NOAA Weather Data / Imagery Legends and Definitions

**Flight Category definitions**

<table>
<thead>
<tr>
<th>Flight Category</th>
<th>Ceiling</th>
<th>Visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Instrument Flight Rules LIFR*</td>
<td>Below 500 feet AGL</td>
<td>and/or less than 1 mile</td>
</tr>
<tr>
<td>Instrument Flight Rules IFR</td>
<td>500 to below 1,000 feet AGL</td>
<td>and/or 1 mile to less than 3 miles</td>
</tr>
<tr>
<td>Marginal Visual Flight Rules MVFR</td>
<td>1,000 to 3,000 feet AGL</td>
<td>and/or 3 to 5 miles</td>
</tr>
<tr>
<td>Visual Flight Rules VFR*</td>
<td>greater than 3,000 feet AGL</td>
<td>and/or greater than 5 miles</td>
</tr>
</tbody>
</table>

*By definition, **IFR** is ceiling less than 1,000 feet AGL and/or visibility less than 3 miles while LIFR is a sub-category of IFR.

*By definition, **VFR** is ceiling greater than or equal to 3,000 feet AGL and visibility greater than or equal to 5 miles while MVFR is a sub-category of VFR.

**Cloud coverage symbols**

- **M** = missing
- **CLR** = clear
- **SKC** = completely clear
- **FEW** = few
- **SCT** = scattered
- **BKN** = broken
- **OVC** = overcast
- **OVX** = obscured

Automated stations report "CLR" when clouds may exist above 12,000 feet so a square is used to represent this uncertainty whereas an unfilled circle is used for "SKC" which a human reports the sky is completely clear overhead. The abbreviation "OVX" is unofficial but ADDS uses it here to indicate the sky is obscured which is the case when a METAR reports vertical visibility and no cloud information.

**Surface Fronts and Boundaries**

- **Cold Front** - a zone separating two air masses, of which the cooler, denser mass is advancing and replacing the warmer.

- **Warm Front** - a transition zone between a mass of warm air and the cold air it is replacing.
<table>
<thead>
<tr>
<th><strong>Stationary Front</strong></th>
<th>a front between warm and cold air masses that is moving very slowly or not at all.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occluded Front</strong></td>
<td>a composite of two fronts, formed as a cold front overtakes a warm or quasi-stationary front. Two types of occlusions can form depending on the relative coldness of the air behind the cold front to the air ahead of the warm or stationary front. A cold occlusion results when the coldest air is behind the cold front and a warm occlusion results when the coldest air is ahead of the warm front.</td>
</tr>
<tr>
<td><strong>Trough</strong></td>
<td>an elongated area of relatively low atmospheric pressure; the opposite of a ridge. On WPC’s surface analyses, this feature is also used to depict outflow boundaries.</td>
</tr>
<tr>
<td><strong>Squall Line</strong></td>
<td>a line of active thunderstorms, either continuous or with breaks, including contiguous precipitation areas resulting from the existence of the thunderstorms.</td>
</tr>
<tr>
<td><strong>Dry Line</strong></td>
<td>a boundary separating moist and dry air masses. It typically lies north-south across the central and southern high Plains states during the spring and early summer, where it separates moist air from the Gulf of Mexico (to the east) and dry desert air from the southwestern states (to the west).</td>
</tr>
<tr>
<td><strong>Tropical Wave</strong></td>
<td>a trough or cyclonic curvature maximum in the trade wind easterlies.</td>
</tr>
</tbody>
</table>
**Frontogenesis** - the initial formation of a surface front or frontal zone, depicted on WPC's surface analysis and forecast charts as a dashed line with the graphical representation of the developing frontal type (the blue triangle for cold fronts, the red semicircle for warm fronts, etc...) drawn on each segment.

**Frontolysis** - the dissipation or weakening of a front, depicted as a dashed line with the graphical representation of the weakening frontal type drawn on every other segment.

### Precipitation Areas and Symbols

Areas of precipitation expected at the valid time of the forecast are outlined in green. Shading within these lines, or lack of shading, indicates the expected coverage (not intensity) of precipitation. The symbols on the right are the most common ones found on short range forecasts that represent categories (and in some cases intensities) of precipitation. In forecast areas where the form of the precipitation is expected to vary, two symbols will be depicted and separated by a slash (/). For instance, rain showers and thundershowers are often combined in regions where convection is forecast.

- **“Broken” Light Rain**
  - Coverage = 50-100%
  - Symbol: ••
  - Description: Rain (light, moderate, heavy)

- **“Scattered” Light Snow**
  - Coverage = 30-50%
  - Symbol: ••
  - Description: Snow (light, moderate, heavy)

- **Thunder (with rain, snow, no precipitation)**
  - Symbol: ⚡️
  - Description: Thunder

- **Shower (rain, snow)**
  - Symbol: ⚄
  - Description: Shower

- **Drizzle**
  - Symbol: ⚄
  - Description: Drizzle

- **Freezing rain, Freezing drizzle**
  - Symbol: ⚄
  - Description: Freezing rain, Freezing drizzle

- **Ice pellets/Sleet**
  - Symbol: ⚄
  - Description: Ice pellets/Sleet
Low Level Outlook SIGWX Charts

The forecast domain covers the 48 contiguous states, southern Canada and the coastal waters for altitudes below 24,000 ft. Low altitude Significant Weather charts are issued four times daily and are valid at fixed times: 0000, 0600, 1200, and 1800 UTC. Each 4 panel chart is divided on the left and right into 12 and 24 hour forecast intervals (based on the current ETA model available). The upper two panels (SIG WX PROGs) depict freezing levels, turbulence, and low cloud ceilings and/or restrictions to visibility (shown as contoured areas of MVFR and IFR conditions). The lower two panels (SFC PROGs) are provided by the Weather Prediction Center (WPC) and consist of graphical displays of fronts and precipitation areas.

AIRMET/SIGMET

--- ALL Heights 100's of feet MSL (Unless AGL specified) ---

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Wind

Wind is plotted in increments of 5 knots (kts). The wind direction is in “true” degrees and is depicted by a stem (line) pointed in the direction from which the wind is blowing. Wind speed is determined by adding the values of the flags (50kts), barbs (10kts), and half-barbs (5kts) found on the stem. If the wind is calm at the time of observation, only a single circle over the station is depicted.

Alaskan Aviation Weather Unit (AAWU) Symbols

- Cold Front
- Warm Front
- Occluded Front
- Stationary Front
- Trough
- Ridge

- High Pressure Center
- Low Pressure Center
- Occasional or greater
- Precipitation

- Fog
- Haze
- Smoke
- Drifting Snow
- Sandstorm
- Drizzle
- Rain

- Freezing Rain
- Freezing Drizzle
- Light Icing
- Moderate Icing
- Severe Icing
- Snow
- Ice Crystals
- Ice Pellets

- Mixed Rain/Snow
- Rain Showers
- Snow Showers
- Rain/Snow Showers
- Thunderstorm
- Light Turbulence
- Moderate Turbulence
- Severe Turbulence
Present Weather with METAR text-to-symbol matching

Symbols in gray boxes have no corresponding METAR present weather text.

| 00 | Cloud development not observed or not observable during past hour |
| 01 | Clouds generally dissolving or becoming less developed during past hour |
| 02 | State of sky on the whole unchanged during past hour |
| 03 | Clouds generally forming or developing during past hour |
| 04 | Visibility reduced by smoke |
| 05 | Haze |
| 06 | Widespread dust in suspension in the air, not raised by wind, at time of obs |
| 07 | Dust or sand raised by wind, at time of obs |
| 08 | Well developed dust devil(s) at time of obs |
| 09 | Duststorm or sandstorm within sight of station at time of obs |
| 10 | Light fog |
| 20 | Drizzle (not freezing, not showers) during past hour, not at time of obs |
| 30 | Slight or moderate duststorm or sandstorm, has decreased during past hour |
| 40 | Fog at distance at time of obs but not at station during past hour |
| 50 | Intermittent drizzle (not freezing), slight at time of obs |
| 60 | Intermittent rain (not freezing), light at time of obs |
| 70 | Intermittent fall of snowflakes, slight at time of obs |
| 80 | Slight rain shower(s) |
| 90 | Moderate or heavy rain shower(s) of hail and/or rain/snow, not associated with thunder |

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Sources

http://aviationweather.gov/adds/metars/description/page_no/4
http://aviationweather.gov/adds/metars/description/page_no/3
http://www.aviationweather.gov/products/gairmet/
AVIATION WEATHER SERVICES, Advisory Circular, AC 00-45G, Change 1