

Tutorial: Importing tabular data with x,y coordinate values in ArcGIS 8.x and 9.x

For the equivalent guide in ArcView 3.x see:

[Importing tabular data with x,y coordinate values in ArcView 3.x](#)

Overview:

Data collected in the field using a Global Position System or tabular data with x,y coordinates are usually best represented in a mapped form. This tutorial will help you convert tabular data with x,y coordinates into a shapefile (ArcGIS file format for maps).

The first part of the procedure explains how to clean up your data in a spreadsheet program such as Microsoft Excel. The second part explains how to import, display, and save your data in ArcGIS.

The example in this tutorial is groundwater data from Howick, a municipality in southern Quebec. The coordinate system used in the example is latitude/longitude with the North American Datum 1983 (NAD83).

Software Requirements:

- Microsoft Excel (or another spreadsheet software)
- ArcGIS 9.x

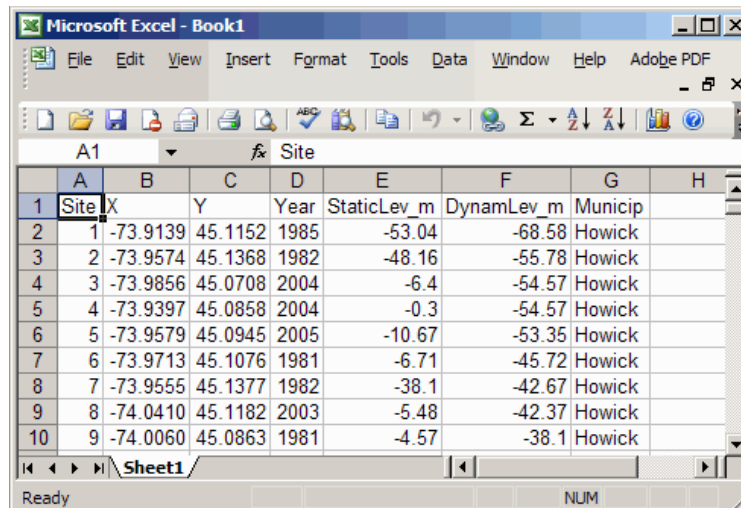
Before you start:

- It is necessary to know what coordinate system your data is represented in. Coordinate systems are expressed as a Projection (ex. Universal Transverse Mercator, Geographic....) and Datum (ex. NAD83, WGS84....).
- If your data is exported from a GPS, verify the coordinate system settings of your data on your GPS unit.
- If your data is coming from a reliable source (government and academic publications and databases), there should be information in that document or website about the coordinate system.

Part 1: Cleaning your data in Excel (or an equivalent software)

The x,y coordinate information that you would like to import will most likely be found in text or spreadsheet format. Because of this, a few minor changes are necessary in order for ArcMap to recognize your data correctly.

1. First, open your data in a spreadsheet application such as Excel.




The screenshot shows a Microsoft Excel spreadsheet with the following data:

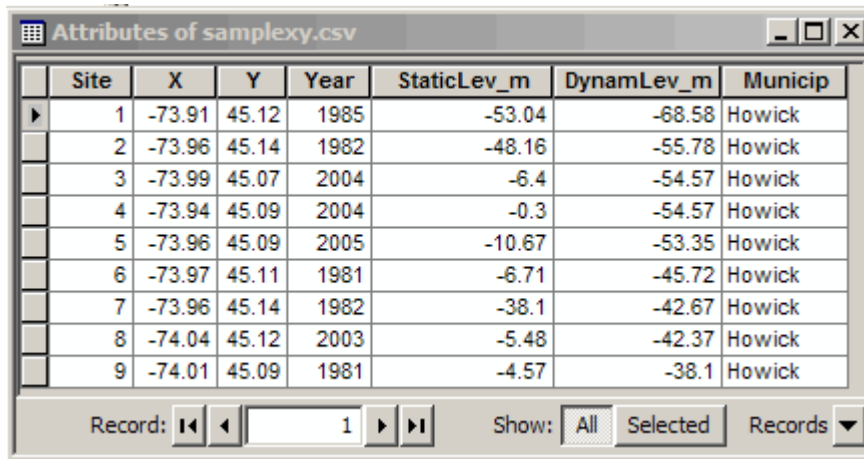
	A	B	C	D	E	F	G	H
1	Site	X	Y	Year	StaticLev_m	DynamLev_m	Municip	
2	1	-73.9139	45.1152	1985	-53.04	-68.58	Howick	
3	2	-73.9574	45.1368	1982	-48.16	-55.78	Howick	
4	3	-73.9856	45.0708	2004	-6.4	-54.57	Howick	
5	4	-73.9397	45.0858	2004	-0.3	-54.57	Howick	
6	5	-73.9579	45.0945	2005	-10.67	-53.35	Howick	
7	6	-73.9713	45.1076	1981	-6.71	-45.72	Howick	
8	7	-73.9555	45.1377	1982	-38.1	-42.67	Howick	
9	8	-74.0410	45.1182	2003	-5.48	-42.37	Howick	
10	9	-74.0060	45.0863	1981	-4.57	-38.1	Howick	

2. Formatting your (y), (x) columns. If your data isn't in latitude and longitude coordinates you can go to the next step (3).
 - The latitude (y) and longitude (x) values must be in decimal degrees (ex. 45.1417).
 - The latitude and longitude values must be represented for the correct hemisphere. [*Latitude northern hemisphere: positive. Latitude southern hemisphere: negative. Longitude western hemisphere: negative. Longitude eastern hemisphere: positive.*]
3. Formatting all the columns for export into ArcGIS.
 - Shorten the column headings to 10 characters or less.
 - Remove spaces and special character
 - Do not begin column headings with numbers
 - All data fields with numeric values, including your X, Y, column, should be in numeric format. [*In Excel, select the data columns (ex. column X), right click and go to **Format Cells**, select **Number** and enter the number of decimal places you want to display. Click **OK**. Repeat this step for the other columns.*]
 - Columns with text should be in text format. [*In Excel, select the column with text data (ex. municipal), right click and go to **Format Cells**, select **Text**, click **OK**.*]

- Adjust the width of each column to an appropriate width so that all data in each column is visible. [*In Excel, highlight all of the columns. Go to Format – Column – Autofit Selection.*]
 - You must not have any blank cells in any column when you save your document as a .csv file. The import into ArcGIS will not work if there is a blank field in any column or row.
 - If you have blank cells in any column, you can save your data in .dbf format.
4. Save your tabular data in .csv. Go to File – Save As. Next to file name type the name of your file, for the purposes of this tutorial, the file will be called samplexy.csv
 5. Close Excel. Go to File – Exit

Part II: Importing, displaying, and saving your data in ArcGIS 9.x:

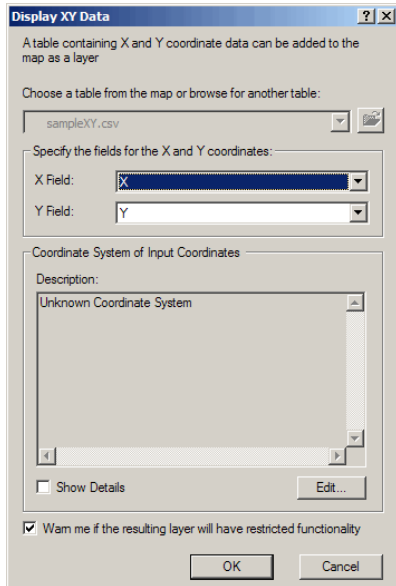
1. Start ArcMap. Program → ArcGIS → ArcMap. Create a new map, then click on the **Add Theme**  button.
2. Navigate to the location of your .csv file (samplexy.csv) file, select it, and click **Add**. Right click on **samplexy.csv** and click **Open**.
3. You will see your x,y fields on the table. The X and Y coordinates represent the latitude (y) and longitude (x) values for your data points. * *Best Practice: Always verify your table to see if the import was successful.*



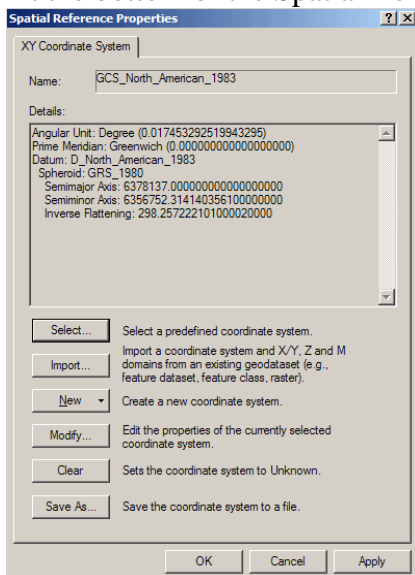
	Site	X	Y	Year	StaticLev_m	DynamLev_m	Municip
▶	1	-73.91	45.12	1985	-53.04	-68.58	Howick
	2	-73.96	45.14	1982	-48.16	-55.78	Howick
	3	-73.99	45.07	2004	-6.4	-54.57	Howick
	4	-73.94	45.09	2004	-0.3	-54.57	Howick
	5	-73.96	45.09	2005	-10.67	-53.35	Howick
	6	-73.97	45.11	1981	-6.71	-45.72	Howick
	7	-73.96	45.14	1982	-38.1	-42.67	Howick
	8	-74.04	45.12	2003	-5.48	-42.37	Howick
	9	-74.01	45.09	1981	-4.57	-38.1	Howick

4. Close the **samplexy** table.
5. Right-click **samplexy** and click **Display XY data**.

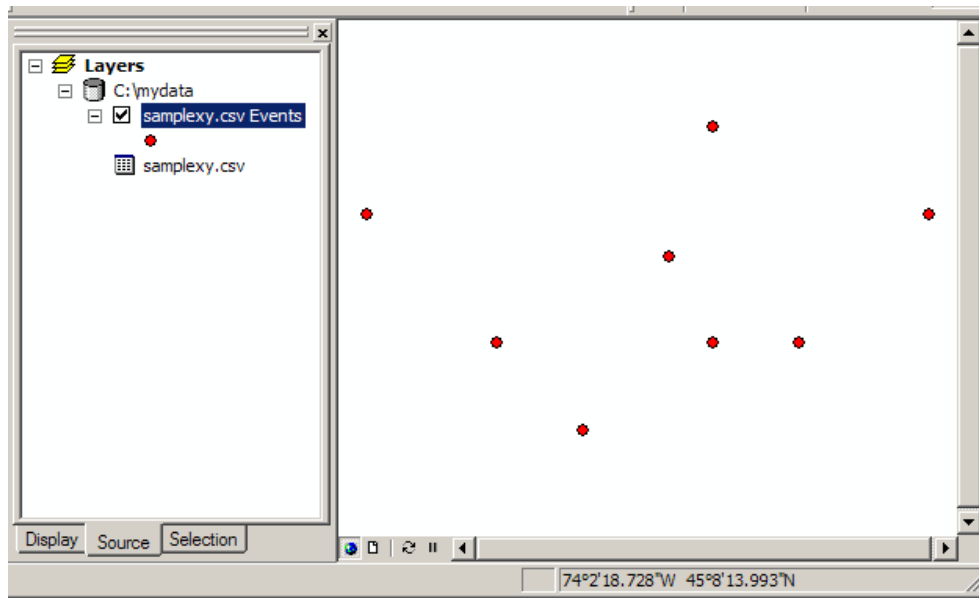
- In the drop-down menus next to “X Field:” select the field labeled X, and in the “Y Field:” select Y. Your dialogue box should look like this:



- The “Coordinate System of Input Coordinates” box will read “Unknown Coordinate System”. To select that coordinate system click the **Edit** button, another pop-up window will appear. *Best Practice: always apply a coordinate system!*
- The coordinate system being used for this example is Geographic NAD83 (Latitude/Longitude NAD83). Go to **Select**, and browse to Geographic Coordinate System → North America, and scroll to **North American Datum 1983.prj**, select and click **Add**.
- At the bottom of the Spatial Reference Properties Dialog, click **Apply** and **OK**.



10. In the “Display XY Data” window click **OK**. You will get a warning message, “table that you specified doesn’t have an have object-id field...” Click **OK**. This will add point locations for the data in the file **samplexy**.
11. You will see points scattered on your map view. These points are now in Latitude and Longitude format.



12. You can now save your points as a new shapefile. Select the name of your point file (**samplexy Events**) and right click to Data→Export Data.
13. “Output shapefile or feature class”, browse to the location where you want to save the file (ex. c:/mydata/). Give it an appropriate name with the .shp extension (ex. c:/mydata/samplexydata.shp). Click **OK**. You will get the message: “Do I want to add the exported data to the map as a layer”, click **Yes**. The shape file will then appear on your map view.
14. Congratulations, you’re done!

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