

Weather Patterns

How does air move?

- Layers of Air

- Exosphere:
 - Altitude about 600 km
 - Temperature: 1700 Degrees C
 - Thermosphere
 - Mesosphere
 - Altitude: about 85 km
 - Temperature: -90 degrees C
 - Stratosphere
 - Altitude: About 50 km
 - Temperature: 0 degrees C
 - Troposphere
 - Altitude: about 8-15 km
 - Temperature: -55 degrees C
- As altitude increases, how does air pressure change?
- Air pressure decreases as altitude increases. As altitude increases, gas particles are farther apart and there is less air above.
- **Convection Currents:**
- Gases or liquids rise and sink in a particular path.
- What causes convection currents?
- Different temperatures between air above land and water cause convection currents.

What are air masses?

- **Air mass:** is a large body of air with similar properties all through it.
- Types of air masses:
- **Continental Polar Air:** The land near the poles is not very moist. So, the air mass from this area is cold and fairly dry.
 - **Maritime Tropical Air:** Humid air has lots of moisture. Over tropical oceans or rainforests, an air mass becomes warm and very humid because water can easily evaporate there.
 - **Maritime Polar Air:** Even though the ocean near the poles is cold, water vapor evaporates into the air. An air mass is forming over the poles and it is cold and moist.
 - **Continental Tropical Air:** A large hot desert can cause the air above it to be warm and fairly dry.
- When air masses meet:

- **Front**: a boundary between two air masses. *Think severe weather or weather changes.

- What causes severe weather?
 - Thunderstorms
 - Stage 1: Air currents move upward
 - Stage 2: Air currents are mixed
 - Stage 3: All air currents move downward.
 - Tornadoes
 - Air rolls between two layers of winds. The rolling air is turned so it stands upright and becomes a funnel cloud. It is a tornado if it touches the ground.
 - Hurricanes
 - When water vapor from the ocean condenses, it releases energy. This buildup of energy and winds, drive the hurricane.

- How are weather forecasts made?
 - Collecting Data
 - Any information gathered in regards to anything. This could be numbers (percentages, decimals, fractions of time, etc.)
 - Barometer: shows air pressure
 - Anemometer: measures wind speed.
 - Rain gauge: measures how much rain has fallen.

- What is Climate?
 - Climate: the average of weather conditions over a long time, usually 30 years. Climate includes things like the average amount of precipitation, the average temperature, and how much the temperature changes throughout the year.