Teaching Notes

This module was very simple and had easy-to-follow instructions.  I sometimes get a little worried with these pre-designed modules and how complex they sometimes are, but the Changes in Lake Ice was easy to implement for my class.

I thought about making a PowerPoint and introducing the students to the three lakes in Wisconsin, their physical attributes, and including a link to Google Maps (or Google Earth) showing the students what the lakes actually look like.  I did not get this PowerPoint made but I will definitely be creating one for next year---the students read the overview/introduction themselves this time, but I think a more interactive way (by engaging in discussion) of presenting the material would be better.

The students first plotted ice duration for Lake Mendota for 20 years.  I only have two students, so one student was given the years 1930-1950, and the other student was given the years 1951-1971.  I gave them a mini tutorial on how I wanted the graph to be set up by showing the Excel file on the projector.  The students proceeded to make their graphs and inserted a trendline.  We discussed how the data points were highly variable from year to year, and that our trendline for both data sets was increasing (i.e., the duration of ice on the lakes was actually getting longer!).  Next, I had them plot the entire 1855-2001 years for ice duration.  It was only then that they saw that the trendline actually showed a decreasing duration of lake ice on Lake Mendota.  This initiated our discussion of short-term vs long-term data, and how important (but rare) long-term data is.

We still had plenty of time so we went back to the descriptions of the three lakes and the Google maps images and discussed their differing physical characteristics and how that might affect ice duration.  One of the students then plotted Lake Wingra, while the other plotted Lake Monona.  We discussed the missing data issue for Lake Wingra, and noted that both lakes still had an overall decreasing duration of lake ice. We also discussed how Lake Wingra, being a smaller lake, would likely freeze and thaw sooner than the other two lakes.

Finally, we downloaded the latest data for Lake Mendota (through year 2014) and discussed the continual decrease in lake ice duration, and compared to that to what we might find if we had a long-term data set of snowpack in the Pacific Northwest (Mount Baker, in particular).  I wanted to look for more long-term data sets on the LTER network but ran out of time.

At the end of lab, I had the students summarize what they learned about short-term vs. long-term data.  In addition, I hope to ask them in a future class to plot some local data.