

Vocabulary: Observing Weather (Metric)



Vocabulary

- Anemometer – an instrument used for measuring the speed (and sometimes direction) of the wind.
 - A vane anemometer (also called a propeller anemometer) uses a propeller to measure the wind speed and rotates to show wind direction. The propeller points in the direction the wind is coming from.
- Atmosphere – the layer of gases that surrounds Earth or another planet.
 - Earth’s atmosphere is about 100 km thick.
- Aurora borealis – a glowing light in Earth’s atmosphere, usually near the North Pole, caused by the collisions of charged particles with atoms in Earth’s atmosphere.
 - Aurora borealis is also known as “northern lights.”
 - In the southern hemisphere, the aurora is called *aurora australis* or “southern lights.”
- Cumulonimbus cloud – a large, tall, and dense cloud that often produces heavy rain and *thunderstorms*.
 - Cumulonimbus clouds form when hot, moist air rises rapidly within the cloud, giving the cloud a great height.
- Equator – an imaginary line drawn around the middle of Earth, halfway between the north and south poles.
- Evaporate – to change from a liquid to a gas.
 - Evaporation is occurring when a puddle of rainwater dries up.
- Fog – a thick, dense cloud located near the ground.
 - Fog forms when moist air is cooled near the ground. This may happen when the ground cools at night or when moist air is cooled by a cold ocean surface.
 - Unlike mist, fog is very hard to see through. Driving or sailing in fog can be very dangerous.



Image courtesy USDOE

Vane anemometer



Photo by Paul Moss

Aurora australis



Image courtesy NOAA

Cumulonimbus cloud



Photo by Philip O

Fog

- Humidity – the amount of water vapor in the air.
 - The *relative humidity* is the amount of water vapor in the air divided by the maximum amount of water vapor the air can hold.
 - For example, a relative humidity of 60% means that the air contains 60% of the maximum amount of water vapor it can hold.
- Hygrometer – an instrument used to measure humidity.
 - One form of hygrometer uses a human hair to measure humidity. The hair is attached to a weight. As humidity increases, the hair stretches to a longer length. When humidity decreases, the hair contracts.
- Latitude – angular distance north or south of the equator.
 - The latitude of the equator is 0°, the latitude of the North Pole is 90° N, and the latitude of the South Pole is 90° S.
- Precipitation – any form of water that falls to the ground.
 - Examples of precipitation include rain, snow, sleet, and hail.
- Rain gauge – an instrument used to measure the amount of liquid precipitation.
 - A typical rain gauge uses a funnel to collect water into a graduated cylinder. Rainfall is measured in millimeters.
- Thermometer – an instrument used to measure temperature.
 - Inside a thermometer, a liquid (usually alcohol) expands when heated, causing it to rise into a narrow tube. The level of the liquid indicates the temperature.
- Temperature – the hotness or coldness of a substance, such as air.
- Thunderstorm – a storm that produces *lightning*.
 - Lightning is an electrical discharge from one part of a cloud to another or from the cloud to the ground.
 - A lightning bolt causes the air around it to heat and expand rapidly. This causes sound waves to be transmitted, which we hear as thunder.
 - Thunderstorms typically produce high winds and heavy rains.
- Weather – the state of the atmosphere at a time and place.
 - Weather is described by temperature, wind speed, humidity, cloud cover, precipitation, and barometric pressure.
- Weather station – a structure containing instruments for measuring the weather.
 - A typical weather station contains a thermometer for measuring temperature, an anemometer for measuring wind speed and direction, a rain gauge for measuring precipitation, a hygrometer for measuring humidity, a *barometer* for measuring pressure, and a *pyranometer* for measuring the intensity of sunlight.

