

EVST201a/G&G140a Problem Set #5 (Due Friday, Oct. 14)

The following analysis can be done using Excel. The data in Excel format is provided on the Classes website. Note the station number below to identify data from each city.

Consider the monthly cycle of temperature and precipitation for five cities:

- Los Angeles (#66) [34N, 118W]
- Denver (#11) [39N, 105W]
- Mexico City (#17) [19N, 99W]
- Managua, Nicaragua (#34) [12N, 86W]
- Santiago, Chile (#26) [33S, 71W]

Answer the following questions for each city.

1. Plot the temperature and precipitation versus month.
2. Explain the magnitude and timing of the temperature cycle.
3. Explain the magnitude and timing of the precipitation cycle. Discuss the type of weather system primarily responsible for the precipitation.
4. Assign each city to a Koppen Climate Class using Appendix G1 (page 439)*. Check your assignment against Figure 13.5*. Discuss any differences.
5. Estimate the potential monthly Evapo-Transpiration from each location using $ET=5.2T$, where T is in degrees Celsius and ET is in millimeters. Comparing these values with precipitation, determine the monthly precipitation excess or deficit. Use compatible units. Plot this deficit versus month.
6. Using the results of Question 5, what kind of agriculture, if any, would be possible in each location (e.g. summer wheat, winter wheat, irrigated crops etc.). Recall that crops require both warmth and soil moisture.

(* The table number varies in different editions of Ahrens.)