
APPENDIX A

GLOSSARY¹

¹The terms and definitions presented in this glossary are in accordance with their usage in this Handbook.

3-hourly report. A METAR taken at 0300, 0900, 1500, or 2100 UTC.

6-hourly report. A METAR taken at 0000, 0600, 1200, or 1800 UTC.

actual time of observation. For METARs, it is the time the last element of the report is observed or evaluated. For SPECIs, it is the time that the criteria for a SPECI was met or noted.

additive data. A group of coded remarks that includes pressure tendency, amount of precipitation, and maximum/minimum temperature during specified periods of time.

aircraft mishap. An inclusive term to denote the occurrence of an aircraft accident or incident.

Airport Location Point. ALP, the permanent airport reference point defined by the latitude and longitude published in the Airport Facility Directory.

algorithm. A set of rules implemented (usually in a computer) to process data and generate defined outputs.

altimeter setting. That pressure value to which an aircraft altimeter scale is set so that it will indicate the altitude above mean sea-level of an aircraft on the ground at the location for which the value was determined.

archive. A permanent record of surface weather reports and related data used to establish a climatological record for the United States.

atmospheric pressure. The pressure exerted by the atmosphere at a given point (see altimeter setting, pressure, sea-level pressure, station pressure).

augmented report. A meteorological report prepared by an automated surface weather observing system for transmission with certified observers signed on to the system to add information to the report.

automated report. A meteorological report prepared by an automated surface weather observing system for transmission, and with no certified weather observers signed on to the system.

backup. An alternate method for providing a meteorological report, parts of reports or documentation of reports when the primary method is unavailable.

barogram. An analog record of pressure produced by a barograph.

barograph. A recording barometer.

barometer. An instrument that measures atmospheric pressure.

barometric pressure. The actual pressure value indicated by a pressure sensor.

blowing. A descriptor used to amplify observed weather phenomena whenever the phenomena are raised to a height of 6 feet or more above the ground.

blowing dust. Dust picked up locally from the surface of the earth and blown about in clouds or sheets, reducing the reported horizontal visibility to less than 7 statute miles.

blowing sand. Sand particles picked up from the surface of the earth by the wind to moderate heights above the ground, reducing the reported horizontal visibility to less than 7 statute miles.

blowing snow. Snow lifted from the surface of the earth by the wind to a height of 6 feet or more above the ground and blown about in such quantities that the reported horizontal visibility is reduced to less than 7 miles.

blowing spray. Water droplets torn by the wind from a body of water, generally from the crests of waves, and carried up into the air in such quantities that they reduce the reported horizontal visibility to less than 7 statute miles.

body of report. That portion of a METAR or SPECI beginning with the type of report and ending with the altimeter setting.

broken layer. A layer covering whose summation amount of sky cover is 5/8ths through 7/8ths.

calm. A condition when no motion of the air is detected.

candela. A unit of luminous intensity, equal to 1/60 of the luminous intensity of a square centimeter of a black body heated to 1773.5 degrees Celsius.

ceiling. The lowest layer aloft reported as broken or overcast; or the vertical visibility into an indefinite ceiling.

ceiling light. A type of cloud-height indicator that uses a focused light to project vertically a narrow beam of light onto a cloud base.

ceilometer. A device used to evaluate the height of clouds or the vertical visibility into a surface-based obscuration.

certified observer. An individual approved by designated Federal agencies to take surface observations used in aircraft operations.

clear sky. The absence of sky cover.

cloud. A visible aggregate of minute water droplets or ice particles in the atmosphere above the Earth's surface.

cloud-air lightning (CA). Streaks of lightning which pass from a cloud to the air, but do not strike the ground.

cloud-cloud lightning (CC). Streaks of lightning reaching from one cloud to another.

cloud-ground lightning (CG): Lightning occurring between cloud and ground.

cloud height. The height of the base of a cloud or cloud layer above the surface of the earth.

cloud layer. An array of clouds whose bases are at approximately the same level.

cloud movement. The direction toward which a cloud is moving.

cloud type. A cloud form which is identified according to the WMO International Cloud Atlas.

contraction. A shortened form of a word, title, or phrase used for brevity.

Coordinated Universal Time (UTC). The time in the zero degree meridian time zone.

cumulus. A principal cloud type in the form of individual, detached elements which are generally dense and possess sharp non-fibrous outlines.

cumulonimbus. An exceptionally dense and vertically developed cloud, occurring either isolated or as a line or wall of clouds with separated upper portions. These clouds appear as mountains or huge towers, at least a part of the upper portions of which are usually smooth, fibrous, or striated, and almost flattened.

designated RVR runway. A runway at civilian airports designated by the FAA for reporting RVR.

designated stations. Weather observing stations that have the capability and have been instructed by their responsible agency to perform a specified task that is not required by standards to be performed at all stations.

dew point. The temperature to which a given parcel of air must be cooled at constant pressure and constant water-vapor content in order for saturation to occur.

diamond dust. See ice crystals.

dissemination. The act of delivering a completed weather report to users.

drizzle. Fairly uniform precipitation composed exclusively of fine drops (diameter less than 0.02 inch or 0.5 mm) very close together. Drizzle appears to float while following air current, although unlike fog droplets, it falls to the ground.

duration of sunshine. The amount of time sunlight was detected at a given point.

dust. (see widespread dust).

duststorm. A severe weather condition characterized by strong winds and dust-filled air over an extensive area.

element. One of the basic conditions of the atmosphere discussed in this FMH (wind, visibility, runway visual range, weather, obscurations, sky condition, temperature and dewpoint, and pressure). See parameter.

few. A layer whose summation amount of sky cover is 1/8th through 2/8ths.

field elevation. The elevation above sea level of the highest point on any of the runways of the airport.

fog. A visible aggregate of minute water particles (droplets) which are based at the Earth's surface and reduce horizontal visibility to less than 5/8 statute mile and, unlike drizzle, it does not fall to the ground.

freezing. A descriptor, FZ, used to describe drizzle and/or rain that freezes on contact with the ground or exposed objects, and used also to describe fog that is composed of minute ice crystals.

freezing drizzle. Drizzle that freezes upon impact with the ground, or other exposed objects.

freezing fog. A suspension of numerous minute ice crystals in the air, or water droplets at temperatures below 0° Celsius, based at the Earth's surface, which reduces horizontal visibility.

freezing precipitation. Any form of precipitation that freezes upon impact and forms a glaze on the ground or exposed objects.

freezing rain. Rain that freezes upon impact and forms a glaze on the ground or exposed objects.

frozen precipitation. Any form of precipitation that reaches the ground in solid form (snow, small hail and/or snow pellets, snow grains, hail, ice pellets, and ice crystals).

funnel cloud. A violent, rotating column of air which does not touch the surface, usually appended to a cumulonimbus cloud.

glaze. Ice formed by freezing precipitation covering the ground or exposed objects.

ground elevation. The official height of a weather station with reference to sea-level when a field elevation has not been established. It is the height of the ground at the base of the ceilometer.

ground fog. See shallow fog.

gust. Rapid fluctuations in wind speed with a variation of 10 knots or more between peaks and lulls.

hail. Precipitation in the form of small balls or other pieces of ice falling separately or frozen together in irregular lumps.

haze. A suspension in the air of extremely small, dry particles invisible to the naked eye and sufficiently numerous to give the air an opalescent appearance.

hectopascal. A unit of measure of atmospheric pressure equal to 100 newtons per square meter.

horizon. The actual lower boundary of the observed sky or the upper outline of terrestrial objects, including nearby natural obstructions. It is the distant line along which the earth, or the water surface at sea, and the sky appear to meet.

ice crystals (diamond dust). A fall of non-branched (snow crystals are branched) ice crystals in the form of needles, columns, or plates.

ice fog. See freezing fog.

ice pellets. Precipitation of transparent or translucent pellets of ice, which are round or irregular, rarely conical, and which have a diameter of 0.2 inch (5 mm), or less. There are two main types:

- a. Hard grains of ice consisting of frozen raindrops, or largely melted and refrozen snowflakes.
- b. Pellets of snow encased in a thin layer of ice which have formed from the freezing, either of droplets intercepted by the pellets, or of water resulting from the partial melting of the pellets.

in-cloud lightning (IC). Lightning which takes place within the cloud.

indefinite ceiling. The ceiling classification applied when the reported ceiling value represents the vertical visibility upward into surface-based obscuration.

intensity qualifier. Intensity qualifiers are used to describe whether a phenomena is light (-), moderate (no symbol used), or heavy (+).

layer. An array of clouds and/or obscurations whose bases are at approximately the same level.

layer amount. The amount of sky covered by clouds and/or obscurations at a given level above the Earth's surface.

layer height. The height of the bases of each reported layer of clouds and/or obscuration; or the vertical visibility into an indefinite ceiling.

lightning. The luminous phenomenon accompanying a sudden electrical discharge (see cloud-air lightning, cloud-cloud lightning, cloud-ground lightning and in-cloud lightning).

liquid precipitation. Any form of precipitation that does not fall as frozen precipitation and does not freeze upon impact.

local dissemination. The transmission or delivery of a weather report to individuals or groups of users near the observing location.

Local Standard Time (LST): A time based on the geographic location of the station in one of the legally established time zones of the globe.

long-line dissemination (also long-line transmission). The transmission of a weather report by a communication media to a group of users on a regional or national scale.

long-term retention. Retention of data for 5 years to satisfy requirements for local studies and to support litigation.

low drifting. A descriptor, DR, used to describe snow, sand, or dust raised to a height of less than 6 feet above the ground.

low drifting dust. Dust that is raised by the wind to less than 6 feet above the ground; visibility is not reduced below 7 statute miles at eye level although objects below this level may be veiled or hidden by the particles moving nearly horizontal to the ground.

low drifting sand. Sand that is raised by the wind to less than 6 feet above the ground; visibility is not reduced below 7 statute miles at eye level although objects below this level may be veiled or hidden by the particles moving nearly horizontal to the ground.

low drifting snow. Snow that is raised by the wind to less than 6 feet above the ground; visibility is not reduced below 7 statute miles at eye level although objects below this level may be veiled or hidden by the particles moving nearly horizontal to the ground.

manual station. A station, with or without an automated surface weather observing system, where the certified observers are totally responsible for all meteorological reports that are transmitted.

maximum temperature. The highest temperature during a specified time period.

may. A term used to indicate that a standard is optional.

METAR/SPECI. An evaluation of select weather elements from a point or points on or near the ground according to a set of procedures. It may include type of report, station identifier, date and time of report, a report modifier, wind, visibility, runway visual range, weather and obstructions to vision, sky condition, temperature and dew point, altimeter setting, and Remarks.

METAR/SPECI code. WMO code forms (FM 15-X Ext. METAR and FM 16-X Ext. SPECI) consisting of abbreviations, contractions, numbers, plain language, and symbols to provide a uniform means of disseminating surface weather reports.

minimum temperature. The lowest temperature during a specified time period.

mist. A visible aggregate of minute water droplets or ice crystals suspended in the atmosphere that reduces visibility to less than 7 statute miles but greater than or equal to 5/8 statute mile.

non-uniform sky condition. A localized sky condition which varies from that reported in the body of the report.

non-uniform visibility. A localized visibility which varies from that reported in the body of the report.

obscured sky. The condition when the entire sky is hidden by surface-based obscurations.

obscurations. Any phenomenon in the atmosphere, other than precipitation, that reduces the horizontal visibility in the atmosphere.

observing location. The point or points from which an element is evaluated.

observing station. The point or points from which the various elements of the report are evaluated.

overcast. A layer whose summation amount of sky cover is 8/8ths.

parameter. A subset of the group of evaluations that constitute each element of an observation; e.g., sky condition is an element, sky cover and ceiling are parameters.

partial. A descriptor, PR, used only to report fog that covers part of the airport.

partial fog. A substantial part of the station covered by fog while the remainder is clear of fog.

patches. A descriptor, BC, used only to report fog that occurs in patches at the airport.

patches (of) fog. Fog patches which randomly cover the station.

peak wind speed. The maximum instantaneous wind speed since the last METAR that exceeded 25 knots.

precipitation. Any of the forms of water particles, whether liquid or solid, that fall from the atmosphere and reach the ground.

precipitation discriminator. A sensor, or array of sensors, that differentiates between different types of precipitation (liquid, freezing, frozen).

precipitation intensity. An indication of the rate at which precipitation is falling at the time of observation.

precipitation rate. The amount of water, liquid or solid, that reaches the ground in a specified period of time.

pressure. The force exerted by a column of air above the point of measurement.

pressure change. The net difference between pressure readings at the beginning and ending of a specified interval of time.

pressure characteristic. The indication of how the pressure has been changing during a specified period of time, usually the 3-hour period preceding an observation; e.g., decreasing then increasing, pressure same or lower than 3 hours ago.

pressure falling rapidly. A decrease in station pressure at a rate of 0.06 inch of mercury or more per hour which totals 0.02 inch or more.

pressure reduction calculator. A device used to compute sea-level pressure, station pressure, altimeter setting, pressure altitude, etc.

pressure rising rapidly. An increase in station pressure at a rate of 0.06 inch of mercury or more per hour which totals 0.02 inch or more.

pressure tendency. The character and amount of atmospheric pressure change during a specified period of time, usually the 3-hour period preceding an observation.

pressure unsteady. A pressure that fluctuates by 0.03 inch of mercury or more from the mean pressure during the period of measurement.

prevailing visibility. The visibility that is considered representative of conditions at the station; the greatest distance that can be seen throughout at least half the horizon circle, not necessarily continuous.

rain. Precipitation, either in the form of drops larger than 0.02 inch (0.5 mm), or smaller drops, which in contrast to drizzle, are widely separated; for automated stations, precipitation that remains in the liquid state upon impact with the ground or other exposed objects.

Remarks. Plain language or coded data added to the body of the METAR/SPECI to report significant information not provided for in the body of the report.

rotor cloud. A turbulent cloud formation found in the lee of some large mountain barriers. The air in the cloud rotates around an axis parallel to the mountain range.

Runway Visual Range (RVR). An instrumentally-derived value, based on standard calibrations, that represents the horizontal distance a pilot may see down the runway from the approach end.

sand. Loose particles of granular material.

sandstorm. Particles of sand carried aloft by a strong wind. The sand particles are mostly confined to the lowest ten feet, and rarely rise more than fifty feet above the ground.

scattered. A layer whose summation amount of sky cover is 3/8ths through 4/8ths.

scheduled time of report. The time a scheduled report is required to be available for transmission.

sea-level pressure. The pressure value obtained by the theoretical reduction or increase of barometric pressure to sea-level.

sector visibility. The visibility in a specified direction that represents at least a 45 degree arc of the horizon circle.

shall. A term used to indicate that a standard is mandatory.

shallow. A descriptor, MI, used only to describe fog when the visibility at 6 feet above the ground is 5/8ths statute mile or more and the apparent visibility in the fog layer is less than 5/8ths statute mile.

shallow fog. Fog in which the visibility at 6 feet above ground level is 5/8ths statute mile or more and the apparent visibility in the fog layer is less than 5/8ths statute mile.

sheet ice. Ice formed by the freezing of liquid precipitation or the freezing of melted solid precipitation (see snow depth).

short-term storage. Storage of data for 4 or more days to assist in sensor/system maintenance and verification of sensor/system records in the event of an aircraft mishap.

should. A term used to indicate that a standard is recommended.

shower(s). A descriptor, SH, used to qualify precipitation characterized by the suddenness with which they start and stop, by the rapid changes of intensity, and usually by rapid changes in the appearance of the sky.

significant clouds. Cumulonimbus, cumulonimbus mammatus, towering cumulus, altocumulus castellanus, and standing lenticular or rotor clouds.

sky condition. The state of the sky in terms of such parameters as sky cover, layers and associated heights, ceiling, and cloud types.

sky cover. The amount of the sky which is covered by clouds or obscurations in contact with the surface.

small hail. See snow pellets.

smoke. A suspension in the air of small particles produced by combustion. A transition to haze may occur when smoke particles have traveled great distances (25 to 100 statute miles or more) and when the larger particles have settled out and the remaining particles have become widely scattered through the atmosphere.

snow. Precipitation of snow crystals, mostly branched in the form of six-pointed stars; for automated stations, any form of frozen precipitation other than hail.

snow depth. The vertical height of frozen precipitation on the ground. For this purpose, frozen precipitation includes ice pellets, glaze, hail, any combination of these, and sheet ice formed directly or indirectly from precipitation.

snow grains. Precipitation of very small, white, opaque grains of ice.

snow pellets. Precipitation of white, opaque grains of ice. The grains are round or sometimes conical. Diameters range from about 0.08 to 0.2 inch (2 to 5 mm).

spray. An ensemble of water droplets torn by the wind from an extensive body of water, generally from the crests of waves, and carried up into the air in such quantities that it reduces the horizontal visibility.

SPECI. A surface weather report taken to record a change in weather conditions that meets specified criteria or is otherwise considered to be significant.

squall. A strong wind characterized by a sudden onset in which the wind speed increases at least 16 knots and is sustained at 22 knots or more for at least one minute.

Standard Atmosphere. A hypothetical vertical distribution of the atmospheric temperature, pressure, and density, which by international agreement is considered to be representative of the atmosphere for pressure-altimeter calibrations and other purposes (29.92INS or 1013hPa).

standing lenticular cloud. A, more or less, isolated cloud with sharp outlines that is generally in the form of a smooth lens or almond. These clouds often form on the lee side of and generally parallel to mountain ranges. Depending on their height above the surface, they may be reported as stratocumulus standing lenticular cloud (SCSL); altocumulus standing lenticular cloud (ACSL); or cirrocumulus standing lenticular cloud (CCSL).

station elevation. The officially designated height above sea-level to which station pressure pertains. It is generally the same as field elevation at an airport station.

station identifier. A four alphabetic character code group used to identify the observing location.

Station Information File. A record that documents the site characteristics of an observing location and the reporting program at the location.

station pressure. The atmospheric pressure at the designated station elevation.

summation layer amount. A categorization of the amount of sky cover at and below each reported layer.

summation principle. This principle states that the sky cover at any level is equal to the summation of the sky cover of the lowest layer plus the additional sky cover provided at all successively higher layers up to and including the layer in question.

surface. The horizontal plane whose elevation above sea level equals the field elevation. At stations where the field elevation has not been established, the surface refers to the ground elevation at the observation site.

surface visibility. The prevailing visibility determined from the usual point of observation.

synoptic surface weather observation. Surface weather observations evaluated in accordance with WMO regulations (perhaps modified by national practices). These observations are reported no more frequently than every 3 hours.

temperature. A measure of the hotness or coldness of the ambient air as measured by a suitable instrument.

thunderstorm. A cumulonimbus cloud that is accompanied by lightning and thunder, or for automated systems, a storm detected by lightning detection systems.

time of occurrence. A report of the time weather begins and ends.

tornadic activity. The occurrence or disappearance of tornados, funnel clouds, or waterspouts.

tornado. A violent, rotating column of air touching the ground; funnel cloud that touches the ground (see funnel cloud and waterspout).

tower visibility. The prevailing visibility determined from the airport traffic control tower when the surface visibility is determined from another location.

towering cumulus. A descriptive term for a cloud with generally sharp outlines and with moderate to great vertical development, characterized by its cauliflower or tower appearance.

type of report. A code (METAR, SPECI) included in the weather report to indicate the content of the observation, and to indicate whether certain reporting criteria have been met.

type of station. A code figure (AO1, or AO2) for automated stations which is included in the remarks section of the report to indicate the scope of the observation program at the station that generated the report.

unknown precipitation. Precipitation type that is reported if the automated station detects the occurrence of precipitation but the precipitation discriminator cannot recognize the type.

variable ceiling. A ceiling of less than 3,000 feet which rapidly increases or decreases in height by established criteria during the period of observation.

variable layer amounts. A condition when the reportable amount of a layer varies by one or more reportable values during the period it is being evaluated (variable sky condition).

variable prevailing visibility. A condition when the prevailing visibility is less than 3 statute miles and rapidly increases and decreases by 1/2 mile or more during the period of observation.

variable wind direction. A condition when (1) the wind direction fluctuates by 60 degrees or more during the 2-minute evaluation period and the wind speed is greater than 6 knots; or (2) the direction is variable and the wind speed is 6 knots or less.

vertical visibility. A subjective or instrumental evaluation of the vertical distance into a surface-based obscuration that an observer would be able to see.

vicinity. A proximity qualifier, VC, used to indicate weather phenomena observed between 5 and 10 statute miles of the usual point of observation but not at the station.

virga. Visible wisps or strands of precipitation falling from clouds that evaporate before reaching the surface.

visibility. The greatest horizontal distance at which selected objects can be seen and identified or its equivalent derived from instrumental measurements.

visibility reference points. Selected objects at known distances from the weather station that are used to manually evaluate visibility.

volcanic ash. Fine particles of rock powder that originate from a volcano and that may remain suspended in the atmosphere for long periods.

volcanic eruption. An explosion caused by the intense heating of subterranean rock which expels lava, steam, ashes, etc., through vents in the earth's crust.

water equivalent. The liquid content of solid precipitation that has accumulated on the ground (snow depth). The accumulation may consist of snow, ice formed by freezing precipitation, freezing liquid precipitation, or ice formed by the refreezing of melted snow.

waterspout. A violent, rotating column of air that forms over a body of water, and touches the water surface; tornado or funnel cloud that touches a body of water (see funnel cloud and tornado).

well-developed dust/sand whirl. An ensemble of particles of dust or sand, sometimes accompanied by small litter, raised from the ground in the form of a whirling column of varying height with a small diameter and an approximately vertical axis.

weather. A category of individual and combined atmospheric phenomena which must be drawn upon to describe the local atmospheric conditions at the time of observation.

widespread dust. Fine particles of earth or other matter raised or suspended in the air by the wind that may have occurred at or far away from the station.

will. A term used to indicate futurity; it is not a requirement to be applied to standards.

wind. The horizontal motion of the air past a given point.

wind character. The description of the variability of the wind speed in terms of gusts.

wind direction. The true direction from which the wind is moving at a given location.

wind gust. See "gust."

wind shift. A change in the wind direction of 45 degrees or more in less than 15 minutes with sustained wind speeds of 10 knots or more throughout the wind shift.

wind speed. The rate at which air is moving horizontally past a given point. It may be a 2-minute average speed (reported as wind speed) or an instantaneous speed (reported as a peak wind speed, or gust).

