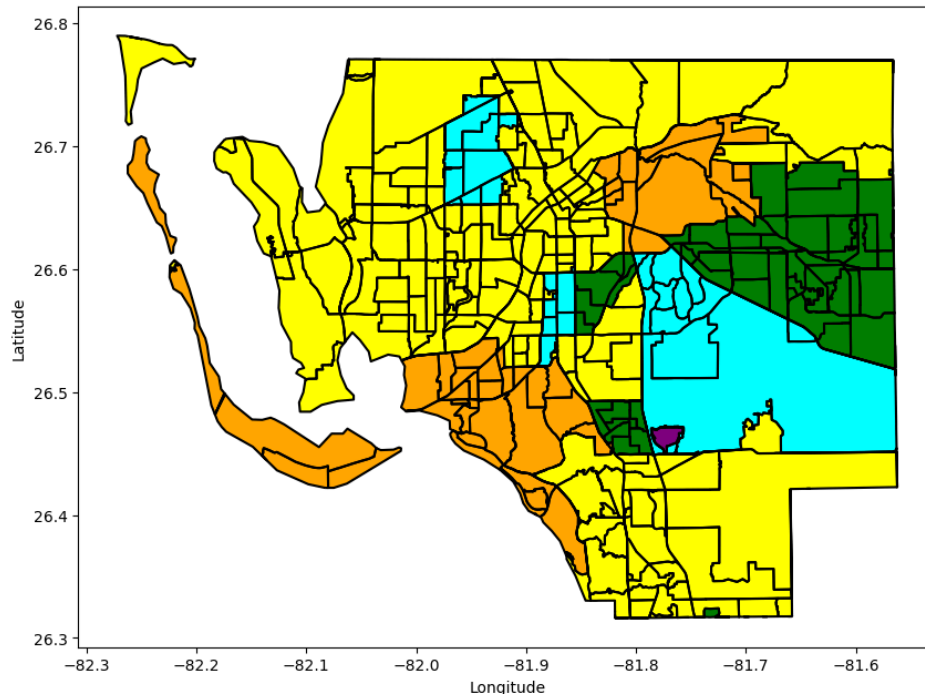**5/29/2024**

- Below is a plot of approvedIhpAid/totalDamage plotted onto Lee County, Florida. I am going to explore more metrics tomorrow. I also am now aggregating the data for all disasters in Lee county. Pairing this with the SV data gave me a corr of 0.23, so there is more work to be done, but there is something here.


-

5/26/2024

- I began plotting the social vulnerability index and the FEMA data onto this map, and I am going to run a couple of different tests over the next few days to test the significance.
- Below is the intersection of Lee County census tracts and zip codes

-
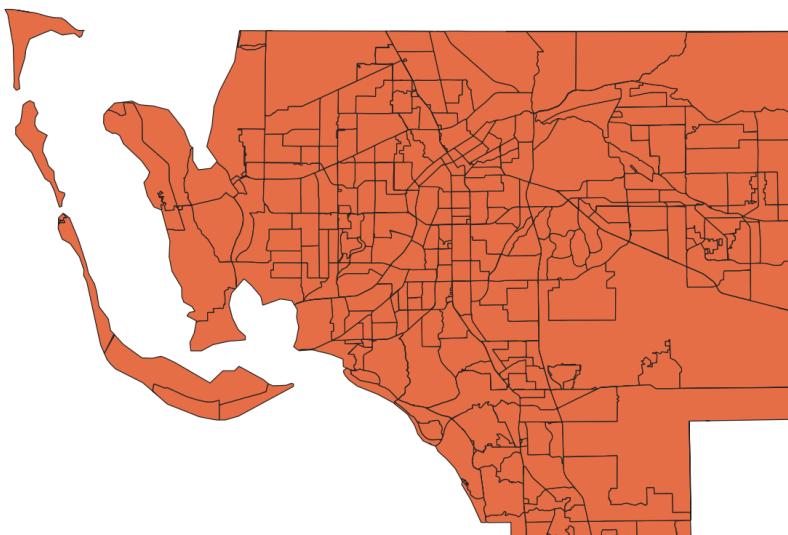
5/24/2024

- I mapped the FEMA zip data on top of the tract SV data, and it seems that there is a strong correlation on the eastern side of the Caloosahatchee River (this river divides Lee County). I wonder if there's any reason as to why this is?
- Below is the fema data mapped on top of the tract outlines for Lee county.

-
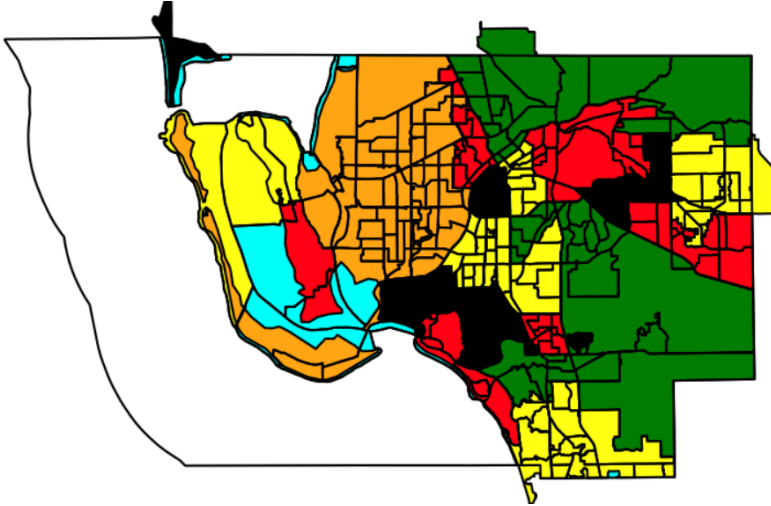
- Owners Dataset

noFemaInspectedDamage	femaInspectedDamageBetween1And10000	femaInspectedDamageBetween10001And20000	femaInspectedDamageBetween20001And30000	femaInspectedDamageGreaterThan30000
	approvedBetween1And10000	approvedBetween10001And25000	approvedBetween25001AndMax	totalMaxGrants

- Renters Dataset

| totalInspectedWithNoDamage	totalWithModerateDamage	totalWithMajorDamage	totalWithSubstantialDamage	approvedForFemaAssistance
	approvedBetween1And10000	approvedBetween10001And25000	approvedBetween25001AndMax	totalMaxGrants

- If we want to merge the two datasets, we need to change everything to categorical variables: no damage, moderate damage, major damage, substantial damage.
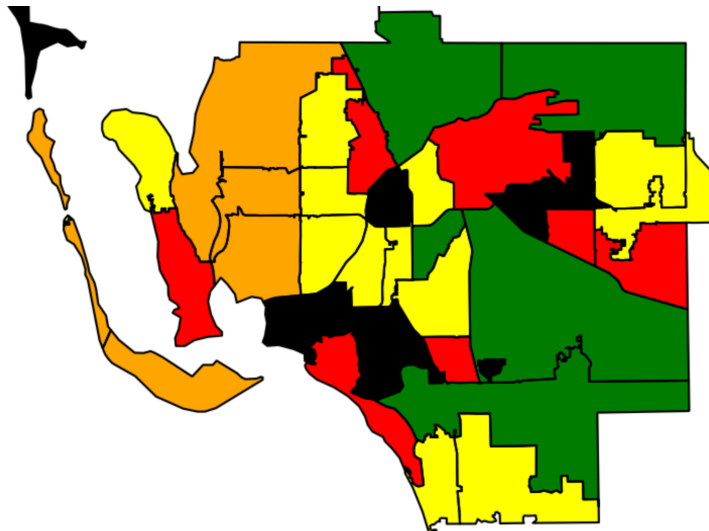
Ram: See my comments below.

5/23/2024

- I mapped the social vulnerability zones to the Lee County Census tracts.

- Green = 1, Blue = 2, Yellow = 3, Orange = 4, Red = 5
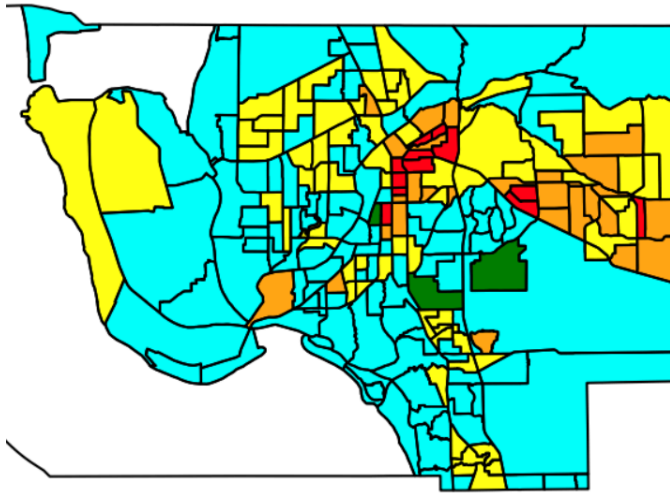
- I mapped the aid percentage of total damage (approvedAid/inspectedDamage) from the OpenFEMA dataset to the zip codes in Lee County (green > 1, blue > 0.75, yellow > 0.5, orange > 0.25, red < 0.25, black indicates no recorded damage)


-
- There is no census tract data for the OpenFEMA dataset, zip codes are the smallest it goes. Now I can also map the average approved aid and do some comparisons to see which zones have the biggest disparities.
- In the eastern portion of the county as it moves towards the center there seems to be a strong correlation between the higher social vulnerability zones and a smaller proportion of aid being given.

- My next goal is to map the OpenFEMA data on a map of the census tract. For this I will use a probability table similar to the one we discussed in our email.

Comment: Very good job so far. Once we plot OPEN FEMA dataset at zip level, we can intersect SV map and OPEN FEMA map (geospatial analysis). This way we will have SV

5/22/2024
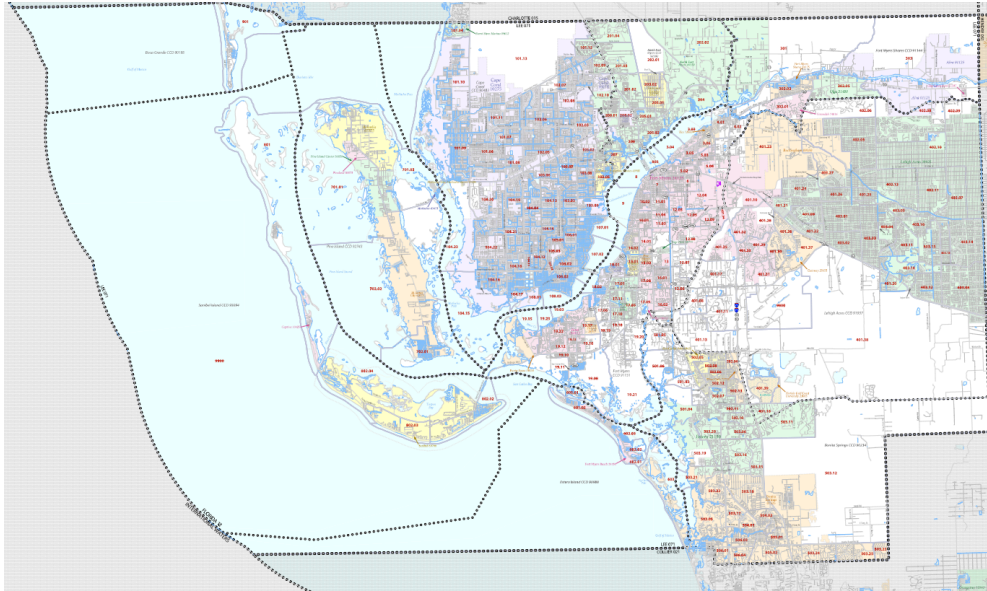
-
- [2020 Census - Census Tract Reference Map](#)

5/21/2024
- Created an InCore account and logged locally with the Miniconda terminal and Jupyter notebook
- Created a repo for my code: [zacbakerr/open-fema-analysis (github.com)](#)

- Performed analysis to determine which county had the most total damage from a flood or hurricane in the region of interest (Florida, South Carolina, or North Carolina)
    - ∞ fema_analysis.ipynb
    - Right now, I am loading the datasets locally, but I will fix this soon.
    - Found the most affected county to be **Lee County, Florida**
        - [Published today](#), Lee County was given over $41 million to help individuals after Hurricane Ian
- Took Lee County and ran it through [social vulnerability analysis](#) using InCore. I had to make some edits to the code to account for division by zero. The code doesn't run in this case, and so an edit could be made to the original repository. I generated a [social vulnerability file](#) for the different census tracts in Lee County.
    - Entries 223 and 224 can be excluded from data analysis as they do not represent valid tracts and experienced division error.

- My next goal is to generate probabilities so that I can assign individual household probabilities for the different tracts in Lee County, similar to [Estimating long-term K-12 student homelessness after a catastrophic flood disaster](#)

Relevant Links

- [Social Vulnerability Score: a Scalable Index for Representing Social Vulnerability in Virtual Community Resilience Testbeds](#)
- [InCore Docs](#)
- [Estimating long-term K-12 student homelessness after a catastrophic flood disaster - ScienceDirect](#)
- [OpenFEMA Analysis](#)
- [OpenFEMA Data Sets | FEMA.gov](#)
- [SVI Interactive Map (cdc.gov)](#)
- [Let the rich be flooded: The distribution of financial aid and distress after hurricane harvey - ScienceDirect](#)
- [Frontiers | Flood Recovery Outcomes and Disaster Assistance Barriers for Vulnerable Populations (frontiersin.org)](#)