DV Tracker Tool

/ShinyApp

App.R

Server\_functions/

Plots.R

Data\_processing.R

Util.R

Data\_scripts/

Api\_calls.R

Data\_cleaning.R

Data/

Raw\_data.csv

Processed\_data.rds

www/

TO DO ORDER\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Data updates

Update sites (monthly)

Update AQS (monthly)

Update AirNow (daily)

[Clear data – rm(list = ls()) – before moving on to data processing]

Data Processing

* Daily merge AirNow+AQS (raw, keeping non-distinct rows)
* Calculate DVs (separate script each pollutant)
* Daily calculate site hist. cumulative (PM25 cum tracker; separate data files each site)
  + Save only for unique sites, prioritize primary\_NAAQS\_monitor = yes
* Daily save daily values data files (for annual timeseries each site and MT)
  + Add site/state average (for when “ALL” selected)
  + Save only for unique sites, prioritize primary\_NAAQS\_monitor = yes

Plotting

* PM2.5 historical (copy for PM10, separate page)
  + Map w/year slider (either all years or specific year)
  + Plot: hist. MT average DV (with and w/o smoke)
  + Plot: MT avg. 24-hr values (1-year timeseries; or avg of all years if selected)
  + Plot: bar plot all sites
  + (when point clicked…)
    - Plot: hist. site DV (with and w/o smoke)
    - Plot: site 24-hr values (1-year timeseries; or avg of all years if selected)
    - Plot: bar plot all sites (selected site highlighted)
* PM2.5 tracker (page 1)
  + Cumulative plot
* Graphical user interface, text, application

  AI-generated content may be incorrect.

Weird Things

* For sites and/or pocs without AQS data, AirNow data is being assigned. May artificially increase “completeness” for less-used pocs.

Fix/Order of Operations

* Raw data
  + ~~AQS append-only~~
    - ~~Merge 2 years of updates and check for changes (monthly)~~
  + ~~AirNow~~
    - ~~Rolling 2 year window of data~~
* Processed data
  + AQS pocs (get\_AQS\_pocs)
    - ~~From AQS data, identify best pocs for each year~~
      * ~~Will be either labeled primary NAAQS monitor or have most representative samples~~
    - ~~Identify whether single or multiple pocs~~
  + ~~AirNow~~
    - ~~Merge pocs using last best AQS poc~~
    - ~~Assign 999 to any sites with no AQS data~~
    - ~~If multiple AQS pocs but not enough data (new site), then multiply~~
  + ~~Merge~~
    - ~~Load copy of append-only merge file~~
    - ~~Merge by county\_code, site\_number, and poc~~
    - ~~Prioritize AQS data~~
    - ~~Prioritize 1-HOUR data~~
    - Post-merge AirNow handling
      * Filter out older (over 2 years old that wouldn’t be updated) and replace 999 with AQS poc if available
    - ~~Save to append-only merge file~~
  + DVs
  + Sites to map
    - Calculates most representative poc for a given year including merged AirNow data

Examples to test

* Glasgow: no AQS data now, but will be soon
* Seeley Lake: previously AQS data, but none moving forward
* Unknown: AirNow only site
* Situation to avoid: site that uploads to AirNow for more than 2 years and then uploads to AQS for the first time; 999 pocs from old AirNow data won’t get updated in append-only merged file