

Lab 5: Atmospheric Moisture

- 3 states of matter and the 6 changes of state
- Water vapor = water as a gas
- Humidity:
 - Absolute humidity
 - Relative humidity = Actual / Capacity \leftrightarrow Temperature (Capacity related to temp)
 - Dew point = temp where saturation is reached (100% RH)
- Saturation = 100% relative humidity
- Warmer the air, the higher the capacity to hold water vapor
- As air rises, it cools, it can hold less water vapor, reaching saturation, then condensation takes place
- Condensation is NOT precipitation!
- Condensation in the atmosphere = Cloud development

Lab 9: Air Masses and Fronts

- **Air masses**
 - Large body of air with similar characteristics of
 - Temperature
 - Humidity
 - Air masses form over **source regions**
 - Large uniform areas of the surface
 - Need to remain near stationary over these to obtain characteristics
 - Defined/Named
 - Humidity
 - m = Maritime = Ocean = Moist
 - c = Continental = Land = Dry
 - Temperature
 - A = Arctic = Very Cold
 - P = Polar = Cold
 - T = Tropical = Hot
 - E = Equatorial = Very Hot
 - Know the Air Masses that affect North America (cP, mP, cP, mT, cT)
- **Fronts**
 - Where two air masses meet
 - Types
 - Warm Front – Warm air overrunning Cold
 - Cold Front – Cold air overrunning Warm
 - Stationary Front – Air masses moving parallel
 - Occluded Front – Cold front overrunning warm front – lifts warm air
 - Know the symbols for each type of front

Film: *Before the Flood* or *An Inconvenient Truth* / Boston Globe Articles

- The film presents several compelling investigations into the scientific analyses which may convince the viewer that the earth is undergoing a profound change.
 - Melting glaciers, melting ice caps, melting ice shelves, long term temperature records, sea level change, coral reef changes, forest loss, burning of the rainforest, fracking, etc.
- It also presents information from the scientific community (government and scholarly researchers) and from climate skeptics (politicians, policy officials and a few scientists)
- I may pose one or two questions based on the film's ideas and content. You will be expected to provide examples from the film or articles to support your answers.

Lab 14: Climate Classification

- Climate Classification based on average annual Temperature and Precipitation patterns
- Know how to use the Climate Classification 'decision tree'
- Know the BASICS of the 6 major Climate Classification types
 - A: Tropical Humid
 - B: Dry (deserts)
 - C: Temperate Humid (Hot summer, cool winter)
 - D: Temperate Humid (Warm summer, cold winter)
 - E: Polar (ice)
 - H: Highlands (altitude changes = fast climate transitions)
- Know (and be able to describe in temp/precip terms) the Climate Classification for Salem

You may choose which questions to answer (4 of 6 for example), expect problems of a similar type as we have done in these labs. All formulae will be provided, no formulas need to be memorized, nor will you need to perform anything but the four basic math functions (addition, subtraction, multiplication and division). You should bring a calculator – cell phones may not be used. You will be allowed one sheet of 8-1/2 x 11 with any notes you choose to write on it. **You may write on one side only!**