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.

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.

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

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.

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

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.

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.

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