

Hypotheses:

1. we will observe increasing ozone concentrations with increasing elevation.
2. we will not observe a strong positive or negative relationship between average household income and ozone concentrations.

processing steps:

- 1- join ozone data to air quality locations to get spatial ozone distribution
- 2- create TIN and then raster of ozone values at air quality (AQ) locations and using cell size 30m
- 3- use this raster for the secondary map.
- 4- get MEAN ozone raster value per census tract using zonal statistics as table with (GEOID) as ozone field.
- 5- join the zonal statistics table to the original census feature data and save as new dataset that contains both census data average ozone level per tract and average income per tract.
- 6- use this dataset to plot income vs ozone.
- 7- dissolve the original census data from tract to county level ,using (block_id).
- 8- use spatial join to marge the new MEAN field from the census and ozone dataset with the county-level census data using one to one join and MESN as merge rule .
- 9- use this dataset for the primary map.
- 10- use extract multi values to points to get elevation from the DEM at air quality station points.
- 11- use this dataset to create the ozone vs elevation map.

final results:

in the data studied we be observe an increase in average ozone concentration with increasing elevation from the plot of household income versus ozone concentration ,the trend line is slightly negative ,indicating a possible decrease in income with increasing ozone concentration.

however the slope of the regression line is shallow enough that the relationship appears to be weak if existent at all.