**Earth Systems Science Assignment: Plotting Florida River Data with Excel**

In this exercise, you will plot water quality data that was collected along the Florida River during the summer and fall of 2007. You will return to one of the field sites to collect these same types of data in a few weeks – the existing data should give you an idea of what you should expect.

The class will be divided into two groups. Half of you (last names starting with A-L) will plot data collected on the same date (10/13/07), in order to compare values along the length of the river. Half of you (last names starting with M-Z) will plot data collected in the same place, in order to see how much the values vary in one place at different times. During class on February 8, you will find a partner who made the other type of plot, and examine both groups of plots to answer the questions.

**Instructions:**

Use the handout “Excel for Windows 2013 instructions” for detailed instructions about how to use the version of Excel that is installed in the FLC computer labs. The instructions in this handout apply to everyone, regardless of which version of Excel you use. Instructions for several other versions of Excel are available on Canvas.

1) Plot different data depending on your last name.

2) Use Microsoft Excel to make “scatter plots with straight lines and markers.” (Do not make line graphs – they don’t handle data as numbers in the same way.)

3) Use the following data for the X axis:

* If your last name begins with A-L, use “River miles downstream” in the tab labeled“Oct 13 2007 data”
* If your last name begins with M-Z, use “Date” in the tab labeled “Old RR Bridge data”

4) For the Y axis, use the following columns: Discharge, Turbidity, TDS, Ca, Na, K, and Mg.

5) Plot as many graphs as necessary. Use the following criteria to decide whether variables can be plotted on the same graph or not.

* Are the data measured in the same units?
* Can you see the variation in both sets of data when they are plotted together?

6) Edit your plots to make them readable. Consider the symbols, the line weights, the scale of the axes, the fonts, the location of the legend, etc.

7) Save your spreadsheet as “myname\_graphingex2” (substituting your name for “myname”).

8) Turn in your spreadsheet on Canvas.

9) Print your spreadsheets or bring them on a laptop to lab on Monday or Tuesday, February 17 or 18 .

**Questions: using graphs to test interpretations**

***Data sorted by location (Old RR Bridge Data)***

1. Relationship between suspended load (turbidity) and discharge: could high turbidity be a result of high discharge? Explain the patterns in the data that support your answer.
2. Relationship between dissolved load (TDS) and discharge: could high TDS be a result of high discharge? Explain the patterns in the data that support your answer.
3. Relationship between Na, K, Ca, and Mg: do the concentrations of Na, Ca, Mg, and K seem to be controlled by same thing? If not, which ones appear to be different from the others? Explain the patterns in the data that support your answer.

***Data sorted by date (10/13/07 Data)***

1. Does the suspended load (turbidity) seem to be controlled by the same thing as the dissolved load (TDS)? Explain the patterns in the data that support your answer.
2. Compare the four major ions (Na, Ca, K, and Mg). How do their concentrations change downstream?
3. Do the concentrations of Na and Ca seem to be controlled by the same process or source? Explain the patterns in the data that support your answer.
4. Do the concentrations of Ca and Mg seem to be controlled by the same process or source? Explain the patterns in the data that support your answer.