Example.



Attachment 9

SPACE WEATHER IMPACTS

A9.1. Space Weather Impact. Figure A8.1 – A8.3 provide a general product overview that the WF utilizes to provide space weather impacts. These products are available through AFW-WEBS.

Table A9.1. Aircraft Space Weather Impacts.

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

Figure A9.1. High Frequency (HF) Communications Impacts.

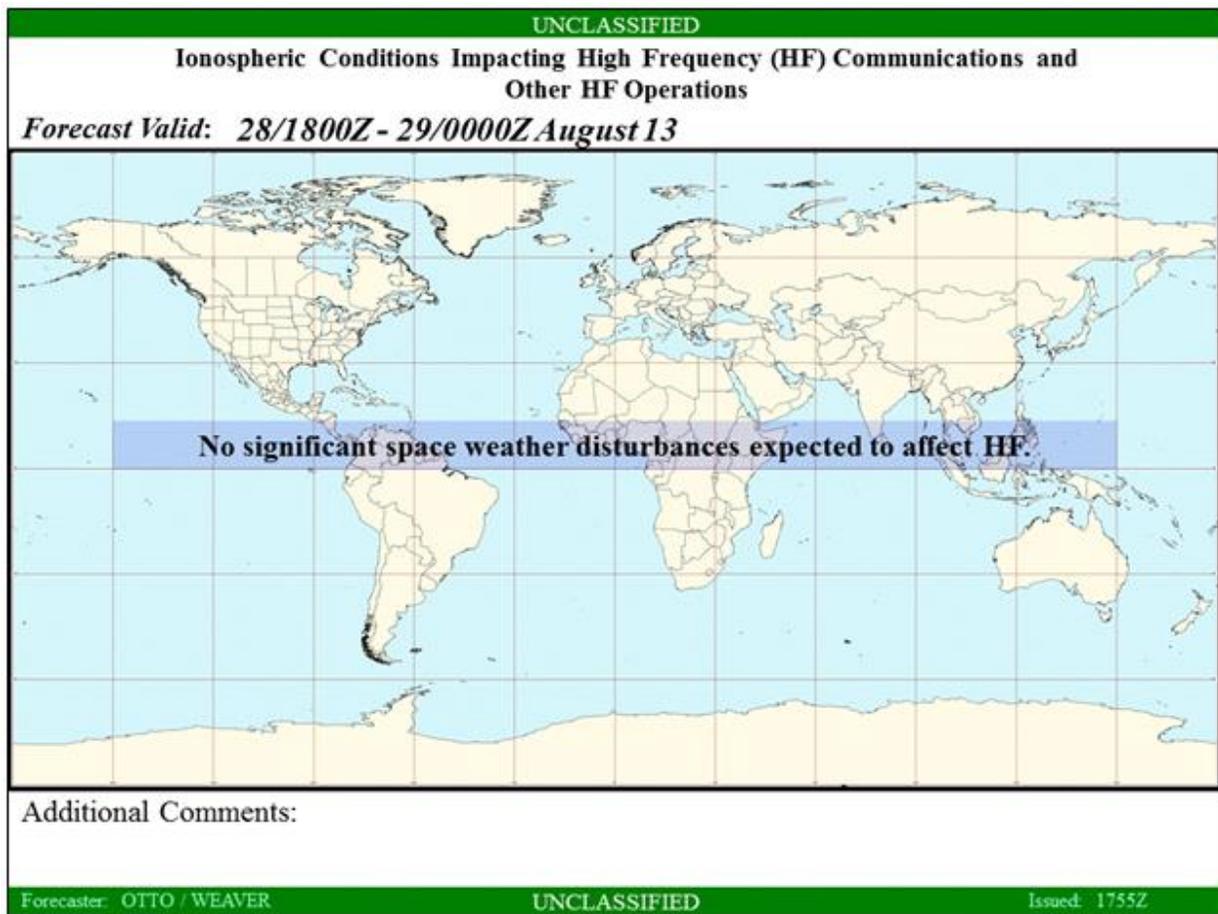


Figure A9.2. Ultra-high frequency (UHF) Satellite Communications (SATCOM) Impacts.

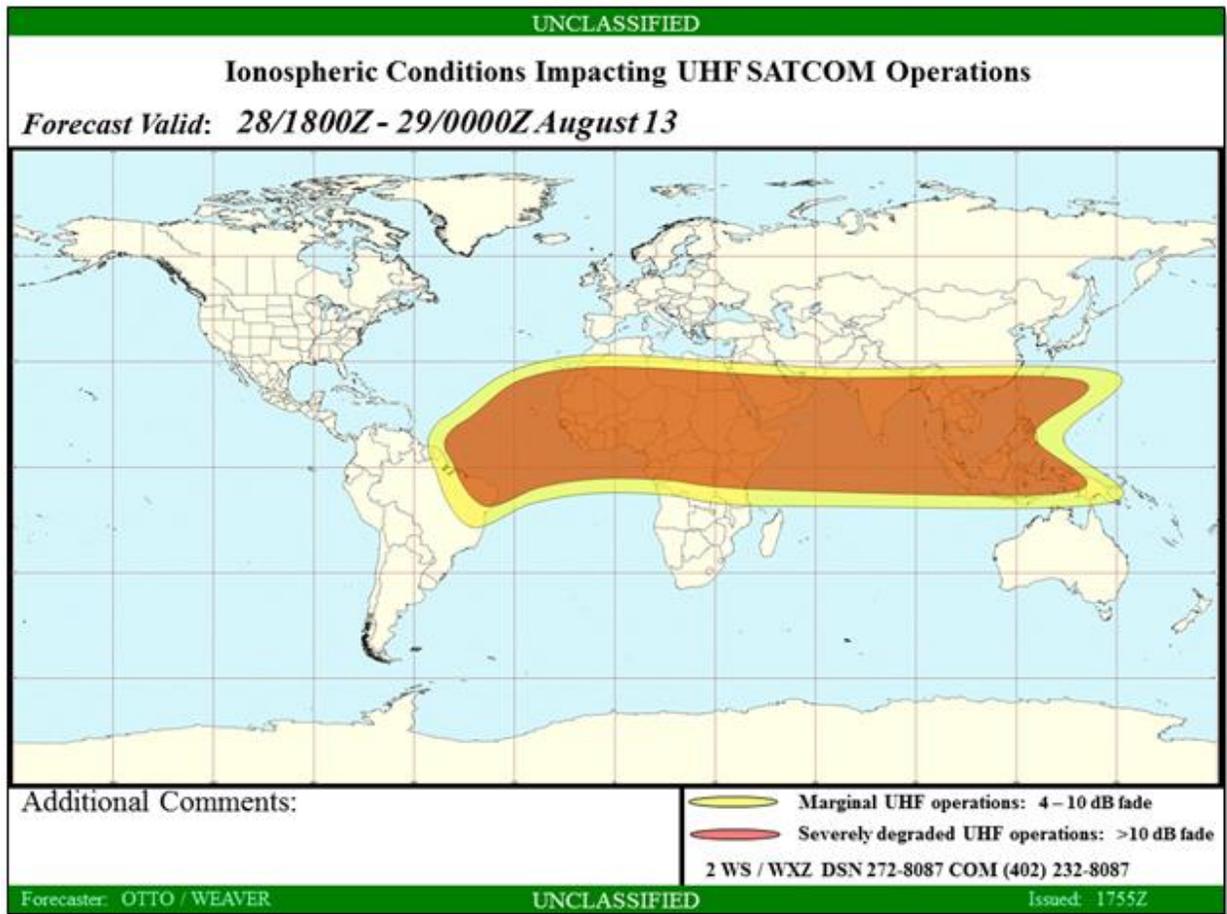


Figure A9.3. Space Weather Events and Impacts Stop Light Chart.

