



Radiosondes are weather instruments attached to weather balloons. Radiosondes measure wind speed, air pressure, temperature, and humidity. Around the world about 900 radiosondes are launched at the same time every day, at 0000 UTC and 1200 UTC



Humidity is measured with a humicap. It is part of an electrical circuit and calculated how much electricity is being stored. More electricity = more moisture. Moisture + temperature = humidity

Temperature is measured with a platinum resistor that determines changes in electrical resistance.

Wind speed is calculated with GPS inside the radiosonde communicating with a number of satellites. GPS determines how fast the radiosonde is moving horizontally in the atmosphere.

Air pressure is measured with a barocap inside the radiosonde. It calculates the weight of the air.

2 lithium batteries power the radiosonde.

Data from the radiosonde is sent back to where it was launched with radio waves, using the antenna at the bottom.

Scientists used kites with weather instruments in the late 1800s. The US Signal Corps first used weather balloons with radio frequencies in 1924. The first radiosonde was developed in 1929. Early radiosondes used human hair to measure humidity. Wind speed was calculated by scientists observing the radiosonde from the ground.



Weather balloons spend about 90 minutes in the air. They reach a height of around 100,000 feet. Plastic balloons are used in Antarctica. They can stay in the air for up to 2 weeks.





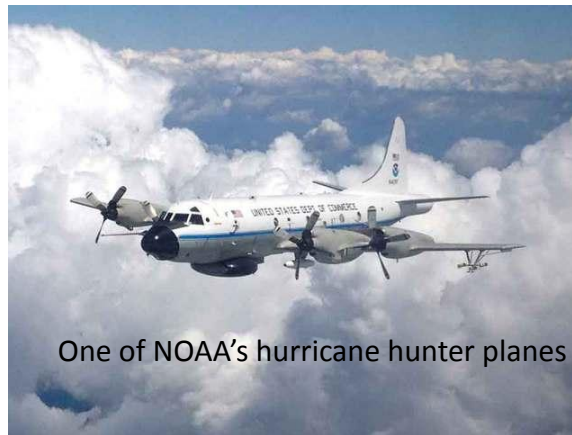
Releasing dropsondes

Dropsondes are dropped into hurricanes from airplanes to measure air pressure, temperature, wind speed and humidity. Dropsondes are released high above hurricanes and from inside hurricanes.



The eye of Hurricane Dorian

Dropsondes were developed by the National Center for Atmospheric Research in Boulder. The information from dropsondes go directly to supercomputers for weather models and to forecasters in the National Hurricane Center.



One of NOAA's hurricane hunter planes

Dropsondes are used by hurricane hunter airplanes, which are flown by Air Force pilots from Biloxi, Mississippi and NOAA Corps pilots from Lakeland, Florida. Many dropsondes are released in all hurricanes near the US. They improve hurricane forecasts.

