Statistics for the Natural Sciences – Spring 2012

Chapter 14 : Control charts

1. Know how to make an x-bar control chart for data from a *time series*. (See Example 5.)
2. Know how to apply the criteria (See page 751) to a control chart to determine when the mean of a process is not statistically stable.
3. Know that a similar process can be used to determine whether variation is not statistically stable (see page 748 and example 3).

In-class Example: Carbon dioxide levels (page 756)

Assignment: (You may do this assignment in pairs.) Find a data set (must be a time series) for some measure related to the environment on earth (other than air temperature or carbon dioxide, which we discussed in class). Examples discussed in class were:

1. Ocean temperatures
2. Ultraviolet radiation
3. Sea/ocean levels
4. Amount of the earth covered by glaciers
5. pH levels in oceans

Construct a control chart for the mean of your data set and determine whether the mean is statistically stable. Write a paragraph about what this means for earth if the trend continues unchecked. Also comment on any debate among scientists/politicians/environmentalists about the issue. Which side of the issue does your data support?

We will share (in a two-minute summary) our results with our classmates.

Note: You may want to look for discussion on a debatable topic before actually choosing your topic, to make sure you will have something to write about. Feel free to use the internet for your research; make sure to site your sources.

Due date: by the final exam, though it would be nice if some of you have it done by Monday.