Tips for Mid-Term Exam (February 6th @ 4:00 PM)

The following is a list of points that you should pay particular attention to studying. This is not a complete list of things that will be covered on the test, so be prepared to answer questions that this list doesn't cover. By in large, however, if you have a good understanding on the definitions, facts, concepts and processes below, you will do well on the test.

I. The Hydrologic Cycle (Chapter 1)

- Unique properties of water (covalent vs. hydrogen bond) be able to draw it
- Water as climate ameliorator
- Water as a greenhouse gas
- Global storage of freshwater
- The hydrologic cycle
- The Water balance of a watershed

II. Precipitation (Chapter 2)

- Precipitation process
- Four major lifting mechanisms
- Spatial patterns of OR precipitation
- Precipitation process
- Saturation vapor pressure over ice vs. over water
- Precipitation measurement
  - types of different rain gauges, any limitations of each
  - factors affecting accuracy
- Various methods of estimating missing precipitation data
- Double mass analysis

III. Evaporation (Chapter 3)

- Definition of ET, PET, AET
- Importance of ET
- Factors affecting ET
- Electromagnetic spectrum
- Earth's energy balance
- Energy balance equation
- Meaning of Albedo
- Partitioning of global net radiation
- Patterns of global LE and H
- Bowen ratio
- Vapor pressure deficit
- Relationship between temperature and SVP
- Direct and indirect measurement of E
- Use of pan evaporation
- Methods of ET estimation (water balance, energy balance, mass transfer, and combination approach) need to know main assumptions and limitations of each
- North Atlantic Oscillation

IV. Interception (Chapter 4)

- Canopy rainfall partitioning
- Leaf Area Index
- Factors affecting interception loss
- Interception gain in OR
- Measuring canopy interception
- Estimating canopy interception

V. Storage (Chapter 5)

- Three ways of expressing soil water content
- Porosity
- Field capacity vs. wilting point
- Soil moisture cycle throughout the year
- Hydraulic conductivity
- Darcy's law
- Richardson's equation
- Infiltration rate (Horton vs. Philip)
- Factors affecting infiltration
- Measuring and estimating infiltration

***** Others…**

- Be able to interpret the results of t-test and regression!
- Be able to answer some important findings of the articles we discussed in class