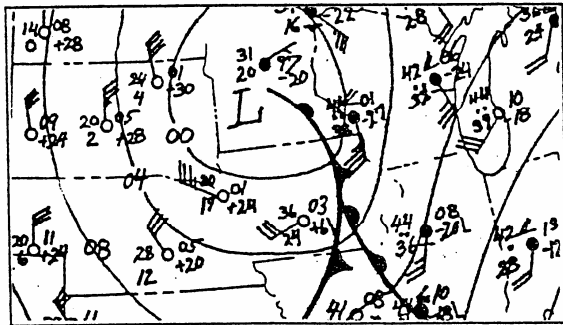


**WEATHER REPORTS AND FORECASTS**

**FACSIMILE REPORTS AND FORECASTS**

**Surface Analysis Chart (Report)**

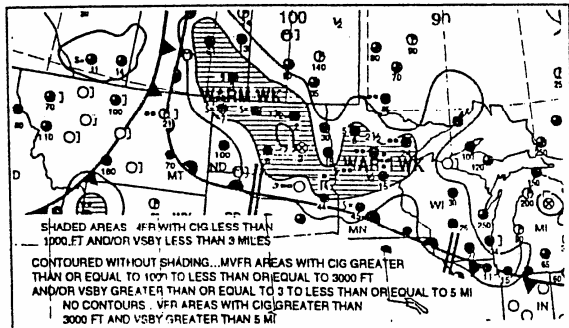
The Surface Analysis Chart depicts actual frontal positions,



pressure patterns, temp., dewpoint, wind, weather, and obstructions to vision at the valid time of the chart.

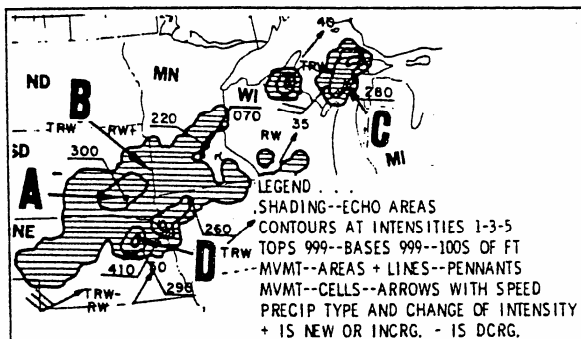
**Weather Depiction Chart (Report)**

The weather depiction chart provides a graphic display of VFR and 1FR weather. The symbol indicates an automated



observation location.

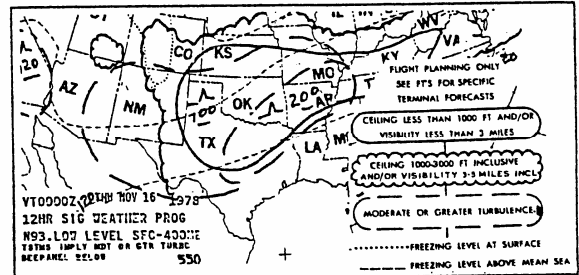
**Radar Summary Chart (Report)**



This is the only chart that shows lines and cells of hazardous thunderstorms. It does not show clouds, only precipitation.

**Low Level Significant Weather Prognostic (Forecast)**

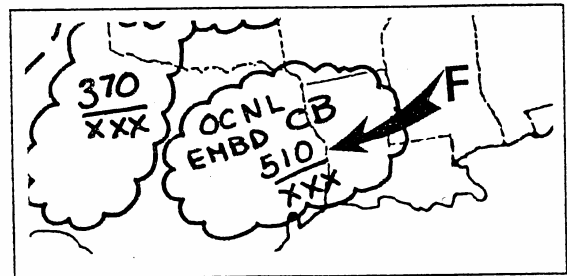
The Low Level Significant Weather Prognostic Chart



forecasts conditions up to 24,000 ft. MSL.

**High Level Significant Weather Prognostic**

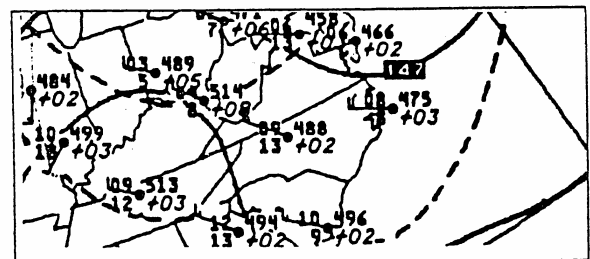
The High Level Significant Weather Prognostic Chart



forecasts conditions from 24,000 feet. MSL to 63,000 feet MSL.

Small scalloped lines indicate cumulonimbus clouds, icing, and moderate or greater turbulence.

**Constant Pressure Chart**

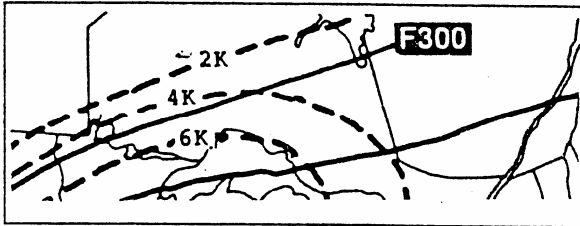


This chart shows observed temperature, wind, and temperature/dew point spread at specified flight levels.

**Convective Outlook (AC) Charts**

These charts indicate prospects of both general and severe thunderstorm activity during the following 24 hours.

**Tropopause Wind Shear Prognostic Chart**



F300 shows flight level of the tropopause.  
-59 shows tropopause temperature.  
-68 shows 300 millibar level temperature.  
4K shows wind shear in knots/1000 feet.

**TEXT BASED REPORTS AND FORECASTS**

METAR - Aviation Routine Weather Reports  
These have replaced the Hourly Sequence Reports.

**KBNA 191250Z 33018KT 290V360 1/2SM  
R31/2700FT +SN BLSNFG VV008 00/M03  
A2991 RMK RAE42SNB42**

METAR or SPECI as normal or special.

**KBNA** - 4 letter identifier.

**191250Z** - Date and time (in UTC) issued.

**33018KT** - Surface winds 330 degrees true, 18 knots.

**290V360** - Winds 290 variable to 360 degrees.

**1/2 SM** - one half statute miles visibility.

**R31/2700 FT** - Runway 31 2700 feet RVR.

**+SN** - two letter code depicting heavy snow.

**BLSNFG** - Blowing snow and fog

**VV008** - Vertical visibility 800 feet.

**00/M03** - Temperature and dew point in degrees Celsius.

**A2991** - Altimeter setting as 29.91

**RMK RAE42SNB42** - Remarks - rain ended 42 past the hour, snow began 42 past the hour.

**TAF** - Terminal Aerodrome Forecast

These have replaced the Terminal Forecast.

**KCVG 230151Z 231212 12012KT 4SM -RA BR  
OVCO08 WSOO5/27050KT TEMPO 1719  
1/2SM -RA FG FM1930 09012KT 1SM .DZ  
BR W003 BECMG 2021 5 SM HZ=**

**KCVG** - 4 letter identifier

**230151Z** - Date and time (in UTC) issued.

**231212** - Date and time forecast is effective.

**1 201 2KT** - Winds 1 20 degrees true at 1 2 knots.

**4SM** - Visibility 4 statute miles.

**-RA BR** - Light rain and mist.

**OVCO08** - Overcast cloud layer at 800 feet.

**WSOO5/27050KT** - Wind shear at 500 feet

**TEMPO 1719** - From 1700 to 1900 becoming.

**1/2SM** - Visibility

**-RA FG** - Light rain and fog.

**FM1930** - Starting at 1930, weather becomes...

Shows forecast cloud cover and ceiling, visibility, wind direction and velocity, and covers an area within a 5 statute mile radius of the center of the runway complex.

Calm winds (3 knots or less) are forecast as 00000KT, and visibilities greater than 6 miles are forecast as P6SM.

**Area Forecast**

This is the single reference containing expected frontal movement, turbulence, and icing conditions for a specific area.

HAZARDS/FLT PRCTNS...would contain a 12-hour forecast that identifies and locates aviation weather hazards.

SIC CLD AND WX area contains a summary of sky conditions, cloud heights, visibility, and obstructions to vision, and surface winds of 30 knots or more.

**Winds Aloft Forecast**

Shows true wind direction, velocity in knots and temperature in C.

| VALID 020000Z | FOR USE 2100-0600Z. TEMPS NEG ABV 24000 |         |         |         |         |                |
|---------------|---|---------|---------|---------|---------|----------------|
| FT            | 3000                                    | 6000    | 9000    | 12000   | 18000   | 24000 30000    |
| ABI           | 2512+14                                 | 2519+09 | 2426+02 | 2438-14 | 2345-26 | 234840         |
| ABQ           |   | 3115+02 | 3125-04 | 2934-18 | 2944-31 | 285240         |
| AMA           | 3013                                    | 3120+03 | 2823-03 | 2536-16 | 2447-30 | 245642         |
| ATL           | 1510                                    | 1811+13 | 1909+08 | 2107+02 | 2708-12 | 2710-24 271339 |

Altitudes within 1 500 AGL are omitted.

Temperatures for the 3000-foot level and within 2500 AGL are also omitted. 9900 indicates light and variable, less than 5 knots.

Winds greater than 1 00 knots have 50 added to their direction. Winds aloft of 300 degrees at 200 knots, temp - 54C are shown as 809954.

**ENROUTE WEATHER ADVISORIES**

**Transcribed Weather Broadcasts (TWEB)**

Provide continuously transcribed individual forecasts for specific routes of flight, available on VOR and NDB Nav aids.



### Inflight Advisories

SIGMET advisories include weather potentially hazardous to all aircraft, including widespread sand or dust storms lowering visibility to less than 3 miles.

AIRMET advisories include less severe conditions which may be hazardous, particularly to light aircraft. AIRMETs are forecast for a maximum of a six-hour period.

Flight service stations broadcast AIRMETs and Non-Convective SIGMETs at 15 minutes and 45 minutes past the hour for the first hour after issuance.

4170.  
The body of a Terminal Aerodrome Forecast (TAF) covers a geographical proximity within a

- A) 5 to 10 mile radius of the center of an airport.
- B) 10 to 15 mile radius of the center of an airport.
- C) 15 to 20 mile radius of the center of an airport.

4172.  
What wind direction and speed is represented by the entry 9900 +00 for 9,000 feet, on an Winds and Temperatures Aloft Forecast (FD)?

- A) Light and variable; less than 5 knots.
- B) Vortex winds exceeding 200 knots.
- C) Light and variable; less than 10 knots.

4173.  
What conclusion(s) can be drawn from a 500 millibar Constant Pressure Chart for a planned flight at FL 180?

- A) Winds aloft at FL 180 generally flow across the height contours.
- B) Observed temperature, wind, and temperature/dewpoint spread along the proposed route can be approximated.
- C) Upper highs, lows, troughs, and ridges will be depicted by the use of lines of equal pressure.

4174. I60 IRA  
What important Information is provided by the Radar Summary Chart that is not shown on other weather charts?

- A) Lines and cells of hazardous thunderstorms.
- B) Types of precipitation between reporting stations.
- C) Areas of cloud cover and icing levels within the clouds.

4175. I64 IRA  
What does a Convective Outlook (AC) describe for a following 24 hour period?

- A) General thunderstorm activity.
- B) A severe weather watch bulletin.
- C) When forecast conditions are expected to continue beyond the valid period.

4176. I57 IRA  
Which primary source should be used to obtain forecast weather information at your destination for the planned ETA?

- A) Area Forecast.
- B) Radar Summary and Weather Depiction Charts.
- C) Terminal Aerodrome Forecast (TAF).

4177.  
A calm wind entry in a Terminal Aerodrome Forecast (TAF) will be indicated when the wind is

- A) 3 knots or less.
- B) 6 knots or less.
- C) 9 knots or less.

4178.  
When the visibility is greater than 6 SM. on a TAF it is expressed as

- A) 6PSM.
- B) P6SM.
- C) 6SMP.

4179. I57 IRA  
“WND” in the categorical outlook in the Aviation Area Forecast means that the wind during that period is forecast to be

- A) At least 6 knots or stronger.
- B) At least 15 knots or stronger.
- C) At least 20 knots or stronger.

4180. I57 IRA  
What is the forecast wind at 1800Z in the following TAF?

KMEM 091 740Z 1818 0000KT 1 /2SM RA FG OVCOO5 =

- A) Calm.
- B) Unknown.
- C) Not recorded.

4181. I57 IRA  
SIGMET's are issued as a warning of weather conditions potentially hazardous

- A) particularly to light aircraft.
- B) to all aircraft.
- C) only to light aircraft operations.

4182. I56 IRA  
What significant sky condition is reported in this METAR observation?

METAR KBNA 1 250Z 3301 8KT 290V360 1 /2SM R31/2700FT +SN BLSNFG W008 00/M03 A2991 RMK RERAE42SNB42

- A) Runway 31 ceiling is 2700 feet.
- B) Sky is obscured with vertical visibility of 800 feet.
- C) Measured ceiling is 300 feet overcast.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

4183. I57 IRA

Which meteorological condition is issued in the form of a SIGMET (WS)?

- A) Widespread sand or dust storms lowering visibility to less than 3 miles.
- B) Moderate icing.
- C) Sustained winds of 30 knots or greater at the surface.

4184.

A pilot planning to depart at 1100Z on an IFR flight is particularly concerned about the hazard of icing. What sources reflect the most accurate information on icing conditions (current and forecast) at the time of departure?

- A) Low-Level Significant Weather Prognostic Chart, and the Area Forecast.
- B) The Area Forecast, and the Freezing Level Chart.
- C) Pilot weather reports (PIREP's), AIRMET's, and SIGMET's.

4185. I57 IRA

Which forecast provides specific information concerning expected sky cover, cloud tops, visibility, weather, and obstructions to vision in a route format?

- A) DWF FA 1312240.
- B) MEM TAF132222.
- C) 249 TWEB 252317.

4186. I57 IRA

When are severe weather watch bulletins (WW) issued?

- A) Every 12 hours as required.
- B) Every 24 hours as required.
- C) **Unscheduled and issued as required.**

4187. I57 IRA

What is the maximum forecast period for AIRMET's?

- A) Two hours.
- B) Four hours.
- C) **Six hours.**

4188.

When is the temperature at one of the forecast altitudes omitted at a specific location or station in the Winds and Temperatures Aloft Forecast (FD)?

- A) When the temperature is standard for that altitude.
- B) **For the 3,000 foot altitude (level) or when the level is within 2,500 feet of station elevation.**
- C) Only when the winds are omitted for that altitude (level).

4189. I63 IRA

When is the wind group at one of the forecast altitudes omitted at a specific location or station in the Winds and Temperatures Aloft Forecast (FD)? When the wind

- A) is less than 5 knots.
- B) is less than 10 knots.
- C) **at the altitude is within 1,500 feet of the station elevation.**

4190.

Decode the excerpt from the Winds and Temperature Aloft Forecast (FD) for OKC at 39,000 feet.

FT 3000 6000 39000  
OKC 830558

- A) Wind 130° at 50 knots, temperature -58 °C.
- B) **Wind 330° at 105 knots, temperature -58 °C.**
- C) Wind 330° at 205 knots, temperature -58 °C.

4191. I63 IRA

Which values are used for winds aloft forecasts?

- A) Magnetic direction and knots.
- B) Magnetic direction and MPH.
- C) **True direction and knots.**

4192. I63 IRA

(Refer to figure 2.) What approximate wind direction, speed, and temperature (relative to ISA) should a pilot expect when planning for a flight over PSB at FL270?

- A) 260° magnetic at 93 knots; ISA + 7 °C.
- B) 280° true at 113 knots; ISA +3 °C.
- C) **255° true at 93 knots; ISA +6 °C.**

4193. I63 IRA

(Refer to figure 2.) What approximate wind direction, speed, and temperature (relative to ISA) should a pilot expect when planning for a flight over ALB at FL270?

- A) 270° magnetic at 97 knots; ISA -4 CC.
- B) 260° true at 110 knots; ISA +5 °C
- C) **275° true at 97 knots; ISA +4 °C**

4194. I63 IRA

(Refer to figure 2.) What approximate wind direction, speed, and temperature (relative to ISA) should a pilot expect when planning a flight over EMI at FL 270?

- A) **265° true; 100 knots; ISA +3 °C**
- B) 270° true; 110 knots; ISA +5 °C
- C) 260° magnetic; 100 knots; ISA -5 °C

4195. I61 IRA

What flight planning information can a pilot derive from constant pressure charts?

- A) Clear air turbulence and icing conditions.
- B) Levels of widespread cloud coverage.
- C) **Winds and temperatures aloft.**

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

4196. I55 IRA

The station originating the following weather report has a field elevation of 1,300 feet MSL. From the bottom of the overcast cloud layer, what is its thickness? (tops of OVC are reported at 3800 feet)

SPECI KOKC 2228Z 28024G36KT 3/4SM BKN008 OVC020 28/23 A3000

- A) 500 feet.
- B) 1,700 feet.
- C) 2,500 feet.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

| VALID 141200Z FOR USE 0900-1500Z. TEMPS NEG ABV 24000 |      |         |         |         |         |         |        |
|---|------|---------|---------|---------|---------|---------|--------|
| FT  | 3000 | 6000    | 9000    | 12000   | 18000   | 24000   | 30000  |
| EMI   | 2807 | 2715-07 | 2728-10 | 2842-13 | 2867-21 | 2891-30 | 751041 |
| ALB   | 0210 | 9900-07 | 2714-09 | 2728-12 | 2656-19 | 2777-28 | 781842 |
| PSB   |      | 1509+04 | 2119+01 | 2233-04 | 2262-14 | 2368-26 | 781939 |
| STL   | 2308 | 2613+02 | 2422-03 | 2431-08 | 2446-19 | 2461-30 | 760142 |

Figure 2 - Winds and Temperatures Aloft Forecast

4197. I65 IRA

(Refer to figure 9.) The Severe Weather Outlook Chart depicts

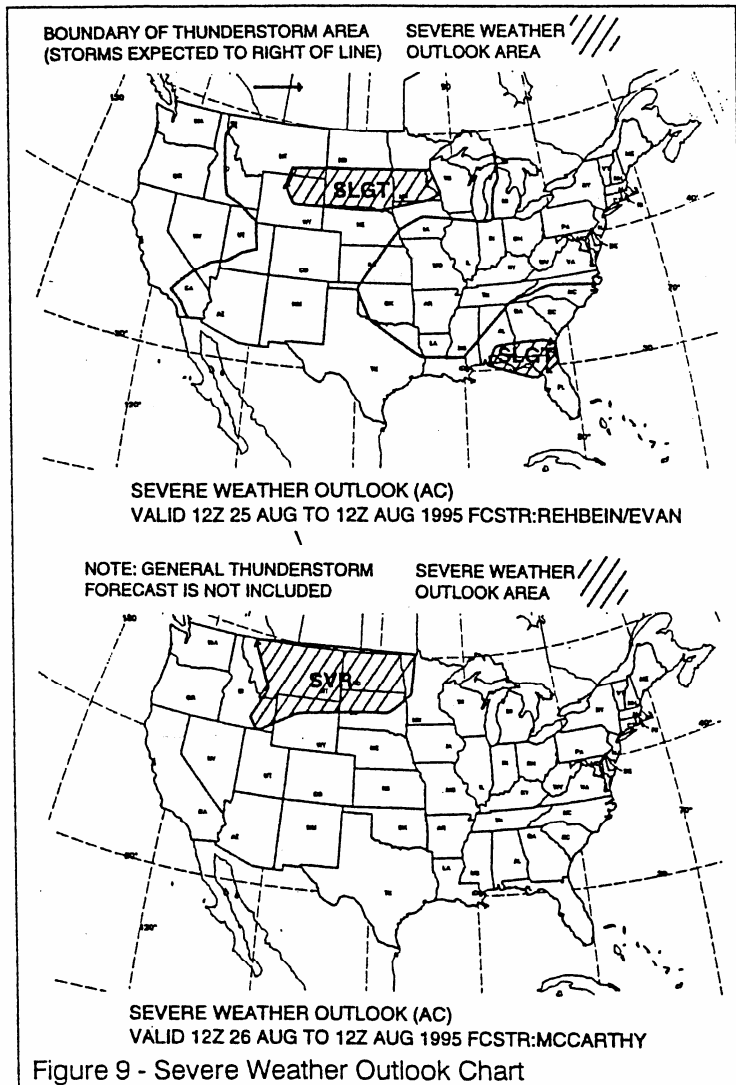
- A) areas of probable severe thunderstorms by the use of single hatched areas on the chart.
- B) areas of forecast, severe or extreme turbulence, and areas of severe icing for the next 24 hours.
- C) areas of general thunderstorm activity (excluding severe) by the use of hatching on the chart.

4198. I56 IRA

Which response most closely interprets the following PIREP?

UA/OV OKC 063064/TM 1522 /FLO80JTP C172/TA-04/WV 245040/TB LGT/RM IN CLR.

- A) 64 nautical miles on the 63 degree radial from Oklahoma City VOR at 1522 UTC, flight level 8,000 ft. Type of aircraft is a Cessna 172.
- B) Reported by a Cessna 172, turbulence and light rime icing in climb to 8,000 ft.
- C) 63 nautical miles on the 64 degree radial from Oklahoma City, thunderstorm and light rain at 1522 UTC.



4199.

A station is forecasting wind and temperature aloft at FL 390 to be 300° at 200 knots; temperature -54 CC. How would this data be encoded in the FD?

- A) 300054.
- B) 809954.
- C) 309954.

4201.

Area forecasts generally include a total forecast period of 18 hours and a geographical

- A) terminal area.
- B) area less than 3000 sq. miles.
- C) group of states or well known area.

4202. I55 IRA

A ceiling is defined as the height of the

- A) highest layer of clouds or obscuring phenomena aloft that covers over 6/10 of the sky.
- B) lowest layer of clouds that contributed to the overall overcast.
- C) lowest layer of clouds or obscuring phenomena aloft that is reported as broken or overcast.

4203. I57 IRA

The reporting station originating this Aviation Routine Weather Report has a field elevation of 620 feet. If the reported sky cover is one continuous layer, what is its thickness? (tops of OVC are reported at 6500 feet)

METAR KMDW 121856Z AUTO 32005KT 1 1/2SM +RABR OVCO07 17/16 A2980

- A) 5,180 feet.
- B) 5,800 feet.
- C) 5,880 feet.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

4204.  
 What is the wind shear forecast in the TAF?

KCVG 231051Z 231212 12012KT 4SM -RA BR OVCO08  
 WS005/27050KT TEMPO 1719 1/2SM -RA FG FM1930  
 09012KT 1SM -DZ BR VV003 BECMG 2021 5SM HZ=

- A) 5 feet AGL from 270° at 50 KT.
- B) 50 feet AGL from 270° at 50 KT.
- C) 500 feet AGL from 270° at 50 KT.**

4205.  
 What is meant by the entry in the remarks section of METAR surface report for KBNA?

METAR KBNA 211250Z 3301 8KT 290V260 1/2SM  
 R31/2700FT +SN BLSNFG VV008 00/M03 A2991 RMK  
 RAE42SNB42

- A) The wind is variable from 290° to 360.
- B) Heavy blowing snow and fog on runway 31.
- C) Rain ended 42 past the hour, snow began 42 past the hour.**

4206.  
 (Refer to figure 4.) What is the meaning of a bracket (]) plotted to the right of the station circle on a weather depiction chart?

- A) The station represents the en route conditions within a 50 mile radius.
- B) The station is an automated observation location.**
- C) The station gives local overview of flying conditions for a six hour period.

4207.  
 (Refer to figure 4.) The Weather Depiction Chart indicates the heaviest precipitation is occurring in

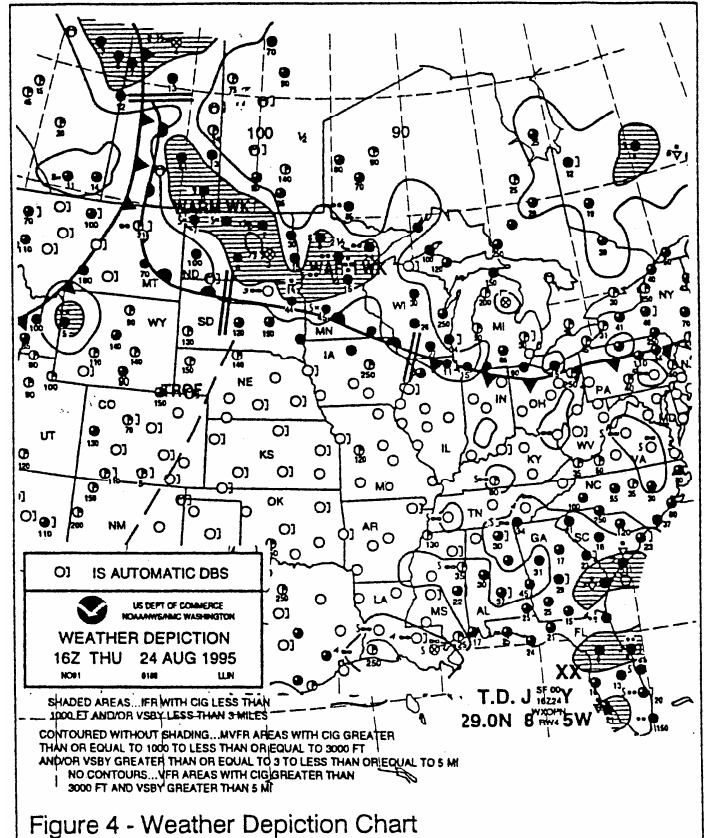
- A) north central Florida.
- B) north central Minnesota.**
- C) central South Dakota.

4208.  
 (Refer to figure 4.) The Weather Depiction Chart in the area of northwestern Wyoming, indicates

- A) overcast with scattered rain showers.
- B) 1,000-foot ceilings and visibility 3 miles or more.
- C) 500-foot ceilings and continuous rain, less than 3 miles visibility.**

4209. I58 IRA  
 The Surface Analysis Chart depicts

- A) actual pressure systems, frontal locations, cloud tops, and precipitation at the time shown on the chart.
- B) frontal locations and expected movement, pressure centers, cloud coverage, and obstructions to vision at the time of chart transmission.
- C) actual frontal positions, pressure patterns, temperature, dewpoint, wind, weather, and obstructions to vision at the valid time of the chart.**



4211. I64 IRA  
 The Low-Level Significant Weather Prognostic Chart depicts weather conditions

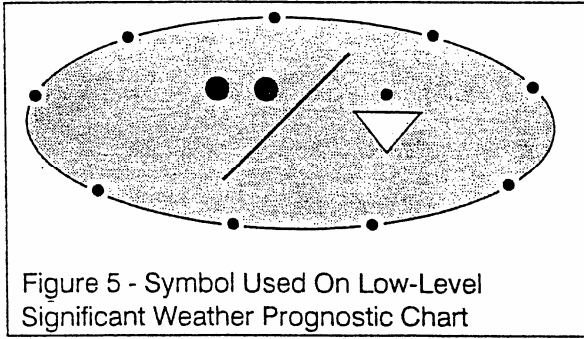
- A) that are forecast to exist at a valid time shown on the chart.**
- B) as they existed at the time the chart was prepared.
- C) that existed at the time shown on the chart which is about 3 hours before the chart is received.

4212.  
 Which meteorological conditions are depicted by a prognostic chart?

- A) Conditions existing at the time of the observation.
- B) Interpretation of weather conditions for geographical areas between reporting stations.
- C) Conditions forecast to exist at a specific time shown on the chart.**

4213. I64 IRA  
 (Refer to figure 5.) What is the meaning of the symbol depicted as used on the U.S. Low-Level Significant Weather Prog Chart?

- A) Showery precipitation (e.g. rain showers) embedded in an area of continuous rain covering half or more of the area.**
- B) Continuous precipitation (e.g. rain) covering half or more of the area.
- C) Showery precipitation (e.g. thunderstorms/rain showers) covering half or more of the area.



4214.

A prognostic chart depicts the conditions

- A) existing at the surface during the past 6 hours.
- B) which presently exist from the 1 000 millibar through the 700 millibar level.
- C) forecast to exist at a specific time in the future.

4215. I65 IRA

What information is provided by a Convective Outlook (AC)?

- A) It describes areas of probable severe icing and severe or extreme turbulence during the next 24 hours.
- B) It provides prospects of both general and severe thunderstorm activity during the following 24 hours.**
- C) It indicates areas of probable convective turbulence and the extent of instability in the upper atmosphere (above 500 MB).

4216. I64 IRA

(Refer to figure 18, SFC PROG) A planned low altitude flight from northern Florida to southern Florida at 00Z is likely to encounter

- A) intermittent rain or rain showers, moderate turbulence, and freezing temperatures above 8,000 feet.
- B) showery precipitation, thunderstorms/rain showers covering half or more of the area.**
- C) showery precipitation covering less than half the area, no turbulence below 18000 feet, and freezing temperatures above 1 2,000 feet.

4217.

(Refer to figure 18, SFC-400MB.) The 24-Hour Low Level Significant Weather Prog at 12Z indicates that southwestern West Virginia will likely experience

- A) ceilings less than 1,000 feet, visibility less than 3 miles.**
- B) clear sky and visibility greater than 6 miles.
- C) ceilings 1 000 to 3,000 feet and visibility 3 to 5 miles.

4218.

(Refer to figure 18, SFC-400MB.) The U.S. Low Level Significant Weather Surface Prog Chart at 00Z indicates that northwestern Colorado and eastern Utah can expect

- A) moderate or greater turbulence from the surface to FL 240.**
- B) moderate or greater turbulence above FL 240.
- C) no turbulence is indicated.

4219.

(Refer to figure 18, SFC-PROG.) The chart symbols shown in the Gulf of Mexico at 12Z and extending into AL GA, SC, and northern FL indicate a

- A) tropical storm.**
- B) hurricane.
- C) tornado originating in the Gulf of Mexico.

4220. I56 IRA

Interpret this PIREP.

MRB UA/OV MRB/TM 14301FL060/TP C182/ SK BKN  
BL/WX RA/TB MDT.

- A) Ceiling 6,000 feet intermittently below moderate thundershowers; turbulence increasing westward.
- B) FL 60,000, Intermittently below clouds; moderate rain, turbulence increasing with the wind.
- C) At 6,000 feet; intermittently between layers; moderate turbulence; moderate rain; turbulence increasing westward.**

4221 . I64 IRA

(Refer to figure 7.) What weather conditions are depicted within the area indicated by arrow E?

- A) Frequent embedded thunderstorms, less than one eighth coverage, tops at FL 370.
- B) Frequent lightning in thunderstorms at FL 370.
- C) Occasional cumulonimbus, one eighth to four eighths coverage bases below 24,000 feet MSL, and tops at 40000 feet MSL.**

4222. I64 IRA

(Refer to figure 7.) What weather conditions are depicted within the area indicated by arrow D?

- A) Forecast isolated thunderstorms, tops at FL 440, more than one eighth coverage.
- B) Existing isotated cumulonimbus clouds, tops above 43,00 feet with less than one eighth coverage.
- C) Forecast isolated embedded cumulonimbus clouds with tops at 43,000 feet MSL, arid less than one eighth coverage.**

4223. I64 IRA

(Refer to figure 7.) What weather conditions are depicted within the area Indicated by arrow C?

- A) Light turbulence at FL 370 within the area outlined by dashes.
- B) Moderate turbulence at 32,000 feet MSL.**
- C) Moderate to severe CAT has been reported at FL 320.

4224. I64 IRA

(Refer to figure 7.) What weather conditions are depicted within the area Indicated by arrow B?

- A) Light to moderate turbulence at or above 37000 feet MSL
- B) Moderate to severe CAT is forecast to exist at FL 370.
- C) Moderate turbulence from below 24,000 feet MSL to 37,000 feet MSL.**

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

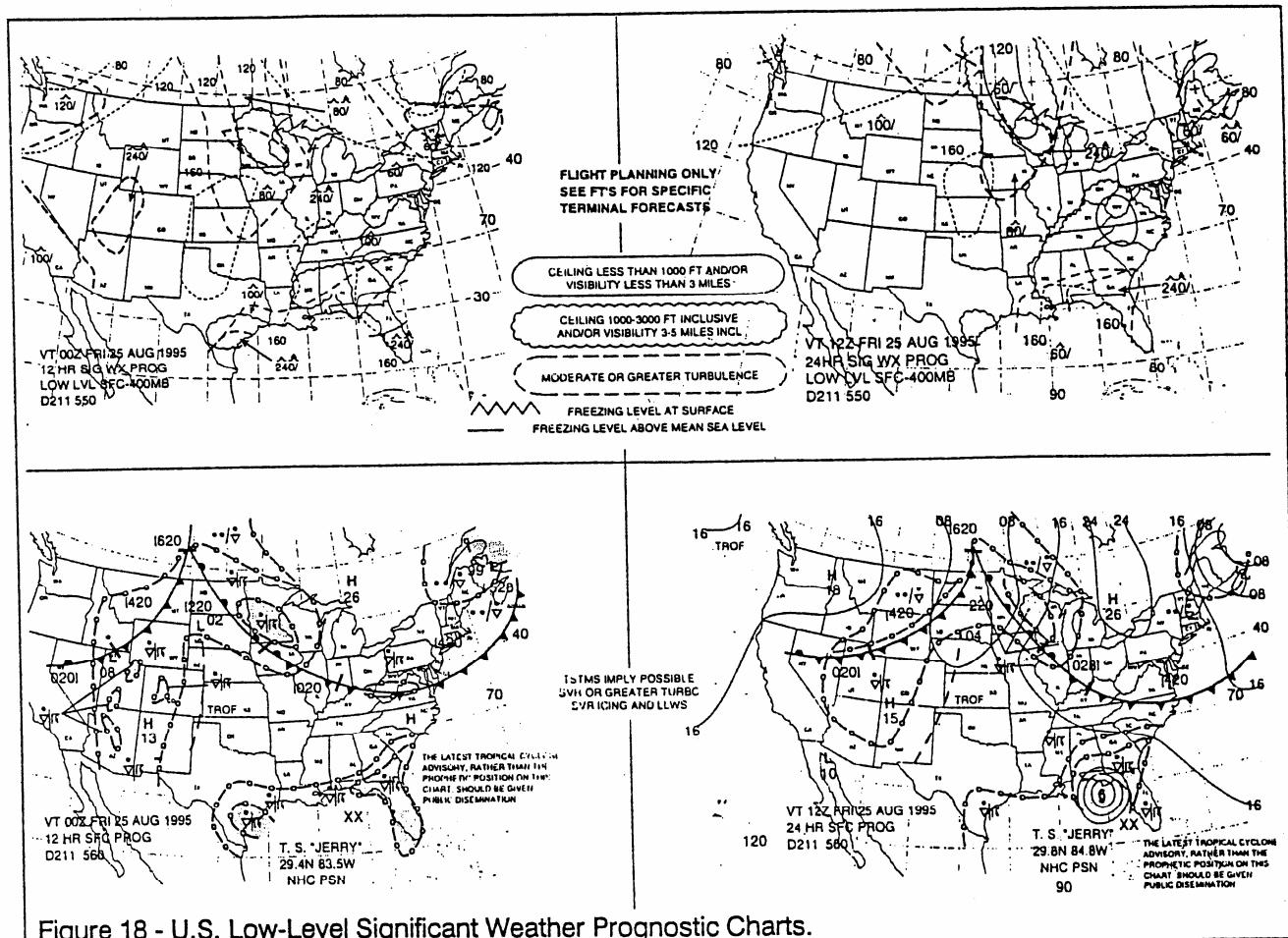


Figure 18 - U.S. Low-Level Significant Weather Prognostic Charts.

4225.

(Refer to figure 7.) What information is indicated by arrow A?

- A) The height of the tropopause in meters above sea level.
- B) The height of the existing layer of OAT.
- C) The height of the tropopause in hundreds of feet above MSL

4226. I57 IRA

Which weather forecast describes prospects for an area coverage of both severe and general thunderstorms during the following 24 hours?

- A) Terminal Aerodrome Forecast.
- B) Convective outlook.**
- C) Severe Weather Watch Bulletin.

4228.

From which primary source should you obtain information regarding the weather expected to exist at your destination at your estimated time of arrival?

- A) Weather Depiction Chart.
- B) Radar Summary and Weather Depiction Chart.
- C) Terminal Aerodrome Forecast.**

4229. I60 IRA

(Refer to figure 7.) What weather conditions are depicted within the area indicated by arrow F?

- A) One eighths to four eighths coverage, occasional embedded thunderstorms, tops at 51,00 feet MSL
- B) Occasionally embedded cumulonimbus bases below 24,000 feet with tops to 48,000 feet.**
- C) Two eighths to six eighths coverage, occasional embedded thunderstorms, tops at FL 540.

4230. I60 IRA

(Refer to figure 8.) What weather conditions are depicted in the area indicated by arrow A on the Radar Summary Chart?

- A) Moderate to strong echoes; echo tops 30,000 feet MSL; line movement toward the northwest.
- B) Weak to moderate echoes average echo bases 30,000 feet MSL; cell movement toward the southeast rain showers with thunder
- C) Strong to very strong echoes echo tops 30,000 feet MSL thunderstorms and showers.**

**NOTE: CORRECT ANSWER IN BOLD ITALICS**



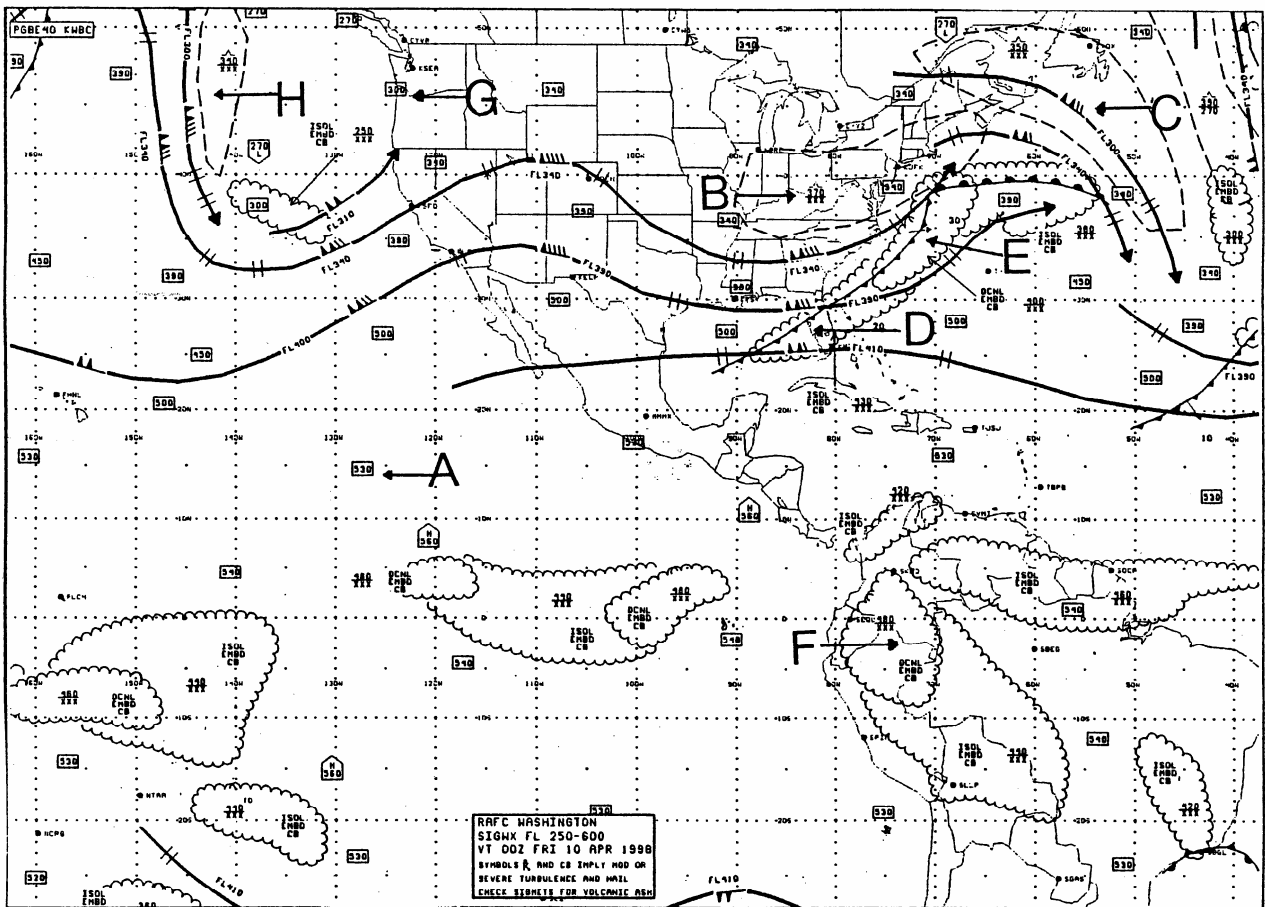


FIGURE 7.—High-Level Significant Weather Prognostic Chart.

4231. I60 IRA

(Refer to figure 8.) What weather conditions are depicted in the area indicated by arrow D on the Radar Summary Chart?

A) Echo tops 4,100 feet MSL strong to very strong echoes within the smallest contour and area movement toward the northeast at 50 knots.

**B)** Intense to extreme echoes within the smallest contour, echo tops 29000 feet MSL and cell movement toward the northeast at 50 knots.

C) Strong to very strong echoes within the smallest contour echo bases 29,000 feet MSL and cell in northeast Nebraska moving northeast at 50 knots.

4232. I60 IRA

(Refer to figure 8.) What weather conditions are depicted in the area indicated by arrow C on the Radar Summary Chart?

A) Average echo bases 2 800 feet MSL thundershowers and intense to extreme echo intensity.

B) Cell movement toward the northwest at 20 knots, intense echoes and echo bases 28,000 feet MSL

**C)** Area movement toward the northeast at 20 knots strong to very strong echoes and echo tops 28 000 feet MSL

4233. I60 IRA

(Refer to figure 8.) What weather conditions are depicted in the area indicated by arrow B on the Radar Summary Chart?

A) Weak echoes, heavy rain showers. area movement toward the southeast.

**B)** Weak to moderate echoes, rain showers increasing in intensity.

C) Strong echoes, moderate rain showers, no cell movement.

4234. I60 IRA

(Refer to figure 8.) What weather conditions are depicted in the area indicated by arrow E on the Radar Summary Chart?

**A)** Highest echo tops 30,000 feet MSL, weak to moderate echoes, thunderstorms and rain showers, and cell movement toward northwest at 15 knots.

B) Echo bases 29,000 to 30,000 feet MSL strong echoes, rain showers increasing in intensity, and area movement toward northwest at 15 knots.

C) Thundershowers decreasing in intensity; area movement toward northwest at 15 knots; echo bases 30,000 feet MSL

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

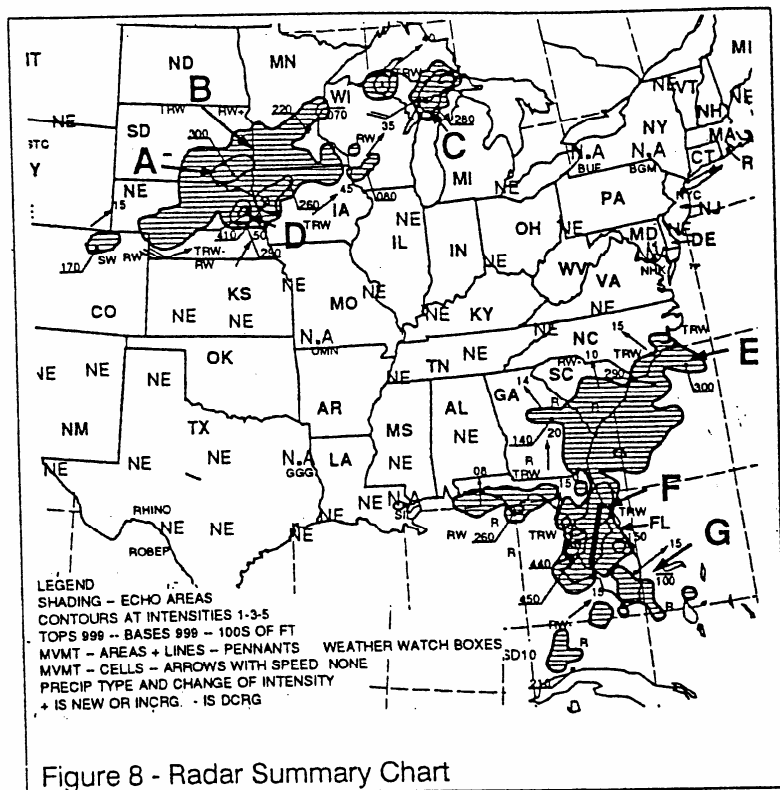


Figure 8 - Radar Summary Chart

4235. I60 IRA

For most effective use of the Radar Summary Chart during preflight planning, a pilot should

A) consult the chart to determine more accurate measurements of freezing levels, cloud cover, and wind conditions between reporting stations.

**B)** compare it with the charts, reports, and forecasts of a three-dimensional picture of clouds and precipitation.

C) utilize the chart as the only source of information regarding storms and hazardous conditions existing between reporting stations.

4236. I60 IRA

(Refer to figure 8.) What weather conditions are depicted in the area indicated by arrow G on the Radar Summary Chart?

**A)** Echo bases 10,000 feet MSL; cell movement toward northeast at 15 knots; weak to moderate echoes; rain.

B) Area movement toward northeast at 15 knots; rain decreasing in intensity; echo bases 1,000 feet MSL; strong echoes.

C) Strong to very strong echoes; area movement toward northeast at 15 knots; echo tops 10,000 feet MSL; light rain.

4237. I60 IRA

(Refer to figure 8.) What weather conditions are depicted in the area indicated by arrow F on the Radar Summary Chart?

**A)** Line of echoes; thunderstorms; highest echo tops 45,000 feet MSL; no line movement indicated.

B) Echo bases vary from 15,000 feet to 46,000 feet MSL; thunderstorms increasing in intensity; line of echoes moving rapidly toward the north.

C) Line of severe thunderstorms moving from south to north; echo bases vary from 4,400 feet to 4,600 feet MSL; extreme echoes

4239. I60 IRA

(Refer to figure 9.) The Severe Weather Outlook Chart, which is used primarily for advance planning, provides what information?

**A)** An 18-hour categorical outlook with a 48-hour valid time for severe weather watch, thunderstorm lines, and of expected tornado activity.

B) A preliminary 12-hour outlook for severe thunderstorm activity and probable convective turbulence.

**C)** A 24-hour severe weather outlook for possible general and severe thunderstorm activity.

4240. I60 IRA

(Refer to figure 9.) Using the DAY 2 CONVECTIVE OUTLOOK, what type of thunderstorms, if any, may be encountered on a flight from Montana to Central California?

**A)** Moderate risk area, surrounded by a slight risk area, of possible severe turbulence.

**B)** General.

C) None.

4241. I54 IRA

The Hazardous in-flight Weather Advisory Service (HIWAS) is a continuous broadcast over selected VORs of

**A)** SIGMETs, CONVECTIVE SIGMETs, AIRMETs, Severe Weather Forecasts Alerts (AWW), and Center Weather Advisories.

B) SIGMETs, CONVECTIVE SIGMETs, AIRMETs, Wind Shear Advisories, and Severe Weather Forecast Alerts (AWW).

C) Wind Shear Advisories, Radar Weather Reports, SIGMETs, CONVECTIVE SIGMETs, AIRMETs, and Center Weather Advisories (CWA)

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

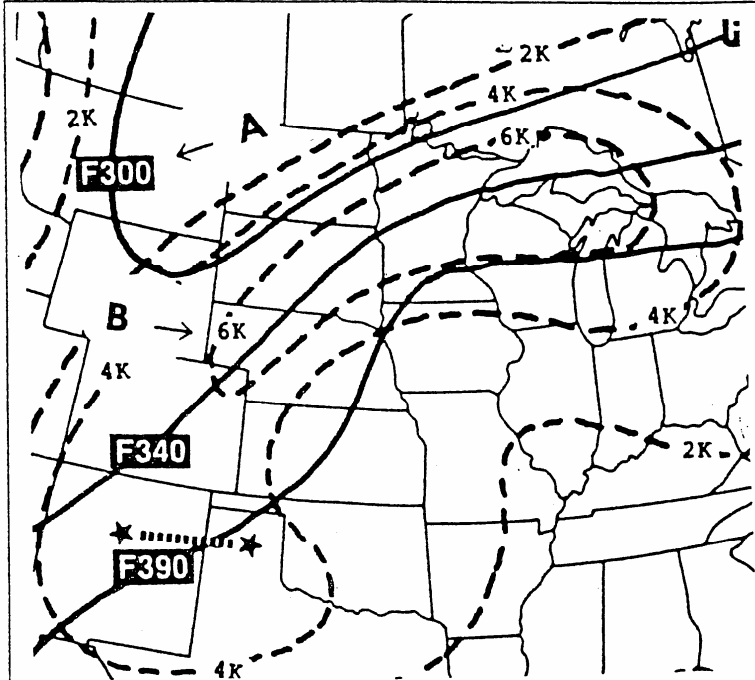


Figure 10 - Tropopause Height/Vertical Wind Shear Prog

4242.  
(Refer to figure 7.) The symbol on the U.S. HIGHLEVEL SIGNIFICANT WEATHER PROG indicated by arrow G, represents the

- A) wind direction at the tropopause (300 degrees)
- B) height of the tropopause.**
- C) height of the maximum wind shear (30,000 feet).

4243.  
(Refer to figure 20.) What is the maximum wind velocity forecast in the jet stream shown on the high level Significant Weather Prognostic Chart over Canada?

- A) 80 knots.
- B) 103 knots.**
- C) 130 knots.

4244.  
(Refer to figure 20.) What is the height of the tropopause over Kentucky?

- A) FL390.
- B) FL300 sloping to FL 400 feet MSL.**
- C) FL340.

4245.  
(Refer to figure 7.) The area indicated by arrow H indicates

- A) light turbulence below 34,000 feet.
- B) isolated embedded cumulonimbus clouds with bases below FL180 and tops at FL340.**
- C) moderate turbulence at and below 34,000 feet.

4246. I63 IRA  
(Refer to figure 12.) What is the approximate wind direction and velocity at 34,000 feet (see arrow C)?

- A) 290°/50 knots.
- B) 330° /50 knots.**
- C) 090°/48 knots.

4247.  
(Refer to figure 1 2.) The wind direction and velocity on the Observed Winds Aloft Chart (see arrow A) is indicated from the

- A) northeast at 35 knots.
- B) northwest at 47 knots.**
- C) southwest at 35 knots.

4248. I65 IRA  
(Refer to figure 9.) What type of thunderstorm activity is expected over Montana on April 4th at 0800Z?

- A) None.**
- B) A slight risk of severe thunderstorms.
- C) General.

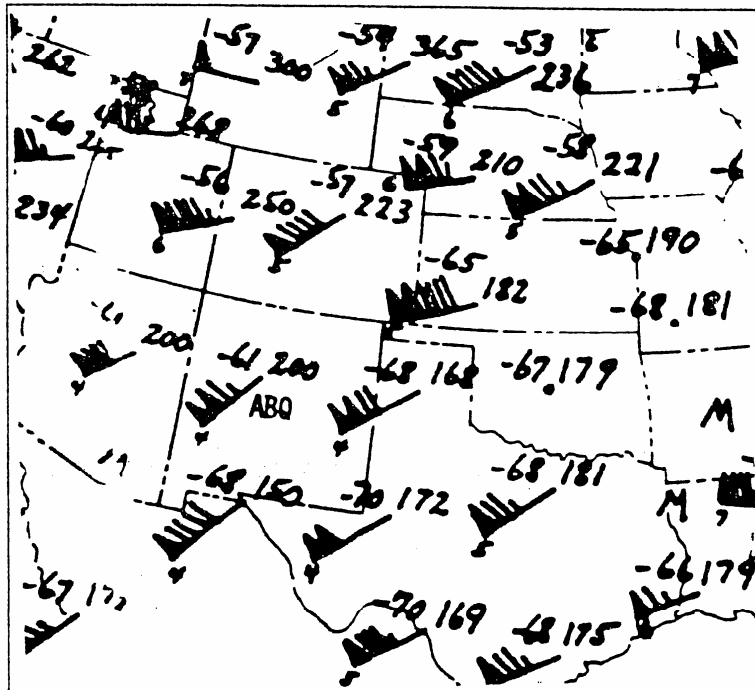
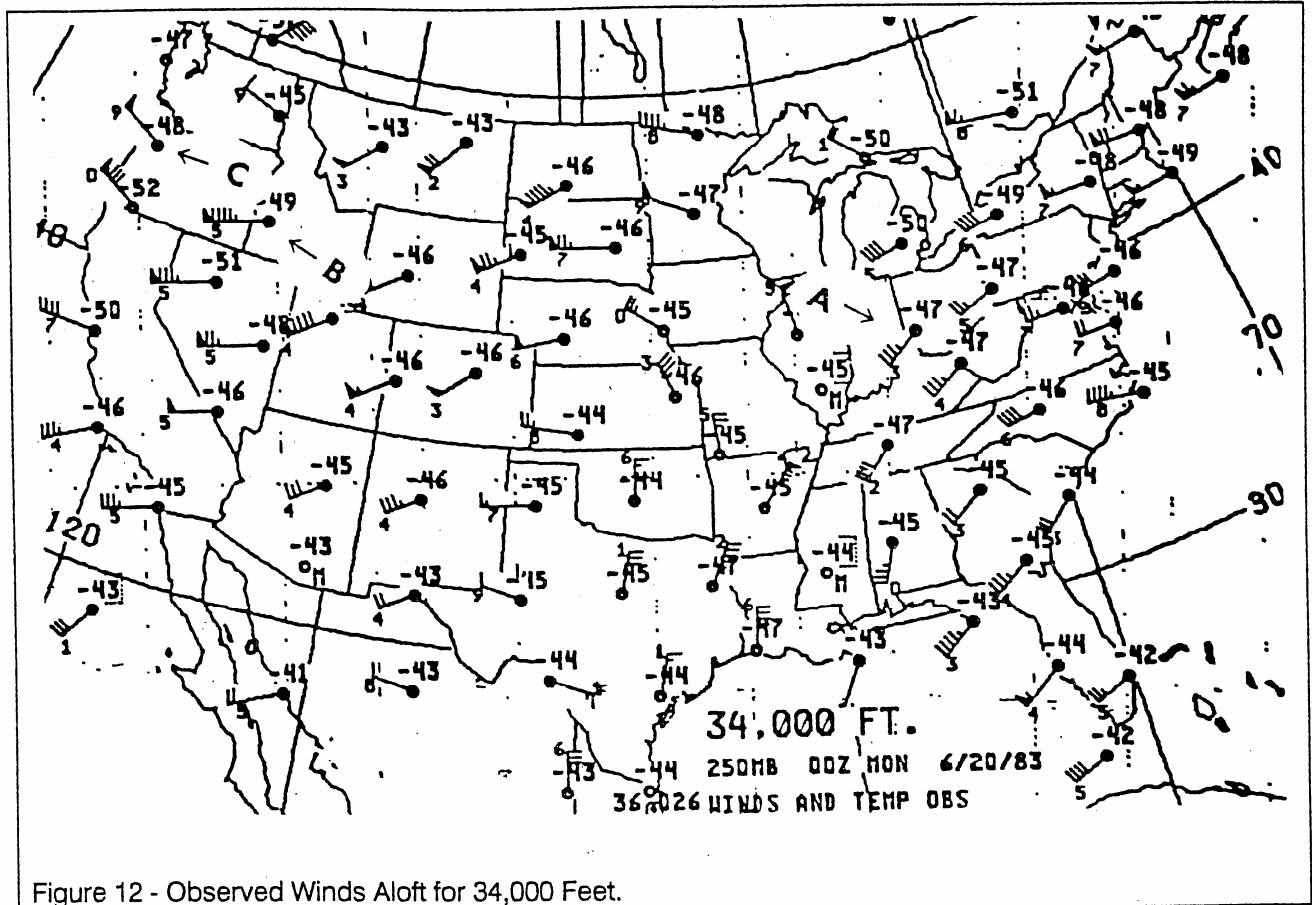


Figure 11 - Tropopause Pressure Temperature and Winds

NOTE: CORRECT ANSWER IN BOLD ITALICS



4249. I63 IRA  
(Refer to figure 12.) What is the approximate wind direction and velocity at CVG at 34,000 feet (see arrow A)?

- A) 040°/35 knots.
- B) 097°/40 knots.
- C) 230°/35 knots.**

4250. I63 IRA  
(Refer to figure 12, arrow B.) What is the approximate wind direction and velocity at BOI (see arrow B)?

- A) 270°/55 knots.
- B) 250°/95 knots.**
- C) 080°/95 knots.

4467. J25 IRA  
AIRMET'S are issued on a scheduled basis every

- A) 15 minutes after the hour only.
- B) 15 minutes until the AIRMET is canceled.
- C) six hours.**

4468.  
Pilots on FR flights seeking ATC in flight weather avoidance assistance should keep in mind that

- A) ATC radar limitations and, frequency congestion may limit the controllers capability to provide this service.**
- B) circumnavigating severe weather can only be accommodated in the en route areas away from terminals because of congestion.
- C) ATC Narrow Band Radar does not provide the controller with weather intensity capability.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**