

# Air Masses

- **Goal: List and explain the factors that control air density**

# Factors that control air density

- (In general- air becomes denser as air pressure increases. The additional pressure forces the air molecules closer together, resulting in more mass in the given volume. )
- **Altitude-** As altitude increases the amount of atmospheric gases will decrease. This will also cause a decrease in air density.
- **Temperature-** Temperature is the other major factor that can have an effect on the density of air. When the temperature increases, air molecules move faster and move further apart; therefore, higher temperatures result in lower air density.

- **Goal: explain how air masses form and move**

# Defining an Air Mass

- An air mass is an immense body of air that is defined by similar **temperatures** and amounts of **moisture**
- Air masses can be 1000 miles or more across!
- It may take an air mass several days to move over an area

# Air Mass Movement

- As an air mass moves out of the region over which it formed, it will also carry the temperature and moisture and related weather with it.
- **Example:** A cold air mass that moves from Winnipeg, Canada to Tampico, Mexico will certainly warm up as it moves South. However, it will bring some of the coldest winter weather on its journey to Mexico.

# Classifying Air Masses

- **Air masses are classified according to their source region (the place where they form)**
- A source is region is the area over which an air mass gets its characteristic properties of **temperature** and **moisture**.
- (In this class we will focus on the source regions that produce air masses that influence weather in N. America.)

# Source Regions

- **Classification of Source Regions:**
- **Temperature=**
  - Polar (P) - cold
  - Tropical (T) -warm
- **Moisture=**
  - continental (c) -dry
  - maritime (m)- moist/humid



# Types of Source Regions

- Using the classification process, there are four basic types of air masses:
- **cP**= continental polar –forms over land with cold temperatures
- **cT**= continental tropical forms over land with warm temperatures
- **mP**= maritime polar forms over water with cold temperatures
- **mT**= maritime tropical formsover water with warm temperatures

