Downloading Data from the STORET Warehouse:

An Exercise
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This exercise walks you through the steps necessary to download monitoring data from the STORET Warehouse into a text format and import the data into a spreadsheet to chart monitoring trends. STORET data can also be easily imported into statistical and GIS software packages for further analysis, but is not covered in this exercise. Please contact STORET Technical Support at 1-800-424-9067 for comments or questions.

Part 1: Download the Data

For this example, search for Nitrate values from stream monitoring data for Jefferson County, Kentucky. Starting from the main STORET website: http://www.epa.gov/storet:

1. Click the Obtaining Water Quality Data link.

2. To enter the Modernized STORET Warehouse, click the Browse or Download Modernized STORET data button at the bottom of the screen.

3. Let's start with a search for water chemistry data in a specific geographic area by browsing for data in Jefferson County, KY: click the Regular Results by Geographic Location link.

4. On the Regular Results by Geographic Location page, select "**Kentucky**" from the State Name drop down list and click the Look Up button next to the County Name box.

5. Select "**Jefferson**" and click the Select button.

6. Scroll down the page and keep the default date ranges for monitoring activities.

7. Scroll further down the page and select "**Water**" under Activity Medium since we're only interested in water samples.

8. The next area is where you can restrict your query to look for specific measurements. We're interested in Nitrate data, so type the first few letters "**nitr**" in the "**Characteristic Search**" box and click Search. In the pop up window, scroll until you find "**Nitrogen, Nitrate (NO3) as NO3**". Highlight that row in the list and click Select.

9. The box titled "**Characteristic Name**" should now include Nitrate. If you'd like to learn more about the selection areas we've just used, click the "**Help**" link in the bottom right corner of the page. We're finished defining our query parameters now, so to start the search click the Continue button at the bottom of the page.

10. On the Result Search Summary page, a brief summary of the results counted and your search criteria is displayed. You could further define your query by clicking the Back button and modifying the search parameters…we won't do that now.

11. Scroll down the page to view the actual Data Elements that we will download. A few have been pre-selected for you, but we want to add a few more to download.

12. Click the check boxes next to "**Org ID**" and "**Station Name**". Now we're ready to download data so click the ⬚Continue button at the bottom of the page.

13. Note the size of your download file and click on the web link "**Download your file now**…". If the file was too large to download quickly, you have the option of creating a compressed "ZIP" file by clicking the ⬚Compress Data File Now button…we won't do that now.

14. The STORET Warehouse generates a delimited text file and displays it as a web page. Choose "**Save As**" from your web browser and save the file as a text file named "**storet_data.txt**". Make sure to save the file somewhere where you can find it easily. We're finished with the web browser at this point.

Part 2: Analyze the Data

Now we're going to import the downloaded data into a known software package. Most existing analysis software has the ability to read delimited text files. (Note: This exercise was written using MS Excel 2002. Some features may be different for other versions.)

1. Open Microsoft Excel.

2. Choose File->Open and browse for the text file you just downloaded from the STORET Warehouse. Make sure to change the type of files you're looking for to "**Text Files**". Open the file "**storet_data.txt**".

3. Excel recognizes that this file is not in MS Excel format, and provides a wizard interface so you can define the format for Excel. On the "**Step 1**" window, select the "**Delimited**" radio button under "**Original Data Type**" and click ⬚Next.

4. On the "**Step 2**" window, uncheck the "**Tab**" check box and check the "**Other**" check box under "**Delimiters**" and insert a tilde (~) in the open field then click the ⬚Next button.

5. On the "**Step 3**" window, accept the data format defaults and click the ⬚Finish button.

6. Allow MS Excel to import the data into the current open worksheet.

7. Excel can't immediately recognize the proper column widths, so we must help Excel do additional formatting. Select the whole worksheet. Clicking the gray cell in the upper-left corner of the worksheet can do this.

8. From the main toolbar choose Format -> Column -> AutoFit Selection.

9. Browse the data by examining the column names and rows of data.

10. Now we're going to use MS Excel to draw a graph of some of the data. First we need to sort and filter the data to group the measured parameters together. Select the whole spreadsheet again.

11. From the main toolbar choose Data -> Sort.

12. Using the Sort options, Sort by "**Activity Start**" (ascending) and click ⬚OK. In STORET, the "**Activity Start**" is the start date of the monitoring activity.

13. You should now see all the Nitrate measurements grouped together and in chronological order.

14. On your worksheet, select all the Nitrate values under the "**Result Value as Text**" column.

15. From the main toolbar choose Insert -> Chart or click the **Chart Wizard** button. Select Line under "**Chart Type**" and click **Next**.

16. Notice that the Nitrate values appear along the Y-axis. Now we want to add the dates along the X-axis. Select the **Series** tab and click the button at the end of the blank text field next to "**Category (X) axis labels**:".

17. On your worksheet, highlight all the corresponding Activity Start values under the "**Activity Start**" column.

18. Return to the Chart Wizard and click **Next**. Enter in the following to describe the graph:

    a. Chart Title: NO3 Values
    b. X Axis: Date
    c. Y Axis: mg/l

19. Click the **Next** button and then click the **Finish** button.

**** Feel free to experiment with plotting other values of your STORET data!!!