Types of Air Masses

* Air mass
  + a huge volume of air that has similar temperature, humidity, and air pressure.
  + May spread out over millions of square km and be up to 10 km high.
* Classified according to temperature and humidity.
  + **Temperature**
    - **Warm or cold; Depends on the temperature of the region over which it developed.**
    - **Tropical (T) air mass**
      * **Warm air mass**
      * **Forms in the tropics**
      * **Low air pressure**
    - **Polar (P) air mass**
      * **Cold air mass**
      * **Forms north of 50° north and 50° south latitude.**
      * **High air pressure**
  + **Humidity**
    - Humid or dry; Depends on whether it forms over water or land.
    - Maritime (m) air mass
      * Humid air mass forms over oceans
      * Water evaporates to make air humid
    - Continental (c) air mass
      * Dry air mass forms over land in middle of continents
* Four major types of air masses influence the weather in North America.

Air Mass Movement

* + The prevailing westerlies generally push air masses from west to east in the U.S.
  + As air masses move across the land and oceans, they bump into each other.
    - Air masses of different temperatures and densities do not mix.
    - The area where the air masses meet and do not mix becomes a **front.**
  + When air masses meet at a **front**, the collision often causes storms and changeable weather.

Fronts

* + There are four major types of fronts:
    - **Cold**
    - **Warm**
    - **Stationary**
    - **Occluded**
* Cold Front Characteristics
  + Forms when cold air moves underneath warm air, forcing the warm air to rise.
  + Moves quickly carrying cool, dry air.
* Warm Front Characteristics
  + Forms when warm air moves over cold air.
  + Moves slowly carrying warm, humid air.
* Occluded Front Characteristics
  + Forms when a warm air mass is caught between two cooler air masses.
  + The warm air mass is cut off, or occluded from the ground.
  + May cause clouds and precipitation.
* Stationary Front Characteristics
  + Forms when cold and warm air masses meet but neither one has enough force to move the other.
  + May bring days of clouds and precipitation.

Cyclones and Anticyclones

**Cyclones**

* An area low air pressure swirling CCW in the northern hemisphere.
* Often referred to as a “low”.
* Associated with decreasing air pressure bringing storms and precipitation.

**Anticyclones**

* An area of high air pressure swirling CW in the northern hemisphere.
* Often referred to as a “high”.
* Associated with increasing air pressure bringing clear, dry weather.