SURA - Meeting Notes

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Tasks

Week 1

- ☒ 1. Go through the HMS description website and examine data retrieval, product information.
- ☒ 2. Determine the time frame of the data, its structure, and whether we can solely rely on the hazard mapping system (HMS) as a data source.
- [x]3. Download a data sample and map it.

Week 2

- ☒ 1. Figure out if we can calculate smoke area.
- ☐ 2. Investigate how to link information between the smoke and fire detection datasets.
- ☐ 3. Create better visualizations of the smoke KML data.
- ☒ 4. Create histograms of fire detection times throughout the day and color by satellite/method of detection to see if they always collect data at the same times.
- ☐ 5. Examine the change of fire points overtime, specifically for the California campfire (November 7th, 2018 - November 16th, 2018).
- ☒ 6. Summary of ecosystem types (variable "ecosys").
- ☐ 7. Look into how to structure the fire dataset.
  - Want to use fire as a predictor for the two projects
  - Would be useful to get information on area, intensity, smoke amount
- ☐ 8. Check out FEER.v1: do they have data available, or do we only have access to the model? Can we combine this data with the HMS data based on location?

Week 3

- ☒ 1. Clip data to California's borders
- ☒ 2. Smoke dataset visualization
- ☐ 3. Fire detection points by time
  - Not doable given current file format (KML) and available packages (mapview)

Week 4

- ☒ 1. Combine all fire points of the week into one dataset and merge in FRP
- ☒ 2. Experiment with HDBSCAN to identify clusters where there is persistent fires

Week 5-6

- ☒ 1. Try HDBSCAN for daily data
- ☒ 2. Determine best way to assign minpts value
- ☒ 3. Plot it onto a map (one dot per daily cluster -> centroid) + maybe original points in the background
  - HDBSCAN clusters don't have centroids because shape is irregular
- ☒ 4. Merge in FRP based on clusters and examine variance
- ☐ 5. Look into POSTGIS

Week 7

- ☐ 1. Add in AQ data
  - Clip it to the week
  - Plot the locations of the air quality record points -> look at concentration of PM 2.5
  - Maybe get distance between PM2.5 site and fire cluster and where it is wrt smoke
- ☐ 2. Choose top k most probable points in a cluster: display latitude and longitude
  - so that we can calculate distance between person's home and the cluster point
- ☐ 3. Research if FRP can tell us anything about emission spread, intensity, etc.
  - date, center point, frp for cluster, num obs, distance to pm2.5 site