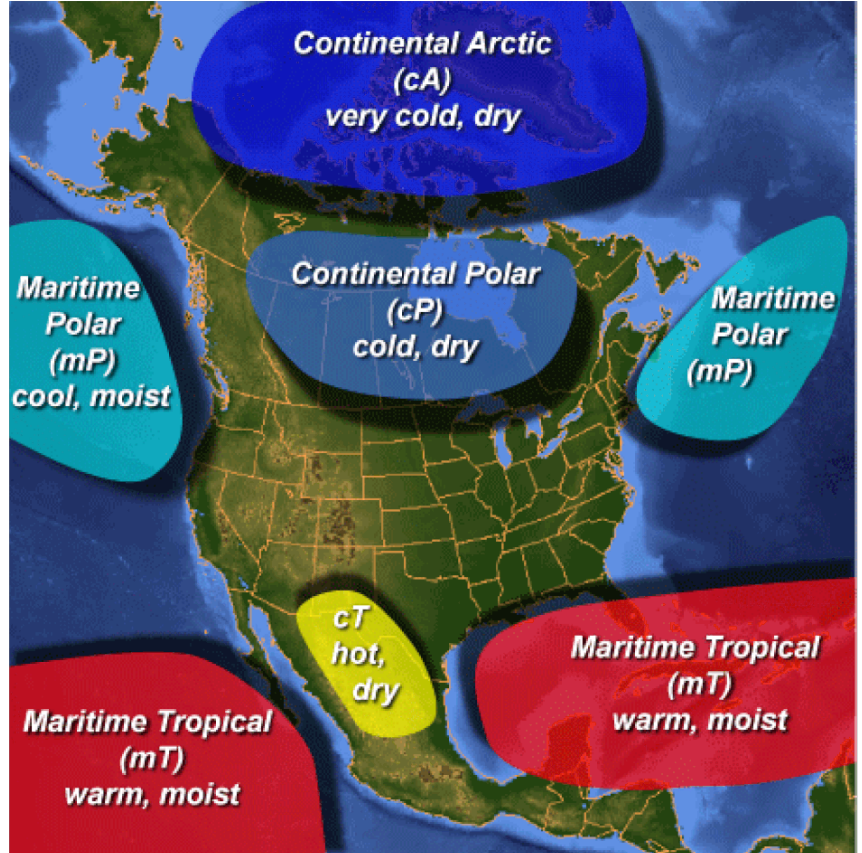


NOTES CHAPTER 20- AIR MASSES, FRONTS, SEVERE WEATHER

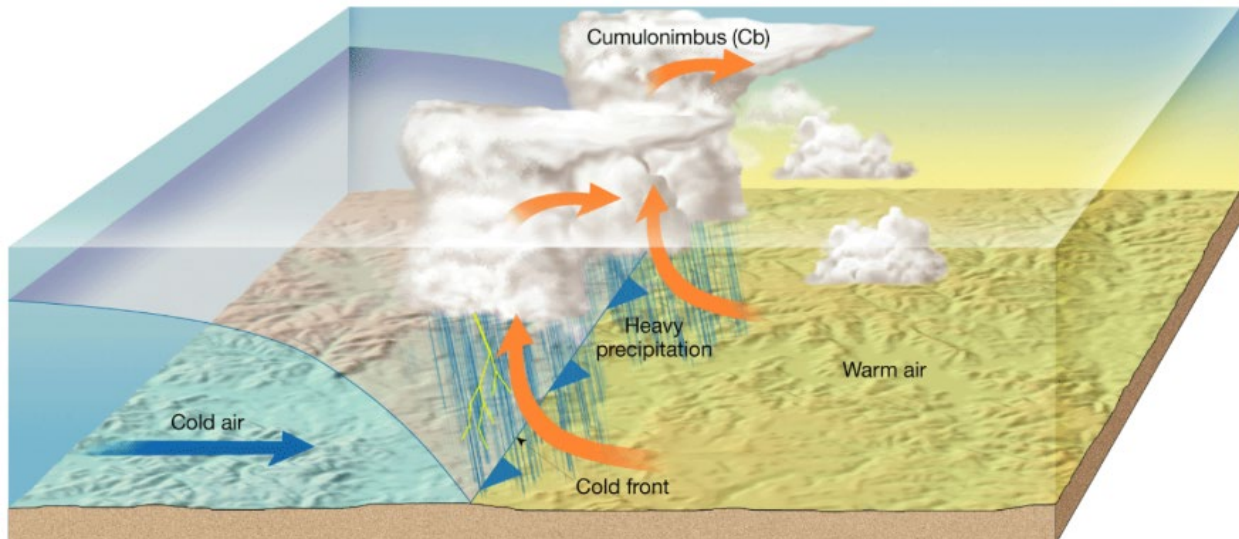
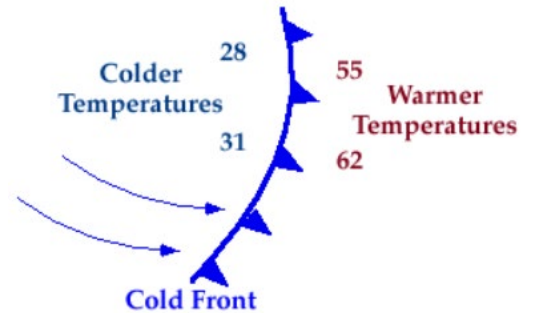
20.1 AIR MASSES

- A) **AIR MASS**—large body of air with similar temperature and moisture
- 1) take on characteristics of where they form
 - 2) don't stay where they form
 - 3) collide with other masses
 - 4) stay separate due to different densities, but over time can mix
 - 5) where they collide precipitation happens
- B) TYPES:
- 1) **MARITIME**= wet air mass
 - 2) **CONTINENTAL**= dry air mass
 - 3) **POLAR**= cold air mass
 - 4) **TROPICAL**= warm air mass
 - 5) **ARCTIC**= very cold air mass



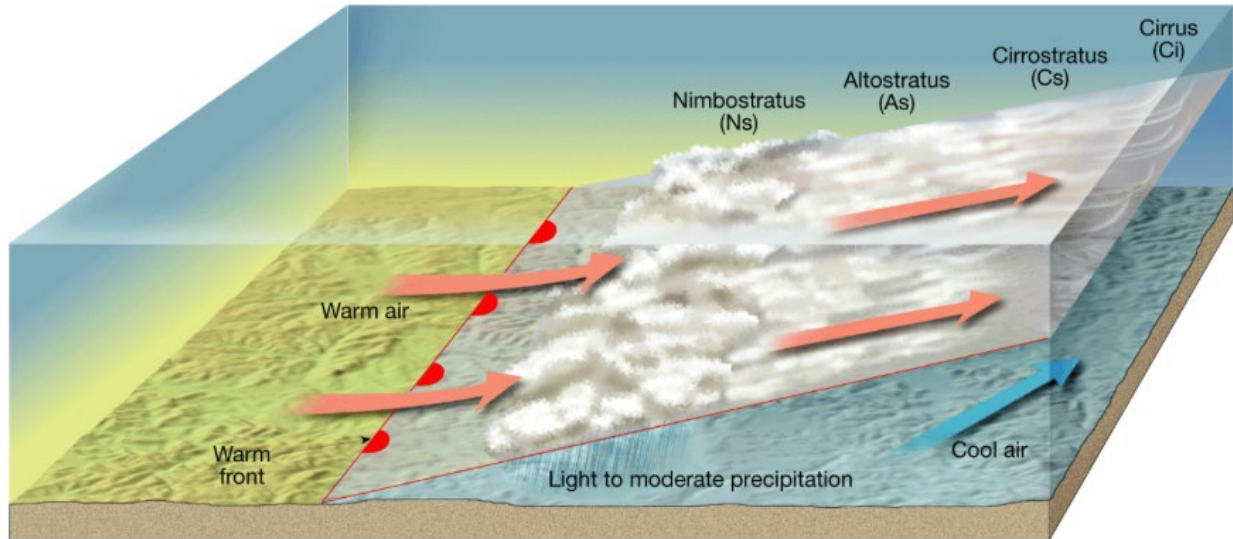
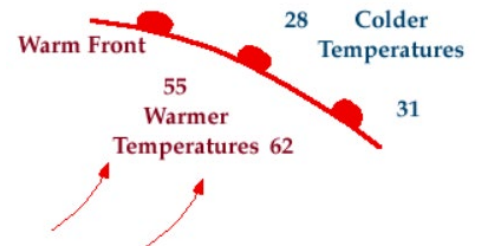
20.2 FRONTS

- A) **COLD FRONT**
- 1) Cold air pushes out warm air
 - 2) Moves like a bulldozer
 - 3) Warm air forced up, making heavy precipitation
 - 4) Moves quickly, thus precipitation is drops out quicker
 - 5) Temperatures are cooler after cold front moves through



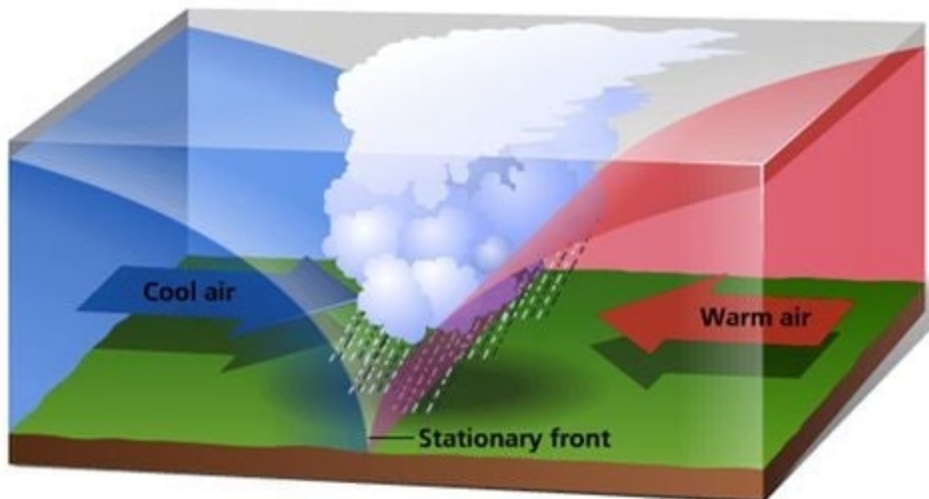
B) WARM FRONT

- 1) Warm air pushes out cold air
- 2) Warm gently climbs cold
- 3) Makes light to normal precipitation
- 4) Moves slower than cold front
- 5) Temperatures warmer after warm front moves through



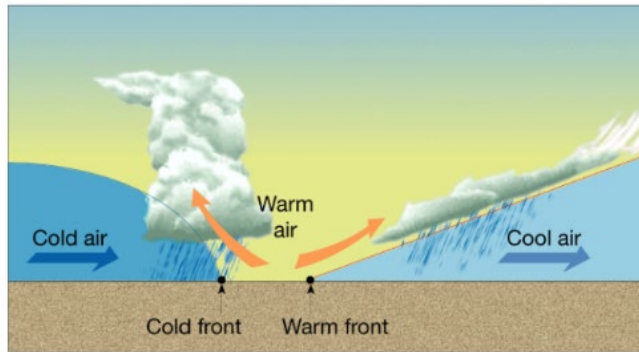
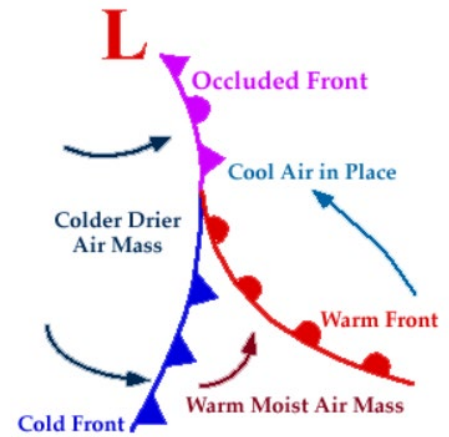
C) STATIONARY FRONT

- 1) Neither warm air nor cold air push each other out of the way
- 2) Warm gently rises at the edge where they both meet
- 3) Makes gentle precipitation
- 4) Gentle rain may last for days
- 5) No temperature changes
- 6) People directly under the front get rain, those to either side get blue skies

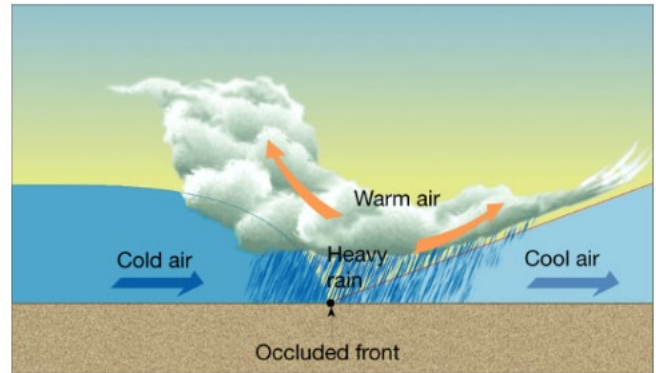


D) OCCLUDED FRONT

- 1) Starts as a warm front, but then a cold front pushes into the warm
- 2) Warm gets forced up by 2 cold air masses
- 3) Makes heavy precipitation
- 4) Rain drops quickly at first
- 5) Temperatures starts cooler, then warmer, then cooler
- 6) Occluded front can move slowly dropping lots of light rain after the initial heavy



A cold front moves toward a warm front, forcing warm air aloft.



A cold front merges with the warm front to form an occluded front that drops heavy rains.

20.3 SEVERE WEATHER

A) **THUNDERSTORM** – severe storm

- 1) Creates lightning, thus thunder
- 2) Makes gusty wind
- 3) Cumulonimbus clouds
- 4) Heavy rain and
- 5) Sometimes hail
- 6) 45,000 thunderstorms on Earth each day!

B) **TORNADO** – spinning column of air

- 1) Violent windstorm , Maximum 480 mph winds
- 2) Last for minutes
- 3) Small=10 m wide, average 100 m, largest 2.5 miles
- 4) Usually in spring and early summer
- 5) About 770 per year
- 6) Extremely low air pressure “sucks air up” like a vacuum
- 7) **Fujita intensity scale** ranges from F0 to F5

C) **HURRICANE**-tropical cyclone with winds at least 119 km/hour (AKA cyclone, typhoon)

- 1) Form from thunderstorms over the ocean
- 2) Last for days
- 3) Form between 5 and 20 degrees latitude (warmer ocean waters)
- 4) Can be 300 to over 1000 miles wide
- 5) Greatest damage and loss of life due to storm surge (dome of water that floods the land)
- 6) Dies out over land (no evaporating water to fuel it)
- 7) Measured by **Saffir-Simpson scale** ranging from category 1 to category 5