AIR MASSES AND FRONTS
Chapter 11

Air Masses
Extremely large body of air whose temperature and humidity
are similar horizontally and vertically.
Source Regions: area where air mass originates, usually flat
and uniform composition with light surface winds

Air Masses
Classification
• Classification based upon temperature and humidity
  • P = polar
  • T = tropical
  • A = Arctic
  • m = maritime
  • c = continental

Air Masses
North America cP and cA
• Source region: N. Canada, Alaska
• Dry, cold, stable (A more extreme)
Topic: Lake Effect Snow
• cP air passes over unfrozen lake, absorbs moisture and
drops snow on leeward side of lake

Air Masses
North American mP
Air Masses

North American mT
- Source region: North Pacific, North Atlantic
- Cool, moist, unstable

North American mT
- Source region: Gulf of Mexico, Caribbean, SE Pacific
- Wet, warm, unstable
- Pineapple Express, Bermuda High

Fronts

Transition zone between two air masses of different densities
Identification on Charts
1. Sharp temperature change
2. Sharp change in dew point
3. Shift in wind direction
4. Sharp pressure change
5. Clouds and precipitation
Frontolysis (a front weakening and dissipating) and frontogenesis (a strengthening front)

Fronts

Stationary
- Front with no movement
- Alternating red and blue line with blue triangles and red semi-circles
- Winds parallel but opposite direction
- Variable weather
Cold

- Cold, dry stable air replaces warm, moist unstable air
- Blue line with blue triangles
- Clouds of vertical development
- Thunderstorms, squall lines

Fronts

Warm

- Warm, moist unstable air overrides cold, dry stable air
- Red line with red semi-circles
- Horizontal cloud development with steady rain

Topic: Dry Line

- Not a cold or warm front but a narrow boundary of steep change in dew point

Fronts

Occluded Front

- Cold front catches up to and over takes a warm front
- Purple line with purple triangles and semi-circles
- Cold occlusion, warm occlusion

Homework for Chapter 11

- Chapter 11 Questions for Review, p. 310
  - #2-5, 8
- Chapter 11 Questions for Thought, p. 310
• #4, 6
• Chapter 11 Problems and Exercises, p. 311
• None

Project for Chapter 11
• None