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KADENA AIR BASE

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Weather

WEATHER SUPPORT

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This instruction implements Air Force Instruction (AFI) 15-128, *Weather Force Structure*, Air Force Manual (AFMAN) 15-111, *Surface Weather Observations*, AFMAN 15-124, *Meteorological Codes*, AFMAN 15-129, *Air and Space Weather Operations.* It establishes responsibilities and weather support procedures. It also provides general information for weather services, including weather observations and forecasts; weather warnings, watches, and advisories; space weather data, information dissemination, and base-wide reciprocal support. It applies to units assigned to the 18th Wing (18 WG), subordinate units, and units assigned, attached, or supported by Kadena Air Base (AB). Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with (IAW) the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional chain of command.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Significant changes include change of primary and alternate operating locations, update to official observation points, update to warnings, watches, and advisories for the National Airborne Operations Center, update to wave height thresholds, and removal of support to the 5th Expeditionary Airborne Command Control Squadron (5 EACCS) due to the squadron's deactivation.

Chapter 1

GENERAL INFORMATION

1.1. Introduction of Weather Mission. AF weather operations are an essential support and service capability across AF warfighting functions. The mission of the 18th Operations Support Squadron, Weather Flight (18 OSS/OSW) is to provide accurate, timely, relevant and consistent air and space environmental information to the 18 WG and Kadena AB, Japan.

1.2. Operating Locations, Duty Hours, and Contact Information. 18 OSS/OSW provides support through effective utilization of three separate and unique weather functional areas: Staff Integration Function (SIF), Airfield Support Function (ASF), and the Mission Integration Function (MIF). The functional areas are discussed in more detail throughout this instruction, and the operating locations, duty hours, and contact information for each are listed in **Table 1.1**.

Table 1.1. Operating Locations, Duty Hours, and Contact Information.

FUNCTION	*PRIMARY OPERATING LOCATION*	*ALTERNATE OPERATING LOCATION*
Staff Integration Function (SIF) Hours: 0800-1600 Mon-Fri	Weather Office, Bldg 3413, Phone: DSN 634-4515/2309	AMC Passenger Terminal, Bldg 3409, Phone: DSN 634-1966
Airfield Support Function (ASF) Hours: 24/7	Weather Office, Bldg 3413, Phone: DSN 634-3129/3140 Email: 18oss.weatherbriefer@us.af.mil SharePoint Website: https://kadena.eis.pacaf.af.mil/18OG/18OSS/weather/SitePages/Home.aspx	Primary AMC Passenger Terminal, Bldg 3409 Phone: DSN 634-1966 Secondary 44 FS Facility, Bldg 3384 Phone: DSN 634-7717/1831
Mission Integration Function (MIF) Hours: Based on wing flying schedules	44 FS Facility, Bldg 3384 Phone: DSN 634-7717/1831 Telefax: DSN 634-2617 and/or 67 FS Facility, Bldg 763 Phone: DSN 634-4684 and 909 AARS Facility, Bldg 3523	Bldg 3409, AMC Passenger Terminal Phone: DSN 634-3129/3140

Mon-Fri	Phone: DSN 634-9017 Email: 18oss.weatherbriefer@us.af.mil SharePoint Website: https://kadena.eis.pacaf.af.mil/18OG/18OSS/weather/MWE/SitePages/Home.aspx	

1.2.1. Primary Operating Locations will be manned during the hours listed in **Table 1.1**. In the event of an emergency or significant outage, operations will be transferred to the respective Alternate Operating Location (AOL) for that specific function. **Note:** Some services may be degraded while working from the AOL and these limitations are described in **Chapter 7**.

1.3. Duty Priorities. The Duty Priorities listed in **Table 1.2** will be used by weather personnel to prioritize and manage workload. Since all operational tasks cannot be accomplished simultaneously and task saturation creates a situation where proper prioritization is paramount, the priorities below have been established to ensure the most essential tasks are accomplished first.

1.3.1. Tasks will be accomplished in the order of priority listed below, then prioritized according to relative importance if tasks are similar in scope.

1.3.2. Weather personnel will use sound judgment and Operational Risk Management (ORM) principles when complying with these priorities, especially where there is an imminent danger to life and/or property.

Table 1.2. Kadena AB Weather Flight Duty Priorities List.

ORDER OF PRIORITY	*DUTIES*
1	Perform Weather Flight Emergency War Order (EWO) Taskings
2	Execute Weather Flight Evacuation
3	Respond to Aircraft/Ground Emergencies
4	Support Urgent/Emergency AIREVAC/SAR/MEDEVAC Missions
5	Respond to Pilot to Metro Service (PMSV) Contacts
6	Provide Weather Information for Supervisor of Flying (SOF)
7	Prepare and Issue Weather Watches/Warnings/Advisories (WWAs)
8	Perform Severe Weather Action Plan (SWAP) Operations
9	Augment FMQ-19 Observations for mandatory elements/disseminate observations
10	NAOC Response (Contact: NAOC watch officer, Command Post [18 WG/CP])
11	Relay and Disseminate Urgent Pilot Reports (PIREPs)
12	Disseminate/Amend Terminal Aerodrome Forecast (TAF)
13	Produce and Disseminate Mission Weather Products (MWPs)
14	Relay and Disseminate PIREPs
15	Perform MISSIONWATCH
16	Provide Other Briefing Support
17	Weather Function Training
18	Accomplish Administrative Tasks

1.4. General Roles and Responsibilities. The Weather Support Team (WST) is the seamless integration of the regional Operational Weather Squadron (OWS) and the 18 OSS/OSW to produce decision-grade weather support for 18 WG operations.

1.4.1. 17th Operational Weather Squadron (17 OWS) Support. OWSs exist to provide centralized and consistent weather forecasting support for their specific Area of Responsibility (AOR). The 17 OWS is located at Joint Base Pearl Harbor-Hickam, Hawaii, and is the servicing OWS for the Pacific theater.

1.4.1.1. Responsibilities. The 17 OWS is responsible for forecasting large-scale weather systems and providing back-up support to the organizations within the Pacific theater. The 17 OWS is specifically responsible for:

1.4.1.1.1. Serve as backup for issuing forecast and observed Weather Watches, Warnings and Advisories for Kadena AB and the Munitions Storage Area when 18 OSS/OSW is unable to issue.

1.4.1.1.2. Production of regional analysis and flight-level hazard charts, to include icing, turbulence, and thunderstorms.

1.4.1.1.3. Production of the Tropical Cyclone Threat Assessment Product (TC-TAP). This forecast must be horizontally consistent with the Joint Typhoon Warning Center (JTWC) storm tracks.

1.4.1.1.4. Providing weather support for Pacific Air Forces (PACAF) Integrated Flight Managed (IFM) missions and Navy P-3/P-8 aircrew missions from Kadena.

1.4.1.1.5. Providing transient 175-1 Flight Weather Briefing (FWB) support when the 18 OSS/OSW is not able to provide this support.

1.4.1.2. Kadena Weather and OWS Support Agreement. In addition to the responsibilities listed above, the 17 OWS and 18 OSS/OSW have a support agreement known as the Installation Data Page (IDP), which can be obtained from 18 OSS/OSW staff or the 17 OWS webpage.

1.4.1.2.1. The IDP is updated more frequently than this instruction and will be referenced with this instruction. The IDP outlines the responsibilities of both parties with regard to weather support and the expected interaction between them.

1.4.2. 18 OSS/OSW Support. 18 OSS/OSW is responsible for providing airfield and mission weather support to the 18 WG and associated Partner Units with whom a formal agreement is arranged. Specific responsibilities of 18 OSS/OSW in support of 18 WG assets can be found in **Attachments 6** through **Attachment 18** of this instruction. In general, 18 OSS/OSW is responsible for:

1.4.2.1. Mission forecasting and briefing support tailored to the 18 WG flying schedule.

1.4.2.2. Monitoring and/or providing 24/7 routine and special weather observations.

1.4.2.3. Primary role for issuing forecast and observed Weather Watches, Warnings, and Advisories (WWAs) for Kadena AB and the Munitions Storage Area.

1.4.2.4. Issuing Terminal Aerodrome Forecasts (TAFs) and TAF amendments.

1.4.2.5. Providing Pilot-to-Metro Services (PMSV) through phone patch.

1.4.2.6. Using graphical hazard forecasts provided by the 17 OWS in the production of local and regional weather products for 18 WG mission and staff support.

1.4.2.7. Relaying and providing updates to 18 WG leadership on tropical storm forecasts and impacts to Kadena AB and Okinawa. At no time will 18 OSS/OSW deviate from the official forecast and track provided by the Joint Typhoon Warning Center (JTWC). However, adjustments to the JTWC official forecast and track may be made to account for local terrain effects and surface friction.

1.4.2.8. Providing or arranging for transient 175-1 FWB services as Duty Priorities permit. In the event 18 OSS/OSW personnel cannot provide services, support will be arranged through the 17 OWS or other appropriate organization as outlined in **paragraph 3.5**.

1.4.2.9. Responding to severe weather conditions, natural disasters, in-flight/ground emergencies/mishaps, and significant system outages as outlined in **Chapter 6 and Chapter 7**.

1.4.2.10. Providing briefing support for Instrument Refresher Courses (IRC).

1.4.2.11. Providing climatological data as needed.

1.4.2.12. Participating as a member of the Airfield Operations Board (AOB).

1.4.2.13. Participating as a member of the Emergency Management Working Group (EMWG).

1.4.2.14. Establishing and maintaining a Cooperative Weather Watch with Air Traffic Control (ATC).

1.4.2.15. Assisting ATC with the certification of airfield visibility checkpoint charts.

1.4.2.16. Providing public weather support (i.e., sea condition updates) as a secondary operation to their primary role as operational weather forecasters.

1.4.2.17. Serve as the weather subject matter expert to Chemical, Biological, Radiological, Nuclear (CBRN) operations and provide weather data and/or chemical/effective downwind messages.

Chapter 2

WEATHER SYSTEMS AND LIMITATIONS

2.1. Airfield Weather System. The FMQ-19 Automatic Meteorological Station is the standard airfield weather system for Kadena AB and consists of two sensor suites situated infield of the left and right runways at each approach end for Runways (Rwy) 05 and 23. The two groups of sensors mirror each other in most aspects, with differences identified in this chapter. The following section outlines the individual sensors that are used to produce automated weather observations for Kadena AB, their general function, and significant limitations that personnel should be aware of. More detail on automated weather observations is provided in **Chapter 3**.

2.1.1. Wind. Wind sensors, anemometers, are located at each approach end and report wind speeds to the nearest knot (reliable up to 113 knots) and wind direction to the nearest 10° magnetic. The reported wind speed and direction is a 2-minute average for sustained winds and a 10-minute max for gusts.

2.1.2. Temperature and Humidity. There is only one temperature and humidity sensor, and it is located with the primary sensor suite at the approach end for Rwy 05. Dew points are calculated using data from both the temperature and humidity sensors. Temperatures are accurate to within 0.1°C with relative humidity accurate to within 1%.

2.1.3. Visibility. Visibility sensors are located at each approach end and report visibility values in statue miles (SM) (reliably up to 10 SM). Reported visibility values will be a 2-minute average of observed visibility on the active Rwy sensor.

2.1.3.1. Note that weather phenomena must pass through the sensor field in order to be detected, resulting in potentially skewed visibility values during isolated events such as localized heavy rain showers.

2.1.4. Runway Visual Range (RVR). RVR sensors are located at each approach end and report the 10-minute average RVR in feet. No backup capability exists for RVR if there is a sensor outage.

2.1.5. Present Weather and Obstructions to Visibility. Present weather and obstructions to visibility are derived from several different systems and algorithms working together, most of which are located at the approach end to Rwy 05. The combination of sensors can detect various phenomena to include rain, snow, thunderstorms, haze, fog, and mist. The FMQ-19 cannot detect hail, ice pellets, tornadic activity, volcanic ash, or dust storms, and these phenomena require supplementation by weather personnel in order to be reported in weather observations.

2.1.5.1. As with other sensors, weather phenomena must pass through the sensor field for it to be reported. For this reason, it can be skewed from what is occurring across the rest of the airfield.

2.1.6. Sky Condition. Ceilometer sensors are located at each approach end and report cloud values in feet (accurate to within 20 feet) from the "surface" to 25,000 feet above ground level. The data reported by the respective cloud sensors include heights and coverage (i.e., Clear, Few, Scattered, Broken, Overcast) and is a 30-minute average with an algorithm that computes the most recent 10 minutes weighted double. Cloud groups are reported for the active Rwy sensor, and clouds higher than 25,000 feet are often not detected even though the sky may be overcast.

2.1.6.1. Note that clouds must pass over the sensor in order to be detected, resulting in potentially skewed cloud coverage during isolated events such as localized rain showers.

2.1.7. Lightning. The FMQ-19 lightning sensor detects lightning strikes (not thunder) up to 30 nautical miles from the airfield and is located in the Rwy 05 sensor group (and reported regardless of the active runway). The lightning algorithms require a visual confirmation of a lightning strike before it is reported; therefore, the system can only detect lightning if it is from cloud-to-cloud or from cloud-to-ground.

2.1.7.1. Note that only general direction and distance (not precise location) is determined by the FMQ-19 for cloud-to-ground strikes and no direction or distance is available for cloud-to-cloud strikes.

2.1.8. Pressure. The pressure sensors are located on the Rwy 05 approach end and record station pressure to the nearest 0.001 inches of mercury converted to Kadena's field elevation of 143 feet. All pressure values, regardless of active runway, are derived from the Rwy 05 pressure group.

2.1.9. Rain Gauge. The rain gauge is located at the Rwy 05 approach end and records liquid precipitation to the nearest 0.01 inch. High wind situations (such as typhoons) may cause the precipitation measurements to be unreliable.

2.2. Weather Automated Distribution Systems.

2.2.1. Joint Environmental Toolkit (JET). JET is the standard AF weather distribution system and consists of a physical server as well as a web-based interface that is available to local operators on request. The FMQ-19 interfaces directly with JET to disseminate observations automatically to local and longline agencies without assistance from weather technicians. In addition, weather technicians use JET to disseminate Weather Watches, Warnings, and Advisories (WWAs) to pre-coordinated agencies.

2.2.1.1. JET Portal. The JET Portal is a web-based interface that is available to operators to monitor weather conditions reported by the FMQ-19 in real-time. The data available via the JET Portal includes the current observation, forecast, winds, ceilings, visibility, lightning, temperature, dew point, altimeter settings, pressure altitude, and active weather alerts. The data refreshes every 60 seconds.

2.2.1.2. JET outages will drive local observation dissemination as outlined in **Chapter 7**.

2.2.2. Airfield Automation System (AFAS). AFAS automatically pulls data from JET to populate weather information on the provided display. This system is not owned nor managed by 18 OSS/OSW and all AFAS outages not tied to an existing JET outage or a Non-Secure Internet Protocol Router Network (NIPRNet) outage should be directed to the Program Management Office (PMO).

2.3. Weather Radar. The Next-Generation Weather Radar (NEXRAD), also known as the WSR- 88D, is located northwest of White Beach, approximately 10 miles east of Kadena. This location provides weather radar coverage for Okinawa as well as most of the Military Operating Areas (MOAs) defined in **Chapter 4**. The NEXRAD is a Doppler radar, meaning it has the ability to estimate wind speeds as well as location of precipitation. It is the same type and model of radar used in the Contiguous United States (CONUS) and is managed jointly through Kadena agencies and the National Weather Service Radar Operations Center.

2.3.1. The NEXRAD has an operational range of 248 nautical miles for precipitation and 124 nautical miles for wind speed estimates. It is used for determining the location of precipitation relative to Kadena and in the MOAs, the potential for thunderstorms, the presence of low-level wind shear, and the location and movement of weather in/around typhoons.

2.3.2. The maximum wind velocity the NEXRAD can detect is dependent on various factors and is greatly affected by the distance the observed wind is from the radar itself. An example would be that at 20 nautical miles from the radar, the max wind speed detectable is about 174 knots. At 100 nautical miles, however, the max wind speed detectable drops to only 39 knots.

2.3.3. Precipitation close to the NEXRAD can go undetected due to the radar's inability to point at angles greater than 19.5° from the horizon.

2.3.4. NEXRAD data is available through web-based Gibson Ridge software on weather designated workstations or through the Air Force Weather – Web Services (AFW-WEBS) website: **https://weather.af.mil**.

2.4. Backup/Tactical Weather Sensors.

2.4.1. TMQ-53 Deployable Weather System. The TMQ-53 is a tactical, stand-alone weather sensor suite that has the peacetime function of serving as backup equipment for significant FMQ- 19 outages or can be forward deployed in support of contingency operations.

2.4.2. Kestrel. A Kestrel is a handheld weather sensor that technicians can use to record temperature, dew point, pressure, and wind speeds.

Chapter 3

AIRFIELD WEATHER SUPPORT

3.1. Airfield Support Function (ASF). The ASF is the focal point for Kadena AB weather support and is located in Building 3413. The ASF is manned during the hours indicated in **Table 1.1** and is responsible for providing weather services in support of continued airfield operations. In addition, ASF personnel serve a limited liaison function with the general public through the issuance of generalized weather products. The ASF, however, is not a dedicated public service function and inquiries about public weather support should be directed to Weather Flight leadership, or the Kadena AB Public Affairs (PA) office when possible.

3.1.1. Responsibilities. The responsibilities of the ASF are listed below. **Note:** All support will be prioritized based on the Duty Priorities listed in **Table 1.2**.

3.1.1.1. Providing 24/7 weather observation support to Kadena AB.

3.1.1.2. Providing Resource Protection (RP) for Kadena AB, 18 WG units, attached units, and any other organization with a support agreement within this instruction requiring RP.

3.1.1.3. Monitoring phone patches during hours of operation and relaying weather information to airborne aircraft through this service.

3.1.1.4. Supporting transient aircrew with 175-1 Flight Weather Briefings developed locally (or arranged through another organization) as well as providing general weather information for planning purposes along their route of flight.

3.1.1.5. Producing the Terminal Aerodrome Forecast (TAF) for Kadena AB.

3.1.1.6. Responding to emergencies as outlined in **Chapter 6 and Chapter 7** of this instruction.

3.1.1.7. Providing limited public weather support outlined in **paragraph 3.7**.

3.2. Weather Observations. There are two types of observation modes that define how weather observations are taken and disseminated on Kadena AB: automated and augmented. Kadena AB, through use of the FMQ-19 described in **Chapter 2**, is considered an automated station. The FMQ- 19 and JET systems are designed to measure, format, and disseminate weather observations automatically without assistance from weather technicians. Therefore, most observations for Kadena AB will be disseminated without input from 18 OSS/OSW personnel. Weather technicians will modify observations during situations where augmentation is mandated and/or if needed with the Severe Weather Action Plan, outlined in **Chapter 6**.

3.2.1. Automated. During automated observations, the observation point is the FMQ-19 equipment situated on the active runway. In the automated mode, the FMQ-19 continually senses and measures the atmosphere for the following weather elements and parameters: wind, visibility, present weather, cloud height, sky cover, temperature, dew point, altimeter, and lightning. When weather conditions meet the Aviation Selected Special Weather Report (SPECI) criteria as outlined in the IDP, an airfield weather observation, defined in **paragraph 3.2.4**, is generated automatically and disseminated through JET.

3.2.2. Augmented. Augmentation is the process of having position-qualified weather technicians manually add to or edit observation data generated by the FMQ-19. The two augmentation processes are supplement and back-up. Weather observations will be augmented any time supplement criteria is met and/or any time a sensor outage on the FMQ- 19 requires the use of back-up procedures.

3.2.2.1. Supplement. This is a method of manually adding meteorological information to an automated observation that is beyond the capabilities of the automated observing system to detect and/or report. Observations will be taken from the official observation point defined in **paragraph 3.2.4**. Airfield forecasters will be prepared to supplement observations if the below criteria are observed or forecast to occur within 1 hour:

3.2.2.1.1. Tornado (+FC).

3.2.2.1.2. Funnel Cloud (FC).

3.2.2.1.3. Waterspout (+FC).

3.2.2.1.4. Hail (GR).

3.2.2.1.5. Volcanic Ash (VA).

3.2.2.1.6. Ice Pellets (PL).

3.2.2.1.7. Tower Visibility remarks when either the surface prevailing visibility or the control tower visibility is less than 4 statute miles and the control tower visibility differs from the surface prevailing visibility by a reportable value.

3.2.2.2. Back-up. This is a method of manually providing meteorological data to and/or dissemination of an automated weather observation when the primary automated method, FMQ- 19, is not operational or unavailable due to sensor and/or communication failure. Airfield forecasters will be prepared to back-up FMQ-19 sensor data for the following criteria:

3.2.2.2.1. Missing data and/or sensor malfunction.

3.2.2.2.2. Unrepresentative condition that poses a threat to flight safety. Technicians will always back-up unrepresentative wind, pressure, temperature/dew point, and present weather readings. Ceiling and visibility values will be backed up when manually observed sky conditions equal, drop below, or exceed MISSIONWATCH defined risk criteria outlined in **paragraph 4.6**.

3.2.3. Observation Types. There are three general types of observations that cover both routine and special situations (i.e., METAR, SPECI, LOCAL).

3.2.3.1. Aviation Routine Weather Report (METAR). A METAR is a routine scheduled observation that is transmitted between 55 and 59 minutes past the hour. A METAR contains a complete report of wind, visibility, runway visual range, present weather and obscurations, sky condition, temperature, dew point, and altimeter setting collectively referred to as "the body of the report."

3.2.3.2. Aviation Selected Special Weather Report (SPECI). A SPECI is an unscheduled observation completed and transmitted when any of the special criteria listed in **Attachment 2** has been observed. SPECI criteria are derived from AFMAN 15-111 and local approach/circling minimums as established in *DoD Terminal Flight Information Publication (FLIP), High and Low Altitude Pacific, Australia, and Antarctica, Volume 1*. A SPECI will contain all data elements found in a METAR plus additional remarks that elaborate on data in the body of the report. Regardless of method of observation, SPECI reports will be prepared and transmitted as soon as possible after the relevant criteria are observed.

3.2.3.3. Aviation Selected Local Weather Report (LOCAL). A LOCAL is an unscheduled observation, reported to the nearest minute, not meeting SPECI criteria. At Kadena AB, LOCAL altimeter setting observations are taken at an interval not to exceed 35 minutes when there has been a change of 0.01 inch Hg (0.3 hPa) or more since the last observation if the FMQ-19 pressure sensor is down.

3.2.4. Official Observation Point. During augmented operations, observation data not available from the FMQ-19 will be assessed from the official observation point located at the top of the stairs on the exterior of building 3413 (**Figure 3.1**.). The location is obstructed to the south by building 3413 but has a good view of both ends of the runway. Observers may move to as many locations around the observation point as necessary and practicable within the period of observation to view as much of the horizon as possible. At no point will weather personnel assess weather conditions for official observations from any location outside the general vicinity of the official observation point.

3.2.4.1. Note that visibility and wind determinations may need to be adjusted to account for the distance between the runway and official observation point (approximately 400m) and elevation difference between the runway and the observation point (approximately 20m).

Figure 3.1. Official Observation Point Map.

3.2.4.2. Observation Frequency/Dissemination. When supplementing, weather personnel will record and transmit augmented observations as conditions warrant (typically in a SPECI observation). During fair weather, personnel will typically send METAR observations hourly. During severe or rapidly changing weather conditions, weather personnel will send METAR and SPECI observations as conditions warrant.

3.2.4.2.1. If performing a back-up role for the FMQ-19 or JET, weather personnel will first disseminate observations to ATC agencies before transmitting the observation longline.

3.3. Resource Protection (RP). RP is a collective term that describes a systematic, continuous process by which the WST mitigates the effects of hazardous weather on personnel, property, and operations. WSTs perform a Meteorological Watch (METWATCH) to detect the approach or development of weather phenomena of operational interest, including severe weather. RP is accomplished through a series of Weather Watches, Warnings, and Advisories, which are designed to alert personnel to hazardous and/or mission limiting weather conditions that are occurring or are forecast to occur within 5 nautical miles of the Kadena AB airfield.

3.3.1. Weather Watches, Warnings, and Advisories (WWAs). WWAs are broken down into two categories: Forecast and Observed. WWAs are issued when any of the criteria listed in **Attachment 5** is occurring or forecast to occur within the Desired Lead Time (DLT) for that category (see **paragraph 3.3.1.3**.). Forecasters will use risk management principles when assessing the need to issue WWAs.

3.3.1.1. Weather Advisories are typically observed criteria and will only be issued to provide awareness of a hazardous situation when that specific phenomenon is occurring. It will usually be valid "until further notice" and will be cancelled once the hazardous situation is over and not expected to occur in the near future. Weather Advisories do not have a DLT (see **paragraph 3.3.1.3**.).

3.3.1.2. Weather Watches and Warnings will have specific valid periods and may be extended at any time. Watches are issued when there is "potential" for dangerous weather. They will be valid as long as the potential still exists for dangerous weather to occur. Warnings are issued when weather is occurring or is expected to occur and the severity poses a hazard to life or property. DLTs for Weather Watches and Warnings at Kadena are provided in **Attachment 5**.

3.3.1.2.1. Observed Lightning Warnings will be valid "until further notice". Lightning is considered to be "occurring" when the first strike is observed within 5NM of the warning criteria location through 15 minutes after the last lightning strike is observed. **Note:** In some cases, Lightning Warnings may be left out beyond 15 minutes after the last observed strike in situations where more lightning is expected (i.e., likely thunderstorm cells within 10NM of station) and cancelling the warning would create a dangerous situation for personnel or flight safety.

3.3.1.3. Lead Time. Lead Time is simply the time difference between when the specific WWA was issued and when the criterion was actually observed. This number can be multiple hours before the weather occurred or can be negative in the event that the WWA was issued in hindsight. Desired Lead Time (DLT) is the target lead time for that specific weather phenomenon and is listed for each criterion in **Attachment 5**. DLTs are designed to balance mission accomplishment with ample notification.

3.3.1.4. Dissemination. WWAs will be disseminated using a "pyramid" structure whereby WST personnel notify a select few agencies who subsequently notify additional agencies with whom they have agreements to do so. The current notification tree for Kadena AB WWAs is provided in **Attachment 5**. Initial notifications will be via JET, AFAS, and/or telephone, as necessary.

3.3.1.4.1. JET. JET is the primary method through which WWAs are disseminated. JET notifications will either be web-based through the JET Portal (see **Chapter 2**), telephonically by JET's automatic notification system, or through AFAS as described below. Regardless of the method, JET's Integrated Weather Warning Capability (IWWC) will automatically number WWAs consecutively during each month using the format MM-XXX (i.e., 07-003 would be the third WWA of that type issued for July).

3.3.1.4.2. AFAS. JET will automatically populate AFAS with WWAs when issued. ATC personnel are encouraged to call the ASF with any questions about WWAs. ATC personnel will also receive manual telephonic notification of all WWAs in a timely fashion.

3.3.1.4.3. Telephone. Telephone notification will be used for some time-critical agencies (such as ATC) as a primary method of dissemination. All other first-tier notifications will only receive manual telephone notification as a backup to JET's automated notification function.

3.3.1.4.4. Notifications by WST personnel are kept to a minimum as excessive notifications can hinder proper METWATCH and, in some cases, may exacerbate an already dangerous situation. Units requiring notification should contact the first organization within their chain of command that is identified as being contacted on the notification tree in **Attachment 5**.

3.4. Pilot-to-Metro Service (PMSV). Pilot-to-metro service (PMSV) is available via phone patch through the 18th Wing Command Post (18 WG/CP).

3.5. Transient Support. 18 OSS/OSW uses a "provide or arrange" concept for transient aircrew support. 18 OSS/OSW will provide FWB to transient aircrew using the duty priorities. As a first course of action, transient units should receive weather support from their home station. Due to the high ops tempo of the 18 WG, it may be necessary for 18 OSS/OSW to arrange for 175-1 Flight Weather Briefing (FWB) support (to include updates to a current 175-1) to be provided by another weather unit (i.e., home station, 17 OWS, and/or originating 175-1 unit). Requests can be made through the ASF in-person at the main weather shop (Building 3413), via telephone (DSN 315-634-3129), or through the organizational email (**18oss.weatherbriefer@us.af.mil**). If ASF personnel are unavailable due to other duty priorities, all requests for transient weather support should be made through the 17 OWS at DSN 315-449-8333 or online at **https://17ows.us.af.mil/**. FWBs issued by 18 OSS/OSW will be monitored for significant weather updates (see MISSIONWATCH in **Chapter 4**, **paragraph 4.6**.). FWBs from other organizations are tracked by that unit and therefore will not be tracked by 18 OSS/OSW.

3.6. Terminal Aerodrome Forecasts (TAFs). 18 OSS/OSW has TAF responsibility for Kadena AB. ASF technicians are responsible for the TAF and all required amendments. When on duty, ASF technicians will forecast an accurate depiction of expected weather to the best of their ability. The 17 OWS will create and disseminate the TAF only during significant outages at Kadena AB as outlined in the IDP described in **Chapter 1**. General rules regarding TAF formatting can be found in AFMAN 15-124, *Meteorological Codes*. Specific TAF amendment criteria for Kadena can be found within the IDP.

3.7. Public Weather Support. ASF technicians perform a limited public support role through the creation of several products provided for planning and/or safety purposes. These products are designed primarily for operators but serve a dual-purpose in that they can be used to update the general public as well (i.e., typhoon updates). This support can change with little or no notice, so it will not be described in detail in this instruction. All public support products can be found on the Kadena Weather webpage at **http://www.kadena.af.mil/Agencies/Local-Weather**.

3.8. Sea Conditions. IAW Joint Standing Operating Procedure for Determining Sea Conditions for Recreational Water Activities on Okinawa and the 18th Wing Commander (18 WG/CC) Water Safety Policy letter, 18 OSS/OSW establishes the coastal sea conditions based on wind speed criteria and locally assessed conditions, and issues warnings of dangerous coast sea conditions via the American Forces Network (AFN).

3.8.1. The Okinawan coastline has two sector locations, the eastern sector (Hamahiga, Henza, Ikei, Komaka, Kudaka, Miyagi, O-jima, and Tsuken) and the western sector (Aguni, Iheya, Ie Shima, Izena, Keramas, Kouri, Kume, and Senaga).

3.8.2. Sea Condition Criteria.

3.8.2.1. Sea Condition All Clear. Wind speeds have been reported at less than 18 MPH (16 knots). Locally assessed conditions are suitable for novice water enthusiasts intending to participate in the location's primary water activities.

3.8.2.2. Sea Condition Caution. Wind speeds of 18 MPH (16 knots) or greater, including gusts, have been observed for at least 3 hours. Locally assessed conditions warrant individuals participating in water activities have extensive experience both in the planned activity and at the location.

3.8.2.3. Sea Condition Danger. Wind speeds of 35 MPH (30 knots) or greater, including gusts, have been observed and are to persist for at least 3 hours or during Tropical Cyclone Condition of Readiness 2 (TCCOR 2). Locally assessed conditions are dangerous and warrant restricting access to the water and removal of individuals from the water. Personnel should stay clear of shoreline/seawalls whenever possible.

3.8.3. Because forecasting specific conditions for all Okinawa and surrounding island coastal areas is impractical, the sea conditions warning system publishes a general sea condition assessment for each sector location. The sea condition assessment may be inconsistent with site- specific weather and an associated sea condition within a sector. It is highly recommended Status of Forces Agreement (SOFA) personnel become educated on local waterfront conditions prior to conducting water activities.

Chapter 4

MISSION WEATHER SUPPORT

4.1. Mission Integration Function (MIF). Mission integration requires gaining an in-depth understanding of supported mission platforms, equipment, systems capabilities/sensitivities, and mission processes. These are important in order to inject timely, accurate, and relevant environmental information at every decision point in the mission planning and execution process to optimize mission success. The MIF serves as the focal point for mission support to 18 WG aviation units and works closely with the ASF (**Chapter 3**) to tailor forecasts into specific and actionable Mission Weather Products (MWPs). This chapter outlines general mission weather support, and the attachments to this instruction outline specific support to Kadena-based units.

4.1.1. Responsibilities. The responsibilities of the MIF are listed below. Note that all support will be prioritized based on the Duty Priorities listed in **Chapter 1**.

4.1.1.1. Assessing mission profiles and meteorological impacts to those profiles for all 18 WG supported assets.

4.1.1.2. Producing MWPs in support of on-going and scheduled 18 WG operations.

4.1.1.3. Monitoring active sorties for mission limiting weather criteria and exhausting all resources to update aircrew in the event of significant changes to expected weather.

4.1.1.4. Supporting the deployment and recovery of 18 WG assets by providing or arranging MWPs for deployment planning and mission execution, as well as by providing face-to-face briefings for deploying aircrew when requested and as manning allows.

4.1.1.5. Relaying all Resource Protection information to supported units in a timely manner.

4.1.1.6. Remaining flexible to the needs of 18 WG assets through the proper and efficient application of weather data to ensure mission accomplishment.

4.2. Supported Mission Types. The MIF supports the 18 WG and Partner Units via the specific support agreements outlined in **Attachment 6** through **Attachment 11**. A summary of units and specific weather systems operated by those units can be found in **Table 4.1**. More generally, however, MIF personnel enhance the capabilities of the 18 WG and Partner Units through support of the following mission types:

4.2.1. Air Superiority missions and training, to include power projection and the common defense of Japan, through the Kadena MWP.

4.2.2. Search and Rescue/Combat Search and Rescue (SAR/CSAR) missions and training through the Kadena MWP.

4.2.3. Air Refueling missions and training that are not tasked and supported via the 618 AOC/XOW (TACC) or 613 AOC (17 OWS) through the Kadena MWP, as well as through expanded FWBs for extended missions.

4.2.4. Airborne Warning and Control mission and training to the 18 WG and joint regional assets through the Kadena MWP, as well as through expanded FWBs for missions outside of the MWP coverage area.

4.2.5. Intelligence, Surveillance, and Reconnaissance missions and training through the Kadena MWP, as well as through expanded FWBs for missions outside of the MWP coverage area.

4.2.6. Aeromedical Evacuation missions through airfield support and planning weather.

4.2.7. Pararescue training missions out of MIF-supported airframes through the Kadena MWP with landing zone drop winds.

Table 4.1. Summary of Supported Kadena Units.

UNIT	*WEAPON SYSTEM/OPERATION*
44th & 67th Fighter Squadrons (44 FS & 67 FS)	F-15C/D Fighters
961st Airborne Air Control Squadron (961 AACS)	E-3 Sentry, Airborne Warning and Control System (AWACS)
909th Air Refueling Squadron (909 ARS)	KC-135 Tankers
33d Rescue Squadron (33 RQS)	HH-60 Helicopters
82d Reconnaissance Squadron (82 RS), (ACC asset, tenant unit)	RC-135S/U/V/W & WC-135: COBRA BALL, COMBAT SENT, RIVET JOINT and CONSTANT PHOENIX
Kadena Aero Club	Cessna 172s & Liberty XL-2s, Recreational
Note: This list is general in nature. Specific weapon systems and mission profiles, along with their sensitivities, can be found in the attachments to this instruction. Aero Club operations are supported by the ASF personnel on shift.	

4.3. Mission Weather Products (MWPs). 18 OSS/OSW produces MWPs in two distinct formats: planning and execution. Planning products usually consist of next-day or extended 5-day airfield forecasts. Execution products are in one of three formats: the Local Weather Product (LWP), Regional Weather Product (RWP), or 175-1 FWB. A general description of these products and how they are produced is outlined below. Examples of product formats are given in **Attachment 4**. Weather support for missions that are being executed outside the standard 18 WG MOAs can be arranged and/or provided when coordinated with 18 OSS/OSW leadership.

4.3.1. Planning MWPs. The planning MWP is a 5-day extended forecast that is provided and briefed as required during Wing/Group Commander Update Briefings and located on the Operations Group share drive. It is designed to promote integration with supported squadron leaders and their planning cells for their operational planning cycle to enable mission optimization before crews are alerted and/or MOAs are reserved. It is a product that provides sufficient detail for Go/No-Go assessments of planned operations and allows for the shifting or cancelling of planned missions as weather dictates. An example of the current operational planning product is provided in **Attachment 4**.

4.3.2. Local/Regional Weather Products (LWP/RWP). The LWP and RWP are same-day execution forecasts that provide detailed weather for the local or regional Military Operating Areas (MOAs) and the potential divert bases that will be utilized during the valid period of the products. The LWP/RWP is designed to provide expanded information beyond a standard 175-1 FWB while simultaneously covering multiple sorties that are executing similar functions within their respective MOAs. This consolidation of weather information improves pilot

awareness of meteorological conditions and reduces the duplication of effort that would arise from multiple FWBs being issued for similar missions. This consolidation also allows for easier and safer Mission Meteorological Watch (MISSIONWATCH) and amendments as described in **paragraph 4.3.5** and **paragraph 4.6**.

4.3.2.1. Format and Delivery. Product format and delivery is determined through annual coordination meetings with supported units. 18 WG staff and squadron commanders can contact 18 OSS/OSW leadership requesting changes at any time. Delivery is made via methods outlined in **paragraph 4.3.4**.

4.3.2.2. Non-18 WG Units. If units not belonging to the 18 WG wish to receive the LWP or RWP, coordination prior to or on arrival needs to be conducted with 18 OSS/OSW leadership, with daily schedules provided to the weather flight.

4.3.3. Flight Weather Briefings (FWB). FWBs are typically provided for extended missions (both in time and distance) where the LWP or RWP are impractical. They can be in the form of a standard Department of Defense (DD) Form 175-1, *Flight Weather Briefing*, or other coordinated customized MWP. MISSIONWATCH is performed on all FWBs issued as outlined in **paragraph 4.6**. Due to the cumbersome nature of performing MISSIONWATCH on multiple FWBs, the LWP or RWP are the preferred format when practical.

4.3.4. Product Dissemination. The primary method of MWP dissemination is through the Mission Weather SharePoint site found in **Chapter 1, Table 1.1**. Products will be posted within the timeframes determined by the support agreements and listed in **Attachment 6** through **Attachment 11**. MWPs can also be emailed by request, relayed over the phone, or given in person when manning allows forecasters to be integrated and embedded with supported units.

4.3.5. Amendments and Updates. Amendments will be done on the LWP and RWP whenever observed weather phenomena that crosses the thresholds given in **Attachment 6** through **Attachment 11** occur and were not previously forecast on the current MWP. The Planning MWP is for planning only and is not amended. FWBs are updated when weather criteria denoted as “mission limiting” for that aircraft changes from what was originally forecast.

4.3.5.1. Dissemination. MWP amendments will be disseminated via the same process outlined in **paragraph 4.3.4**. FWBs will be posted to the Mission Weather SharePoint or updated verbally if the aircrew is not physically present and time and/or the situation does not permit posting an updated FWB (i.e., the crew is already at the aircraft).

4.4. Supported Military Operating Areas (MOAs) and Air Refueling (A/R) tracks. 18 OSS/OSW produces MOA and A/R forecasts covered in either the LWP or the RWP. MOAs and frequently used A/R tracks are documented with 18 OSS/OSW and forecasted weather can be found on the respective MWP. Mission limiting weather criteria is defined in **Attachment 6** through **Attachment 11** with each supported squadron and their aircraft.

4.4.1. LWP. The LWP is primarily disseminated for the fighter and rotary aircraft that train within the 18 WG local MOAs: Tiger, Eagle, Lion, Moose, Browns, Tybee, Dragon, and Edix. Oftentimes, multiple platforms will operate within the same MOA to maximize the integration that is vital to support the mission types outlined in **paragraph 4.2**.

4.4.2. RWP. The RWP is primarily for all other supported aircraft that conduct missions within regional MOAs such as: Sea of Japan, Korea Peninsula, East China Sea, South China Sea, Taiwan, and the Philippines. In addition, the RWP covers the 961st and 909th training and 82nd and 5th AF Higher Headquarters (HHQ) missions within the local MOAs outlined in **paragraph 4.4.1**.

4.5. Mission Limiting Weather Conditions. Weather phenomena can cause multiple impacts to aircraft platforms. **Attachment 6** through **Attachment 11** outline specific mission limiting weather for 18 OSS/OSW supported units' aircraft. Additionally, **Attachment 5** provides customer actions and impacts in conjunction with weather watches, warnings, and advisories.

4.6. Mission Meteorological Watch (MISSIONWATCH). MISSIONWATCH is a deliberate process for monitoring terrestrial weather and/or the space environment for specific mission-limiting environmental factors. The MISSIONWATCH process identifies and alerts decision makers to changes affecting mission success. MISSIONWATCH will be conducted on all MWPs that originate from 18 OSS/OSW, to include transient FWBs.

4.6.1. Mission Risk. Each mission conducted has its own level of meteorological risk. The level of meteorological risk will be assessed by weather personnel based on thresholds determined for specific airframes outlined in **Attachment 6** through **Attachment 11**. Risk is divided into three different categories as outlined below:

4.6.1.1. Low Risk. Low risk missions are those where weather has no significant impact to the mission. In addition, low risk mission forecasts have a high probability of occurrence with little or no doubt in the forecaster's mind as to the accuracy of the forecast. **Example:** If fighters are flying in Tiger, high pressure is dominating, and no adverse weather is within 100 miles of either Kadena, the MOAs, or any alternates (to include enroute), the mission risk would be low.

4.6.1.1.1. Weather for low-risk missions is monitored as frequently as possible at intervals not to exceed 1 hour.

4.6.1.2. Moderate Risk. Moderate risk missions are those where non-severe weather could reasonably be expected to impact the mission. Examples of weather that would put a mission at moderate risk include marginal Visual Flight Rules (VFR) weather/crosswinds at Kadena, destinations, and/or alternates, clouds obscuring A/R tracks/MOAs, light turbulence or icing, and/or situations where there is medium to low confidence in the forecast for a mission segment.

4.6.1.2.1. Due to the potential to develop into high-risk missions, weather for moderate risk missions will be monitored as frequently as possible at intervals not to exceed 20 minutes.

4.6.1.3. High Risk. High risk missions are those that have reasonable probability of experiencing severe weather that could pose a danger to the crew, aircraft, and/or mission. Examples of weather that would put a mission at high risk include Instrument Flight Rules (IFR) weather/divert criteria, crosswinds at Kadena, destinations, and/or alternates, moderate or greater icing and/or turbulence during any mission segment, observed/forecast thunderstorms for any mission segment (to include 100 NM around a destination regardless

of route of travel), volcanic ash along the route of travel, unique missions where weather solely determines mission success (i.e., Intelligence, Surveillance, Reconnaissance (ISR) missions), all wartime missions, and any other weather criteria that, in the forecaster's mind, would put the mission/aircraft at high risk.

4.6.1.3.1. High risk missions will be monitored as frequently as possible at intervals not to exceed the refresh time of available data. This means that if lightning updates every 10 minutes, lightning will be checked on every update.

4.6.2. Process. MISSIONWATCH will be conducted for every mission and prioritized by the severity of risk (e.g., low, moderate, high). Risks will be explained to associated mission commanders and/or the Top 3/Supervisor of Flying (SOF). If mission risk changes, these same individuals will be notified as soon as possible and before operational products are amended (as outlined in **paragraph 4.3.5**.). The MISSIONWATCH steps are in **Table 4.2**.

Table 4.2. Basic MISSIONWATCH Steps.

STEP	*ACTION*
1	Determine the mission(s) placed at risk due to terrestrial or space weather conditions
2	Continuously monitor "at-risk" mission routes, areas, installations, etc., for significant changes; spot-check low risk missions
3	Focus on mission-limiting weather thresholds for each specific mission
4	Evaluate for change in risk category and reprioritize MISSIONWATCH as appropriate; notify operational users of weather conditions crossing mission-limiting thresholds
5	Integrate weather impacts into the operational alternative's decision process
6	Update weather products as necessary
7	Continue to monitor missions based on MISSIONWATCH threat

4.7. Lead Weather Unit (LWU) Procedures. Due to the integrated nature of some operations, weather organizations must typically coordinate environmental information for missions involving more than one unit and/or service. Coordinated weather operations ensure decision makers at every level receive consistent and relevant weather information. It also ensures a comprehensive and standardized set of decision-grade weather information is used and available across all command levels. In these cases, the LWU will provide the official forecast for any portion of the mission where aircraft are operating within the same airspace at the same time. In wartime, this could extend to include the entire theater of operations. In all instances, the coordination of weather information should be seamless to supported units. While an exhaustive list of scenarios where Kadena is not the LWU is impractical for this instruction (Refer to AFMAN 15-129, *Air and Space Weather Operations,* Table 3.3), general rules apply that those receiving weather information should be aware of:

4.7.1. Fighters. Weather units supporting fighter aircraft are almost always the LWU. In this instance, the LWU would be 18 OSS/OSW (with exceptions being exercises and wartime).

4.7.2. Tankers/Airborne Warning and Control System (AWACS). For refueling and AWACS, the weather unit supporting the receiver aircraft will typically be the LWU. This means that the refueling/orbit area forecast may be created by another weather organization if the receiver aircraft are not 18 WG assets. In these instances, MIF personnel will coordinate that portion of the forecast to the greatest extent possible (but ultimately do not have control over the final forecast).

4.7.3. Helicopters. Weather units supporting rotary missions that involve refueling will typically be the LWU.

4.8. Pre-Deployment Planning. MIF personnel will support pre-deployment planning through a variety of products and services depending on the nature of the deployment and whether 18 OSS/OSW personnel will accompany the movement and/or provide reach back support. In either case, MIF personnel will participate in pre-deployment planning to ensure theater-specific environmental impacts are factored into supported unit deployment activities, to include (but not limited to) climatology and seasonal weather hazards expected during the period of deployment.

4.8.1. For deployments where 18 OSS/OSW personnel will accompany the movement or will provide reach back support, pre-deployment planning will include the collection of Go/No-Go thresholds for the deployed location using deployed mission and operational requirements, rules of engagement, and theater specific environmental impacts of the supported unit.

4.9. Instrument Refresher Course (IRC). The 18 OSS/OSW will participate in area indoctrination and IRC weather briefings upon request. The frequency and content of the briefings will be dictated by supported units and will be customized to meet the needs of the specific unit requesting the brief. General information provided during IRC weather briefings (not all inclusive) include topics such as lightning avoidance, wind shear scenarios, tools available to pilots and weather personnel, and seasonal weather conditions for/near Okinawa.

4.10. National Airborne Operations Center (NAOC). 18 OSS/OSW will support NAOC IAW the established Operation Plan (OPLAN). Additional Observed weather advisories will be issued as listed in **Attachment 5.**

Chapter 5

STAFF WEATHER SUPPORT

5.1. Commander Update Briefing Support. The Staff Integration Function (SIF) will provide planning MWP forecasts primarily through regular Commanders Update Brief (CUB) meetings. With representatives from all flying squadrons present, CUBs serve as an ideal opportunity to inject decision-grade weather and environmental data into extended Wing planning. The integrated nature of this brief allows for optimization of Wing assets as a cohesive whole. The 18 OG or 18 WG staff will direct the format and frequency of this brief.

5.2. Tropical Cyclone Support. SIF personnel will lead 18 WG planning for the annual United States Forces Japan (USFJ) annual typhoon exercise. In addition to tropical cyclone support given in **Chapter 6**, SIF personnel will provide the below products and services to Wing leaders to facilitate Tropical Cyclone Conditions of Readiness (TCCOR) changes and evacuation decisions.

5.2.1. Strike Meetings. Strike Meetings will be called by the 18 WG/CC or designee whenever conditions warrant the development of an integrated evacuation and sheltering plan for WG and Partner Unit assets. SIF personnel will provide a weather brief, which will cover the tropical cyclone forecast with expected impacts to Kadena AB and forecast timelines for evacuation and recovery operations. The content and format of this brief is determined by 18 WG leadership.

5.2.2. Decision Aids/senior leader updates. Decision Aids/senior leader updates will be produced every 6-12 hours as directed from 18 WG leaders whenever TCCOR 3 or lower is declared. Decision Aids will provide timelines for significant impacts to evacuation and sheltering operations, along with projected TCCOR timelines based on the forecast at the time of update. The content and format for Decision Aids will be determined by WG leadership.

5.2.3. Post-Storm Summary Report. Post-storm summary reports will be completed within 24 hours of passage for tropical cyclones that are of tropical storm strength or greater and pass within 150NM of Okinawa. Summary reports for other systems that cause TCCOR changes will be done upon request. Reports will include a timeline of observed weather (i.e., max sustained/gust wind speeds, total rainfall around island, minimum sea level pressure, closest point of approach of storm center) and TCCOR changes during the passage. The reports will be submitted to USFJ, the Joint Typhoon Warning Center (JTWC), 17 OWS, PACAF A3W, and by request to any agency requiring them for official use.

5.3. Operational Report 3 (OPREP-3) Support. SIF personnel will provide weather data in support of the Operational Reporting function of the 18 WG/CP, as outlined in AFMAN 10-206, *Operational Reporting (OPREP).* All weather-related OPREP-3s will be reported to MAJCOM weather functional personnel for their situational awareness. Typical situations that would drive weather input into an OPREP-3 include the following:

5.3.1. Severe Weather. SIF personnel will provide weather information for all severe weather incidents, regardless of whether significant damage occurs as a result of that weather. Severe weather, in this case, is defined as winds greater than or equal to 50 knots, tornadoes, and/or hail greater than or equal to ¾ inch. In addition, non-severe weather that causes damage to 18 WG assets (such as lightning strikes) will also drive the inclusion of weather data into submitted OPREP-3s. If included, this data will typically consist of:

5.3.1.1. The actual severe weather conditions experienced.

5.3.1.2. The forecast valid at the time of the event with issued watches, warnings, or advisories.

5.3.1.3. The operational status of meteorological and communication equipment (**Example:** NEXRAD, airfield weather sensors, NIPRNET, etc.) at the time of the event.

5.3.2. Post Tropical Cyclone Report. Weather information for storms driving TCCOR changes will be provided during regular product updates and/or as requested. Typical information for TCCOR Change OPREP-3s includes storm location and intensity and anticipated weather on Kadena AB as a result of the storm. Any damage caused by a tropical cyclone will be handled the same as a severe weather incident as outlined in **paragraph 5.3.1**.

5.3.3. Aircraft Mishap. In addition to **paragraph 5.3.1** for Kadena AB, 18 OSS/OSW personnel will provide weather conditions at the time and place of an aircraft mishap, as requested.

5.3.4. Terrorist Incident. In response to suspected or confirmed terrorist use of chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) materials, 18 OSS/OSW will provide current and forecast weather conditions. Conditions will come from a Chemical Downwind Message (CDM) as outlined in **paragraph 7.3.3** for contingency response support.

5.4. Climatology Services. SIF personnel can provide climatological services for many locations upon request. These services include, but are not limited to, historic observations, climatic summaries, typhoon climatology, climatological maximums/minimums, and expected seasonal weather, both on Okinawa and in deployed locations. In addition, daily climatology will be posted to the public webpage (see **paragraph 3.7**.).

5.5. Cooperative Weather Watch. SIF personnel will ensure that ATC personnel are trained to report significant weather phenomena to 18 OSS/OSW. **Example:** Reduced visibility, tornadic activity, hail, and flooding.

5.5.1. ATC Personnel will be provided training/orientation on local weather observing as part of their certification. At a minimum, they will be trained to report changes in tower visibility to 18 OSS/OSW when it is less than 4 statute miles and differs from surface prevailing visibility.

5.5.2. SIF personnel will, upon request, assist ATC in preparation of visibility charts for determining tower visibility, and review charts annually to ensure currency.

Chapter 6

SEVERE WEATHER SUPPORT

6.1. Severe Weather Action Plan (SWAP). SWAP outlines procedures for 18 OSS/OSW to respond to severe weather, emergency aircraft support, or any other emergency requiring weather support. 18 OSS/OSW will conduct and document SWAP procedures annually, either through exercise or actual severe weather events. The procedures will incorporate ORM processes.

6.1.1. SWAP is utilized to ensure sufficient personnel are available during high tempo weather operations. The duty forecaster will gather the TAF, MWPs, Typhoon Timeline, and any other pertinent data that may be used in an OPREP-3. They will also notify the 18 OSS/OSW Flight Commander, and Flight Chief whenever there is a possibility for any of the following to occur:

6.1.1.1. SWAP will be initiated for the watches and warnings listed in **Table 6.1**, due to the increase to the duty forecaster workload and a higher chance for damage on base due to weather.

Table 6.1. 18OSS/OSW SWAP Activation Criteria.

SEVERE WATCH CRITERIA	DLT
TORNADO AT KADENA	APW*
SURFACE WINDS 50 KNOTS	4 hours
SEVERE THUNDERSTORMS (Winds 50kts and/or Hail 3/4in)	4 hours
SEVERE WARNING CRITERIA	**DLT**
TORNADO AT KADENA	30 min
SURFACE WINDS 50 KNOTS	2 hours
SEVERE THUNDERSTORMS (Winds 50kts and/or Hail 3/4in)	2 hours
KADENA IS PLACED IN TCCOR 1 OR TCCOR 2	N/A
*APW – As Potential Warrants	

6.1.1.2. SWAP will also be initiated in the event of natural disasters (i.e., earthquake and/or tsunami) that are expected to have impacts to Okinawa. Additionally, SWAP will be activated for operational purposes any time conditions will warrant an OPREP-3 as seen above in **paragraph 5.3**. **Example:** Aircraft mishap with downed aircraft.

6.1.2. At a minimum, a complete SWAP team consists of: Team Leader or Typhoon Duty Officer (TDO) (i.e., Flight Commander, Flight Chief, Wing Weather Officer (WWO) or Non-Commissioned Officer in Charge [NCOIC]), any available on duty forecasters, and/or other flight member augmentation.

6.1.3. If it is determined that SWAP needs to be activated, the checklist in **Table 6.2** will be used to ensure all tasks are complete.

Table 6.2. 18OSS/OSW SWAP Checklist.

#	Who	Actions To Be Accomplished *(All items with an * are accomplished only when tropical cyclones are affecting Okinawa.)*	Yes	No	N/A
1	*Duty Forecaster*	1. Initiates recall of personnel as deemed necessary. (Based on weather threat, anticipated workload, etc.). 2. Notify Flight/CC and Flight Chief. 3. Assume role as senior flight member until recalled personnel arrive. 4. Document significant event in the ASF electronic files spreadsheet, or start an AF Form 4377, *Events Log*. 5. Augment/conduct Basic Weather Watch as necessary IAW AFMAN 15-111. 6. Issue/verify WWAs as necessary. Notify agencies. 7. Conduct concise initial METCONs so key personnel are apprised of situation. Immediately assess the weather threat. 8. * Assist in conducting tropical cyclone conference calls. 9. * Prepare/transmit TCIR. 10. Follow shift duty priorities IAW SOPs. 11. Any other duty as directed by SWAP Team Leader.			
2	*SWAP Team Leader*	1. Take charge of the team and coordinate all actions. 2. Decide if SWAP team needs to be activated. 3. Function as the primary spokesperson. Provide briefings to military/civilian agencies. Answer questions/brief customers on the weather situation. 4. Keep a log of events/significant conversations. 5. Gather important weather data and determine OPREP- 3 reporting requirements. 6. * Ensure coordination with JTWC. 7. * Follow all tropical cyclone checklists and procedures. 8. * Conduct Tropical Cyclone Strike Meetings as requested by 18 WG/CC. 9. Ensure all weather products are horizontally consistent. 10. Delegate tasks as necessary.			
3	*TDO**	1. Coordinate with JTWC. 2. Follow all tropical cyclone checklists and procedures. 3. Prepare forecast slides to brief at Tropical Cyclone Strike Meetings. 4. Assist in conducting tropical cyclone conference calls as needed.			

6.1.4. During TCCOR 1, 1 Caution (1C), 1E and/or 1R, the WST will issue warnings for observed lightning, tornado, and observed heavy rain advisory criteria only. All other WWAs in effect prior to TC-1C and/or 1E will become void. **All standard WWAs will require re-issuance (as required) once TCCOR 1R is declared.**

6.2. Typhoon Operations. Tropical cyclones in the western Pacific Ocean are monitored 24-hours a day. Tropical cyclone support is provided IAW the United States Forces Japan Instruction (USFJI) 15-4001, *Tropical Cyclone Conditions of Readiness (TCCOR)*, United States Indo-Pacific Command Instruction (USINDOPACOMINST) 0539.1, *Tropical Cyclone Condition of Readiness Program*, and Kadena Air Base Installation Emergency Management Plan 10-2. The official forecast agency for the Western Pacific tropical cyclone track forecasts for all U.S. Government agencies is the Joint Typhoon Warning Center (JTWC) located at the Makalapa Complex on Joint Base Pearl Harbor-Hickam. Tropical cyclones can form quickly and near Okinawa. As a precautionary measure, Okinawa is in TCCOR 4 from 1 June through 30 November. Additionally, it is important to note that outlooks beyond 48 hours contain a high degree of uncertainty, are for planning purposes only, and are subject to change.

6.2.1. USFJI 15-4001, *Tropical Cyclone Conditions of Readiness (TCCOR)*, is the governing directive for TCCORs throughout Japan. In this instruction, the Commander, U.S. Forces Japan has delegated the authority for declaring TCCORs on Okinawa to the 18 WG/CC or designated representative.

6.2.2. USFJI 15-4001 designates that installation commanders can be given local TCCOR authority for changes to/from TCCORs 1 Caution (1C), 1 Emergency (1E), and 1 Recovery (1R) at their respective installations based on actual reported wind speeds if they have DoD certified weather equipment available to make such a determination. For Okinawa, this will likely never be necessary because: 1) Only Kadena and Futenma have the required weather equipment and personnel necessary to record official wind speeds; 2) These two bases are only 6 miles apart.

6.2.3. TCCOR Definitions are defined by two factors: 1) The amount of time prior to the onset of tropical cyclone associated destructive (50 knots sustained) winds at any US military installation on Okinawa and 2) The intensity of winds observed on Okinawa. The TCCOR definitions are found in the USFJI 15-4001, Attachment 2. The 18th Wing will additionally use TCCOR – 1 Caution which occurs when winds of 35-49 knots sustained are occurring at a particular location. Okinawa will enter TCCOR-1C at the TCCOR authority's discretion based on recommendations from 18 OSS/OSW.

6.2.4. Typhoon operations begin when a Tropical Cyclone (TC) is expected to affect Okinawa (sustained winds > 35kts or crosswinds $\geq$ 25kts) within 96 hours. At this point, the WST begins to conduct typhoon operations and the following occurs:

6.2.4.1. The 17 OWS will utilize the JTWC forecast track (**Figure 6.1**) to prepare the Tropical Cyclone Threat Assessment Product (TC-TAP) as seen in **Figure 6.2**. This product is produced every 6 hours until the TC is no longer expected to impact Kadena AB.

6.2.4.2. 18 OSS/OSW will utilize the JTWC track to produce the Tropical Cyclone Information Release (TCIR), Typhoon Timeline, and Commander's TCCOR Decision Aid (see **Figure 6.3**., **Figure 6.4.**, **Figure 6.5**.). 18 OSS/OSW will distribute the decision aids and typhoon timeline to the Wing leadership and will publish the TCIR to http://www.kadena.af.mil/Agencies/Local-Weather . Notified agencies are responsible for distribution within their respective units. The products will be released at 6 hourly periods until either the TC changes track or Okinawa returns to TCCOR 4/TCCOR All Clear.

6.2.4.3. In addition to the 6 hourly products, the Staff function will provide support as listed in **Chapter 5**, to provide the 18 WG/CC information that is needed to make decisions on both TCCOR changes as well as timing for evacuating aircraft.

6.2.4.4. 18 WG/CP will notify the units listed in **Table 6.3** for distribution of the updated TCCOR when changed, as well as notify Kadena using the At-HOC program to send out notifications to personnel on all computers.

Figure 6.1. JTWC Forecast Track.

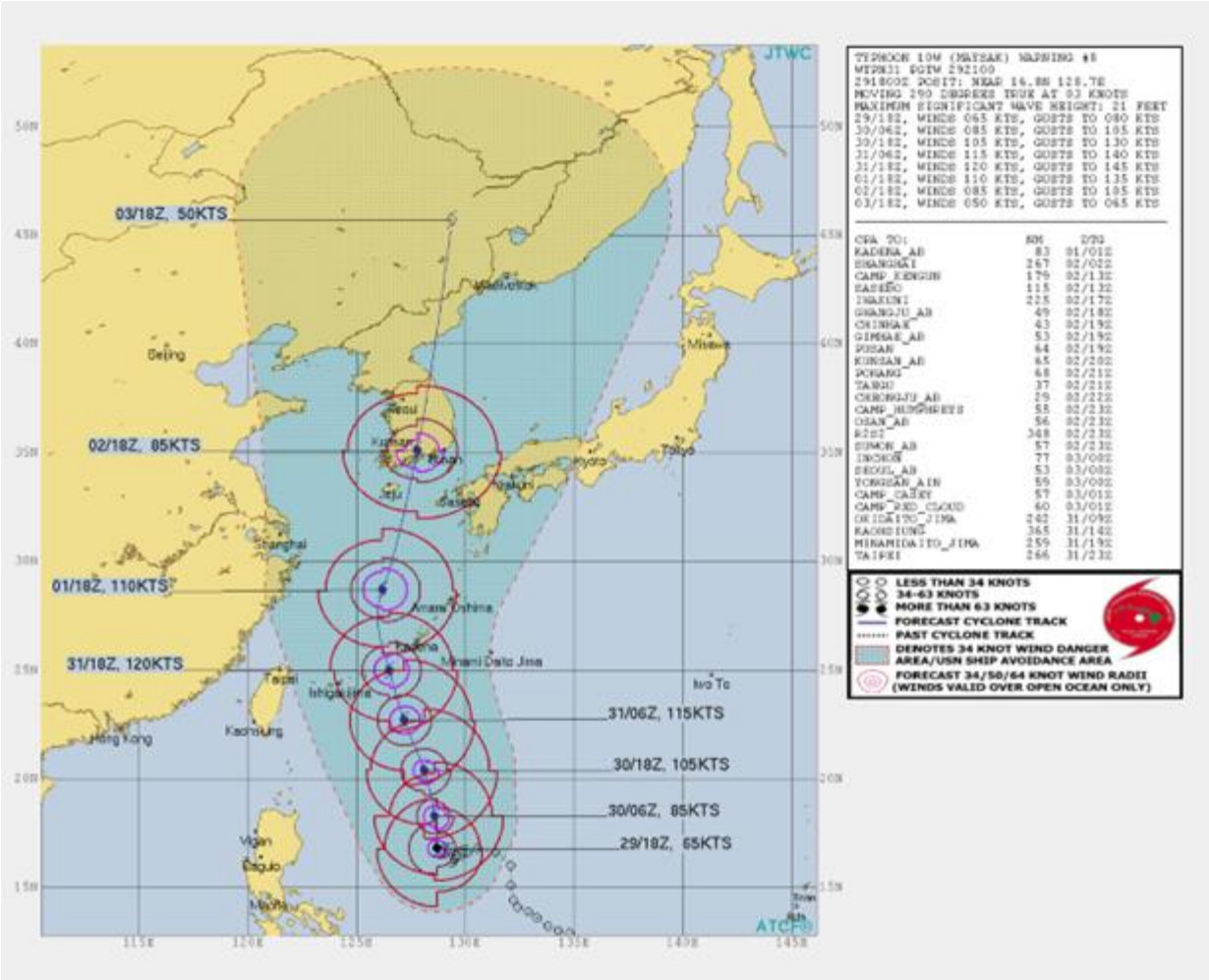


Figure 6.2. TC-TAP produced by 17 OWS.

TROPICAL CYCLONE THREAT ASSESSMENT PRODUCT: TYPHOON 10W (MAYSAK)														
Extracted from official JTWC Warning #008 issued at 292100Z														
NOTE: A blank cell for a specific event (i.e., begin 15kt x-wind) indicates that the threshold for that event is not expected to be met.														
CONSIDERING TERRAIN (FRICTION) EFFECTS														
Site Name	ICAO	Max Gusts (kt)	Max Gusts (DTG)	Begin 15kt X-Wind	End 15kt X-Wind	Begin 25kt X-Wind	End 25kt X-Wind	Begin 35kt Sustained Winds	End 35kt Sustained Winds	Begin 50kt Sustained Winds	End 50kt Sustained Winds	Begin 64kt Sustained Winds	End 64kt Sustained Winds	Estimated Total Precip (in)
Cheong-Ju	RKTU	79	02/2130Z	02/1930Z	03/0330Z	02/2030Z	03/0100Z	02/1430Z	03/0400Z	02/1900Z	03/0030Z	02/2100Z	02/2200Z	3-5
Chinhae	RKPE	47	02/1730Z					02/1630Z	02/1900Z					4-6
Daegu AB/Taegu	RKTN	42	02/1930Z	02/1000Z	03/0430Z	02/2030Z	03/0200Z							3-5
Gimhae/Punsan AB	RKPK	77	02/1830Z	02/0700Z	03/0230Z	02/0730Z	03/0200Z	02/0930Z	03/0100Z	02/1430Z	02/2100Z	02/1800Z	02/1930Z	4-6
Humphreys	RKSG	43	02/2200Z	02/1330Z	03/0600Z	02/1530Z	03/0330Z							4-5
Kadena AB	ROON	43	01/1830Z	31/1200Z	01/1300Z	31/1700Z	01/0830Z	01/1830Z	01/1900Z					5-7
Kunsan AB	RKJK	65	02/1930Z	02/0930Z	03/0330Z	02/1930Z	03/0300Z	02/1600Z	03/0130Z	02/1830Z	02/2100Z			2-4
Kwangju	RKJJ	51	02/1400Z	02/0600Z	03/0100Z	02/0630Z	02/1730Z	02/1300Z	02/1430Z					3-5
NB Sasebo	RJFW	34	02/1300Z											2-3
Osan	RKSO	54	02/2200Z	02/1430Z	03/0000Z	02/1800Z	02/2330Z	02/2000Z	03/0100Z					4-5
Pohang	RKTH	43	02/2000Z	02/1900Z	03/0400Z	02/2000Z	03/0030Z							4-6
Seoul AB/K16	RKSM	43	02/2230Z	02/1700Z	03/0700Z	02/2330Z	03/0330Z							3-5
USAG Casey	RKSU	43	02/2330Z											3-5
USAG Red Cloud	KQFQ	42	02/2330Z											3-5
USAG Yongsan	KQFN	37	02/2300Z											3-5
White Beach	RODH	62	01/0030Z					31/1130Z	01/1830Z	31/2330Z	01/0530Z			5-7

Figure 6.3. Tropical Cyclone Information Release.

TROPICAL STORM 10W (MAYSAK)

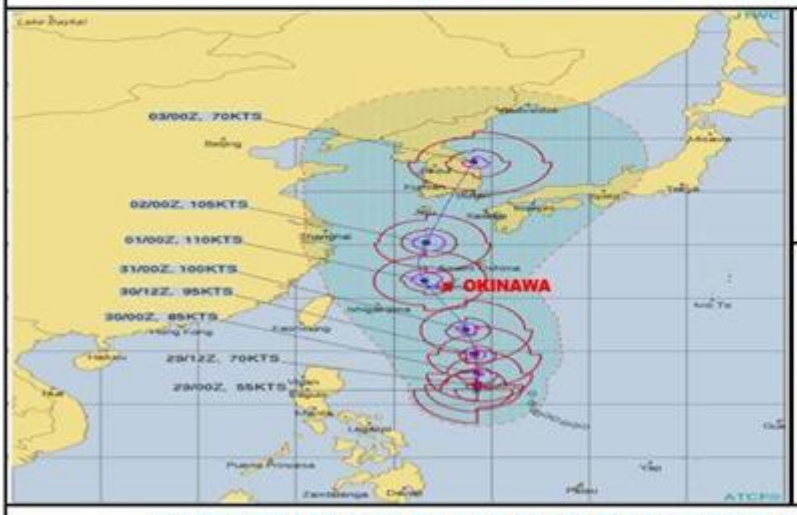
This is for public information only

The forecast can change with little to no notice

Official TCCOR will be posted when directed by the 18th Wing Commander

CURRENT AS OF: SATURDAY, AUGUST 29, 2020 2:00PM JST

OKINAWA IS CURRENTLY IN TCCOR 3 - Destructive winds possible within 48 hours.



SUSTAINED WINDS GREATER THAN OR EQUAL TO 35KTS (40MPH) IS EXPECTED STARTING ON:
MONDAY, AUGUST 31 4:00PM JST

SUSTAINED WINDS GREATER THAN OR EQUAL TO 50KTS (57MPH) AND/OR WIND GUST GREATER THAN OR EQUAL TO 60KTS (69MPH) IS EXPECTED STARTING ON:
MONDAY, AUGUST 31, 8:00PM JST

NEXT UPDATE WILL BE AT 8:00AM OR EARLIER IF CONDITIONS WARRANT

Figure 6.4. Typhoon Timeline.

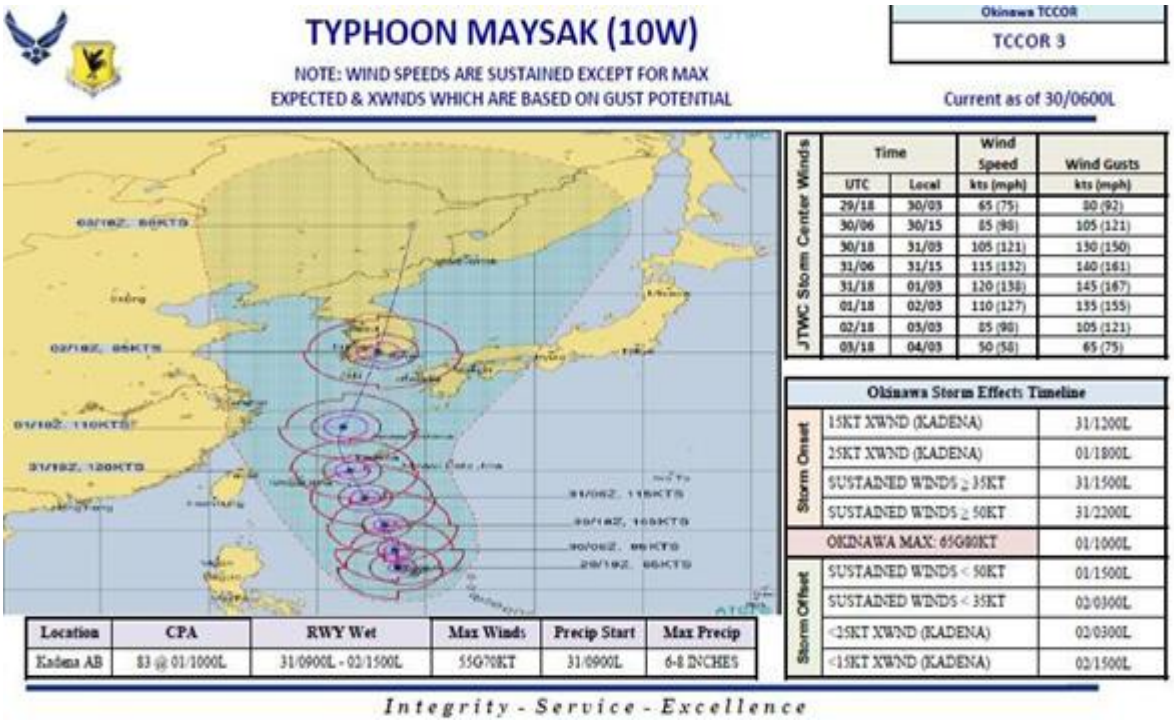


Figure 6.5. Commander's TCCOR Decision Aid.

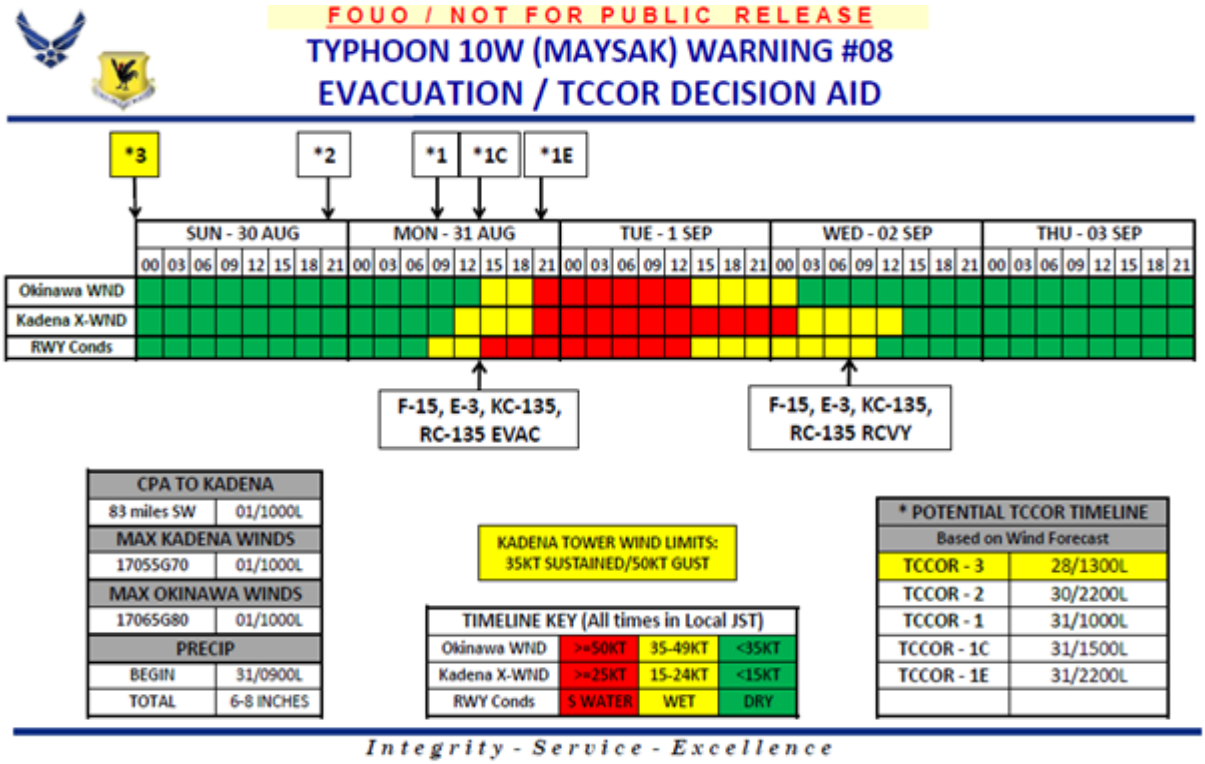


Table 6.3. 18WG/CP notification chain/Distribution of Typhoon Products.

18th Civil Engineer Group, Unit Control Center (18 CEG/UCC)
18 MOS/MXOOC
III Marine Expeditionary Force (III MEF)
10 SG
CFAO Quarterdeck
353 SOW
Futenma Marine Corps Air Station, METOC Office
018 WG/PA
18 CES/CEX
Airfield Manager (During TCCOR 1R to resume duties/Open Airfield)
733 AMS/CC
USFJ Joint Operations Center
Okuma FSS
USAGO
Camp Shields/White Beach
18 SFS/BDOC
MCIPAC
USMC 1st MAW
NAOC
Other Agencies as Required

6.3. Volcanic Activity. Volcanic activity is a significant safety of flight issue, and all aircraft will avoid areas that have observed or forecast volcanic ash clouds. 18 OSS/OSW will provide volcanic ash information on all Mission Weather Products. The volcanic ash information will be obtained from the Tokyo Volcanic Ash Advisory Center (VAAC). 18 OSS/OSW will not deviate from the information provided by the VAAC, but may supplement this information from available resources, such as Air Force Weather Web Services (AFW-WEBS).

6.4. Natural Disaster Response. In addition to supporting severe meteorological conditions, 18 OSS/OSW plays a limited role in responding to natural disasters such as earthquakes and tsunamis. This role is primarily as a liaison, whereby weather personnel monitor the situation and provide information to relative operators as needed. **Note:** Weather personnel are typically not trained in earthquake/tsunami science and can only relay information from official bulletins and notifications.

Chapter 7

EMERGENCY AND CONTINGENCY OPERATIONS

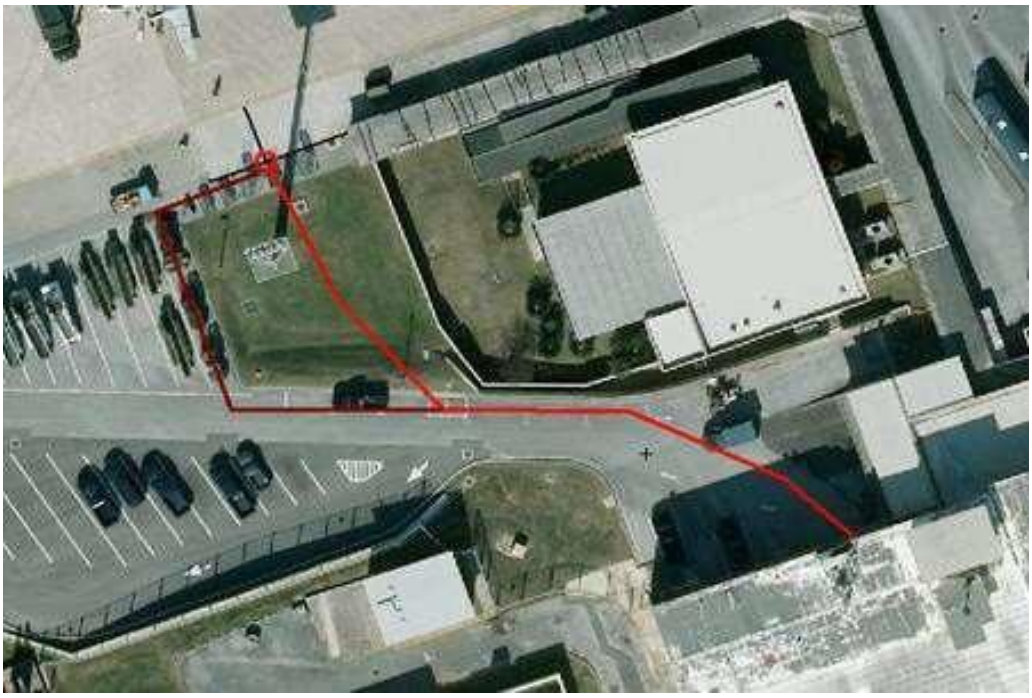
7.1. Alternate Operating Locations (AOL). Evacuation from primary facilities may be required due to natural disaster, fire, loss of power and network communication, terrorist threat, or other unforeseen circumstances. During any evacuation, personnel safety will take priority over all duties except Emergency War Order Taskings. There are two alternate operating locations for the ASF and MIF, both of which are listed in **Table 1.1**.

7.1.1. While at the AOLs, the ASF will have several limitations to operations, as not all resources are available at each location. Additionally, there are alternate Official Observation points which will have different limitations to the primary. **Figures 7.1 and Figure 7.2** show the Primary and Secondary AOL Official Observation points. Limitations for ASF are listed below.

7.1.1.1. Primary AOL. The Primary AOL is located at the 733rd AMC Passenger Terminal, building 3409. The official AOL observation point is down the hill from Building 3409 next to the flight line (**Figure 7.1**.). The point is labeled with an arrow and the letter "N" depicting North. The location may have obstructions (e.g., planes, equipment), and observers may move to as many locations around the observation point as necessary and practicable within the period of observation to view as much of the horizon as possible.

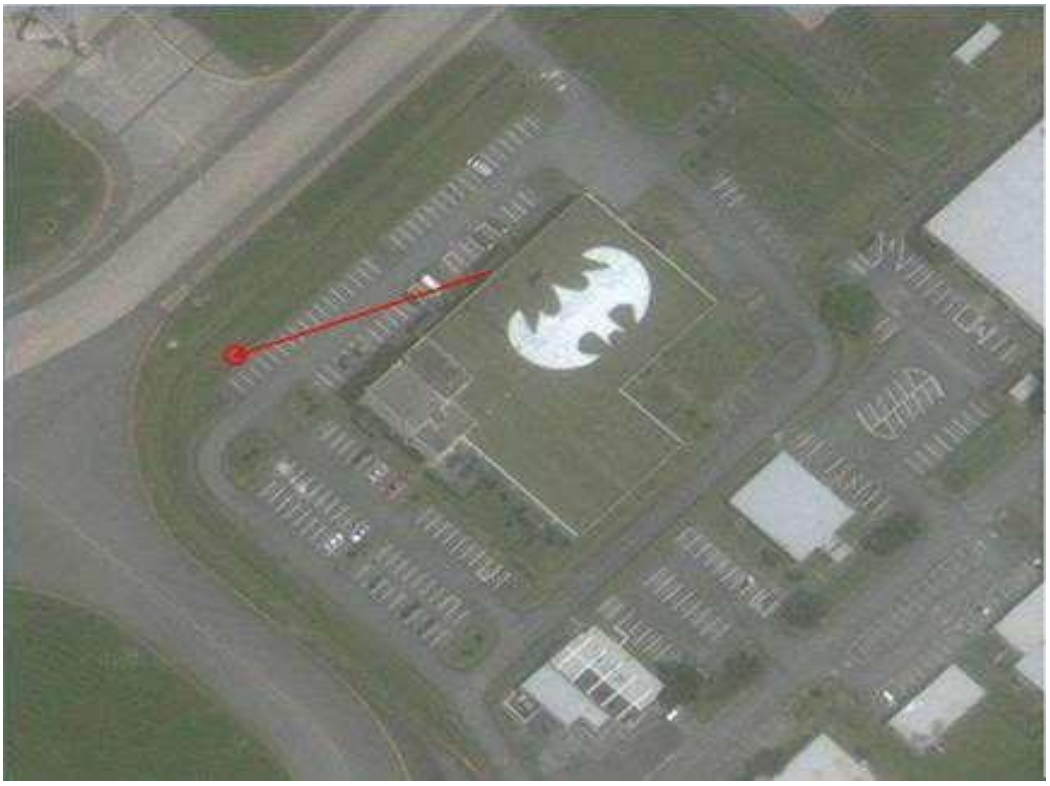
7.1.1.2. Note that visibility and wind determinations from the east through southwest of the observation point are degraded due to buildings and other obstructions.

Figure 7.1. Primary AOL Observation Point Map.



7.1.1.3. Secondary AOL. The secondary AOL is located at the 44th Fighter Squadron, building 3384 (**Figure 7.2**.). The point is identified by a manhole cover, located outside the north entrance of the building. The location may have obstructions (e.g., planes and equipment), and observers may move to as many locations around the observation point as necessary and practicable within the period of observation to view as much of the horizon as possible.

Figure 7.2. Secondary AOL Observation Point Map.



7.1.1.4. Surface Observations: If FMQ-19 sensor readouts are not available, ASF personnel will use Kestrels and a compass to measure wind direction and speed, temperature/dew point, and atmospheric pressure. Visibility will be determined using the AOL visibility charts. Surface visibility will have restrictions from northeast to southeast due to the building, and wind measurements from those directions will also be impacted. JET, if operational, will be used to issue observations, watches, warnings, and advisories. If there is no Local Area Network (LAN) connectivity, weather data will be disseminated via telephone and relayed to the 17 OWS or other weather unit for longline dissemination.

7.1.1.5. WSR-88D Doppler Radar: WSR-88D Doppler Radar is available as outlined in **paragraph 2.3.4**. In addition, personnel may access local Japanese radar data via the internet per **paragraph 7.2.1**.

7.1.1.6. Lightning Detection System: FMQ-19 lightning data can be viewed through JET. If the FMQ-19 server is data unavailable, ASF personnel will have to depend on the internet and manual observing to obtain lightning data.

7.1.1.7. Pilot-to-Metro Service (PMSV): There is no PMSV radio at the weather office or AOL, therefore, the air traffic control tower will have to monitor the PMSV frequency and relay any request/info to the alternate site. In the event that the tower cannot monitor the PMSV, Marine weather personnel at Futenma Marine Corps Air Facility will assist from a frequency of 290.6 rather than 344.6. Aircrews may have to make phone-patch contact with ASF personnel through the 18 WG/CP.

7.1.1.8. In the event 18 OSS/OSW operations are not possible (**Example:** catastrophic outages), 17 OWS will provide support to 18 WG assets.

7.1.2. While at the AOL, the MIF may be unable to provide face-to-face weather briefings to any flying squadrons.

7.2. Back-up Operations. In the event of system failure, 18 OSS/OSW has back up operations that will be implemented to maintain continuity of operations. Station evacuation is one situation that requires alternate operating procedures. Below are additional tools, along with the back-up procedures that are in place.

7.2.1. WSR-88D Doppler Radar: When the WSR-88D Doppler radar is inoperative, 18 OSS/OSW will utilize local national support via online sources. The Japanese Meteorological Agency has publicly available radar data online for Okinawa that will be used as a back-up.

7.2.2. JET: If JET is inoperative, the greatest items of concern are weather observations and WWAs. Observations will be taken and submitted locally to ATC agencies and through the AFW-WEBS website as a primary back-up. If there is no connectivity to the website, observations will be recorded on an AF Form 3803, *Surface Weather Observations (METAR/SPECI)*, or JET/Electronic Form 3813, *Surface Weather Observations (METAR/SPECI)*, and submitted via telephone to Tower, Ground Control Approach (GCA), and Naha Approach for flight safety and to the 17 OWS for longline submission. For WWAs, the primary backup is to issue via telephone, and record on AF Form 3806, *Weather Watch Advisory Log*/AF Form 3807, *Watch/Warning Notification and Verification*.

7.2.3. PMSV: Phone patch via the 18 WG/CP.

7.2.4. FMQ-19: If the FMQ-19 is completely inoperable, observations will be completed using manual observing techniques with back-up equipment (**Example:** Kestrel handheld sensor). If an outage is expected to be 72 hours or more, forecasters will utilize the TMQ-53 data to continue operations.

7.3. Aircraft Mishaps. 18 OSS/OSW should be notified of any aircraft mishaps as soon as possible by Airfield Management (18 OSS/OSAA) via the secondary crash net, or any other available means. 18 OSS/OSW will immediately take an observation if operating in augment mode, as well as conduct a data save for all locally produced products, conditions in the local area and the location of the mishap. Additionally, the Weather Flight will provide weather support to all search and recovery operations and inform the 17 OWS to begin their own data save.

7.3.1. **Contingency Response.** In the event of contingency operations, 18 OSS/OSW will be prepared to support any required operations conducted by the 18 WG.

7.3.2. **Crisis Action Team of Commander Senior Staff (CAT).** During contingency and exercise operations, the 18 WG will assemble the CAT to pass along necessary information. 18 OSS/OSW leadership will attend these meetings and provide planning weather and climatology requested by Wing leadership.

7.3.3. **Chemical Downwind Message (CDM)/Effective Downwind Message (EDM).** CDM and EDM data includes wind speed/direction, temperature, humidity, air stability, and cloud cover. During contingencies, natural disasters or mishaps, dangerous chemicals may be spilled or released causing significant danger to the base populous. 18 OSS/OSW will provide CDM or EDM data to the Readiness and Emergency Management Flight, Bioenvironmental Engineering Flight, and any other requesting agencies to assist in evacuation and containment of the material. These agencies will input the information into their models to determine affected areas with short-term and long-term effects.

DAVID S. EAGLIN
Brigadier General, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoD Terminal Flight Information Publication (FLIP), *High and Low Altitude Pacific, Australia, and Antarctica, Volume 1*

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

AFI 33-322, *Records Management and Information Governance Program,* 10 March 2020

DAFI 48-151, *Thermal Stress Program*, 2 May 2022

AFMAN 11-202V3, *Flight Operations*, 10 January 2022

AFMAN 10-206, *Operational Reporting (OPREP)*, 18 June 2018 (IC, 1 September 2020)

AFMAN 15-111, *Surface Weather Observations,* 12 March 2019

AFMAN 15-124, *Meteorological Codes,* 16 January 2019

AFMAN 15-129_IC1, *Air and Space Weather Operations*, 9 July 2020

USFJI 15-4001, *Tropical Cyclone Conditions of Readiness (TCCOR),* 5 May 2021

USINDOPACOMINST 0539.1, *Tropical Cyclone Condition of Readiness Program,* 30 May 2020

Kadena Air Base Installation *Emergency Management Plan 10-2,* March 2020

18th Civil Engineer Group (18 CEG) *Contingency Response Plan 10-211*, June 2019

Adopted Forms

DD Form 175-1, *Flight Weather Briefing*

DAF Form 847, *Recommendation for Change of Publication*

AF Form 3803, *Surface Weather Observations (METAR/SPECI)*

AF Form 3806, *Weather Watch Advisory Log*

AF Form 3807, *Watch/Warning Notification and Verification*

AF Form 4377, *Events Log*

Abbreviations and Acronyms

AB—Air Base

AF—Air Force

AFAS—Airfield Automation System

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFN—American Forces Network

AFN—Air Force Network

AFRIMS—Air Force Records Information Management System

AFW-WEBS—Air Force Weather Web Services

AMC—Air Mobility Command

AOB—Airfield Operations Board

AOL—Alternate Operating Location

AOR—Area of Responsibility

A/R—Air Refueling

ASF—Airfield Support Function

ATC—Air Traffic Control

ATIS—Automatic Terminal Information Service

AWACS—Airborne Warning and Control System

CAT—Crisis Action Team

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

CDM—Chemical Downwind Message

CFAO—Commander Fleet Activities Okinawa

CONUS—Contiguous United States

CSAR—Combat Search and Rescue

CUB—Commanders Update Brief

DASR—Digital Airport Surveillance Radar

DLT—Desired Lead Time

EACCS—Expeditionary Airborne Command Control Squadron

EDM—Effective Downwind Message

EMWG—Emergency Management Working Group

EOC—Emergency Operations Center

EWO—Emergency War Order

FITS—Fighter Index of Thermal Stress

FLIP—Flight Information Publication

FWB—Flight Weather Briefing

GCA—Ground Control Approach

HHQ—Higher Headquarters

IAW—In accordance with

IDP—Installation Data Page

IFM—Integrated Flight Managed

IFR—Instrument Flight Rules

IRC—Instrument Refresher Course

ISR—Intelligence, Surveillance, Reconnaissance

IWWC—Integrated Weather Warning Capability

JAOC—Joint Air Operations Center

JET—Joint Environmental Toolkit

JTWC—Joint Typhoon Warning Center

LAN—Local Area Network

LAO—Low Altitude Operations

LOCAL—Aviation Selected Local Weather Report

LWP—Local Weather Product

LWU—Lead Weather Unit

MEF—Mission Execution Forecast

METAR—Aviation Routine Weather Report

METCON—Meteorological Conference

METWATCH—Meteorological Watch

MIF—Mission Integration Function

MISSIONWATCH—Mission Meteorological Watch

MOA—Military Operating Area

MUNS—Munitions Storage Area

MWLK—Marine Wing Liaison Kadena

MWP—Mission Weather Products

NAOC—National Airborne Operations Center

NCOIC—Non-commissioned Officer in Charge

NEXRAD—Next-Generation Weather Radar

NIPRNet—Non-Secure Internet Protocol Router Network

NLT—Not later than

NOTAM—Notice to Airmen

OPLAN—Operation Plan

OPR—Office of Primary Responsibility

OPREP—Operational Report

ORM—Operational Risk Management

OWS—Operational Weather Squadron

PA—Public Affairs

PACAF—Pacific Air Forces

PIREP—Pilot Report

PMO—Program Management Office

PMSV—Pilot-to-Metro Service

RAWS—Radar and Airfield Weather System

RP—Resource Protection

RPIE—Real Property Installed Equipment

RSC—Runway Surface Condition

RVR—Runway Visual Range

RWP—Regional Weather Product

RWY—Runways

SAR—Search and Rescue

SIF—Staff Integration Function

SIGMETS—Significant Meteorological Information

SM—Statute Miles

SOF—Supervisor of Flying

SOFA—Status of Forces Agreement

SPECI—Aviation Selected Special Weather Report

SWAP—Severe Weather Action Plan

TAF—Terminal Aerodrome Forecasts

TCCOR—Tropical Cyclone Conditions of Readiness

TCIR—Tropical Cyclone Information Release

TC-TAP—Tropical Cyclone Threat Assessment Product

TDO—Typhoon Duty Officer

TDY—Temporary Duty

TRNG—Training

UCC—Unit control Center

USAGO—U.S. Army Garrison Okinawa

USFJ—United States Forces Japan

USN - United States Navy

UHF—Ultra High Frequency

UTC—Unit Type Code

VAAC—Volcanic Ash Advisory Center

VFR—Visual Flight Rules

WST—Weather Support Team

WWA—Weather Watches, Warnings, and Advisories

WWO—Wing Weather Officer

Attachment 2

SPECIAL OBSERVATION CRITERIA

A2.1. Aviation Selected Special Weather Report (SPECI). A SPECI is an unscheduled observation completed and transmitted when any of the special criteria listed below has been observed. SPECI criteria are derived from AFMAN 15-111 and local approach/circling minimums as established in *DoD Terminal Flight Information Publication (FLIP), High and Low Altitude Pacific, Australia, and Antarctica, Volume 1*. A SPECI will contain all data elements found in a METAR plus additional remarks that elaborate on data in the body of the report.

A2.2. Timing of SPECI Observations. Regardless of method of observation, SPECI reports will be prepared and transmitted as soon as possible after the relevant criteria are observed. Additionally, SPECI reports are produced when returning from a break in the observation (i.e., station evacuation).

Table A2.1. Special (SPECI) Observation Criteria.

OBSERVED WEATHER PHENOMENA	***SPECIAL (SPECI) OBSERVATION CRITERIA***
Visibility: As reported in the body of the report, decreases to less than or, if below, increases to equal or exceed (rounded off to reportable values).	- 5 SM (8,000 meters) - 3 SM (4,800 meters) - 2 ¾ SM (4,400 meters) - 2 ½ SM (4,000 meters) - 2 SM (3,200 meters) - 1 ¾ SM (2,800 meters) - 1 ⅝ SM (2,600 meters) - 1 ½ SM (2,400 meters) - 1 ⅜ SM (2,200 meters) - 1 ¼ SM (2,000 meters) - 1 1/8 SM (1,800 meters) - 1 SM (1,600 meters) - ¾ SM (1,200 meters) - ½ SM (800 meters)
Ceiling: Forms or dissipates below, decreases to less than, or if below, increase to equal or exceed (rounded off to reportable values).	- 3,000 feet - 2,500 feet - 2,000 feet - 1,500 feet - 1,100 feet - 1,000 feet - 900 feet - 800 feet - 700 feet - 600 feet - 500 feet - 400 feet - 300 feet - 200 feet

Sky Condition:	A layer of clouds or obscuring phenomena aloft is observed below 1,100 feet and no layer was reported below 1,100 feet in the preceding observation (to include a FEW layers).
Squalls and Wind Shifts:	Squalls: A strong wind characterized by sudden onset in which the wind speed increases at least 16 knots and is sustained at 22 knots or more for at least 1 minute. *(**Note:** A special observation is not required to report a squall if one is currently in progress. Although a wind event, SQ is reported as a present weather event.)* Wind Shifts: Any wind direction change of 45° or more in less than 15 minutes and the wind speed is 10 knots or more throughout the wind shift.
Volcanic Eruption:	When there is an eruption or when volcanic ash is first observed regardless of visibility**.**
Thunderstorms:	When a thunderstorm (occurring on station) begins or ends. *(**Note:** A SPECI is not required to report the beginning of a new thunderstorm if one is currently reported.)*
Precipitation:	- Hail begins or ends. - Freezing precipitation begins, ends, or changes in intensity. - Ice pellets begin, end, or change intensity. - Any other type of precipitation begins or ends. *(**Note:** Except for freezing rain, freezing drizzle, hail, and ice pellets, a SPECI is not required for changes in type (**Example:** drizzle changing to snow grains) or the beginning or ending of one type while another is in progress (**Example:** snow changing to rain and snow).*
Tornado, Waterspout, or Funnel Clouds:	When first observed, no longer observed, or ends.
Runway Visual Range (RVR): The highest value during the preceding 10 minutes from the designated RVR runway decreases to less than, or if below, increases to equal or exceed.	- Prevailing visibility first observed <1SM, again when prevailing visibility goes above 1SM. - RVR for active runway decreases to less than, or if below, increase to equal or exceed: - 6000 feet / P1500 meters - 5500 feet / P1500 meters - 5000 feet / 1500 meters - 4000 feet / 1200 meters - 2400 feet / 0750 meters

	- 2000 feet / 0600 meters - 1600 feet / 0480 meters - 1200 feet / 0365 meters - 1000 feet / 0305 meters - 0600 feet / 0200 meters - RVR is first determined as unavailable (RVRNO) for the runway is use, and when it is first determined that the RVRNO report is no longer applicable, provided conditions for reporting RVR exist.
Tower Visibility:	Transmit a SPECI with the tower visibility as a remark: When notified by the control tower that tower visibility has decreased to less than or, if below, increased to equal or exceed 1, 2, or 3 statute miles, 1600, 3200 or 4800 meters (per FAA JO 7110.65W Air Traffic Organization Policy) and the control tower visibility differs from the prevailing visibility.
Upon Resumption of Observing Function:	Within 15-minutes after the weather technician returns to duty following a break in observing coverage or augmentation at the observing location (i.e., station evacuation) unless a record observation is filed during that 15-minute period.
Aircraft Mishap: When in an augment mode for observations.	An aircraft mishap SPECI will be taken immediately following notification or sighting of an aircraft mishap at or near the observing location unless there has been an intervening observation.
Miscellaneous:	Any other meteorological situation that, in the weather technician's opinion, is critical to continued flight safety.
Note: The source for approach/circling minimum applicable to the airfield is DoD FLIP Vol 1 for the region and AFMAN 11-202V3. Criteria listed above were correct at publication and may change between reviews of this plan.	

Attachment 3

TERMINAL AERODOME FORECAST

A3.1. Terminal Aerodrome Forecast (TAF). The TAF is a weather forecast produced for the airfield and an area 5 statute miles from the center of the airfield in all directions. It forecasts winds, cloud cover, visibility/present weather, max/min temperatures, and altimeter settings for a 30-hour period. See AFMAN 15-124 for guidance on reading TAF Code.

A3.2. TAF Production/dissemination. This product is produced daily at 00Z, 08Z, and 16Z, and amended if the conditions IAW Kadena Installation Data Page (IDP).

A3.2.1. The TAF will be produced by 18 OSS/OSW. The product will be created and disseminated using JET web software.

A3.2.2. If the primary system is down, the product will be issued via the backup system, AFW-WEBS. If 18 OSS/OSW loses NIPRNet connectivity or is forced to evacuate and is unable to produce the TAF, the 17 OWS will assume responsibility for producing and issuing the product as listed on the Kadena IDP.

A3.2.3. During typhoons, a LAST NO AMD remark will be added to the Kadena (RODN) TAF once TCCOR-1C is declared and the airfield is closed. TAF updates and amendments will resume upon declaration of TCCOR 1R.

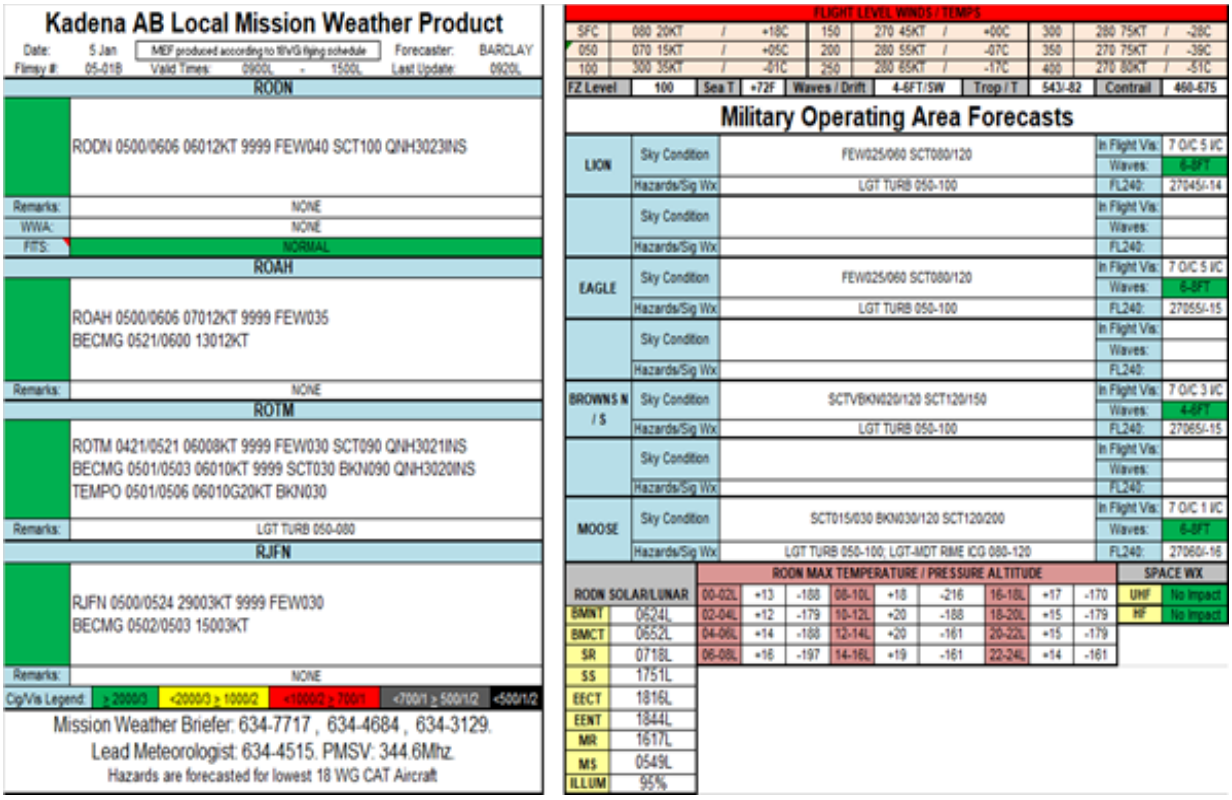
A3.3. TAF Specification/Amendment Criteria. TAF specification and amendment criteria are listed on the Kadena IDP.

Attachment 4

MISSION WEATHER PRODUCTS

A4.1. Local Mission Weather Product. The LWP is produced M-F based on the 18 WG flying schedule, and updated within 8 hours of production, or as conditions change. The LWP focuses on the local training MOA's documented by 18 WG (**Figure A4.1**.). Non-Wing agencies can receive this product if coordinated through 18 OSS/OSW leadership. Additional information included in the MWP is current meteorological satellite, radar, and complete solar/lunar data during nightfly for Kadena.

Figure A4.1. Local Weather Product.



Kadena AB Local Mission Weather Product

Date: 5 Jan | MEF produced according to 18WG flying schedule | Forecaster: BARCLAY
Filmsy #: 05-01B | Valid Times: 0900L - 1500L | Last Update: 0920L

RODN

RODN 0500/0606 06012KT 9999 FEW040 SCT100 QNH3023INS

Remarks: NONE
WWA: NONE
FITS: NORMAL

ROAH

ROAH 0500/0606 07012KT 9999 FEW035
BECMG 0521/0600 13012KT

Remarks: NONE

ROTM

ROTM 0421/0521 06008KT 9999 FEW030 SCT090 QNH3021INS
BECMG 0501/0503 06010KT 9999 SCT030 BKN090 QNH3020INS
TEMPO 0501/0506 06010G20KT BKN030

Remarks: LGT TURB 050-080

RJFN

RJFN 0500/0524 29003KT 9999 FEW030
BECMG 0502/0503 15003KT

Remarks: NONE

Cig/Vis Legend: > 2000/3 | <2000/3 > 1000/2 | <1000/2 > 700/1 | <700/1 ≥ 500/1/2 | <500/1/2

Mission Weather Briefer: 634-7717 , 634-4684 , 634-3129.
Lead Meteorologist: 634-4515. PMSV: 344.6Mhz.
Hazards are forecasted for lowest 18 WG CAT Aircraft

FLIGHT LEVEL WINDS / TEMPS

SFC	080 20KT / +18C	150	270 45KT / +00C	300	280 75KT / -28C
050	070 15KT / +05C	200	280 55KT / -07C	350	270 75KT / -39C
100	300 35KT / -01C	250	280 65KT / -17C	400	270 80KT / -51C

FZ Level	100	Sea T	+72F	Waves / Drift	4-6FT/SW	Trop / T	543/-82	Contrail	460-675

Military Operating Area Forecasts

LION	Sky Condition	FEW025/060 SCT080/120	In Flight Vis:	7 O/C 5 I/C
	Hazards/Sig Wx	LGT TURB 050-100	Waves:	6-8FT
			FL240:	27045/-14
	Sky Condition		In Flight Vis:	
	Hazards/Sig Wx		Waves:	
			FL240:	
EAGLE	Sky Condition	FEW025/060 SCT080/120	In Flight Vis:	7 O/C 5 I/C
	Hazards/Sig Wx	LGT TURB 050-100	Waves:	6-8FT
			FL240:	27055/-15
	Sky Condition		In Flight Vis:	
	Hazards/Sig Wx		Waves:	
			FL240:	
BROWNS N / S	Sky Condition	SCTVBKN020/120 SCT120/150	In Flight Vis:	7 O/C 3 I/C
	Hazards/Sig Wx	LGT TURB 050-100	Waves:	4-6FT
			FL240:	27065/-15
	Sky Condition		In Flight Vis:	
	Hazards/Sig Wx		Waves:	
			FL240:	
MOOSE	Sky Condition	SCT015/030 BKN030/120 SCT120/200	In Flight Vis:	7 O/C 1 I/C
	Hazards/Sig Wx	LGT TURB 050-100; LGT-MDT RIME ICG 080-120	Waves:	6-8FT
			FL240:	27066/-16

RODN SOLAR/LUNAR		RODN MAX TEMPERATURE / PRESSURE ALTITUDE									SPACE WX	
BMNT	0524L	00-02L	+13	-188	08-10L	+18	-216	16-18L	+17	-170	UHF	No Impact
BMCT	0552L	02-04L	+12	-179	10-12L	+20	-188	18-20L	+15	-179	HF	No Impact
SR	0718L	04-06L	+14	-188	12-14L	+20	-161	20-22L	+15	-179		
SS	1751L	06-08L	+16	-197	14-16L	+19	-161	22-24L	+14	-161		
EECT	1816L											
EENT	1844L											
MR	1617L											
MS	0549L											
ILLUM	95%											

A4.1.1. The LWP includes forecasts for the following:

A4.1.1.1. Airfields. TAFs for Kadena with standard alternates: Naha, Futenma, Nyutabaru. Kadena's forecast includes active WWA's, and Fighter Index of Thermal Stress (FITS) condition.

A4.1.1.2. Local MOAs with daily 18 WG schedule. These forecasts will include sky conditions, hazards, in flight visibility, wave heights, and flight-level winds/temperature, (low-level winds and current weather included on low level MOA's).

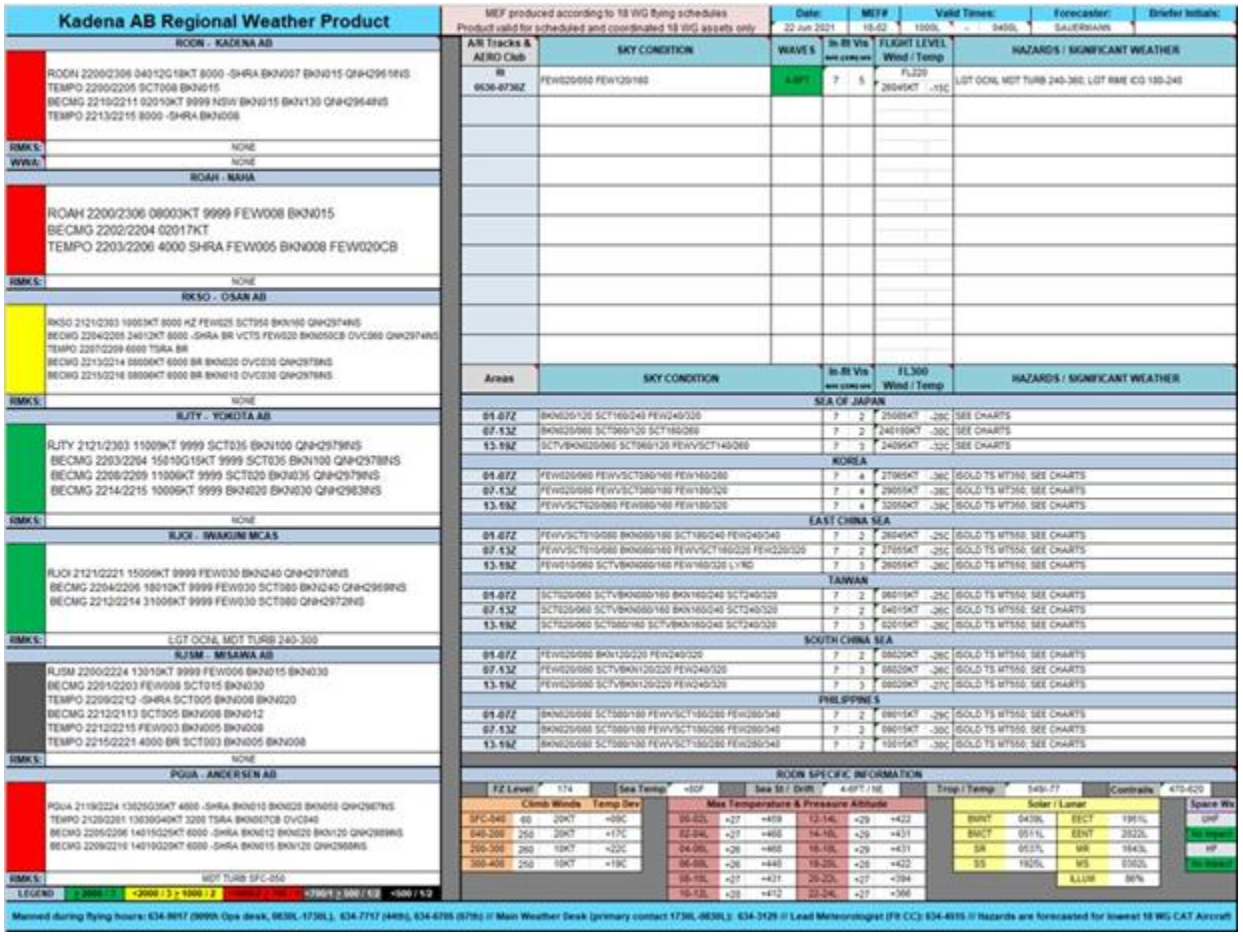
A4.1.1.3. Flight level winds/temperatures from surface to 40k feet, climb winds and temperature deviation.

A4.1.1.4. Solar/Lunar data and Space impacts for Kadena.

A4.1.1.5. Max temperature and pressure altitude in 2-hour increments.

A4.2. Regional Mission Weather Product. The RWP is produced every day, unless there are no 18th Wing sorties scheduled. The product is updated every 8 hours or as conditions change. The RWP focuses on the regional mission execution areas (**Figure A4.2**.). Non-Wing agencies can receive this product, if coordinated through 18 OSS/OSW leadership. Additional information included in the MWP: current METSAT.

Figure A4.2. Regional Weather Product.



A4.2.1. The RWP includes forecasts for the following:

A4.2.1.1. Airfields. TAFs for Kadena with standard alternates: Naha, Osan, Yokota, Iwakuni, Misawa, Guam. Kadena's forecast includes active WWA's.

A4.2.1.2. Local 909th A/R tracks and 961st MOAs per the 18 WG schedule, and Aero Club destinations when requested. The forecasts will include sky conditions, hazards, in-flight visibility, wave heights, and flight-level winds/temperature.

A4.2.1.3. Regional MOAs and Hazards. Standard coordinated MOAs with supported units covering the West Pacific. The forecasts include sky conditions and in-flight visibility in 6-hour increments.

A4.2.1.4. Freezing level, sea temperature/drift, troposphere height/temperature, and contrail levels.

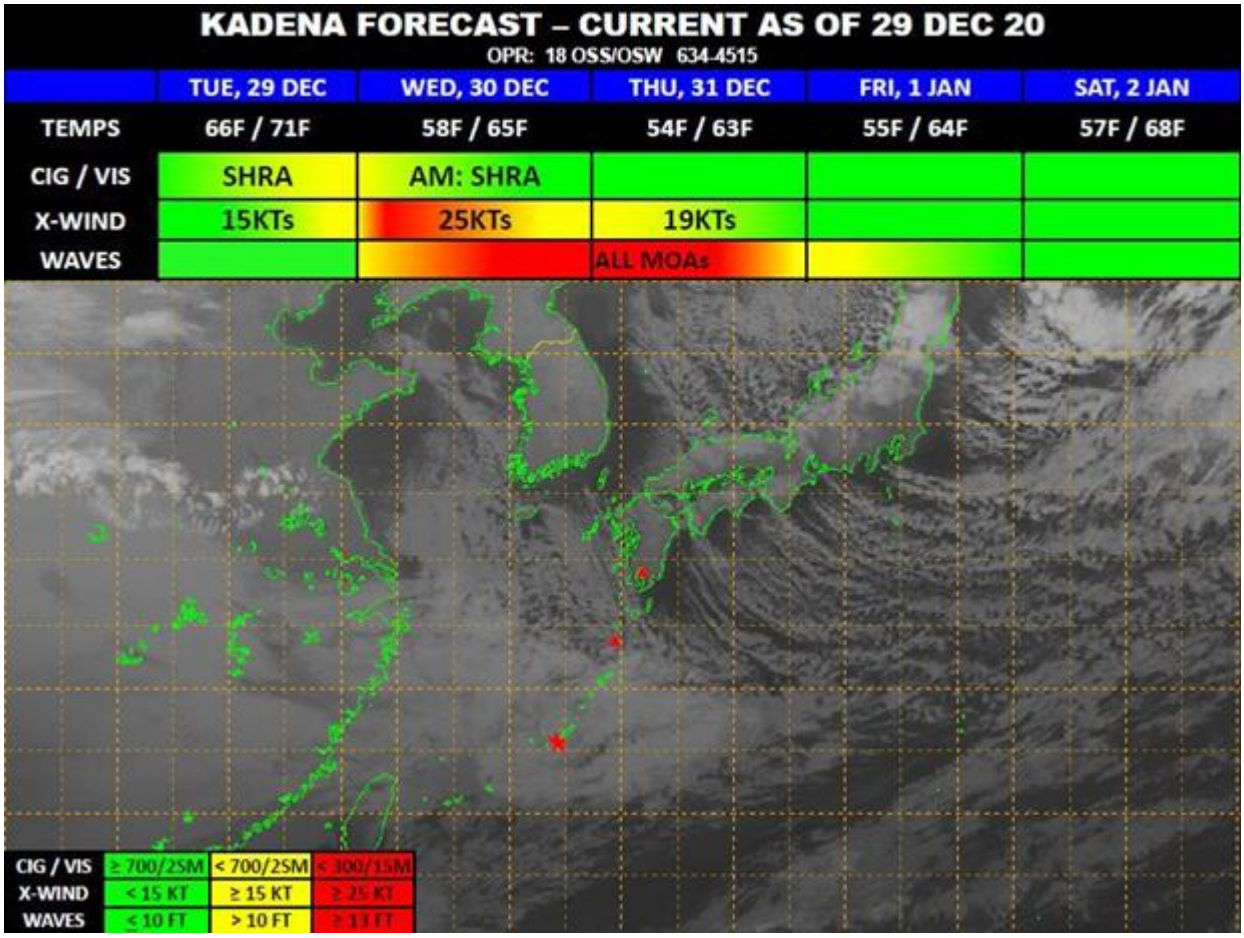
A4.2.1.5. Flight-level winds/temperatures from surface to 40k feet, climb winds, and temperature deviation.

A4.2.1.6. Solar/Lunar data and Space impacts for Kadena.

A4.2.1.7. Max temperature and pressure altitude in 2-hour increments.

A4.3. Planning Weather Product. The planning MWP is produced once a week, except for holidays, and briefed at Wing staff meetings. The product focuses on the large scope satellite picture for the West Pacific and extended forecast for Kadena (**Figure A4.3**.). Non-Wing agencies can receive this product if coordinated through 18 OSS/OSW leadership. Additional information included in the MWP are 4-day detailed wave height forecast for local MOAs and JTWC track (if applicable).

Figure A4.3. Planning MWP.



A4.4. FWB Weather Package. As mentioned in **Chapter 4**, longer flights over distance or time require their own briefing and are provided via a 175-1 or modified FWB. This product is coordinated with the customer that requires the support. Information provided will be the standard take-off weather conditions, forecasted enroute weather conditions to include hazards and flight-level winds, forecasted weather for A/R tracks, and forecasts for destination/alternate airfields.

Attachment 5

WEATHER WATCHES, WARNINGS, AND ADVISORIES

A5.1. Weather Watches, Warnings, and Advisories (WWAs). WWAs are issued to notify Kadena AB leaders and personnel of forecasted and observed significant weather on base. Observed and forecasted WWAs will be issued by 18 OSS/OSW. The 17 OWS is responsible for issuing WWAs only in the event of NIPRnet outages, however, 18 OSS/OSW does have the ability to issue WWAs manually and communicate telephonically. 18 OSS/OSW will issue weather warnings immediately when imminent weather conditions pose a hazard to life and property.

A5.1.1. Desired Lead Time (DLT). This is for forecast watches and warnings and is the amount of advanced notice an agency requires to prepare for the onset of a specific weather phenomena.

A5.2. Weather Watches. Weather Watches are issued based on the potential for severe weather. With the exception of lightning, Weather Watches do not need to be reflected in forecast products. **Table A5.1** lists all Forecast Watch Criteria for Kadena AB.

Table A5.1. Weather Watch Criteria for Kadena Air Base.

Criteria	DLT	OPR	Customer Actions/Impact
Lightning w/in 5 NM of Kadena AB and/or MUNS (Munitions Storage Area)	30 min	18 OG, 18 MXG, 18 CEG, 733 AMS, 18 MUNS, 353 SOW, 82 RS, 10 RSG	- Notify subordinate and tenant units - Limit activities and follow guidance from Munitions Control
Severe Thunderstorm (Wind ≥ 50kts and/or Hail ≥3/4 inch)	4 hours	18 OG, 18 MXG, 82 RS	- May suspend operations
		18 CEG, 10 RSG	- Notify subordinate units - Suspend POL ship offload - Close Torii Beach - Suspend non-mission essential training
Surface Wind ≥50kts (not associated with thunderstorm)	4 hours	18 OG, 18 MXG, 18 CEG, 82 RS	- Consider limiting operations
		18 OSS/OSAM, 18 OSS/OSAR	- Consider/Prepare to turn off Digital Airport Surveillance Radar (DASR)
Tornado	As potential warrants	18 OG, 18 MXG, 18 CEG, 82 RS	- Consider limiting operations
		18 OSS/OSAM, 18 OSS/OSAR	- Consider/Prepare to turn off DASR
Freezing Precipitation	1 hour	18 OG, 18 MXG, 18 CEG, 82 RS	- Notify subordinate and tenant units - Consider limiting operations

A5.3. Weather Warnings. Weather warnings are issued based on forecasts of weather conditions with significant intensity that pose a hazard to life or property. These will be reflected in all forecast products produced by the 18 OSS/OSW. Additionally, weather warnings will be issued when operationally limiting weather is imminent. **Table A5.2** lists all Forecasted or Observed Warning Criteria for Kadena AB.

Table A5.2. Weather Warning Criteria for Kadena Air Base.

Criteria	DLT	OPR	Customer Action
Lightning w/in 5 NM of Kadena	Observed	18 OG, 18 MXG, 82 RS, 353 SOW, CFAO, MWLK, 18 MUNS	- Put aircraft on weather alert - Notify MOC and flight-line personnel - Ensure KC/RC-135s/E-3s in-flight avoid storms by at least: 20 NM at or above FL230 feet 10 NM below FL230 feet - Limit/suspend flight-line operations - Ground personnel seek shelter - Follow Supervisor of Flying directions or return aircraft to parking areas
		733 AMS	- Limit/Suspend flight-line operations
		18 MSG	- Limit/Suspend all outdoor activities (**Example:** pool, marina, golf)
		18 CEG, 10 RSG	- Suspend non-mission essential training and/or operations - Notify subordinate units - Suspend POL ship offload - Close Torii Beach
Lightning w/in 5 NM of Munitions Storage Area	Observed	18 CEG, 18 MUNS	- Limit activities and follow guidance from Munitions Control
Strong Winds 35-49kts (incl. gusts)	90 min	18 OG, 18 MXG, 82 RS	- Take KC/RC-135 aircraft off jacks - Hangar HH-60s - Cancel F-15, F-18, KC/RC-135, E-3, and HH-60 missions
		18 MXG	- Secure property - Stop all munitions loading and unloading
		733AMS, 18 CEG, CFAO, MWLK	- May suspend operations
		18 OSS/OSAM	- Disassemble/Store all tactical communications equipment
		18 MSG	- Aero Club hangars aircraft

Damaging Winds ≥ 50kts (not associated with tropical cyclones / incl. gusts)	2 hours	18 OG, 18 MXG, 82 RS, 733 AMS, CFAO, MWLK	- May suspend operations - Cancel F-15, F-18, KC/RC-135, E-3, and HH-60 missions
		18 CEG, 10 RSG	- Close Torii Beach - Suspend non-mission essential training and/or operations - Notify subordinate units - Suspend POL ship offload
		18 OSS/OSAM, 18 OSS/OSAR	- Turn off Digital Airport Surveillance Radar (DASR)
Moderate Thunderstorm (Wind 35-49kts and/or hail ≥ 1/4 < 3/4 inch)	90 min	18 OG, 18 MXG, 82 RS	- Take KC/RC-135 aircraft off jacks - Hangar HH-60s - Cancel F-15, F-18, KC/RC-135, E-3, and HH-60 missions
		18 MXG	- Secure property - Stop all munitions loading and unloading
		733 AMS, 18 CEG, CFAO, MWLK	- May suspend operations
		18 OSS/OSAM	- Disassemble/Store all tactical communications equipment
		18 MSG	- Aero Club hangars aircraft
Severe Thunderstorms (Wind ≥50kts and/or hail ≥ 3/4 inch)	2 hours	18 OG, 18 MXG, 82 RS, 733 AMS, CFAO, MWLK	- May suspend operations
		18 CEG, 10 RSG	- Notify subordinate units - Suspend POL ship offload - Close Torii Beach - Suspend non-mission essential training and/or operations
Tornado	30 min	18 WG/CP	- Activate warning sirens if required/directed
		18 OG, 18 MXG, 82 RS, 353 SOW, 733 AMS, CFAO, MWLK	- Suspend operations

		18 CEG, 10 RSG	- Notify subordinate units - Suspend POL ship offload - Close Torii Beach - Suspend non-mission essential training and/or operations
Heavy Rain ≥ 2 inches in 6hrs	60 min	18 CEG	- Prepare base storm drains to accommodate rain fall and minimize flooding

A5.4. Observed Weather Advisories. Observed advisories are issued when weather criteria listed in **Table A5.3** is first observed and is cancelled once the event has ended. Forecasts will be updated for conditions if not previously forecast.

Table A5.3. Observed Advisory Criteria for Kadena Air Base.

Criteria	DLT	OPR	Customer Action
Crosswind 15-19kts	Observed	18 OG	- Suspend F-15 formation take-offs - Suspend E-3 landing if runway is wet, >17kt - Suspend KC-135 touch and go operations
Crosswind 20-24kts	Observed	18 OG, 82 RS, 733 AMS	- Suspend F-15 formation take-offs - Suspend E-3 take-off with wet runway, >22kt - Maintenance cautionary actions IAW TOs
Crosswind ≥ 25kts	Observed	18 OG, 82 RS	- Suspend F-15, KC/RC-135, E-3 operations
		18 MSG	- Suspend Aero Club operations
		733 AMS	- Follow AMC aircraft crosswind limitations
Surface wind 30- 34kts	Observed	18 MXG, 733 AMS	- Limit maintenance operations on aircraft and advise for potential sheltering activities - Limit munitions movements
		353 SOW	- Do not tow MC-130s
Surface wind ≥ 35kts	Observed	18 OG, 18 MXG, 733 AMS, MWLK	- Consider canceling F-15, F-18, and HH- 60 missions. F-18s require waiver to fly. - Tie down HH-60 blades - Cease maintenance operations as appropriate on aircraft and advise for potential sheltering activities
LLWS < 2000ft	Observed	18 OG, 82 RS	- Ensure 909th, 961st, and 82d aircrews are notified - Limit flying operations accordingly
Heavy rain ≥ 4 inches in 6hrs	Observed	18 SFS, 18 CEG, 18 WG/PA	- Notify personnel of possible flooding in low-lying areas - Receive and distribute flood reports to ensure safety of base populace

Heavy rain ≥ 12 inches in 24hrs	Observed	18 SFS 18 CEG 18 WG/PA	- Notify personnel of possible flooding in low-lying areas - Receive and distribute flood reports to ensure safety of base populace - Prepare to evacuate low-lying outposts

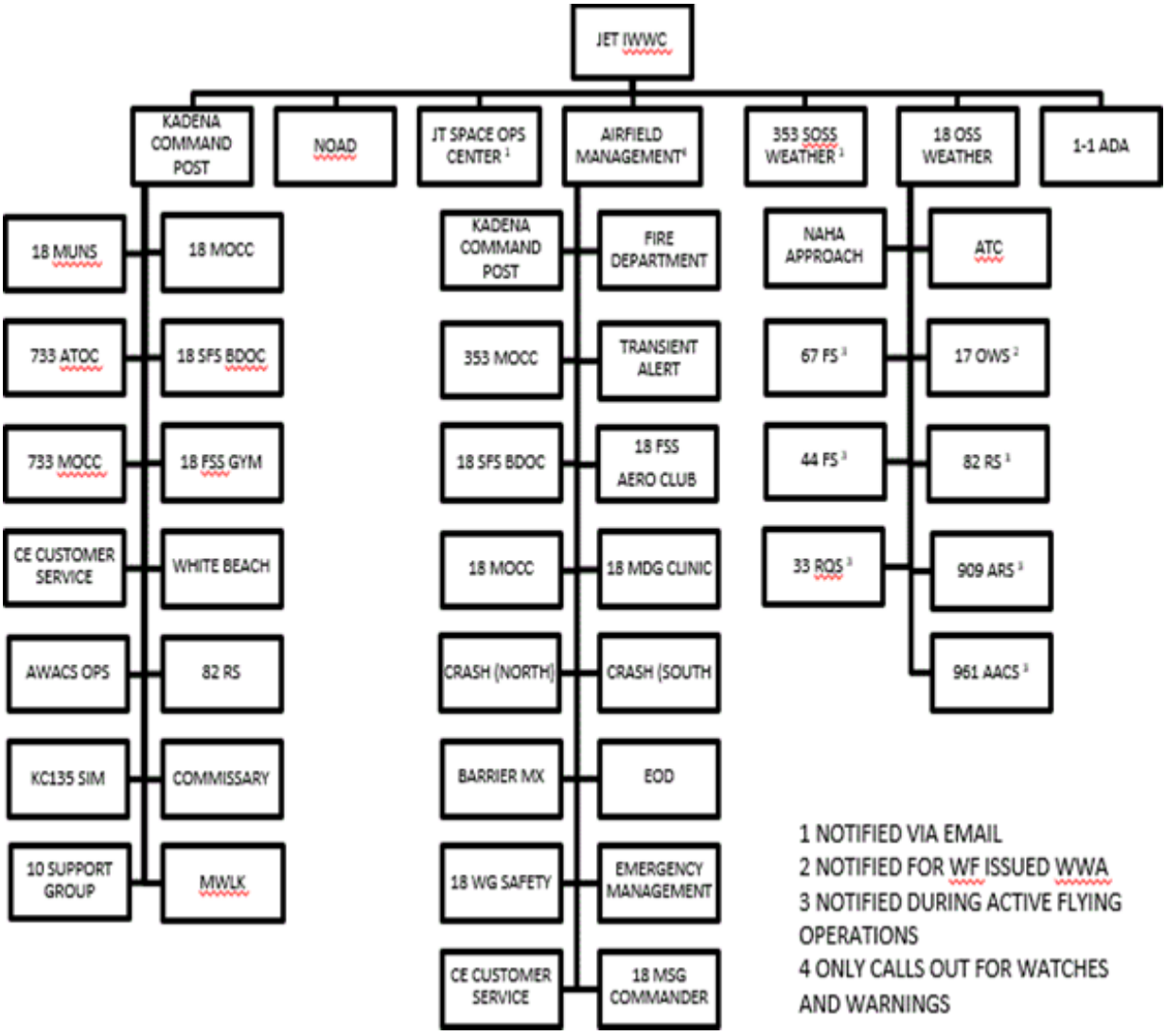
A5.5. NAOC Support Advisories. When the National Airborne Operations Center (NAOC) transits through Kadena, it requires expanded observed advisory criteria. These advisories are sent to the NAOC Watch Officer and 18 WG/CP and are recorded on an AF Form 3806/3807.

Table A5.4. Special WWA Criteria in Support of NAOC.

NAOC WEATHER WARNING CRITERIA	DLT
TORNADO	15 min
SURFACE WINDS ≥ 35 KNOTS (Outside of TSTMS)	1 hour
FREEZING PRECIPITATION	120 min
HEAVY SNOW (≥ 2 INCHES IN 12 HRS)	1 hour
MODERATE THUNDERSTORMS Hail greater than or equal to ½" but less than ¾" *and/or* (specified when warning is issued) Surface winds greater than or equal to 35 kts but less than 50kts	1 hour
SEVERE THUNDERSTORMS Hail greater than or equal to ¾" And/or Surface winds greater than 50kts	1 hour
NAOC OBSERVED ADISORY CRITERIA	**DLT**
THUNDERSTORMS ≤ 50 NM OF STATION	Observed
THUNDERSTORMS ≤ 25 NM OF STATION	Observed
THUNDERSTORMS ≤ 10 NM OF STATION (Implying LTG ≤ 5 NM)	Observed
VISIBILITY < 1 SM AT STATION	Observed
CROSSWINDS > 12 KNOTS AT STATION (WET RUNWAY)	Observed
CROSSWINDS > 20 KNOTS AT STATION	Observed
LOW-LEVEL WIND SHEAR (OUTSIDE OF THUNDERSTORMS)	Observed
≥ MODERATE ICING ≤ 50 NM OF STATION BELOW 10,000' MSL	Observed
≥ MODERATE TURBC ≤ 50 NM OF STATION BELOW 10,000' MSL	Observed
NAOC FORECAST ADVISORY CRITERIA	**DLT**
SURFACE WINDS 25-34 KTS	30 min
HAIL LESS THAN ½"	30 min
SNOWFALL (≥ TRACE BUT LESS THAN 2")	120 min

A5.6. Watch, Warning, and Advisory Notification Tree. In order for the watches, warnings, and advisories issued to be disseminated in a timely manner, the primary mode of notification is JET IWWC, with additional calls made to key offices via the notification tree (**Figure A5.1**.). Additional notifications are made by these agencies to ensure required personnel are notified.

Figure A5.1. Watch, Warning, and Advisory Notification Tree.



Attachment 6

44TH/67TH FIGHTER SQUADRON (44/67 FS) SUPPORT

A6.1. Weather Support Team. The WST will provide WWA, observation, and TAF support.

A6.2. 18 OSS/OSW. 18 OSS/OSW will provide the following as required:

A6.2.1. MWP. LWP or 175-1 (see **Chapter 4**) due 30 minutes before first briefing of each go.

A6.2.2. MISSIONWATCH for all fighter missions from start to finish, and notification to the Supervisor of Flying (SOF) when any of the criteria listed in **Table A6.1** are observed or forecast to cross thresholds in the mission area during the valid time of the mission.

A6.2.3. Weather updates to SOF and Top 3 (i.e., radar, satellite, lightning detection tools).

A6.2.4. Copies of JTWC tropical cyclone plots, information release, and typhoon safe haven forecasts as requested for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A6.2.5. Pre-deployment and deployment weather briefings for movement of aircraft, to include climatological data for deployment locations.

A6.2.6. Mission specific solar and lunar data for night vision goggle operations.

A6.2.7. Space weather information as requested.

Table A6.1. Weather Thresholds for 44/67 FS.

Flying Mission Weather Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
All Operations	TS w/in 10sm (excluding A/R) SVR Icing > MDT Turb Volcanic ash w/in 50sm SFC Winds >40kts	TS 10-25sm (excluding A/R) MDT Icing LGT-MD T Turb Volcanic ash w/in 100sm	No TS No Icing-Lgt Icing No Turb-Lgt Turb No Volcanic Ash
Wave Heights (All MOA's)	≥ 15ft	10-15ft (Requires Waiver)	< 10ft
Volcanic Ash (VA)	Observed (Will not fly in the region of known or reported activity)		No VA Observed
Air Refueling	MDT Turb / Icing Vis < 1sm BKN/OVC 5-25K feet TS w/in 20sm	LGT Turb / Icing Vis 1-6sm TS 20-40sm	No Turb / Icing Vis > 6sm No TS

Launch/Recovery Weather Thresholds			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Crosswind	≥ 30kt (Dry) > 25kt (Wet)		< 30kt (Dry) < 25kts (Wet)
Thunderstorms w/in 5nm	Observed Warning	Forecast Watch	No WWA's
Hail	Forecast Warning	Forecast Watch	No WWA's
LLWS < 2000ft		Observed Advisory	
Tornado	Forecast Warning	Forecast Watch	No WWA's
SFC Winds	> 40kts (including gusts)		
Ceilings	< 200ft	200-2000ft	> 2000ft
Visibility (ILS)	< 1/2sm RVR < 2400	> 1/2 - 3sm RVR 2400-6000	> 3sm RVR P6000
FITS	Danger (Limit 45 minutes outside air-conditioned environment)	Caution (Limit 90 minutes outside air-conditioned environment)	Normal
Freezing Precipitation	Frost or FZDZ / FZRA		
Space Weather Thresholds			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 meter error	15-50 meter error	< 15 meter error

A6.3. 44/67 FS. The 44/67 FS will provide the following to ensure 18 OSS/OSW can provide timely and accurate briefings.

A6.3.1. Adequate workspace for the 18 OSS/OSW briefer in the 44/67 FS facilities for use as the Mission Weather Forecaster primary duty locations. This workspace will also be utilized as an alternate operating location for the 18 OSS/OSW ASF.

A6.3.2. Flight and mission planning schedules to 18 OSS/OSW at least 12 hours prior to mission execution including take-off/landing times, flight-level, route of flight, destinations or MOAs, and air refueling track locations and start/end times.

A6.3.3. Inform 18 OSS/OSW of any changes and/or aborts to missions as soon as possible.

A6.3.4. Security permitting, allow 18 OSS/OSW to attend pre/post mission briefings to increase mission integration capabilities and the Weather Flight's understanding of how weather affects the F-15C/D weapon system capabilities.

A6.3.5. Feedback after completed missions to facilitate improvement to weather support by completing a feedback form provided by weather personnel on duty or discussing weather with personnel upon landing.

A6.3.6. Schedule 18 OSS/OSW personnel for familiarization flights as approved by 44/67 FS/CCs or DOs.

A6.3.7. Weather personnel will not be tasked with non-weather-related duties.

A6.3.8. When possible, via manning and funding, include weather forces in operational exercises and Temporary Duties (TDYs). This provides combat-related training and experience with aircrews and ground forces in simulated, yet realistic, wartime environments. In addition, if weather is included with the tasked Unit Type Code (UTC) support package, coordination to remove weather Air Force Specialty Codes must be done with PACAF approval.

Attachment 7

33D RESCUE SQUADRON (33 RQS) SUPPORT

A7.1. Weather Support Team. The WST will provide WWA, observation, and TAF support.

A7.2. 18 OSS/OSW. The 18 OSS/OSW will provide the following as required:

A7.2.1. MWPs. LWP or 175-1 (see **Chapter 4**) four hours before take-off.

A7.2.2. MISSIONWATCH all missions from start to finish and notification to the SOF and duty officer when any of the criteria listed in **Table A7.1** are observed or forecast to cross thresholds in the mission area during the valid time of the mission.

A7.2.3. Weather updates to SOF and duty officer (i.e., radar, satellite, lightning detection tools).

A7.2.4. Copies of JTWC tropical cyclone plots, information release, and typhoon safe haven forecasts as requested for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A7.2.5. Pre-deployment and deployment weather briefings for movement of aircraft, to include climatological data for deployment locations.

A7.2.6. Mission planning support for routine flying exercises and contingencies.

A7.2.7. Space weather information as requested.

Table A7.1. Weather Thresholds for 33 RQS.

Launch/Recovery/Flying Mission Weather Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
All Operations	> MDT Icing > MDT Turb	LGT-MDT Icing MDT Turb	< LGT Icing < MDT Turb
Day Operations	< 700ft / 1sm	700-1500ft / 1-3sm	≥ 1500ft / 3sm
Night Operations	< 700ft / 2sm (NVG) < 1000ft / 3sm (Unaided/Emergency)		
Helo Air Refueling	TS w/in 40sm BKN/OVC w/in 1000ft of FL VIS < 1sm	SCTVBKN/BKN w/in 1000ft of FL VIS 1-3sm	SKC-SCT w/in 1000ft of FL
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
Tornado	Forecast Warning	Forecast Watch	No WWA's
Volcanic Ash	Observed (will not operate w/in 50sm unless rescue ops msn)		No VA Observed

SFC Winds	≥ 45kts	25-44kts	< 25kts
SFC Winds (Maintenance)	> 60kts (Blades must be folded or moved into hangar)	> 45kts (Max rotor start stop) 46-60kts (Blades must be tied down or moved into hangar)	< 25kts (Maintenance must engage gust lock)
LLWS < 2000ft		Observed Advisory	
Ceilings (ILS)	< 200ft	200-2000ft	> 2000ft
Visibility (ILS)	Training: < 1/2sm RVR < 2400 Ops: < 1/4sm RVR 1200	> 1/2 – 3sm RVR 2400-6000	> 3sm RVR P6000
Thunderstorms	Will not fly into rain shafts beneath CB's / Hail		
Freezing Precipitation	Frost or FZDZ / FZRA		
Alternate Requirement Threshold & Space Weather			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Alternate Required	< 1000ft / 2sm		> 1000ft / 2sm
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 Meter Error	15-50 Meter Error	< 15 Meter Error
Mission Watch (Call OPS 634-6206 if occurring or expected to occur)			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Ceiling and Visibility	≤ 700ft / 2sm		
Thunderstorms	w/in 5sm	w/in 10sm	
SFC Winds	≥ 45kts including gusts (observed or forecasted)		

A7.3. 33 RQS. The 33 RQS will provide the following to ensure 18 OSS/OSW can provide timely and accurate briefings.

A7.3.1. Provide flight and mission planning schedules to 18 OSS/OSW at least 12 hours prior to mission execution with take-off/landing times, flight level, route of flight, destinations, MOAs, Drop Zone Locations, and Air Refueling track locations with start to finish times.

A7.3.2. Inform 18 OSS/OSW of any changes and/or aborts to missions as soon as possible.

A7.3.3. Security permitting, allow 18 OSS/OSW to attend pre/post mission briefings to increase mission integration capabilities and the Weather Flight's understanding of how weather affects the HH-60 weapon system capabilities.

A7.3.4. Constructive critique after completed missions to facilitate improvement to weather support by completing a feedback form available within the weather station or SharePoint website.

A7.3.5. Schedule 18 OSS/OSW personnel for familiarization flights as approved by the 33rd Squadron Commander.

A7.3.6. When possible, via manning and funding, include weather forces in operational exercises and TDYs. This provides combat-related training and experience with aircrews and ground forces in simulated, yet realistic, wartime environments.

Attachment 8

909TH AIR REFUELING SQUADRON (909 ARS) SUPPORT

A8.1. Weather Support Team. The WST will provide WWA, observation, and TAF support.

A8.2. 18 OSS/OSW. The 18 OSS/OSW will provide the following as required:

A8.2.1. Training (TRNG) lines briefings: RWP or 175-1 (see **Chapter 4**) no later than (NLT) four hours prior to takeoff as duty priorities allow. Changes to brief times can be coordinated with aircrews on a mission-by-mission basis. IFM briefing support comes from the C2 element's weather team.

A8.2.2. MISSIONWATCH all 18 OSS/OSW briefed missions from start to finish and notify the 909th Duty Desk when any criteria listed in **Table A8.1** are observed or forecast to cross thresholds in the mission area during the valid time of the mission.

A8.2.3. Weather updates to Duty Desk (i.e., radar, satellite, and lightning detection tools).

A8.2.4. Copies of JTWC tropical cyclone plots, information release, and typhoon safe haven forecasts as requested for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A8.2.5. Pre-deployment and deployment weather briefings for movement of aircraft, to include climatological data for deployment locations.

A8.2.6. Mission planning support for routine flying, exercises, and contingencies.

A8.2.7. Space weather information as requested.

Table A8.1. Weather Thresholds for 909 ARS.

Flying Mission Weather Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
All Operations	TS w/in 20nm above FL230 (If unable to fly 2000ft above CB) TS w/in 10nm below FL230 ≥ MDT ocnl SVR Turb Volcanic ash w/in 20nm SVR Icing	TS w/in 50nm (If unable to fly 2000ft above CB) Ocnl MDT Turb Volcanic ash w/in 50nm MDT Icing	No TS No Turb - LGT No VA Expected No Icing - LGT
Orbit / Local	MDT-SVR Turb	Ocnl MDT-MDT	No Turb - LGT
Air Refueling	MDT Turb / Icing BKN-OVC +/- 5000ft of A/R FV <	LGT Turb / Icing SCT-BKN +/- 5000ft of A/R FV 1-6sm	No Turb / Icing SKC-FEW FV > 6sm
Cross Country / Med Evac / Busy Relay	≥ MDT Turb	Ocnl MDT-MDT	No Turb-LGT
Training (touch and go's)	< 1000ft / 2sm > 15kt X-wind		> 1000ft / 2sm < 15kt X-wind

Launch/Recovery Weather Thresholds			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Crosswind	> 25kt (dry or wet)	20-24kt (dry or wet)	15-19kt (dry or wet)
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
LLWS < 2,000ft		Observed Advisory	
Tornado	Forecast Warning	Forecast Watch	No WWA's
Volcanic Ash (VA)	Observed		
Ceilings	< 200ft	200-2000ft	> 2000ft
Visibility (ILS)	< 1/2sm RVR < 1600 (TRNG) RVR < 1000 (OPS)	≥ 1/2 - 3sm RVR 4800-6000	> 3sm
Freezing Precipitation	Frost or FZDZ / FZRA	Observed Frost	
Alternate Requirement Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Alternate Required	< 2000ft / 3sm		> 2000ft / 3sm
Alternate Landing Site	< 1000ft / 2sm or 500ft / 1sm (above landing mins) (May use airfield with tempo of TS or SHRA)		> 1000ft / 2sm
Space Weather Thresholds			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 Meter Error	15-50 Meter Error	< 15 Meter Error

A8.3. 909 ARS. The 909 ARS will provide the following in order for the Weather Flight to provide timely and accurate briefings.

A8.3.1. Adequate workspace for the 18 OSS/OSW briefer in the 909 ARS facility for use as the Mission Weather Forecaster primary duty locations.

A8.3.2. Provide flight and mission planning schedules to 18 OSS/OSW at least 12 hours prior to mission execution with take-off/landing times, flight level, route of flight, destinations, and Air Refueling track locations and start end times. **Exception: s**hort notice operational taskings or MAJCOM-directed missions.

A8.3.3. Inform 18 OSS/OSW of any changes and/or aborts to missions as soon as possible.

A8.3.4. Security permitting, allow 18 OSS/OSW to attend pre/post mission briefings to increase mission integration capabilities and the Weather Flight's understanding of how weather affects the KC-135 weapon system capabilities.

A8.3.5. Constructive critique after completed missions to facilitate improvement to weather support by completing a feedback form available within the weather station or SharePoint website.

A8.3.6. Schedule 18 OSS/OSW personnel for familiarization flights as approved by 909 ARS/CC or DO.

A8.3.7. When possible, via manning and funding, include weather forces in operational exercises and TDYs. This provides combat-related training and experience with aircrews and ground forces in simulated, yet realistic, wartime environments.

Attachment 9

961ST AIRBORNE AIR CONTROL SQUADRON (961 AACS) SUPPORT

A9.1. Weather Support Team. The WST will provide WWA, observation, and TAF support.

A9.2. 18 OSS/OSW. 18 OSS/OSW will provide the following as required:

A9.2.1. 175-1 or RWP NLT four hours prior to scheduled sorties as duty priorities allow.

A9.2.2. MISSIONWATCH all air control missions from start to finish and notify the 961st Duty Desk when any of the criteria listed in **Table A9.1** are observed or forecast to cross thresholds in the mission area during the valid time of the mission.

A9.2.3. Weather updates to the Duty Desk (i.e., radar, satellite, and lightning detection tools).

A9.2.4. Copies of JTWC tropical cyclone plots, information release, and typhoon safe haven forecasts as requested for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A9.2.5. Pre-deployment and deployment weather briefings for movement of aircraft, to include climatological data for deployment locations.

A9.2.6. Mission planning support for routine flying, exercises, and contingencies.

A9.2.7. Space weather information as requested.

Table A9.1. Weather Thresholds for 961 AACS.

Flying Mission Weather Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
All Operations	TS w/in 20nm above FL230 (If unable to fly 2000ft above CB) TS w/in 10nm below FL230 Reported SVR Turb ≥ MDT ocnl SVR Turb Volcanic ash w/in 50nm SVR Icing	TS w/in 50nm Ocnl MDT-MDT Turb Volcanic ash w/in 75nm MDT Icing	No TS No Turb - LGT No VA Expected No Icing - LGT
Orbit / Local	MDT-SVR Turb	Ocnl MDT-MDT	No Turb - LGT
Air Refueling	MDT Turb / Icing BKN-OVC +/- 5000ft of A/R FV < 1SM	LGT Turb / Icing SCT-BKN +/- 5000ft of A/R FV 1-6SM	No Turb SKC-FEW FV > 6SM
Training (touch and go's)	< 300ft / 1sm > 15kt X-wind Dry > 10kt X-wind Wet		> 1000ft / 2sm ≤ 15kt X-wind Dry ≤ 10kt X-wind Wet

Launch/Recovery Weather Thresholds			
Parameter	**Significant Risk –Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Crosswind	> 25kt (dry) or > 15kt (wet)	20-25kt (dry) or 10-15kt (wet)	< 20kt (dry) or < 10kt (wet)
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
LLWS < 2000ft		Observed Advisory	
Tornado	Forecast Warning	Forecast Watch	No WWA's
Volcanic Ash	Observed		
Ceilings	< 300ft	300-1000ft	> 1000ft
Visibility (ILS)	< 1sm RVR < 1600	1 - 3sm RVR 1600-4800	> 3sm RVR P6000
Freezing Precipitation	Frost or FZRA / FZDZ		
Alternate Requirement Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Alternate Required	2000ft / 3sm		> 2000ft / 3sm
Alternate Landing Site	< 1000ft / 2sm		> 1000ft / 2sm
Space Weather Thresholds			
Parameter	**Significant Risk –Red**	**Marginal Risk – Yellow**	**No Risk – Green**
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 Meter Error	15-50 Meter Error	< 15 Meter Error

A9.3. 961 AACS. The 961 AACS will provide the following to ensure 18 OSS/OSW can provide timely and accurate briefings.

A9.3.1. Provide flight and mission planning schedules to 18 OSS/OSW at least 12 hours prior to mission execution with take-off/landing times, flight level, route of flight, destinations, and Air refueling track locations and start end times. **Exception:** short notice operational taskings or MAJCOM-directed missions.

A9.3.2. Inform 18 OSS/OSW of any changes and/or aborts to missions as soon as possible.

A9.3.3. Security permitting, allow 18 OSS/OSW to attend pre/post mission briefings to increase mission integration capabilities and the Weather Flight's understanding of how weather affects the E-3 weapon system capabilities.

A9.3.4. Constructive critique after completed missions to facilitate improvement to weather support by completing a feedback form available within the weather station or SharePoint website.

A9.3.5. Schedule 18 OSS/OSW personnel for familiarization flights as approved by 961 AACS/CC or DO.

Attachment 10

82D RECONNAISSANCE SQUADRON (82 RS) SUPPORT

A10.1. Weather Support Team. The WST will provide WWA, observation, and TAF support.

A10.2. 18 OSS/OSW. Due to the 82 RS being a tenant (forward deployed non-18 WG) unit, the following support has been coordinated for 18 OSS/OSW to provide:

A10.2.1. 175-1 or RWP briefing NLT four hours prior to scheduled sorties taking off from Kadena AB. Briefings will primarily be face-to-face in Building 3413, and/or emailed to the 82 RS DO inbox when requested during communication outages.

A10.2.2. MISSIONWATCH all 18 OSS/OSW briefed missions from start to finish and notify the 82d Duty Desk when any of the criteria listed in **Table A10.1** are observed or forecast to cross thresholds in the mission area during the valid time of the mission.

A10.2.3. Weather updates to the Duty Desk (i.e., radar, satellite, and lightning detection tools).

A10.2.4. Copies of JTWC tropical cyclone plots, information release, and typhoon safe haven forecasts as requested for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A10.2.5. Mission planning support for routine flying, exercises, and contingencies.

A10.2.6. Space weather information as requested.

Table A10.1. Weather Thresholds for 82 RS.

Flying Mission Weather Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Operations not LAO	Avoid Lightning (Clouds within +/- 5000ft of FL) ≥ MDT ocnl SVR Turb Volcanic Ash w/in 20nm MDT-SVR Icing	TS w/in 50nm (If unable to fly 2000ft above CB) Ocnl MDT-MDT Turb Volcanic Ash w/in 50nm < MDT Icing	No TS No Turb - LGT No VA Expected No Icing - LGT
Orbit / Local	MDT-SVR Turb	Ocnl MDT-MDT	No Turb - LGT
Air Refueling	MDT Turb / Icing BKN-OVC +/- 5000ft of A/R FV < 1sm	LGT Turb / Icing SCT-BKN +/- 5000ft of A/R FV 1-6sm	No Turb / Icing SKC-FEW FV > 6sm
Training (touch and go's)	> 15kt X-wind	< 1000ft/3sm	> 1000ft / 3sm < 15kt X-wind

Low Altitude Operations (LAO) 3000-6000FT			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Thunderstorms	Avoid Lightning (clouds within +/- 5000ft of FL)		
Icing	Forecast SVR Icing Observed MDT-SVR	Forecast MDT Icing Observed < MDT	No ICG-LGT
Turbulence	Forecast SVR Turb Observed MDT-SVR	Forecast MDT Turb Observed < MDT	No Turb-LGT
Winds	> 40kts at SFC	< 40kts at SFC	
CIG/VIS	< 1500ft / 3sm	> 1500ft / 3sm	≥ 3000ft / 3sm
Launch/Recovery Weather Thresholds			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Crosswind	> 25kt (dry or wet)	20-24kt (dry or wet)	< 20kt (dry or wet)
Lightning w/in 5nm	Observed Warning	Forecast Watch	No WWA's
Tornado	Forecast Warning	Forecast Watch	No WWA's
LLWS < 2000ft	Observed		
Volcanic Ash	Observed		
Ceilings	< 200ft	200-1000ft	> 1000ft
Visibility (ILS)	< 1/2sm T/O RVR < 1600 trng T/O RVR < 1000 (ops)	> 1/2 – 3sm RVR 2400-6000	> 3sm RVR P6000
Heavy Rainshowers	< 5sm		> 5sm
Induction Icing (FOD)	Observed		
Freezing Precipitation	Frost or FZRA / FZDZ		
Alternate Requirement Threshold			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
Alternate Required	< 2000ft / 3sm		> 2000ft / 3sm
Alternate Landing Site	< 1000ft / 2sm or 500ft / 1sm (above landing mins) (May use airfield if tempo w/ TS or SHRA)		> 1000ft / 2sm
Space Weather Thresholds			
Parameter	**Significant Risk – Red**	**Marginal Risk – Yellow**	**No Risk – Green**
UHF/VHF/HF Comm	Severe Degradation	Marginal Degradation	No Impact
GPS Error	> 50 Meter Error	15-50 Meter Error	< 15 Meter Error

A10.3. 82 RS. The 82 RS will provide the following to ensure 18 OSS/OSW can provide timely and accurate briefings.

A10.3.1. Provide flight and mission planning schedules to 18 OSS/OSW at least 12 hours prior to mission execution with take-off/landing times, flight level, route of flight, destinations, and Air Refueling track locations and start end times. **Exception:** short notice taskings or MAJCOM- directed missions.

A10.3.2. Inform 18 OSS/OSW of any changes and/or aborts to missions as soon as possible.

A10.3.3. Security permitting, allow 18 OSS/OSW to attend pre/post mission briefings to increase mission integration capabilities and the Weather Flight's understanding of how weather affects the RC/WC-135 weapon system capabilities.

A10.3.4. Constructive critique after completed missions to facilitate improvement to weather support by completing a feedback form available within the weather station or SharePoint website.

Attachment 11

18TH OPERATIONS SUPPORT SQUADRON (18 OSS) SUPPORT

A11.1. Airfield Management. Airfield Management handles all issues with the runway, which can have significant impacts to operations when coupled with adverse weather. As such the following agreements are in place:

A11.1.1. 18 OSS/OSW will provide IWWC notification for WWAs.

A11.1.2. Airfield Management will:

A11.1.2.1. Provide Weather Flight with latest runway surface condition (RSC) data.

A11.1.2.2. Provide further dissemination of Weather Watches and Warnings and TCCORs to required agencies via crash net.

A11.1.2.3. Notify Weather Flight of in-flight and ground emergencies, and aircraft mishaps via the secondary crash net.

A11.1.2.4. Provide Weather Flight with required DoD FLIPs and Federal Aviation Administration Publications.

A11.1.2.5. Make updates to FLIPs regarding weather station facilities or operations as requested by Weather Flight.

A11.1.2.6. Publish a Notice to Airmen (NOTAM) when requested.

A11.1.2.7. Provide transportation to and from FMQ-19 sensors for new Weather Flight member airfield orientation.

A11.2. Air Traffic Control (ATC)/Naha Approach (18 OSS/OLA). ATC and OLA control the air traffic on and around Kadena AB and pass vital information to aircrews.

A11.2.1. Weather Flight will:

A11.2.1.1. Notify ATC Tower (18 OSS/OSAT) when conditions warrant the evacuation of the Weather Flight to alternate forecasting and observing sites.

A11.2.1.2. Disseminate significant meteorological information (SIGMETS) for phenomena occurring within 100NM of Kadena AB.

A11.2.1.3. Provide training/orientation for limited weather observing certification to newly assigned ATC Tower personnel so they may execute their role in the Cooperative Weather Watch Program.

A11.2.1.4. Validate tower visibility photos IAW AFMAN 15-111.

A11.2.2. Air Traffic Control Tower will:

A11.2.2.1. Assist Weather Flight with the Cooperative Weather Watch, training to perform limited observational duties from the ATC Tower, and notify the duty forecaster, in a timely manner, if the following occur.

A11.2.2.1.1. Tornadoes, funnel clouds, or waterspouts observed.

A11.2.2.1.2. Thunder and/or lightning are first observed.

A11.2.2.1.3. Precipitation begins or ends.

A11.2.2.1.4. Tower prevailing visibility decreases to less than or increases to equal or exceed 4S and differs from the reported prevailing surface visibility.

A11.2.2.1.5. Pilot Report (PIREP) received from departing/landing aircraft. Notify Weather Flight no later than 5 minutes after receipt.

A11.2.2.1.6. Any other weather conditions that could affect flight safety or operations are observed.

A11.2.2.2. Provide orientation training to newly assigned weather personnel on an as needed basis.

A11.2.2.3. Relay all Kadena AB WWAs and SIGMETs for phenomena occurring within 50NM of the airfield to arriving and departing aircraft and via the Automatic Terminal Information Service (ATIS).

A11.2.2.4. Relay all PIREPs and significant differences in observed and reported weather to arriving and departing aircraft, Naha Approach, GCA, and the Weather Station within 5 minutes of receipt as duty priorities allow.

A11.2.2.5. Contact 18 OSS/OSW to ops check the crash net phone and hardline phone, as required.

A11.2.3. ATC/18 OSS/OLA will:

A11.2.3.1. When requested by 18 OSS/OSW personnel, solicit PIREPs from departing and arriving aircrews. ATC/18 OSS/OLA will relay PIREPs received to the duty forecaster.

A11.2.3.2. Provide an orientation to newly assigned 18 OSS/OSW personnel as coordinated.

A11.2.3.3. Relay all Kadena AB WWAs and SIGMETs for phenomenon occurring within 50NM of the airfield to arriving and departing aircraft.

A11.3. Radar and Airfield Weather Systems (RAWS). RAWS maintains all equipment on the airfield, including weather equipment such as the FMQ-19, WSR-88D NEXRAD, and Radio.

A11.3.1. 18 OSS/OSW will:

A11.3.1.1. Coordinate equipment upgrades, replacements, or installs.

A11.3.1.2. Provide orientation on Weather Flight operations and capabilities.

A11.3.1.3. Report outages after attempting to troubleshoot the issue to the fullest extent.

A11.3.1.4. Report NEXRAD outages to RAWS immediately.

A11.3.2. RAWS flight will:

A11.3.2.1. Ensure Radar Maintenance keeps the WSR-88D NEXRAD and its components in operational order.

A11.3.2.2. Contact the Weather Flight prior to performing any maintenance on the FMQ-19 and coordinate to not perform Preventive Maintenance Inspections during 18 WG flying hours.

A11.3.2.3. Ensure the FMQ-19 is working properly by checking and cleaning the sensors at least once per week and performing preventative maintenance on the FMQ-19 IAW the Technical Order.

A11.3.2.4. Provide stand-by operations during afterhours situations requiring FMQ-19 maintenance.

A11.3.2.5. Notify and allow 18 OSS/OSW leadership to accompany airfield systems technicians on annual meteorological equipment inspections.

Attachment 12

18TH MAINTENANCE GROUP (18 MXG) SUPPORT

A12.1. Weather Flight. The Weather Flight will provide the following to the Maintenance Operations Center (18 MXG/MXOC):

A12.1.1. WWA, observation, and TAF support.

A12.1.2. Typhoon timelines for all tropical cyclones affecting Okinawa.

A12.1.3. Weather 5-day forecast slides to 18 MXG/MXOC at times coordinated between flight leadership and 18 MXG/MXOC for 18 WG and 18 OG CUBs.

A12.2. 18 MXG/MXOC. 18 MXG/MXOC will:

A12.2.1. Further dissemination notification of WWA and TCCOR information to maintenance personnel as required.

A12.2.2. Provide 18 OSS/OSW with location of all 18 WG aircraft to assist in preparing for 18 OG CUB briefings.

Attachment 13

18TH MISSION SUPPORT GROUP (18 MSG) SUPPORT

A13.1. 18th Force Support Squadron (18 FSS). The 18 FSS Outdoor activities offers an Aero Club where personnel can learn to fly aircraft. The 18 OSS/OSW will support IAW duty priorities.

A13.1.1. 18 OSS/OSW will provide flight weather briefings utilizing the RWP (see **Figure A4.2**) or DD Form 175-1, *Flight Weather Briefing*, to Aero Club flyers.

A13.1.2. The Aero Club will ensure members do the following:

A13.1.2.1. Submit flight weather briefing requests at least 24 hours prior to required briefing time for all Instrument Flight Rules and “cross-country” flights.

A13.1.2.2. Contact the Weather Flight or ATC agencies to give PIREPS of any flight hazards or significant weather.

A13.1.2.3. Notify Weather Flight of any cancellations or aircraft mishaps.

A13.1.2.4. Provide feedback to Weather Flight on accuracy of weather support.

A13.1.3. 18 OSS/OSW will provide a lightning warning for 18 FSS, Detachment 1, when lightning is observed within 5NM of Okuma.

A13.2. 18th Communications Squadron (18 CS). The 18 CS provides communications base wide and provides Air Force Network (AFNET) access to weather personnel to perform their daily duties.

A13.2.1. 18 OSS/OSW will:

A13.2.1.1. Report all equipment outages as either mission impact "MINIMAL" or "SIGNIFICANT". Mission impact determination is defined below.

A13.2.1.1.1. SIGNIFICANT: An outage, impairment, or disruption of equipment that imposes an operational limitation on the units supported and/or no backup capability exists.

A13.2.1.1.2. MINIMAL: An outage impairment or disruption of equipment that, although important, imposes little operational limitation and/or a backup capability exists.

A13.2.1.2. Report communications equipment/circuit outages to the Communications Focal Point (18 CS/CFP). Weather Flight will attempt to determine if the outage is equipment or circuit related prior to reporting.

A13.2.1.3. Provide an impact statement for all SIGNIFICANT outages.

A13.2.1.4. Provide periodic feedback on Mark IVB satellite imagery quality and coordination of changes or special requests.

A13.2.1.5. Assist RF Transmissions Systems (18 CS/SCOT) with notifying 557th Weather Wing, Global Mission Support Cell (557 WW/GMSC) and JTWC of communications network changes impacting Mark IVB system and equipment status. To include notifications of scheduled or unscheduled maintenance and network outages affecting Mark IVB client access.

A13.2.2. 18 CS will:

A13.2.2.1. Treat significant mission impact outages as a high priority. Response times will be de- conflicted with base priorities and may dictate afterhours troubleshooting.

A13.2.2.2. Treat and respond to minimal mission impact outages during duty hours only.

A13.2.2.3. 18 CS will maintain the Mark IVB and the NIPRNet connectivity to 18 OSS weather systems at Kadena AB.

A13.2.2.4. Provide a summary of fix actions and estimated completion date for outages.

A13.2.2.5. 18 CS/SCOT will ensure the Mark IVB Meteorological Data Station is in operational order and perform preventive maintenance IAW the Mark IVB Technical Order and moving the antenna when requested to do so by 18 OSS/OSW.

A13.2.2.5.1. 18 CS/SCOT will immediately report any scheduled maintenance expected to impact external or internal access to the Mark IVB server to the 557th Weather Wing, Global Mission Support Cell (557 WW/GMSC) and 18 OSS/OSW.

A13.2.2.5.2. 18 CS/SCOT will immediately report any changes in system status, equipment status, and/or client access to 557 WW/FSSC and 18 OSS/OSW for reporting to JTWC.

A13.2.2.6. 18 CS/CFP will notify 18 OSS/OSW immediately of all scheduled base outages expected to impact internal or external access to the local Mark IVB server, or the reception and processing of satellite data.

A13.3. 18th Security Forces Squadron (18 SFS).

A13.3.1. 18 SFS will be notified of severe weather, to include heavy rain warnings and/or advisories via the call tree shown in **Figure A5.1**.

A13.3.2. 18 SFS will serve as eyes forward and communicate with the 18 OSS/OSW and Public Affairs (18 WG/PA) for any areas that are in danger of being flooded, so that proper notifications can be distributed.

Attachment 14

18TH CIVIL ENGINEER GROUP (18 CEG) SUPPORT

A14.1. 18 OSS/OSW will:

A14.1.1. Provide observations, TAFs, WWAs, and additional weather data as requested for firefighting, hazardous material response, and outdoor training to the Fire Protection Flight.

A14.1.2. Provide the Readiness Flight with Environmental inputs to the 18 WG Installation Emergency Management Plan 10-2, and provide observations, TAFs, and WWAs upon request.

A14.1.3. Upon activation of the Emergency Operations Center (EOC), ensure EOC personnel receive notification of WWAs or applicable weather forecasted to pose a threat to Kadena AB.

A14.1.4. Upon notification of a chemical spill, provide observed and forecast surface wind, temperature, and atmospheric stability conditions for the spill location, and continuously METWATCH while spill remains a hazard and regularly provide updates as requested by 18th Civil Engineer Squadron, Readiness and Emergency Management (18 CES/CEX).

A14.1.5. Coordinate and provide Chemical/Effective Downwind Message and plume model data during exercises and contingencies as requested.

A14.1.6. Provide climatological support as requested.

A14.1.7. Provide weather data (i.e., Chemical Downwind and Effective Downwind Messages) during exercises and contingencies as requested for CBRN events or chemical spills.

A14.1.8. Provide information on weather model performance to enhance the output provided by plume models.

A14.2. 18th Civil Engineer Group, Unit Control Center (18 CEG/UCC) will:

A14.2.1. Coordinate dissemination of weather information to subordinate units within CEG.

A14.2.2. With collaboration with 18 OSS/OSW, assist with TCCOR 1R / All Clear recommendations to the 18 WG/CC, take immediate recovery actions when able until completion at all military installations on Okinawa, and confirm another TCCOR is not recommended from 18 OSS/OSW for continued tropical cyclone threat.

A14.3. 18th Civil Engineer Squadron, Operations (18 CES/CEO) will:

A14.3.1. Maintain the following Real Property Installed Equipment (RPIE) emergency standby power generation assets in support of 18 OSS weather equipment IAW the 18th Civil Engineer Group (18 CEG) Contingency Response Plan 10-211, Tab A to Appendix 3 to Annex P, *Generator Priority Listing*:

A14.3.2. Coordinate with 18 OSS/OSW for receiving and inputting weather data into chemical plume models, in order to provide most accurate information for CBRN events.

Table A14.1. Generator Priority List.

Priority	Bldg	Facility Name	KW	Start Type	Tank Size	Max Run
10	3408	Air Comm Plant	1000	Auto	5000	500 hrs
21	246	DMSP Weather	100	Auto	438	67 hrs
31	1411	(White Beach) DMSP	80	Auto	445	150 hrs

A14.3.3. Prioritize maintenance activities IAW the 18 CEG Contingency Response Plan, Appendix 1 to Annex J, *Facility Priority Listing by Facility Number*:

Table A14.2. Facility Priority List.

Priority	Bldg	Facility Name
27	3413	Airfield and Weather Operations
28	3408	18 CES Power Station
Note: 18 CES will exercise due diligence (IAW approved installation facility priorities) to prevent the ambient room temperature from exceeding 76 degrees Fahrenheit in areas where weather equipment is maintained within Building 3413.		

Attachment 15

18TH BIOENVIRONMENTAL ENGINEERING FLIGHT (18 OMRS/SGXB) SUPPORT

A15.1. 18 OSS/OSW will:

A15.1.1. Provide back-up support for heat stress conditions as needed, after training and equipment are provided by 18 OMRS/SGXB.

A15.1.2. Provide the Fighter Index of Thermal Stress (FITS), determined IAW Department of the Air Force Instruction (DAFI) 48-151, *Thermal Stress Program*, Attachment 3, to the fighter squadrons as outlined in **Table A6.1**.

A15.2. 18 OMRS/SGXB will:

A15.2.1. Provide training and equipment to Weather Flight for heat stress conditions if backup support is required.

Attachment 16

18TH WING STAFF AGENCIES SUPPORT

A16.1. 18th Wing Command Post (18 WG/CP). The 18 WG/CP receives all weather notifications.

A16.1.1. 18 OSS/OSW will:

A16.1.1.1. Provide observations, TAFs, WWAs, and PIREPS as requested.

A16.1.1.2. Provide, by email or telephone, tropical cyclone information release/timelines for all tropical cyclones affecting Okinawa.

A16.1.1.3. Respond to PMSV phone patches when necessary.

A16.1.1.4. Provide Kadena OPREP information as listed in **paragraph 5.3**.

A16.1.2. 18 WG/CP will:

A16.1.2.1. Coordinate notification of WWAs and TCCOR information with base agencies on the 18 WG/CP internal checklists not directly notified by the Weather Flight or another source.

A16.1.2.2. Further disseminate WWAs and TCCOR information to base agencies as required. **Example:** At-Hoc network.

A16.1.2.3. Connect aircrew requesting pilot-to-metro service to Weather Flight via phone patch.

A16.1.2.4. Relay any PIREPs or reports of hazardous weather to Weather Flight by hotline within 5 minutes of receipt.

A16.1.2.5. Activate Typhoon strike meeting checklist after approval from the 18 WG/CC.

A16.1.2.6. Notify 18 OSS/OSW of Battle Staff activation and or changes in Battle Staff assembly times.

A16.1.2.7. Notify 18 OSS/OSW of any weather or weather service-related incidents.

A16.1.2.8. Contact aircrews to relay weather updates as coordinated by the Weather Flight.

A16.1.2.9. Connect 18 OSS/OSW leadership to TCCOR authority via phone patch during time sensitive TCCOR changes such as TCCOR 1C, 1E, 1R/All Clear.

A16.2. 18th Wing Safety (18 WG/SE).

A16.2.1. 18 OSS/OSW will:

A16.2.1.1. Upon notification of an aircraft mishap/incident, work with 17 OWS to collect all weather data necessary for the safety investigation regardless of if weather is considered as a factor.

A16.2.1.2. Work with 17 OWS to provide current and historical weather information to the safety office as required for aircraft and ground mishap investigations.

A16.2.1.3. Provide weather briefings at flying safety meetings as coordinated.

A16.2.1.4. Issue Okinawa Sea Conditions.

A16.2.1.5. List the BASH Phase on the LWP and RWP.

A16.2.2. 18 WG/SE will:

A16.2.2.1. Notify 18 OSS/OSW when weather information is required.

A16.2.2.2. Notify 18 OSS/OSW of any local aircraft mishaps/incidents requiring weather information.

A16.2.2.3. Notify 18 OSS/OSW of any ground mishaps/damage on Kadena AB caused by weather.

A16.2.2.4. Request and coordinate weather briefings at flying safety meetings at least 1 week in advance.

A16.2.2.5. Determine criteria and naming convention for Okinawa Sea Conditions.

A16.2.2.6. Notify 18 OSS/OSW if the BASH Phase is elevated from the seasonal phase.

A16.3. 18th Wing Public Affairs (18 WG/PA).

A16.3.1. 18 OSS/OSW will:

A16.3.1.1. Provide, by email or telephone, tropical cyclone information release/timelines for all tropical cyclones affecting Okinawa.

A16.3.1.2. Serve as subject matter experts for weather questions received by the 18 WG/PA, in order to reduce confusion for the public.

A16.3.2. 18 WG/PA will distribute typhoon/other weather information given by the 18 OSS/OSW to keep the public informed and receive accurate information from 18 OSS/OSW to answer questions from the public.

Attachment 17

TENANT UNIT SUPPORT

A17.1. 733d Air Mobility Squadron (733 AMS).

A17.1.1. 18 OSS/OSW will:

A17.1.1.1. Provide copies of JTWC Tropical Cyclone plots, TCIRs, and Typhoon timelines for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A17.1.1.2. Provide weather observing support to all Air Mobility Command (AMC) aircrews.

A17.1.1.3. Provide training in the transient briefing request process and backup briefing support as necessary when AMC weather support functions are unavailable.

A17.1.2. 17 OWS will:

A17.1.2.1. Provide IFM FWB support. This will include a DD Form 175-1, *Flight Weather Briefing*, all applicable hazard and wind charts, and satellite imagery. The duty forecaster on shift for the 18 OSS/OSW may assist in providing FWBs and/or additional weather information on an as-needed basis.

A17.1.2.2. Provide FWB support through various mediums to include website retrieval, email, fax and telephone.

A17.1.3. 733 AMS will:

A17.1.3.1. Provide 17 OWS with copy of daily flight schedule, when requested.

A17.1.3.2. When briefing is requested by an aircrew, provide the aircrew access to the 17 OWS website to view weather products and a phone to call the forecaster, if necessary.

A17.1.3.3. Provide enough workspace (i.e., desk, chair, computer, and telephone) in the AMC Passenger Terminal, building 3409 for 18 OSS/OSW personnel to provide weather observations and other weather support as an alternate operating location.

A17.2. Marine Wing Liaison Kadena (MWLK).

A17.2.1. The 18 OSS/OSW will:

A17.2.1.1. Provide copies of the JTWC tropical cyclone plot(s), TCIRs, and timelines for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A17.2.1.2. Assist transient Marine aircrews with filing of FWB requests through 17 OWS or their home station weather unit. If the 17 OWS or home station weather unit is unable to provide briefing support, the 18 OSS/OSW duty forecaster can provide FWB support based on duty priorities.

A17.2.2. MWLK will:

A17.2.2.1. Direct weather support requests for aircraft attached to Kadena AB for temporary duty to the 17 OWS.

A17.2.2.2. Direct transient Marine aircrews to contact the 17 OWS or their home station weather unit for FWB support.

A17.2.2.3. Provide liaison for weather support issues involving U.S. Marine Corps assets.

A17.3. Commander Fleet Activities Okinawa (CFAO).

A17.3.1. The 17 OWS will provide United States Navy (USN) aircrews at Kadena AB with flight weather briefing support. If the 17 OWS or Fleet Weather Center San Diego is unable to provide briefing support, the 18 OSS/OSW duty forecaster can provide FWB support based on duty priorities.

A17.3.2. 18 OSS/OSW will provide copies of the JTWC tropical cyclone plot(s), TCIRs, and TC-TAP bulletins for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A17.3.3. CFAO will coordinate FWB support for local USN aircrews with 17 OWS.

A17.4. U.S. Army Garrison Okinawa (USAGO).

A17.4.1. 18 OSS/OSW will:

A17.4.1.1. Transmit applicable WWAs as outlined in **Attachment 5**.

A17.4.1.2. Provide copies of the Typhoon Timeline for all tropical cyclones when Okinawa is in TCCOR 3 or lower.

A17.4.2. USAGO will:

A17.4.2.1. Serve as a single point of contact for all weather services required by U.S. Army units on Okinawa except for 1st Battalion, 1st Air Defense Artillery Regiment (1-1 ADA). The 1-1 ADA requires Kadena Specific WWAs.

A17.4.2.2. Establish local procedures to ensure all applicable WWAs and/or tropical cyclone information are disseminated to its subordinate agencies.

A17.5. 353rd Special Operations Wing (353 SOW). The below agreements will be reviewed annually with weather flight requirements to conduct annual reviews of this instruction.

A17.5.1. The 23rd Special Operations Weather Squadron (23 SOWS) will provide back-up weather briefing support for 353 SOW aircrews when requested or coordinated by 353rd Special Operations Wing Weather Flight (353 SOSS/OSW) personnel on an as needed basis.

A17.5.2. 18 OSS/OSW will:

A17.5.2.1. Provide copies of the JTWC tropical cyclone plot(s), TCIRs and TC-TAP bulletins for all tropical cyclones when Okinawa is in TCCOR 3 or lower to the 353 SOW/OSW.

A17.5.2.2. Within constraints of operational requirements, provide back-up support, assistance, and workspace in the event of emergency evacuation and/or long-term power outage of facilities for the 353 SOW/OSW.

A17.5.2.3. Maintain meteorological control of MWPs produced for Jolly Operations during Search and Rescue/Combat Search and Rescue (SAR/CSAR) weather support based at the Joint Air Operations Center (JAOC) on Kadena AB.

A17.5.3. 353 SOW/OSW will:

A17.5.3.1. Coordinate the dissemination of typhoon information to subordinate units within the Wing.

A17.5.3.2. Maintain ultimate responsibility for providing and/or arranging weather support for 353 SOW aircrews.

A17.5.3.3. Coordinate and arrange weather support requirements with the 23 SOWS for 353 SOW aircrews before, during, and after deployment.

A17.5.3.4. Provide an embedded forecaster to augment SAR/CSAR weather support to Jolly Operations based at the JAOC on Kadena AB. This is due to the SOW/OSW having immediate JAOC access as it is collocated in their building.

A17.5.3.4.1. Communicate all MWPs for SAR/CSAR execution, planning, and climatological weather forecasts provided to the JAOC to 18 OSS/OSW.

A17.5.3.4.2. Notify 18 OSS/OSW leadership of scheduled SAR/CSAR post-mission hot washes.

A17.6. Armed Forces Network (AFN) Okinawa.

A17.6.1. 18 OSS/OSW will:

A17.6.1.1. Provide AFN Radio and TV with general public weather information for the military installations on Okinawa. This information will be provided via telephone, email, or webpage.

A17.6.1.2. Provide the Kadena AB 5-Day Outlook to AFN for broadcast on TV and radio.

A17.6.1.3. Provide frequent tropical cyclone updates for significant storms as required.

A17.6.1.4. Coordinate and assist on weather related stories as requested by AFN.

A17.6.1.5. Disseminate all sea condition advisories to AFN for broadcast on TV and radio.

A17.6.1.6. During TCCOR 1C and TCCOR 1E, if manning permits, provide AFN Radio with live broadcast weather forecasts for the military installations on Okinawa. The format and frequency of these forecasts will be determined between AFN and 18 OSS/OSW.

A17.6.2. AFN Okinawa Will:

A17.6.2.1. Broadcast the latest weather information provided by 18 OSS/OSW.

A17.6.2.2. Broadcast all sea condition advisories provided by 18 OSS/OSW.

A17.6.2.3. Not change weather information provided by the WST for the general public without consent of the WST when using it for radio and TV broadcasts.

A17.6.2.4. IAW USFJI 15-4001, during periods when the Okinawa is in a TCCOR, periodically broadcast the tropical cyclone information provided by the 18 OSS/OSW.

A17.6.2.5. Coordinate with the 18 OSS/OSW on weather related stories.

Attachment 18

DEPLOYED EXPEDITIONARY FIGHTER SQUADRON (EFS) SUPPORT

A18.1. Deployed Expeditionary Fighter Squadron (EFS) Support.

A18.1.1. 18 OSS/OSW will:

A18.1.1.1. Produce the control weather product (LWP and RWP Mission Execution Forecast [MEF]) for all 18th Wing units during normal duty days. 18 OSS/OSW will not produce the MEF on training holidays, federal holidays, or weekends, when not required by the 82 RS, 909 ARS, 44 FS, 67 FS, 961 AACS, or 33 RQS.

A18.1.1.2. Provide training and familiarization on the 18 OSS/OSW MEFs to EFS forecasters.

A18.1.1.3. Provide access to the 18 OSS/OSW Teams and Signal chat for forecast collaboration.

A18.1.1.4. Create and monitor all airfield support products including METAR and SPECI observations, TAFs, warnings, watches, and advisories.

A18.1.1.5. Provide access to the 18 OG/MXG and 18th Wing flying schedules, as needed.

A18.1.1.6. Act as the lead weather unit (LWU) and holds final say in all products disseminated to the 18th Wing flying units.

A18.1.2. EFS Forecasters will:

A18.1.2.1. Provide the 18 OSS/OSW with their unit's flying schedules. This will assist 18 OSS/OSW in notifying the deployed forecasters when they are responsible for producing the MEF(s).

A18.1.2.2. Provide 18 OSS/OSW with their work center phone number.

A18.1.2.3. Conduct Meteorological Conference (METCON) with the 18 OSS/OSW airfield services function and mission integration function forecasters to provide inputs on the MEF, TAF, watches, warnings, and advisories to ensure horizontal consistency of the forecast across all supported flying units. EFS forecasters will make every effort to attend METCON briefs. If unable to attend the scheduled METCON, EFS forecasters will provide inputs to the forecast products prior to the brief or upon their earliest availability after METCON. These briefs will occur primarily over DSN conference call due to the multiple work centers forecasters are located across base.

A18.1.2.4. Provide workplace location to the 18 OSS/OSW to ensure forecast coordination during communications outages.

A18.1.2.5. Notify the other EFS forecasters on Kadena and the 18 OSS/OSW Flight Commander and Flight Chief if they are unable to support any of their deployed unit's sorties. EFS forecasters on Kadena will coordinate with one another to cover emergency situations (sickness, injury, emergency leave) and surge operations as the first course of action. Any briefing support to the EFS from 18 OSS/OSW will be only for emergency situations on an ad hoc basis and must be coordinated with and approved by the 18 OSS/OSW Flight Commander or Flight Chief.

A18.1.3. EFS pilots will:

A18.1.3.1. Receive the MEF, all briefs, and updates from their deployed, home-station forecaster.

A18.1.3.2. Work with their DO and the 18 OSS/OSW Flight Commander or Flight Chief to resolve any support issues including inputs to the MEF.