

Environmental Inequalities in Monterey County: Race and Air Pollution

The purpose of this script is to create 2 maps using data downloaded from the EPA website at the block group level for Monterey County, CA. These maps were generated using the tmap package. The first map shows the percentile for people of color rate in Monterey County. The second map shows exposure risk for toxic air pollutants in Monterey County. To investigate a possible relationship.

```
# Loading in Libraries
library(tidyverse)
library(sf)
library(here)
library(tmap)

# Read in geodatabase of EJScreen data at the Census Block Group level
ejscreen <-
  sf::st_read(here::here("data","EJSCREEN_2023_BG_StatePct_with_AS_CNMI_GU_VI.gdb"),
              quiet = TRUE) # Add quiet = TRUE to get rid of informational output

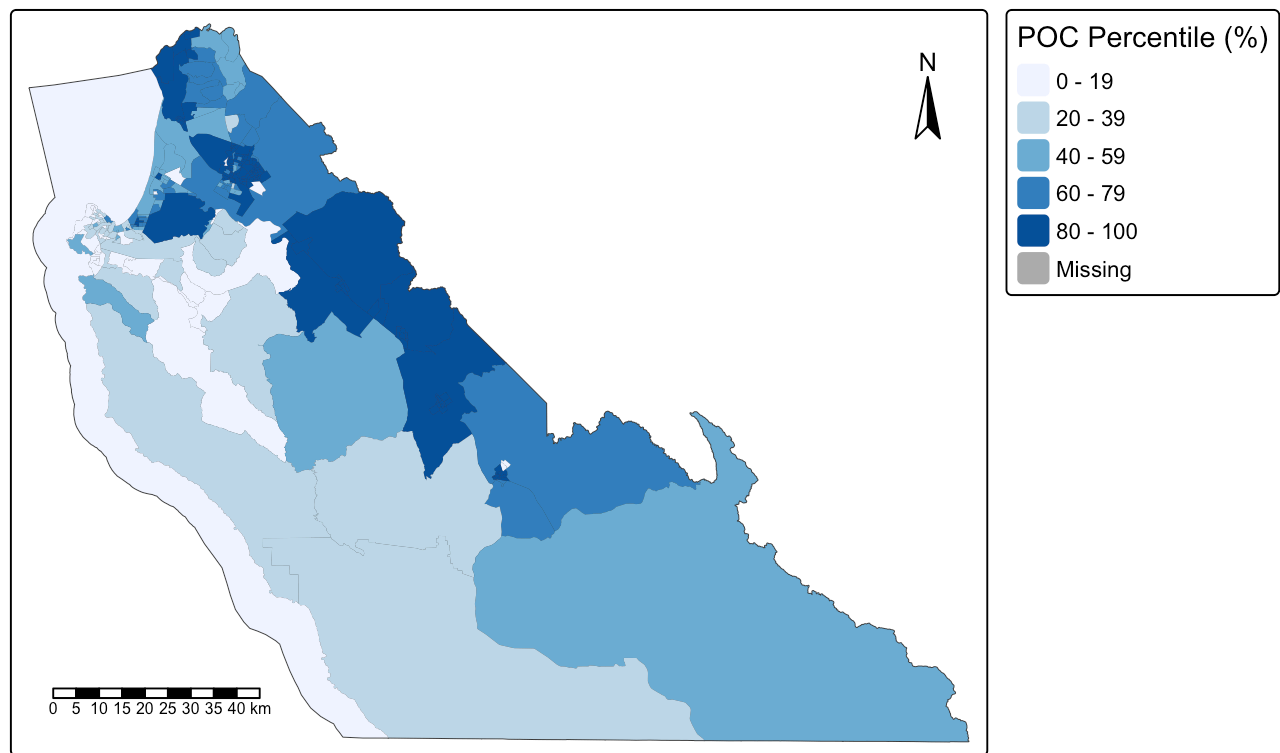
# Filter to only include California data
california <- ejscreen %>%
  dplyr::filter(ST_ABBREV == "CA")

# Filter to only include Monterey County data
monterey <- ejscreen %>%
  dplyr::filter(CNTY_NAME %in% c("Monterey County"))

# Turning PEOPCOLORPCT column into intergers from decimals
monterey$PEOPCOLORPCT <- monterey$PEOPCOLORPCT * 100

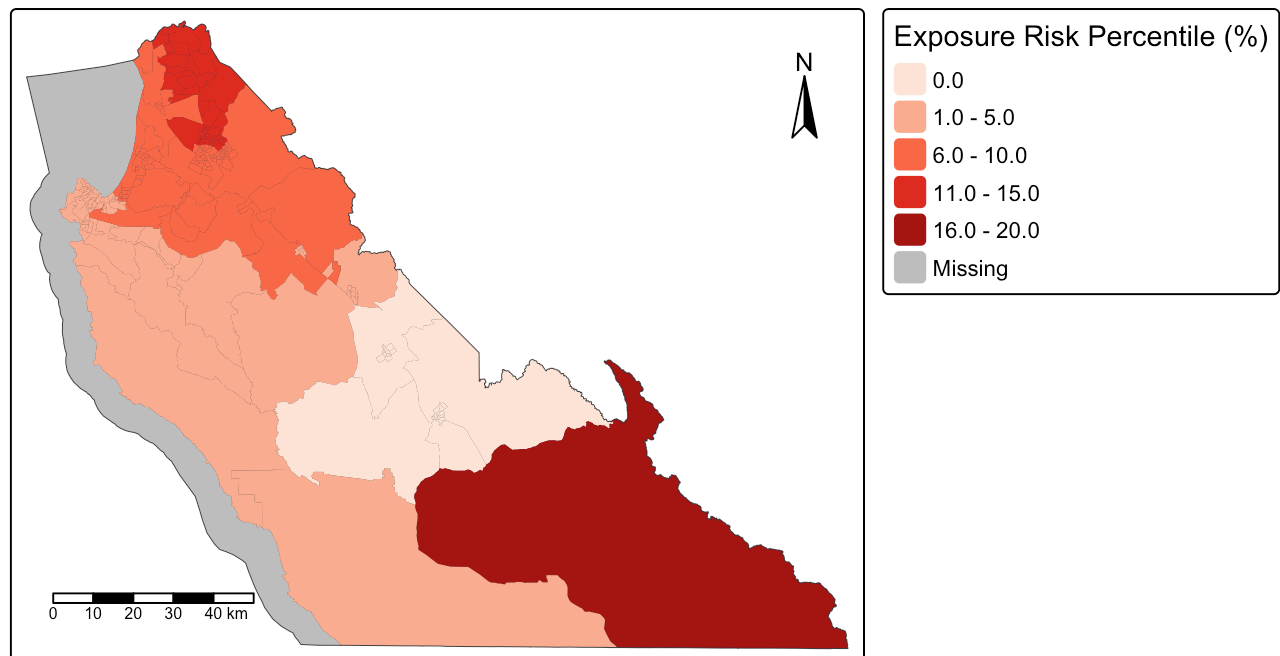
# Generating Map 1
tm_shape(monterey) + #defines spacial object to plot
  tm_polygons() +
  tm_fill("PEOPCOLORPCT", # % unemployed
          palette = "Blues",
          title = "POC Percentile (%)") +
  tm_title("People of Color Percentile in Monterey County") +
  tm_scale_bar(position = c("left", "bottom")) +
  tm_compass(position = c("right", "top"))
```

People of Color Percentile in Monterey County



```
# Generating Map 2
tm_shape(monterey) + #defines spacial object to plot
  tm_polygons() +
  tm_fill("P_RSEI_AIR", # Percentile for Toxic Releases to Air
    palette = "Reds",
    title = "Exposure Risk Percentile (%)") +
  tm_title("Toxic Air Pollutant Exposure Risk in Monterey County") +
  tm_scale_bar(position = c("left", "bottom")) +
  tm_compass(position = c("right", "top"))
```

Toxic Air Pollutant Exposure Risk in Monterey County



Maps Description

The maps produced display different environmental injustices occurring in Monterey County, CA. Map 1 shows the percentile for people of color. The second map shows exposure risk for toxic air pollutants. When the maps are compared you can see that there tends to be more toxic air pollutants in places that have a higher percentage of for people of color. Within Monterey County there are four point-source for air pollution According to the US EPA's Toxic Release Inventory (TRI) (Wade, 2022). These four TRI points are Dole Fresh Vegetables Inc, Fujifilm Ultra Pure Solutions Inc, Lhoist North America Natividad Plant, and US Army Garrison Fort Hunter Liggett Ranges. The locations of these four points are where air pollutant exposure risk is the highest. Due to these regions being populated predominantly by people of color this environmental injustice has just been ignored.

Citations

- United States Environmental Protection Agency. 2015. EJSCREEN. Retrieved: 10, 06, 2025, from (<https://drive.google.com/file/d/1nG6Nj1bXfzQFOVMO8Km3eNy4SWu1YclQ/view>)
- Wade, A. J. (2022, February 25). *Monterey County: Racial distribution and air pollution*. ArcGIS StoryMaps. <https://storymaps.arcgis.com/stories/4f19c2da231b4ecb98bc43db9b85e931>