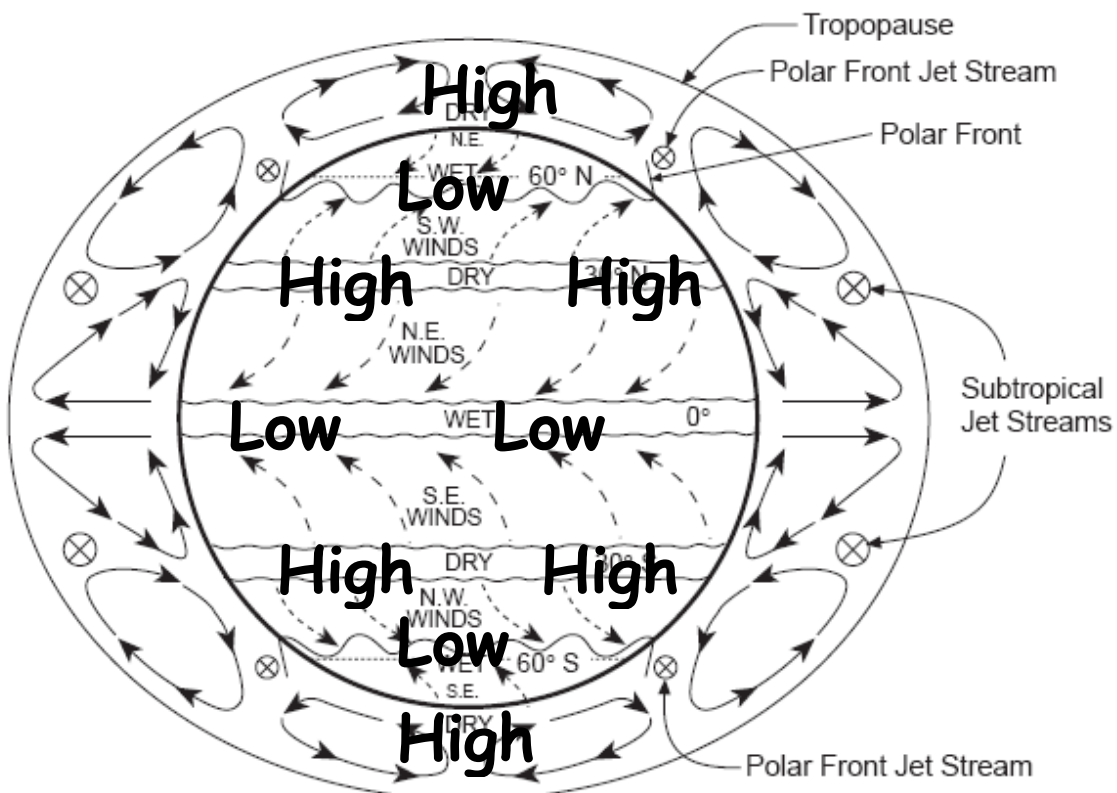
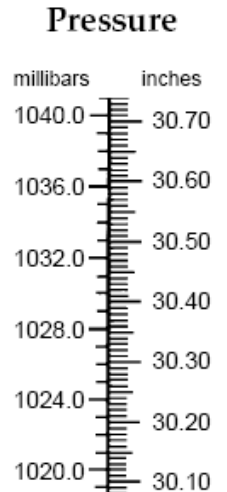


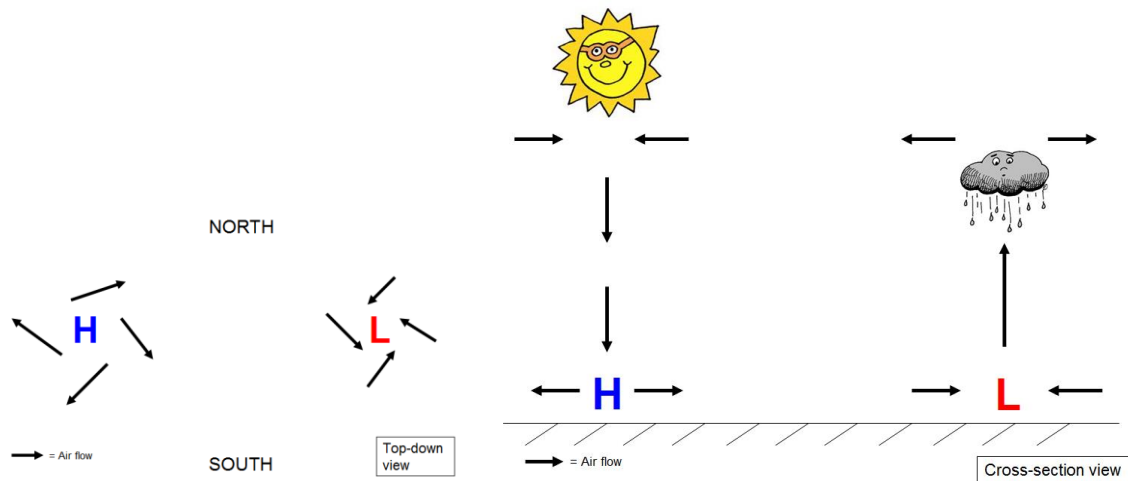
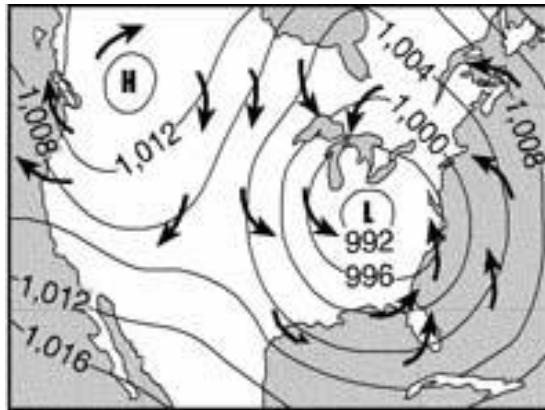
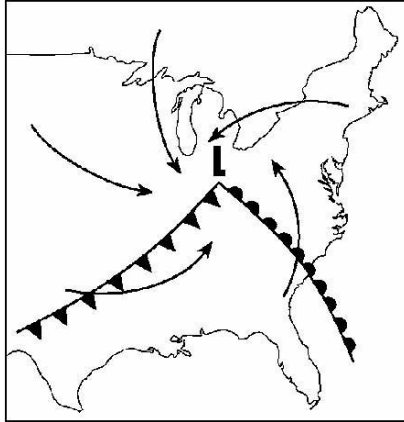
Air Pressure

- I. Air pressure \equiv the weight of the air
- II. Air pressure is measured with an instrument called a **BAROMETER**. Sometimes air pressure is referred to as barometric pressure.
- III. Air pressure can be measured in millibars or inches of mercury. \longrightarrow
- IV. Winds blow from regions of high pressure to regions of low pressure. $(H) \rightarrow (L)$



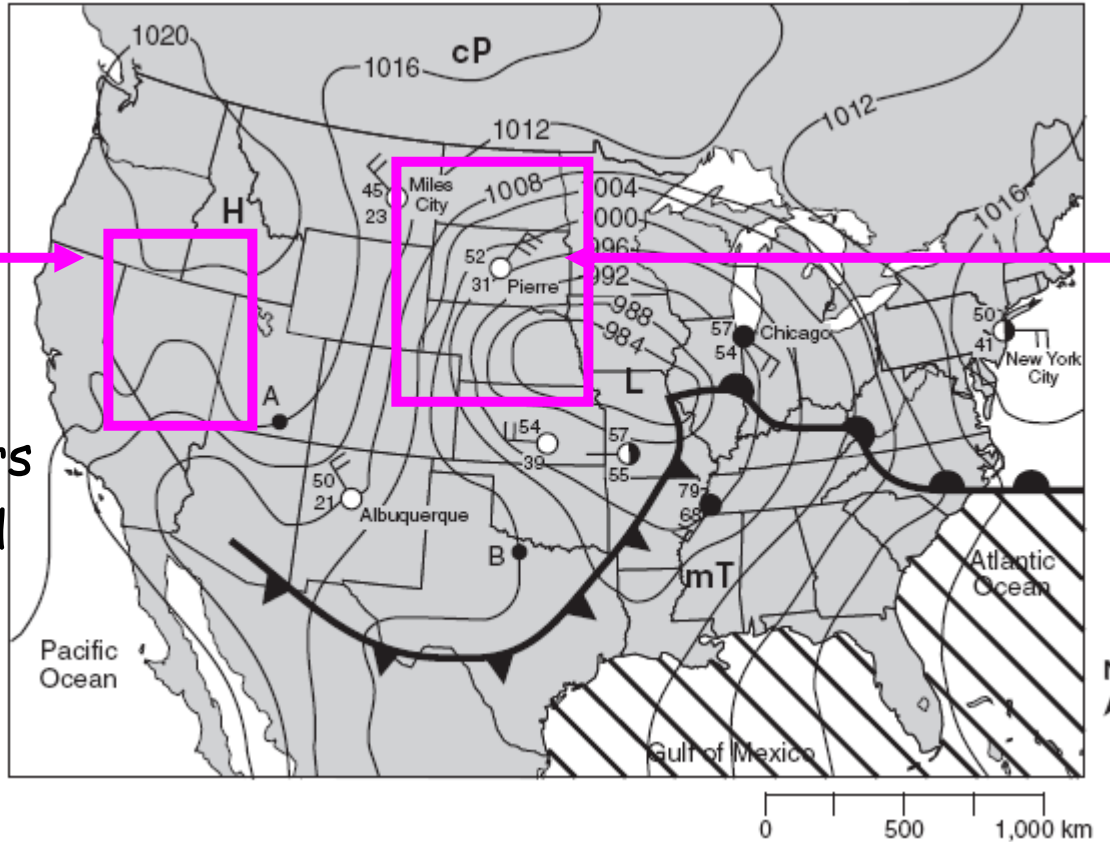
Air rises at low pressure, where the winds converge - the equator
 Air sinks at high pressure, where the winds diverge - 30°N or 30°S

- V. The surface winds patterns can't blow in a straight path because of the Coriolis Effect (rotation). Regional wind patterns around a low pressure system in the N. Hemisphere are convergent and counter-clockwise. Regional wind patterns around a high pressure system in the N. Hemisphere are divergent and clockwise.



- VI. The greater the differences in air pressure between two locations the faster/stronger the winds will be. The larger the pressure gradient, the stronger the winds.

Pressure is shown on weather maps by lines called **isobars**.



pressure gradient between Pierre and Miles City:

gradient = change in field value ÷ distance

$$= 1016\text{mb} - 1000\text{mb} \div 1000\text{km}$$

$$= 16\text{mb} \div 1000\text{km}$$

$$= 0.016\text{mb/km}$$

VII. Low pressure is generally associated with lousy, wet weather

VIII. The Factors that control Air Pressure:

- a. Elevation / Altitude: Air elevation increases, the air pressure decreases. This is why the tops of mountains are cold. The air rises, encounters lower atmospheric pressures, the air will then expand and cool as a result.
- b. Temperature: As the temperature increases, the air pressure decreases. **WARM AIR RISES. AIR RISES, EXPANDS, COOLS, & CONDENSES.** This is one way in which clouds are formed and why low pressure is associated with lousy wet weather.
- c. Moisture: As the humidity increases, the air pressure decreases. This is counter-intuitive. **WET AIR WEIGHS LESS THAN DRY AIR!**

