

6 PRODUCTS FOR AVIATION HAZARDS

6.1 Significant Meteorological Information (SIGMET)

Significant Meteorological Information (SIGMETs) provides aircraft operators and aircrews notice of potentially hazardous en route phenomena such as thunderstorms and hail, [turbulence](#), icing, sand and [dust storms](#), tropical cyclones, and volcanic ash.

- Domestic SIGMETs for the conterminous U.S. (CONUS) are available on the Aviation Digital Data Service (ADDS) web site at: <http://adds.aviationweather.noaa.gov/airmet/>
- International SIGMETs (including Alaska and Hawaii) are available on the Aviation Weather Center (AWC) website at: <http://aviationweather.gov/products/sigmets/intl/>
 - Alaska SIGMETs are also available on the Alaska Aviation Weather Unit (AAWU) web site at: <http://aawu.arh.noaa.gov/>
 - Hawaii SIGMETs are also available on the NWS WFO Honolulu web site at: <http://www.prh.noaa.gov/hnl/pages/aviation.php>

6.1.1 SIGMET Criteria (Non-Convective)

A SIGMET may be issued when any of the following conditions occur or is expected to occur in an area affecting at least 3,000 square miles or an area deemed to have a significant effect on the safety of aircraft operations.

- Thunderstorm* of the following type *except for the contiguous U.S.* (see Section 6.1.8)
 - Obscured (OBSCN TS)
 - Embedded (EMBD TS)
 - Widespread (WDSPR TS)
 - Squall line (SQL TS)
 - Isolated severe (ISOL SEV TS)
- Severe or greater [Turbulence](#) (SEV TURB)
- [Severe Icing](#) (SEV ICE)
- Widespread Duststorm (WDSPR DS)
- Widespread [Sandstorm](#) (WDSPR SS)
- Volcanic Ash (VA)
- Tropical Cyclone (TC)

NOTE: Obscured, embedded, or squall line thunderstorms, or [mountain waves](#) do not have to reach 3,000 square miles.

* Tornado (TDO), Funnel Cloud (FC), [Waterspout](#) (WTSPT), and Heavy Hail (HVVGR) may be used as a further description of the thunderstorm as necessary.

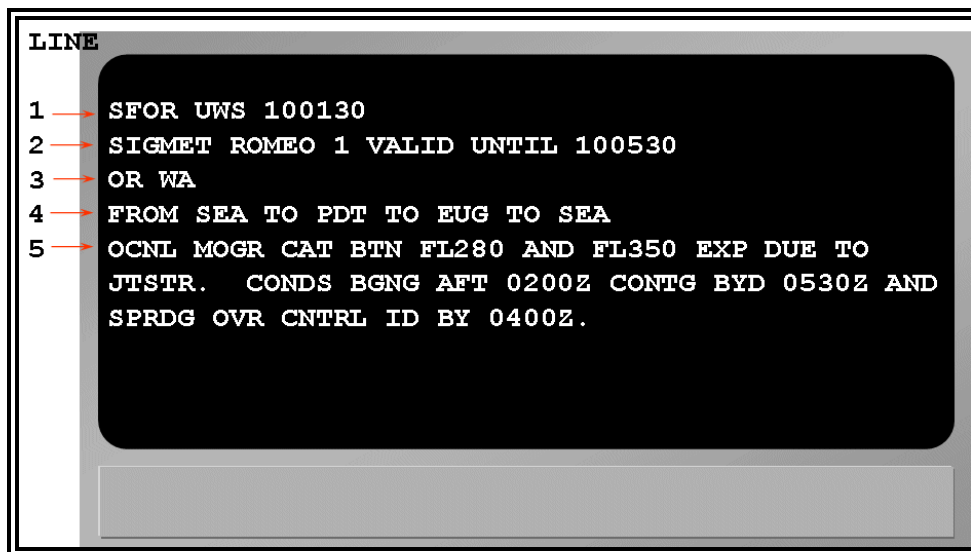
6.1.2 Standardization

SIGMETs follow these standards:

- All heights or altitudes are referenced to Mean Sea Level (MSL) and consist of three (3) digits depicting height in hundreds of feet. Flight Level (**FL**) is used for heights at or above 18,000 feet above. Examples: 100, FL190.
- References to latitude and longitude are 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. Products issued by AWC have the N, S, W, or E behind the latitude/longitude numbers. Example: N3106 W07118
- Messages are prepared using approved ICAO contractions, abbreviations and numerical values of self-explanatory nature.
- Weather and obstructions to visibility are the same as weather abbreviations used for surface observations (METAR or SPECI) (Section 2.1).
- All amended (AMD) or corrected (COR) en route forecasts or advisory products follow the same format procedures. An AMD or COR is identified as a change in the first line after the time and date, and where appropriate, a comment - the reason for the change, etc. - is added as the last line of the product.

6.1.3 SIGMET Format

The WMO SIGMET header for non-convective SIGMETs is **WS**.



```

LINE
1 → SFOR UWS 100130
2 → SIGMET ROMEO 1 VALID UNTIL 100530
3 → OR WA
4 → FROM SEA TO PDT TO EUG TO SEA
5 → OCNL MOGR CAT BTN FL280 AND FL350 EXP DUE TO
   JTSTR. CONDS BGNG AFT 0200Z CONTG BYD 0530Z AND
   SPRDG OVR CNTRL ID BY 0400Z.
    
```

Figure 6-1. SIGMET for the Conterminous U.S. Decoding Example

Table 6-1. Decoding a Domestic SIGMET for the Conterminous U.S.

Line	Content	Description
1	SFO R WS 100130	SIGMET area identifier SIGMET series letter Product type Issuance UTC date/time
2	SIGMET ROMEO 1 VALID UNTIL 100530	Product type SIGMET series name Issuance number Ending valid UTC date/time
3	OR WA	Phenomenon location (states)
4	FROM SEA TO PDT TO EUG TO SEA	Phenomenon location (VOR coordinates)
5	OCNL MOGR CAT BTN FL280 AND FL350 EXP DUE TO JTSTR. CONDS BGNG AFT 0200Z CONTG BYD 0530Z AND SPRDG OVR CNTRL ID BY 0400Z.	Phenomenon description

The SIGMET in Figure 6-1 can be decoded as the following:

(Line 1) *SIGMET ROMEO series issued for the San Francisco Area at 0130 UTC on the 10th day of the month.*

(Line 2) *This is the first issuance of the SIGMET ROMEO series and is valid until the 10th day of the month at 0530 UTC.*

(Line 3) *The affected states within the SFO area are Oregon and Washington.*

(Line 4) *From Seattle, WA; to Pendleton, OR; to Eugene, OR; to Seattle, WA;*

(Line 5) *Occasional moderate or greater clear air [turbulence](#) between Flight Level 280 and Flight Level 350, expected due to [jet stream](#). Conditions beginning after 0200Z continuing beyond 0530Z and spreading over central Idaho by 0400Z.*

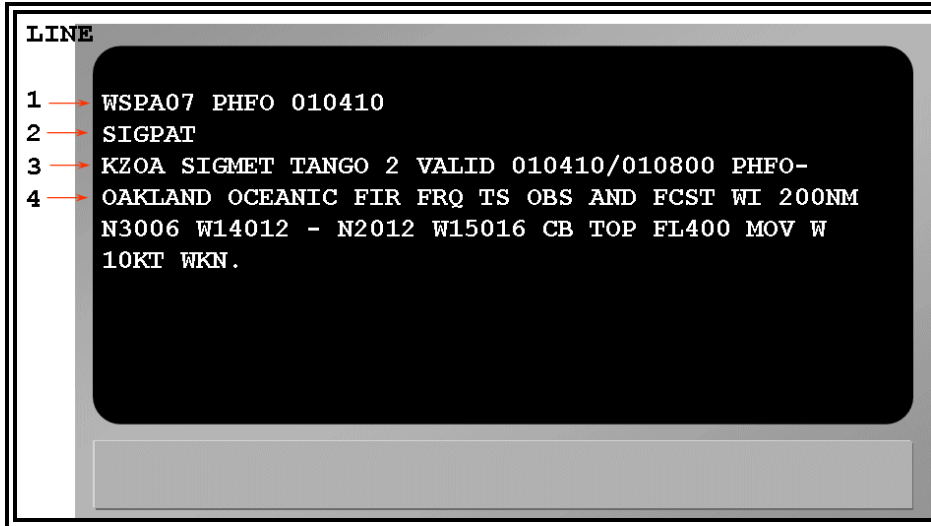


Figure 6-2. SIGMET Outside the Conterminous U.S. Decoding Example

Table 6-2. Decoding a SIGMET Outside of the Conterminous U.S.

Line	Content	Description
1	WSPA07 PHFO 010410	ICAO communication header Issuance MWO Issuance UTC date/time
2	SIGPAT	NWS AWIPS communication header
3	KZOA SIGMET TANGO 2 VALID 010410/010800 PHFO	Area Control Center Product type SIGMET series SIGMET series Issuance number Valid period UTC date/time Issuance office
4	OAKLAND OCEANIC FIR FRQ TS OBS AND FCST WI 200NM N3006 W14012 - N2012 W15016 CB TOP FL400 MOV W 10KT WKN.	Flight Information Region (FIR) Phenomenon description

The SIGMET in Figure 6-2 can be decoded as the following:

(Line 1) The WMO product header is WSPA07. Issued by the PHFO on the 1st day of the month at 0410 UTC.

(Line 2) The NWS AWIPS communication header is SIGPAT.

(Line 3) For the Oakland (KZOA) Area Control Center. This is the 2nd issuance of SIGMET Tango series, valid from the 1st day of the month at 0410 UTC until the 1st day of the month at 0800 UTC, issued by the Honolulu Meteorological Watch Office.

(Line 4) Concerning the Oakland Oceanic Flight Information Region (FIR), frequent thunderstorms observed and forecast within 200 nautical miles of 30 degrees and 6 minutes north; 140 degrees and 12 minutes west; to 20 degrees and 12 minutes north, 150 degrees and 16 minutes west, cumulonimbus tops to flight level 400 moving west at 10 knots, weakening.

6.1.3.1 SIGMET Phenomena Information

A SIGMET contains the following information related to the specific phenomena and in the order indicated:

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

6.1.4 Issuance

SIGMETs are issued from Meteorological Watch Offices (MWO). The U.S. has three MWOs: the Aviation Weather Center (AWC), the Alaska Aviation Weather Unit (AAWU), and the Weather Forecast Office (WFO) in Honolulu. Their areas of responsibility are as follows:

- The AWC:
 - Forecast areas for the conterminous U.S. (CONUS) out to the domestic Flight Information Region (FIR) boundary (Figure 6-3).
 - The New York, Houston, Miami, and San Juan Oceanic FIRs (Figure 6-4).
 - 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 (Figure 6-5).
- The AAWU is responsible for the Anchorage FIR (Figures 6-5 and 6-6).
- WFO Honolulu is responsible for the Oakland Oceanic FIR south of 30 north latitude to the equator and between 140 west and 160 east longitude (Figure 6-5).

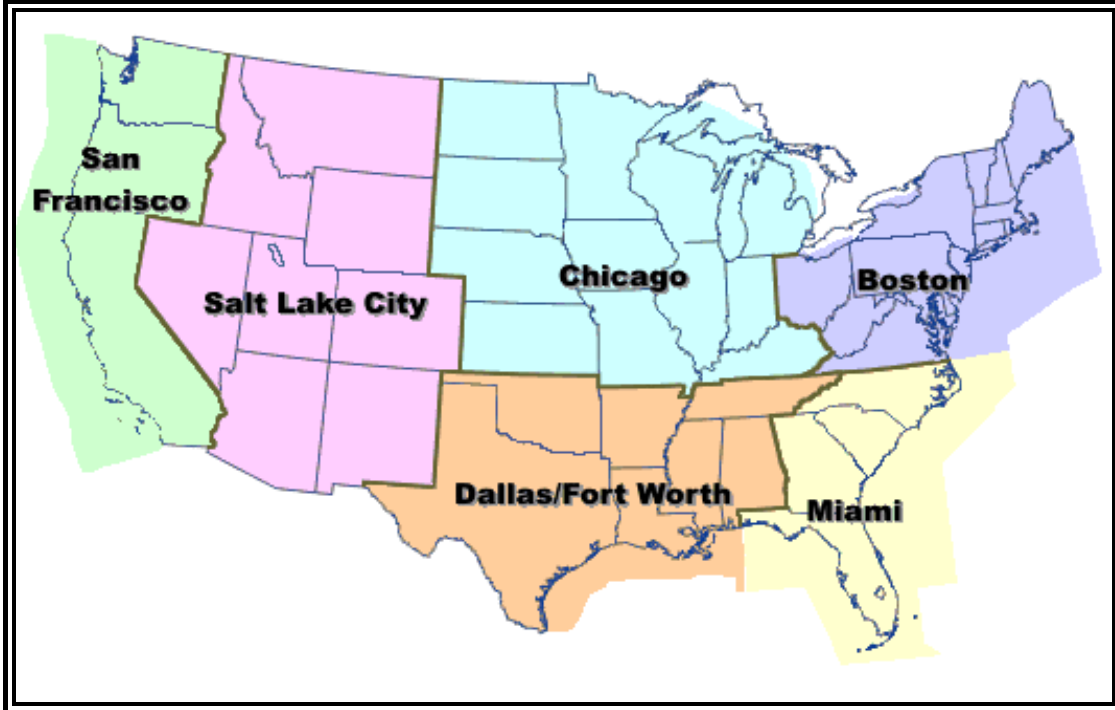


Figure 6-3. AWC SIGMET Areas of Responsibility - Conterminous U.S.

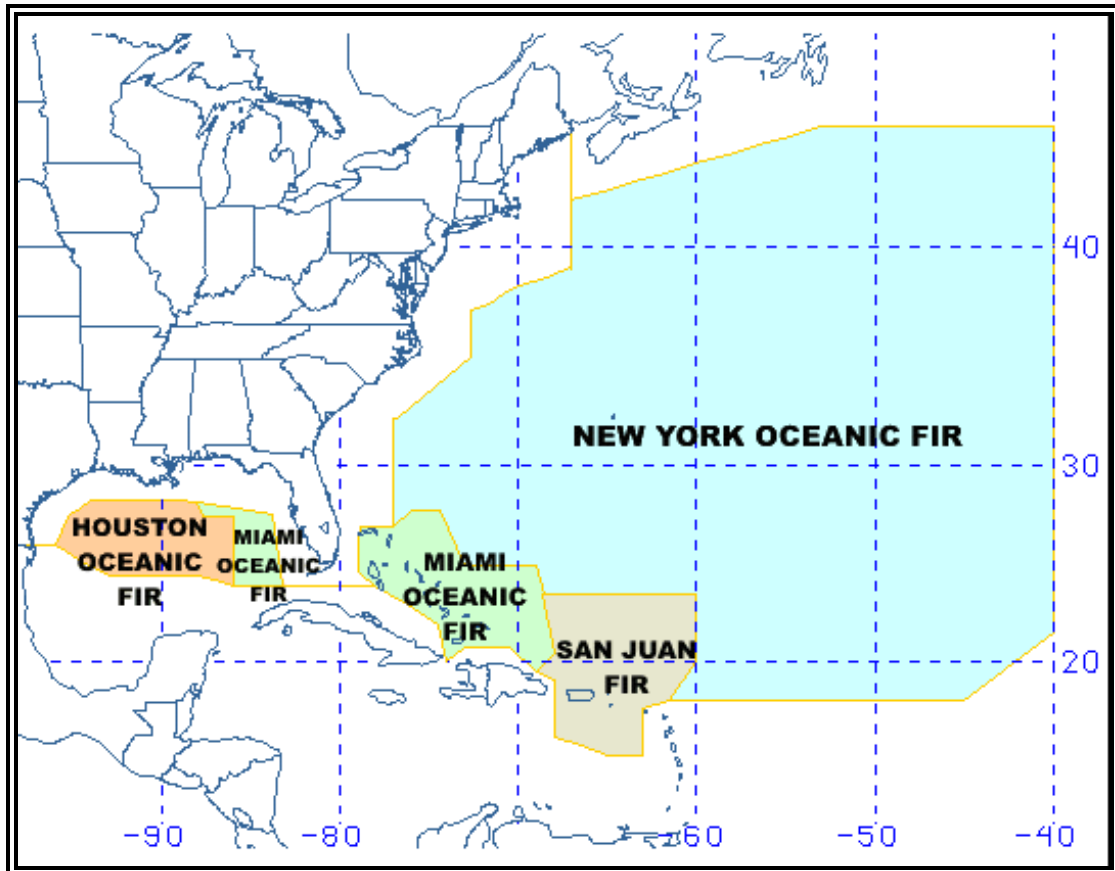


Figure 6-4. AWC SIGMET Areas of Responsibility – Atlantic Basin

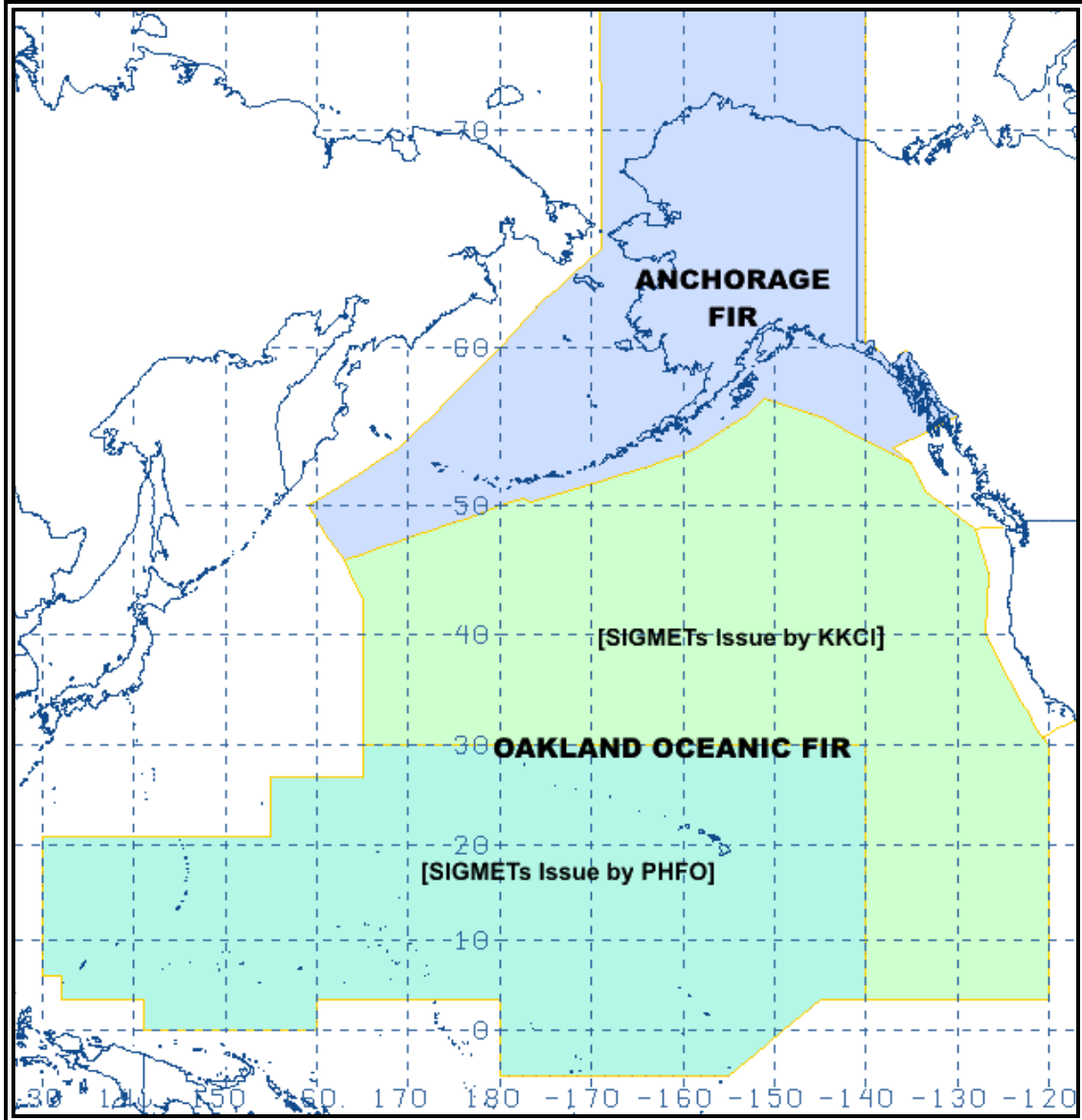


Figure 6-5. SIGMET Areas of Responsibility – Pacific Basin

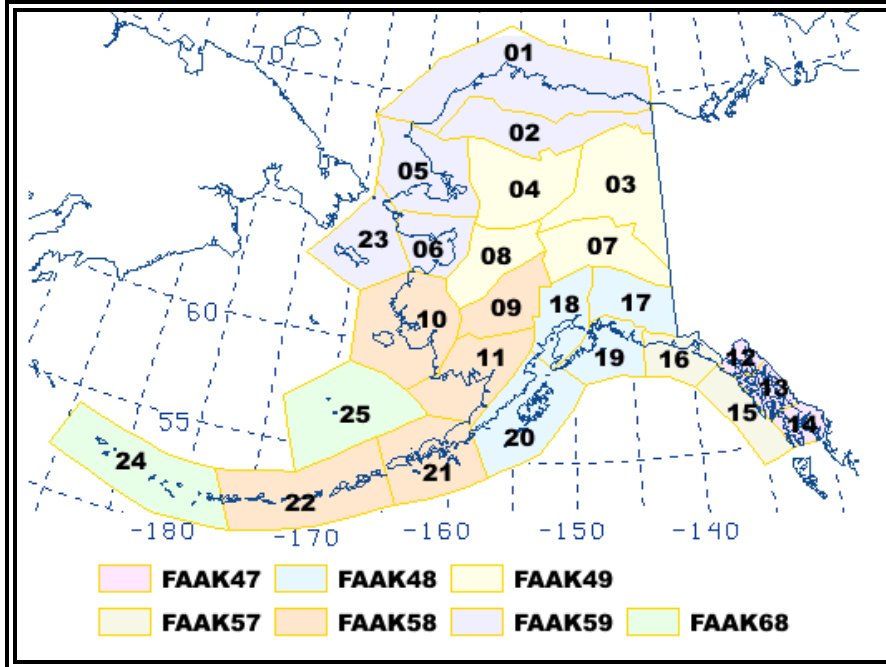


Figure 6-6. AAWU Flight Advisory and Area Forecast Zones – Alaska

Table 6-3. AAWU Flight Advisory and Area Forecast Zones – Alaska

1	Arctic Coast Coastal	14	Southern Southeast Alaska
2	North Slopes of the Brooks Range	15	Coastal Southeast Alaska
3	Upper Yukon Valley	16	Eastern Gulf Coast
4	Koyukuk and Upper Kobuk Valley	17	Copper River Basin
5	Northern Seward Peninsula-Lower Kobuk Valley	18	Cook Inlet-Susitna Valley
6	Southern Seward Peninsula-Eastern Norton Sound	19	Central Gulf Coast
7	Tanana Valley	20	Kodiak Island
8	Lower Yukon Valley	21	Alaska Peninsula-Port Heiden to Unimak Pass
9	Kuskowim Valley	22	Unimak Pass to Adak
10	Yukon-Kuskowim Delta	23	St. Lawrence Island-Bering Sea Coast
11	Bristol Bay	24	Adak to Attu
12	Lynn Canal and Glacier Bay	25	Pribilof Islands and Southeast Bering Sea
13	Central Southeast Alaska		

6.1.4.1 SIGMET Identification

When a SIGMET is issued, it is assigned a unique series identifier:

- AWC for CONUS
 - **NOVEMBER** through **YANKEE**, excluding **SIERRA** and **TANGO**
- AWC for Oakland Oceanic FIR
 - **ALFA** through **HOTEL**
- Honolulu MWO for Oakland Oceanic FIR
 - **NOVEMBER** through **ZULU**
- AAWU for Anchorage FIR
 - **INDIA** through **MIKE**

A number is assigned sequentially with each issuance until the phenomenon ends. At 0000 UTC each day, all continuing SIGMETs are renumbered to one (1) regardless of a continuation of the phenomena.

Examples: YANKEE 1, YANKEE 2, YANKEE 3, etc.

6.1.4.2 SIGMET Valid Period

SIGMETs for volcanic ash or tropical cyclones are valid up to six (6) hours with an outlook of up to twelve (12) hours beyond the valid period. They are 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 a FIR are 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.

SIGMETs for all other phenomena (other than domestic Convective SIGMETs) have a valid period not to exceed four (4) hours. These SIGMETs are issued up to four (4) hours before the initial valid time. SIGMETs for continuing phenomena are reissued at least every four (4) hours as long as SIGMET criteria are met.

6.1.4.3 SIGMET Cancellation

SIGMETs are cancelled when the phenomena is no longer occurring or expected to occur in the area.

6.1.4.4 SIGMET Amendments

Updates to SIGMETs are issued as necessary. This is done by issuing a new SIGMET in the current series, which advances the SIGMET number and replaces the previous SIGMET. The valid time of the new SIGMET is updated to reflect a new four (4) hour period.

6.1.4.5 SIGMET Corrections

Corrections to SIGMETs are issued as necessary. This is done by issuing a new SIGMET in the series, which advances the SIGMET number and cancels the previous SIGMET. The start time of the new, corrected SIGMET is updated, but the end valid time remains the same as the original SIGMET. At the end of the SIGMET, the product states "CORRECTS SIGMET {SERIES} {#}", where {SERIES} is the SIGMET designator and {#} is the series number.

6.1.5 SIGMET Examples

```
BOSR WS 050600
SIGMET ROMEO 2 VALID UNTIL 051000
ME NH VT
FROM MLT TO YSJ TO CON TO MPV TO MLT
OCNL SEV TURB BLW 080 EXP DUE TO STG NWLY FLOW. CONDS CONTG BYD
1000Z.
```

SIGMET issued for the Boston Area Forecast region on the 5th day of the month at 0600 UTC. This is the second (2nd) issuance of SIGMET series Romeo and is valid until the 5th day of the month at 1000 UTC. The affected states are Maine (ME), New Hampshire (NH) and Vermont (VT). Within an area bounded from Millinocket, Maine; to St. Johns, New Brunswick; to Concord, New Hampshire; to Montpelier, Vermont; to Millinocket, Maine. Occasional severe [turbulence](#) below 8,000 feet due to strong northwesterly flow. Conditions are expected to continue beyond 1000 UTC

KZOA SIGMET TANGO 1 VALID 010400/010800 PHFO-
OAKLAND OCEANIC FIR ACT TS OBS BY SATELLITE WITHIN 100 NM EITHER SIDE
OF LINE N3006 W14012 - N2012 W15016. CB TO TOPS FL400. MOV W 10 KT.
WKN.

SIGMET issued for the Honolulu area of the Oakland Oceanic FIR. This first (1) issuance of SIGMET Series Tango valid from the 1st day of the month at 0400 UTC to the 1st day of the month at 0800 UTC. Issued by the Honolulu Weather Forecast Office. Within the Oakland Oceanic FIR, active thunderstorms observed by satellite within 100 nautical miles either side of a line from 30 degrees, 6 minutes north to 140 degrees, 12 minutes west to 20 degrees 12 minutes north, 150 degrees, 16 minutes west. Cumulonimbus tops to 40,000 feet. The thunderstorms are moving west at 10 [knots](#) and weakening.

KZOA SIGMET DELTA 2 VALID 081530/081930 KKCI-
OAKLAND OCEANIC FIR FRQ TS WITHIN AREA BOUNDED BY N3935 W16920 - N3414
W17050 - N3010 W17325 TOPS FL470 MOV NNE 10KT NC.

SIGMET issued for the Aviation Weather Center's area of the Oakland FIR. This is the second (2) issuance of SIGMET series Delta valid from the 8th day of the month at 1530 UTC to the 8th day of the month at 1930 UTC. Within the Oakland Oceanic FIR, frequent thunderstorms within an area bounded by 39 degrees 35 minutes north, 169 degrees 20 minutes west to 34 degrees 14 minutes north, 170 degrees, 50 minutes west to 30 degrees 10 minutes north, 173 degrees 25 minutes west. Thunderstorm tops to 47,000 feet, thunderstorms are moving to the north-northeast at 10 [knots](#) with no change observed.

DFWY WS 121450 COR
SIGMET YANKEE 4 VALID UNTIL 121700
MO AR LA MS
FROM STL TO 30 N MEI TO BTR TO MLU TO STL
OCNL SVR MXD ICING 90 TO 130 EXPCD.
FRZLVL 80 E TO 120 W. CONDS CONTG BYD 1700Z
CORRECTS YANKEE 3

Corrected SIGMET issued for the Dallas/Fort Worth Area Forecast region on the 12th day of the month at 1450 UTC. This is the fourth (4) issuance of SIGMET series Yankee and is valid until the 12th day of the month at 1700 UTC. The affected states are Missouri (MO), Arkansas (AR), Louisiana (LA) and Mississippi (MS). Bounded within an area from Saint Louis, Missouri; to 30 nautical miles north of Meridian, Mississippi; to Baton Rouge, Louisiana; to Monroe, Louisiana; to Saint Louis, Missouri. Occasional severe mixed icing between 9,000 and 13,000 feet is expected. The [freezing level](#) is 8,000 feet over the eastern portion of the Area Forecast region to 12,000 feet over the western portion of the Area Forecast region. Conditions are expected to continue beyond 1700 UTC. This SIGMET corrects SIGMET YANKEE 3.

6.1.6 SIGMET for Volcanic Ash

A SIGMET for volcanic ash (VA) may be issued for all volcanic eruptions, regardless of the eruption's magnitude. Volcanic ash SIGMETs are issued until the ash cloud is no longer a threat to aviation. The forecast position information for the volcanic ash cloud is based on advisories provided by a Volcanic Ash Advisory Center (VAAC). Initial VA SIGMETs may be

issued based on credible pilot or aircraft reports in the absence of a Volcanic Ash Advisory (VAA) but are updated once a VAA is issued.

6.1.6.1 Examples of SIGMETs for Volcanic Ash

ANCI UWS 190530

PAZA SIGMET INDIA 1 VALID 190530/190930 PANC-
SATELLITE IMAGERY SHOWS DEVELOPING VA FROM ANOTHER POSSIBLE
ERUPTION OF CHIKURACHKI VOLCANO AT 0500 UTC IN THE NORTHERN KURIL
ISLANDS. HEIGHT IS ESTIMATED AT FL300 MOVEMENT IS E AT 75KTS. FURTHER
UPDATES TO FOLLOW ASAP.
FCSTR APRIL 2003 AAWU

ANCI UWS 190930

PAZA SIGMET INDIA 2 VALID 190930-191330Z PANC-
AT 0830 UTC SATELLITE IMAGERY SHOWED THE PLUME FROM THE 0500 UTC
ERUPTION OF CHIKURACHKI VOLCANO IN THE NORTHERN KURIL ISLANDS BECOMING
VERY DIFFUSE IN AN APPROXIMATELY 60 NM WIDE BAND FROM N48/E167 AND
EXTENDING SE FOR 250 NM. HEIGHT IS ESTIMATED AT FL300. MOVEMENT IS E
AT 90 KTS. THE PLUME IS MOVING SE OF ALASKA AIRSPACE INTO THE
WASHINGTON VAAC AREA OF RESPONSIBILITY. SEE WASHINGTON VAAC VOLCANIC
ASH SIGMETs AND ADVISORIES FOR FURTHER FORECASTS.
RB APRIL 2003

6.1.7 SIGMET for Tropical Cyclone

A SIGMET for a tropical cyclone may be issued for non-frontal synoptic-scale cyclones over oceanic FIRs (Figure 6-4 and 6-5) meeting the following criteria:

- Originate over tropical or sub-tropical waters with organized [convection](#) and definite cyclonic surface wind circulation; and
- Wind speeds reach 34 [knots](#) or more, independent of the wind averaging time used by the Tropical Cyclone Advisory Center (TCAC).

SIGMETs for tropical cyclones do not include references to associated [turbulence](#) and icing.

6.1.7.1 Example of a SIGMET for Tropical Cyclone

KZNY SIGMET CHARLIE 4 VALID 081500/082100 KKCI-
NEW YORK OCEANIC FIR TC KYLE OBS N3106 W07118 AT 1500Z CB TOPS FL500
WI 80NM OF CENTER MOV SSW 5KT NC FCST 2100Z TC CENTER N2930 W07130
OTLK TC CENTER 090000 N3018 W07142 091200 UTC N2918 W07224

SIGMET issued by the Aviation Weather Center (AWC) for the New York Area Control Center. This is the fourth (4th) issuance of SIGMET series Charlie valid from the 8th day of the month at 1500 UTC to the 8th day of the month at 2100 UTC. Within the New York Oceanic FIR. Tropical Cyclone Kyle was observed at 31 degrees 6 minutes north, 71 degrees 18 minutes west at 1500 UTC. Cumulonimbus tops at 50,000 feet within 80 nautical miles of the center, moving south-southwest at 5 [knots](#), with no change observed. At 2100 UTC, the tropical cyclone's center is forecast to be located at 29 degrees, 30 minutes north and 71 degrees, 30 minutes west. The

outlook on the 9th day of the month at 0000 UTC is for the tropical cyclone center to be located at 30 degrees, 18 minutes north and 71 degrees, 42 minutes west. On the 9th day of the month at 1200 UTC, the center is forecast to be at 29 degrees, 18 minutes north and 72 degrees, 24 minutes west.

6.1.8 Convective SIGMET for CONUS

Convective SIGMETs (also known as SIGMETs for Convection) are issued for the contiguous U.S. instead of SIGMETs for [convection](#). Each bulletin includes one or more Convective SIGMETs for a specific region of the CONUS (Figure 6-7). Convective SIGMETs are issued for thunderstorms and related phenomena and do not include references to all weather associated with thunderstorms such as [turbulence](#), icing, low-level wind shear and IFR conditions.

6.1.8.1 Convective SIGMET Criteria

A Convective SIGMET may be issued when any of the following occurs and/or is forecast to occur:

- Severe thunderstorms and embedded thunderstorms occurring for more than 30 minutes of the valid period regardless of the size of the area.
 - A thunderstorm is classified as severe when it is accompanied by tornadoes, hail $\frac{3}{4}$ -inch or greater, or wind gusts of 50 [knots](#) or greater
 - A thunderstorm is classified as embedded when it is obscured by [haze](#), non-convective clouds or precipitation.
- A line of thunderstorms
 - A line of thunderstorms must be at least 50 miles long with thunderstorms affecting at least 40 percent of its length.
- An area of active thunderstorms affecting at least 3,000 square miles.
 - Thunderstorms are classified as active when they are heavy (>40 dBZ) or greater and affect at least 40 percent of the area. In the absence of radar, AWC [meteorologists](#) may identify active thunderstorms using satellite or lightning information.

Obscured, embedded, or squall line thunderstorms do not have to reach 3000 square miles to be included in Convective SIGMETs.

6.1.8.2 Special Convective SIGMET

A special Convective SIGMET may be issued when either of the following criteria is occurring or expected to occur for more than 30 minutes of the valid period of the current Convective SIGMET:

- Tornado, hail greater than or equal to 3/4 inch, or wind gusts greater than or equal to 50 [knots](#) is reported or indicated when the previous Convective SIGMET did not mention severe thunderstorms; and/or
- Indications of rapidly changing conditions, if, in the forecaster's judgment, they are not sufficiently described in existing Convective SIGMETs.

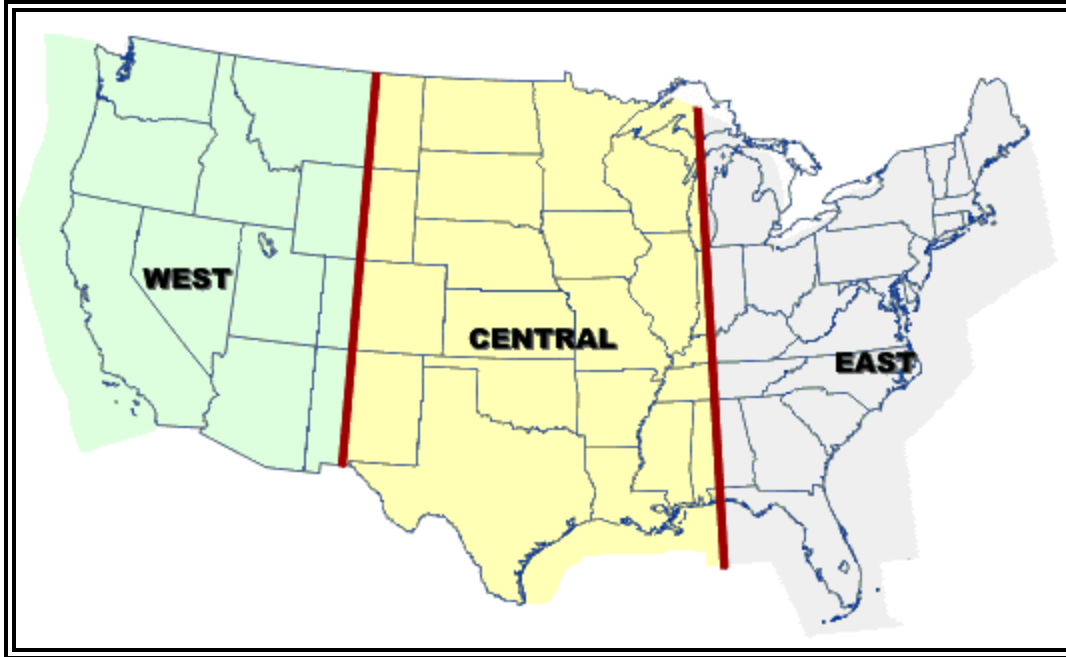


Figure 6-7. AWC Convective SIGMET Areas of Responsibility

6.1.8.3 Convective SIGMET Issuance

Three (3) Convective SIGMET bulletins describing conditions in the eastern, central and western regions of the CONUS are issued hourly at 55 minutes past the hour (Figure 6-7). Special Convective SIGMETs are issued as required. Each Convective SIGMET bulletin is made up of one or more individually numbered Convective SIGMETs for conditions within the region and are valid for up to two (2) hours or until superseded by the next hourly issuance. An outlook message is included which describes areas where Convective SIGMET issuances are expected between two (2) and six (6) hours after issuance time.

Since the Convective SIGMET bulletin is a scheduled product, a message must be transmitted each hour. If no Convective SIGMETs are expected within a region, a bulletin with **CONVECTIVE SIGMET...NONE** is transmitted.

Convective SIGMETs are not cancelled but expire as soon as the next bulletin is issued.

6.1.8.4 Format of a Convective SIGMET

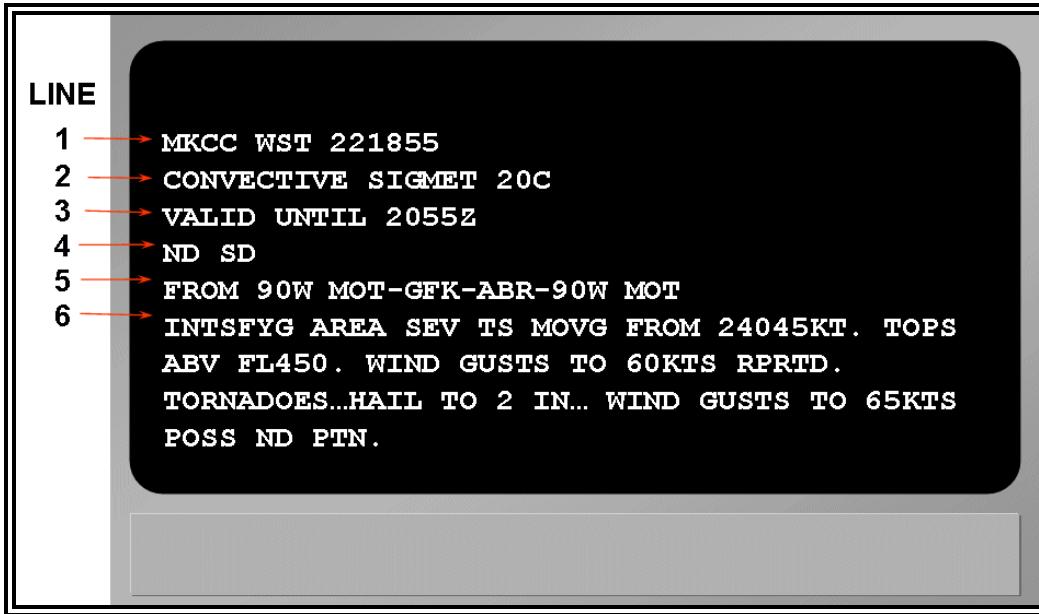


Figure 6-8. Convective SIGMET Decoding Example

Table 6-4. Decoding a Convective SIGMET

Line	Content	Description
1	MKCC C WST 221855	Issuing Office W, C, or E Contraction WST Six-digit date/time group (DDHHMM)
2	CONVECTIVE SIGMET 20 C	Product type Issuance number Location (West, Central or East)
3	VALID UNTIL 2055Z	Ending valid UTC date/time
4	ND SD	Phenomenon location (states)
5	FROM 90W MOT-GFK-ABR-90W MOT	Phenomenon location (VOR coordinates)
6	INTSFYG AREA SEV TS MOVG FROM 24045KT. TOPS ABV FL450. WIND GUSTS TO 60KTS RPRTD. TORNADOES...HAIL TO 2 IN... WIND GUSTS TO 65KTS POSS ND PTN	Phenomenon description

The Convective SIGMET in Figure 6-8 is decoded as the following:

(Line 1) *Convective SIGMET issued for the central portion of the United States on the 22nd at 1855Z.*

(Line 2) *This is the 20th Convective SIGMET issued on the 22nd for the central United States as indicated by "20C."*

(Line 3) *Valid until 2055Z*

(Line 4) *The affected states are North and South Dakota.*

(Line 5) *From 90 nautical miles west of Minot, ND; to Grand Forks, ND; to Aberdeen, SD; to 90 nautical miles west of Minot, ND.*

(Line 6) *An intensifying area of severe thunderstorms moving from 240 degrees at 45 [knots](#) (to the northeast). Thunderstorm tops above Flight Level 450. Wind gusts to 60 [knots](#) reported. Tornadoes, hail to 2 inches in diameter, and wind gusts to 65 [knots](#) possible in the North Dakota portion.*

6.1.8.5 Convective SIGMET Bulletin Example

```
CONVECTIVE SIGMET 54C
VALID UNTIL 1855Z
WI IL
FROM 30E MSN-40ESE DBQ
DMSHG LINE TS 15 NM WIDE MOV FROM 30025KT. TOPS TO FL450. WIND GUSTS
TO 50 KT POSS.
```

```
CONVECTIVE SIGMET 55C
VALID UNTIL 1855Z
TX OK NM
FROM 70SE TBE-60NW AMA-40NW TCC-30ESE CIM-70SE TBE
AREA SEV TS MOV FROM 33025KT. TOPS TO FL400.
HAIL TO 2 IN...WIND GUSTS TO 70KT POSS.
```

```
OUTLOOK VALID 251855-252255
FROM 60NW ISN-INL-TVC-GIJ-UIN-FSD-BIL-60NW ISN
WST ISSUANCES EXPD. REFER TO MOST RECENT ACUS01 KWNS FROM STORM
PREDICTION CENTER FOR SYNOPSIS AND METEOROLOGICAL DETAILS.
```

Convective SIGMET 54C is the 54th Convective SIGMET issued for the central region of the US on the 25th day of the month. Valid until 1855Z. States affected include Wisconsin and Illinois. Bounded within an area from 30 east of Madison, WI; to 40 miles east-southeast of Dubuque, Iowa. A diminishing line of thunderstorms 15 nautical miles wide moving from 300 degrees (to the southeast) at 25 [knots](#). Thunderstorms tops to FL450 (approximately 45,000 ft MSL). Wind gusts to 50 [knots](#) are possible.

Convective SIGMET 55C is the 55th Convective SIGMET issued for the central region of the US on the 25th day of the month. Valid until 1855 UTC. States affected include Texas, Oklahoma and New Mexico. Bounded within an area from 70 miles southeast of Tuba City, Arizona; to 60 miles northwest of Amarillo, Texas; to 40 northwest of Tucumcari, New Mexico; to 30 miles east-southeast of Cimarron, New Mexico; to 70 miles southeast of Tuba City, Arizona. An area of severe thunderstorms is moving from 330 degrees (to the southeast) at 25 [knots](#).

Thunderstorms tops to Flight Level 400 (approximately 40,000 feet MSL). Hail up to 2 inches in diameter and wind gust to 70 [knots](#) are possible.

The outlook portion of the Convective SIGMET bulletin is valid from the 25th day of the month at 1855 UTC to the 25th day of the month at 2255 UTC. Within an area bounded by 60 miles northwest of Williston, North Dakota; to International Falls, Minnesota; to Traverse City, Michigan; to Niles, Michigan; to Quincy, Illinois; to Sioux Falls, South Dakota; to Billings, Montana; to 60 miles northwest of Williston, North Dakota. Convective SIGMET issuances are expected for this area. Refer to the most recent Day 1 [Convective Outlook](#) (ACUS01 KWNS) from the Storm Prediction Center for a synopsis and meteorological details.

6.2 Airmen's Meteorological Information (AIRMET)

An Airmen's Meteorological Information (AIRMET) is a concise description of the occurrence or expected occurrence in time and space of specified en route weather phenomena. The intensities are lower than those of a SIGMET although 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. [Freezing level](#) information is also included.

An [AIRMET](#) provides notice of significant weather phenomena, issued as scheduled products, for icing, [turbulence](#), strong surface winds and low-level wind shear, and Instrument Flight Rules (IFR) and mountain [obscuration](#), all at intensities that DO NOT meet SIGMET criteria.

- [AIRMETs](#) are available for the conterminous U.S. (CONUS) on the Aviation Digital Data Service (ADDS) web site at: <http://adds.aviationweather.noaa.gov/airmets/>
- [AIRMETs](#) are available for Alaska on the Alaska Aviation Weather Unit (AAWU) web site at: <http://aawu.arh.noaa.gov/>
- [AIRMETs](#) are available for Hawaii on the NWS WFO Honolulu web site at: <http://www.prh.noaa.gov/hnl/pages/aviation.php>

6.2.1 AIRMET Criteria

An [AIRMET](#) may be issued when any of the following weather phenomena are occurring or expected to occur over an area of at least 3,000 square miles:

- Sustained surface wind greater than 30 [knots](#) - **STG SFC WND**
 - Cause and direction will not be given
- [Ceiling](#) less than 1,000 feet (**IFR, CIG BLW 010**) or visibility less than 3 statute miles - **IFR, VIS BLW 3 SM BR**
 - The cause of the visibility restriction is included but limited to precipitation (PCPN), smoke (FU), [haze](#) (HZ), [mist](#) (BR), fog (FG), and blowing snow (BLSN)
- Widespread mountain [obscuration](#) - **MTN OBSCN**
 - The cause of the mountain [obscuration](#) is included but limited to clouds (CLDS) precipitation (PCPN), smoke (FU), [haze](#) (HZ), [mist](#) (BR), and fog (FG)
- Moderate [turbulence](#) - **MOD TURB**;
- Moderate icing - **MOD ICE**
 - Will not reference the location of the icing with respect to either in clouds or in precipitation
 - The [freezing level](#) is defined as the lowest [freezing level](#) above ground level or the surface (SFC)
 - [Freezing levels](#) above the surface are delineated using high altitude VOR locations at intervals of 4,000 feet above MSL or the surface (SFC)
 - Areas with multiple [freezing levels](#) are delineated with high altitude VOR locations

- The range of freezing levels over the [AIRMET](#) area is included
- Non-convective LLWS potential below 2,000 ft - **LLWS POTENTIAL**
 - Will include a list of affected states and be bounded by high altitude VOR locations

6.2.2 Standardization

All in-flight advisories follow these standards:

- All heights or altitudes are referenced to Mean Sea Level (MSL) and consist of three (3) digits depicting height in hundreds of feet. Flight Level (**FL**) is used for heights at or above 18,000 feet above. Examples: 100, FL190.
- References to latitude and longitude are 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. Products issued by AWC have the N, S, W, or E behind the latitude/longitude numbers.
- Messages are prepared using approved ICAO contractions, abbreviations and numerical values of self-explanatory nature.
- Weather and obstructions to visibility will be limited to clouds, (CLDS), precipitation (PCPN), smoke (FU), [haze](#) (HZ), [mist](#) (BR), fog, (FG), and blowing snow (BLSN).
- All amended (AMD) or corrected (COR) en route forecasts or advisory products follow the same format procedures. An AMD or COR is identified as a change in the first line after the time and date (Figure 6-9).

6.2.3 AIRMET Format

LINE	
1	BOSS WA 211945
2	AIRMET SIERRA UPDT 3 FOR IFR AND MTN OBSCN VALID UNTIL 220200
	.
3	AIRMET IFR..ME NH VT MA CT RI NY NJ AND CSTL WTRS
4	FROM CAR TO YSJ TO 150E ACK TO EWR TO YOW TO CAR
5	CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONT BYD 02Z THRU 08Z.
	.
3	AIRMET MTN OBSCN..ME NH VT MA NY PA
4	FROM CAR TO MLT TO CON TO AVP TO SYR TO CAR
5	MTNS OBSCD BY CLDS/PCPN/BR. CONDS CONT BYD 02Z THRU 08Z.

Figure 6-9. AIRMET Bulletin Decoding Example

Table 6-5. Decoding an AIRMET Bulletin

Line	Content	Description
1	BOS S WA 211945	AIRMET area identifier AIRMET series Product type Issuance UTC date/time
2	AIRMET SIERRA UPDT 3 FOR IFR AND MTN OBSCN VALID UNTIL 220200	Product type AIRMET series Update number Product description Ending UTC date/time
3	AIRMET IFR..ME NH VT MA CT RI NY NJ AND CSTL WTRS AIRMET MTN OBSCN..ME NH VT MA NY PA	Product type/series... Phenomenon location (states)
4	FROM CAR TO YSJ TO 150E ACK TO EWR TO YOW TO CAR FROM CAR TO MLT TO CON TO AVP TO SYR TO CAR	Phenomenon location (VOR locations)
5	CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONT BYD 02Z THRU 08Z. MTNS OBSCD BY CLDS/PCPN/BR. CONDS CONT BYD 02Z THRU 08Z.	Phenomenon description

The [AIRMET](#) bulletin in Figure 6-9 is decoded as follows:

(Line 1) [AIRMET](#) SIERRA issued for the Boston area at 1945Z on the 21st day of the month. "SIERRA" contains information on Instrument Flight Rules (IFR) and/or mountain [obscuration](#).

(Line 2) This is the third updated issuance of this Boston [AIRMET](#) series as indicated by "SIERRA UPDT 3" and is valid until 0200Z on the 22nd.

(Line 3) The affected states within the BOS area are: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and coastal waters.

(Line 4) From Caribou, ME; to Saint Johns, New Brunswick; to 150 nautical miles east of Nantucket, MA; to Newark, NJ; to Ottawa, Ontario; to Caribou, ME

(Line 5) [Ceiling](#) below 1,000 feet/visibility below 3 statute miles, precipitation/[mist](#). Conditions continuing beyond 0200Z through 0800Z.

6.2.3.1 AIRMET Series

The [AIRMET](#) series consists of Sierra, Tango, and Zulu.

- [AIRMET](#) Sierra describes IFR conditions and/or extensive mountain [obscurations](#).
- [AIRMET](#) Tango describes moderate [turbulence](#), sustained surface winds of 30 [knots](#) or greater, and non-convective low-level wind shear.

- [AIRMET](#) Zulu describes moderate icing and provides [freezing level](#) heights.

6.2.3.2 AIRMET Bulletins

[AIRMETs](#) are issued in [AIRMET](#) bulletins, each containing one or more [AIRMET](#) messages. The bulletins are issued on a scheduled basis every 6 hours and, except in Alaska, at 0300, 0900, 1500 and 2100 UTC. In Alaska, [AIRMET](#) bulletins are issued every six hours at the same time as the Area Forecast (Section 6.1). An [AIRMET](#) bulletin may be issued for each forecast area (Figures 6-10, 6-11, and 6-12).

6.2.3.3 SIGMET Information in AIRMET Bulletin

A reference to the appropriate SIGMET series is included in [AIRMET](#) bulletins which cover the affected area and for similar phenomena; for example, **SEE SIGMET BRAVO SERIES**.

6.2.3.4 AIRMET Phenomena Information

An [AIRMET](#) message contains the following information as necessary and in the order indicated relating to the phenomena that caused the [AIRMET](#) to be issued:

- Location (using locations or geographic features well known nationally if possible)
- Phenomena and its description from Section 6.2.1.1; e.g., **MOD TURB**
- If appropriate, level (altitude), or vertical extent
- Expected beginning and ending time of phenomena, if different from the [AIRMET](#) bulletin's valid time
- Remarks

6.2.3.5 AIRMET Remarks

A remark is included at the end of each [AIRMET](#) regarding whether the condition is expected to continue after the valid time of the [AIRMET](#).

6.2.3.6 AIRMET Outlook (Except Alaska)

If [AIRMET](#) conditions are expected to develop during the 6-hour period after the ending valid time of the [AIRMET](#) bulletin, the information is included in an outlook section.

6.2.3.7 AIRMET Outlook (Alaska Only)

If [AIRMET](#) conditions are expected to develop during the 6-hour period after the ending valid time of the [AIRMET](#) bulletin, the information is included in the appropriate Area Forecast zone.

6.2.4 AIRMET Issuance

[AIRMETs](#) are issued from the three Meteorological Watch Offices (MWO) located at the: the Aviation Weather Center (AWC), the Alaska Aviation Weather Unit (AAWU), and the Weather Forecast Office (WFO) in Honolulu. Their areas of responsibility are:

- AWC: The conterminous U.S. and adjacent coastal waters (CONUS) (Figure 6-10).
- AAWU: Alaska and adjacent coastal waters (Figure 6-11).
- WFO Honolulu: Hawaii and adjacent waters (Figure 6-12).

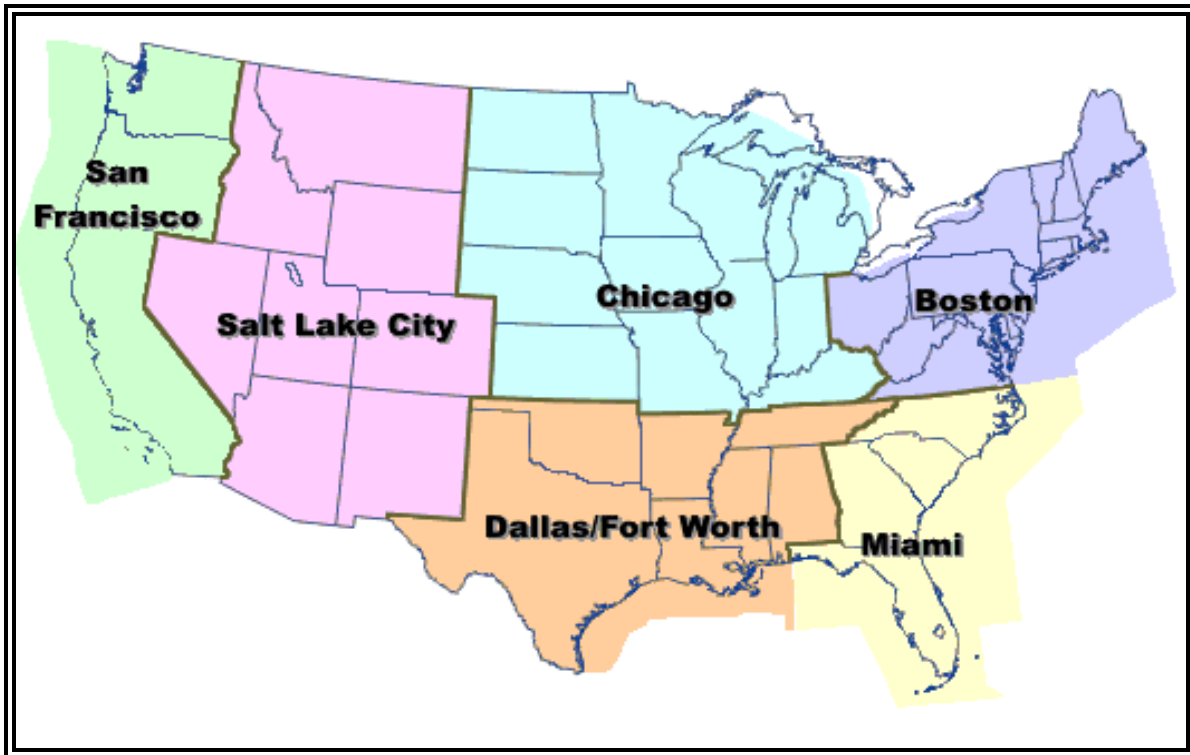


Figure 6-10 AWC AIRMET Areas of Responsibility – Conterminous U.S.

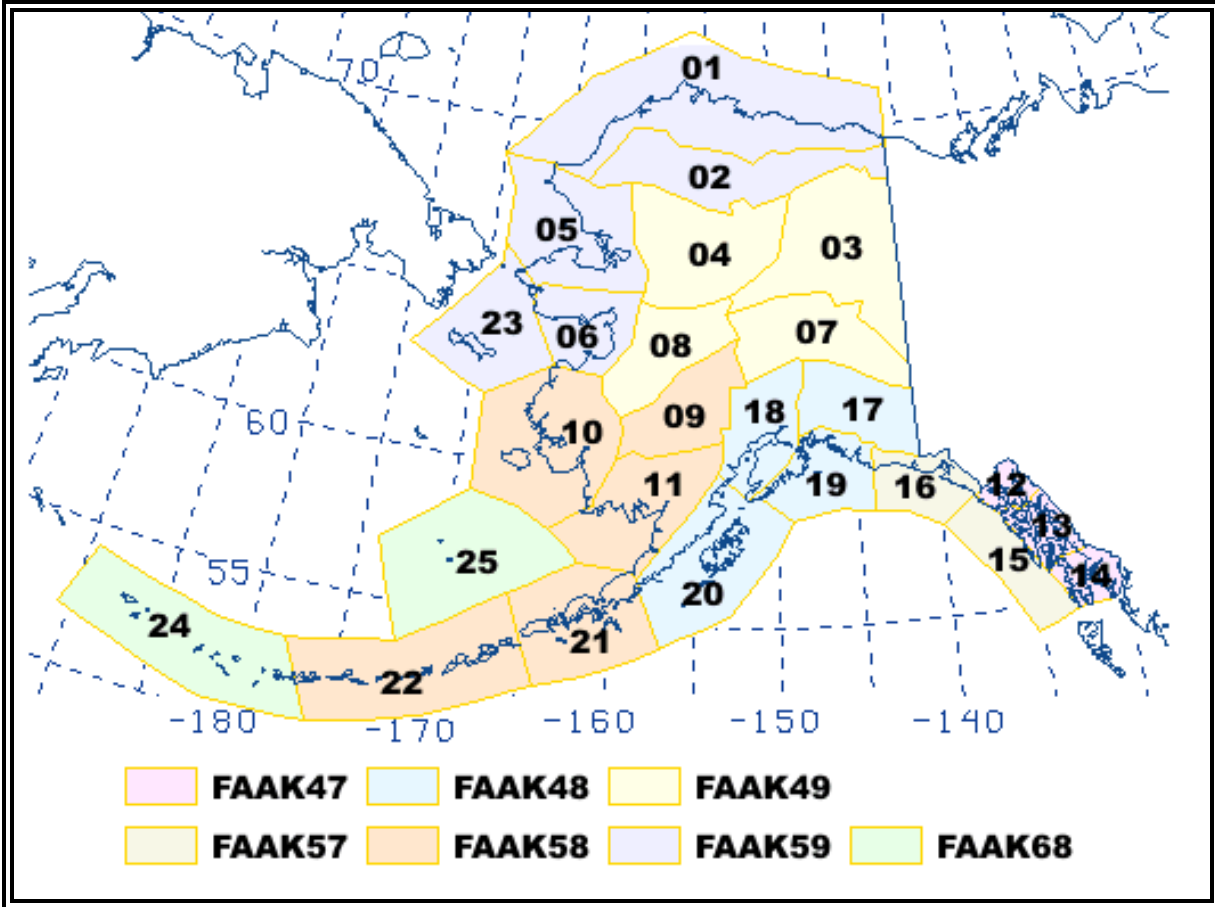


Figure 6-11. AAWU Flight Advisory and Area Forecast Zones - Alaska

Table 6-6. AAWU Flight Advisory and Area Forecast Zones – Alaska

1	Arctic Coast Coastal	14	Southern Southeast Alaska
2	North Slopes of the Brooks Range	15	Coastal Southeast Alaska
3	Upper Yukon Valley	16	Eastern Gulf Coast
4	Koyukuk and Upper Kobuk Valley	17	Copper River Basin
5	Northern Seward Peninsula-Lower Kobuk Valley	18	Cook Inlet-Susitna Valley
6	Southern Seward Peninsula-Eastern Norton Sound	19	Central Gulf Coast
7	Tanana Valley	20	Kodiak Island
8	Lower Yukon Valley	21	Alaska Peninsula-Port Heiden to Unimak Pass
9	Kuskowim Valley	22	Unimak Pass to Adak
10	Yukon-Kuskowim Delta	23	St. Lawrence Island-Bering Sea Coast
11	Bristol Bay	24	Adak to Attu
12	Lynn Canal and Glacier Bay	25	Pribilof Islands and Southeast Bering Sea
13	Central Southeast Alaska		

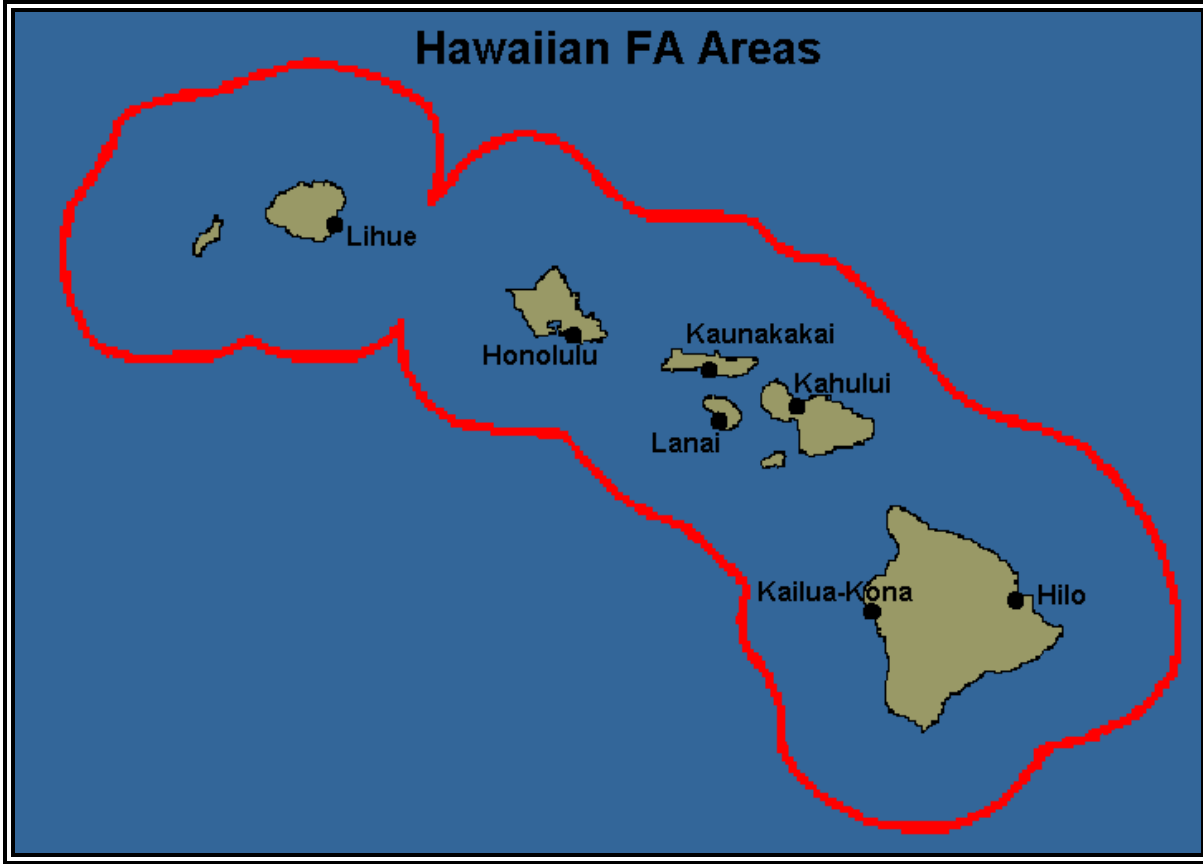


Figure 6-12. WFO Honolulu AIRMET Areas of Responsibility - Hawaii

6.2.4.1 AIRMET Valid Time

[AIRMET](#)s are issued for conditions occurring or expected to develop within the six-hour (6) valid time of the [AIRMET](#) Bulletin. An [AIRMET](#)'s valid period is the same as the [AIRMET](#) bulletin's valid time unless otherwise noted.

6.2.4.2 AIRMET Updates and Amendments

Unscheduled updates to [AIRMET](#) bulletins are issued as necessary. If an [AIRMET](#) is amended, **AMD** is added after the date/time group on the FAA product line (Figure 6-9, Line1). **UPDT** is added to the end of the line containing the list of affected states. This issue time of the [AIRMET](#) bulletin is updated to reflect the time beginning valid time with the ending valid time remaining unchanged.

6.2.4.3 AIRMET Corrections

[AIRMET](#)s containing errors are corrected by adding **COR** after the date/time group on the FAA product line (Figure 6-9, Line 1). The issuance time is updated with the ending valid time unchanged. **UPDT** is added to the third line after the list of affected states.

6.2.4.3.1 Example of a Corrected/Amended AIRMET

```
SLCZ WA 222000 COR/AMD
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
MOD ICE BTW 080 AND FL200. FZ LVLS SFC-080 OVR MOST OF AREA RSG TO
080-100 OVR SWRN PORTIONS AREA. CONDS CONTG BYD 02Z THRU 08Z.

.
FRZLVL...RANGING FROM SFC-130
040...GEG-DBS-OCS-CYS
080...FMG-DTA-DBL-AKO
120...LAS-ABQ-TCC

6.2.5 AIRMET Examples

CHIS WA 171345
AIRMET SIERRA UPDT 3 FOR IFR AND MTN OBSCN VALID UNTIL 172000

.
AIRMET IFR...NE KS
FROM 60NE BFF TO ANW TO 40NE OBH TO OSW TO 40N GAG TO 40N GLD TO 60NE
BFF
CIG BLW 010/VIS BLW 3SM PCPN BR. CONDS ENDG 18Z.

.
AIRMET IFR...MO IL IN KY
FROM CVG TO HNN TO HMV TO BWG TO RZC TO SGF TO 60S DEC TO CVG
CIG BLW 010/VIS BLW 3SM BR. CONTG BYD 20Z ENDG 23Z.

[AIRMET](#) Sierra bulletin for the Chicago Area Forecast region issued on the 17th day of the month at 1345 UTC and contains two [AIRMETS](#). This is the 3rd [AIRMET](#) Sierra bulletin update issued for IFR and Mountain [Obscurations](#) and is valid until the 17th day of the month at 2000 UTC.

The first [AIRMET](#) is for IFR conditions affecting Nebraska and Kansas. Bounded within an area from 60 nautical miles (NM) northeast of Scottsbluff, Nebraska; to Ainsworth, Nebraska; to 40 NM northeast of Wolbach, Nebraska; to Oswego, Kansas; to 40 NM miles north of Gage, Oklahoma; to 60 NM miles northeast of Scottsbluff, Nebraska. [Ceilings](#) below 1,000 feet and visibilities less than 3 statute miles (SM) with precipitation and [mist](#). Conditions are forecast to end by 1800 UTC.

The second [AIRMET](#) is for IFR conditions affecting Missouri, Illinois, Indiana and Kentucky. Bounded within an area from Covington, Kentucky; to Henderson, West Virginia; to Holston Mountain, Tennessee; to Bowling Green, Kentucky; to Razorback, Arkansas; to Springfield, Missouri; to 60 NM miles south of Decatur, Illinois; to Covington, Kentucky. [Ceilings](#) below 1,000 feet and visibilities less than 3 SM due to [mist](#). Conditions are forecast to continue beyond 2000 UTC and end by 2300 UTC.

HNLS WA 080945
AIRMET SIERRA UPDATE 1 FOR IFR VALID UNTIL 081600.

.
NO SGFNT IFR EXP.

[AIRMET](#) Sierra bulletin for the Hawaii forecast region issued on the 8th day of the month at 0945 UTC. This is the 1st [AIRMET](#) Sierra bulletin update issued for IFR and Mountain [Obscurations](#) and is valid until the 8th day of the month at 1600 UTC.

No conditions meeting IFR criteria are expected.

HNLT WA 080945
AIRMET TANGO UPDT 1 FOR TURB VALID UNTIL 081600

.
AIRMET TURB...HI
OVR AND IMT S THRU W OF MT OF ALL ISLANDS.
MOD TURB BLW 060. COND CONT BYD 1600Z THRU 22Z.

[AIRMET](#) Tango bulletin for the Hawaii Area Forecast region issued on the 8th day of the month at 0945 UTC. This is the 1st [AIRMET](#) Tango bulletin update issued for [turbulence](#) and is valid until the 8th day of the month at 1600 UTC.

[AIRMET](#) for [turbulence](#) for Hawaii. Over and immediately south through west of the mountains for all islands. Moderate [turbulence](#) is expected below 6,000 feet above MSL. Conditions are expected to continue beyond 1600 UTC through 2200 UTC.

SFOZ WA 171345
AIRMET ZULU UPDT 2 FOR ICE AND FRZLVL VALID UNTIL 172000

.
AIRMET ICE...WA OR ID MT
FROM 60SSW YXH TO 70ESE MLP TO PDT TO PDX TO SWA TO BLI TO 60SSW YXH
MOD ICE BTN 120 AND FL200. CONDS CONTG BYD 20Z THRU 02Z.

.
FRZLVL...RANGING FROM 090-160
120...ONP-LKV-REO
160...SNS-40SW BTY

[AIRMET](#) Zulu bulletin for the San Francisco Area Forecast area issued on the 17th day of the month at 1345 UTC. This is the 2nd [AIRMET](#) Zulu bulletin update issued for icing and [freezing levels](#) and is valid until the 17th day of the month at 2000 UTC.

[AIRMET](#) for icing for Washington, Oregon, Idaho, and Montana. Bounded within an area from 60 miles south-southwest of Medicine Hat, Alberta; to 70 NM miles east-southeast of Mullan Pass, Idaho; to Pendleton, Oregon; to Portland, Oregon; to Seattle, Washington; to Billings, Montana; to 60 NM miles south-southwest of Medicine Hat, Alberta. Moderate icing between 12,000 and 20,000 feet above MSL. Conditions continuing beyond 2000 UTC through 0200 UTC.

[Freezing levels](#) over the area ranging between 9,000 and 16,000 feet above MSL, [Freezing level](#) at 12,000 feet above MSL along a line from the Newport, Oregon VOR to the Lake County, Oregon VOR to the Rome, Oregon VOR. [Freezing level](#) at 16,000 feet above MSL along a line from the Salinas, California VOR to 40 NM southwest of the Beatty, Nevada VOR.

6.3 Center Weather Advisory (CWA)

A [Center Weather Advisory \(CWA\)](#) is an aviation weather warning for conditions meeting or approaching national in-flight advisory ([AIRMET](#), SIGMET or SIGMET for [convection](#)) criteria. The CWA is primarily used by aircrews to anticipate and avoid adverse weather conditions in the en route and terminal environments. CWAs are available on the Aviation Weather Center (AWC) web site at: <http://aviationweather.gov/products/cwsu/>.

6.3.1 CWA Issuance

CWAs are issued by the NWS Center Weather Service Units (CWSUs). CWSU areas of responsibility in the contiguous U.S. are depicted on Figure 6-13. CWSU Anchorage area of responsibility for Alaska is depicted on Figure 6-14.

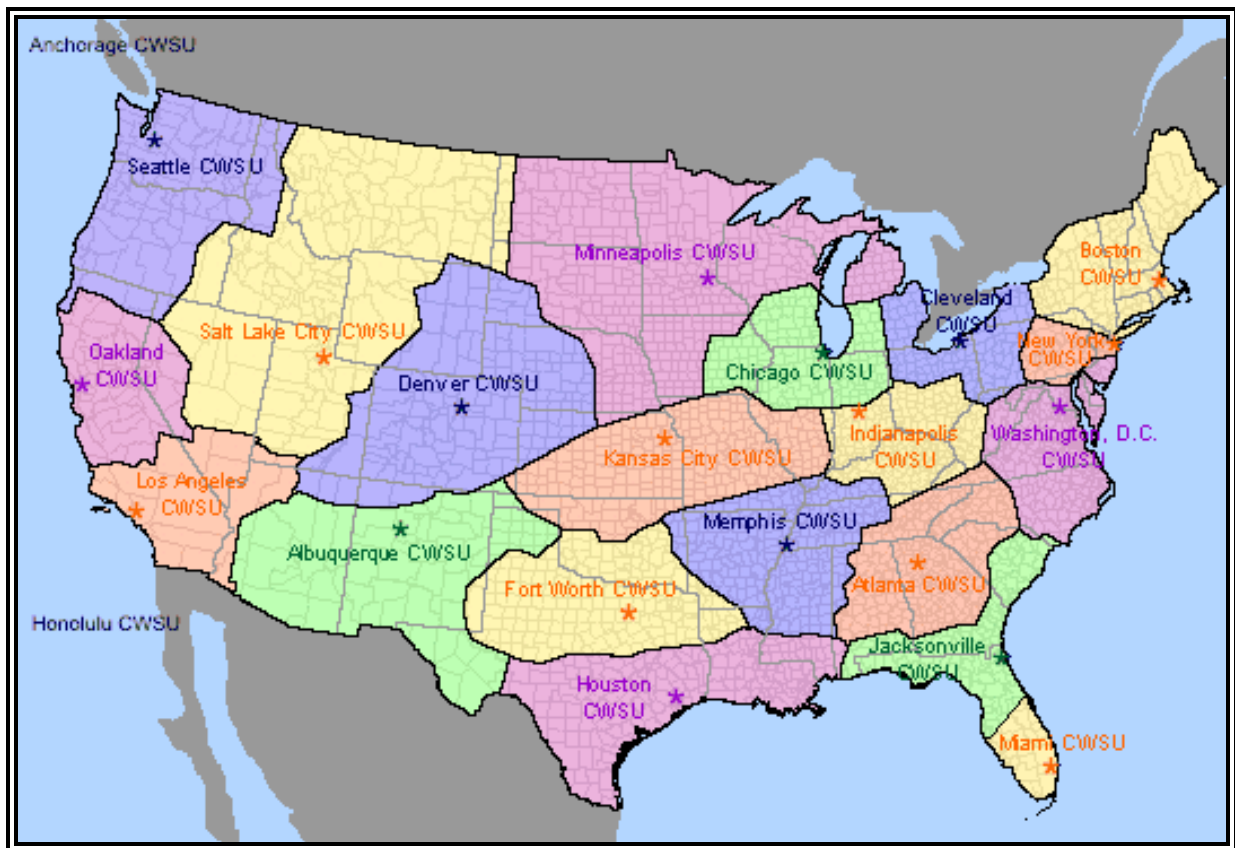


Figure 6-13. Center Weather Service Unit (CWSU) Areas of Responsibility, Contiguous U.S.

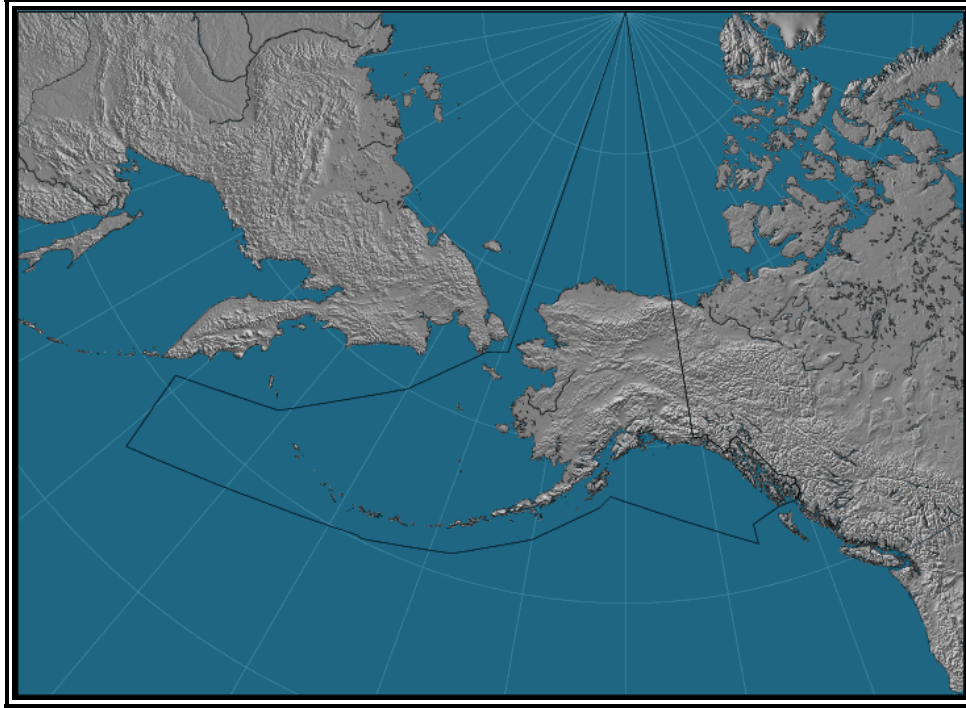


Figure 6-14. CWSU Anchorage, AK (PAZA) Area of Responsibility

CWAs are valid for up to two (2) hours and may include forecasts of conditions expected to begin within two (2) hours of issuance. If conditions are expected to persist after the advisory's valid period, a statement to that effect is included in the last line of the text. Additional CWAs will subsequently be issued as appropriate. Notice of significant changes in the phenomenon described in a CWA is provided by a new CWA issuance for that phenomenon. If the forecaster deems it necessary, CWAs may be issued hourly for convective activity.

6.3.2 CWA Communications Headers (UCWA / CWA)

The Urgent CWA (**UCWA**) communications header is intended for those situations where weather conditions have an immediate effect on the safe flow of air traffic within the ARTCC area of responsibility. It is only used when the CWSU [meteorologist](#) believes any delay in dissemination to FAA facilities would impact aviation safety. The routine CWA header is used for subsequent issuances of the same phenomenon.

6.3.3 CWA Criteria

CWAs are used in the four (4) following situations:

- **Precede an Advisory**
 - When the AWC has not yet issued an advisory, but conditions meet or will soon meet advisory criteria.
 - In the case of an impending advisory, the CWA can be issued as an Urgent CWA (UCWA) to allow the fastest possible dissemination.
- **Refine an existing Advisory**
 - To supplement an existing AWC advisory for the purpose of refining or updating the location, movement, extent, or intensity of the weather event relevant to the ARTCC's area of responsibility.

- **Highlight significant conditions not meeting Advisory criteria**
 - When conditions do not meet advisory criteria, but conditions, in the judgment of the CWSU [meteorologist](#), will adversely impact air traffic within the ARTCC area of responsibility.
- **To cancel a CWA when the phenomenon described in the CWA is no longer expected.**

6.3.4 CWA Format

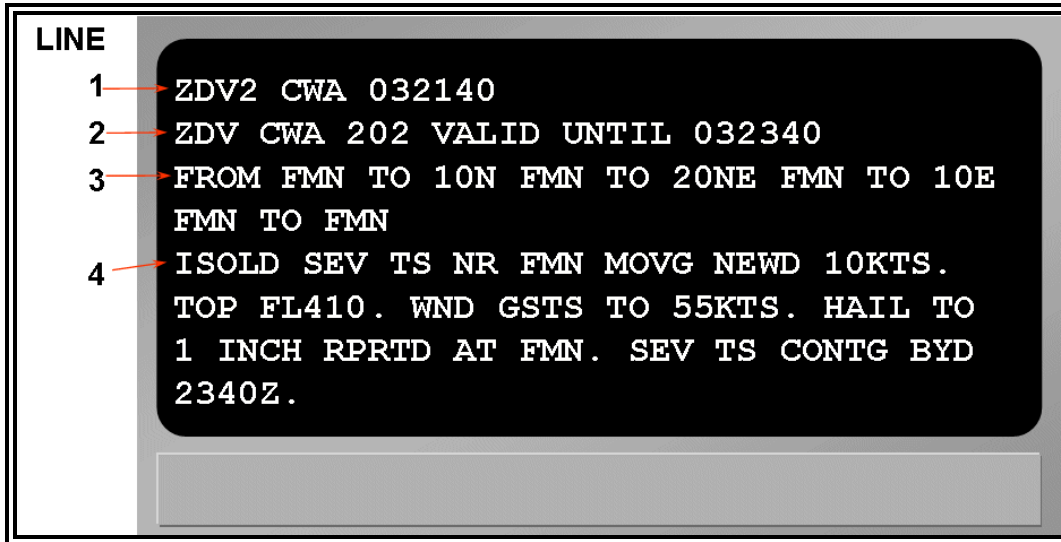


Figure 6-15. Center Weather Advisory (CWA) Decoding Example

Table 6-7. Decoding a Center Weather Advisory (CWA)

Line	Content	Description
1	ZDV 2 CWA 032140	ARTCC Identification Phenomenon Number (single digit, 1-6) Product Type (UCWA/CWA) Beginning and/or issuance UTC date/time
2	ZDV CWA 2 02 VALID TIL 032340Z	ARTCC Identification Product Type Phenomenon Number (single digit, 1-6) Issuance Number (issued sequentially for each Phenomenon Number) Ending valid UTC date/time
3	FROM FMN TO 10N FMN TO 20NE FMN TO 10E FMN TO FMN	Phenomenon Location
4	ISOLD SEV TS NR FMN MOVG NEWD 10KTS. TOP FL410. WND GSTS TO 55KTS. HAIL TO 1 INCH RPRTD AT FMN. SEV TS CONTG BYD 2340Z	Phenomenon Description

Time permitting, any CWA overlapping into another center's airspace is coordinated and a statement is included in the text, e.g., **SEE ZOB CWA 201 FOR TS CONDS IN ZOB CTA** (CTA is control area). If issuance prior to coordination is necessary, a statement regarding the area(s) affected is included in the text, e.g., **LINE TS EXTDS NW INTO ZOB CTA**.

[AIRMETs](#)/SIGMETs being augmented by the CWA will be referenced in a text remark, e.g. **SEE CONVECTIVE SIGMET 8W**.

The CWA in Figure 6-15 is decoded as follows:

(Line 1) Center Weather Advisory issued for the Denver ARTCC (ZDV) CWSU. The "2" after ZDV in the first line denotes this is the second meteorological event of the local calendar day. This CWA was issued/begins on the 3^d day of the month at 2140 UTC.

(Line 2) The Denver ARTCC (ZDV) is identified again. The "202" in the second line denotes the phenomena number again (2) and the issuance number (02) for this phenomenon. This CWA is the valid until the 3^d day of the at 2340 UTC.

(Line 3) From Farmington, New Mexico to 10 nautical miles north of Farmington, New Mexico to 20 nautical miles northeast of Farmington, NM to 10 nautical mile east of Farmington, New Mexico to Farmington, New Mexico.

(Line 4) Isolated severe thunderstorms near Farmington moving northeastward at 10 [knots](#). Tops to Flight Level 410. Wind gusts to 55 [knots](#). Hail to one inch reported at Farmington. Severe thunderstorms continuing beyond 2340 UTC.

6.3.5 Examples

ZME1 CWA 081300

ZME CWA 101 VALID TIL 081500
FROM MEM TO JAN TO LIT TO MEM
OCNL TS MOV FM 26025KT. TOPS TO FL450.

Center Weather Advisory issued for the Memphis, Tennessee ARTCC on the 8th day of the month at 1300 UTC. The 1 after the ZME in the first line denotes this CWA has been issued for the first weather phenomenon to occur for the local calendar day. The 101 in the second line denotes the phenomenon number again (1) and the issuance number (01) for this phenomenon. The CWA is valid until the 8th of the month at 1500 UTC. From Memphis, Tennessee to Jackson, Mississippi to Little Rock, Arkansas to Memphis, Tennessee. Occasional thunderstorms moving from 260 degrees at 25 [knots](#). Tops to flight level 450.

ZLC3 CWA 271645

ZLC CWA 303 VALID TIL 271745
CNL CWA 302.
SEE CONVECTIVE SIGMET 8W.

Center Weather Advisory issued for the Salt Lake City, Utah ARTCC on the 27th day of the month at 1645 UTC. The 3 after the ZLC in the first line denotes this CWA has been issued for the third weather phenomenon to occur for the local calendar day. The 303 in the second line

denotes the phenomenon number again (3) and the issuance number (03) for this phenomenon. The CWA is valid until the 27th day of the month at 1745 UTC. CWA number 302 has been cancelled. See Convective SIGMET 8W.

ZME1 CWA 040100

ZME CWA 101 VALID TIL 040300

VCY MEM

SEV CLR ICE BLW 020 DUE TO FZRA. NUMEROUS ACFT REP RAPID ACCUMULATION OF ICE DRG DES TO MEM. NO ICE REPS ABV 020. CONDS CONTG AFT 03Z. NO UPDATES AFT 040200Z.

Center Weather Advisory issued for the Memphis, Tennessee ARTCC on the 4th day of the month at 0100 UTC. The 1 after the ZLC in the first line denotes this CWA has been issued for the first weather phenomenon to occur for the local calendar day. The 101 in the second line denotes the phenomenon number again (1) and the issuance number (01) for this phenomenon. The CWA is valid until the 4th day of the month at 0300 UTC. For the Memphis, Tennessee vicinity. Severe clear icing below 2,000 feet MSL due to [freezing rain](#). Numerous aircraft report rapid accumulation of icing during descent to Memphis. No icing reports above 2,000 feet MSL. Conditions continuing after 0300 UTC. No updates after 4th day of the month at 0200 UTC.

ZNY5 UCWA 021400

ZNY CWA 502 VALID TIL 021600

FROM BGM TO 18WNW JFK TO HAR TO SLT TO BGM

NUMEROUS ACFT REP SEV TURB AND WS BLW 020.

CONDS EXTD NE INTO ZBW CTA. CONDS EXP TO CONT AFT 16Z.

Center Weather Advisory issued for the New York ARTCC on the 2nd day of the month at 1400 UTC. The 5 after the ZNY in the first line denotes this CWA has been issued for the fifth weather phenomenon to occur for the local calendar day. The 502 in the second line denotes the phenomenon number again (5) and the issuance number (02) for this phenomenon. The CWA is valid until the 2nd day of the month at 1600 UTC. From Binghamton, New York; to 18 nautical miles west-northwest of New York (JFK Airport), New York; to Harrisburg, Pennsylvania; to Slate Run, Pennsylvania; to Binghamton, New York. Numerous aircraft report severe [turbulence](#) and [wind shear](#) below 2,000 feet MSL. Conditions extending northeast into Nashua, New Hampshire control area. Conditions expected to continue after 1600 UTC.

ZNY4 UCWA 041500

ZNY CWA 401 VALID TIL 041700

40N SLT TO 18WNW JFK

DEVELOPING LINE TS 25 NM WIDE MOV 24020KT. TOPS ABV FL350.

LINE TS EXTDS NW INTO ZOB CTA.

Urgent Center Weather Advisory issued for the New York ARTCC on the 4th day of the month at 1500 UTC. The 4 after the ZNY in the first line denotes this CWA has been issued for the fourth weather phenomenon to occur for the local calendar day. The 401 in the second line denotes the phenomenon number again (4) and the issuance number (01) for this phenomenon. The

CWA is valid until the 4th day of the month at 1700 UTC. From 40 nautical miles north of Slate Run, Pennsylvania; to 18 nautical miles west-northwest of New York (JFK Airport), New York. Developing line of thunderstorms 25 nautical miles wide moving from 240 degrees at 20 [knots](#). Tops above flight level 350. The line of thunderstorms extends northwest into the Oberlin, Ohio control area.

6.4 Additional Products for Convection

The National Weather Service (NWS) in addition to the SIGMETs (Section 6.1), Convective SIGMETs (Section 6.1.8), and CWAs (Section 6.3) already discussed, offers a few more products informing the aviation community about the potential for convective weather.

6.4.1 Convective Outlooks (AC)

The NWS [Storm Prediction Center \(SPC\)](#) issues narrative and graphical [convective outlooks](#) to provide the contiguous U.S. NWS [Weather Forecast Offices \(WFOs\)](#), the public, media and emergency managers with the potential for severe (tornado, wind gusts 50 [knots](#) or greater, or hail 3/4 inch diameter size or greater) and non-severe (general) [convection](#) and specific severe weather threats during the following three days. The [Convective Outlook](#) defines areas of [slight risk \(SLGT\)](#), [moderate risk \(MDT\)](#) or [high risk \(HIGH\)](#) of [severe thunderstorms](#) for a 24-hour period beginning at 1200 UTC (Figure 6-16). The Day 1 and Day 2 [Convective Outlooks](#) also depict areas of general thunderstorms (**GEN TSTMS**), while the Day 1, Day 2, and Day 3 [Convective Outlooks](#) may use **SEE TEXT** for areas where [convection](#) may approach or slightly exceed severe criteria. The outlooks are available on the SPC web site at: <http://www.spc.noaa.gov/products/outlook/>.

6.4.1.1 Issuance

[Convective Outlooks](#) are scheduled products issued at the following times:

Table 6-8. Convective Outlook Issuance Schedule

Convective Outlook	Issuance Time (UTC)	Valid Period (UTC)
Day 1	0600	1200 – 1200
	1300	1300 – 1200
	1630	1630 – 1200
	2000	2000 – 1200
	0100	0100 – 1200
Day 2	0730 (Daylight Savings Time) 0830 (Standard Time)	Day 2/1200 – 1200
	1730	Day 2/1200 – 1200
Day 3	1100	Day 3/1200 – 1200

SPC corrects outlooks for format and grammatical errors and amends outlooks when the current forecast does not or will not reflect the ongoing or future convective development.

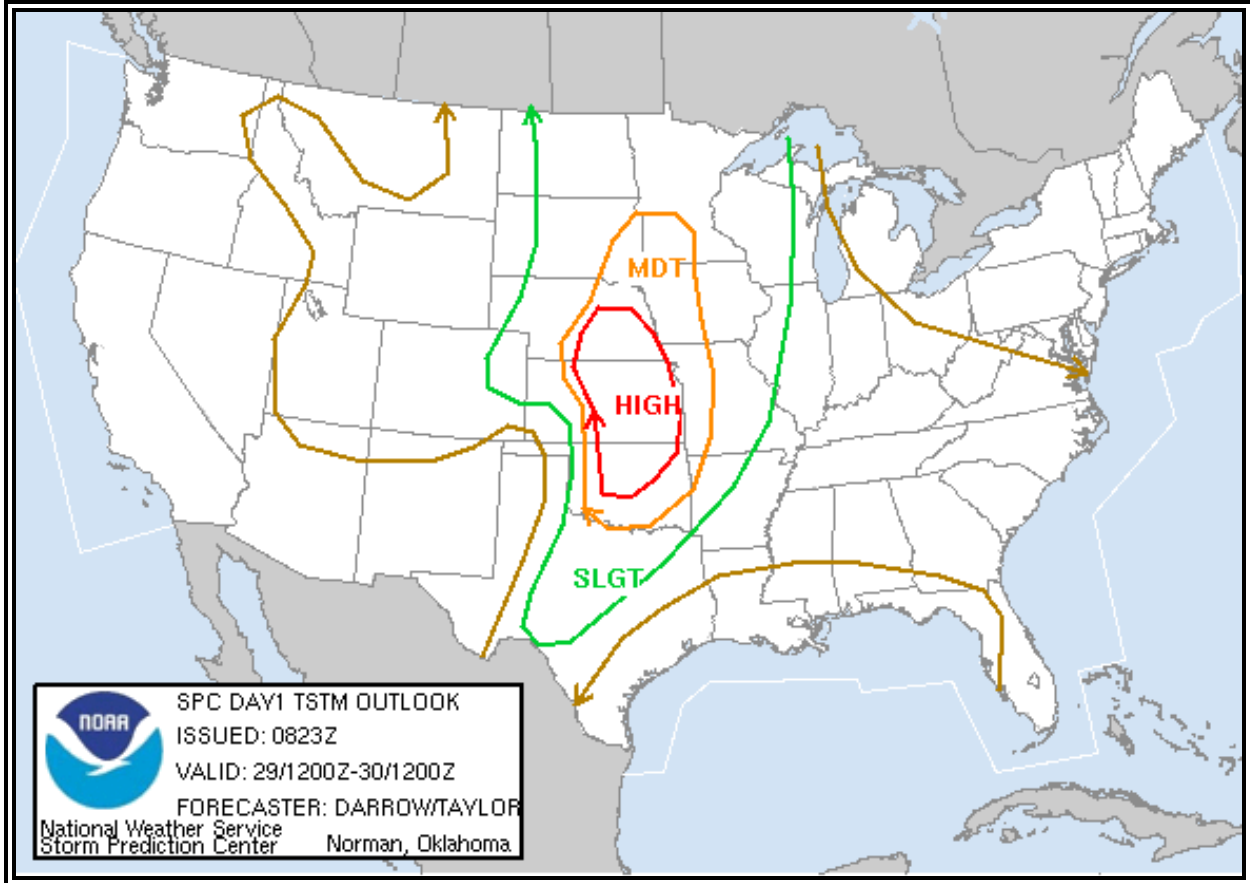


Figure 6-16. Day 1 Categorical Convective Outlook Graphic Example

6.4.1.2 Format of the Categorical Convective Outlook Narrative

SPC AC ddhmm [SPC - issuing office, AC – product type, ddhmm – date and time the product was issued

DAY (**ONE, TWO OR THREE**) CONVECTIVE OUTLOOK
 NWS STORM PREDICTION CENTER NORMAN OK
 time am/pm time_zone day mon dd yyyy

VALID DDHMM - DDHMMZ

THERE IS A (SLIGHT, MODERATE, HIGH) RISK OF SEVERE THUNDERSTORMS TO THE RIGHT OF LINE (LIST OF ANCHOR POINTS AND DIRECTION AND DISTANCE IN STATUTE MILES FROM THE LINE). THE LINE WILL ENCLOSE THE AREA OF RISK. THERE MAY BE ONE OR MORE AREAS OF RISK AT THE APPROPRIATE LEVEL OF RISK. WHEN A MODERATE OR HIGH RISK IS FORECAST, THE INDIVIDUAL STATES ARE ALSO LISTED WITH THE TWO LETTER POSTAL STATE IDENTIFIERS.

GEN TSTMS ARE FCST TO THE RIGHT OF A LINE FROM (LIST OF ANCHOR POINTS AND DIRECTION AND DISTANCE IN STATUTE MILES FROM THE LINE). THERE MAY BE ONE OR MORE AREAS OF GEN TSTMS LISTED.

...AREA OF CONCERN #1...

AREAS OF HIGHEST RISK ARE DISCUSSED FIRST (HIGH SEVERE RISK, MODERATE SEVERE RISK, SLIGHT SEVERE RISK, APPROACHING SEVERE LIMITS). THE FORECAST PROVIDES A NARRATIVE TECHNICAL DISCUSSION.

...AREA OF CONCERN #2...
NARRATIVE TECHNICAL DISCUSSION

\$\$

...FORECASTER NAME... MM/DD/YY

6.4.2 Watch Notification Messages

The NWS Storm Prediction Center (SPC) issues [Watch Notification Messages](#) to alert the aviation community, NWS offices (WFOs), the public, media and emergency managers to organized thunderstorms forecast to produce tornadic and/or severe weather in the conterminous U.S.

SPC issues three types of Watch Notification Messages: Aviation Watch Notification Message, Public Severe Thunderstorm Watch Notification Message and Public Tornado Watch Notification Message. They are available on the SPC web site at: <http://www.spc.noaa.gov/products/watch/>.

6.4.2.1 Aviation Watch Notification Message

SPC issues Aviation Watch Notification Messages (Figure 6-17) to alert the aviation community to organized thunderstorms forecast to produce tornadic and/or severe weather as indicated in Public Watch Notification Messages.

6.4.2.1.1 Format of an Aviation Watch Notification Message

```
SPC AWW ddhmm  
WWnnnn SEVERE TSTM ST LO DDHHMMZ - DDHHMMZ  
AXIS...XX STATUTE MILES EITHER SIDE OF A LINE  
XXDIR CCC/LOCATION ST/ - XXDIR CCC/LOCATION ST  
..AVIATION COORD.. XX NM EITHER SIDE /XXDIR CCC - XXDIR CCC  
HAIL SURFACE AND ALOFT..X X/X INCHES. WIND GUSTS..XX KNOTS.  
MAX TOPS TO XXX. MEAN STORM MOTION VECTOR DIR/SPEED
```

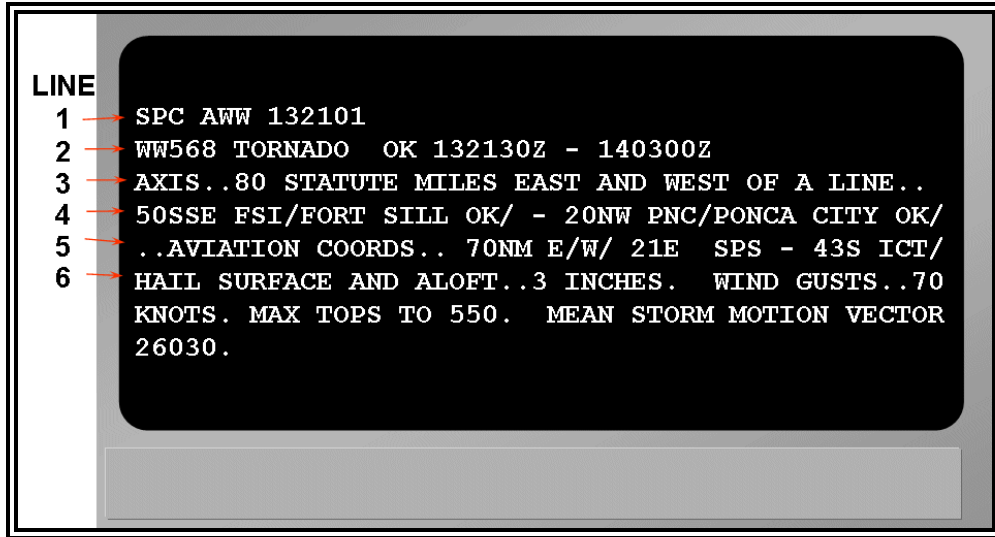


Figure 6-17. Aviation Watch Notification Message Decoding Example

Table 6-9. Decoding a Severe Weather Watch Bulletin

Line	Content	Description
1	SPC AWW 132101	Issuing office Product Type Issuance date/time
2	WW568 TORNADO OK 132130Z - 140300Z	Watch number Watch Type States affected Valid date/time period
3	AXIS..80 STATUTE MILES EAST AND WEST OF A LINE...	Watch axis
4	50SSE FSI/FORT SILL OK/ - 20NW PNC/PONCA CITY OK/	Anchor points
5	...AVIATION COORDS.. 70NM E/W/ 21E SPS - 43S ICT/	Aviation coordinates
6	HAIL SURFACE AND ALOFT...3 INCHES. WIND GUSTS..70 KNOTS. MAX TOPS TO 550. MEAN STORM MOTION VECTOR 26030.	Type, intensity, max tops, and mean storm motion using standard contractions.

The Severe Weather Watch Bulletin in Figure 6-17 is decoded as follows:

(Line 1) *Alert Severe Weather Watch Bulletin (AWW), issued by the Storm Prediction Center on the 13th at 2101Z,*

(Line 2) *for Tornado Watch number 568 (WW568) for Oklahoma, valid from the 13th at 2130Z until the 14th at 0300Z.*

(Line 3) *The Tornado Watch area is along and 80 statute miles east and west of a line from*

(Line 4) *50 statute miles south southeast of Fort Sill (Lawton), OK to 20 statute miles northwest of Ponca City, OK.*

(Line 5) *Aviation coordinates for this Tornado Watch are 70 nautical miles east and west of a line from 21 nautical miles east of Sheppard AFB (Wichita Falls), TX to 43 nautical miles south of Wichita, KS.*

(Line 6) *Hail surface and aloft to 3 inches in diameter, wind gusts to 70 [knots](#), max tops to Flight Level 550, mean storm motion from 260 degrees at 30 [knots](#)*

6.4.2.1.2 Issuance

Watch Notification Messages are non-scheduled, event driven products valid from the time of issuance to expiration or cancellation time. Valid times are in UTC. SPC will correct watches for format and grammatical errors.

When tornadoes or severe thunderstorms have developed, the local NWS Weather Forecast Offices (WFOs) will issue the warnings for the storms.

SPC forecasters may define the watch area as a rectangle (some number of miles either side of line from point A to point B) or as a parallelogram (some number of miles north and south or east and west of line from point A to point B). The axis coordinates are measured in statute miles. The aviation coordinates are measured in nautical miles and referenced to VHF Omni-Directional Range (VOR) navigational aid locations. The watch half-width is in statute miles. The Aviation Watch Notification Message contains hail size in inches or half inches at the surface and aloft, surface convective wind gusts in [knots](#), maximum tops, and the Mean Storm Motion Vector. Forecasters have discretion in including hail size for tornado watches associated with hurricanes.

6.4.3 Public Severe Thunderstorm Watch Notification Message

SPC issues a Public Severe Thunderstorm Watch Notification Message when forecasting six or more hail events of 3/4 inch (penny) diameter or greater or damaging winds of 50 [knots](#) (58 mph) or greater. The forecast event minimum threshold is at least 2 hours over an area at least 8,000 square miles. Below these thresholds, SPC, in collaboration with affected NWS offices may issue convective watches along coastlines, near the Canadian and Mexican borders, and for any ongoing organized severe [convection](#).

A Public Severe Thunderstorm Watch Notification Message contains the area description and axis, watch expiration time, a description of hail size and thunderstorm wind gusts expected, the definition of the watch, a call to action statement, a list of other valid watches, a brief discussion of meteorological reasoning, and technical information for the aviation community.

SPC includes the term “adjacent coastal waters” when the watch affects coastal waters adjacent to the Pacific/Atlantic coast, Gulf of Mexico, or Great Lakes. Adjacent coastal waters refers to a WFO’s near-shore responsibility (out to 20 miles for oceans), except for convective watches which include portions of the Great Lakes.

SPC issues a watch cancellation message when **no** counties, parishes, independent cities and/or marine zones remaining are in the watch area prior to the expiration time. The text of the message will specify the number and area of the cancelled watch.

6.4.3.1 Format of Public Severe Thunderstorm Watch Notification Message

WWUS20 KWNS d d h h m m (ICAO communication header)

URGENT - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WATCH NUMBER nnnn
NWS STORM PREDICTION CENTER NORMAN OK
time am/pm time zone day mon dd yyyy

THE STORM PREDICTION CENTER HAS ISSUED A
SEVERE THUNDERSTORM WATCH FOR PORTIONS OF

PORTION OF STATE
PORTION OF STATE
AND ADJACENT COASTAL WATERS (IF REQUIRED)

EFFECTIVE (TIME PERIOD) UNTIL hhmm am/pm time zone.

...THIS IS A PARTICULARLY DANGEROUS SITUATION (IF FORECAST)...

HAIL TO X INCHES IN DIAMETER...THUNDERSTORM WIND GUSTS TO XX MPH...AND
DANGEROUS LIGHTNING ARE POSSIBLE IN THESE AREAS.

*NARRATIVE DESCRIPTION OF WATCH AREA USING A LINE AND ANCHOR
POINTS. DISTANCES TO EITHER SIDE OF THE LINE WILL BE IN STATUTE MILES.*

CALL TO ACTION STATEMENTS

OTHER WATCH INFORMATION...OTHER WATCHES IN EFFECT AND IF THIS
WATCH REPLACES A PREVIOUS WATCH.

NARRATIVE DISCUSSION OF REASON FOR THE WATCH.

AVIATION...BRIEF DESCRIPTION OF SEVERE WEATHER THREAT TO AVIATORS.
HAIL SIZE WILL BE GIVEN IN INCHES AND WIND GUSTS IN KNOTS. MAXIMUM
STORM TOPS AND A MEAN STORM VECTOR WILL ALSO BE GIVEN.

\$\$

..FORECASTER NAME.. MM/DD/YY

6.4.3.2 Example of a Public Severe Thunderstorm Watch Notification Message

WWUS20 KWNS 161711 (*ICAO communication header*)
SPC WW 161710

URGENT - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WATCH NUMBER 647
NWS STORM PREDICTION CENTER NORMAN OK
1210 PM CDT FRI JUL 16 2004

THE NWS STORM PREDICTION CENTER HAS ISSUED A
SEVERE THUNDERSTORM WATCH FOR PORTIONS OF

EASTERN IOWA
NORTHERN ILLINOIS

NORTHWEST INDIANA
LAKE MICHIGAN

EFFECTIVE THIS FRIDAY AFTERNOON FROM 1210 PM UNTIL 500 PM CDT.

HAIL TO 2 INCHES IN DIAMETER...THUNDERSTORM WIND GUSTS TO 70 MPH...AND DANGEROUS LIGHTNING ARE POSSIBLE IN THESE AREAS.

THE SEVERE THUNDERSTORM WATCH AREA IS ALONG AND 75 STATUTE MILES EITHER SIDE OF A LINE FROM 40 MILES SOUTHEAST OF SOUTH BEND INDIANA TO 35 MILES SOUTHWEST OF CEDAR RAPIDS IOWA.

REMEMBER...A SEVERE THUNDERSTORM WATCH MEANS CONDITIONS ARE FAVORABLE FOR SEVERE THUNDERSTORMS IN AND CLOSE TO THE WATCH AREA. PERSONS IN THESE AREAS SHOULD BE ON THE LOOKOUT FOR THREATENING WEATHER CONDITIONS AND LISTEN FOR LATER STATEMENTS AND POSSIBLE WARNINGS. SEVERE THUNDERSTORMS CAN AND OCCASIONALLY DO PRODUCE TORNADOES.

OTHER WATCH INFORMATION...CONTINUE...WW 646...

DISCUSSION...THUNDERSTORMS WILL CONTINUE TO INCREASE ACROSS WATCH AREA WHERE AIR MASS HAS BECOME STRONGLY UNSTABLE AND UNCAPPED. VEERING SHEAR PROFILE SUPPORT STORMS EVOLVING INTO SHORT LINE SEGMENTS ENHANCING WIND DAMAGE POTENTIAL

AVIATION...A FEW SEVERE THUNDERSTORMS WITH HAIL SURFACE AND ALOFT TO 2 INCHES. EXTREME TURBULENCE AND SURFACE WIND GUSTS TO 60 KNOTS. A FEW CUMULONIMBI WITH MAXIMUM TOPS TO 500. MEAN STORM MOTION VECTOR 33025.

...HALES

6.4.4 Public Tornado Watch Notification Message

SPC issues a Public Tornado Watch Notification Message when forecasting three or more tornadoes or any tornado which could produce F2 or greater damage. The forecast event minimum thresholds are at least 2 hours over an area at least 8,000 square miles. Below these thresholds, SPC, in collaboration with affected NWS offices, may issue convective watches along coastlines, near the Canadian and Mexican borders and for any ongoing organized severe [convection](#).

A Public Tornado Watch Notification Message contains the area description and axis, watch expiration time, the term “damaging tornadoes”, a description of the largest hail size and strongest thunderstorm wind gusts expected, the definition of the watch, a call to action statement, a list of other valid watches, a brief discussion of meteorological reasoning, and technical information for the aviation community.

SPC includes the term “adjacent coastal waters” when the watch affects coastal waters adjacent to the Pacific/Atlantic coast, Gulf of Mexico, or Great Lakes. Adjacent coastal waters refers to a WFO’s near shore responsibility (out to 20 nautical miles for oceans), except for convective watches which include portions of the Great Lakes.

SPC issues a watch cancellation message whenever it cancels a watch prior to the expiration time. The text of the message will specify the number and area of the cancelled watch.

6.4.4.1 Format of a Public Tornado Watch Notification Message

WWUS20 KWNS ddhhmm (*ICAO communication header*)

URGENT - IMMEDIATE BROADCAST REQUESTED
TORNADO WATCH NUMBER nnnn
NWS STORM PREDICTION CENTER NORMAN OK
time am/pm time zone day mon dd yyyy

THE STORM PREDICTION CENTER HAS ISSUED A
TORNADO WATCH FOR PORTIONS OF

PORTION OF STATE
PORTION OF STATE
AND ADJACENT COASTAL WATERS (IF REQUIRED)

EFFECTIVE (TIME PERIOD) UNTIL hhmm am/pm time zone.

...THIS IS A PARTICULARLY DANGEROUS SITUATION (IF FORECAST)...

DESTRUCTIVE TORNADOES...HAIL TO X INCHES IN DIAMETER...THUNDERSTORM
WIND GUSTS TO XX MPH...AND DANGEROUS LIGHTNING ARE POSSIBLE IN THESE
AREAS.

NARRATIVE DESCRIPTION OF WATCH AREA USING A LINE AND ANCHOR POINTS.
DISTANCES TO EITHER SIDE OF THE LINE WILL BE IN STATUTE MILES.

CALL TO ACTION STATEMENTS

OTHER WATCH INFORMATION...OTHER WATCHES IN EFFECT AND IF THIS WATCH
REPLACES A PREVIOUS WATCH.

NARRATIVE DISCUSSION OF REASON FOR THE WATCH.

AVIATION...BRIEF DESCRIPTION OF SEVERE WEATHER THREAT TO AVIATORS.
HAIL SIZE WILL BE GIVEN IN INCHES AND WIND GUSTS IN KNOTS. MAXIMUM
STORM TOPS AND A MEAN STORM VECTOR WILL ALSO BE GIVEN.

\$\$

..FORECASTER NAME.. MM/DD/YY

6.4.4.2 Example of a Public Tornado Watch Notification Message

WWUS20 KWNS 050550 (*ICAO communication header*)

URGENT - IMMEDIATE BROADCAST REQUESTED
TORNADO WATCH NUMBER 243
NWS STORM PREDICTION CENTER NORMAN OK

Aviation Weather Services, Advisory Circular 00-45F

1250 AM CDT MON MAY 5 2003

THE NWS STORM PREDICTION CENTER HAS ISSUED A
TORNADO WATCH FOR PORTIONS OF

WESTERN AND CENTRAL ARKANSAS
SOUTHERN MISSOURI
FAR EASTERN OKLAHOMA

EFFECTIVE THIS MONDAY MORNING FROM 1250 AM UNTIL 600 AM CDT.

...THIS IS A PARTICULARLY DANGEROUS SITUATION...

DESTRUCTIVE TORNADOES...LARGE HAIL TO 2 INCHES IN DIAMETER...
THUNDERSTORM WIND GUSTS TO 70 MPH...AND DANGEROUS LIGHTNING ARE
POSSIBLE IN THESE AREAS.

THE TORNADO WATCH AREA IS ALONG AND 100 STATUTE MILES EAST AND
WEST OF A LINE FROM 15 MILES WEST NORTHWEST OF FORT LEONARD WOOD
MISSOURI TO 45 MILES SOUTHWEST OF HOT SPRINGS ARKANSAS.

REMEMBER...A TORNADO WATCH MEANS CONDITIONS ARE FAVORABLE FOR
TORNADOES AND SEVERE THUNDERSTORMS IN AND CLOSE TO THE WATCH AREA.
PERSONS IN THESE AREAS SHOULD BE ON THE LOOKOUT FOR THREATENING
WEATHER CONDITIONS AND LISTEN FOR LATER STATEMENTS AND POSSIBLE
WARNINGS.

OTHER WATCH INFORMATION...THIS TORNADO WATCH REPLACES TORNADO
WATCH NUMBER 237. WATCH NUMBER 237 WILL NOT BE IN EFFECT AFTER
1250 AM CDT. CONTINUE...WW 239...WW 240...WW 241...WW 242...

DISCUSSION...SRN MO SQUALL LINE EXPECTED TO CONTINUE EWD...WHERE
LONG/HOOKED HODOGRAPHS SUGGEST THREAT FOR EMBEDDED
SUPERCELLS/POSSIBLE TORNADOES. FARTHER S...MORE WIDELY SCATTERED
SUPERCELLS WITH A THREAT FOR TORNADOES WILL PERSIST IN VERY STRONGLY
DEEP SHEARED/LCL ENVIRONMENT IN AR.

AVIATION...TORNADOES AND A FEW SEVERE THUNDERSTORMS WITH HAIL
SURFACE AND ALOFT TO 2 INCHES. EXTREME TURBULENCE AND SURFACE WIND
GUSTS TO 60 KNOTS. A FEW CUMULONIMBI WITH MAXIMUM TOPS TO 500. MEAN
STORM MOTION VECTOR 26045.

.
..CORFIDI

6.5 Products for Tropical Cyclones

The NWS issues SIGMETs (Section 6.1), Convective SIGMETs (Section 6.1.8) and CWAs (Section 6.3) to inform the aviation community about the potential or existence of tropical cyclones and the adverse conditions associated with them. These above listed products are the primary source of information. The NWS also issues other products pertaining to [convection](#). These additional products are defined in this section.

6.5.1 Aviation Tropical Cyclone Advisory (TCA)

The [Aviation Tropical Cyclone Advisory \(TCA\)](#) is intended to provide short-term tropical cyclone forecast guidance for international aviation safety and routing purposes. It is prepared by the National Hurricane Center (NHC) and the Central Pacific Hurricane Center (CPHC) in Honolulu, Hawaii, for all on-going tropical cyclone activity in their respective areas of responsibility. This requirement is stated in the World Meteorological Organization Region IV hurricane plan. Any valid TCA in the Atlantic or eastern Pacific is available on the NHC web site at: <http://www.nhc.noaa.gov>. Any valid TCA for the central Pacific is available on the CPHC web site at: <http://www.prh.noaa.gov/hnl/cphc/>

6.5.1.1 Issuance

TCAs are issued at 0300, 0900, 1500, and 2100 UTC and are valid from the time of issuance until the next scheduled issuance or update.

6.5.1.2 Content

TCAs list the current tropical cyclone position, motion and intensity, and 12-, 18- and 24-hour forecast positions and intensities. It is an alphanumeric text product produced by hurricane forecasters and consists of information extracted from the official forecasts. This forecast is produced from subjective evaluation of current meteorological and oceanographic data as well as output from numerical weather prediction models, and is coordinated with affected NWS offices, the NWS National Centers, and the Department of Defense.

6.5.1.3 Format

The format of the Aviation Tropical Cyclone Advisory is as follows:

FKaa2i CCCC DDHHMM (*ICAO communication header*)

(TROPICAL CYCLONE TYPE) ICAO ADVISORY NUMBER ##
 ISSUING OFFICE CITY STATE
 time am/pm time.zone day mon DD YYYY

TEXT

\$\$

6.5.1.4 Example of an Aviation Tropical Cyclone Advisory:

FKPZ21 KNHC 260215 (ICAO communication header)

TROPICAL DEPRESSION PATRICIA ICAO ADVISORY NUMBER 23
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
0300Z SUN OCT 26 2003

TC ADVISORY

DTG: 20031026/0300Z
TCAC: KNHC
TC: PATRICIA
NR: 023
PSN: N1612 W11454
MOV: NW 05KT
C: 1008HPA
MAX WIND: 025KT
FCST PSN + 12 HR: 261200 N1636 W11500
FCST MAX WIND + 12 HR: 020KT
FCST PSN + 18 HR: 261800 N1654 W11506
FCST MAX WIND + 18 HR: 020KT
FCST PSN + 24 HR: 270000 N1712 W11512
FCST MAX WIND + 24 HR: 020KT
NXT MSG: NO MSG EXP

6.5.2 Tropical Cyclone Public Advisory (TCP)

A [Tropical Cyclone Public Advisory \(TCP\)](#) is the primary tropical cyclone information product issued to the public. The TCP provides critical tropical cyclone watch, warning, and forecast information for the protection of life and property.

6.5.2.1 Responsibility

The National Hurricane Center (NHC), as a part of the Tropical Prediction Center (TPC); the Central Pacific Hurricane Center (CPHC); and Weather Forecast Office (WFO) Tiyan, Guam, issue TCPs. In the Atlantic and central Pacific, NHC and CPHC issue TCPs for all tropical cyclones respectively. In the eastern Pacific, NHC will issue public advisories when watches or warnings are required, or the tropical cyclone is otherwise expected to impact nearby land areas. In the western Pacific, WFO Guam will issue public advisories for all tropical cyclones expected to affect land within 48 hours.

Valid TCP in the Atlantic or eastern Pacific is available on the NHC web site at:
<http://www.nhc.noaa.gov>.

Valid TCP for the central Pacific is available on the CPHC web site at:
<http://www.prh.noaa.gov/hnl/cphc/>.

TCPs issued by WFO Guam for the western Pacific are available at:
<http://www.prh.noaa.gov/pr/quam/cyclone.php>.

6.5.2.2 Issuance

The initial advisory may be issued when data confirm a tropical cyclone has developed. The title of the advisory will depend upon the intensity of the tropical cyclone as listed below.

- A [tropical depression](#) advisory refers to a tropical cyclone with 1-minute sustained winds up to 33 [knots](#) (38 mph).
- A tropical storm advisory will refer to tropical cyclones with 1-minute sustained surface winds 34 to 63 [knots](#) (39 to 73 mph).
- A hurricane/typhoon advisory will refer to tropical cyclones with winds 64 [knots](#) (74 mph) or greater.

Public advisories are discontinued when the tropical cyclone:

- Becomes extra-tropical which is indicated by the center of the storm becoming colder than the surrounding air, fronts appear, and the strongest winds move to the upper atmosphere;
- Drops below [tropical depression](#) advisory criteria by dissipating or becoming a remnant low); or
- Moves inland and watches and warnings are no longer required.

Tropical Cyclone Public Advisories are issued according to the schedule below and are valid from the time of issuance until the next scheduled issuance or update. Valid position times correspond to the advisory time.

Table 6-10. Tropical Cyclone Public Advisory Issuance Schedule

TPC/CPHC ISSUANCE TIME (UTC)	WFO GUAM ISSUANCE TIME (UTC)
0300	0400
0900	1000
1500	1600
2100	2200

Times in advisories are local time of the affected area; however, local time and UTC are used when noting the storm's location. All advisories use statute miles and statute miles per hour. The Tropical Cyclone Center (TPC and CPHC) and WFO Guam, at their discretion, may use nautical miles/[knots](#) in parentheses immediately following statute miles/mph. Advisories include the metric units of kilometers and kilometers per hour following the equivalent English units except when the United States is the only country threatened.

NHC, CPHC and WFO Guam issue tropical storm/hurricane/typhoon watches if tropical storm/hurricane/typhoon conditions are possible over land areas within 36 hours, except 48 hours in the western north Pacific. Tropical storm watches are not issued if the tropical cyclone is forecast to reach hurricane/typhoon intensity within the watch period.

Tropical storm/hurricane/typhoon warnings are issued when tropical storm/hurricane/typhoon conditions along the coast are expected within 24 hours. Tropical storm warnings are issued at the discretion of the hurricane specialist when gale warnings, not related to the pending tropical

storm, are already in place. Tropical storm warnings may be issued on either side of a hurricane/typhoon warning area.

6.5.2.2.1 Intermediate Issuances

Intermediate Public Advisories are issued on a 2- to 3-hourly interval between scheduled advisories (see times of issuance below). 3-hourly intermediate advisories are issued whenever a tropical storm or hurricane watch/warning is in effect. 2-hourly intermediates are issued whenever tropical storm or hurricane warnings are in effect and coastal radars are able to provide responsible Tropical Cyclone Centers with a reliable hourly center position. For clarity, when intermediate public advisories are issued, a statement is included at the end of the scheduled public advisory informing users when an intermediate advisory may be issued, i.e., “AN INTERMEDIATE ADVISORY WILL BE ISSUED BY THE CENTRAL PACIFIC HURRICANE CENTER AT 2 PM HST FOLLOWED BY THE NEXT COMPLETE ADVISORY ISSUANCE AT 5 PM HST.”

Table 6-11. Intermediate Tropical Cyclone Public Advisory Issuance Schedule

	TPC/CPHC ISSUANCE TIME (UTC)	WFO GUAM ISSUANCE TIME (UTC)
3-Hourly Issuances	0000	0100
	0600	0700
	1200	1300
	1800	1900
2-Hourly Issuances	2300	0000
	0100	0200
	0500	0600
	0700	0800
	1100	1200
	1300	1400
	1700	1800
	1900	2000

Intermediate advisories are not used to issue tropical cyclone watches or warnings. They can be used to clear all, or parts of, a watch or warning area. Content is similar to the scheduled advisory.

6.5.2.3 Content

Advisories list all tropical cyclone watches and warnings in effect. The first advisory in which watches or warnings are mentioned will give the effective time of the watch or warning, except when it is being issued by other countries and the time is not known. Except for tropical storms and hurricanes/typhoons forming close to land, a watch will precede a warning. Once a watch is in effect, it will either be replaced by a warning or remain in effect until the threat of the tropical cyclone conditions has passed. A hurricane/typhoon watch and a tropical storm warning can be in effect for the same section of coast at the same time.

All advisories include the location of the center of the tropical cyclone by its latitude and longitude, and distance and direction from a well known point, preferably downstream from the tropical cyclone. If the forecaster is unsure of the exact location of a depression, the position may be given as within 50, 75, etc., miles of a map coordinate. When the center of the tropical

cyclone is over land, its position is given referencing the state or country in which it is located and in respect to some well known city, if appropriate.

Movement forecasts apply to the tropical cyclone's center. The present movement is given to 16 points of the compass when possible. A 24-hour forecast of movement in terms of a continuance or departure from the present movement and speed is also included. This can be reduced to a 12-hour forecast. Uncertainties in either the tropical cyclone's location or movement will be explained in the advisory. An outlook beyond 24 hours (out to 72 hours when appropriate) may be included in the text of the advisory.

Maximum observed 1-minute sustained surface wind speed rounded to the nearest 5 mph is given. During landfall threats, specific gust values and phrases like "briefly higher in squalls" may be used. The area (or radius) of both tropical and hurricane/typhoon force winds is given. The storm may also be compared to some memorable hurricane or referred to by relative intensity. Where appropriate, the Saffir/Simpson Hurricane Scale (SSHS) is used in public releases.

Central pressure values in [millibars](#) and inches are provided as determined by available data.

The inland impacts of tropical cyclones will be highlighted in advisories. This includes the threat of strong winds, heavy rainfall, flooding, and tornadoes. The extent and magnitude of the inland winds is included as well as anticipated rainfall amounts and the potential for flooding and tornadoes. Tornado and flood watches will be mentioned as appropriate.

6.5.2.4 Format

The format of the Tropical Cyclone Public Advisory is as follows:

```
(TROPICAL CYCLONE TYPE) (NAME) ADVISORY NUMBER XX.  
(ISSUING OFFICE CITY STATE)  
time am/pm time zone day month DD YYYY
```

```
...HEADLINE...
```

```
TEXT
```

```
$$
```

```
FORECASTER NAME
```

6.5.2.5 Example of a Tropical Storm Public Advisory

```
BULLETIN  
TROPICAL STORM FLOYD ADVISORY NUMBER 4  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL  
11 AM AST WED SEP 08 1999
```

```
...FLOYD MOVING WEST-NORTHWESTWARD IN THE TROPICAL ATLANTIC...
```

```
AT 11 AM AST...1500Z...THE CENTER OF TROPICAL STORM FLOYD WAS  
LOCATED NEAR LATITUDE 15.8 NORTH...LONGITUDE 50.0 WEST OR ABOUT  
755 MILES...1210 KM...EAST OF THE LEEWARD ISLANDS.
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FLOYD IS MOVING TOWARD THE WEST NORTHWEST NEAR 15 MPH ...24
KM/HR...AND THIS MOTION IS EXPECTED TO CONTINUE THROUGH TONIGHT.

MAXIMUM SUSTAINED WINDS ARE NEAR 45 MPH... 75 KM/HR...WITH HIGHER
GUSTS...AND SOME SLOW STRENGTHENING IS EXPECTED DURING THE NEXT
24 HOURS.

TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 85 MILES...140
KM FROM THE CENTER.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 1003 MB...29.62 INCHES.

REPEATING THE 11 AM AST POSITION...15.8 N... 50.0 W. MOVEMENT
TOWARD...WEST NORTHWEST NEAR 15 MPH. MAXIMUM SUSTAINED
WINDS... 45 MPH. MINIMUM CENTRAL PRESSURE...1003 MB.

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE
CENTER AT 5 PM AST.

FORECASTER FRANKLIN

6.5.2.6 Example of a Hurricane/Typhoon Public Advisory

BULLETIN

HURRICANE FLOYD ADVISORY NUMBER 32
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
11 AM EDT WED SEP 15 1999

...FRINGES OF HURRICANE CONTINUE TO IMPACT COAST OF NORTH FLORIDA
AND GEORGIA...BUT FLOYD IS HEADING FOR THE CAROLINAS...

AT 11 AM EDT...A TROPICAL STORM WATCH IS EXTENDED NORTHWARD AND
IS NOW IN EFFECT FROM NORTH OF CHINCOTEAGUE VIRGINIA TO
SANDYHOOK NEW JERSEY...INCLUDING DELAWARE BAY.

A HURRICANE WARNING REMAINS IN EFFECT FROM TITUSVILLE FLORIDA
TO THE NORTH CAROLINA/VIRGINIA BORDER...INCLUDING PAMLICO AND
ALBEMARLE SOUNDS. AT 11 AM EDT...HURRICANE WARNINGS ARE
DISCONTINUED SOUTH OF TITUSVILLE.

A HURRICANE WATCH CONTINUES IN EFFECT FROM THE NORTH
CAROLINA/VIRGINIA BORDER TO CHINCOTEAGUE VIRGINIA...INCLUDING
CHESAPEAKE BAY SOUTH OF SMITH POINT.

INTERESTS ALONG THE FLORIDA EAST COAST SOUTH OF TITUSVILLE
SHOULD EXERCISE CAUTION UNTIL WINDS AND SEAS SUBSIDE.

AT 11 AM EDT...1500Z...THE CENTER OF HURRICANE FLOYD WAS LOCATED
NEAR LATITUDE 29.9 NORTH...LONGITUDE 79.0 WEST OR ABOUT 165 MILES
EAST-SOUTHEAST OF JACKSONVILLE FLORIDA. THIS POSITION IS ALSO

ABOUT 260 MILES SOUTH OF MYRTLE BEACH SOUTH CAROLINA.

FLOYD IS MOVING TOWARD THE NORTH NORTHWEST NEAR 14 MPH AND A GRADUAL TURN TOWARD THE NORTH IS EXPECTED TODAY.

MAXIMUM SUSTAINED WINDS ARE NEAR 125 MPH...205 KM/HR...WITH HIGHER GUSTS. LITTLE CHANGE IN STRENGTH IS FORECAST BEFORE LANDFALL...WHICH IS EXPECTED TONIGHT NEAR THE BORDER OF SOUTH AND NORTH CAROLINA. ALL PREPARATIONS SHOULD BE RUSHED TO COMPLETION.

HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 140 MILES...220 KM...FROM THE CENTER...AND TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 230 MILES...370 KM.

THE LATEST MINIMUM CENTRAL PRESSURE REPORTED BY U.S. AIR FORCE HURRICANE HUNTER AIRCRAFT IS 943 MB...27.85 INCHES.

STORM SURGE FLOODING OF 10 TO 13 FEET ABOVE NORMAL TIDE LEVELS...ALONG WITH LARGE AND DANGEROUS BATTERING WAVES...ARE EXPECTED NEAR AND TO THE EAST OF WHERE THE CENTER CROSSES THE COAST. HEAVY SURF ADVISORIES ARE IN EFFECT FOR THE U.S. EAST COAST NORTHWARD TO CHATHAM MASSACHUSETTS. REFER TO STATEMENTS ISSUED BY LOCAL NATIONAL WEATHER SERVICE OFFICES FOR ADDITIONAL INFORMATION.

RAINFALL TOTALS OF 5 TO 10 INCHES ARE EXPECTED ALONG THE PATH OF THE HURRICANE.

ISOLATED TORNADOES ARE POSSIBLE OVER THE COASTAL COUNTIES OF SOUTH AND NORTH CAROLINA.

REPEATING THE 11 AM EDT POSITION...29.9 N... 79.0 W. MOVEMENT TOWARD...NORTH NORTHWEST NEAR 14 MPH. MAXIMUM SUSTAINED WINDS...125MPH. MINIMUM CENTRAL PRESSURE... 943 MB.

FOR STORM INFORMATION SPECIFIC TO YOUR AREA...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL WEATHER OFFICE.

INTERMEDIATE ADVISORIES WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 1 PM EDT AND 3 PM EDT FOLLOWED BY THE NEXT COMPLETE ADVISORY AT 5 PM EDT.

FORECASTER LAWRENCE

6.5.2.7 Example of an Intermediate Public Advisory

BULLETIN
HURRICANE FLOYD INTERMEDIATE ADVISORY NUMBER 32B
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
3 PM EDT WED SEP 15 1999

...FRINGES OF HURRICANE CONTINUE TO IMPACT COAST OF NORTH FLORIDA AND GEORGIA...BUT FLOYD IS HEADING FOR THE CAROLINAS...

A HURRICANE WARNING REMAINS IN EFFECT FROM NORTH OF FERNANDINA BEACH FLORIDA TO THE NORTH CAROLINA/VIRGINIA BORDER...INCLUDING PAMLICO AND ALBEMARLE SOUNDS. AT 3 PM EDT...WARNINGS ARE DISCONTINUED FROM FERNANDINA BEACH SOUTHWARD. WARNINGS WILL LIKELY BE DISCONTINUED FOR PORTIONS OF GEORGIA LATER TODAY.

A HURRICANE WATCH REMAINS IN EFFECT FROM THE NORTH CAROLINA/VIRGINIA BORDER TO CHINCOTEAGUE VIRGINIA...INCLUDING CHESAPEAKE BAY SOUTH OF SMITH POINT.

A TROPICAL STORM WATCH REMAINS IN EFFECT FROM NORTH OF CHINCOTEAGUE VIRGINIA TO MONTAUK POINT LONG ISLAND...INCLUDING DELAWARE BAY AND LONG ISLAND SOUND.

INTERESTS ALONG THE FLORIDA EAST COAST SHOULD EXERCISE CAUTION UNTIL WINDS AND SEAS SUBSIDE.

AT 3 PM EDT...1900Z...THE CENTER OF HURRICANE FLOYD WAS LOCATED NEAR LATITUDE 30.8 NORTH...LONGITUDE 79.1 WEST OR ABOUT 200 MILES SOUTH OF MYRTLE BEACH SOUTH CAROLINA.

FLOYD IS MOVING ALMOST DUE NORTHWARD AT 15 MPH AND THIS MOTION IS EXPECTED TO CONTINUE TODAY WITH A GRADUAL TURN TOWARD THE NORTH-NORTHEAST ON THURSDAY.

MAXIMUM SUSTAINED WINDS HAVE DECREASED TO NEAR 120 MPH...WITH HIGHER GUSTS. ALTHOUGH THE HURRICANE HAS BEEN SLOWLY WEAKENING...IT IS OVER THE WARM WATERS OF THE GULF STREAM COULD MAINTAIN ITS PRESENT STRENGTH UNTIL LANDFALL TONIGHT. ALL PREPARATIONS IN THE WARNING AREA SHOULD BE RUSHED TO COMPLETION.

HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 140 MILES...220 KM... FROM THE CENTER...AND TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 230 MILES...370 KM.

THE LATEST MINIMUM CENTRAL PRESSURE REPORTED BY U.S. AIR FORCE HURRICANE HUNTER AIRCRAFT IS 947 MB...27.96 INCHES.

STORM SURGE FLOODING OF 10 TO 13 FEET ABOVE NORMAL TIDE LEVELS...ALONG WITH LARGE AND DANGEROUS BATTERING WAVES...ARE EXPECTED NEAR AND TO THE EAST OF WHERE THE CENTER CROSSES THE COAST.

HEAVY SURF ADVISORIES ARE IN EFFECT FOR THE U.S. EAST COAST NORTHWARD TO CHATHAM MASSACHUSETTS. REFER TO STATEMENTS ISSUED BY LOCAL NATIONAL WEATHER SERVICE OFFICES FOR ADDITIONAL INFORMATION.

RAINFALL TOTALS OF 5 TO 10 INCHES ARE EXPECTED ALONG THE PATH OF THE HURRICANE.

ISOLATED TORNADOES ARE POSSIBLE OVER THE COASTAL COUNTIES OF SOUTH AND NORTH CAROLINA.

FOR STORM INFORMATION SPECIFIC TO YOUR AREA...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL WEATHER OFFICE.

REPEATING THE 3 PM EDT POSITION...30.8 N... 79.1 W. MOVEMENT TOWARD...NORTH NEAR 15 MPH. MAXIMUM SUSTAINED WINDS...120 MPH. MINIMUM CENTRAL PRESSURE... 947 MB.

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 5 PM EDT.

FORECASTER LAWRENCE

6.5.2.8 Example of a Special Public Advisory

BULLETIN
HURRICANE ANDREW SPECIAL ADVISORY NUMBER 25
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
900 AM EDT MON AUG 24 1992

...HURRICANE ANDREW MOVING INTO THE GULF OF MEXICO...

HURRICANE WARNINGS REMAIN POSTED FOR THE FLORIDA WEST COAST SOUTH OF VENICE TO FLAMINGO AND FOR LAKE OKEECHOBEE. AT 9 AM EDT A HURRICANE WATCH WILL GO INTO EFFECT FOR THE NORTHERN GULF COAST FROM MOBILE ALABAMA TO SABINE PASS TEXAS. ALL OTHER POSTED WATCHES AND WARNINGS ARE DISCONTINUED.

WIND GUSTS TO HURRICANE FORCE CONTINUE TO OCCUR ALONG THE SOUTHEAST FLORIDA COAST BUT WILL GRADUALLY DIMINISH DURING THE DAY. SMALL CRAFT ADVISORIES REMAIN IN EFFECT. RESIDENTS IN THESE AREAS SHOULD MONITOR LOCAL NWS OFFICES FOR THE LATEST FORECASTS AND CONDITIONS IN THEIR AREA.

AT 9 AM EDT THE CENTER OF HURRICANE ANDREW WAS LOCATED NEAR LATITUDE 25.6 NORTH AND LONGITUDE 81.8 WEST OR APPROXIMATELY 45 MILES SOUTH OF NAPLES FLORIDA.

HURRICANE ANDREW IS MOVING TOWARD THE WEST AT 18 MPH. THIS MOTION IS EXPECTED TO CONTINUE THIS MORNING WITH A GRADUAL TURN TO THE WEST NORTHWEST LATER TODAY.

MAXIMUM SUSTAINED WINDS ARE NEAR 140 MPH. LITTLE CHANGE IN STRENGTH IS LIKELY DURING THE NEXT 24 HOURS.

HURRICANE FORCE WINDS EXTEND OUTWARD TO 30 MILES...50 KM FROM THE CENTER WITH TROPICAL STORM FORCE WINDS EXTENDING OUTWARD TO 140 MILES. ESTIMATED MINIMUM CENTRAL PRESSURE IS 945 MB...27.91 INCHES.

STORM SURGES OF 5 TO 8 FEET ARE POSSIBLE ON THE FLORIDA WEST COAST NEAR AND TO THE SOUTH OF THE CENTER FOLLOWING PASSAGE OF THE HURRICANE. ALONG THE SOUTHEAST COAST OF FLORIDA STORM SURGE TIDES ARE DECREASING. PRELIMINARY REPORTS FROM THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT INDICATE A STORM SURGE OF 8 FEET ABOVE NORMAL WAS RECORDED IN BISCAYNE BAY NEAR HOMESTEAD FLORIDA.

RAINFALL AMOUNTS OF 5 TO 8 INCHES AND ISOLATED TORNADOES ARE POSSIBLE ACROSS SOUTHERN AND CENTRAL FLORIDA TODAY.

FOR STORM INFORMATION SPECIFIC TO YOUR AREA...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL WEATHER OFFICE.

REPEATING THE 9 AM EDT POSITION...LATITUDE 25.6 NORTH AND LONGITUDE 81.8 WEST AND MOVING TOWARD THE WEST AT 18 MPH. MAXIMUM SUSTAINED WINDS NEAR 140 MPH. MINIMUM CENTRAL PRESSURE OF 945 MB...27.91 INCHES.

THE NEXT SCHEDULED ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 11 AM EDT MON.

6.5.2.9 Example of a Public Advisory Correction

HURRICANE ANDREW ADVISORY NUMBER 25...**CORRECTED**
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
500 AM EDT MON AUG 24 1992

CORRECTED FOR CENTRAL PRESSURE...

BODY OF TEXT

6.6 Volcanic Ash Advisory Products

In addition to SIGMETs (Section 6.1), the NWS issues the following products to notify the aviation community of volcanic ash.

6.6.1 Volcanic Ash Advisory Statement (VAAS)

A [Volcanic Ash Advisory Statement \(VAAS\)](#) provides information on hazards to aircraft flight operations caused by a volcanic eruption.

6.6.1.1 Issuance

Volcanic Ash Advisory Centers (VAACs) are responsible for providing ash movement and dispersion guidance to Meteorological Watch Offices (MWOs) and neighboring VAACs. There are nine VAACs worldwide, two of which are located in the US (Figure 6-18).

Each VAAC issues Volcanic Ash Advisory Statements and provide guidance to Meteorological Watch Offices (MWOs) for SIGMETs involving volcanic ash.

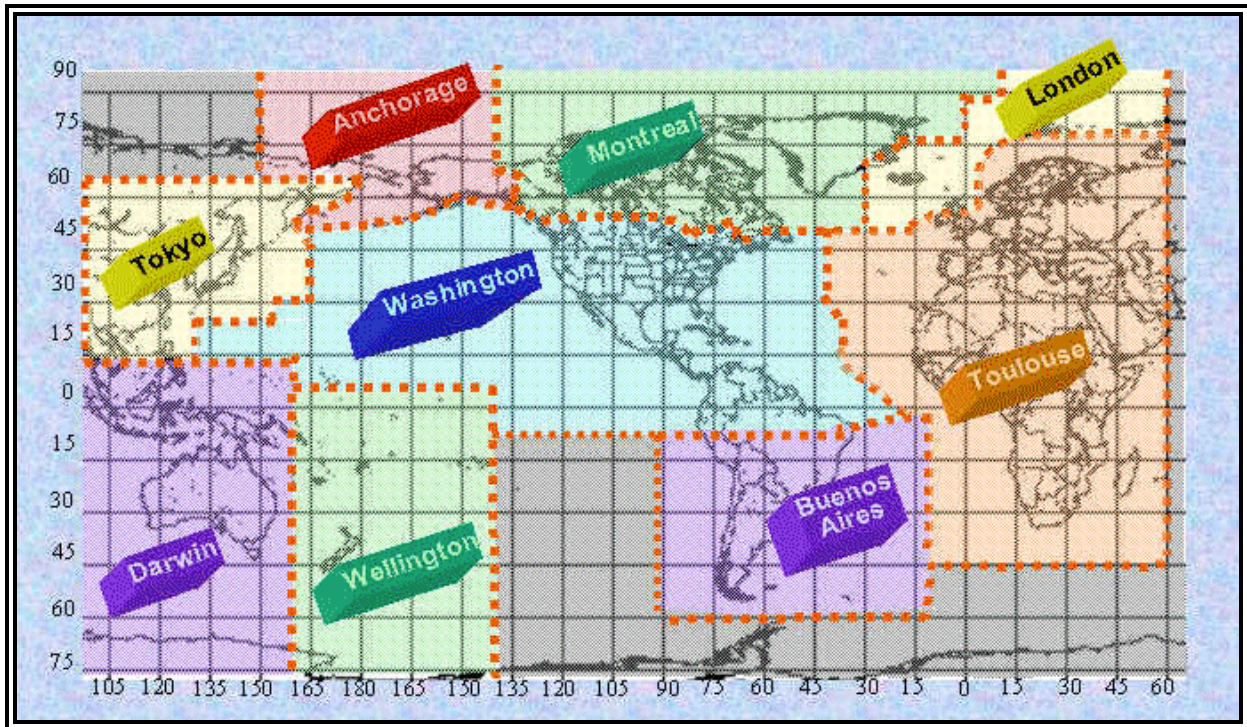


Figure 6-18. Volcanic Ash Advisory Centers (VAACs) Area of Responsibility

6.6.1.2 Format

A VAAS may be issued within 6 hours of an eruption and every 6 hours thereafter. However, it can be issued more frequently if new information about the eruption is received.

A VAAS summarizes the known information about an eruption. It may include the location of the volcano, height of the volcano summit, height of the ash plume, a latitude/longitude box of the ash dispersion cloud, and a forecast of ash dispersion. The height of the ash cloud is estimated by [meteorologists](#) analyzing satellite imagery and satellite cloud drift winds combined with any pilot reports, volcano observatory reports, and upper-air wind reports.

6.6.1.3 Example of a VAAS Issued by the Washington VAAC

VOLCANIC ASH ADVISORY

ISSUED: 2003JUL10/1300Z VAAC: WASHINGTON

VOLCANO: ANATAHAN 0804-20

LOCATION: N1621E14540 AREA: MARIANA ISLANDS

SUMMIT ELEVATION: 2585 FT (788 M)

ADVISORY NUMBER: 2003/251

INFORMATION SOURCE: GOES 9 IMAGERY. GFS MODEL WINDS FORECAST

ERUPTION DETAILS: ASH AND GAS EMISSIONS SINCE MAY 10.

OBS ASH DATE/TIME: 09/1202Z.

OBS ASH CLOUD: ASH NOT IDENTIFIABLE FROM SATELLITE DATA.

WINDS SFC/FL080 MOVING SW 10-15 KNOTS.

FCST ASH CLOUD +6H: SEE SIGMETS.

REMARKS: THE ASH PLUME OBSERVED IN VISIBLE IMAGERY IS TOO THIN AND DIFFUSE TO BE SEEN IN INFRARED AND MULTISPECTRAL IMAGAERY. ANY ASH UP TO FL080 SHOULD MOVE TOWARDS THE SW AT 10-15 KNOTS.

NEXT ADVISORY: WILL BE ISSUED BY 2003JUL10/1900Z.

6.6.2 Volcanic Ash Advisory (VAA)

Volcanic Ash Advisory Centers (VAACs) issue Volcanic Ash Advisories (VAAs) when airborne volcanic ash is observed or reported which may affect the atmosphere in the VAAC's area of responsibility. 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.

6.6.2.1 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:

- Washington VAAC
 - FIRs in CONUS and adjacent coastal waters (Figures 6-3 and 6-18)
 - The Oakland Oceanic FIR over the Pacific Ocean (Figures 6-5 and 6-18)
 - The New York FIR over the western Atlantic Ocean (Figures 6-4 and 6-18)

- FIRs over and adjacent to the Caribbean, and Central and South America north of 10 degrees south latitude (Figure 6-4 and 6-18)
- Anchorage VAAC
 - The Anchorage FIR (Figures 6-5 and 6-18).
 - Russian FIRs north of 60 degrees north latitude and east of 150 degrees east longitude (Figure 6-18).

6.6.2.2 VAA Issuance and Update Times

The VAA may be issued as soon as possible after credible information is received on the presence of airborne volcanic ash in the VAAC's area of responsibility 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.

6.6.2.3 VAA Content

The VAA follows international recommendations contained in ICAO Annex 3, chapter 3.6.2 and contains 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 contains 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 may be issued for a non-erupting seismically monitored volcano in color code orange or red. A one-time VAA Watch may be issued when a monitored Alaska volcano goes from color code green to yellow.

6.6.2.4 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 area of responsibility.

6.6.2.5 Interchange of VAAs among Volcanic Ash Advisory Centers (VAAC)

When an ash cloud is forecast to move from one VAAC's area of responsibility into another VAAC's area of responsibility, 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 area of responsibility, 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.

6.6.2.6 VAA Dissemination

VAAs will be disseminated to Meteorological Watch Offices (MWOs), Area (Traffic) Control Centers, World Area Forecast Centers (WAFCs), relevant Regional Area Forecast Centers

(RAFCs), international operational meteorological data banks, and other government and commercial meteorological offices, in accordance with regional air navigation agreements.

6.6.2.7 Example of a Volcanic Ash Advisory (VAA)

VOLCANIC ASH ADVISORY - ALERT

ISSUED 2003 APR 19/0615Z

VAAC: ANCHORAGE

VOLCANO: CHIKURACHKI, 900-36

LOCATION: N5019 E15527

AREA: KAMCHATKA NORTHERN KURIL ISLANDS

SUMMIT ELEVATION: 7674 FT (2339 M)

ADVISORY NUMBER: 2003-02

INFORMATION SOURCE: SATELLITE

AVIATION COLOR CODE: NOT GIVEN

ERUPTION DETAILS: A NEW ERUPTION OCCURRED AT APPROXIMATELY 190500 UTC. HEIGHT IS ESTIMATED AT FL300. ESTIMATE IS BASED ON OBSERVED AND MODEL WINDS. MOVEMENT APPEARS TO BE E AT 75 KTS.

OBS ASH DATA/TIME: 19/0500Z

OBS ASH CLOUD: VA EXTENDS FM NEAR VOLCANO EWD TO N50 E160.

FCST ASH CLOUD +6HR: 30NM EITHER SIDE OF LN FM NIPPI N49 E159 - N50 E175.

FCST ASH CLOUD +12HR: 30NM EITHER SIDE OF LN FM N50 E168 - N50 E180.

FCST ASH CLOUD +18HR: 30NM EITHER SIDE OF LN FM N51 E175 - N50 E185.

NEXT ADVISORY: 20030419/1500Z

REMARKS: UPDATES AS SOON AS INFO BECOMES AVAILABLE.