A view of a city

Description automatically generated

**GEOS 323 LAB #2 (20pts)**

***Scenario***

You are a geospatial scientist working for a research lab evaluating tornado activity in Florida State. The lab group you are working for is interested in mapping tornado activity and has asked you to provide a map and basic analysis of the available data. The goal of this research is to aid city officials and emergency personnel in areas of elevated historical activity.

***The Data***

The National Weather Service has been collecting spatial data on tornado activity for decades, and all GIS datasets are available for free download here: <https://www.spc.noaa.gov/gis/svrgis/>. The specific data we are using for this lab are the tornado tracks from 1950-2023 in the form of a polyline shapefile.

The other piece of data you will use for this lab is a classic Census dataset of US state and county boundaries. You can always access the wealth of Census data freely available online here: <https://data.census.gov/> and ESRI’s Living Atlas has the data available through the Catalog pane, which is how we will access it for this lab.

***Overview of Steps to Complete the Lab***

Before beginning any steps for this lab, create a “Lab2” folder for this lab that you keep within a “GEOG323” master folder for this class. Strong folder organization will save you lots of headache later, and always refer to the rules of data storage in the Week 1 lecture slides if you need a refresher! Here is a general list of steps, but the lab will also be demoed during the regular lab period as well.

1. Download and unzip the fire district data from the Lab 2 folder on Canvas and transition it to your Lab 2 folder, THEN open the program and begin.
2. Click the Add Data button in ArcGIS Pro to add the tornado polylines. Using Living Atlas, add in the US state and county boundary data layers.
3. Modify the projection of the map frame to the appropriate UTM NAD1983 projection.
4. Subset the tornado track data layer to only include the data you need for Florida State.
5. Join the tornado polylines to the county boundaries.
6. Insert a map layout and the map elements title, map frame, scale bar, north arrow, legend.
7. Export your map as a PDF and store it in the same folder with all your other GIS files for this lab. Email yourself the PDF as well, because saving in multiple places is always a good idea!
8. Submit your PDF to the Canvas Lab #2 assignment portal.
9. Short answer – (1) How many tornadoes have occurred in Florida between 1950-2023? (2) What is the length of the longest tornado path in Florida? (3) Which county in Florida has the most occurrences of tornadoes of any mag? (4) How many tornadoes have occurred in Florida since the year 2000?

***Grading***

You will be graded on the following criteria (1-5 pts each for 20 total pts each lab):

* Use of logical symbology (e.g. shades of red for wildfire rather than something like neon green)
* Inclusion of all essential map elements (i.e. items from step #4 above)
* The full map layout space is utilized (e.g. no floating items or wasted white space)
* Map is free from typos, grammar errors, and your responses from #9 above are correct