Spatiotemporal Associations Between PM2.5 Exposure and Cardiovascular Hospitalizations in CA (2016–2023)

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Data Sources

- **CA ARB:** Air Quality Data (PST) Query Tool (2015-2023) *407 weekly DAVG datasets | 58/204 sites with lat/long*
- **EPA:** Toxic Release Inventory Basic Data Files for California Statewide (2015-2023) *1524 facilities*
- **CHHS:** California Hospital Inpatient Mortality Rates and Quality Ratings (2016-2023) *554 hospitals*

Progress

- Consolidating datasets (if separated by year, site, week)
- Exploratory data analysis

GIS Goals

- Inter/Extrapolate PM2.5 data to generate annual average raster surfaces for 2015-2023.
    - Scope may not allow for including NO2 and SO2
- Assess spatial autocorrelation among health outcomes, PM2.5 concentration, and TRI emission types/amounts
- Calculate annual “densities” of TRI facilities per hospital catchment area

Other ideas

- Use distributed lag model to assess delayed health effects from long-term exposure
- Use GEE marginal model to account for within-hospital correlation over time
- Bring in additional covariates (e.g. census level socio-demographics from CalEnviro4.0)