Chapter 9. FAA WEATHER SERVICES

Section 1. GENERAL

9-1-1. PURPOSE

Surface meteorological observations are filed at scheduled and unscheduled intervals with stations having sending capability to WMSC for dissemination on the Service A domestic aviation weather system. These reports are aviation routine weather reports (METAR) and aviation selected special weather (SPECI). All reports will include a report type and the six-digit time of the observation. Computer sorting and validation requires exact adherence to format and procedure at all times.

9-1-2. SCHEDULED TRANSMISSION TIMES

a. METAR REPORTS. Prepare and code METAR reports for transmission between H+55 and H+00.

1. M1FC entry, use TA mask and specify H in the time field.

2. AIS entry, use /T procedures between H+46 and H+54. Use /D procedure between H+55 and H+00.

b. SPECI AND DELAYED OR CORRECTED REPORTS. Transmit SPECI, delayed or corrected reports as soon as possible after H+00.

1. M1FC entry, use TA mask and leave the time field blank.

2. AIS entry, use /D procedure.

9-1-3. DISTRIBUTION

Most meteorological and NOTAM data exchanged outside of the facility is dependent on the Weather Message Switching Center Replacement (WMSCR). It is important to adhere to strict format and procedures during normal operations, as well as during system interruption periods.

a. Circuit interruption. Notify your tie-in facility, the AIS Customer Service Center, WMSCR and, if appropriate, the GS-200 Host facility of all outages. The AFSS facility should notify their FSDPS, AWP, and the appropriate telco servicing company.

b. All outage reports should refer to the correct circuit and/or equipment identification numbers. Facilities should obtain and record ticket numbers provided by AIS or the telco authority.

c. AIS and WMSCR telephone numbers are as follows:

1. AIS HELPDESK (800) 804-1310.

2. AIS EMERGENCY OUTAGE HOTLINE (703) 818-5551.

3. WMSCR (KNKAWMSC):
Atlanta 404-926-7931
Salt Lake City 801-320-2046.

Section 2. PILOT WEATHER REPORT(UA/UUA)

9-2-1. GENERAL

Pilot Weather Reports (PIREP's) are filed at unscheduled times with stations having sending capability to WMSCR for dissemination on the Service A domestic aviation weather system. These reports shall be entered into the system as individual reports, not appended to a surface observation. Entry shall only be between H+00 and H+55.

9-2-2. PREPARATION FOR TRANSMISSION

a. M1FC entry, use WY mask. (See para 4-2-4.)

b. AIS entry, use /D procedures.

9-2-3. RESPONSIBILITY

FSS specialists shall actively solicit PIREP's in conjunction with preflight and inflight communications with pilots and assure timely dissemination of the PIREP information. Each facility should make special efforts to obtain PIREP's on departure and arrival weather conditions at airports within their flight plan area.

9-2-4. PIREP DISPLAY

Maintain a PIREP display to conform with the particular requirements of your facility. If it is posted for internal use only, symbology may be used at the facility's discretion. If it is displayed as a pilot self-briefing aid, the use of contractions, such as OVC, shall be applicable.

9-2-5. SOLICITING PIREP'S

a. Solicit PIREP's for the affected area(s) when one or more of the following weather conditions exist, are reported, or forecast to occur:

1. Ceilings at or below 5,000 feet.

2. Visibility reported on the surface or aloft is 5 miles or less.

3. Thunderstorms and related phenomenon.

4. Turbulence of moderate degree or greater.

5. Icing of light degree or greater.

6. Wind shear.

7. Volcanic ash clouds are reported or forecast.

NOTE-
Pilots may forward PIREP's regarding volcanic activity using the format described in the Volcanic Activity Reporting Form (VAR) as depicted in the Aeronautical Information Manual, Appendix 2.

b. Also, solicit PIREP's regardless of weather conditions when:

1. An NWS or ATC facility indicates a need because of a specific weather or flight assistance situation.

2. Necessary to determine flying conditions pertinent to natural hazards (mountain passes, ridges, peaks) between the weather reporting stations.

3. The station is designated as responsible for PIREP's in an offshore coastal area.

c. Flight watch specialists shall solicit sufficient PIREP's to remain aware of flight conditions.

d. To solicit PIREP's within a specific area, broadcast a request on NAVAID's, transcribed broadcast facilities, or a selected communications frequency.

PHRASEOLOGY-
PILOT WEATHER REPORTS ARE REQUESTED (location/area). CONTACT (name) RADIO/FLIGHT WATCH ON (frequency) TO REPORT THESE CONDITIONS.

9-2-6. RECORDING OF PIREP DATA

Record PIREP data directly into M1FC, or on FAA Form 7110-2, or on other material deemed appropriate; e.g., 5" x 8" plain paper.

9-2-7. DATA TO BE INCLUDED IN PIREP'S

Include the following reports of flight conditions, as appropriate:

a. Height and coverage of cloud bases, tops, and layers.

b. Flight visibility.

c. Restrictions to visibility and weather occurring at altitude.

d. Air temperature and changes to temperature with altitude or range.

e. Direction and speed of wind aloft.

f. Extent and intensity of turbulence.

REFERENCE-
Para 9-2-8.

g. Extent, type, and intensity of icing.

REFERENCE-
Para 9-2-9.

h. Weather conditions and cloud cover through mountain passes and over ridges and peaks.

i. Location, extent, and movement of thunderstorms and/or tornadic activity.

j. Excessive winds aloft, LLWS, and other phenomena bearing on safety and efficiency of flight.

9-2-8. REPORTING TURBULENCE IN PIREP'S

a. Turbulence reports should include location, altitude, or range of altitudes, and aircraft type, and should include whether in clouds or clear air. The degree of turbulence, intensity, and duration (occasional, intermittent, and continuous) is determined by the pilot. It is essential that the report is obtained and disseminated when possible in conformance with the U.S. Standard Turbulence Criteria Table as follows:

1. Light. Loose objects in aircraft remain at rest.

2. Moderate. Unsecured objects are dislodged. Occupants feel definite strains against seat belts and shoulder straps.

3. Severe. Occupants thrown violently against seat belts. Momentary loss of aircraft control. Unsecured objects tossed about.

4. Extreme. Aircraft is tossed violently about, impossible to control. May cause structural damage.

b. Report CAT or CHOP if used by the pilot to describe the type of turbulence.

9-2-9. REPORTING ICING CONDITIONS IN PIREP'S

a. Icing reports shall include location, altitude or range of altitudes, type aircraft, air temperature, intensity, and type of icing.

b. Icing types.

1. Rime. Rough, milky, opaque ice formed by the instantaneous freezing of small super-cooled water droplets.

2. Clear. A glossy, clear or translucent ice formed by the relatively slow freezing of large super-cooled water droplets.

3. Mixed. A combination of rime and clear.

c. Icing intensity.

1. Trace. Ice becomes perceptible. Rate of accumulation slightly greater than sublimation. Deicing/anti-icing equipment is not utilized unless encountered for an extended period of time (over 1 hour).

2. Light. The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/ prevents accumulation. It does not present a problem if deicing/anti-icing is used.

3. Moderate. The rate of accumulation is such that even short encounters become potentially hazardous, and use of deicing/anti-icing equipment or diversion is necessary.

4. Severe. The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate diversion is necessary.

9-2-10. MEANS USED TO SOLICIT PIREP'S

Inform pilots of a need for PIREP's. The following methods may be used to collect PIREP's:

a. During preflight weather briefings.

b. On post-flight contacts.

c. During regular air-ground contacts.

d. Broadcast a request on NAVAID frequencies.

e. Append a request on HIWAS, TIBS, VOR-TWEB, or TWEB broadcasts.

f. Request PIREP's from air carrier and military operations offices, military pilot-to-forecaster units, and local aircraft operators.

g. Solicit from other air traffic facilities.

9-2-11. PIREP CLASSIFICATION

Categorize PIREP's as follows:

a. URGENT. The following weather phenomena shall be classified as an URGENT (UUA) PIREP:

1. Tornadoes, funnel clouds, or waterspouts.

2. Severe or extreme turbulence (including clear air turbulence).

3. Severe icing.

4. Hail.

5. Low level wind shear. Classify LLWS PIREP's as UUA if the pilot reports air speed fluctuations of 10 knots or more. Classify reports of LLWS with air speed fluctuations less than 10 knots as routine. If air speed fluctuation is not reported, classify PIREP as UUA.

NOTE-
LLWS defined as windshear within 2,000 feet of the surface.

6. Volcanic ash clouds.

7. Any other weather phenomena reported which are considered by the specialist as being hazardous, or potentially hazardous, to flight operations.

b. ROUTINE. Classify as ROUTINE (UA) all PIREP's received except those listed above.

9-2-12. PIREP HANDLING

Upon receipt of a PIREP, accomplish the following:

a. Urgent.

1. Deliver to the ARTCC Weather Coordinator as soon as possible.

2. Deliver to the associated WSO as soon as possible.

3. Enter on Service A at the first opportunity.

4. Use in weather briefings, as appropriate.

b. Routine.

1. Transmit on Service A as soon as practical.

2. Broadcast in accordance with established procedures in Chapter 2.

3. Use in weather briefings, as appropriate.

9-2-13. OFFSHORE COASTAL ROUTES

When your station has been given responsibility for collecting offshore coastal route PIREP's:

a. Include the coastal water area when soliciting PIREP's. At least one PIREP is required hourly regardless of weather conditions.

b. Pacific, Hawaiian Island station areas coincide with the Honolulu ARTCC sectors and the entire Hawaiian area is designated as offshore areas for PIREP purposes.

NOTE-
The AT division assigns PIREP responsibility for an offshore coastal area, route, or route segment to a specific station. The area assigned will be within the same ARTCC area as the station, and the station shall have adequate air-ground communications coverage over its assigned offshore area.

9-2-14. PIREP PREPARATION

To assure proper dissemination of PIREP's to all system users, the encoding procedures listed below shall be followed:

a. Identify each element by a Text Element Indicator (TEI).

b. Ensure each report includes TEI's for message type, location, time, altitude/flight level, type aircraft, and at least one other to describe the reported phenomena.

c. Precede each TEI, except message type, with a space and a solidus (/).

d. Follow each TEI, except altitude/flight level, with a space.

e. Insert zeros in reported values when the number of digits in the report is less than the number required by the format.

f. Use only authorized aircraft designators and contractions.

g. In the location TEI, include any three-letter identifier to describe locations or routes.

h. Omit entries of TEI's, except as listed in subpara 9-2-14b, for which no data was reported.

9-2-15. PIREP FORMAT

Using TEI's as described below, prepare PIREP's for system entry in the following format:

a. UUA or UA. Message type - Urgent or Routine PIREP.

b. /OV.

1. Location in reference to a VHF NAVAID or an airport, using the three or four letter identifier. If appropriate, encode the identifier, then three digits to define a radial and three digits to define the distance in nautical miles.

EXAMPLE-
/OV KJFK
/OV KJFK107080
/OV KFMG233016/RM RNO 10SW

2. Route segment. Two or more fixes, as in subparas 9-2-15b1 and b2 examples, to describe a route.

EXAMPLE-
/OV KSTL-KMKC
/OV KSTL090030-KMKC045015

c. /TM. Time that the reported phenomenon occurred or was encountered. Report time in four digits UTC.

EXAMPLE-
/TM 1315

d. /FL. Altitude/flight level. Enter the altitude in hundreds of feet (MSL) where the phenomenon was first encountered. If not known, enter UNKN. If the aircraft was climbing or descending, enter the appropriate contraction (DURGC or DURGD) in the remarks/RM TEI. If the condition was encountered within a layer, enter the altitude range within the appropriate TEI describing the condition.

EXAMPLE-
/FL093
/FL310
/FLUNKN /RM DURGC

e. /TP. Type aircraft. Enter aircraft type. If not known, enter UNKN. Icing and turbulence reports shall always include the type aircraft.

EXAMPLE-
/TP AEST
/TP B74A
/TP P28R
/TP UNKN

f. /SK. Sky condition. Report height of cloud bases, tops, and cloud coverage as follows:

1. Enter the height of the base of a layer of clouds in hundreds of feet (MSL). Enter the top of a layer in hundreds of feet (MSL) preceded by the word "-TOP." If reported as clear above the highest cloud layer, enter "SKC" following the reported level.

EXAMPLE-
/SK OVC100-TOP110/ SKC
/SK OVC015-TOP035/OVC230
/SK OVC-TOP085

2. Use authorized contractions for cloud cover.

EXAMPLE-
BKN
FEW
OVC
SCT
SKC

3. Cloud cover amount ranges will be entered with a hyphen and no spaces separating the amounts; i.e., BKN-OVC.

EXAMPLE-
/SK SCT-BKN050-TOP100
/SK BKN-OVCUNKN-TOP060/BKN120-TOP150/ SKC

4. Unknown heights are indicated by the contraction UNKN.

EXAMPLE-
/SK OVC065-TOPUNKN

5. If a pilot indicates he/she is in the clouds, enter IMC.

EXAMPLE-
/SK OVC065-TOPUNKN /RM IMC

6. When more than one layer is reported, separate layers by a solidus (/).

g. /WX. Flight visibility and flight weather. Report weather conditions encountered by the pilot as follows:

1. Flight visibility, if reported, will be the first entry in the /WX field. Enter as FV followed by a two-digit visibility value rounded down, if necessary, to the nearest whole statute mile and append "SM" (FV03SM). If visibility is reported as unrestricted, enter FV99SM.

2. Enter flight weather types using one or more of the standard surface weather reporting symbols contained in TBL 9-2-1.

Weather type and symbols

Type	*METAR Code*
Drifting / Blowing Snow	DRSN/BLSN
Drifting Dust	DRDU
Drifting Sand	DRSA
Drizzle/Freezing Drizzle	DZ/FZDZ
Dust / Blowing Dust	DU/BLDU
Duststorm	DS
Fog (vis < 5/8SM)	FG
Freezing Fog	FZFG
Freezing Rain	FZRA
Funnel Cloud	FC
Hail (aprx 1/4" dia or more)	GR
Hail Shower	SHGR
Haze	HZ
Ice Crystals	IC
Ice Pellets/ Showers	PL/SHPL
Mist (vis > 5/8SM)	BR
Patchy Fog	BCFG
Patchy Fog on part of Arpt	PRFG
Rain / Showers	RA/SHRA
Sand / Blowing Sand	SA/BLSA
Sandstorms	SS
Shallow Fog	MIFG
Sml Hail/Snow Pellet Showers	SHGS
Sml Hail/Snow Pellets	GS

Smoke	FU
Snow Grains	SG
Snow / Showers	SN/SHSN
Spray	PY
Squalls	SQ
Thunderstorm	TS
Tornado/Waterspout	+FC
Unknown Precipitation	UP
Volcanic Ash	VA
Well developed Dust/Sand Whirls	PO

TBL 9-2-1

3. Intensity of precipitation (- for light, no qualifier for moderate, and + for heavy) shall be indicated with precipitation types, except ice crystals and hail, including those associated with a thunderstorm and those of a showery nature.

4. Intensity of obscurations shall be ascribed as moderate or + heavy for dust and sand storms only. No intensity for blowing dust, blowing sand, or blowing snow.

EXAMPLE-
/WX FV01SM +DS000-TOP083/SKC /RM DURGC

5. When more than one form of precipitation is combined in the report, the dominant type shall be reported first.

EXAMPLE-
/WX FV00SM +TSRAGR
/WX FV02SM BRHZ000-TOP083

6. When FC is entered in /WX, FUNNEL CLOUD is spelled out on /RM. When +FC is entered in /WX, TORNADO or WATERSPOUT is spelled out in the /RM TEI.

EXAMPLE-
/WX FC /RM FUNNEL CLOUD
/WX +FC /RM TORNADO or WATERSPOUT

7. When the size of hail is stated, enter in 1/4" increments in remarks /RM TEI.

8. The proximity qualifier VC (Vicinity) is only used with TS, FG, FC, +FC, SH, PO, BLDU, BLSA, and BLSN.

EXAMPLE-
/WX FV02SM BLDU000-TOP083 VC W

9. When more than one type of weather is reported enter in the following order: 1) TORNADO, WATERSPOUT, OR FUNNEL CLOUD; 2) Thunderstorm with or without associated precipitation; 3) Weather phenomena in order of decreasing predominance. No more than three groups in a single PIREP.

10. Weather layers shall be entered with the base and/or top of the layer when reported. Use the same format as in the /SK TEI.

EXAMPLE-
/WX FU002-TOP030

h. /TA. Air Temperature. Report outside air temperature using two digits in degrees Celsius. Prefix negative temperatures with an M; e.g., /TA 08 or /TA M08.

i. /WV. Wind direction and speed. Encode using three digits to indicate wind direction (magnetic) and two or three digits to indicate reported wind speed. When the reported speed is less than 10 Kts use a leading zero. The wind group will always have "KT" appended.

EXAMPLE-
/WV 28080KT
/WV 28008KT
/WV 280105KT

j. /TB. Turbulence. Report intensity, type, and altitude as follows:

1. Intensity. Enter duration if reported by the pilot (intermittent, occasional continuous) and intensity using contractions LGT, MOD, SEV, or EXTRM. Separate a range or variation of intensity with a hyphen; e.g., MOD-SEV. If turbulence was forecasted, but not encountered, enter NEG.

2. Type. Enter CAT or CHOP if reported by the pilot.

3. Altitude. Report altitude only if it differs from value reported in /FL. When a layer of turbulence is reported, separate height values with a hyphen. If lower or upper limits are not defined, use BLO or ABV.

EXAMPLE-
/TB LGT 040
/TB MOD-SEV BLO 080
/TB MOD-SEV CAT 350
/TB NEG 120-180
/TB MOD CHOP 220/NEG 230-280
/TB MOD CAT ABV 290

k. IC. Icing. Report intensity, type and altitude of icing as follows:

1. Intensity. Enter intensity first using contractions TRACE, LGT, MOD, or SEV. Separate reports of a range or variation of intensity with a hyphen. If icing was forecast but not encountered, enter NEG.

2. Type. Enter the reported icing type as RIME, CLR, or MX.

3. Altitude. Enter the reported icing/altitude only if different from the value reported in the /FL TEI. Use a hyphen to separate reported layers of icing. Use ABV or BLO when a layer is not defined.

EXAMPLE-
/IC LGT-MOD MX 085
/IC LGT RIME
/IC MOD RIME BLO 095
/IC SEV CLR 035-062

4. When icing is reported always report temperature in the /TA TEI.

l. /RM. Remarks. Use this TEI to report a phenomenon which is considered important but does not fit in any of the other TEI's. This includes, but is not limited to, low level wind shear (LLWS) reports, thunderstorm lines, coverage and movement, size of hail (1/4" increments), lightning, clouds observed but not encountered, geographical or local description of where the phenomenon occurred, and contrails. Report hazardous weather first. Describe LLWS to the extent possible.

1. Wind Shear. +/- 10 Kts or more fluctuations in wind speed, within 2,000 Ft of the surface, require an Urgent (UUA) pilot report. When Low Level Wind Shear is entered in a pilot report enter LLWS as the first remark in the /RM TEI. LLWS may be reported as -, +, or +/- depending on how it effects the aircraft. If the location is different than the /OV or /FL fields, include the location in the remarks.

EXAMPLE-
/RM LLWS +/-15 KT SFC-008 DURGC RY22 JFK

2. FUNNEL CLOUD, TORNADO, and WATERSPOUT are entered with the direction of movement if reported.

EXAMPLE-
/RM TORNADO E MOV E

3. Thunderstorm. Enter coverage (ISOL, FEW, SCT, NMRS) and description (LN,BKN LN,SLD LN) if reported. Follow with "TS," the location and movement, and the type of lightning if reported.

EXAMPLE-
/RM NMRS TS S MOV E GR1/2

4. Lightning. Enter frequency (OCNL, FRQ), followed by type (LTGIC, LTGCC, LTGCG, LTGCA, or combinations), if reported.

EXAMPLE-
/RM OCNL LTGICCG

5. Electric Discharge. Enter DISCHARGE followed by the altitude.

EXAMPLE-
/RM DISCHARGE 120

6. Clouds. Use remarks when clouds can be seen but were not encountered and reported in /SK.

EXAMPLE-
/RM CB E MOV N
/RM OVC BLO

7. Plain Language. If specific phraseology is not adequate use plain language to describe the phenomena or local geographic locations. Include remarks that do not fit in other TEI's like DURGC, DURGD, RCA, TOP, TOC, or CONTRAILS.

EXAMPLE-
/RM BUMPY VERY ROUGH RIDE
/RM CONTRAILS
/UA/OV BIS270030/TM 1445/FL060/TP CVLT/TB LGT /RM Donner Summit Pass

8. Volcanic Eruption. Volcanic Ash alone is an Urgent PIREP. A report of volcanic activity shall include as much information as possible. Include name of the mountain, ash cloud and movement, height of the top and bottom of the ash, etc. If received from other than a pilot, enter Aircraft "UNKN," Flight Level "UNKN," and /RM UNOFFICIAL.

EXAMPLE-
UUA/OV ANC240075/TM 2110/FL370/TP DC10/WX VA/ RM VOLCANIC ERUPTION 2008Z MT AUGUSTINE ASH 40S MOV SSE

9-2-16. PIREP ENCODING

PIREP's shall be coded to ensure the PIREP is stored and subsequently distributed with the surface observation location nearest the condition being reported. If more than one SA location is appropriate, select the location that provides the greatest distribution and/or prominence, such as a major hub airport.

9-2-17. PIREP ORDER

Prepare PIREP's by routes from the reported location to an adjacent location, if possible. Start a multiple PIREP transmission with the most northerly route and progress clockwise. Place each PIREP on a separate line.

EXAMPLE-
UA/OV MRB045030/TM 1645/FL060
/TP UNKN /SK OVC055
UA/OV MRB-DCA/TM 1630/FL090/TP
AEST /RM BTWN LYRS 090
UA/OV MRB-EKN/TM 1640/FL060/TP
P28R /SK BKN-OVC020-TOP040/RM
RDGS OBSCD

Section 3. RADAR WEATHER REPORT (SD/ROB)

9-3-1. GENERAL

a. Individual radar weather reports, identified as SD/ROB, are collected by the National Meteorological Center (NMC) Suitland, Maryland. These reports are entered by Weather Service Offices on the Radar Report and Warning Coordination (RAWARC) circuits. NMC also collects radar report bulletins from military reporting locations and Canada.

b. When normal entry is not possible, SD/ROB reports can be entered on Service A circuits upon request by NWS RAWARC entry stations.

9-3-2. SCHEDULE

Radar weather reports are transmitted on Service A by WMSC at H+56 to H+00 each hour. These reports are not scheduled transmissions but are given priority handling during this 4-minute time frame.

9-3-3. DISTRIBUTION

a. Radar weather reports are sent to WMSCR by NMC each hour for distribution. These reports are received on an unscheduled basis and can be expected to appear during any unscheduled distribution period.

b. Each individual WMSCR circuit receives a unique collection based upon their requirements. Circuit distribution lists are filed at circuit control facilities.

Section 4. WINDS AND TEMPERATURE ALOFT FORECAST (FD)

9-4-1. GENERAL

Winds and Temperature Aloft Forecasts (FD) are computer-prepared and issued by the NMC at Suitland, Maryland. The forecasts are valid 6 (FD1/8), 12 (FD2/9), and 24 (FD3/10) hours after the observation date/times of 0000Z and 1200Z upon which they are based. An unscheduled amendment to an FD may be prepared and issued by a WSFO.

9-4-2. LEVELS FORECAST

Dependent upon station elevation, FD1/2/3 wind forecasts are issued for the following levels: 3, 6, 9, 12, 18, 24, 30, 34, and 39 thousand foot levels. The first level for which a wind forecast is issued is 1,500 feet or more above the station elevation. Temperature is forecast for all wind levels, except the 3,000 foot level, that are 2,500 feet or more above the station. The minus signs are deleted preceding the temperatures at the 30, 34, and 39 thousand foot levels. FD8/9/10 are for the 45,000 and 53,000 foot levels. They are not normally disseminated on Service A, but are available on request/reply.

9-4-3. SCHEDULES

Winds/Temperature Aloft Forecast Schedules

Type	*Base Data Time*	*Valid for*	*For use (period)*
FD1/8	0000Z	0600Z	0500-0900Z
FD2/9	0000Z	1200Z	0900-1800Z
FD3/10	0000Z	0000Z	1800-0500Z
FD1/8	1200Z	1800Z	1700-2100Z
FD2/9	1200Z	0000Z	2100-0600Z
FD3/10	1200Z	1200Z	0600-1700Z

FIG 9-4-1

9-4-4. DISTRIBUTION

All FD's are transmitted to the WMSC by NMC. Distribution by the WMSC is accomplished in accordance with established program requirements. Amended FD data prepared and entered by a WSFO is distributed to the same users as the original product prepared by NMC.

Section 5. AVIATION TERMINAL FORECAST (TAF)

9-5-1. GENERAL

Twenty-four hour Terminal Forecasts (TAF's) for selected U.S. terminals are prepared by NWS forecast offices and forwarded to the WMSCR for distribution. Similar forecasts for the U.S. Military, Canada, and Mexico are sent to WMSC from the NMC and Air Weather Service (AWS) for distribution.

9-5-2. TERMINAL FORECAST SCHEDULES

TAF's are prepared four times a day and are issued at 2330, 0530, 1130, and 1730 UTC.

9-5-3. DISTRIBUTION

Distribution of TAF's is made by WMSCR in accordance with a predetermined list for each circuit based upon intracircuit coordinated requirements. WMSCR Identifier Index of Individual Aviation Weather Reports. (Use RQ Procedures.)

Section 6. AVIATION AREA FORECAST (FA)

9-6-1. GENERAL

a. Aviation Area Forecasts (FA) are available through the WMSC and provide an overview of weather conditions which could impact aviation operations. FA's are issued by the National Aviation Weather Advisory Unit (NAWAU) in Kansas City, Missouri, for the conterminous U.S. land and coastal waters by areas (Pacific Coast, Rocky Mountain, North-Central U.S., South-Central U.S., Northeast U.S., Southeast U.S.). The areas are delineated along state boundaries and are specified in the NWS Operations Manual, Chapter D-20. The FA's for Alaska and Hawaii are issued by the WSFO's located in Anchorage, Fairbanks, and Juneau, Alaska, and Honolulu, Hawaii. The geographical areas of coverage for the appropriate WSFO's are specified in Chapter D-20 of the NWS Operations Manual. (Canadian and Mexican FA's are also available through the WMSC.)

b. FA's consist of two sections with each section being transmitted with a unique communications header. This allows each section to be replaced when needed instead of amending or correcting the affected FA, to provide a current and complete area forecast. Inflight advisories (including WST's) amend the FA; however, when necessary, the appropriate section of the FA will be replaced by the issuing NWS office. The two FA sections and their communications headers are as follows (iii denotes the FA location identifier; e.g., ANC, CHI, etc.):

1. iiiS-Synopsis.
2. iiiI-Icing and Freezing Level.
3. iiiT-Turbulence.
4. iiiC-Significant Clouds and Weather.

9-6-2. AVIATION AREA FORECAST (FA) SCHEDULE

a. FA's are prepared three times a day in the contiguous 48 States and Alaska, and four times a day in Hawaii. All scheduled transmission times are in UTC and listed by daylight/standard times. The times in the contiguous U.S. are in TBL 9-6-1.

Area Forecast Schedule

Time Zones	*Areas*	*Issuance Times*
Central	CHI/DFW	0130/0230
		0930/1030
		1830/1930
Eastern	BOS/MIA	0030/0130
		0830/0930
		1730/1830
Mountain	SLC	0230/0330
		1030/1130
		1930/2030
Pacific	SFO	0230/0330
		1030/1130
		1930/2030

TBL 9-6-1

b. The Alaska and Pacific NWS Regional Headquarters have authority to schedule FA's to meet user requirements. These are issued at the following times. (See TBL 9-6-2.)

Alaska/Pacific Area Forecast Schedule

Issuance	*ANC and FAI*	*JNU*	*HNL*
1st	0640Z	0640Z	0340Z
2nd	1440Z	1340Z	0940Z
3rd	2240Z	2240Z	1540Z
4th			2140Z

TBL 9-6-2

c. The Gulf FA is prepared twice daily. The issuance times in UTC or Z depend on whether LDT/LST is in effect and are as follows:

1. 1st issuance 1040/1140.
2. 2nd issuance 1740/1840.

9-6-3. DISTRIBUTION

Distribution of FA's is made by WMSC in accordance with a predetermined list for each circuit based upon intracircuit coordinated requirements.

Section 7. SEVERE WEATHER FORECASTS

9-7-1. GENERAL

Severe Weather Forecasts, Bulletins, Status Reports, and Alerts are filed at irregular intervals by the NWS National Severe Storm Forecast Center (NSSFC) in Kansas City, Missouri, and transmitted to WMSC for distribution. The alert (MKC AWW) is a preliminary announcement of a forthcoming severe weather watch and includes all information required for aviation purposes. Stations may obtain the Severe Weather Watch (MKC WW) from WMSC if desired. The WW number is included in the text of the AWW.

9-7-2. DISTRIBUTION

Upon receipt of MKC AWW alert, the WMSC will immediately interrupt the active task on selected Service A circuits and transmit the report. Severe weather status reports (WW-A) are never urgent. These are relayed unscheduled.

9-7-3. SEVERE WEATHER OUTLOOK NARRATIVE (AC)

In addition to Severe Weather Forecast, the Kansas City NSSFC will frequently file for transmission a Severe Weather Outlook Narrative, which will contain a brief evaluation of present and expected surface and upper air criteria conducive to severe local storms. These are assigned report type "AC."

Section 8. FLIGHT ADVISORIES (SIGMET/WS-AIRMET/ WA-CONVECTIVE SIGMET/WST)

9-8-1. GENERAL

Flight Advisories are issued by the NAWAU in Kansas City, Missouri, for the conterminous U.S. and the appropriate WSFO in Alaska and Hawaii to provide notice of potentially hazardous weather conditions by amending or supplementing portions of the valid FA. The report type designator WS for SIGMET's, WST for Convective SIGMET's, and WA for AIRMET's is used to effect selective distribution. The text of the message identifies which advisory is being transmitted. WS's are identified with letters N (NOVEMBER) through Y (YANKEE) with the exception of S (SIERRA) and T (TANGO). WA's are identified with the letters S (SIERRA), T (TANGO) and Z (ZULU). The latest message for each system is kept in the computer's active storage file by the WMSC: WA for 360 minutes, WS for 240 minutes, and WST for 45 minutes.

NOTE-
Honolulu issues international SIGMET's available as WSPA1 PHNL and WSPA2 PHNL, which are retained by WMSC for 360 minutes.

9-8-2. DISTRIBUTION

SIGMET's, both WST/WS, are distributed unscheduled to all Service A circuits. AIRMET data is distributed as a scheduled product at 0145Z and every 6 hours thereafter, and any updates or amendments issued between scheduled periods will be a complete replacement for the previously issued AIRMET.

Section 9. TRANSCRIBED WEATHER BROADCAST (TWEB)

9-9-1. GENERAL

The Transcribed Weather Broadcast (TWEB) and synopsis for selected routes are prepared by NWSFO's and forwarded to the WMSC for distribution. All times are in UTC and listed by daylight/ standard times. (See TBL 9-9-1.)

Transcribed Weather Broadcast/Synopsis

Time Zones	*Issuance Times*		
	daylight standard	*daylight standard*	*daylight standard*
Central	0130/0230	0930/1030	1830/1930
Eastern	0030/0130	0830/0930	1730/1830
Mountain	0230/0330	1030/1130	1930/2030
Pacific	0330/0430	1130/1230	2030/2130

TBL 9-9-1

a. The morning and mid-day TWEB and synopsis will be valid for 12 hours. The evening TWEB and synopsis will be valid 18 hours with no outlook.

b. Eastern and Central TWEB's shall not be entered prior to H+20 for hours 10, 17, and 22 UTC. Mountain and Pacific TWEB's shall not be entered prior to H+20 for hours 11, 18, and 23 UTC.

9-9-2. CROSS-COUNTRY ROUTES

WMSC's storage contains a selection of combined individual route segments that defines cross-country routes. These routes are defined in AC 00-45. Section 4 defines the route segment and lists the number for each cross-country route.

Section 10. METEOROLOGICAL IMPACT STATEMENT (MIS)

9-10-1. GENERAL

A Meteorological Impact Statement (MIS) is an unscheduled planning forecast. It is an air traffic oriented forecast intended for ARTCC, Central Flow Weather Service Unit (CFWSU), Center Flow Control Function (CFCF), and hub terminal air traffic facility specialists responsible for making flow control and flow control-related decisions. It enables these specialists to include the impact of expected, specified local and/or national weather conditions in making these decisions.

9-10-2. CRITERIA

a. The MIS describes adverse weather conditions which are expected to begin generally within 4-to-12 hours after the statement's issuance. It can also describe conditions existing when the CWSU begins daily operations if the existing conditions will continue for at least 3 hours, or it can describe conditions existing at the time a briefing is issued. As a minimum, an MIS will be issued when:

1. Any of the following conditions occur or are forecast to occur:

(a) Conditions meeting Convective SIGMET criteria. (See the Weather Service Operations Manual (WSOM), Chapter D-22.)

(b) Moderate or greater icing.

(c) Moderate or greater turbulence.

(d) Heavy precipitation.

(e) Freezing precipitation.

(f) Conditions at, or approaching, low IFR. (See WSOM, Chapter D-21.)

(g) Surface winds, including gusts of 30 knots or greater.

(h) Low level wind shear (within 2,000 feet of the surface).

(i) Volcanic ash, dust storms, or sandstorms.

2. The above conditions will, in the forecaster's judgment, impact the flow of air traffic within the ARTCC area of responsibility.

3. The forecast lead time (the time between the issuance of an MIS and the onset of the phenomenon), in the forecaster's judgment, is sufficient to make the issuance of a CWA premature or unnecessary.

b. The MIS will describe the location of the phenomenon using ARTCC relevant points of reference, such as VOR's, and will include the height, extent, intensity, and movement of the phenomenon. MIS's will be numbered sequentially, beginning at midnight local time each day. Forecasters should be aware that the MIS is disseminated and stored as a replaceable product. This means that each MIS issuance must contain all of the pertinent and known details of the conditions meeting MIS issuance criteria including the continuing conditions described in previously issued MIS's.

c. The format of the MIS communications header is: (ARTCC designator) MIS (issuance number)(date/time issued in UTC)/(valid until date/time in UTC) (text).

EXAMPLE-
ZJX MIS 02 111345/120100

SCT LVL 3 AND 4 TSTMS ALG N/S RTES S OF ILM AND E OF SAV/OMN LN DVLPG BY 16Z MAX TOPS 350/400 ELSW ZJX AREA LVL 3 AND 4 TSTMS FRMG IN SHRT LNS OR CLUSTERS AFT 17Z WITH FEW RCHG LVL 5 AND 6 CELLS MOVG GENLY SEWD 10 KTS CONT THRU 00Z CONDS LWRG OCNLY TO LIFR IN HVY PCPN AFT 17Z

NOTE-
The format of the MIS communications header must be followed exactly if the product is to be distributed through AIS.

9-10-3. DISTRIBUTION

The MIS will be distributed to ARTCC area supervisors and traffic management coordinators and will be entered through FAA AIS and other communications media to make it available for dissemination to other FAA and NWS facilities, including adjacent CWSU's and locally designated hub terminal facilities. Distribution may be made directly by the CWSU meteorologist or through the weather coordinator position. When a MIS is issued concurrently with a briefing, the MIS will be distributed through those media to facilities mentioned above which do not receive an alphanumeric version of the briefing's contents.

Section 11. CENTER WEATHER ADVISORY (CWA)

9-11-1. GENERAL

A Center Weather Advisory (CWA) is an unscheduled weather advisory. It is issued for the guidance of ARTCC personnel, designated FAA facilities, CFWSU meteorologists, and air crews inflight to anticipate or avoid adverse weather conditions in terminal and en route environments.

9-11-2. CRITERIA

a. The CWA is not a flight planning document. By nature of its short lead time, it reflects weather conditions in existence at the time of issuance or conditions beginning within the next 2 hours. If conditions are expected to persist beyond the time of the valid period and/or if conditions extend beyond the ARTCC area, statements to this effect should be included in the text. The CWSU will issue a CWA:

1. When necessary as a supplement to an existing WS (including WST's), to an existing WA, or to an existing FA section. The issuance of a CWA under these circumstances should be limited to occasions when, in the judgment of the CWSU meteorologist, real time information adequately supports the issuance of a redefining statement update or advanced amendment. Such real time information regarding the phenomenon covered by a NAWAU product may be pilot reports, radar satellite, or information from other sources. The purpose of the CWA, under these circumstances, is to improve or to update the definition of the phenomenon in terms of relevance to users in the ARTCC area regarding the phenomenon's location, movement, extent, and intensity. A CWA, for example, describing an IFR WA's area of low IFR (LIFR) conditions in terms of ARTCC reference points would be a valid redefinition of the location and intensity relevant to the ARTCC's area and would meet documented requirements.

2. When an inflight advisory has not yet been issued, but the observed or expected weather conditions meet WS or WA criteria based on current pilot reports and reinforced by other sources of information concerning existing meteorological conditions. In this situation, the CWSU meteorologist should call the appropriate forecaster at the NAWAU or appropriate Alaska WSFO. If the CWSU forecaster determines that it is necessary to issue a CWA to allow lead time while the WS/WA is being prepared, the CWA will be issued, and the CWA should indicate that a WS/WA will be issued shortly.

3. The CWSU meteorologist may issue a CWA when observed, or developing weather conditions do not meet WS (including WST) or WA criteria but current pilot reports or other weather information sources indicate that an existing, or anticipated, meteorological phenomena will adversely affect the safe flow of air traffic within the ARTCC area of responsibility. In this situation, the data available must be sufficient, in the judgment of the CWSU meteorologist, to support both the issuance of such an advisory and, if necessary, its continuation.

b. The CWA will describe the location of the phenomenon using ARTCC relevant points of reference, such as VOR's, and will include the height, extent, intensity, and movement of the phenomenon. Each CWA will have a phenomenon number (1 through 6) immediately following the ARTCC identifier in the CWA message heading. A separate phenomenon number will be assigned to each meteorologically distinct condition or group of conditions, such as jetstream clear air turbulence or LIFR/icing conditions northwest of a low pressure center. The use of phenomenon numbers make it possible to store and disseminate up to six unrelated CWA conditions with each condition capable of being updated. Forecasters should be aware that the CWA is stored and disseminated as a replaceable product. This means that each subsequent CWA issuance must contain all the pertinent and known details of the conditions meeting CWA issuance criteria, including the continuing conditions described in the previously issued CWA's. CWA's will also be numbered sequentially, beginning at midnight local time each day. The sequential CWA issuance number will be followed by the related two-digit, alphanumeric designator for inflight advisories in effect if applicable. The CWA communications heading will also contain the CWA date/time of issuance in UTC and the "valid until" date/time in UTC. The difference between these two times will not exceed 2 hours.

c. The format of the CWA communications header is: (ARTCC designator)(phenomenon number) CWA (issuance number)/(if applicable, two-digit inflight advisory alphanumeric designator) (date/time issued in UTC)/(valid until date/time in UTC) (text).

EXAMPLE-
ZOB3 CWA 01 032141/032300
LN LVL 5 AND 6 TSTMS 10S DET TO 40N DJB TO 40E SBN TO 80SE MKG MOVG FROM 2525 3/4 INCH HAIL RPRTD LAST 5 MINS 20 SW YIP LVL 4 TO 6 TSTMS CONTG DTW AREA BYD 2300

ZKC1 CWA 01/ALFA 4 121528/121728
NMRS RPTS OF MDT TO SVR ICG 080/090 30 MILE RADIUS OF STL LGT OR NEG ICG RPTD 040/120 RMNDR OF ZKC AREA AND NE OF AREA

NOTE-
The format of the CWA communications header must be followed exactly if the product is to be distributed through the AIS.

9-11-3. DISTRIBUTION

The CWA will be distributed to ARTCC area supervisors and traffic management coordinators and will be entered through FAA AIS and other communications media to make it available for dissemination to other FAA and NWS facilities. Distribution may be made directly by the CWSU meteorologist or through the weather coordinator position.