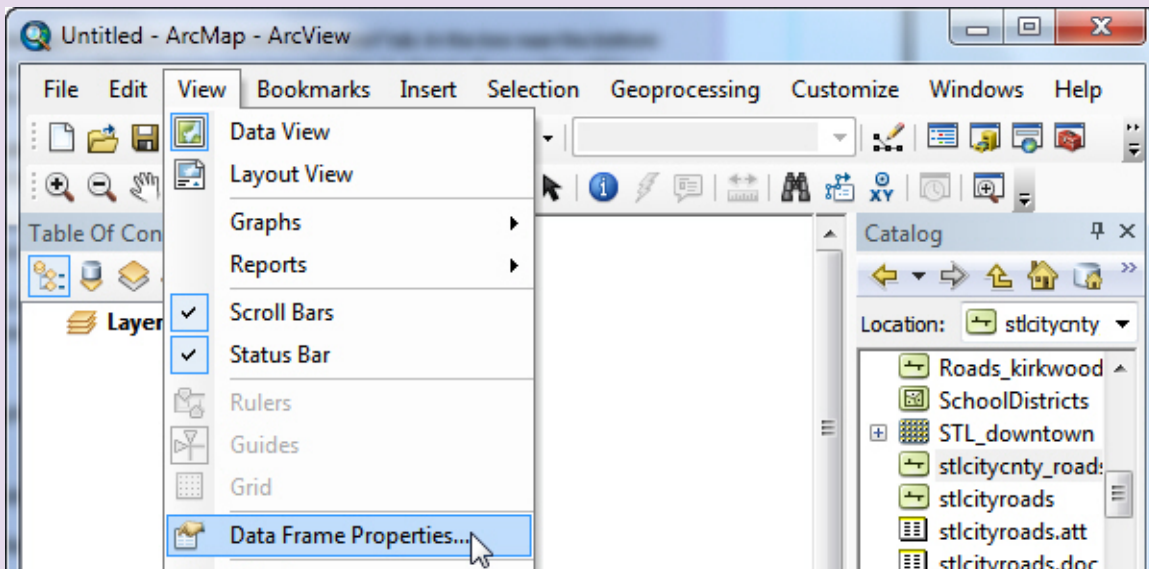


## 4.3 Plotting GPS Coordinates

For many projects you will want to plot coordinates. First you must set the projection of your map.

### Setting the projection

Before plotting your GPS data, be sure that the projection of your map view has been set. To do this, go to the View menu and choose “Data Frame Properties.”



Within the dialog box that appears, choose the “Coordinate System” tab. In the box near the bottom of the dialog box, choose the coordinate system your map is using. In almost all cases this will be a “predefined” coordinate system.

- **Geographic Coordinate Systems** use latitude-longitude values. One good choice is WGS 1984 (navigate to it by clicking **Predefined > Geographic Coordinate Systems > World > WGS 1984**).
- **Projected Coordinate Systems** use x, y values. Among Projected Coordinate Systems, both State Plane and UTM are very useful.

The choice of projection is very dependent on the data you have and the location with which you are working. For our purposes, **set the projection to WGS 1984 (Predefined > Geographic Coordinate Systems > World > WGS 1984)** unless you know your data is in a different projection.

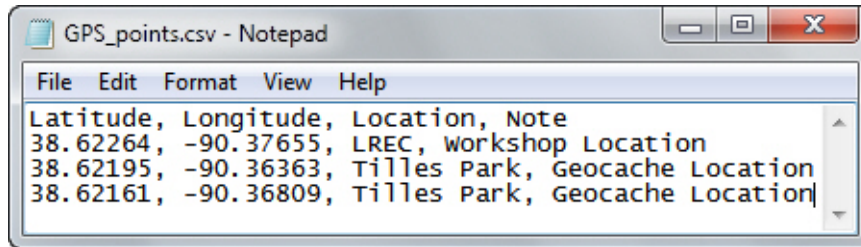
***(Note: when combining imagery, such as aerial photos, with coordinates, special instructions apply. See section 4.4.)***

When the coordinate system has been selected, click “Apply” and then “OK.”

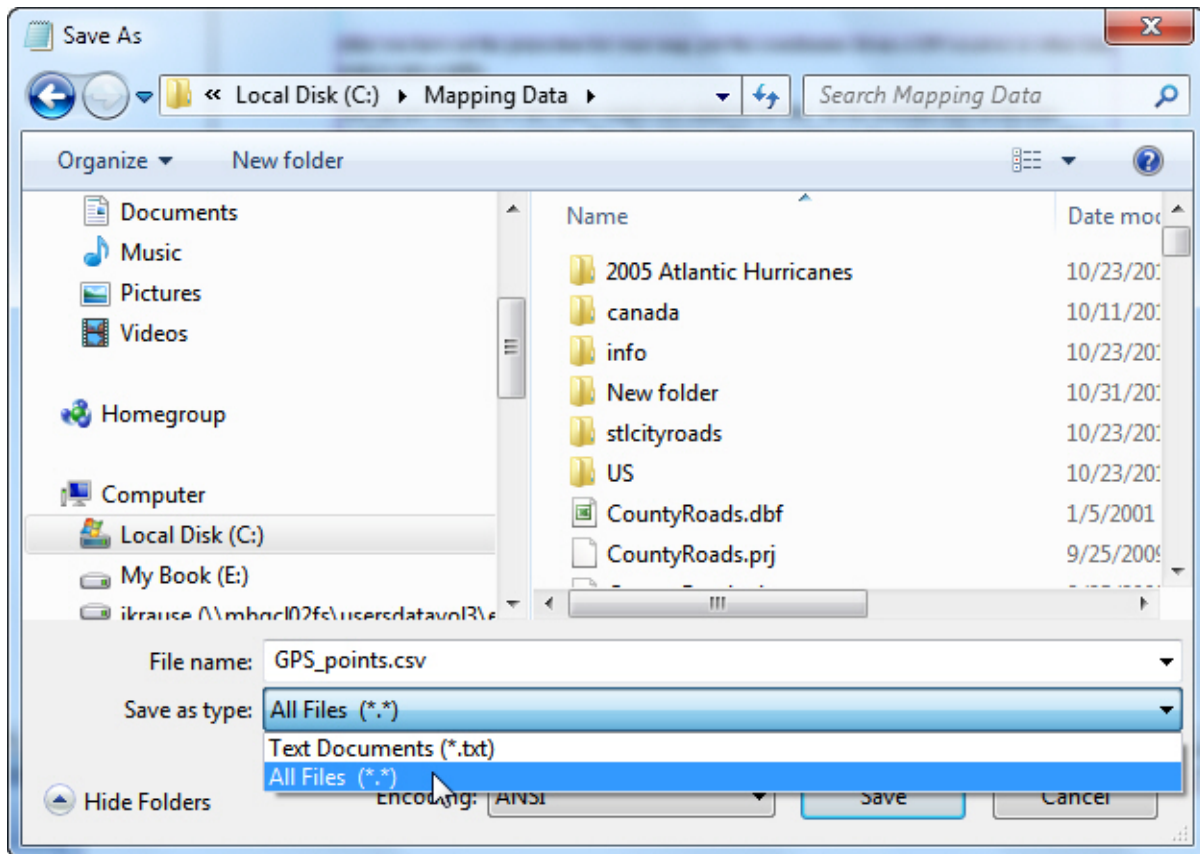
You can then return to the main ArcMap interface to map your points.

After you have set the projection for your map, put the coordinates (from a GPS receiver or other data source) into a table.

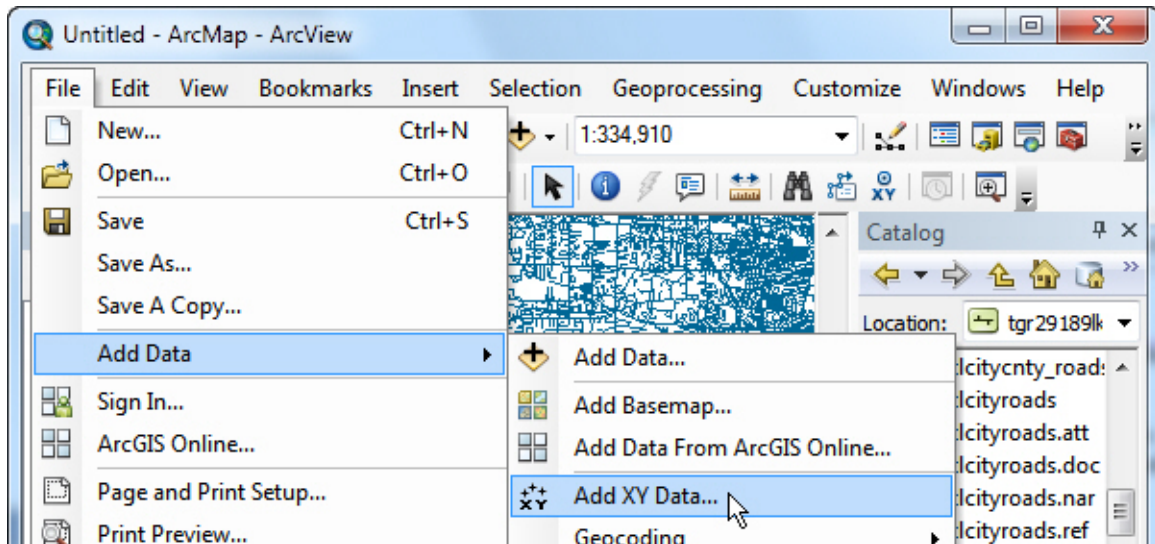
You can use Notepad or any other simple text editor to do this. In the first line type in the data headings separated by commas. Type the data in subsequent lines in the same order as the headings, again separated by commas:



After you have entered your data, save the file as a comma separated value (.csv) file. Be sure to switch the “Save file type” selector to “All files.”

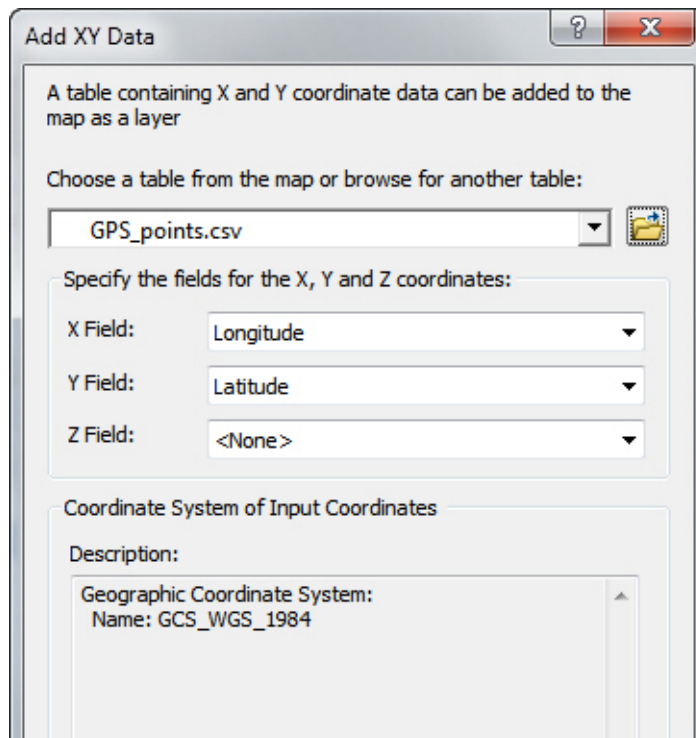


Within ArcMap, make the base map as you normally would, with whatever layers of data are appropriate. Then, from the File menu, choose “Add Data” then “Add XY Data.”



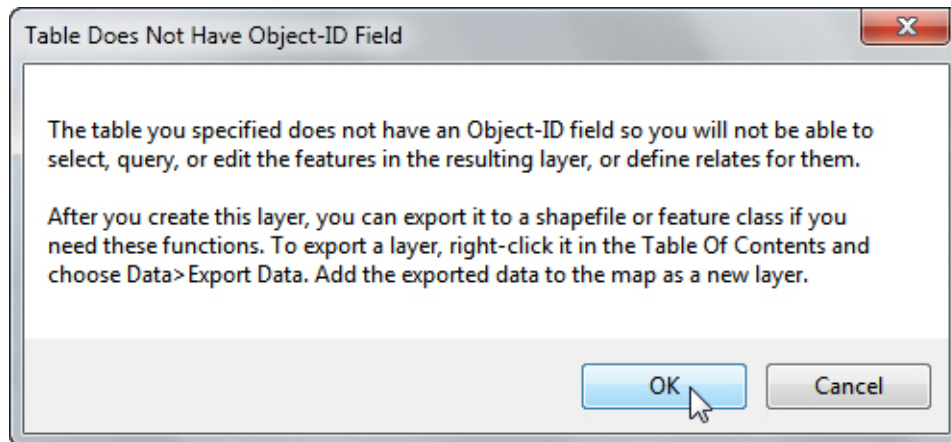
In the dialog box that appears, click the small folder icon (  ). Navigate to where you have saved the .csv file, select it, and click “Add.”

You should see that the file has been selected, and ArcGIS has made an effort to identify the X and Y coordinates of your data:

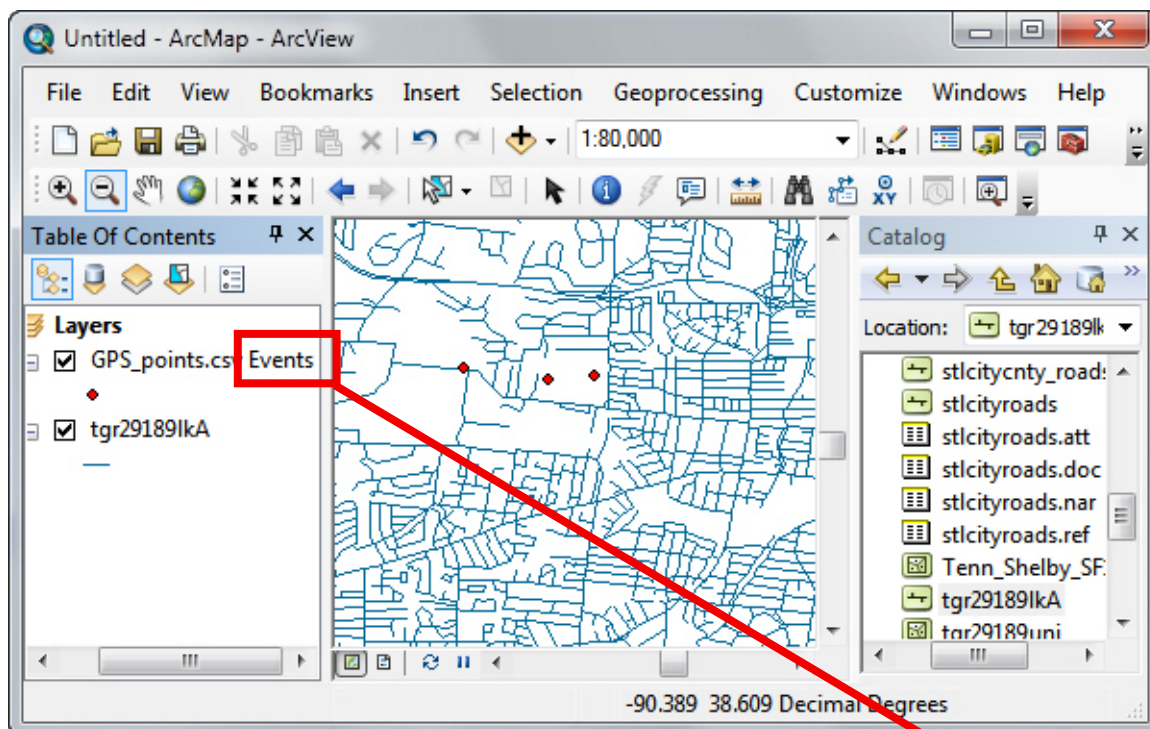


Click “OK”

If you get an error box about the table not having an Object-ID field, click “OK.”




You will see your points plotted on your map:



Notice that your new points appear in the Table of Contents (to the left of the map) as an **event**. To be able to edit this layer later, you will want to make it into a “regular” data layer. You can do this by exporting it to a shapefile (see page 4.3.5).

### Exporting to a shapefile

- Right-click the layer in the Table of Contents, choose “Data” from the popup menu, then select “Export Data” from the submenu.
- Click the “Export” drop-down arrow and select “All features”
- Select the output coordinate system you want to use. (In this case we will use “this layer’s source data”)
- Click the Browse folder icon () to navigate to a location to save the exported shapefile. Name your file and save it as a shapefile (.shp). Then click “OK.”

*This material is based upon work supported by the National Science Foundation under Grants No. 0639638 and 0833663. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.*