

Weather Instruments



Weather Prediction

All these instruments are used by meteorologists to report the current and predict the future weather (next three to five days)

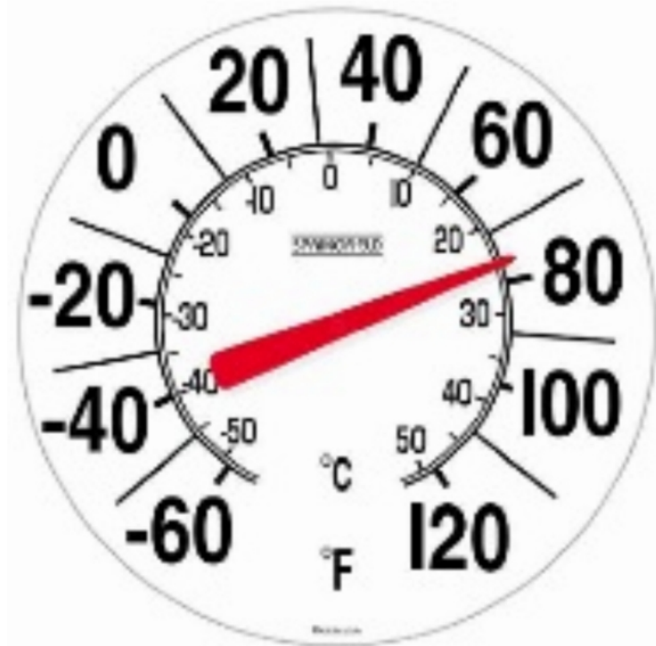


The End.

A Thermometer

measures **air temperature**.

A Thermometer works because matter expands when heated. Most thermometers are closed glass tubes containing liquids such as alcohol. When air around the tube heats the liquid, the liquid expands and moves up the tube. A scale then shows the actual temperature of the air.



Thermometers

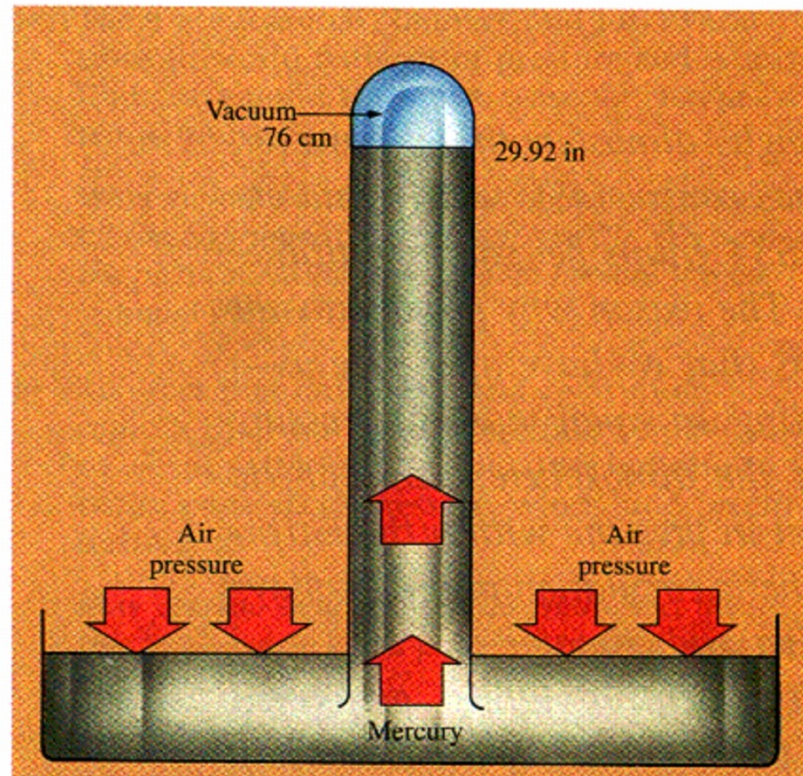


This also has a **Hygrometer**, which measures humidity.

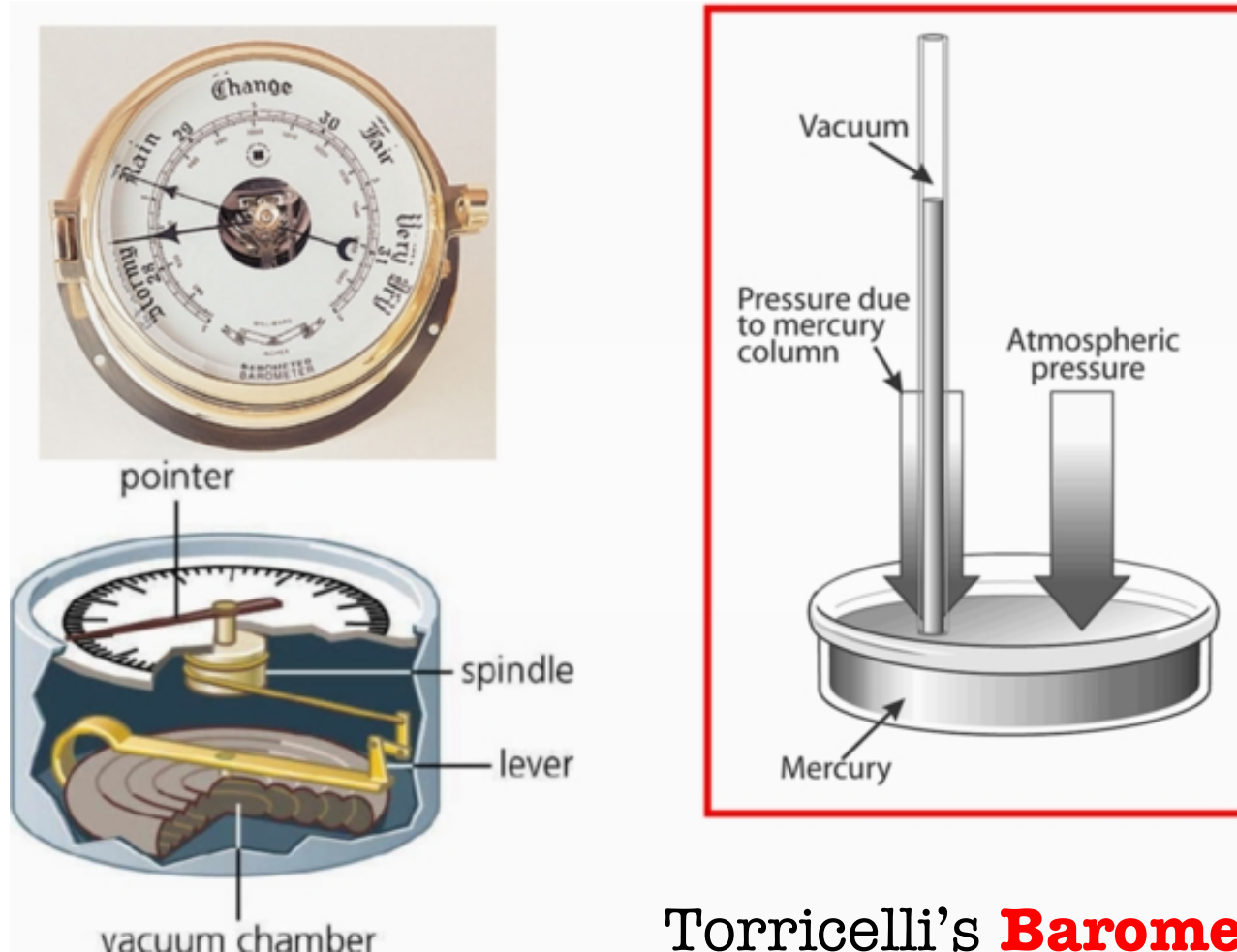
A Barometer

measures **air pressure**.

An Italian scientist named Torricelli built the first barometer in 1643. People still use barometers based on Torricelli's design to measure air pressure.



Barometers



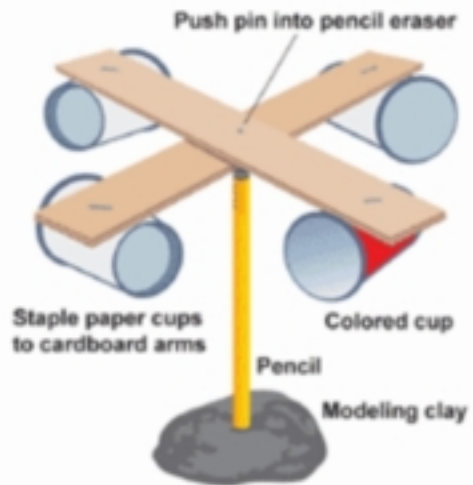
Torricelli's **Barometer**

An **Anemometer** measures **wind speed**.

The cups catch the wind, turning a dial attached to the instrument. The dial shows the wind speed. Wind speed can be estimated without special tools by observation.



Anemometers

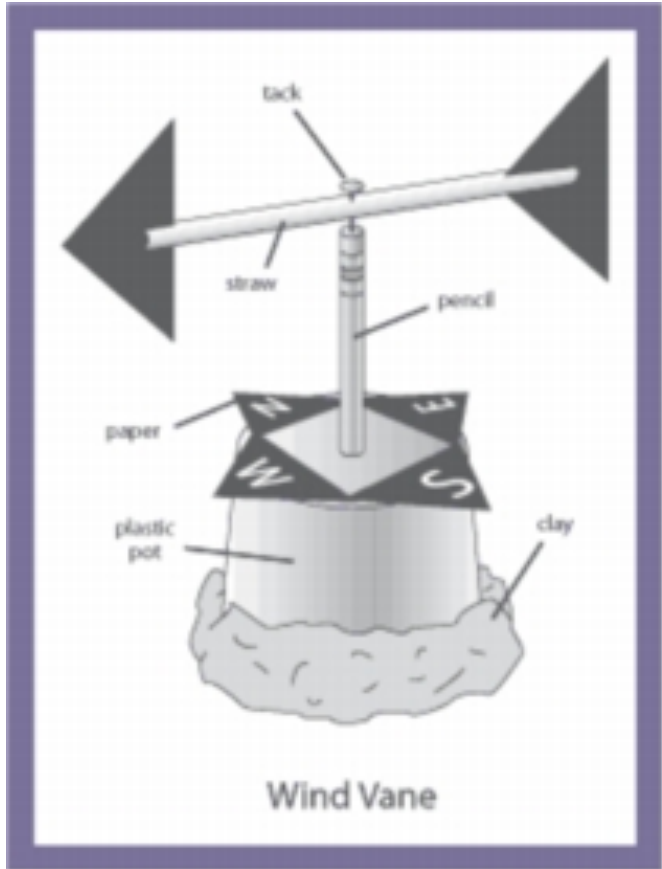


A **Wind Vane** is used to measure **wind direction**.

It spins on a rod and **points in the direction from which the wind comes.**



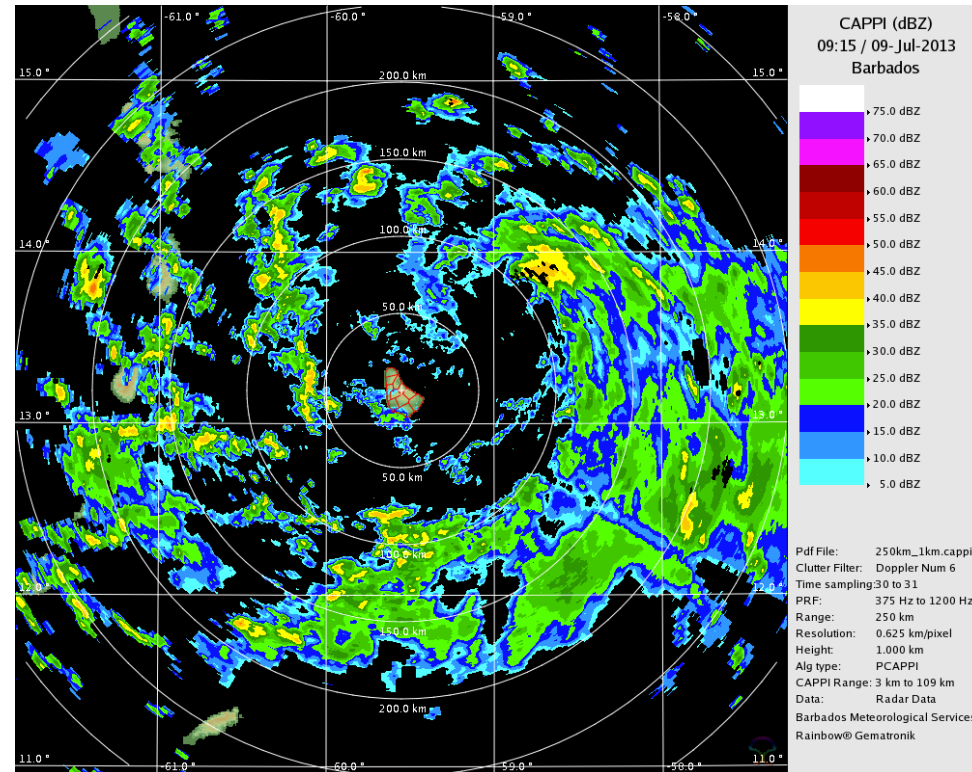
Wind Vanes



Most airport Wind Vanes have Anemometers also.

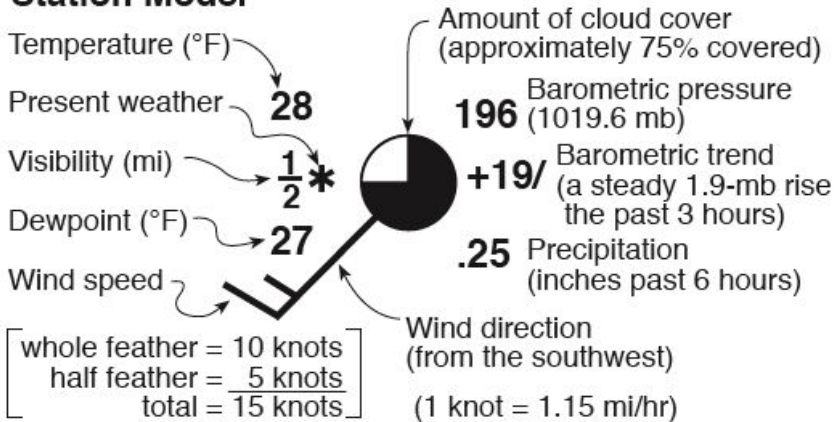
Radar

A program used to find the location, movement, and intensity of precipitation.



Station model

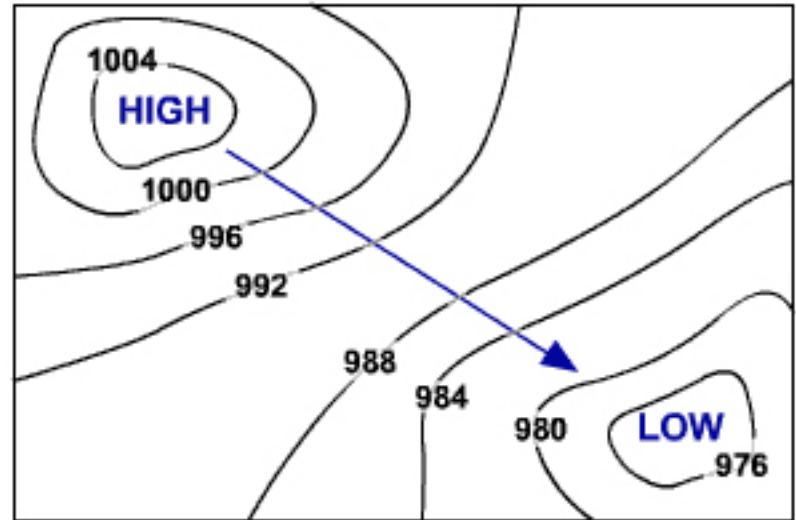
Station Model



A small circle which shows the location of a weather station with a set of symbols and numbers surrounding it which represent the weather data.

Isobars

Lines on a weather map that connect points of equal air pressure, they form closed circles of high and low pressure.

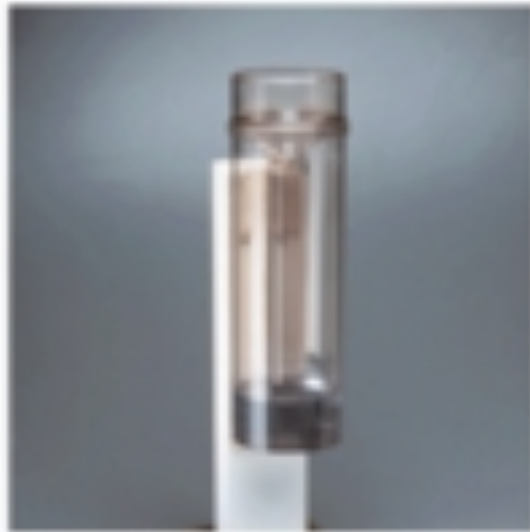


A **Rain Gauge** is used to measure **amount of rainfall**.

An official **Rain Gauge** consists of a large cylinder with a funnel and a smaller measuring tube inside.



Rain Gauges



A Weather Balloon

measures **weather conditions**
higher in the atmosphere.

Measures
temperature, air
pressure, wind
speed and
direction



Weather Balloons



Sometimes weather balloons
land in the oddest places!



A Weather Satellite

is able to **photograph, track, and measure the conditions of large-scale air movements.**

A **meteorologist** then compiles and analyzes the data with the help of computers.

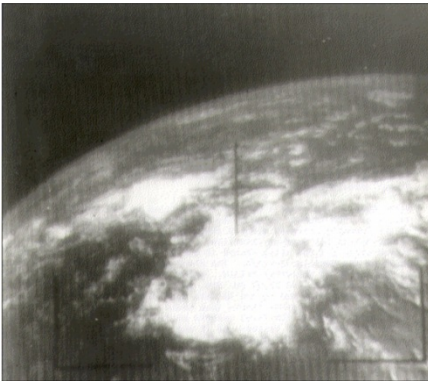


NOAA weather satellite launched in 2005.

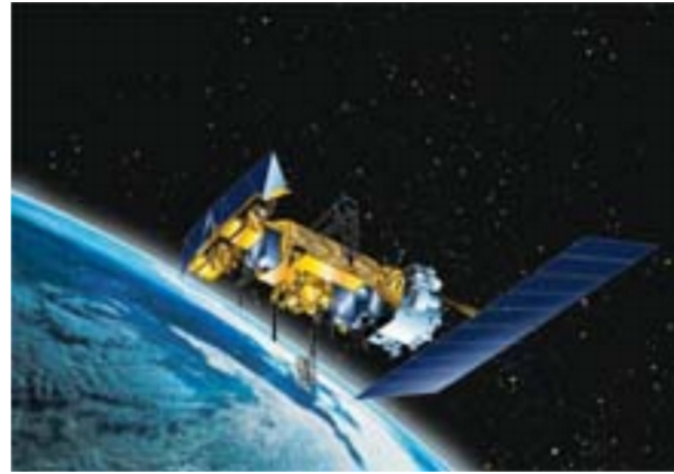
Weather Satellites



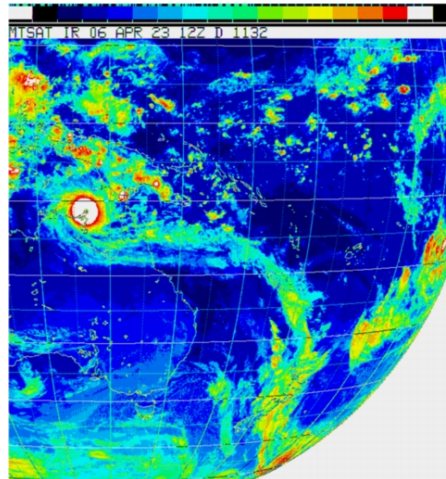
Tiros 1 - 1965



First usable Tiros 1 image



NOAA-M measures information about Earth radiation, sea and land surface temperature, atmospheric vertical temperature, water vapor, and ozone in the troposphere and stratosphere.



Weather Satellite Image

Weather Prediction

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The End.