

Building Blocks of Weather

- 1) The sun's heating varies over the earth's surface and with the seasons.

The directness of the sun's rays (sun being overhead means direct) and the length of the daylight period determine the total heat input to the earth and the atmosphere.

- 2) The differences of air temperature over the earth create wind flow.

Generally, air at the equator is far warmer than air at the poles. Warm air is lighter and tends to rise; cold air is heavier and tends to sink. Therefore, there must be a horizontal flow of air to fill the void.

- 3) The earth is tilted at 23.5 degrees. This allows more incoming solar radiation to reach the northern hemisphere during our summer when the earth is in a specific point during its revolution around the sun.

- 4) If the earth did not rotate, the air would remain still. However, since it does rotate around its axis as well as around the sun, large scale wind patterns are created.

WHAT ABOUT CLOUDS/PRECIPITATION ?

- 5) Since cool air can hold less water vapor than warm air, rain and other forms of precipitation are caused when the air is cooled beyond its capability of holding onto the water vapor.
A great deal of water vapor can remain in the air if the air is warm, such as in the summertime, but a lesser amount if the air is colder.