

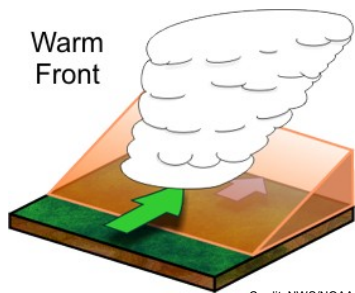
Fronts

- The motion of air mass motion is usually based upon the air flow in the upper atmosphere.
- As the jet stream changes intensity and position, it affects the motion and strength of air masses.
- Where air masses converge, they form boundaries called "fronts".

- Fronts are identified by change of temperature based upon their motion.
 - Cold front
 - A colder air mass pushes a warmer air mass up into the atmosphere.
 - Warm front
 - A warmer air mass moves over top of a colder air mass.
 - Stationary front
 - The boundary between two air masses does not move.

- The motion of air masses also affects where a good portion of precipitation occurs.
- The air of cold air masses is more dense than warmer air masses.
- Therefore, as these cold air masses move, the dense air undercuts the warmer air masses forcing the warm air up and over the colder air causing it to rise into the atmosphere.

- **Warm fronts** typically have a **gentle slope** so the air rising along the frontal surface is gradual.



Credit: NWS/NOAA

- The gentle slope favors a broad area of rising air so there is typically widespread layered or stratiform cloudiness and precipitation along and to the north of the front.



Cold Front

Credit: NWS/NOAA

- **Cold fronts** have a **steep slope** that forces air upward more abruptly.

- This can lead to a fairly narrow band of showers and thunderstorms along or just ahead of the front.

Symbols

Warm Front



Cold Front



Stationary Front

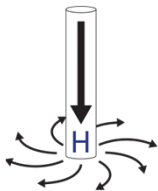


Pressure Systems

- The Earth's atmosphere exerts a pressure on the surface.
- Standard pressure at sea level is defined as 101.3 kPa, but the actual pressure in an area varies.
- Warm rising air results in lower pressure than falling cooler air.
- Areas of "high" and "low" pressure are relative.

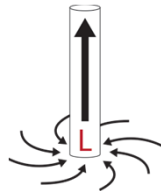
High Pressure System

- Falling air
- Pushes air away
- Clockwise rotation
- Clear skies



Low Pressure System

- Rising air
- "Sucks" air in
- Counterclockwise rotation
- Windy, cloudy, rainy



Images: NOAA

