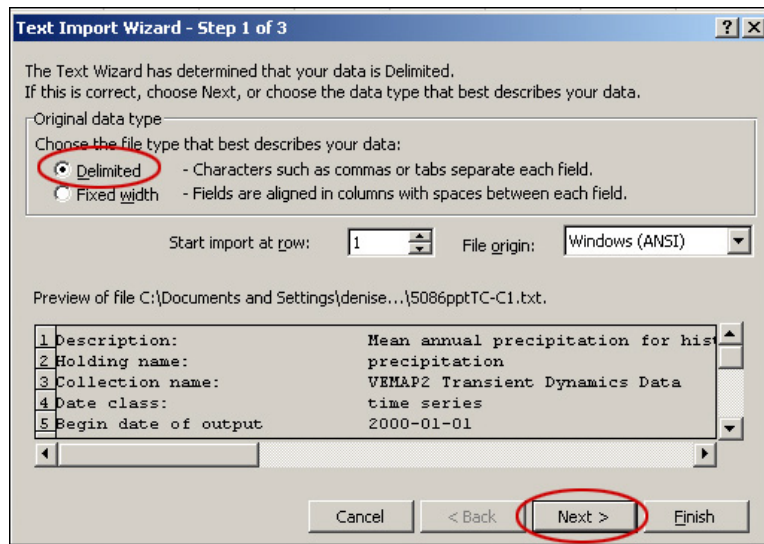


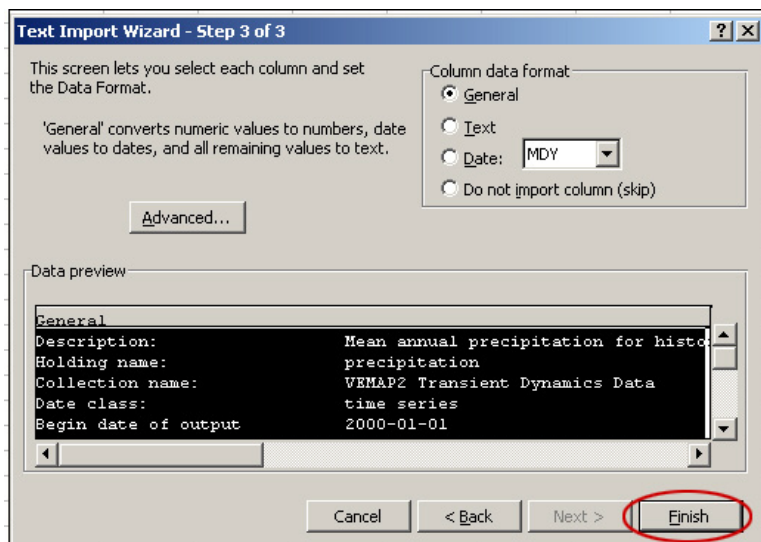
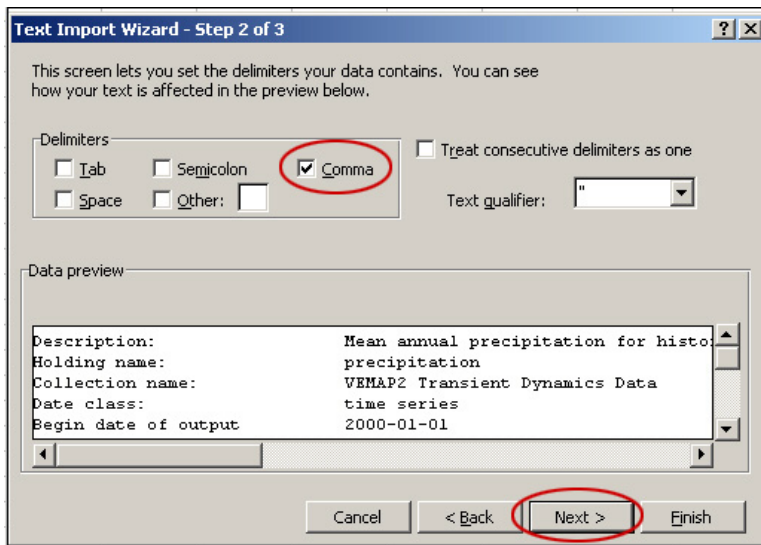
Converting Climate Data from *EOS-Webster*

Background: This particular data series (NCAR) is the most up to date climate modeling that is available to researchers. It is actually more current than either the Hadley or Canadian models, and *EOS-Webster* at the University of New Hampshire has been chosen as the distribution source. Because this data is in highly detailed sets that are used by researchers, you will have to manipulate it a little. Unlike some of the average temperature changes that you have seen before, this data is listed in grid cells. Imagine a grid, such as on graphing paper, drawn onto a map of your area. Each intersection on the grid is represented by a latitude and longitude in your chosen area. That is what all of the numbers in your file represent—hundreds of grids with temperature changes over 100 years.

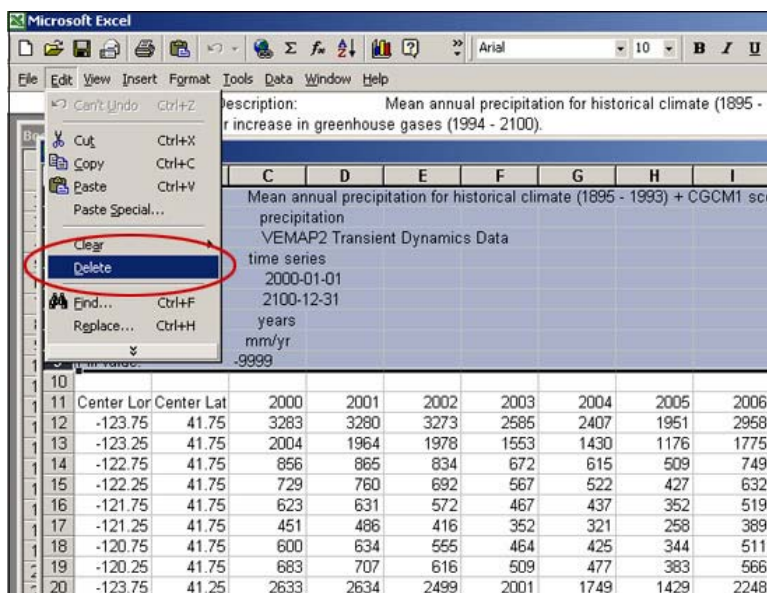
Convert & Clean: In order to work with the data, you must first convert it to an Excel spreadsheet.

- Open the Excel program.
- Once Excel is open, go to **File→Open** and then use the drop-down menu called **Files of Type:** to choose **text files**. Once you have made this change, you should be able to find, and click on, the file that you had saved.
- By clicking on your file, you should have caused the **Text Import Wizard** to open. Follow the three steps below.





- Next, you want to get rid of the header. **Make sure that you have named your file in a way that you will know which scenario it is.**



- You can also get rid of the longitude and latitude columns by following the same **highlight** and **delete** procedure for the two left-hand columns (A & B).

Graphing: Unfortunately, if you tried to graph this data set, you'd have a separate series for each grid. So you first need to get the average temperature for the entire continent, for each of the 100 years.

- Start by averaging the column for the first year in the data set, which should be the year 2000. Take note of which **rows** contain the first and last temperature. Do not include the row that has the year. Then, click on the first empty cell at the bottom of the column. In this cell, you are going to type the average function command. In my data set, for example, the first row is row 3 and the last row is row 1492. For this example, the average function would be

$$=AVERAGE(C3:C1492)$$
Once you have typed your function in the box, click on any nearby box. An average number should appear in the box that you had typed your function in.
- The next step is to apply this function to all 100 years. Start by **highlighting**, and then **copying**, your average (for the first column). Now **highlight** across the rest of this row (the remaining 99 years), and **paste**. An average should now appear under each column.
- Although you have averages showing in the bottom row now, they are still actually functions. In order to graph the averages, you need to convert the functions into values. First, **highlight** and **copy** that entire row of averages. Then, go to **Edit**→**Paste Special** and check the **Values** circle, and finish with **OK**. The numbers should not have changed, but the way that they are formatted has changed.
- The final step before graphing is to remove all of the information except for the row of years and the row of averages. Just highlight everything else and delete it. Now you are ready to graph.

*Special thanks to Denise Blaha & Rita Freuder of EOS-Webster at the University of New Hampshire. This set of directions borrows heavily from their online tutorial in the Earth Exploration Toolbook.

<http://serc.carleton.edu/eet/climate/index.html>