Lab 7: ~~Spatial interpolation~~ Raster sampling and multidimensional arrays

Overall Deliverables & Rubric:

● Complete set of code and figures (one notebook per exercise) concatenated as 1 PDF file, uploaded to CANVAS.

● Total Points 25

0. Computer Programming Environment

All the exercises involve Python and can be done from your web browser using Google's Colab.

1. Exercise 1: rainfall

Upload the GDS_lab7_exercise_1.ipynb to Google Colab or use your own machine. It will install the necessary packages and get the data from the web.

Code Block 1:

Based on the data, calculate and print the proportion of months where Colorado has a higher amount of precipitation than Wyoming.

Code Block 2:

Calculate the total annual precipitation in liters (m^3). You will have to use a projection of the geometries to calculate approximately the state areas. Use the CRS EPSG:5070.

Figure 1:

Plot the monthly perception in liters (m^3) (where mean across years is taken from all available data) for each state in the same plot. Be sure to label both axes with units and include a legend.

Deliverable & Rubric:

Make this Exercise 1 in one standalone Jupyter Notebook and print it.

15 points for the figure. 5 points for the correct code and results for code block 1 and 2 (25 points in total).