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SIGNED

11/20/02

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Gregory A. Mandt

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Date

Director, Office of Climate, Water, and Weather Services

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**1. Purpose.** This instruction addresses National Weather Service (NWS) procedures for Area Forecasts (FA), Significant Meteorological Advisories (SIGMET), Airman’s Meteorological Advisories (AIRMET), and Volcanic Ash Advisories (VAA) for U.S. domestic and controlled international airspace.

**2. General.** FAs, SIGMETs, AIRMETs, and VAAs provide complete coverage for aviation customers in US controlled airspace, including all 50 states and adjacent coastal waters, and international oceanic areas. These are defined as:

- a. FA: An overview of weather conditions which could impact aviation operations.
- b. AIRMET: Provides notice of significant weather phenomena, issued as scheduled products, for icing and freezing level; turbulence, strong surface winds and low-level wind shear; and Instrument Flight Conditions (IFC) and mountain obscuration, all at intensities lower than those which trigger SIGMETs.
- c. SIGMET: Provides en-route aircraft and aircrews notice of potentially hazardous phenomena such as thunderstorms and hail, turbulence; icing, sandstorms and duststorms; tropical cyclones; and volcanic ash.
- d. VAA: Provides en-route aircraft and aircrews notice when airborne volcanic ash is observed or reported which may affect the atmosphere in designated areas.

Each of these products are designed to serve civilian and military aviation as a common system aviation weather safety program. NOTE: Information regarding significant weather for all areas of the world at or above Flight Level (FL) 150 is contained in synchronous Significant Weather High (SWH) and/or Significant Weather Medium (SWM) issuances from the World Area Forecast Centers (WAFC).

**3. Responsibility for Issuance.** The U.S. has four Meteorological Watch Offices (MWO) with responsibilities defined in International Civil Aviation Organization (ICAO) Annex 3.

They are the Aviation Weather Center (AWC), Alaska Aviation Weather Unit (AAWU), and Weather Forecast Offices (WFO) in Honolulu and Guam. Their areas of responsibility are:

- a. The AWC:
  - (1) 20 Federal Aviation Administration (FAA) Air Route Traffic Control Center (ARTCC) Flight Information Regions (FIR) in the Conterminous U. S. (CONUS) and adjacent coastal waters.
  - (2) The New York, Houston, Miami, and San Juan Oceanic FIRs.
  - (3) The Oakland Oceanic FIR north of 30 north latitude, and the portion east of 140 west longitude which is between the equator and 30 north latitude.
- b. The AAWU is responsible for the Anchorage FIR.
- c. WFO Honolulu is responsible for the Oakland Oceanic FIR between the equator and 30 north latitude and from 140 west to 160 east longitude.
- d. WFO Guam is responsible for the Oakland Oceanic FIR west of 160 east longitude and north of the equator.

**4. Standardization.** All forecasts and in-flight advisories will follow these standards:

- a. All referenced heights or altitudes will be annotated as FL for heights at or above 18,000 and consist of three (3) digits depicting height in hundreds of feet Mean Sea Level (MSL).
- b. References to latitude and longitude will be in whole degrees and minutes following the model: Nnn[nn] or Snn[nn], Wnnn[nn] or Ennn[nn] with a space between latitude and longitude and a hyphen between successive points.
- c. Messages will be prepared using approved ICAO contractions, abbreviations and numerical values of self-explanatory nature.
- d. Weather and obstructions to visibility will be the same as weather abbreviations used for surface airways observations (METAR or SPECI - see Federal Meteorological Handbook (FMH) No. 1 - Surface Observations).
- e. AIRMETs and SIGMETs will be disseminated to meteorological offices and users in accordance with applicable regional air navigation agreements as required.

**5. Area Forecasts (FA).** The FA will describe in abbreviated language specified en-route weather phenomena below FL450.

- a. AWC provides the following FAs:
  - (1) The CONUS. The FA will consist of three (3) sections: a synopsis, Visual Flight Rules (VFR) clouds and weather, and an outlook. In the CONUS, the FA will be issued for six (6) geographical areas.
  - (2) The Gulf of Mexico FA is an overview of weather conditions which could impact helicopter aviation operations over the northern Gulf of Mexico and adjacent coastal plains. It serves as a flight planning and weather briefing aid from surface to 12,000 feet, written to the detail of the Terminal Aerodrome Forecast, and describes weather of significance to general aviation (GA), civilian, military and helicopter pilots and aviation. It also contains marine conditions. The synopsis and weather/marine forecast sections are valid for 12 hours, with the outlook section valid for 12 hours beyond the synopsis and forecast section valid period.
  - (3) The Caribbean FA is an overview of weather conditions which could impact aviation operations over the Gulf of Mexico and adjacent land masses; the Caribbean Sea and adjacent land masses and islands; and the southwestern portions of the New York Oceanic FIR. The synopsis and forecast sections will be valid for 12 hours each, with the outlook valid for 12 hours beyond the synopsis and forecast section valid period.
- b. WFO Honolulu will issue FAs for the main Hawaiian Islands and coastal waters (extending out to 40 NM of the coastlines).
- c. The AAWU will issue Alaskan FAs for the state and coastal waters of Alaska, including the Pribilof Islands and Southeast Bering Sea. Alaskan FAs will include SIGMET and AIRMET information, and are issued under seven separate World Meteorological Organization (WMO) headers.

**5.1 FA Coverage and Content.** Each FA contains a reference to valid SIGMETs and AIRMETs followed by a “boiler plate” statement about conditions implied by a forecast of thunderstorms, except where noted. The examples in Section 9 contain this statement.

- a. CONUS. References are to states - by 2-letter designator - and to geographical areas. The states, and other areas, contained in each of the six area forecasts, and the abbreviations used are:
  - (1) Pacific Coast (SFO): Washington - WA, Oregon - OR, California - CA, and Coastal Waters.
  - (2) Rocky Mountain (SLC): Idaho - IA, Montana - MT, Wyoming - WY, Nevada - NV, Utah - UT, Colorado - CO, Arizona - AZ, and New Mexico - NM.

- (3) North-Central (CHI): North Dakota - ND, South Dakota - SD, Nebraska - NE, Kansas - KS, Minnesota - MN, Iowa - IA, Missouri - MO, Lake Superior - LS, Wisconsin - WI, Lake Michigan - LM, Illinois - IL, Michigan - MI, Lake Huron - LH, Indiana - IN, and Kentucky - KY.
- (4) Northeast (BOS): Maine - ME, New Hampshire - NH, Vermont - VT, Massachusetts - MA, Rhode Island - RI, Connecticut - CT, New York - NY, New Jersey - NJ, Pennsylvania - PA, Ohio - OH, Lake Erie - LE, Lake Ontario - LO, West Virginia - WV, Maryland - MD, District of Columbia - DC, Delaware - DE, Virginia - VA, and Coastal Waters.
- (5) South Central (DFW): Oklahoma - OK, Texas - TX, Arkansas - AR, Tennessee - TN, Louisiana - LA, Mississippi - MS, Alabama - AL, and Coastal Waters.
- (6) Southeast (MIA): North Carolina - NC, South Carolina - SC, Georgia - GA, Florida - FL, and Coastal Waters.

The FAUSs are produced three times daily for each of two areas. The following are issuance times for FAUSs (NOTE: All times are Universal Time Coordinated (UTC) and are based on U.S. Standard Time; subtract one hour to all issuance times for U.S. Daylight Savings Time): BOS/MIA - 0145/0945/1845; CHI/DFW - 0245/1045/1945; and SLC/SFO - 0345/1145/2045. The FAUSs include a synopsis, which is a short description of significant synoptic weather systems affecting the area during the 18 hour valid period; VFR Clouds/Weather for a 12 hour period, with information referenced to states or geographic areas describing cloud conditions, weather and/or visibility which are MVFR or better in the following order: thunderstorms and their implications, sky condition (cloud height, amount, and tops) if bases are at or below (AOB) FL180 MSL, weather (precipitation, fog, haze, blowing dust, etc.) if surface visibilities are three (3) to six (6) miles, and significant wind information; and an outlook, which is a 6-hour categorical forecast for IFR, MVFR, or VFR.

- b. Gulf of Mexico FA. The Gulf of Mexico FA (FAGX) is unique because it is a single product combining information contained in an FA prepared for the conterminous U.S., the in-flight advisories -- AIRMET/SIGMET, and the marine precautions. Each section describes the phenomena impacting the respective area and will always have an entry even if it is negative.

The FAGXs, valid for 12 hours with a 12 hour extended outlook, are produced twice daily at 1030 and 1830 UTC. They contain a synopsis and a weather/marine forecast section. The weather/marine section includes flight precautions AOB 12,000 feet for thunderstorms which are at least scattered or meet Convective SIGMET criteria; moderate or greater turbulence; moderate or greater icing; wind speeds greater than or equal to (GTE) 25 knots below 1000 feet; ceilings and/or visibilities less than (LT) 1000 feet and/or three (3) miles;

ceilings and/or visibilities LT 500 feet and/or one (1) mile; marine precautions for dense fog (visibility less than or equal to (LTE) 1 mile (sea fog) for an area covering 3,600 square nautical miles); small craft advisory (wind speeds 20 to 34 knots); gale warning (wind speeds 35 to 50 knots); storm warning (wind speeds greater than (GT) 50 knots); significant wave heights GTE eight (8) feet; and areas where small craft should exercise caution.

- c. Caribbean FA. The Caribbean FA (FACA) covers the following area: the Atlantic south of 32N and W of 57W, the Caribbean, the Gulf of Mexico and adjacent coast north of 23 N, and Florida from surface to FL240 (400 HPa). The clouds/weather forecast section is provided by portions of the area as follows: Southern LA, MS, AL and Coastal Waters; Gulf of Mexico - Houston (HOU) and Gulf of Mexico - MIA FIRs; Florida and Coastal Waters; Atlantic Southwestern NY FIR; Atlantic MIA FIR; San Juan FIR; Western Piarco FIR; Santo Domingo, Port au Prince and Habana FIRs; Northern Maiquetia, Curacao and Northern Barranquilla FIRs; Kingston and Northern Central America FIRs; Northern Merida FIR: and, Eastern Monterrey FIR.

The FACA is produced four times daily at 0330, 0930, 1530, and 2130 UTC. It provides an overview of weather conditions which could impact aviation operations over the Gulf of Mexico and adjacent land masses; the Caribbean Sea and adjacent land masses and islands; and the southwestern portions of the New York Oceanic FIR. In this form, it serves as a flight planning and weather briefing aid and includes AIRMET criteria for turbulence and icing for general aviation pilots, and civil and military aviation operations. Each bulletin has a 12 hour forecast with a 12 hour outlook. It includes a synopsis, Cloud/Weather flight precautions AOB 24,000 feet for moderate or greater turbulence and moderate or greater icing, and a forecast of significant clouds and weather, with conditions reported as VFR, MVFR, or IFR.

- d. Alaska. The Alaskan FAs are produced four (4) times daily at 0245, 0845, 1445, and 2045 UTC during standard time and 0145, 0745, 1345, and 1945 UTC during daylight time. FAs contain a short synopsis for the entire area; and a forecast for each of a specified number of aviation zones. The valid period of the synopsis and flight precautions section will be 12 hours. The outlook section will be for eighteen (18) hours beyond the forecast valid period.

The zone forecasts contain sections on Clouds and Weather, Turbulence, and Icing and Freezing Levels. The Clouds and Weather section includes:

- (1) SIGMETs for Thunderstorms and Volcanic Ash.
- (2) AIRMETs for IFR ceiling and visibility, mountain Obscuration, and strong surface winds.
- (3) Bases and tops of significant cloud layers.
- (4) Visibilities of six (6) miles or less and restricting phenomena.
- (5) Precipitation and thunderstorms.

- (6) Surface winds of 20 KTS or greater.
- (7) Outlook using categorical terms (i.e., VFR CIG, MVFR BR, IFR SN WND).
- (8) Mountain pass conditions using categorical terms (for selected zones only).

The Turbulence section includes:

- (1) SIGMETs for Turbulence
- (2) AIRMETs for Turbulence and/or Low Level Wind Shear (LLWS).
- (3) Forecast of significant turbulence not meeting SIGMET or AIRMET criteria or that is forecast for the period 6 to 12 hours after issuance.
- (4) If no significant turbulence is forecast, NIL SIG will be entered.

Icing section includes:

- (1) SIGMETs for Icing.
- (2) AIRMETs for Icing and freezing precipitation.
- (3) Forecast of significant icing not meeting SIGMET or AIRMET criteria or which is forecast for the period 6 to 12 hours after issuance.
- (4) Freezing Level.
- (5) If no significant icing is forecast, NIL SIG will be entered followed by the freezing level.

- e. Hawaii. FAs are produced four times daily at 0340, 0940, 1540, and 2140 UTC. The synopsis will be valid for 18 hours, with the VFR Clouds/Weather valid for the first 12 hours and the outlook will be valid for the last six (6) hours of the 18-hour period.

**5.2 FA Amendments.** If any phenomena or conditions depicted in FAs improve and are no longer expected to affect low-level flights (including VFR), and the new conditions will exceed half the period between regular issuances, a FA AMD message should be sent indicating which conditions have improved. An amended FA will contain AAA after the date/time group on the WMO line for the first amendment, AAB for the second, and continuing for all subsequent amendments. Then add AMD after the date/time group on the FAA product line.

**5.3 FA Corrections.** FAs containing errors will be corrected. To do this, add CCA after the date/time group on the WMO line for the first correction, CCB for the second, and continuing for all subsequent corrections. Then add COR after the date/time group on the FAA product line. The first time indicated is the issuance time, with the ending valid time unchanged. Further, because FAs can be lengthy, a line should be added right after the error to help locate it.

**NOTE: Amendments and corrections will carry the CURRENT time of the FA being corrected. The FAA uses a time matching system of replacing products and unless the product has time different than the previous issuance, it will not store.**



**6.2 SIGMET for Volcanic Ash.** A SIGMET for volcanic ash will be issued when either a volcanic eruption or volcanic ash occur. It will be issued for all volcanic eruptions, regardless of the eruption's magnitude. Volcanic ash SIGMETs will continue to be issued until the ash cloud is no longer a threat to aviation. The forecast position information for the volcanic ash cloud should be based on advisories provided by a Volcanic Ash Advisory Center (VAAC).

**6.3 SIGMET for Tropical Cyclone.** A SIGMET for a tropical cyclone will be issued for non-frontal synoptic-scale cyclones meeting the following criteria:

- a. Originate over tropical or sub-tropical waters with organized convection and definite cyclonic surface wind circulation.
- b. Wind speeds reach 35 knots, independent of the wind averaging time used by the Tropical Cyclone Advisory Center (TCAC).

MWOs preparing SIGMETs for tropical cyclones will use the FK bulletins issued by the appropriate TCAC (Miami, Honolulu, or Tokyo) for specific forecast and outlook information. An example is provided in section 9.

**6.4 Convective SIGMET over CONUS.** Convective SIGMETs (WST) are issued over the CONUS instead of SIGMETs for convection. They are prepared as bulletins (collections of one or more products) issued for thunderstorms and related phenomena.

**6.4.1 WST Criteria.** A WST will be issued when the following occurs and/or is forecast to occur:

- a. Severe thunderstorm and embedded thunderstorm occurring for more than 30 minutes of the valid period regardless of the size of the area.
- b. A line of thunderstorms.
- c. An area of active thunderstorms affecting at least 3,000 square miles.

**6.4.2 Special WST.** A special WST will be issued when either of the following criteria are met and/or forecast to be met for more than 30 minutes of the scheduled WST's valid period:

- a. Tornado, hail GTE 3/4 inch, or wind gusts GTE 50 knots is reported or indicated when the previous WST did not mention severe thunderstorms.
- b. Indications of rapidly changing conditions, if in the forecaster's judgement, they are not sufficiently described in existing SIGMETs.

**6.4.3 WST Bulletins.** Three (3) WST bulletins, describing conditions in the eastern, central and western regions of the CONUS, respectively, will be issued hourly. Special WSTs will be issued as required. Each WST bulletin will be made up of one or more individually numbered

WSTs for conditions within the region and are valid for up to two (2) hours (or until superseded by the next hourly issuance).

**6.4.4 Bulletins for No Activity Meeting WST Criteria.** Since the WST bulletin is a scheduled product, a message must be transmitted each hour. If there are no conditions within a region meeting the criteria at the scheduled time of issuance a “CONVECTIVE SIGMET...NONE” message is transmitted.

**6.5 SIGMET Headers.** Except for the CONUS, the AWC provides SIGMETs for all phenomena listed in sections 6a through f, using the WMO SIGMET header WS. Over the CONUS, SIGMETs providing information on convection are issued as WST. The AAWU will issue SIGMETs for all phenomena listed in sections 6a through f under the WMO Header designation WS. MWOs in Hawaii and Guam will issue SIGMETs for all phenomena with the exception of volcanic ash and tropical cyclones under the WS designation. SIGMETs for volcanic ash will be issued under WMO Header designator WV and SIGMETs for tropical cyclones under the designator WC.

**6.6 SIGMET Valid Period.** SIGMETs (other than WSTs) for phenomena listed in section 6a through e will have a valid period not to exceed four (4) hours. These SIGMETs may be issued up to four (4) hours before the initial valid time. SIGMETs for continuing phenomena will be reissued at least every four (4) hours as long as SIGMET criteria is met.

**6.6.1 SIGMETs for Volcanic Ash and Tropical Cyclones.** SIGMETs for volcanic ash or tropical cyclones will be valid up to six (6) hours, with an outlook of up to twelve (12) hours beyond the valid period. They will be reissued at least every six (6) hours while the volcanic ash or tropical cyclone exists or is forecast to exist. SIGMET messages for volcanic ash or tropical cyclones expected to affect an FIR should be issued up to 12 hours before the start of the valid period, or as soon as practicable if such advance warning of the existence of these phenomena is not available.

**6.7 SIGMET Information.** SIGMETs will not contain unnecessary descriptive material. SIGMET information about thunderstorms or tropical cyclones will not include references to associated turbulence and icing.

**6.8 SIGMET Cancellation.** SIGMETs will be canceled when the phenomena is no longer occurring or expected to occur in the area. WSTs are not cancelled, but are allowed to expire since the individual advisories are part of a bulletin.

**6.9 SIGMET Amendments.** Updates to SIGMETs will be issued as necessary as an amendment. An amended SIGMET will contain AAA on the WMO line for the first amendment, AAB for the second, and continuing for all subsequent amendments. Then add AMD after the date/time group on the FAA product line.

**6.10 SIGMET Corrections.** SIGMETs containing errors will be corrected. To do this, add CCA after the date/time group on the WMO line for the first correction, CCB for the second, and continuing for all subsequent corrections. Then add COR after the date/time group on the FAA

product line. The first time indicated is the issuance time, with the ending valid time unchanged. Further, because SIGMETs can be lengthy, a line should be added right after the error to help locate it.

**NOTE: Amendments and corrections will carry the CURRENT time of the SIGMET being corrected. The FAA uses a time matching system of replacing products and unless the product has time different than the previous issuance, it will not store.**

**6.11 RTD SIGMETs.** For SIGMETs delayed in transmission, add RRA after the date/time group on the WMO line for the first correction, RRB for the second, and continuing for all subsequent RTDs. Then add RTD after the date/time group on the FAA product line. The first time indicated is the issuance time and the ending valid time is unchanged.

**6.12 Phenomena Information.** A SIGMET will contain the following information, related to the specific phenomena and in the order indicated:

- a. Phenomena and its description from section 6; e.g., SEV TURB.
- b. An indication whether the information is observed, using OBS or FCST. The time of observation will be given in UTC.
- c. Location (referring, where possible, to latitude and longitude and/or locations or geographic features which are well known internationally) and flight level (altitude).
- d. Movement towards or expected movement using sixteen points of the compass, with speed in knots, or stationary, if appropriate.
- e. Thunderstorm maximum height as FL.
- f. Changes in intensity; using as appropriate, the abbreviations Intensifying (INTSF), Weakening (WKN), or No Change (NC).
- g. On the last line, include an outlook beyond the valid period for forecast trajectory of a volcanic ash cloud or tropical cyclone.

**6.13 Interchange of SIGMETs between MWOs.** When hazardous weather covered by a SIGMET moves from one MWO's area of responsibility (AOR) to an adjacent MWO's AOR (such as a line or area of thunderstorms), the originating MWO will cancel its SIGMET and the adjacent MWO will issue a new SIGMET under a new SIGMET series identifier. The cancelled SIGMET will include information identifying the new SIGMET series.

**6.14 Continuous SIGMET Criteria Across Two MWO's Adjacent Boundaries.** When an area of continuous hazardous weather meeting SIGMET criteria extends from one MWO's AOR into another adjacent MWO's area (such as a line or area of thunderstorms), the two MWOs will

coordinate and determine whether to issue two separate SIGMETs or have one MWO issue a single SIGMET for the hazardous weather in both areas.

7. **AIRMET.** AIRMETs are a concise description - in abbreviated language - of the development and occurrence or expected occurrence in time and space of specified en-route weather phenomena. The intensities are lower than those which trigger SIGMETs, even though the phenomena can still affect the safety of aircraft operations. AIRMETs are intended for dissemination to all pilots in flight to enhance safety, and are of particular concern to operators and pilots of aircraft sensitive to the phenomena described and to pilots without instrument ratings.

7.1 **AIRMET Criteria.** An AIRMET will be issued when any of the following weather phenomena occur and affect an area of at least 3,000 square miles:

- |    |  |  |
|----|--|--|
| a. | Sustained surface wind greater than 30 knots   | STG SFC WND                              |
| b. | Ceiling LT 1000 feet and/or visibility LT 3SM plus weather phenomena causing the reduction to visibility | IFR, CIG BLW 010<br>IFR, VIS BLW 3 SM BR |
| c. | Widespread mountain obscurement  | MT OBSC                                  |
| d. | Moderate turbulence  | MOD TURB                                 |
| e. | Moderate icing   | MOD ICE                                  |
| f. | Nonconvective LLWS potential below 2,000 ft  | LLWS POTENTIAL                           |

7.2 **AIRMET Bulletins.** AIRMETs are issued in AIRMET bulletins, each containing one or more AIRMET messages. The bulletins will be issued on a scheduled basis every 6 hours and, except in Alaska, beginning at 0200 UTC. In Alaska, AIRMET bulletins are issued every six hours at the same time as the FA. An AIRMET bulletin is issued for each forecast area and will not contain unnecessary descriptive material.

7.3 **SIGMET Information in AIRMET Bulletin.** A reference to the appropriate SIGMET series is included in AIRMET bulletins which cover the affected area for similar phenomena; for example, "SEE SIGMET BRAVO SERIES FOR SEV TURB AREA".

7.4 **Time of Issuance.** AIRMETs may be issued for conditions expected to develop within the six (6) hour valid time of the current AIRMET Bulletin.

7.5 **Valid Period.** An AIRMET's valid period may not exceed the AIRMET bulletin's valid time.

7.6 **AIRMET Updates and Amendments.** Unscheduled updates to AIRMET bulletins are issued as necessary. If an AIRMET is amended, it will contain AAA on the WMO line for the

first amendment, AAB for the second, and continuing for all subsequent amendments. Then add AMD after the date/time group on the FAA product line.

**7.7 AIRMET Corrections.** AIRMETs containing errors will be corrected. To do this, add CCA after the date/time group on the WMO line for the first correction, CCB for the second, and continuing for all subsequent corrections. Then add COR after the date/time group on the FAA product line. The first time indicated is the issuance time, with the ending valid time unchanged. Further, because AIRMETs can be lengthy, a line should be added right after the error to help locate it.

**NOTE: Amendments and corrections will carry the CURRENT time of the AIRMET being corrected. The FAA uses a time matching system of replacing products and unless the product has time different than the previous issuance, it will not store.**

**7.8 RTD AIRMETS.** For AIRMETs delayed in transmission, add RRA after the date/time group on the WMO line for the first correction, RRB for the second, and continuing for all subsequent RTDs. Then add RTD after the date/time group on the FAA product line. The first time indicated is the issuance time, with the ending valid time unchanged.

**7.9 Phenomena Information.** An AIRMET message will contain the following information as necessary and in the order indicated relating to the phenomena which caused the AIRMET to be issued:

- a. Location (using locations or geographic features well known nationally if possible).
- b. Phenomena and its description from section 7.1; e.g., MOD TURB.
- c. If appropriate, level (Altitude), or vertical extent.
- d. If appropriate, movement or expected movement with reference to eight points of the compass, given in knots, or stationary.
- e. If appropriate, cause of phenomena. If cause is due to a tropical cyclone it should be referenced; for example DUE TO TC (HURCN) name.
- f. Expected beginning and ending time of phenomena, if different from the AIRMET bulletin's valid time.
- g. Remarks.
- h. Changes in intensity; using as appropriate, the abbreviations INTSF (DTRT for IFR and MT OBSC AIRMETS) , WKN (IMPR for IFR and MT OBSC AIRMETS), or NC.

**7.10 AIRMET Remarks.** The continuance or change of existing conditions which are expected to continue after the valid time of the AIRMET will be included in remarks.

**7.11 AIRMET Outlook (Except Alaska).** If AIRMET conditions are expected to develop after the ending valid time of the AIRMET bulletin, that information will be included in an outlook section.

**7.12 AIRMET Outlook (Alaska Only).** If AIRMET conditions are expected to develop after the ending valid time of the AIRMET bulletin, that information will be included in the appropriate FA zone.

**7.13 AIRMET Dissemination.** AIRMET bulletin messages should be disseminated to MWOs, WAFCs, Regional Area Forecast Centers (RAFC) as appropriate, and other meteorological offices, in accordance with regional air navigation agreements.

**8. Volcanic Ash Advisory (VAA).** VAACs issue VAAs when airborne volcanic ash is observed or reported which may affect the atmosphere in the VAAC's AOR. The VAA is intended as guidance to support MWOs in meeting their responsibility to issue the volcanic ash SIGMET. The VAA also may be issued as a watch for an imminent eruption expected to produce airborne ash.

**8.1 VAA Responsibility.** The U.S. has two VAACs with responsibilities defined in ICAO Annex 3. The Washington VAAC is jointly managed by the National Environmental Satellite Data and Information Service (NESDIS) Satellite Analysis Branch (SAB) and the NWS National Centers for Environmental Prediction (NCEP) Central Operations (NCO) . The Anchorage VAAC is managed by the AAWU. The areas of responsibility for each VAAC are:

- a. Washington VAAC
  - (1) FIRs in CONUS and adjacent coastal waters.
  - (2) The Oakland Oceanic FIR over the Pacific Ocean.
  - (3) The New York FIR over the western Atlantic Ocean.
  - (4) FIRs over and adjacent to the Caribbean, and Central and South America north of 10 degrees south latitude.
- b. Anchorage VAAC
  - (1) The Anchorage FIR
  - (2) Russian FIRs north of 60 degrees north latitude and east of 150 degrees east longitude.

**8.2 VAA Issuance and Update Times.** The VAA is issued as soon as possible after credible information is received on the presence of airborne volcanic ash in the VAAC's AOR, or when responsibility for an existing VAA is transferred between VAACs. The VAA contains information on an ash cloud up to 18 hours. It may be issued any time to account for changing or new information. Any necessary updates are issued at a minimum of every 6 hours.

**8.3 VAA Content.** The VAA will follow international recommendations contained in ICAO Annex 3, chapter 3.6.2 (an example is in section 9) and will contain the name of the erupting volcano and number, if known; its location (latitude and longitude) and summit height (in meters or feet); the information source; the volcano aviation color code if applicable; eruption details; the date and time of the observed ash; information about the observed ash cloud; the forecast area and height of the ash cloud at 6, 12, and 18 hours after the issuance of the VAA; any pertinent remarks on the eruption/ash event; and the next VAA issuance time.

A VAA watch is not an official WMO/ICAO product. However, if it is issued, it will contain all information **except** for the eruption details, and observed and forecast ash clouds. Information on the direction the ash likely will spread in the event of an eruption will be included in remarks. In Alaska, a VAA watch is issued for a non-erupting seismically monitored volcano in color code orange or red. A one-time VAA Watch is issued when a monitored Alaska volcano goes from color code green to yellow.

**8.4 VAA Cancellation.** The VAA will be canceled when it is determined airborne volcanic ash is no longer a threat to aircraft or has moved out of the VAAC's AOR.

**8.5 Interchange of VAAs among Volcanic Ash Advisory Centers (VAAC).** When an ash cloud is forecast to move from one VAAC's AOR into another VAAC's AOR, the two VAACs will coordinate by telephone or telephone fax on handoff procedures. The VAAC passing off responsibility will include in remarks of its last VAA the name of the VAAC assuming responsibility for issuing subsequent VAAs for the event, the new WMO header, and the date/time of next expected issuance. The accepting VAAC will include in remarks the name of the VAAC from which it is accepting responsibility and the WMO header of the current VAA it will be updating. Generally, only one (1) VAAC will issue VAAs for a particular ash event. If the ash area affects more than one VAAC AOR, the VAAC issuing the VAA will include the entire ash area in the advisory. In the rare situation of large or persistent ash emissions, adjacent responsible VAACs, upon coordination, may agree to divide operational responsibilities.

**8.6 VAA Dissemination.** VAAs will be disseminated to MWOs, Area (Traffic) Control Centers, WAFCS, relevant RAFCs, international operational meteorological data banks, and other government and commercial meteorological offices, in accordance with regional air navigation agreements.

## **9. Examples.**

### **a. SIGMETS**

WSNT03 KKCI 081451

SIGA0C

KZNY SIGMET CHARLIE 11 VALID 081500/082100 KKCI-  
NEW YORK OCEANIC FIR

TC KYLE 1006HPA NEAR N3106 W07118 AT 081500 UTC. MOV SSW 5KT. FRQ TS WI 80  
NM OF N3100 W07015. TOPS TO FL 500. MOV SSW 5KT. NC. BASED ON SATELLITE  
OBS AND LATEST ADVISORY. OTLK POSITION...TC CENTER AT 090000 UTC...N3018  
W07142...AT 09120000 UTC...N2918 W07224.

WSPQ32 PGUM 081512

SIGPQ2

KZOA SIGMET OSCAR 3 VALID 081515/081915 PGUM-  
OAKLAND OCEANIC FIR.

EMBD TS OBS BY SATELLITE WITHIN 150 NM OF N11 E160. MAX TOPS FL570. STNR.  
NC.

WSPQ32 PGUM 081706

SIGPQ2

KZOA SIGMET OSCAR 4 VALID 081710/082110 PGUM-  
OAKLAND OCEANIC FIR.

AMENDS SIGMET OSCAR 3. EMBD TS OBS BY SAT 50 NM EITHER SIDE OF A LINE  
FM N8 E160 - N10 E162 - N12 E161. MAX TOPS FL520. STNR. WKN.

WSPN04 KKCI 081529

SIGP0B

KZOA SIGMET BRAVO 2 VALID 081530/081930 KKCI-  
OAKLAND OCEANIC FIR

FRQ TS WI 60 NM EITHER SIDE OF LINE N3935 W16920 - N3415 W17050 - N3010  
W17325. TOPS TO FL470. MOV NNE 10KT. NC. BASED ON SATELLITE AND  
LIGHTNING OBS.

WSUS40 KMKC 101646

WSTE

MKCE WST 101655

CONVECTIVE SIGMET 16E

VALID UNTIL 1855Z

SC FL GA AND COASTAL WATERS

FM 30ENE SAV-60ESE SAV-40ESE CRG-40W OMN-40ENE AMG-30ENE SAV  
AREA TS MOV FM 10020KT. TOPS ABV FL450.

TS ASSOCIATED WITH TD KYLE.

OUTLOOK VALID 101855-102255

FM ECG-160E PBI-VRB-190W PIE-LGC-CAE-ECG

OCNL WST ISSUANCES EXPECTED. REFER TO MOST RECENT ACUS01 KWNS FM

STORM PREDICTION CENTER FOR SYNOPSIS AND METEOROLOGICAL DETAILS.  
ALSO REFER TO MOST RECENT WTNT32 KNHC FM TROPICAL PREDICTION  
CENTER FOR DETAILS ON TROPICAL DEPRESSION KYLE.

**(1) Corrected SIGMET**

WSUS40 KMKC 101656 CCA  
WSTE  
MKCE WST 101656 COR  
CONVECTIVE SIGMET 16E  
VALID UNTIL 1855Z  
SC FL GA AND COASTAL WATERS  
FM 30ENE SAV-60ESE SAV-40ESE CRG-40W OMN-40ENE AMG-30ENE SAV  
AREA TS MOV FM 10020KT. TOPS ABV FL450.  
TS ASSOCIATED WITH TD KYLE.

OUTLOOK VALID 101855-102255  
FM ECG-140E PBI-VRB-160W PIE-LGC-CAE-ECG  
OCNL WST ISSUANCES EXPECTED. REFER TO MOST RECENT ACUS01 KWNS FM  
STORM PREDICTION CENTER FOR SYNOPSIS AND METEOROLOGICAL DETAILS.  
ALSO REFER TO MOST RECENT WTNT32 KNHC FM TROPICAL PREDICTION  
CENTER FOR DETAILS ON TROPICAL DEPRESSION KYLE.  
...COR FOR DISTANCE ON POINTS...

**b. AIRMETS**

SLCT WA 081345  
AIRMET TANGO UPDT 2 FOR TURB VALID UNTIL 082000

.  
AIRMET TURB...WY CO  
FM DDY TO 70NNW BFF TO BFF TO GLD TO 40S DEN TO OCS TO DDY  
OCNL MOD TURB BLW 150 DUE TO GUSTY LOW LVL WINDS ASSOCIATED WITH  
COLD FRONT. COND DEVELOPING 15-17Z. COND CONT BEYOND 20Z ENDING  
22-00Z.

.  
AIRMET TURB...NM  
FM 50W LBL TO INK TO ELP TO CIM TO 50W LBL  
OCNL MOD TURB BTN FL260 AND FL400 DUE TO UPPER LOW. COND CONT  
BEYOND 20Z ENDING 02Z. ....

WAHW31 PHFO 080945  
WA0HI

HNLS WA 081000  
AIRMET SIERRA UPDATE 1 FOR IFR VALID UNTIL 081600.  
NO SIGNIFICANT IFR EXP.

HNL T WA 081000  
AIRMET TANGO UPDATE 1 FOR TURB VALID UNTIL 081600

.  
AIRMET TURB...HI  
OVER AND IMT S THRU W OF MT OF ALL ISLANDS.  
TEMPO MOD TURB BLW 060. COND CONT BEYOND 1600Z.

HNLZ WA 081000  
AIRMET ZULU UPDATE 1 FOR ICE AND FZ LVL VALID UNTIL 081600

.  
NO SIGNIFICANT ICE EXP.

.  
FZ LVL...140.

**(1) Corrected AIRMET**

WAUS1 KSLC 221955 CCA  
WA5Z

.  
SLCZ WA 222000 COR  
AIRMET ZULU UPDATE 3 FOR ICE AND FZ LVL VALID UNTIL 230200

.  
AIRMET ICE...ID MT WY CO...UPDT  
FROM GTF TO 80NW RAP TO BFF TO GLD TO DEN TO OCS TO TWF TO BOI TO GTF  
OCNL MOD RIME OR MXD ICGICIP ABV FZ LVL TO FL200. FZ LVLS SFC-080 OVR  
MOST OF AREA RSG TO 080-100 OVR SWRN PORTIONS AREA. CONDS  
DVLPG/SPRDG SLOLY SWD DURG PD...CONTG BYD 02Z THRU 08Z.  
...UPDT TO ADD CO TO STATES LINE...

.  
ELSW...NO SGNFT ICE EXPCD OUTSIDE OF CNVTV ACT.

.  
FZ LVL...SFC-080...N OF 90SSE GEG-DBS-OCS-CYS LN  
...080-120...S OF 90SSE GEG-DBS-OCS-CYS LN

**c. FAs.**

**(1) CONUS**

FAUS5 KDFW 030953  
FA4W  
DFWC FA 030945  
SYNOPSIS AND VFR CLDS/WX  
SYNOPSIS VALID UNTIL 040400  
CLDS/WX VALID UNTIL 032200...OTLK VALID 032200-040400  
OK TX AR TN LA MS AL AND COASTAL WATERS

.  
SEE AIRMET SIERRA FOR IFR COND AND MT OBSC.  
TS IMPLY SEV OR GREATER TURB SEV ICE LLWS AND IFR COND.  
NON MSL HGT DENOTED BY AGL OR CEILING.

.  
SYNOPSIS...HRCN LILI MOV ONSHORE OVER CENTRAL LA COASTLINE. SEE  
LATEST ADVISORY FM NHC. QUASI-STNR FRONTAL SYSTEM EXTENDS FM N OH  
AND CENTRAL IN ACROSS S IL..SW MO..SW OK INTO SE CORNER OF NM. BY  
04Z...COLD FRONT WILL EXTEND FM A LOW OVER SE NE ACROSS CENTRAL KS  
AND W OK INTO BIG BEND AREA OF SW TX.

.  
OK  
PANHANDLE/W OK...CEILING OVC010. CLDS LYR TO FL240. OVC CI.  
VIS 3-5SM BR. BECMG 1618 CEILING OVC015-025.  
WIDELY SCT -SHRA/ISOL EMBD -TSRA. CB TOPS FL350.  
OTLK...MVFR CEILING TSRA BR.  
ERN OK...AGL SCT-BKN015-025. TOPS 030-050. VIS 3-5SM BR. BECMG  
1417 AGL SCT030-050. OTLK...VFR.

.  
NW TX  
CEILING010. CLDS LYR TO FL240. OVC CI. VIS 3-5SM BR.  
BECMG 1618 CEILING OVC015-025. WIDELY SCT -SHRA/ISOL EMBD -TSRA. CB TOPS  
FL350. OTLK...MVFR CEILING TSRA BR.

.  
SW TX  
AGL SCT040-060. OTLK...VFR.

.  
CENTRAL TX  
CEILING BKN015-025. TOPS 030-050. VIS 3-5SM BR. BECMG 1417 AGL SCT030-050.  
OTLK...VFR.

.  
E TX  
SKC. OCNL SCT CI. BECMG 1316 AGL SCT030-050. OTLK...VFR.

.  
AR  
AGL SCT030-050. SCT-BKN100. TOPS FL200. BKN CI. OTLK...MVFR CEILING TSRA  
BR.

.  
LA  
N LA...AGL SCT-BKN030-050. BKN100. TOPS FL240. BKN CI. ISOL -SHRA. BECMG  
1618 CEILING BKN030-050. WIDELY SCT TSRA/SHRA DEVELOPING. CB TOPS FL400.  
OTLK...MVFR CEILING TSRA WIND.  
S LA...CEILING OVC010-020. CLDS LYR TO FL280. OVC CI. OCNL RA/+RA...SCT  
+TSRA...POSS SEV. CB TOPS FL450. WND 14030G50KT.  
E SECTIONS...WIND 30025G40KT. WIND DIMINISHING TO 20G30KT 19-22Z.  
OTLK...MVFR CEILING SHRA WIND.

.  
TN  
BKN CI. OCNL VIS 3-5SM BR TIL 14Z. OTLK...VFR.

.  
MS AL  
N AND CENTRAL MS-AL/SE AL...SCT-BKN100. BKN150. TOPS FL280.  
BKN CI. BECMG 1618 AGL SCT-BKN050. BKN100. OVC150. OTLK...MVFR CEILING  
TSRA.  
S MS/SW AL...AGL SCT-BKN050. BKN100. OVC150. TOPS FL280. BKN CI. BECMG 1316  
CEILING OVC015-025. OCNL RA/SCT EMBD TSRA. CB TOPS FL410. OTLK...MVFR  
CEILING TSRA.

.  
COASTAL WATERS  
W COASTAL WATERS...AGL SCT030-050. SCT CI. OTLK...VFR.  
CENTRAL AND E COASTAL WATERS...CEILING OVC010-020. CLDS LYR TO FL280.  
OVC CI. OCNL RA/+RA. SCT +TSRA. POSS SEV. CB TOPS FL450.  
WIND 14030G60KT ERN SECTIONS...WIND 300025G60KT W SECTIONS. WIND  
DIMINISHING TO 20G40KT 19-22Z.  
OTLK...MVFR CEILING SHRA WIND.

**(2) Gulf of Mexico**

FAGX20 KKCI 091812  
OFAGX  
FCST...091900Z-100700Z  
OTLK...100700Z-101900Z  
AMDTS NOT AVBL 0200Z-1100Z

.  
INTERNATIONAL OPERATIONS BRANCH  
AVIATION WEATHER CENTER KANSAS CITY MISSOURI

.  
GULF OF MEXICO OFFSHORE WATERS N OF N27 W OF W85...COASTAL PLAINS  
COASTAL WATER AAF-BRO...HGTS MSL UNLESS NOTED.  
TS IMPLY POSS SEV OR GREATER TURB...SEV ICE...LOW LVL WS AND STRONG SFC  
WND...HIGH WAVES...CEILINGS BLW 010. AND VIS BLW 3 SM.

.  
01 SYNOPSIS...STNR FRONT ALONG N GULFMEX COAST...TSRA/SHRA VCY BDRY  
THRU PERIOD.

.  
02 FLIGHT PRECAUTIONS...  
TSRA...COASTAL PLAINS..COASTAL WATERS...OFFSHORE WATERS.  
IFR...COASTAL PLAINS...BRO-LEV..MSY-AAF.  
LIFR..COASTAL PLAINS...SJI-AAF.

.  
03 MARINE PRECAUTIONS...  
NONE.

.  
04 SIGNIFICANT CLD/WX...

COASTAL PLAINS...

BRO-BPT..BKN-OVC010-020. VIS 3-5SM BR. SCT SHRA/TSRA. OCNL VIS 1SM TSRA BR.

OTLK...IFR CEILING VIS SHRA TSRA BR.

BPT-LEV...OVC010-020. VIS 3-5SM BR. SCT SHRA/TSRA. OCNL VIS 1SM TSRA BR. OTLK...IFR CEILING VIS SHRA TSRA BR.

LEV-MSY...BKN015-030. WIDELY SCT SHRA/TSRA. OTLK...IFR CEILING VIS SHRA TSRA BR.

MSY-MOB...BKN015-030. SCT SHRA/TSRA. WIDELY SCT SHRA/TSRA SE PORTION. OTLK...IFR

CEILING VIS SHRA TSRA BR.

MOB-SJI...SCT-BKN030 BKN100. ISOL SHRA. OTLK...MVFR CEILING SHRA TSRA.

SJI-AAF...SCT-BKN025. WIDELY SCT TSRA/SHRA. AFT 03Z..OCNL BKN-OVC004 TOPS 015 VIS 2SM BR. OTLK...MVFR CEILING BR BECMG IFR CEILING VIS BR AFT 08Z.

.  
COASTAL WATERS...

BRO-BPT...BKN-OVC015-030. SCT SHRA/TSRA. OTLK...IFR CEILING VIS SHRA TSRA BR.

BPT-LEV...BKN015-030. SCT SHRA TSRA. OTLK...IFR CEILING SHRA TSRA.

LEV-SJI...SCT030. ISOL SHRA TSRA BECMG WIDELY SCT AFT 21Z.

OTLK...IFR CEILING VIS SHRA TSRA BR.

SJI-AAF...SCT-BKN025. WIDELY SCT TSRA/SHRA. 01Z SCT040. OTLK...MVFR VIS BR.

.  
OFFSHORE WATERS...

W OF W90...SCT-BKN020 SCT-BKN060 TOPS ABV 120. WIDELY SCT SHRA/TSRA. VIS 3-5SM TSRA BR. OTLK...MVFR CEILING VIS TSRA BR.

E OF W90...SCT020. OTLK...VFR.

.  
05 ICE AND FZ LVL BLW 120...

NO SIGNIFICANT ICE EXPECTED OUTSIDE CONVECTIVE ACT.

FZ LVL ABV 120 THROUGHOUT.

.  
06 TURB BLW 120...

NO SIGNIFICANT TURB EXPECTED OUTSIDE CONVECTIVE ACT.

.  
07 WIND BLW 120...

SFC-030...WIND SE-NW..5-21KT.

ABV 030...WIND VARIABLE 06-19KT.

09/2100Z	SFC	030	060	090	120
CRP	120/ 6	150/ 1	300/ 7	300/ 9	290/12
GLS	130/ 7	250/ 3	280/ 7	250/ 9	240/13
LFT	140/11	160/23	170/17	170/18	180/19
MOB	150/ 9	150/13	170/15	160/14	180/14
N28 W95	110/ 7	350/ 5	310/ 6	250/ 6	230/ 9

N28 W92 160/18 180/21 190/16 190/17 200/17  
 N28 W89 130/10 150/14 150/15 140/19 160/13  
 N28 W86 90/ 7 110/ 9 110/14 120/13 110/10

.  
 10/0000Z SFC 030 060 090 120  
 CRP 140/ 8 160/ 1 320/10 310/ 9 290/12  
 GLS 170/ 2 300/ 4 300/ 5 250/ 8 240/13  
 LFT 150/ 9 170/23 180/18 190/18 200/18  
 MOB 150/ 8 150/13 160/15 170/15 180/15  
 N28 W95 170/ 3 10/ 5 340/ 3 250/ 4 240/ 7  
 N28 W92 170/17 190/20 190/16 190/16 200/16  
 N28 W89 130/11 150/15 150/15 150/15 180/11  
 N28 W86 90/ 9 100/11 110/14 120/11 120/ 8

.  
 10/0300Z SFC 030 060 090 120  
 CRP 160/ 7 50/ 2 330/10 310/14 270/13  
 GLS 280/ 2 330/ 6 290/ 4 250/ 9 240/12  
 LFT 160/ 9 190/23 190/18 190/18 210/17  
 MOB 140/ 8 150/15 160/16 160/15 180/14  
 N28 W95 270/ 2 10/ 4 340/ 3 260/ 4 250/ 6  
 N28 W92 160/16 190/19 190/16 190/16 200/16  
 N28 W89 130/12 150/17 150/16 150/12 180/ 9  
 N28 W86 90/ 8 100/14 120/15 120/11 130/ 8

.  
 10/0600Z SFC 030 060 090 120  
 CRP 180/ 4 70/ 3 340/ 9 310/15 260/13  
 GLS 330/ 2 340/ 5 290/ 5 260/ 8 230/11  
 LFT 160/ 9 190/22 200/19 200/19 210/18  
 MOB 150/ 8 150/19 160/20 160/17 180/14  
 N28 W95 350/ 1 30/ 3 320/ 3 250/ 4 240/ 6  
 N28 W92 160/17 180/19 190/16 190/16 200/17  
 N28 W89 140/12 140/18 140/16 150/11 180/ 7  
 N28 W86 80/ 8 110/16 130/14 130/10 140/ 5

.  
 08 WAVES...  
 COASTAL WATERS BRO-40W LEV...3-4 FT. OTLK...NOSIG.  
 COASTAL WATERS W40 LEV-AAF...1-2 FT. OTLK...NOSIG.  
 OFFSHORE WATERS W OF W3W...3-4 FT. OTLK...NOSIG.  
 OFFSHORE WATERS E OF W93...1-2 FT. OTLK...NOSIG.

....

**(3) Caribbean**

FACA20 KKCI 091524  
 OFAMKC  
 INTERNATIONAL OPERATIONS BRANCH

AVIATION WEATHER CENTER KANSAS CITY MISSOURI  
VALID 091800-100600  
OUTLOOK...100600-101800

.  
ATLANTIC S OF N32 W OF W57...CARIBBEAN...GULF OF MEXICO AND ADJ COAST N  
OF N23...AND FLORIDA SFC TO 400 MB. TSRA IMPLY POSS SEV OR GREATER  
TURB...SEV ICE...LO LVL WS AND STRONG SFC WIND AND CEILINGS BLW 010 AND  
VIS BLW 3SM.

.  
SYNOPSIS...TD KYLE NEAR N28.5 W74.5. MAX WIND 30KT. KYLE TO MOVE TO N27.7  
W77.9

TONIGHT AND NEAR N27.7 W79.9 BY OTLK PERIOD....SEE LATEST TPC ADVISORY  
ON TD KYLE...

TROPICAL WAVES ALONG W83 S OF N22 MOV W 10-15KT AND W71 S OF N20 MOV  
W 10KT.

ISOL-WIDELY SCT TSRA ASSOCIATED WITH THE WAVES. STNR FRONT ALONG N  
GULFMEX COAST...ISOL TSRA/SHRA VCY BDRY THRU PERIOD.

.  
SIGNIFICANT CLD/WX...

SE TX AND COASTAL WATERS

BKN-OVC010-020. VIS 3-5SM BR. SCT SHRA/TSRA. TOPS ABV FL240.

OTLK...MVFR CEILING SHRA TSRA.

COASTAL WATERS...BKN015-030 BKN080. SCT SHRA TSRA. TOPS FL200.

OTLK...MVFR CEILING SHRA TSRA W OF IAH...IFR CEILING SHRA TSRA E OF IAH.

.  
S LA/MS/AL AND COASTAL WATERS

LA

SW PORTION...OVC010-020. VIS 3-5SM BR. SCT SHRA/TSRA. TOPS ABV FL240.

OTLK...IFR CEILING SHRA TSRA.

SE PORTION...BKN015-030 OVC060. WIDELY SCT SHRA TSRA. TOPS FL200.

OTLK...IFR CEILING VIS SHRA TSRA BR.

MS

BKN015-030 OVC060. SCT SHRA TSRA W PORTIONS. WIDELY SCT SHRA TSRA SE  
PORTION. TOPS ABV FL240. OTLK...IFR CEILING SHRA TSRA.

AL

S HALF...BKN020 TOPS 060. 21Z SCT-BKN030 BKN100. ISOL SHRA. TOPS 150.

OTLK...MVFR CEILING SHRA TSRA.

.  
COASTAL WATERS

SW LA...BKN015-030 BKN080. SCT SHRA TSRA. TOPS FL200. OTLK...IFR CEILING  
SHRA TSRA.

SE LA MS AL...SCT-BKN030. TOPS FL200. ISOL SHRA TSRA BECMG WIDELY SCT  
AFT

21Z. OTLK...IFR CEILING VIS SHRA TSRA BR.

.  
GULFMEX HOUSTON FIR AND GULFMEX MIAMI FIR

W OF W90...SCT-BKN020 SCT-BKN060 TOPS 140. WIDELY SCT SHRA/TSRA. N OF N25..VIS 3-5SM TSRA BR. OTLK...MVFR CEILING VIS TSRA BR. E OF W90...SCT020. OTLK...VFR.

FL AND COASTAL WATERS

PANHANDLE...SCT-BKN025 TOPS ABV FL240. WIDELY SCT TSRA/SHRA. AFT 03Z..OCNL CEILING BLW 010 VIS BLW 3SM BR. OTLK...MVFR CEILING BR BECMG IFR CEILING VIS BR AFT 08Z.

N PENINSULA...SCT-BKN025 TOPS ABV FL240. WIDELY SCT TSRA/SHRA. 01Z SCT040. OTLK...MVFR VIS BR.

CENTRAL/S PENINSULA AND KEYS...SCT030-040. ISOL SHRA S OF MIA-FMY. OTLK...VFR..ERN PORTION..MVFR VIS BR.

COASTAL WATERS

ATLANTIC...SCT040. ISOL SHRA. OTLK...VFR WIND.

GULFMEX...SKC. OCNL SCT040. ISOL SHRA/TSRA. OTLK...VFR.

ATLANTIC SW NEW YORK FIR

...SEE LATEST TPC ADVISORY ON TD KYLE...

W OF W70...SCT-BKN020 BKN060 TOPS TO FL200. WIDELY SCT SHRA/ISOL TSRA. SFC WIND VARIABLE 25-30KT. OTLK...VFR TSRA WIND.

BTN W60 AND W70...SCT030. ISOL SHRA. OTLK...VFR.

E OF W60...SCT015 BKN040-060 TOPS LYR ABV FL240. WIDELY SCT TSRA. TS IN LINES/CLUSTERS. OTLK...VFR TSRA.

ATLANTIC MIAMI FIR

N OF N24...SCT-BKN020 BKN060 TOPS TO FL200. WIDELY SCT SHRA/ISOL TSRA. SFC WIND VARIABLE 25-30KT. OTLK...VFR TSRA WIND.

S OF N24...SCT030. ISOL SHRA/TSRA. OTLK...VFR .

SAN JUAN FIR

SCT-BKN015-025. TOPS LYR ABV FL240. WIDELY SCT SHRA/TSRA.

00Z SCT020. TIL 04Z WIDELY SCT SHRA/TSRA. OTLK...VFR TSRA.

W PIARCO FIR

S OF N12...BKN-SCT020 BKN080 TOPS 160. SCT SHRA/WIDELY SCT TSRA. OTLK...MVFR CEILING SHRA.

N OF N12...SCT020. ISOL SHRA/TSRA. OTLK...VFR TSRA.

SANTO DOMINGO FIR...PORT-AU-PRINCE FIR...HABANA FIR

OVER ISLANDS...SCT025. WIDELY SCT SHRA/TSRA. OTLK...MVFR VIS BR.

OVER WATERS...SKC-SCT025. ISOL SHRA/TSRA. OTLK...VFR SHRA.

N MAIQUETIA FIR...CURACAO FIR...N BARRANQUILLA FIR...N PANAMA FIR

SCT030. ISOL TSRA N PANAMA FIR. WIND E 20KT. OTLK...VFR WIND.

KINGSTON FIR...NE CENTRAL AMERICA FIR  
SCT020. ISOL SHRA. OTLK...VFR.

.  
N MERIDA FIR  
SCT020 SCT-BKN060 TOPS TO 150. ISOL TSRA. OTLK...VFR TSRA.

.  
E MONTERREY FIR  
SCT-BKN020 SCT-BKN060 TOPS 140. WIDELY SCT SHRA/TSRA. OTLK...MVFR  
CEILING VIS TSRA BR.

.  
ICE AND FZ LVL...  
NO SIGNIFICANT ICE EXPECTED OUTSIDE CONVECTIVE ACT. FZ LVL 140-160 THRU  
TROP.

.  
TURB...  
NO SIGNIFICANT TURB EXPECTED OUTSIDE CONVECTIVE ACT.

....

**(4) Hawaii**

FAHW31 PHFO 080940  
FA0HI

HNLC FA 080940  
SYNOPSIS AND VFR CLD/WX  
SYNOPSIS VALID UNTIL 090400  
CLD/WX VALID UNTIL 082200...OUTLOOK VALID 082200-090400

.  
SEE AIRMET SIERRA FOR IFR CLD AND MT OBSC.  
TS IMPLY SEV OR GREATER TURB SEV ICE LOW LVL WS AND IFR COND.  
NON MSL HGT DENOTED BY AGL OR CEILING.

.  
SYNOPSIS...SFC HIGH FAR N NEARLY STATIONARY.

.  
ENTIRE AREA.  
SCT-BKN250. LOWER CLOUDS AND WEATHER FOLLOW.

.  
NE THRU SE MT SLOPES/COASTAL SECTIONS AND ADJ COASTAL WATERS OF BIG  
ISLAND.

SCT035 BKN050 TOPS 100 TEMPO BKN035 ISOL BKN025 -SHRA BR.  
OUTLOOK...VFR.

.  
BIG ISLAND MT SLOPES/COASTAL SECTIONS AND ADJ COASTAL WATERS FM  
SOUTH CAPE TO 15 NM NE OF PHKO.

SCT050 ISOL BKN035 TOPS 090 -SHRA. 20Z OVC-BKN050 TOPS 090 ISOL  
BKN035 -SHRA BR. OUTLOOK...VFR.

NE MT SLOPES/COASTAL SECTIONS AND ADJ COASTAL WATERS OF REMAINING ISLANDS.

SCT035 SCT-BKN050 TOPS 080 ISOL BKN025 -SHRA. 20Z SCT035 BKN050 TOPS 090 ISOL BKN035 -SHRA BR. OUTLOOK...VFR.

OTHER ISLAND SLOPES.

SCT030. 20Z SCT-BKN030 TOPS 080 ISOL -SHRA. OUTLOOK...VFR.

ELSEWHERE.

FEW-SCT035 ISOL BKN045 TOPS 070. OUTLOOK...VFR.

**(5) Alaska**

FAAK01 PANC 251345

FA8H

ANCH FA 251345

AK SRN HLF EXC SE AK...

AIRMETS VALID UNTIL 252000

TS IMPLY POSSIBLE SEV OR GREATER TURB SEV ICE LLWS AND IFR CONDS. NON MSL HEIGHTS NOTED BY AGL OR CEILING.

SYNOPSIS VALID UNTIL 260800

972 MB BRISTOL BAY LOW WL MOV N TO 50 S PAOM AT 987 MB BY END OF PD. ASSOCIATED OCCLUDED FRONT FM PALJ..KENNEDY ENTRANCE..SE WL MOV NE TO PAMH..PACV..SE BY 08Z.

COOK INLET AND SUSITNA VALLEY AB...VALID UNTIL 260200

...CLOUDS/WX...

\*\*\*AIRMET IFR/MT OBSC\*\*\*AK RANGE/W SIDE COOK INLET..OCNL CEILINGS BLW 10 VIS BLW 3SM -RA BR. NC...

OTHERWISE..AK RANGE/W SIDE INLET..SCT005 OVC020 VIS 3-5SM -RA BR.

ELSEWHERE..SCT025 BKN045 OVC080 LYR ABV TO FL250. OCNL BKN025 OVC045 -RA.

COOK INLET..SFC WND NE 20G30 KTS. THRU TERRAIN GAPS..ERN MTS/AK RANGE..SFC WND E 30G60 KTS.

OTLK VALID 260200-262000...MVFR CIG RA WND.

PASSES...LAKE CLARK..MERRILL..RAINY..IFR CIG RA WND. WINDY..MVFR CIG RA. PORTAGE..IFR CIG RA WND.

...TURB...

\*\*\*SIGMET\*\*\*KILO 1 VALID 251607/252000 PANC-

OCNL SEV TURB FCST BLW 080 WI AN AREA FM TKA-JOH-MDO-AKN-SQA-TKA. THIS IS THE AREA S OF A PAHZ-PATK LN.

\*\*\*AIRMET TURB/LLWS\*\*\*OCNL MOD TURB BLW 120. LLWS. NC...

...ICE AND FZLVL...

\*\*\*AIRMET ICE\*\*\*OCNL MOD RIME/MX ICEIC 050-160. FZLVL 050. NC...

COPPER RIVER BASIN AC...VALID UNTIL 260200

...CLOUDS/WX...

FEW045 SCT090 BKN-OVC180 TOP FL250.

SFC WND SE G 25 KTS.

WRN MTS..ISOL BKN025 OVC045 4SM -SHRA.

OTLK VALID 260200-262000...VFR.

PASS...TAHNETA..MVFR CIG.

...TURB...

NIL SIG.

...ICE AND FZLVL...

NIL SIG. FZLVL 050.

CNTRL GLF CST AD...VALID UNTIL 260200

...CLOUDS/WX...

\*\*\*AIRMET MT OBSC\*\*\*MTS OBSCD IN CLDS/PRECIPITATION. NC...

SCT020 OVC040 LYRD ABV TO FL250 -RA.

OCNL SCT005 OVC020 VIS 3-5SM -RA BR.

SFC WND E 20G35 KTS. THRU TRRN GAPS WND E-NE 25G50 KTS.

ALONG KENAI PENINSULA..ISOL CIGS BLW 10 VIS BLW 3SM RA BR.

OTLK VALID 260200-260200..MVFR CIG RA WND.

...TURB...

\*\*\*SIGMET\*\*\*KILO 1 VALID 251607/252000 PANC-

OCNL SEV TURB FCST BLW 080 WI AN AREA FM TKA-JOH-MDO-AKN-SQA-TKA.

THIS IS THE AREA E OF A JOH-PAMD LN.

\*\*\*AIRMET TURB/LLWS\*\*\*OCNL MOD TURB BLW 120. LLWS NR TRRN. NC...

...ICE AND FZLVL...

\*\*\*AIRMET ICE\*\*\*OCNL MOD RIME ICEIC 050-160. FZLVL 050. NC...

KODIAK ISLAND AE...VALID UNTIL 260200

...CLOUDS/WX...

\*\*\*AIRMET MT OBSC\*\*\*MTS OBSCD IN CLDS/PRECIPITATION. NC...

SCT020 OVC040 LYRD ABV TO FL250 -RA.

OCNL SCT005 OVC020 VIS 3-5SM -RA BR.

E SIDE..ISOL CEILINGS BLW 10 VIS BLW 3SM RA BR.

SFC WND SE G 25 KT.

OTLK VALID 260200-262000...MVFR CIG SHRA WND. AFT 06Z..VFR.

...TURB...

NIL SIG.

...ICE AND FZ LVL...

ISOL MOD RIME ICEIC 030-120. FZLVL 030.

**d. Tropical Cyclone**

FKNT24 KNHC 152044  
TCANT4  
TROPICAL CYCLONE MARCO ICAO ADVISORY NUMBER 6  
NATIONAL WEATHER SERVICE MIAMI FL  
2100Z TUE OCT 15 2002

TC ADVISORY

DTG 20021015/2100Z  
TCAC: KNHC  
TC: MARCO  
NR: 6  
POSITION: N1906 W08212  
MOV: NNE 09KT  
C: 996HPA  
MAX WIND: 050KT  
FCST PSN + 12 HR: 160600 N2024 W08054  
FCST MAX WIND + 12 HR: 060KT  
FCST PSN + 18 HR: 161200 N2124 W07948  
FCST MAX WIND + 12 HR: 075KT  
FCST PSN + 24HR: 161800 N2230 W07842  
FCST MAX WIND + 24 HR: 080KT  
NXT MSG: 20021016/0300Z

**e. Volcanic Ash Advisory**

FVAK20 PANC 192300  
VOLCANIC ASH ADVISORY  
ISSUED: 2002MAR19/2300Z VAAC: ANCHORAGE  
. .  
VOLCANO: CLEVELAND 1101-24  
LOCATION: N5250 W16957 AREA: ALEUTIAN ISLANDS ALASKA  
. .  
SUMMIT ELEVATION: 5674 FT (1730 M)  
. .  
ADVISORY NUMBER: 2002/03  
. .  
INFORMATION SOURCE: GOES-10 IMAGERY-PIREPS-AVO  
. .  
AVIATION COLOR CODE: RED  
. .  
ERUPTION DETAILS: CONTINUOUS ERUPTION 19/1500Z TO 19/2000Z  
. .  
OBS ASH DATE/TIME: 19/2230Z  
. .  
OBS ASH CLOUD: SFC/FL350 60 NM EITHER SIDE OF A LN N57 W169-N47 W158 LN  
EXTNDG N AND S AND MOV E 30KT

**NWS 10-811 DECEMBER 4, 2002**

.  
FCST ASH CLOUD + 6HR: 20/0500Z SFC/FL350 60 NM EITHER SIDE OF A LN FM N60  
W155- N45 W148

.  
FCST ASH CLOUD +12 HR: 20/1100Z SFC/FL350 N55 W148-N53 W143-N48 W143-N50  
W147-N55 W148

.  
FCST ASH CLOUD + 18HR: 20/1700Z SFC/FL350 NO ASH EXP

.  
REMARKS: SHORT SECONDARY ERUPTION 19/2215Z. THERE IS A HIGH POTENTIAL  
FOR ADDITIONAL ERUPTIONS AT ANY TIME

.  
NEXT ADVISORY: 20/0500Z

**APPENDIX A - WMO Headers****1. AWC.****a. SIGMET****CONUS and Coastal Waters**

<b>WMO</b>	<b>AWIPS</b>
WSUS1 KBOS	BOS(N-X)*
WSUS1 KMIA	MIA(N-X)*
WSUS1 KCHI	CHI(N-X)*
WSUS1 KDFW	DFW(N-X)*
WSUS1 KSLC	SLC(N-X)*
WSUS1 KSFO	SFO(N-X)*

\* Omit Sierra, Tango, and Zulu

**Convective SIGMETS**

WSUS40 KKCI	WSTE
WSUS41 KKCI	WSTC
WSUS42 KKCI	WSTW

**Atlantic, Caribbean and Gulf of Mexico FIRs**

WSNT01 KKCI	SIGA0A
WSNT02 KKCI	SIGA0B
WSNT03 KKCI	SIGA0C
WSNT04 KKCI	SIGA0D
WSNT05 KKCI	SIGA0E
WSNT06 KKCI	SIGA0F
WSNT07 KKCI	SIGA0G
WSNT08 KKCI	SIGA0H
WSNT09 KKCI	SIGA0I
WSNT10 KKCI	SIGA0J
WSNT11 KKCI	SIGA0K
WSNT12 KKCI	SIGA0L
WSNT13 KKCI	SIGA0M

**Oakland FIR**

WSPN03 KKCI	SIGP0A
-------------	--------

WSPN04 KPCI	SIGP0B
WSPN05 KPCI	SIGP0C
WSPN06 KPCI	SIGP0D
WSPN07 KPCI	SIGP0E
WSPN08 KPCI	SIGP0F
WSPN09 KPCI	SIGP0G
WSPN10 KPCI	SIGP0H

b. AIRMET

The AWC issues six sets of three AIRMETS (e.g. SIERRA, TANGO AND ZULU)

**WMO HEADER    AWIPS ID**

WAUS1 KBOS	MKCWA1
WAUS1 KMIA	MKCWA2
WAUS1 KCHI	MKCWA3
WAUS1 KDFW	MKCWA4
WAUS1 KSLC	MKCWA5
WAUS1 KSFO	MKCWA6

c. Area Forecast

**WMO HEADER    AWIPS ID**

FAUS5 KBOS	MKCFA1W
FAUS5 KMIA	MKCFA2W
FAUS5 KCHI	MKCFA3W
FAUS5 KDFW	MKCFA4W
FAUS5 KSLC	MKCFA5W
FAUS5 KSFO	MKCFA6W

2. AAWU

a. SIGMET

**WMO HEADER    AWIPS ID**

WSPN01 PANC	SIGANC
-------------	--------

b. AIRMET

The AAWU issues three sets of three AIRMETS (e.g. SIERRA, TANGO AND ZULU)

WAAK01 PAJN	ANCWA7S,T,Z
-------------	-------------

WAAK01 PANC	ANCWA8S,T,Z
WAAK01 PAFA	ANCWA9S,T,Z

c. FA

**WMO HEADER    AWIPS ID**

FAAK01 PAJN	ANCFA7H
FAAK05 PAJN	ANCFA7W
FAAK01 PANC	ANCFA8H
FAAK05 PANC	ANCFA8W
FAAK10 PANC	ANCFA8T
FAAK01 PAFA	ANCFA9H
FAAK05 PAFA	ANCFA9W

**3. WFO Honolulu**

a. SIGMET

**WMO Header    AWIPS ID**

WSPA31 PHFO	SIGPS1
WSPA32 PHFO	SIGPS2
WSPA33 PHFO	SIGPS3
WSPA34 PHFO	SIGPS4
WSPA35 PHFO	SIGPS5
WCPA31 PHFO	WSTPC1
WCPA32 PHFO	WSTPC2
WCPA33 PHFO	WSTPC3
WCPA34 PHFO	WSTPC4
WCPA35 PHFO	WSTPC5
WVPA20 PHFO	WSVPA1
WVPA21 PHFO	WSVPA2

b. AIRMET

WAHW31 PHFO	WA0HI
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Note: Parsing is for geographical areas

c. FA

FAHW31 PHFO	FA0HI
-------------	-------

**4. WFO Guam**

SIGMET

**WMO HEADER**

WSPQ31 PGUM  
WSPQ32 PGUM  
WSPQ33 PGUM  
WSPQ34 PGUM  
WSPQ35 PGUM  
WCPQ31 PGUM  
WCPQ32 PGUM  
WCPQ33 PGUM  
WCPQ34 PGUM  
WCPQ35 PGUM  
WVPQ21 PGUM  
WVPQ22 PGUM  
WVPQ23 PGUM  
WVPQ24 PGUM  
WVPQ25 PGUM

**5. SIGMET Naming Convention Across Pacific Basin**

To avoid duplication of valid SIGMET series names in the Pacific Basin the MWOs have adapted a series naming convention where each uses a different portion of the ICAO Phonetic Alphabet.

AWC: ALPHA, BRAVO, CHARLIE, DELTA, ECHO, FOXTROT, GOLF and HOTEL

AAWU: INDIA, JULIET, KILO, LIMA and MIKE

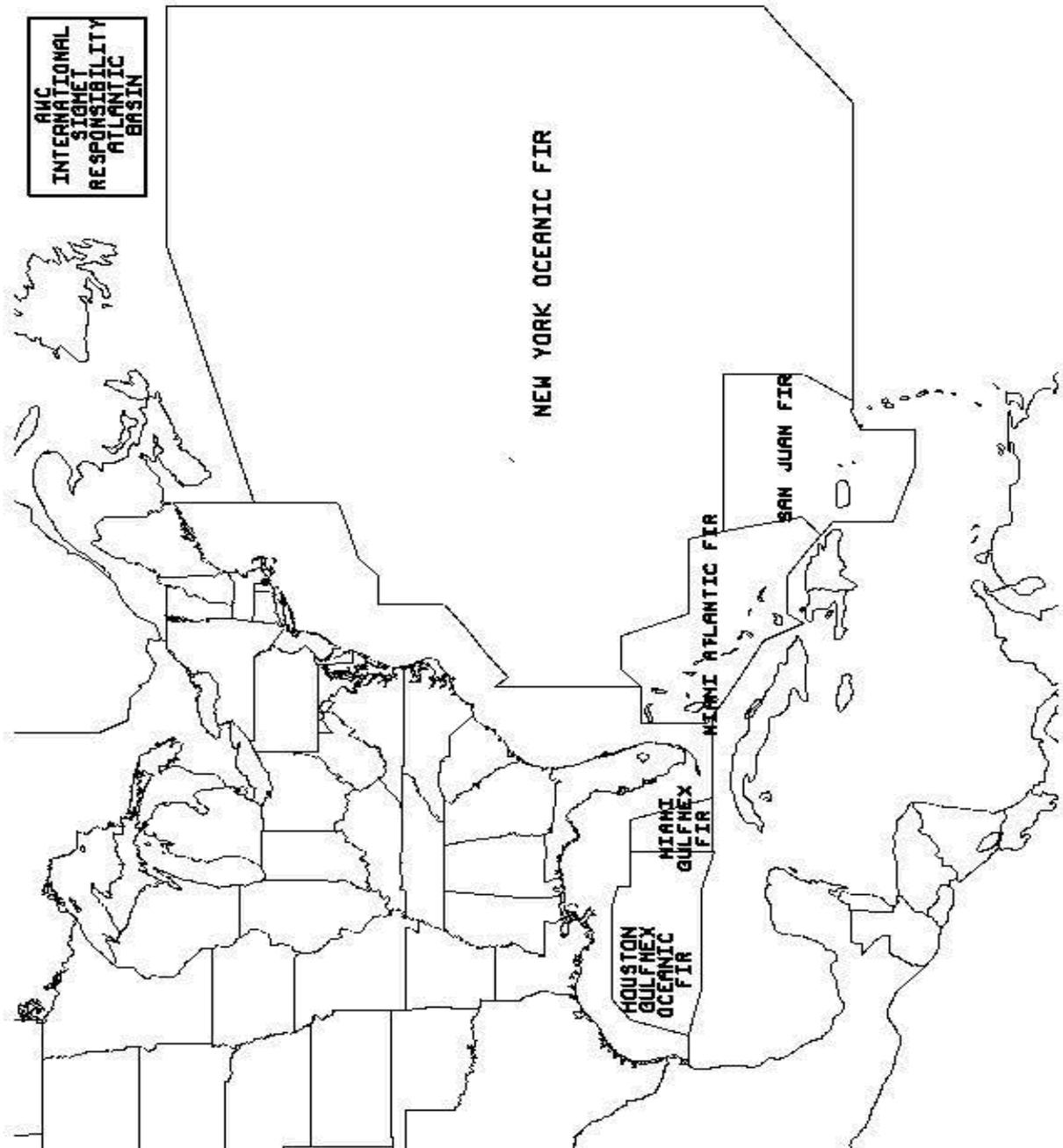
GUM; NOVEMBER, OSCAR, PAPA, QUEBEC and ROMEO

HFO: SIERRA, TANGO, UNIFORM, VICTOR, WHISKEY, XRAY, YANKEE and ZULU

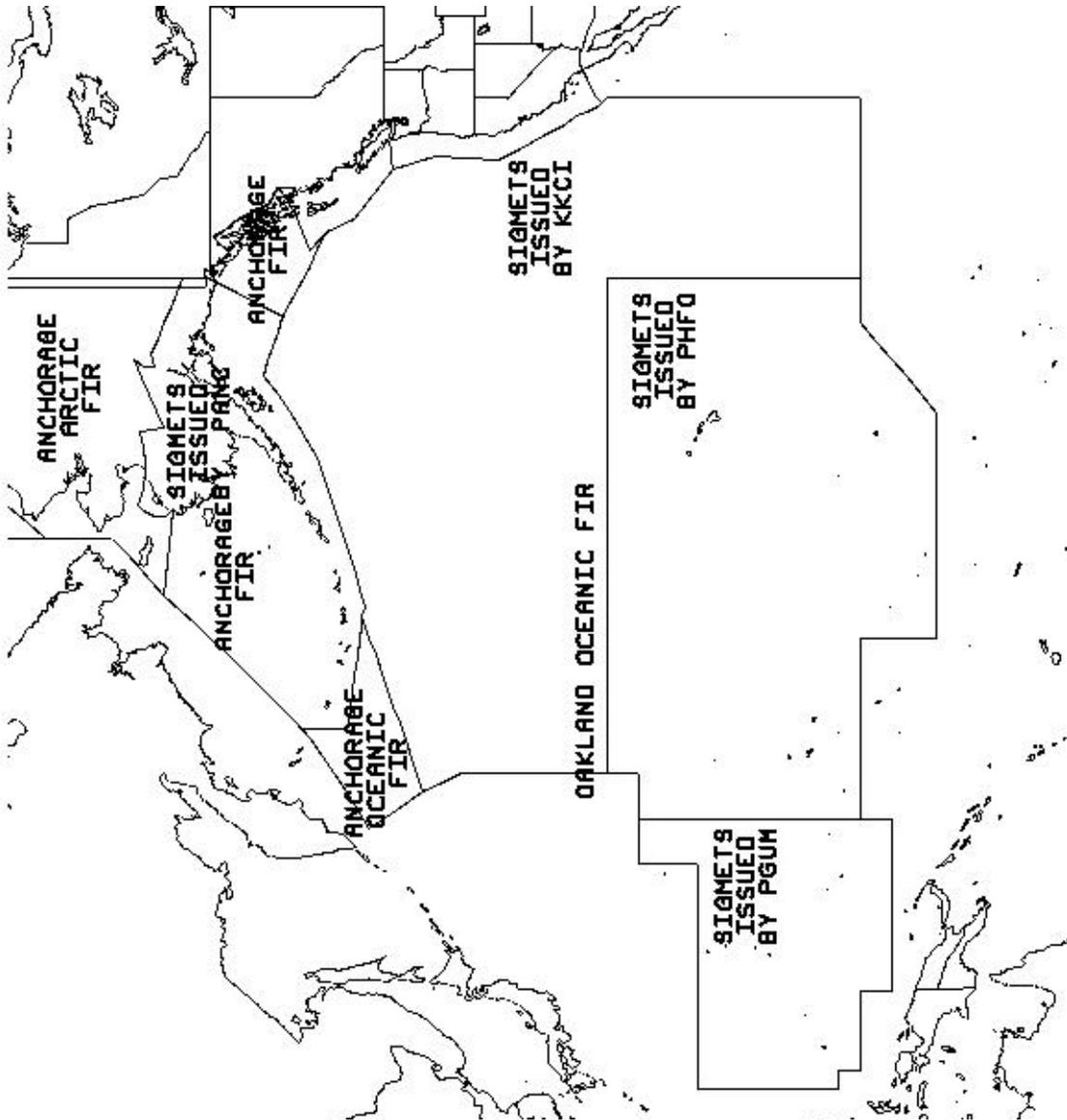
In the event one of the MWOs has more SIGMETs in effect than names assigned, they will issue the next SIGMET with a double phonetic name, e.g., ALPHA ALPHA.

**APPENDIX B - Areas of Responsibility**

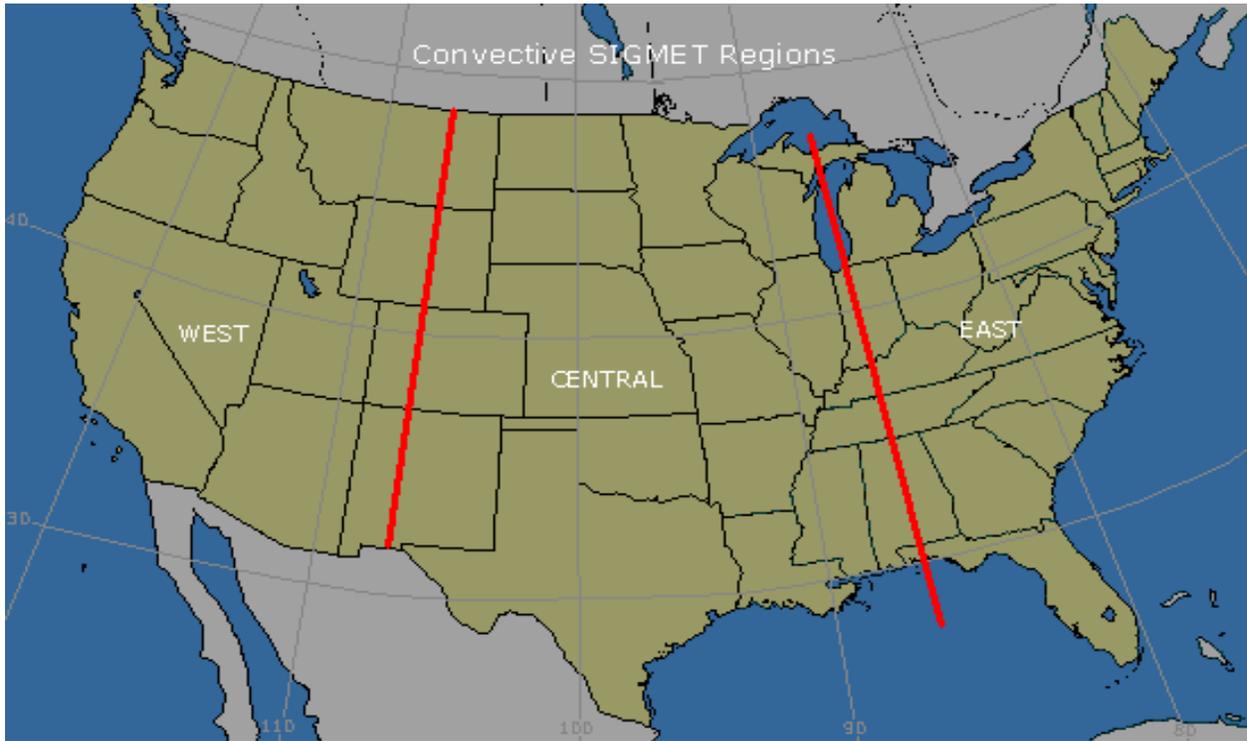
**1. AWC SIGMET Areas of Responsibility in the Atlantic Basin.**



**2. SIGMET Areas of Responsibility in the Pacific Basin**



3. AWC SIGMET areas in Conterminous U.S.



4. AWC FA Areas of Responsibility.

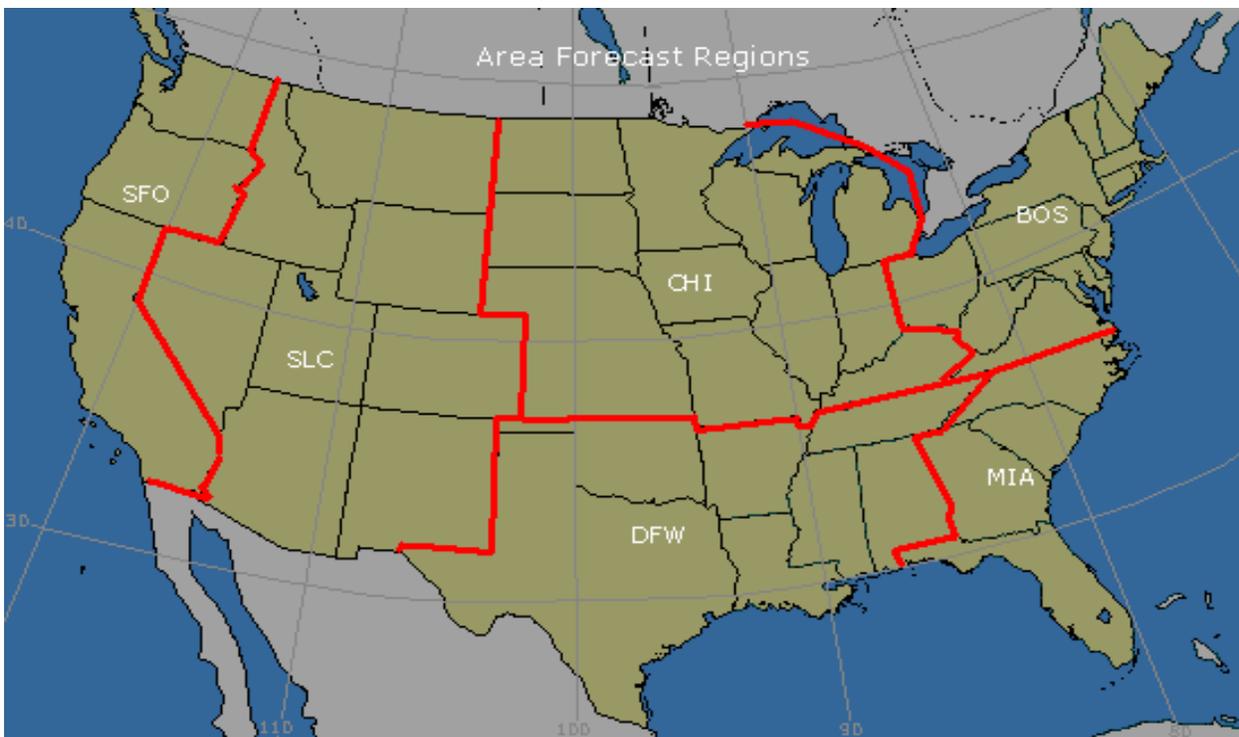
a. Gulf of Mexico FA



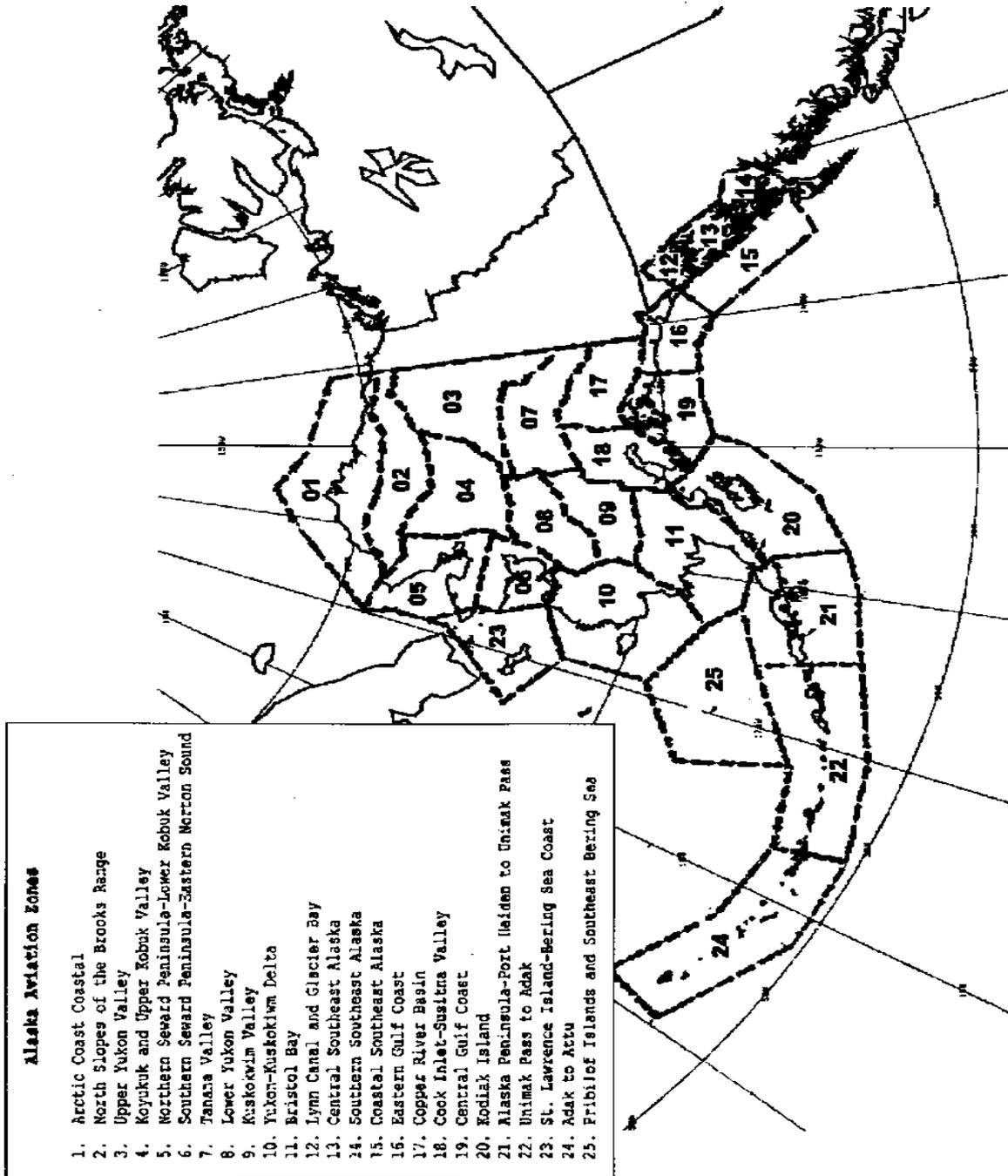
**b. Carribbean FA**



**c. CONUS FAs.**



5. AAWU Flight Advisory and FA Reference Points



6. Hawaiiin FA Areas.



## APPENDIX C - Definition of Terms

**Embedded (EMBD):** Indicates that a thunderstorm and/or CB is embedded with cloud layers and cannot be readily recognized.

**Extreme Turbulence (EXTREME TURB):** Turbulence in which aircraft is violently tossed about and is practically impossible to control. It may cause structural damage.

**Flight Information Region (FIR):** An airspace of defined dimensions within which flight information service and alerting service are provided.

**Flight Levels:** A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

**Frequent (FRQ):** Indicates an area of thunderstorms within which there is little or no separation between adjacent thunderstorms (used only with high level (FL450-FL630) SIGMETs)

**Instrument Meteorological Conditions (IMC):** Ceiling GTE 500 feet to LT 1000 feet and/or visibility GTE 1 to LT 3 miles. LIMC is a sub-category of IMC, thus, IMC conditions are ceiling LT 1000 feet and /or visibility LT 3 miles.

**Isolated (ISOL):** LT 3,000 square miles or widely separated in time.

**Line (of thunderstorms) (LINE TS):** For SIGMET is defined as being at least 60 miles long with thunderstorms affecting at least 40 percent of its length.

**Low Instrument Meteorological Conditions (LIMC):** Ceiling LT 500 feet and/or visibility LT 1 SM. LIMC is a sub-category of Instrument Meteorological Conditions

**Marginal Visual Meteorological Conditions (MVMC):** Ceiling GTE 1000 feet to LTE 3000 feet and/or visibility GTE 3 to LTE 5 miles.

**Moderate Icing (MOD ICE):** The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing/anti-icing equipment or diversion is necessary.

**Moderate Turbulence (MOD TURB):** Turbulence that causes changes in attitude (pitch, roll, yaw) and/or altitude, but the aircraft remains in positive control at all times. It usually causes variations in indicated airspeed. A Turbulence Index ranging from 6 to 14, i.e., the peak value of the Eddy Dissipation Rate is between 0.1 and 0.3, reported from an aircraft during the en-route phase of flight based on Eddy Dissipation Rate.

**Mountain Obscuration (MT OBSC):** Conditions over significant portions of mountainous geographical areas are such that pilots in flight should not expect to maintain visual

meteorological conditions or visual contact with mountains or mountain ridges near their route of flight.

**Obscured (thunderstorms):** Indicates that a thunderstorm and/or CB is obscured in haze or smoke and cannot be readily recognized.

**Occasional (OCNL):** GT 50 percent probability of occurrence but for LT ½ of the period.

**Scattered (SCT):** GTE 25% to LTE 50% of area affected.

**Severe Icing (SEV ICE):** The rate of accumulation is such that normal deicing/anti-icing equipment fails to reduce or control the hazard. Immediate diversion is necessary.

**Severe Turbulence (SEV TURB):** Turbulence that causes large, abrupt changes in altitude and/or attitude. It usually causes large variations in indicated airspeed. Aircraft may be momentarily out of control. A Turbulence Index ranging from 15 to 27, i.e., the peak value of the Eddy Dissipation Rate is exceeding 0.5, reported from an aircraft during the en-route phase of flight based on Eddy Dissipation Rate.

**Visual Meteorological Conditions (VMC):** Ceiling GT 3000 feet and visibility GT 5 miles.

**Volcanic Eruption:** For this directive, a volcano eruption has occurred when an eruption report is received from a volcano observatory. A volcanic eruption is also considered to have occurred regardless of volcano observatory notification if reported by PIREP, or ground observer, or if remote sensing data indicates that an eruption has occurred based on satellite imagery or WSR-88D radar data or any other reliable sources are identified.

**Volcanic Ash:** For the purpose of this chapter volcanic ash is any ash that can be seen by any one or more of the following: satellite imagery (visible, IR, multi channel or TOMS), PIREPs, ground observations, radar and VAFTAD (In the event volcanic ash is entrained in clouds the volcanic ash will be treated as visible using the VAFTAD as guidance).

**Widely scattered (WIDELY SCT):** LT 25% of area affected.

**Widespread (WDSPR):** GT 50% of area affected.