

**How do you measure Air  
Pressure?**



# Air Pressure or Barometric Pressure?

- Ever hear of either before?
- It is the measure of the weight of air pressing down on a given area of the Earth's surface.



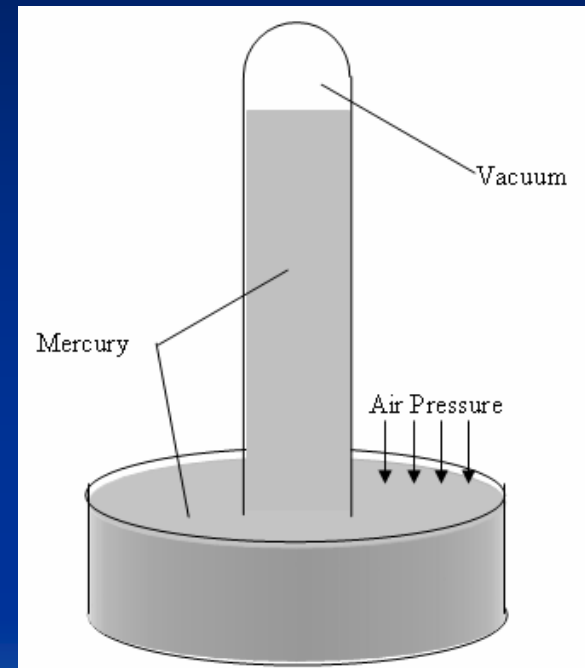
# Barometer

- Is a device used to measure the air pressure or barometric pressure at a given location.
- There are two types of barometers:
  - Mercury Barometer
  - Aneroid Barometer

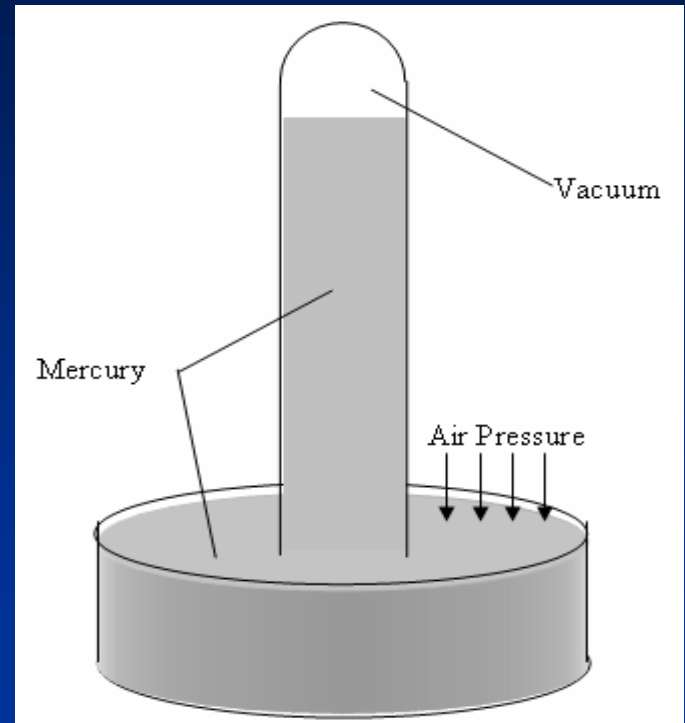


# Mercury Barometer

- Is a glass tube filled with mercury sealed at one end. The tube is then inverted, placing the open end in a pool of mercury without letting air escape.

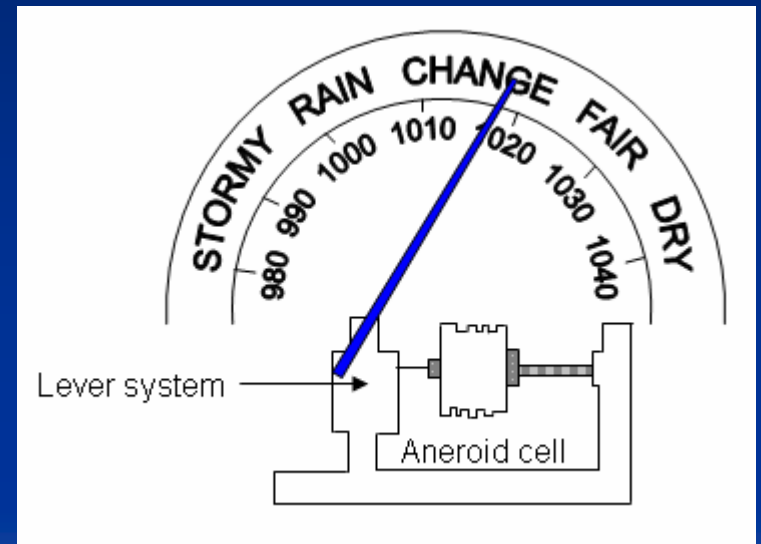


- The mercury falls out of the glass tube until the pressure exerted by the atmosphere (air pressure) on the pool of mercury is **EQUAL** to pressure the mercury exerts on the glass tube.

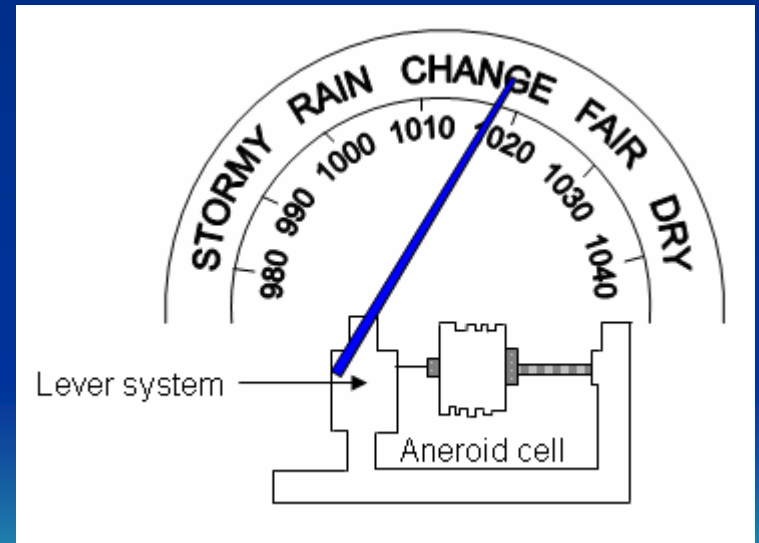


# Aneroid Barometer

- ‘Aneroid’ means ‘without fluid’ or ‘without liquid’.
- Comprised of an **aneroid cell** which is a flexible container that has air removed from it, and then is sealed.



- When atmospheric pressure increases, it compresses the aneroid cell, causing the needle to move to the right.
- Thus when the atmospheric pressure decreases, the aneroid cell expands, causing the needle to move to the left.



# New Technologies

- Scientists have developed new methods to measure the atmospheric pressure.
  - One is: Using electronic sensors to measure atmospheric pressure.
    - The sensors contain silicon membranes which show a change in electrical resistance when exposed to different atmospheric pressures.
    - The magnitude of the current that flows through the silicon is a measure of the pressure on the membrane.





# What does it measure?

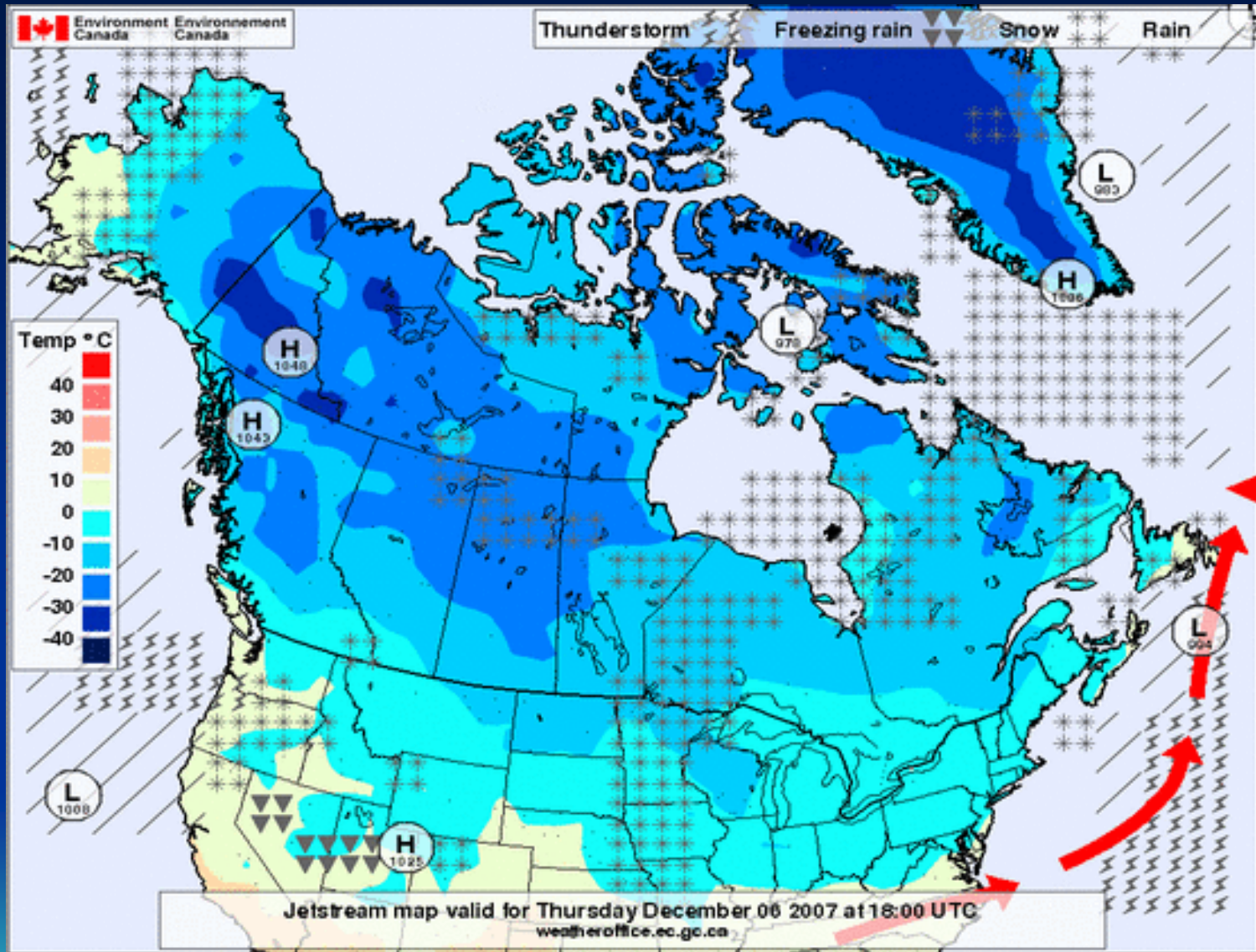
- Weather maps often display air pressure in **millibars (mb)**, **millimeters of mercury (mm Hg)**, or **inches of mercury (in Hg)**.
- Normal or Standard air pressure at sea level is: 1013.2 mb, 760 mm Hg, or 29.92 in Hg.



# Displaying Air Pressure

- On weather maps, places that have the same air pressure are connected with lines called **isobars**.
- Areas which have the highest air pressure are referred to as highs and therefore are marked with an **H**. Areas with the lowest air pressure are referred to as lows and are marked with an **L**.





Source: <http://www.weatheroffice.gc.ca>

Permission available through website