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# National Oceanic and Atmospheric Administration's National Weather Service


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 Here are the results for the letter **m**

### M 3000

In solar-terrestrial terms, the optimum high frequency radio wave with a 3000 km range, which reflects only once from the ionosphere (single hop transmission)

### M2/S2

m<sup>2</sup>/s<sup>2</sup> (meters squared per second squared), unit of measure equivalent to J/kg (joules per kilogram).

### Mackerel Sky

The name given to cirrocumulus clouds with small vertical extent and composed of ice crystals. The rippled effect gives the appearance of fish scales.

### Macroburst

A convective downdraft with an affected outflow area of at least 2½ miles wide and peak winds lasting between 5 and 20 minutes. Intense macrobursts may cause tornado-force damage of up to F3 intensity.

### Macroscale

Large scale, characteristic of weather systems several hundred to several thousand kilometers in diameter.

### Madden-Julian Oscillation

(abbrev. MJO)- Tropical rainfall exhibits strong variability on time scales shorter than the seasonal El Niño-Southern Oscillation (ENSO). These fluctuations in tropical rainfall often go through an entire cycle in 30-60 days, and are referred to as the Madden-Julian Oscillation or intraseasonal oscillations. The intraseasonal oscillations are a naturally occurring component of our coupled ocean-atmosphere system. They significantly affect the atmospheric circulation throughout the global Tropics and subtropics, and also strongly affect the wintertime jet stream and atmospheric circulation features over the North Pacific and western North America. As a result, they have an important impact on storminess and temperatures over the United States. During the summer these oscillations have a modulating effect on hurricane activity in both the Pacific and Atlantic basins.

### MAFOR

(Great Lakes Marine Forecast) - A National Weather Service coded summary appended to each of the Great Lakes Open Lakes forecasts.

### Magflare

In solar-terrestrial terms, a geomagnetic and/or cosmic storm has been associated with this flare

### Magnetic Bay

In solar-terrestrial terms, a relatively smooth excursion of the H (horizontal) component of the geomagnetic field away from and returning to quiet levels.

### Magnetogram

In solar-terrestrial terms, solar magnetograms are a graphic representation of solar magnetic field strengths and polarity

### Magnetopause

In solar-terrestrial terms, the boundary layer between the solar wind and the magnetosphere.

### Magnetosphere

In solar-terrestrial terms, the magnetic cavity surrounding the earth, carved out of the passing solar wind by virtue of the geomagnetic field, which prevents, or at least impedes, the direct entry of the solar wind plasma into the cavity

### Main Stem

In hydrologic terms, the reach of a river/stream formed by the tributaries that flow into it.

### Main Synoptic Times

The times of 0000, 0600, 1200, and 1800 UTC. Also known as the standard synoptic times.

### MAINT

Maintain

### Major Flare

In solar-terrestrial terms, this flare is the basis for the forecast of geomagstorm, cosmic

- storm and/or protons in the earth's vicinity
- Major Flooding**  
A general term including extensive inundation and property damage. (Usually characterized by the evacuation of people and livestock and the closure of both primary and secondary roads.)
- Major Hurricane**  
A hurricane which reaches Category 3 (sustained winds greater than 110 mph) on the Saffir/Simpson Hurricane Scale.
- MALR**  
Moist Adiabatic Lapse Rate- The rate at which the temperature of a parcel of saturated air decreases as the parcel is lifted in the atmosphere. The moist adiabatic lapse rate (abbreviated MALR) is not a constant like the dry adiabatic lapse rate but is dependent on parcel temperature and pressure.
- Mammatus Clouds**  
Rounded, smooth, sack-like protrusions hanging from the underside of a cloud (usually a thunderstorm anvil). Mammatus clouds often accompany severe thunderstorms, but do not produce severe weather; they may accompany non-severe storms as well.
- MAP**  
Mean Areal Precipitation- The average rainfall over a given area, generally expressed as an average depth over the area.
- Mare's Trail**  
The name given to thin, wispy cirrus clouds composed of ice crystals that appear as veil patches or strands, often resembling a horse's tail.
- MAREP**  
(MARine REPort) A voluntary marine observation program of the National Weather Service whose goal is to solicit meteorological and oceanographic observations in plain language from recreational and small commercial mariners who are not part of Voluntary Observing Ship program.
- Marginal Visual Flight Rules**  
(Abbrev. MVFR) - In an aviation product, refers to the general weather conditions pilots can expect at the surface. VFR stands for Visual Flight Rules and MVFR means Minimum or Marginal Visual Flight Rules. MVFR criteria means a ceiling between 1,000 and 3,000 feet and/or 3 to 5 miles visibility.
- Marine Inversion**  
Temperature inversion produced when cold marine air underlies warmer air.
- Marine Push**  
A replacement of the current air mass with air from off the ocean. Temperatures are much cooler and relative humidities much higher. The air mass is generally much more stable in this situation.
- Marine Small Craft Thunderstorm Advisory**  
A marine warning issued by Environment Canada Atmospheric Environment Branch when the possibility of thunderstorms is greater than 40 percent.
- Marine Small Craft Wind Warning**  
A marine warning issued by Environment Canada Atmospheric Environment Branch for winds which are forecasted to be in the 20-33 knot range inclusive.
- Marine Weather Statement**  
A National Weather Service product to provide mariners with details on significant or potentially hazardous conditions not otherwise covered in existing marine warnings and forecasts. Marine weather statements are also used to supplement special marine warnings.
- Marine Zone**  
Specific, defined over-water areas contained in the various NWS marine forecasts. These are the equivalent of "zones" in the public forecast program.
- Maritime Air Mass**  
An air mass influenced by the sea. It is a secondary characteristic of an air mass classification, signified by the small "m" before the primary characteristic, which is based on source region. For example, mP is an air mass that is maritime polar in nature. Also known as a marine air mass.
- Maritime Polar Air Mass**  
An air mass characterized by cold, moist air. Abbreviated mP.
- Maritime Tropical Air Mass**  
An air mass characterized by warm, moist air. Abbreviated mT.
- MAROB**  
A voluntary marine observation program of the National Weather Service in the early stages of development whose goal is to solicit meteorological and oceanographic observations in coded format from recreational and small commercial mariners who are not part of the more in-depth Voluntary Observing Ship program.
- MARS**  
A voluntary marine observation program of the National Weather Service whereby U.S. Coast Guard Sector Stations report marine weather conditions from several shore

locations within their operating area. The reports are in an abbreviated plain language format with fixed fields.

**Massif**  
A compact portion of a mountain range, containing one or more summits.

**MAV**  
AVN MOS Guidance

**MAX**  
Maximum

**Max Parcel Level (MPL)**  
This signifies the highest attainable level that a convective updraft can reach; therefore, it is a good indication of how tall a thunderstorm may reach.

**Maximum Spillway Discharge**  
In hydrologic terms, spillway discharge (cfs) when reservoir is at maximum designed water surface elevation.

**Maximum Sustained Surface Wind**  
When applied to a particular weather system, refers to the highest one-minute average wind (at an elevation of 10 meters with an unobstructed exposure) associated with that weather system at a particular point in time.

**Maximum Temperature**  
This is the highest temperature recorded during a specified period of time. Common time periods include 6, 12 and 24 hours. The most common reference is to the daily maximum temperature, or "high."

**Maximum Unambiguous Range**  
The range from the radar at which an echo can be known unquestionably as being at that range. As the radar sends out a pulse of energy, the pulse hits a target and part of the energy bounces back to the radar, but part of the energy may continue to travel away from the radar. The distance to the target is computed by knowing the time that has elapsed since the pulse was emitted. Then a second pulse of energy is transmitted. If some of the energy from the first pulse strikes a target at a far range and returns to the radar when radiation from the second pulse arrives, the RDA misinterprets the returned first pulse as arriving from a target near the returned second pulse. The maximum unambiguous range is related to the amount of time that elapses between successive pulses of emitted energy.

**Maximum Unambiguous Velocity**  
The highest radial velocity that can be measured unambiguously by a pulsed Doppler radar. The maximum unambiguous velocity is related to the radar's successive pulses of emitted energy. When a target's velocity exceeds the maximum unambiguous velocity, the velocity will be "folded" to appear as a different velocity.

**MAXT**  
High temperature for the day. Usually forecast out 7 days in advance.

**MB**  
Millibar

**MCC**  
Mesoscale Convective Complex. A large MCS, generally round or oval-shaped, which normally reaches peak intensity at night. The formal definition includes specific minimum criteria for size, duration, and eccentricity (i.e., "roundness"), based on the cloud shield as seen on infrared satellite photographs:

- Size: Area of cloud top -32 degrees C or less: 100,000 square kilometers or more (slightly smaller than the state of Ohio), and area of cloud top -52 degrees C or less: 50,000 square kilometers or more
- Duration: Size criteria must be met for at least 6 hours
- Eccentricity: Minor/major axis at least 0.7

MCCs typically form during the afternoon and evening in the form of several isolated thunderstorms, during which time the potential for severe weather is greatest. During peak intensity, the primary threat shifts toward heavy rain and flooding.

**MCS**  
Mesoscale Convective System. Mesoscale Convective System. A complex of thunderstorms which becomes organized on a scale larger than the individual thunderstorms, and normally persists for several hours or more. MCSs may be round or linear in shape, and include systems such as tropical cyclones, squall lines, and Mesoscale Convective Complexes (MCCs) (among others). MCS often is used to describe a cluster of thunderstorms that does not satisfy the size, shape, or duration criteria of an Mesoscale Convective Complex.

**MD**  
Mesoscale Discussion- When conditions actually begin to shape up for severe weather, SPC (Storm Prediction Center) often issues a Mesoscale Discussion statement anywhere from roughly half an hour to several hours before issuing a weather watch. SPC also puts out MCDs for hazardous winter weather events on the mesoscale, such as locally heavy snow, blizzards and freezing rain (see below). MCDs are also issued on

occasion for heavy rainfall, convective trends, and other phenomena, when the forecaster feels he/she can provide useful information that is not readily available or apparent to field forecasters. MCDs are based on mesoscale analysis and interpretation of observations and of short term, high resolution numerical model output. The MCD basically describes what is currently happening, what is expected in the next few hours, the meteorological reasoning for the forecast, and when/where SPC plans to issue the watch (if dealing with severe thunderstorm potential). Severe thunderstorm MCDs can help you get a little extra lead time on the weather and allow you to begin gearing up operations before a watch is issued. The MCD begins with a numerical string that gives the LAT/LON coordinates of a polygon that loosely describes the area being discussed.

**MDFY**

Modify

**MDLS**

models

**MDNGT**

midnight

**MDT**

Moderate (or) Mountain Daylight Time

**Mean**

The arithmetic average of a set of data (numbers), or the middle point between its two extremes.

**Mean Annual Temperature**

The average temperature for the entire year at any given location.

**Mean Areal Precipitation**

(abbrev. MAP)- The average rainfall over a given area, generally expressed as an average depth over the area.

**Mean Daily Temperature**

The average of the highest and lowest temperatures during a 24-hour period.

**Mean Depth**

In hydrologic terms, the average depth of water in a stream channel or conduit. It is equal to the cross-sectional area divided by the surface width.

**Mean Doppler Velocity**

Reflectivity-weighted average velocity of targets in a given pulse resolution volume. Usually determined from a large number of successive radar pulses. Also called mean radial (towards or away from the antenna) velocity. Doppler velocity refers to spectral density first moment, radial velocity to base data.

**Mean Low Water**

(MLW) - A tidal datum. The average of all the low water heights observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

**Mean Lower Low Water**

(MLLW) - A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

**Mean Sea Level**

(MSL) - The arithmetic mean of hourly water elevations observed over a specific 19-year tidal epoch.

**Meander**

In hydrologic terms, the winding of a stream channel

**Meander Belt**

In hydrologic terms, the area between lines drawn tangential to the extreme limits of fully developed meanders

**Measured Ceiling**

A ceiling classification applied when the ceiling value has been determined by an instrument, such as a ceilometer or ceiling light, or by the known heights of unobscured portions of objects, other than natural landmarks, near the runway. See variable ceiling.

**Medium Frequency**

(abbrev. MF)- That portion of the radio frequency spectrum from 0.3 to 3 MHz.

**Medium Range**

In forecasting, (generally) three to seven days in advance.

**MEGG**

Merging

**Melting Level**

The altitude which ice crystals and snowflakes melt as they descend through the atmosphere.

**Melting Point**

The temperature at which a solid substance undergoes fusion, changing from a solid to a liquid state. Contrast with freezing point.

**Meniscus**

In hydrologic terms, the curved surface of the liquid at the open end of a capillary column

**Mercury Barometer**

An instrument for measuring atmospheric pressure. The instrument contains an evacuated and graduated glass tube in which mercury rises or falls as the pressure of the atmosphere increases or decreases.

**Meridian**

An imaginary line on the earth's surface passing through both geographic poles and through any given point on the planet, also called a line of longitude.

**Meridional Flow**

Large-scale atmospheric flow in which the north-south component (i.e., longitudinal, or along a meridian) is pronounced. The accompanying zonal (east-west) component often is weaker than normal. Compare with zonal flow.

**MESO**

Mesocyclone- A storm-scale region of rotation, typically around 2-6 miles in diameter and often found in the right rear flank of a supercell (or often on the eastern, or front, flank of an HP storm). The circulation of a mesocyclone covers an area much larger than the tornado that may develop within it. Properly used, mesocyclone is a radar term; it is defined as a rotation signature appearing on Doppler radar that meets specific criteria for magnitude, vertical depth, and duration. It will appear as a yellow solid circle on the Doppler velocity products. Therefore, a mesocyclone should not be considered a visually-observable phenomenon (although visual evidence of rotation, such as curved inflow bands, may imply the presence of a mesocyclone)

**Mesoclimate**

The climate of a small area of the earth's surface which may differ from the general climate of the district.

**Mesocyclone**

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**Mesohigh**

A relatively small area of high atmospheric pressure that forms beneath a thunderstorm. It is usually associated with an MCS or its remnants.

**Mesolow**

(or Sub-synoptic Low) - A mesoscale low-pressure center. Severe weather potential often increases in the area near and just ahead of a mesolow. Mesolow should not be confused with mesocyclone, which is a storm-scale phenomenon.

**Mesonet**

A regional network of observing stations (usually surface stations) designed to diagnose mesoscale weather features and their associated processes.

**Mesopause**

The top of the mesosphere, corresponding to the level of minimum temperature in the atmosphere found at 70 to 80 km.

**Mesoscale**

Size scale referring to weather systems smaller than synoptic-scale systems but larger than storm-scale systems. Horizontal dimensions generally range from around 50 miles to several hundred miles. Squall lines, MCCs, and MCSs are examples of mesoscale weather systems

**Mesoscale Convective Complex**

(abbrev. MCC)- MCC - Mesoscale Convective Complex. A large Mesoscale Convective System (MCS), generally round or oval-shaped, which normally reaches peak intensity at night. The formal definition includes specific minimum criteria for size, duration, and eccentricity (i.e., "roundness"), based on the cloud shield as seen on infrared satellite photographs: \* Size: Area of cloud top -32 degrees C or less: 100,000 square kilometers or more (slightly smaller than the state of Ohio), and area of cloud top -52 degrees C or less: 50,000 square kilometers or more. \* Duration: Size criteria must be met for at least 6 hours. \* Eccentricity: Minor/major axis at least 0.7. MCCs typically form during the afternoon and evening in the form of several isolated thunderstorms, during which time the potential for severe weather is greatest. During peak intensity, the primary threat shifts toward heavy rain and flooding.

**Mesoscale Convective System**

(MCS): A complex of thunderstorms which becomes organized on a scale larger than the individual thunderstorms, and normally persists for several hours or more. MCSs may be round or linear in shape, and include systems such as tropical cyclones, squall

lines, and MCCs (among others). MCS often is used to describe a cluster of thunderstorms that does not satisfy the size, shape, or duration criteria of an MCC.

#### **Mesoscale Discussion**

When conditions actually begin to shape up for severe weather, SPC (Storm Prediction Center) often issues a Mesoscale Discussion (MCD) statement anywhere from roughly half an hour to several hours before issuing a weather watch. SPC also puts out MCDs for hazardous winter weather events on the mesoscale, such as locally heavy snow, blizzards and freezing rain (see below). MCDs are also issued on occasion for heavy rainfall, convective trends, and other phenomena, when the forecaster feels he/she can provide useful information that is not readily available or apparent to field forecasters. MCDs are based on mesoscale analysis and interpretation of observations and of short term, high resolution numerical model output.

The MCD basically describes what is currently happening, what is expected in the next few hours, the meteorological reasoning for the forecast, and when/where SPC plans to issue the watch (if dealing with severe thunderstorm potential). Severe thunderstorm MCDs can help you get a little extra lead time on the weather and allow you to begin gearing up operations before a watch is issued. The MCD begins with a numerical string that gives the LAT/LON coordinates of a polygon that loosely describes the area being discussed.

#### **Mesoscale High Winds**

These high winds usually follow the passage of organized convective systems and are associated with wake depressions or strong mesohighs.

#### **Mesosphere**

The atmospheric shell between about 20 km and about 70 to 80 km, extending from the top of the stratosphere (the stratopause) to the upper temperature minimum that defines the mesopause (the base of the thermosphere).

#### **MET**

- 1) Meteorological
- 2) MOS (Model Output Statistics) guidance based on Environmental Modeling Centers ETA model

#### **METAR**

An international code (Aviation Routine Weather Report) used for reporting, recording and transmitting weather observations.

#### **Meteogram**

A graphical depiction of trends in meteorological variables such as temperature, dew point, wind speed and direction, pressure, etc. The time series meteogram can be constructed using observed data or forecast data.

#### **Meteoric Water**

Water derived from precipitation.

#### **Meteorologist**

A person who studies meteorology. There are many different paths within the field of meteorology. For example, one could be a research meteorologist, radar meteorologist, climatologist, or operational meteorologist.

#### **Meteorology**

The science dealing with the atmosphere and its phenomena. A distinction can be drawn between meteorology and climatology, the latter being primarily concerned with average, not actual, weather conditions.

#### **METRO**

Metropolitan

#### **MeV**

Mega (million) electronvolt. A unit of energy used to describe the total energy carried by a particle or photon

#### **MEX**

- 1) GFS Model Guidance
- 2) Mexico

#### **MI**

- 1) Mile

- 2) Michigan

#### **MIC**

Meteorologist In Charge

#### **Microbarograph**

A instrument designed to continuously record a barometer's reading of very small changes in atmospheric pressure.

#### **Microburst**

A convective downdraft with an affected outflow area of less than 2½ miles wide and peak winds lasting less than 5 minutes. Microbursts may induce dangerous

horizontal/vertical wind shears, which can adversely affect aircraft performance and cause property damage.

**Microclimate**

The climate of a small area such as a cave, house, city or valley that may be different from that in the general region.

**Micron**

Unit of length equal to one thousandth (1/1000) of a millimeter; one millionth (1/1000000) of a meter ( $1 \times 10^{-6}$  m).

**Microscale**

Pertaining to meteorological phenomena, such as wind circulations or cloud patterns, that are less than 2 km in horizontal extent.

**Microwave**

A type of electromagnetic radiation with wavelengths between those of infrared radiation and radio waves.

**Microwave Burst**

In solar-terrestrial terms, a radiowave signal associated with optical and/or X-ray flares

**MID**

Middle

**Mid-Flame Wind**

Wind measured at the midpoint of the flames, considered to be most representative of the speed of the wind that is affecting fire behavior.

**Mid-Latitude Areas**

Areas between 30° and 60° north and south of the Equator.

**Mid-level Cooling**

Local cooling of the air in middle levels of the atmosphere (roughly 8 to 25 thousand feet), which can lead to destabilization of the entire atmosphere if all other factors are equal.

**Middle Clouds**

(or Mid-Level Clouds) - A term used to signify clouds with bases between 6,500 and 23,000 feet. At the higher altitudes, they may also have some ice crystals, but they are composed mainly of water droplets. Altostratus, altostratus, and nimbostratus are the main types of middle clouds. This altitude applies to the temperate zone. In the polar regions, these clouds may be found at lower altitudes. In the tropics, the defining altitudes for cloud types are generally higher.

**Middle Latitudes**

- 1) The latitude belt roughly between 35 and 65 degrees North and South. Also referred to as the temperate region.
- or
- 2) With specific reference to zones of geomagnetic activity, "middle latitudes" refers to 20° to 50° geomagnetic

**Mie Scattering**

Any scattering produced by spherical particles whose diameters are greater than 1/10 the wavelength of the scattered radiation. This type of scattering causes the clouds to appear white in the sky. Often, hail exhibits in this type of scattering.

**Millibar**

A unit of atmospheric pressure equal to 1/1000 bar, or 1000 dynes per square centimeter.

**MIN**

Minimum (or) Minute

**Minimum Discernible Signal**

In a receiver, it is the smallest input signal that will produce a detectable signal at the output. In radar terms, it is the minimal amount of back scattered energy that is required to produce a target on the radar screen. In other words, MDS is a measure of the radar's sensitivity.

**Minimum Temperature**

This is the lowest temperature recorded during a specified period of time. The time period can be 6, 12 or 24 hours. The most common reference is to the daily minimum temperature, or "low."

**Minor Flooding**

A general term indicating minimal or no property damage but possibly some public inconvenience.

**Minor Tidal Overflow**

Minor flooding caused by high tides that results in little if any damage.

**MINT**

minimum temperature

**MISC**

Miscellaneous

**MISG**

Missing

**Misyscale**

- The scale of meteorological phenomena that ranges in size from 40 meters to about 4 kilometers. It includes rotation within a thunderstorm.
- Mist**  
A visible aggregate of minute water particles suspended in the atmosphere that reduces visibility to less than 7 statute miles, but greater than or equal to 5/8 statute miles. It does not reduce visibility as much as fog and is often confused with drizzle.
- Mixed Layer**  
An atmospheric layer, usually the layer immediately above the ground, in which pollutants are well mixed by convective or shear-produced turbulence.
- Mixed Precipitation**  
Any of the following combinations of freezing and frozen precipitation: snow and sleet, snow and freezing rain, or sleet alone. Rain may also be present.
- Mixing Depth**  
Vertical distance between the ground and the altitude to which pollutants are mixed by turbulence caused by convective currents or vertical shear in the horizontal wind.
- Mixing Heights**  
The height to which a parcel of air, or a column of smoke, will rise, mix or disperse. A column of smoke will remain trapped below this height.
- Mixing Ratio**  
The ratio of the weight of water vapor in a specified volume (such as an air parcel) to the weight of dry air in that same volume.
- MJO**  
Madden-Julian Oscillation- Tropical rainfall exhibits strong variability on time scales shorter than the seasonal El Niño-Southern Oscillation (ENSO). These fluctuations in tropical rainfall often go through an entire cycle in 30-60 days, and are referred to as the Madden-Julian Oscillation or intraseasonal oscillations. The intraseasonal oscillations are a naturally occurring component of our coupled ocean-atmosphere system. They significantly affect the atmospheric circulation throughout the global Tropics and subtropics, and also strongly affect the wintertime jet stream and atmospheric circulation features over the North Pacific and western North America. As a result, they have an important impact on storminess and temperatures over the United States. During the summer these oscillations have a modulating effect on hurricane activity in both the Pacific and Atlantic basins.
- MLCAPE**  
Mean Layer CAPE - CAPE calculated using a parcel consisting of Mean Layer values of temperature and moisture from the lowest 100 mb above ground level. See Convective Available Potential Energy (CAPE).
- MLLI**  
Mean Layer Lifted Index - Lifted Index (LI) calculated using a parcel consisting of Mean Layer values of temperature and moisture from the lowest 100 mb above ground level. See Lifted Index (LI).
- MLLW**  
(Mean Lower Low Water) - A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.
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- MNLY**  
Mainly
- MOBY**  
Marine Optical Buoy. It measures solar radiation to calibrate satellite ocean color instruments.
- Model Output Statistics**  
(abbrev. MOS) - the Hydrometeorological Center (HPC) produces a short range (6 to 60 hours) MOS (Model Output Statistics) guidance package generated from the NGM, GFS, and ETA models for over 300 individual stations in the continental United States. These alphanumeric messages are made available at approximately 0400 and 1600 UTC for the 0000 and 1200 UTC forecast cycles, respectively. Model Output Statistics are a set of statistical equations that use model output to forecast the probability of precipitation, high and low temperature, cloud cover, and precipitation amount for many cities across the USA. The statistical equations were specifically tailored for each location, taking into account factors such as each location's climate.
- Moderate Flooding**  
The inundation of secondary roads; transfer to higher elevation necessary to save property -- some evacuation may be required.
- Moderate Risk (of severe thunderstorms)**



Severe thunderstorms are expected to affect between 5 and 10 percent of the area. A moderate risk indicates the possibility of a significant severe weather episode. See high risk, slight risk, convective outlook.

**Moist Adiabatic**

The line on a Skew T-Log P chart that depicts the change in temperature of saturated air as it rises and undergoes cooling due to adiabatic expansion. As saturated air rises, the temperature changes at a rate of 0.55 degrees Celsius per 100 meters (2-3 degrees Fahrenheit per 1,000 feet). Contrast with a dry adiabatic.

**Moist Adiabatic Lapse Rate**

(abbrev. MALR)- The rate at which the temperature of a parcel of saturated air decreases as the parcel is lifted in the atmosphere. The moist adiabatic lapse rate (abbreviated MALR) is not a constant like the dry adiabatic lapse rate but is dependent on parcel temperature and pressure.

**Moist-adiabatic**

(Also known as saturation-adiabatic process.) An adiabatic process for which the air is saturated and may contain liquid water. A distinction is made between the reversible process, in which total water is conserved, and the pseudoadiabatic or irreversible moist adiabatic process, in which liquid water is assumed to be removed as soon as it is condensed.

**Moisture**

Refers to the water vapor content in the atmosphere, or the total water, liquid, solid or vapor, in a given volume of air.

**Moisture Advection**

Transport of moisture by horizontal winds.

**Moisture Convergence**

A measure of the degree to which moist air is converging into a given area, taking into account the effect of converging winds and moisture advection. Areas of persistent moisture convergence are favored regions for thunderstorm development, if other factors (e.g., instability) are favorable.

**Moisture Equivalent**

In hydrologic terms, the ratio of the weight of water which the soil, after saturation, will retain against a centrifugal force 1,000 times the force of gravity, to the weight of the soil when dry. The ratio is stated as a percentage.

**Moisture Ridge**

An axis of relatively high dew point values. This axis is sometimes referred to as a 'moist tongue'.

**Molecule**

The smallest particle of a substance that retains the properties of the substance and is composed of one or more atoms.

**Monitor Stage**

The stage which, when reached by a rising stream, represents the level where appropriate officials (e.g., county sheriff, civil defense officials, or bypass gate operators) are notified of the threat of possible flooding. (Used if different from action stage, and at the discretion of the WFO or river forecast center [RFC].) The term "alert stage" is to be used instead of warning stage. Monitor stage or caution stage may be used instead of alert stage in some parts of the country. see/ alert stage/.

**Monostatic Radar**

A radar that uses a common antenna for both transmitting and receiving.

**Monsoon**

A thermally driven wind arising from differential heating between a land mass and the adjacent ocean that reverses its direction seasonally.

**Monthly Climatological Report**

This climatological product is issued once a month by each National Weather Service office. It is a mix of tabular and narrative information. It is organized so that similar items are grouped together (i.e., temperature, precipitation, wind, heating/cooling degree information, etc.).

**Morning Glory**

An elongated cloud band, visually similar to a roll cloud, usually appearing in the morning hours, when the atmosphere is relatively stable. Morning glories result from perturbations related to gravitational waves in a stable boundary layer. They are similar to ripples on a water surface; several parallel morning glories often can be seen propagating in the same direction.

**MOS**

Model Output Statistics - the Hydrometeorological Center (HPC) produces a short range (6 to 60 hours) MOS guidance package generated from the NGM, GFS, and ETA models for over 300 individual stations in the continental United States. These alphanumeric messages are made available at approximately 0400 and 1600 UTC for the 0000 and 1200 UTC forecast cycles, respectively. Model Output Statistics are a set of statistical equations that use model output to forecast the probability of precipitation, high and low temperature, cloud cover, and precipitation amount for many cities across

the USA. The statistical equations were specifically tailored for each location, taking into account factors such as each location's climate.

**Mostly Clear**

When the 1/8th to 2/8ths of the sky is covered by with opaque (not transparent) clouds. Sometimes referred to as **Mostly Sunny** if this condition is present during daylight hours.

**Mostly Cloudy**

When the 6/8th to 7/8ths of the sky is covered by with opaque (not transparent) clouds. Same as **Considerable Cloudiness**.

**Mostly Sunny**

When the 1/8th to 2/8ths of the sky is covered by with opaque (not transparent) clouds Same as **Mostly Clear**, except only applicable during daylight hours.

**Mount Wilson Magnetic Classifications**

In solar-terrestrial terms, a classification system for sunspots:

- Alpha: Denotes a unipolar sunspot group.
- Beta: A sunspot group having both positive and negative magnetic polarities, with a simple and distinct division between the polarities.
- Beta-Gamma: A sunspot group that is bipolar but in which no continuous line can be drawn separating spots of opposite polarities.
- Delta: A complex magnetic configuration of a solar sunspot group consisting of opposite polarity umbrae within the same penumbra.
- Gamma: A complex active region in which the positive and negative polarities are so irregularly distributed as to prevent classification as a bipolar group.

**Mountain Wave**

The wavelike effect, characterized by updrafts and downdrafts, that occurs above and behind a mountain range when rapidly flowing air encounters the mountain range's steep front.

**Mountain Wind System**

The system of diurnal winds that forms in a complex terrain area, consisting of mountain-plain, along-valley, cross-valley and slope wind systems.

**Mountain-Plain Wind System**

A closed, large-scale, thermally driven circulation between the mountains and the surrounding plain. The mountain-to-plain flow making up the lower branch of the closed circulation usually occurs during nighttime, while the plain-to-mountain flow occurs during daytime.

**Mountainado**

A vertical-axis eddy produced in a downslope windstorm by the vertical stretching of horizontal roll vortices produced near the ground by vertical wind shear. Mountainadoes, when carried by the mean wind, can produce strong horizontal shears and wind gusts that are much more damaging than the general prevailing wind speeds.

**MOV**

Move

**Movable Bed**

In hydrologic terms, a stream bed made up of materials readily transportable by the stream flow

**MOVG**

moving

**MR**

more

**MRF**

Medium Range Forecast model, the medium-range computer model run by the United States (NOAA). The output from this model is part of what is now known as the **GFS** model, so the term MRF is no longer widely used.

**MRGL**

Marginal

**MRNG**

Morning

**MSG**

Message

**MSL**

Mean sea level

**MSL**

(Mean Sea Level) - The arithmetic mean of hourly water elevations observed over a specific 19-year tidal epoch.

**MSLP**

Mean sea level pressure

**MST**

Mountain Standard Time

**MSTLY**

Mostly

<b>MSTR</b>	Moisture
<b>MT</b>	1) Mountain 2) Montana
<b>MTN</b>	Mountain
<b>MTNS</b>	Mountains
<b>MTS</b>	Mountains
<b>Mud Slide</b>	Fast moving soil, rocks and water that flow down mountain slopes and canyons during a heavy downpour of rain.
<b>Muggy</b>	A subjective term for warm and excessively humid conditions.
<b>MULI</b>	Most Unstable Lifted Index - Lifted Index (LI) calculated using a parcel from the pressure level that results in the Most Unstable value (lowest value) of LI possible.
<b>Multicell Thunderstorm</b>	These thunderstorms are organized in clusters of at least 2-4 short-lived cells. Each cell generates a cold air outflow and these individual outflows combine to form a large gust front. Convergence along the gust front causes new cells to develop every 5 to 15 minutes. The cells move roughly with the mean wind. However, the area (storm) motion usually deviates significantly from the mean wind due to discrete propagation (new cell development) along the gust front. The multicellular nature of the storm is usually apparent on radar with multiple reflectivity cores and maximum tops.
<b>Multiple Doppler Analysis</b>	The use of more than one radar (and hence more than one look angle) to reconstruct spatial distributions of the 2D or 3D wind field, which cannot be measured from a single radar alone. Includes dual Doppler, triple Doppler, and overdetermined multiple Doppler analysis.
<b>Multiple Vortex Tornado</b>	A tornado in which two or more condensation funnels or debris clouds are present at the same time, often rotating about a common center or about each other. Multiple-vortex tornadoes can be especially damaging.
<b>Multipurpose Reservoir</b>	In hydrologic terms, a reservoir constructed and equipped to provide storage and release of water for two or more purposes such as flood control, power development, navigation, irrigation, recreation, pollution abatement, domestic water supply, etc.
<b>Municipal Use of Water</b>	In hydrologic terms, the various uses to which water is put to use developed urban areas, including domestic use, industrial use, street sprinkling, fire protection, etc.
<b>Mushroom</b>	Slang for a thunderstorm with a well-defined anvil rollover, and thus having a visual appearance resembling a mushroom.
<b>MVFR</b>	Marginal Visual Flight Rules - in an aviation product, refers to the general weather conditions pilots can expect at the surface. VFR stands for Visual Flight Rules and MVFR means Minimum or Marginal Visual Flight Rules. MVFR criteria means a ceiling between 1,000 and 3,000 feet and/or 3 to 5 miles visibility.
<b>MVS</b>	Moves
<b>MWD</b>	On a buoy report, mean wave direction corresponding to energy of the dominant period (DOMPD). The units are degrees from true North just like wind direction.
<b>MWS</b>	Marine Weather Statement

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