

## Fundamentals of Atmospheric Motion and Weather

Air moves because of differences in atmospheric pressure.

Average sea level is 1013 millibars or 29.92 inches of Mercury.

Air moves into a low pressure area because it is a type of vacuum.  
Air rises in a low, cools and clouds and precipitation develop.

Air moves out of a high because the air is stacked up and pushes downward and outward.  
Air descends in a high causing clear sky. Temp can be hot or cold.

Pressure cells are made in two ways.

Differential heating (or cooling) of the earth's surface.

The warmer place will develop low pressure.

The cooler spot will develop high pressure.

(Note: This says nothing about the temperature of the air changes as it rises or sinks, only how it starts.)

Atmospheric motions higher up (upper level dynamics).

If air is removed from a place. This creates a trough aloft and a low at the surface.

If air is dumped in a place. This creates a ridge aloft and a high at the surface.