

# NOAA Weather Data / Imagery Legends and Definitions

## Flight Category definitions

Flight Category	Ceiling		Visibility
Low Instrument Flight Rules <b>LIFR*</b> (magenta sky symbol)	Below 500 feet AGL	and/or	less than 1 mile
Instrument Flight Rules <b>IFR</b> (red sky symbol)	500 to below 1,000 feet AGL	and/or	1 mile to less than 3 miles
Marginal Visual Flight Rules <b>MVFR</b> (blue sky symbol)	1,000 to 3,000 feet AGL	and/or	3 to 5 miles
Visual Flight Rules <b>VFR+</b> (green sky symbol)	greater than 3,000 feet AGL	and/or	greater than 5 miles
<p>*By definition, <b>IFR</b> is ceiling less than 1,000 feet AGL and/or visibility less than 3 miles while LIFR is a sub-category of IFR.</p> <p>+By definition, <b>VFR</b> 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.</p>			

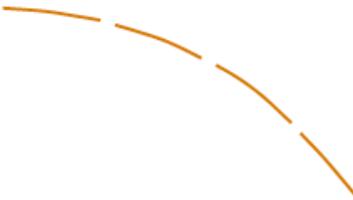
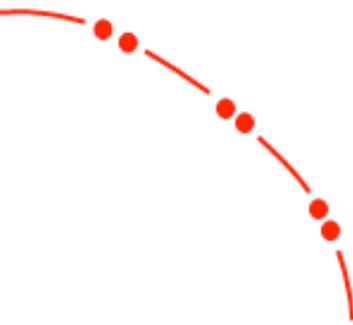
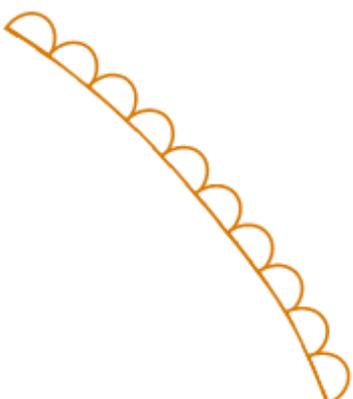
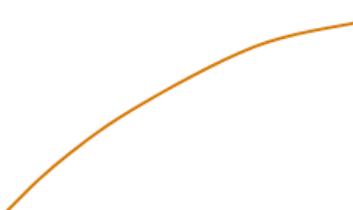
## Cloud coverage symbols

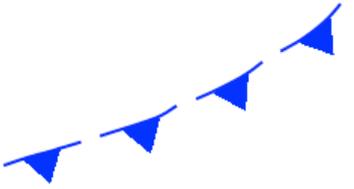
 M missing  
  CLR  
  SKC  
  FEW  
  SCT  
  BKN  
  OVC  
  OVX

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

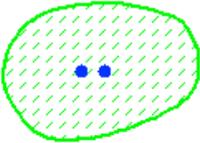
	<b>Cold Front</b> - a zone separating two air masses, of which the cooler, denser mass is advancing and replacing the warmer.
	<b>Warm Front</b> - a transition zone between a mass of warm air and the cold air it is replacing.

	<p><b>Stationary Front</b> - a front between warm and cold air masses that is moving very slowly or not at all.</p>
	<p><b>Occluded Front</b> - 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.</p>
	<p><b>Trough</b> - 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.</p>
	<p><b>Squall Line</b> - a line of active thunderstorms, either continuous or with breaks, including contiguous precipitation areas resulting from the existence of the thunderstorms.</p>
	<p><b>Dry Line</b> - 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).</p>
	<p><b>Tropical Wave</b> - a trough or cyclonic curvature maximum in the trade wind easterlies.</p>

	<p><b>Frontogenesis</b> - 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.</p>
	<p><b>Frontolysis</b> - 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.</p>

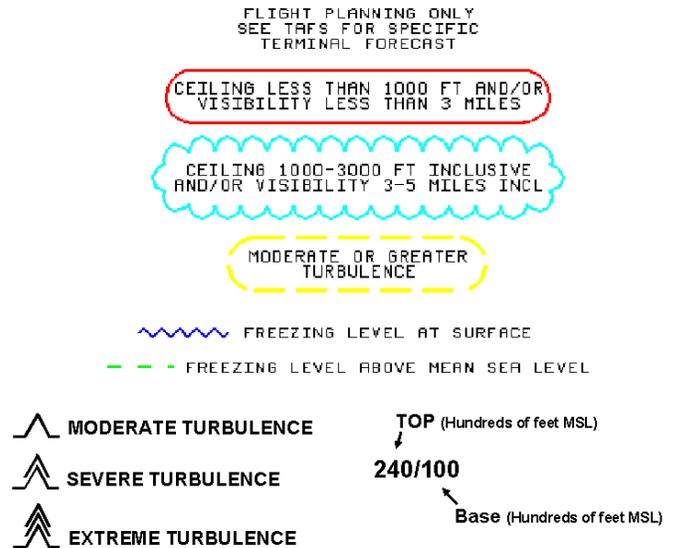
**Precipitation Areas and Symbols**

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.

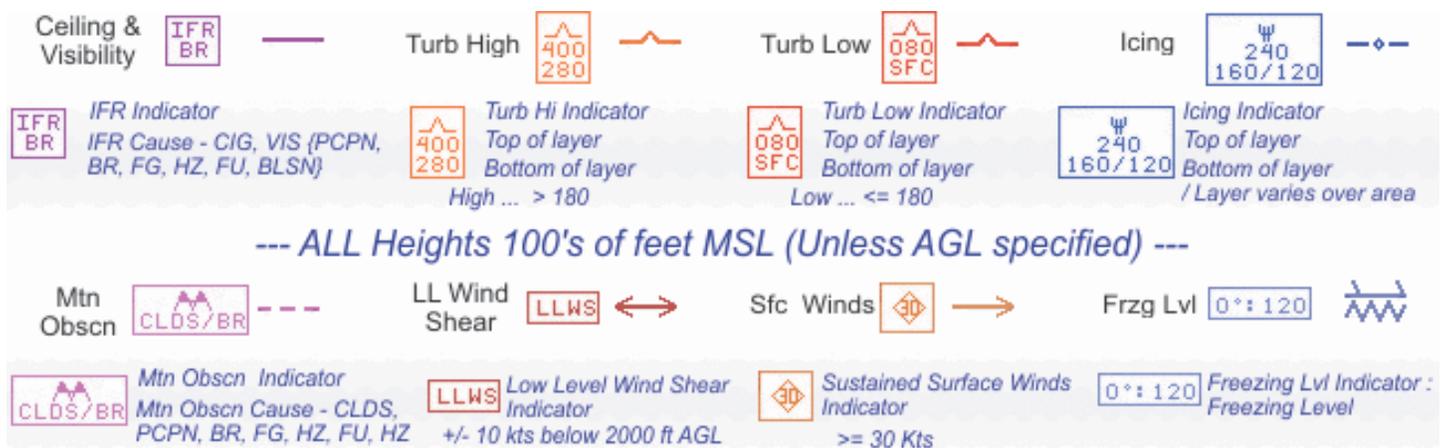
	<p>"BROKEN" LIGHT RAIN COVERAGE = 50-100%</p>	••	•••	••••	Rain (light,moderate,heavy)
	<p>"SCATTERED" LIGHT SNOW COVERAGE = 30-50%</p>	**	***	***	Snow (light,moderate,heavy)
	<p>DASHED LINE SEPARATES AREAS OF SNOW FROM OTHER PRECIPITATION TYPES (RAIN, FREEZING RAIN, SLEET)</p>	R	R	R	Thunder (with rain,snow,no precipitation)
			▽	▽	Shower (rain,snow)
				,,	Drizzle
			~	~	Freezing rain, Freezing drizzle
				△	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.

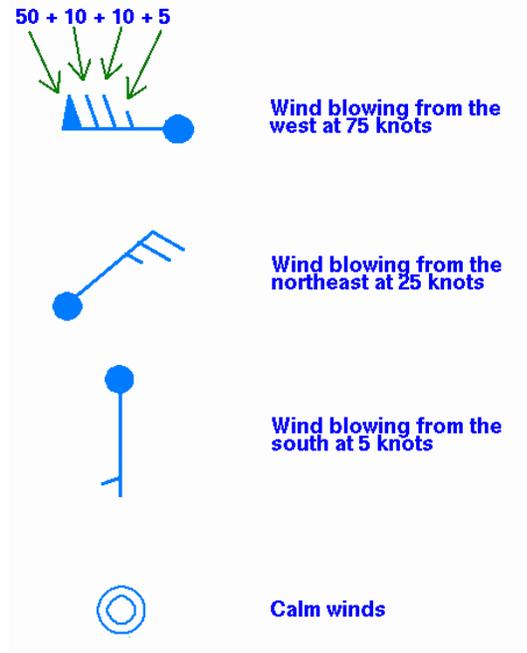


## AIRMET/SIGMET



## 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		1032	- High Pressure Center Pressure in millibars
	- Warm Front		988	- Low Pressure Center Pressure in millibars
	- Occluded Front			- Occasional or greater Precipitation
	- Stationary Front			
	- Trough			
	- Ridge			
	- Fog			- Freezing Rain
	- Haze			- Freezing Drizzle
	- Smoke			- Light Icing
	- Drifting Snow			- Moderate Icing
	- Sandstorm			- Severe Icing
	- Drizzle			- Snow
	- Rain			- 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.

	0	1	2	3	4	5	6	7	8	9
00	Cloud development not observed or not observable during past hour	Clouds generally dissolving or becoming less developed during past hour	State of sky on the whole unchanged during past hour	Clouds generally forming or developing during past hour	Visibility reduced by smoke FU VA	Haze HZ	Widespread dust in suspension in the air, not raised by wind, at time of obs DU	Dust or sand raised by wind, at time of obs SA BLSA VCBSLA BLDU VCBLDU BLPY	Well developed dust devil(s) within past hour PO VCPO	Duststorm or sandstorm within sight of station or at station during past hour VCSS VCDS
10	Light fog BR	Patches of shallow fog at station not deeper than 6 feet on land	More or less continuous shallow fog at station not deeper than 6 feet on land MIFG	Lightning visible, no thunder heard VCTS	Precipitation within sight, but not reaching the ground VIRGA	Precipitation within sight, reaching ground, but distant from station	Precipitation within sight, reaching the ground, near to but not at station VCSH	Thunder heard but no precipitation at the station TS	Squall(s) within sight during past hour SQ	Funnel cloud(s) within sight during past hour FU +FC
20	Drizzle (not freezing, not showers) during past hour, not at time of obs	Rain (not freezing, not showers) during past hour, not at time of obs	Snow (not falling as showers) during past hour, not at time of obs	Rain and snow (not falling as showers) during past hour, not at time of obs	Freezing drizzle or rain (not showers) during past hour, not at time of obs	Showers of rain during past hour, but not at time of obs	Showers of snow, or of rain and snow during past hour, but not at time of obs	Showers of hail, or of hail and rain during past hour, but not at time of obs	Fog during past hour, but not at time of obs	Thunderstorm (with or without precip) during past hour, but not at time of obs
30	Slight or moderate duststorm or sandstorm, has decreased during past hour	Slight or moderate duststorm or sandstorm, no appreciable change during past hour	Slight or moderate duststorm or sandstorm, has increased during past hour	Severe duststorm or sandstorm, has decreased during past hour	Severe duststorm or sandstorm, no appreciable change during past hour +SS +DS	Severe duststorm or sandstorm, has increased during past hour	Slight or moderate drifting snow, generally low BLSN VCBSLN	Heavy drifting snow, generally low	Slight or moderate drifting snow, generally high DRSN	Heavy drifting snow, generally high
40	Fog at distance at time of obs but not at station during past hour VCFG	Fog in patches BCFG	Fog, sky discernable, has become thinner during past hour	Fog, sky not discernable, has become thinner during past hour	Fog, sky discernable, no appreciable change during past hour PRFG	Fog, sky not discernable, no appreciable change during past hour FG	Fog, sky discernable, has begun or become thicker during past hour	Fog, sky not discernable, has begun or become thicker during past hour	Fog, depositing rime, sky discernable	Fog, depositing rime, sky not discernable FZFG
50	Intermittent drizzle (not freezing), slight at time of obs	Continuous drizzle (not freezing), slight at time of obs -DZ	Intermittent drizzle (not freezing), moderate at time of obs	Continuous drizzle (not freezing), moderate at time of obs DZ	Intermittent drizzle (not freezing), thick at time of obs	Continuous drizzle (not freezing), thick at time of obs +DZ	Slight freezing drizzle -FZDZ	Moderate or thick freezing drizzle FZDZ	Drizzle and rain, slight DZ RA; -DZ RA; -DZ -RA	Drizzle and rain, moderate or heavy DZ RA; +DZ RA; DZ +RA; DZ
60	Intermittent rain (not freezing), slight at time of obs	Continuous rain (not freezing), slight at time of obs -RA	Intermittent rain (not freezing), moderate at time of obs	Continuous rain (not freezing), moderate at time of obs RA	Intermittent rain (not freezing), heavy at time of obs	Continuous rain (not freezing), heavy at time of obs +RA	Slight freezing rain -FZRA	Moderate or heavy freezing rain FZRA	Rain or drizzle and snow, slight -RN -SN; -RA SN; -DZ -SN; -DZ SN	Rain or drizzle and snow, moderate or heavy +RA * * * RA SN; DZ SN; +RA SN; +DZ SN; RA +SN; DZ +SN; +RA +SN; +DZ +SN
70	Intermittent fall of snowflakes, slight at time of obs	Continuous fall of snowflakes, slight at time of obs -SN	Intermittent fall of snowflakes, moderate at time of obs	Continuous fall of snowflakes, moderate at time of obs SN	Intermittent fall of snowflakes, heavy at time of obs	Continuous fall of snowflakes, heavy at time of obs +SN	Ice needles (with or without fog) -UP	Granular snow (with or without fog) SG	Isolated starlike snow crystals (with or without fog) IC	Ice pellets (sleet, U.S. definition) PL PE SHPL SHPE
80	Slight rain shower(s) -SH -SHRA	Moderate or heavy rain shower(s) SH +SH SHRA +SHRA	Violent rain shower(s)	Slight shower(s) of rain and snow mixed SHRA; SN; -SHSN; RA; -SHRA; -SN; -SHSN; -RA	Moderate or heavy shower(s) of rain and snow mixed SHRA; SN; SHSN; RA; +SHRA; SN; +SHSN; -RA	Slight snow shower(s) -SHSN	Moderate or heavy snow shower(s) SHSN +SHSN	Slight shower(s) of soft or small hail, with or without rain, and/or snow -GS -SHGS	Moderate or heavy shower(s) of soft or small hail, with or without rain, and/or snow GS; SHGS; +GS; +SHGS	Slight shower(s) of hail, with or without rain and/or snow, not assoc with thunder -GR -SHGR
90	Moderate or heavy shower(s) of hail and/or rain/snow, not associated with thunder GR; SHGR; +GR; +SHGR	Slight rain at time of obs; thunderstorm during past hour not at time of obs	Moderate or heavy rain at time of obs; TS during past hour not at time of obs	Slight snow and/or rain/hail at time of obs; TS during past hour not at time of obs	Moderate or heavy snow and/or rain/hail at time of obs; TS past hour not at time of obs	Slight or moderate thunderstorm without hail but with rain and/or snow at time of obs TSRA TSSN TSPL	Slight or moderate thunderstorm with hail at time of obs TSGR TSGS	Heavy thunderstorm without hail but with rain and/or snow at time of obs +TSRA +TSSN +TSPL	Thunderstorm combined with duststorm or sandstorm at time of obs any TS and any SA or DU	Heavy thunderstorm with hail at time of obs +TSGS +TSGR

## Sources

[http://aviationweather.gov/adds/metars/description/page\\_no/4](http://aviationweather.gov/adds/metars/description/page_no/4)

<http://www.wpc.ncep.noaa.gov/html/fntcodes2.shtml>

[http://aviationweather.gov/adds/metars/description/page\\_no/3](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