

GIS Workshop

- 1) What is GIS?
 - a. **Geographic information system!** Basically, visualize your data as a map!
 - b. Get a few examples! (528 election?)
 - c. In some cases, a map can seriously improve a visualization!

- 2) What could be hard about that??
 - a. GIS has many, implementation packages, from simple to complex, paid vs. open source, web based, etc.
 - i. The amount of insight you want could be highly varied!
 - ii. Consider a static map showing directions people vs a map of traffic congestion changing in time.
 - iii. The important link – location data as DATA

- 3) Google MyMaps – a straightforward mapping tool, part of the google suite (duh)
 - a. Explore by showing how to make a map!
 - i. Add some points, to the map and label them! Do this in a new layer.
 - ii. Add some directional lines! Plot out some paths in their own layers
 - iii. Once finished, export as KML for other use!

 - b. Open the data Bike lanes, Festivals and markets, or bike stations?
 - i. Some filtering tasks, coloring, etc.
 - ii. Make a map that looks good to you
 - iii. When done, save to your google drive for future reference

- 4) QGIS
 - a. Open my elevation data, load it up
 - b. Show how to make a 2d histogram
 - c. Step 1 – get open street maps
 - i. Layer > Add Layer > Add vector layer
 1. Change to “browser”
 2. XYZ tiles > Open street maps
 - ii. A map should appear!
 1. Pan (grab and click) and zoom (scroll wheel) to put New Orleans in center
 - d. Step 2 - Add the data
 - i. Add Layer > Text delimited
 - ii. Choose NOLA_Elevation.csv, select “x” and “y” columns for “X” and “Y” selections (this might automatically populate)
 1. IMPORTANT: set geography as shown (EPSG: 32215) – this is a spatial reference that we need to set for this data to appear. (Figure 1)
 2. You should see shapes over New Orleans on the map
 - iii. Right click the new data layer > properties
 1. Select the paintbrush tab, if it doesn't select automatically
 2. Change to “graduated”
 3. Choose “elevation-ft” under column

4. Increase or decrease the number labeled “classes” and the histogram will appear – still about 5 works well
 - a. Change mode to “quantile”
 5. Click the symbol button labeled “change.” A new window opens
 - a. Click “simple marker”
 - b. Change “stroke style” to no line.
 - c. Select the square as a shape.
 - d. Click “ok” this should close the window that opened
 6. Back on the property screen where you set to graduated, change “color ramp” to Viridis.
 - a. Click okay! See Figure 2 for final settings
 - b. Try some other color palettes – choose one that shows the differences in good contrast.
- iv. Your color-based elevation map should appear!
1. Note that as you zoom in or out, the size of the symbols don’t change. You will need to coordinate the approximate zoom level and symbol size for the map to look good.
- e. Exporting your map:
- i. Save a still image by using File > Import/Export > Export as image
 - ii. You can also export as a webpage by installing plugin “qgis2web.”
 1. *This may take some working with to get to look good, and you will still have to host the output.*
- 5) Conclusions
- a. GIS can make complex location data easy to understand by displaying on a map
 - b. Matching your GIS software to your purpose will help immensely!
 - i. Simple GIS – choose Google MyMaps or even Tableau Public
 - ii. Advanced GIS – GIS-specific packages like QGIS or Esri ArcMaps may be the right choice

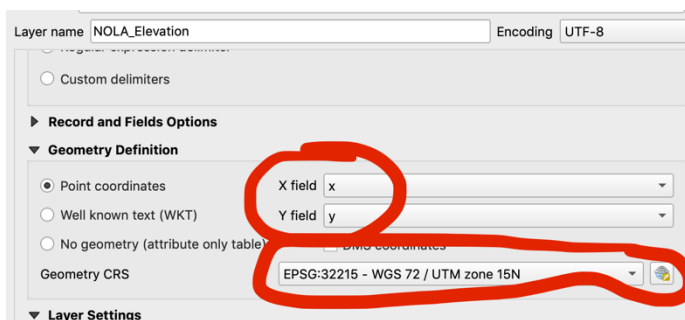


Figure 1: Uploading elevation data (top).

Figure 2: Formatting elevation data (right)

