Air Masses

Air masses are simply large chunks of air that has the same temperature, humidity, and air pressure. Air masses can be as large as a whole continent or as small as the areas covered by Washington County. No matter the size, they each affect the weather we experience.

Maritime air masses form over large bodies of water like seas and oceans. In fact, in Latin, "mar" means sea. All maritime air masses form over water and are very **humid**. When an air mass is humid it means that there is a lot of water in the air.

Continental air masses form over the continents. All continental air masses form over land and are **dry**. There is not very much water in the air at all. You've heard people say they like the St. George dry heat better than Florida's humid heat. When people are talking about this, they are referring to the amount of water (humidity levels) of different air masses.

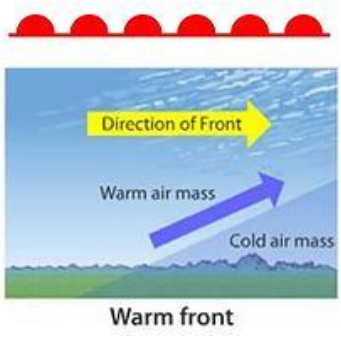
Tropical air masses form at or near the equator. This air mass is always **warm**. It can form over land. When it forms over land it creates a continental tropical (cT) air mass. This means the air is warm and dry. This air mass can also form over water. When this happens, it forms a maritime tropical (mT) air mass that is warm and wet (humid).

Polar air masses form at or near the poles. This air mass is always **cold**. It can form over water or land. When it forms over land it creates a continental polar (cT) air mass. This means that it is cold and dry. When it forms over water it creates a maritime polar (mT) air mass. This means it is cold and wet (humid).

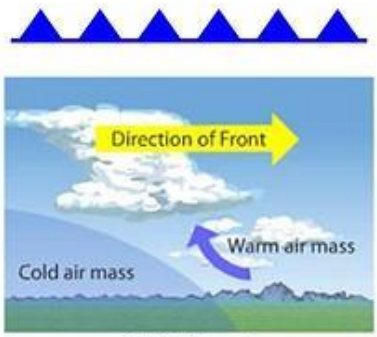
FRONTS

Air masses move around the Earth. When they do, they are bound to run into each other, only they do not mix. Instead a boundary is formed. This boundary is called a front and forms because the air masses have different temperatures, densities, and humidity levels. These boundaries can be a few miles across to a few hundred miles across. This is where the excitement and changes to weather begin.

Warm fronts tend to move slower than cold fronts and are the leading edge of warm air moving northward. Before the front passes, winds are easterly. Cloud cover may be heavy ahead of the front with rainfall chances increasing as it approaches. Afterwards, winds will usually remain southerly or become southwesterly, and temperatures will warm rapidly with clouds clearing. With the warm air comes higher humidity



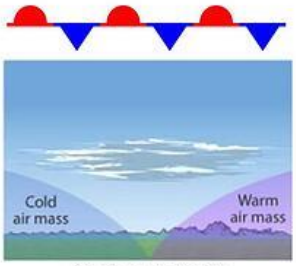
Warm front



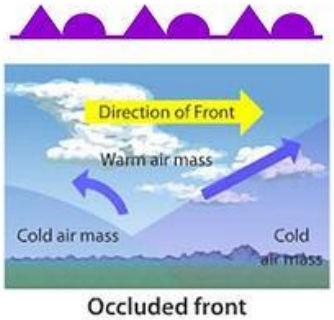
Cold front

A **cold front** is the leading edge of a colder air mass. Temperatures will usually change rapidly over a short distance. Also, there is a sharp change in moisture content; higher moisture content ahead of the front and lower moisture content behind it. Shifts in wind direction are significant in identifying a cold front. Ahead of a cold front, winds will be southerly before turning toward the west as the front approaches. After the cold front arrives, winds will become northerly. Thunderstorms sometimes develop ahead of these fronts as the warm air ahead of the front rises over the colder air.

Another type of front is **stationary**. In a front of this kind, neither the cold air mass nor the warm air mass is moving. Winds tend to blow along it in opposing directions on each side. Conditions along the front are clear and dry; however, if moisture is available near the front, clouds and light precipitation may develop.



Stationary front



Occluded front

An **occluded front** occurs when a cold front overtakes a warm front. There are both cold and warm occlusions. In a cold occlusion, the colder air is found behind the front. Conversely, a warm occlusion is characterized by warmer air located behind the front. Winds are either from the east or south before the front passes. After the front, winds shift from the west or northwest.