RESOURCE GUIDE FOR AIR QUALITY MONITORING DATA WEBSITES

There are many sources for air quality data, providing data from a range of monitoring instrumentation and operated by different organizations. This resource guide provides an overview of websites with air quality data, including information about the data sources, suggested data use, and links to additional information.

Data from the Bay Area Air Quality Management District (Air District) fixed-site monitoring network are validated according to rigorous quality control and quality assurance requirements from the EPA to ensure that the air quality data are consistent and accurate, and to determine if the Bay Area is meeting air quality standards. Criteria pollutant data from Air District sites serve as the official data source for EPA's reporting of the Air Quality Index (AQI) Nowcast and are comparable to EPA's health-based air quality standards.

A dense network of low-cost sensors can provide helpful information as well even though data from sensors might not be as accurate as from Air District monitoring sites. In areas where there is not a nearby Air District monitoring site, sensor networks provide information about relative air quality on a neighborhood by neighborhood basis. Also, low cost sensors often report data on time scales shorter than an hour, and therefor can provide information about rapid changes in air quality, which can be useful in certain cases, like during wildfire smoke episodes.

Each data source and monitoring network can tell you something different about air quality in your area. The Air District recommends using the official AQI Nowcast calculated from Air District monitoring data when assessing whether the air quality in your area is safe AND also using low-cost sensor data to inform you whether air quality is getting worse or may be different than the nearest regulatory monitoring site. Using these data sources together can provide a more robust understanding of when and where poor air quality conditions may be occurring.

Air District Network (Current Air Quality Website)

Data Source: Air District Monitoring Sites
Pollutants: Fine Particulate Matter ($PM_{2.5}$), Ozone (O_3), Black Carbon, Carbon Monoxide (CO), Hydrogen Sulfide (H_2S), Nitric Oxide (NO), Nitrogen Dioxide (NO_2), Oxides of Nitrogen (NO_X), and Sulfur Dioxide (SO_2) available for visualization
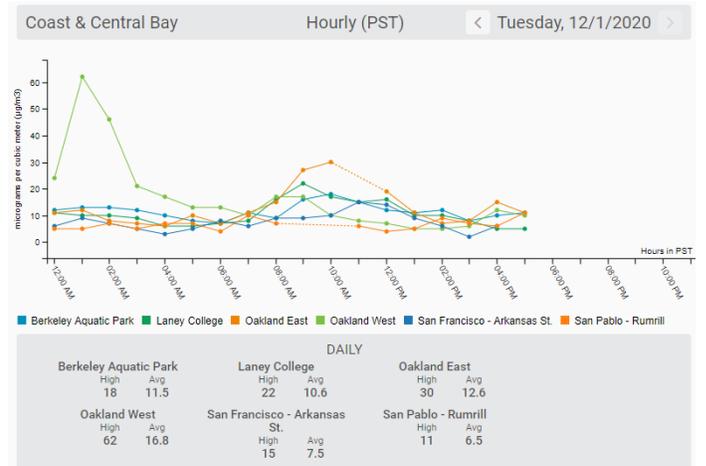**Data Type:** AQI Nowcast and concentration data
Averaging Time: 1-hour (begin hour)
Uses:

- Real-time reporting of AQI and concentration data

Additional Information: Air District's Monitoring Network Plan

AirNow (AirNow Homepage)

Data Source: Air District Monitoring Sites
Pollutants: $PM_{2.5}$, Coarse Particulate Matter (PM_{10}), O_3
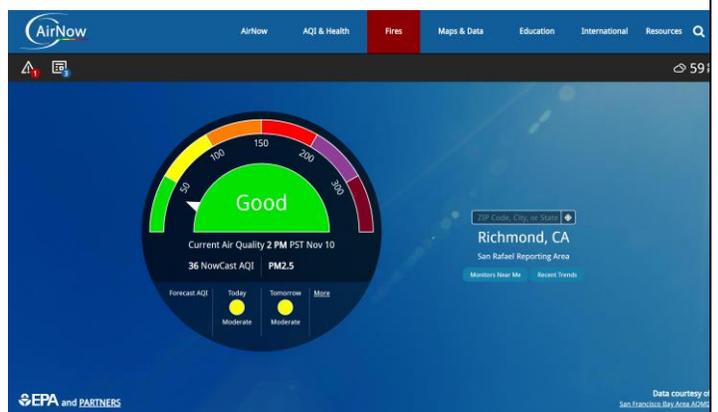**Data Type:** AQI Nowcast and concentration data
Averaging Time: 1-hour (end hour)
Uses:

- Official real-time reporting of the AQI

Additional Information: AQI Basics

AirNow Fire and Smoke Map ([Fire and Smoke Map Website](#))

Data Source: Air District Monitoring Sites, Purple Air Sensors, Temporary Wildfire Monitoring Sites
Pollutants: $PM_{2.5}$
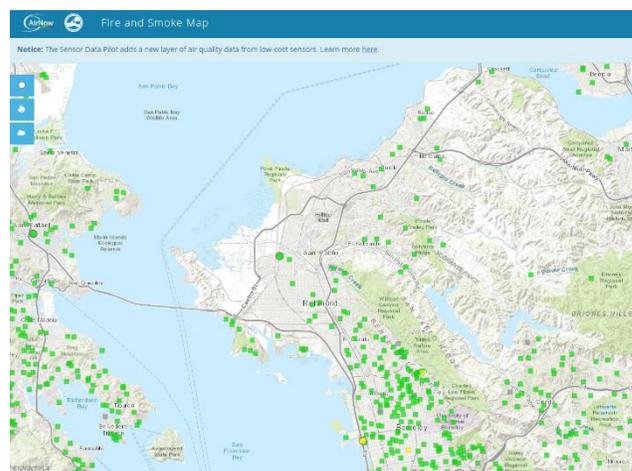**Data Type:** AQI Nowcast and concentration data
Averaging Time: 1-hour (end hour); time in PDT
Uses:

- Sensor data used qualitatively and in conjunction with regulatory monitoring sites can provide more spatial coverage
- Comparing air quality at one location to another

Note: Sensor data are adjusted with a correction factor to better match regulatory monitors, but uncertainties still remain
Additional Information: [Fire and Smoke Map User Guide](#)

PurpleAir ([PurpleAir Map](#))

Data Source: Low-Cost PurpleAir Sensors
Pollutants: PM_1, $PM_{2.5}$, PM_{10}
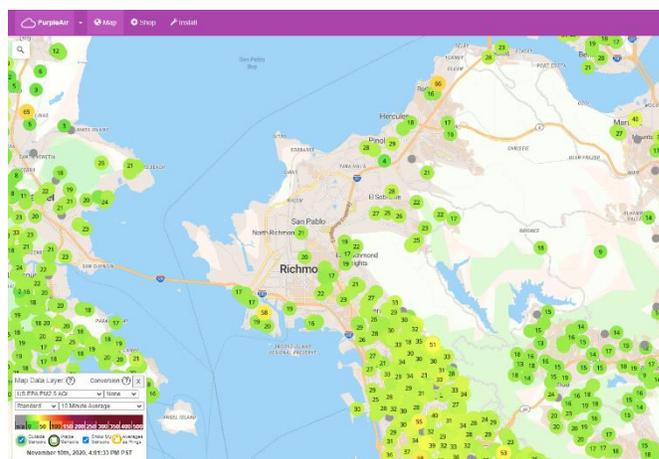**Data Type:** AQI and concentration data
Averaging Time: default 10-min (1-hour, 24-hour data are available)
Uses:

- Sensor data used qualitatively and in conjunction with regulatory monitoring sites can provide more spatial coverage
- Tracking short-term (sub-hourly) variations
- Comparing air quality at one location to another

Note: Option for sensor data to be adjusted with various correction factors, but uncertainties still remain
Additional Information: [PurpleAir FAQ](#)

Clarity ([Clarity OpenMap](#))

Data Source: Low-Cost Clarity Sensors and Air District Monitoring Sites
Pollutants: $PM_{2.5}$
Data Type: AQI Nowcast and concentration data
**Averaging Time:** 1-hour (begin hour)
Uses:

- Sensor data used qualitatively and in conjunction with regulatory monitoring sites can provide more spatial coverage
- Comparing air quality at one location to another
- Useful in areas with fewer PurpleAir sensors

Notes:

- Clarity sensors in Richmond-San Pablo are part of the Groundwork Richmond Air Rangers project
- Sensor data are adjusted with a correction factor to better match regulatory monitors, but uncertainties still remain

Additional Information: [Clarity Blog](#)
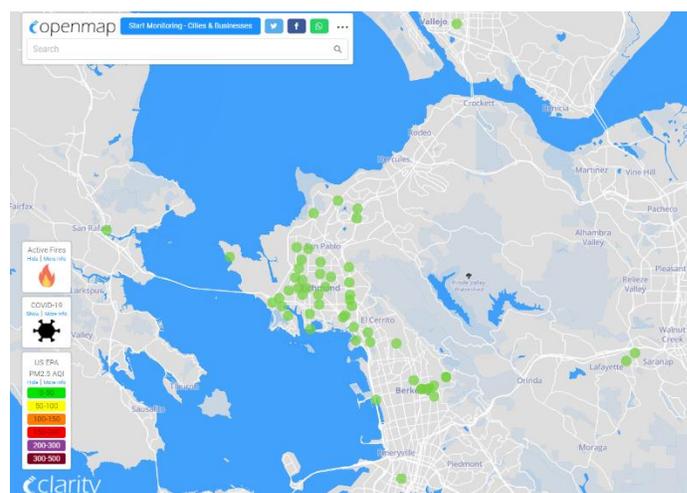
EPA Air Data ([Air Data Website](#))

Data Source: Air District Monitoring Sites
Pollutants: $PM_{2.5}$, PM_{10}, O_3, CO, NO_2, and SO_2 for visualizations; additional pollutants (such as air toxics) available for download
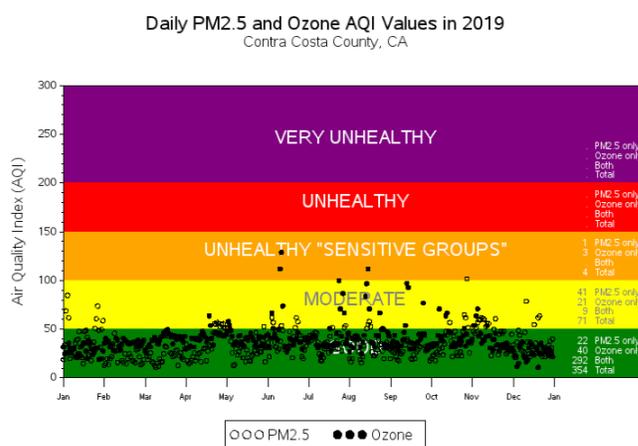**Data Type:** AQI and concentration data
Averaging Time: Pollutant dependent
Uses:

- Official reporting of the Air Quality Index (AQI)
- Compliance with health-based standards
- Create graphical displays using visualization tools
- Download air quality data to a file
- Output air quality data into summary reports

Additional Information: [Air Data FAQ Webpage](#)

Daily PM2.5 and Ozone AQI Values in 2019
Contra Costa County, CA

Aclima ([Aclima Insights Website for Richmond-San Pablo](#))

Data Sources: Aclima mobile monitoring and PSE/APEN Aeroqual sensor network
Pollutants:

- Aclima: $PM_{2.5}$, O_3, CO, CO_2, NO, NO_2
- PSE: $PM_{2.5}$, O_3, and NO_2

Data Type: Map of pollutant concentration data
Averaging Time:

- Aclima: Three-month average (Aug-Oct 2019)
- PSE/APEN: current conditions or average for previous 24 hours, week, month, or 90 days

Uses:

- Visualize relative differences in air quality across Richmond-San Pablo
- Enter an address to create a customized air quality report for that location

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Chevron Monitoring ([Chevron Richmond Air Measurements Website](#))

Data Sources: Chevron refinery fenceline and community monitoring stations
Pollutants:

- Fenceline: SO_2, H_2S, and 11 selected gas air toxics
- Community Stations: $PM_{2.5}$, Black Carbon, H_2S, 14 selected gas air toxics, and meteorology

Data Type: Real-time
Averaging Time: 5-min, 1-hour
Uses:

- Visualize data on map and graphically
- View measurements for pollutants that pass through the fenceline monitoring system

Notes:

- Fenceline monitoring system is designed for compliance with Air District Rule 12-15
- Some pollutants may often be displayed as "<MDL", meaning concentrations are below the minimum detection level of the monitor