

Chapter Thirteen: Weather

Lesson 2: Weather Patterns

Air pressure is the weight of the molecules in a large mass of air

- When air molecules are cool, they are closer together
- Cool air masses have high pressure (more weight)
- Warm air masses have low pressure

High-pressure system: large body of circulating air with high pressure at its center and lower pressure outside of the system

- Associated with clear skies and fair weather

Low-pressure system: large body of circulating air with low pressure at its center and higher pressure outside of the system

- Associated with clouds and precipitation

Air masses: large bodies of air that have uniform temperature, humidity, and pressure

- Form when a large high pressure system lingers over an area for several days
- Land = Continental; Water = Maritime; Warm = Tropical; Cold = Polar
 - *Arctic Air Masses*
 - *Continental Polar Air Masses*
 - *Maritime Polar Air Masses*
 - *Continental Tropical Air Masses*
 - *Maritime Tropical Air Masses*

Front: boundary between two air masses

- *Cold Front:* cold air pushes underneath warm air mass
 - Associated with severe storms
- *Warm Front:* warm air rises as it glides above the cold air mass
 - Produces a wide blanket of clouds – steady rain or snow for hours
- *Stationary Front:* when a front stalls and you have warm air on one side and cold air on the other side
 - Cloudy skies and light rain
- *Occluded Front:* fast moving cold front catches up to a slow moving warm front

Severe Weather

- Can cause major damage, injuries, and death
- Thunderstorms, tornadoes, hurricanes, and blizzards
 - Thunderstorms – form from cumulus clouds that continues to have updrafts
 - **Tornadoes:** a violent, whirling column of air in contact with the ground
 - Dr. Ted Fujita – developed the way we classify tornadoes
 - F0 = weak tornado – little damage
 - F5 = strong tornado – incredible damage
 - **Hurricane:** an intense tropical storm with winds exceeding 119 km/hr
 - Most destructive storms on Earth
 - **Blizzard:** a violent winter storm characterized by freezing temperatures, strong winds, and blowing snow

U.S. National Weather Service: issue watches and warnings during severe weather events

- Watch: severe weather is possible
- Warning: severe weather is already occurring