

GEOG473/673-051 Final Project

Due: 12/10/2020 at midnight

We've spent the better part of 7 weeks learning how to utilize Python for geospatial data management and mapping. The final project involves you coding in Python to demonstrate proficiency with the language. You will have 4 in class time periods to accomplish this task. I will be present to help for all 4 classes.

Specifics

- This represents 20% of your final grade.

Goal: Demonstrate proficiency in Python.

Option 1: Choose your own.

So far, either myself or the Python packages we've been using have supplied the datasets. It's now time for you to select your own dataset. Some of you are graduate students or aspiring upperclassmen who have plenty of your own data to dive into for an advisor, lab, or project. Some of you have final projects in other classes where Python could be used to enhance your workflow you otherwise might've done in Excel or ArcGIS. Here's your chance to knock 2 things off your to-do list with 1 go.

For example:

With a dataset(s) of your choosing, I would want you to show:

- 1) Load the dataset(s) in Python
- 2) Quality Control / Quality Assure the data
- 3) Plot the dataset

These are the 3 main areas we covered with Python. I'm not going to be picky about how you go about the above required tasks because this could vary tremendously from goal to goal or dataset to dataset. *As long as you demonstrate proficiency in Python, I don't care what you do.*

Option 2: Compare Temperature Global Temperature Change

Now, I realize that not everyone will have a dataset that they want to play with above. Further, I realize that some of you may prefer specific tasks to complete this project. Here is your option for a final project.

Dataset link from Dr. Pinki Mondal - ftp://ftp.cdc.noaa.gov/Datasets/cpc_global_temp/

- 1) Navigate to Link.
- 2) Download Maximum Temperature Data from 1979 to 2019.
- 3) Average Maximum Temperature data for year 2019 globally. Plot. Add Coastlines.
- 4) Plot difference between 2019 average maximum temperature and 1979 average maximum temperature.
- 5) Select location (anywhere on the globe). Plot 2019 average maximum temperature data for the region your selected location is in. (for example, if you choose Newark, DE, plot the average maximum temperature for 2019 over the Mid-Atlantic.
- 6) From 1979-2019 at that location, create time series of the data. Plot time series. Add regression line to show trend –
(<https://docs.scipy.org/doc/scipy/reference/generated/scipy.stats.linregress.html>)