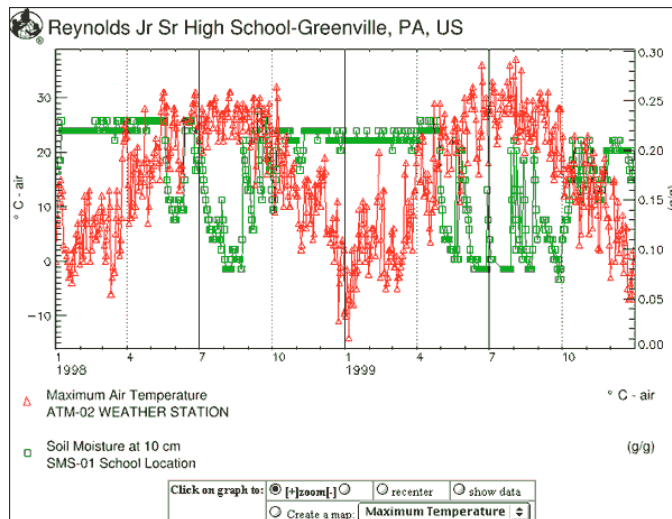# Discovering Local Data
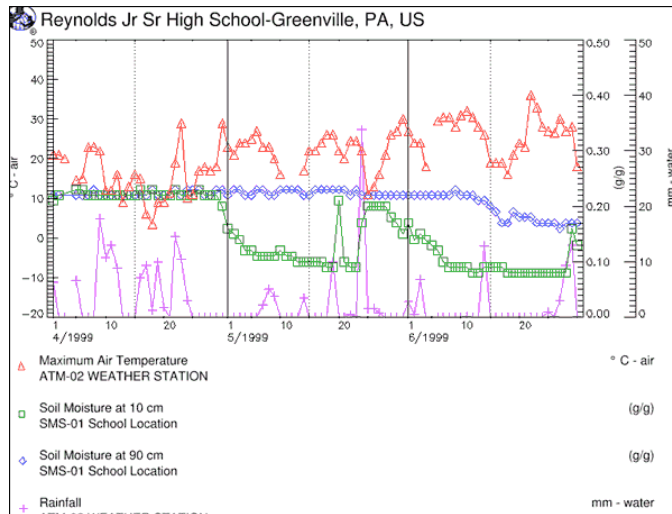
PART B: Graphing GLOBE Data

1: Do air temperature and soil moisture at 10 cm follow the same pattern? Why or why not?

2: What does this graph show about the interconnection between air temperature and soil moisture at 10 cm?

PART C: Get a Closer Look at the Data

1: Between the end of April and approximately May 19, describe what happens to soil moisture content at 10 cm. Look at the rainfall pattern between April 25 and May 19. Does this help explain the change in soil moisture at 10 cm?

2: On approximately May 19 and again on May 22 there is a sharp rise in soil moisture content at 10 cm. Why do you think this happened?

3: What happens to the soil moisture content at 90 cm during the second half of June? How do you explain this change?

4: In addition to the data in the graph, can you think of any other natural changes that happen in the northern US during this time that might help explain the decrease in soil moisture content?

Earthlabs: Earth System Science – Lab 3
http://serc.carleton.edu/eslabs/climate/lab3.html
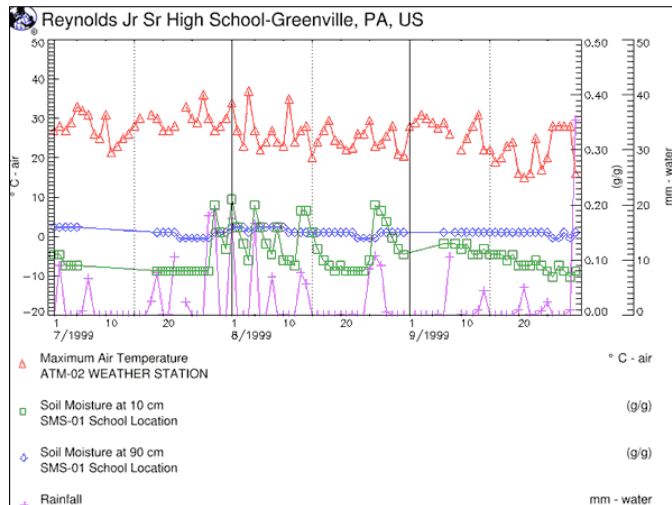
5: What patterns or trends do you see in the Maximum Temperature across these three months? How do they compare with the maximum temperature patterns or trends where you live?

6: For a period of almost two weeks in July, no soil moisture data was collected. What assumption would you make about the soil moisture at 10 cm during that period of time, and what would be the basis of that assumption?

7: During late July (and possibly for most of July), soil moisture at 10 cm is quite steady, when compared to the changes that occur throughout much of August. How would you explain this?

Connect the Three-Month Graphs to Construct a Large Full-Year Graph.

- Trim the print-outs of the graphs so that they don't overlap, and tape them together to create a single, long graph that shows all of 1999. Then, compare this 4-sheet graph with the graph that shows all of 1999 on a single sheet.

8: Do the two graphs give you different impressions? Is having both better than having just one or the other?

9: Use one or both graphs to help you write a summary of how Maximum Air Temperature, Soil Moisture at 10 and 90 cm, and Rainfall vary across the year in Greenville, PA, and how they influence one another.

10: These data show air temperature (atmosphere) soil moisture (pedosphere) and precipitation (hydrosphere). How do you think changes in the biosphere fit in? When are plants growing, when are plants dormant? How are these things affected by temperature? Does the growing cycle of plants affect soil moisture? How?

PART D: Thinking About Data

1: Which reservoir in Greenville, PA do you think gained water in the summer? In other words, to which reservoir did the soil moisture flow?

2: What other relationships among study site system components do you think might be worth investigating, and what data would you need? Suggest only relationships that you think data could be obtained for. Think about all the interrelationships that you and other students may have listed and diagrammed.