



Community-Scale Air Monitoring in California

Yanju Chen, Eugene Kim, Annemarie Flores

Community Air Quality Section
Special Assessment Branch
Air Quality Planning and Science Division

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Community-Scale Air Monitoring Overview

Supplements the existing regional regulatory monitoring network

- Fills the need for understanding local-level air pollution
- Covers a wide variety of air pollutants
- Addresses specific community concerns
- Evaluates personal exposure to air pollution
- Identifies localized pollution hotspots and impacting sources
- Includes non-regulatory techniques, e.g., emerging air quality sensors

Community-Scale Air Monitoring

Existing Efforts



**AB 617
Community
Monitoring**



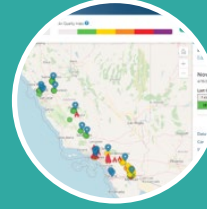
**Community
Air Grant
Projects**



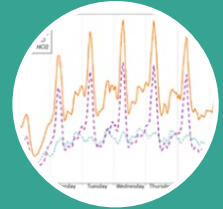
**Special
Projects /
Studies**



**Quality
Assurance
Programs**



**Community
Air Quality
Viewer
(AQview)**



**Data Analysis
&
Interpretation**

AB 617 Community Monitoring

Introduction

- CARB's Community Air Protection Program aims to reduce exposure in communities most impacted by air pollution, as required by California's Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017)
- Sixteen communities have been selected to conduct community-scale monitoring, guided by collaboration among CARB, air districts, and community steering committees (CSCs).



AB 617 Community Monitoring

General Objectives

- Provide the communities with real-time air pollution levels
- Obtain detailed air pollution levels through the communities
- Determine areas in the communities with the highest air pollution levels
- Identify sources of air pollution within the communities
- Inform and potentially track emissions reduction strategies



AB 617 Community Monitoring

Recent Progress

- Increased Federal Equivalent Methods (FEM) / non-FEM (e.g., BC, NH₃, H₂S, etc.) stationary monitoring
- Continued and expanded air sensor network monitoring and mobile monitoring
- Increased numbers of air toxics monitoring equipment and sites (e.g., pesticides, benzene, toluene, ethylbenzene, xylene, and other volatile organic compounds)
- Responding to episodic emissions events (e.g., odor complaints and fugitive emissions)

* [2022 AB 617 CARB Board Update](#)

AB 617 Community Monitoring

with Data Available from CARB

District	AB 617 Community	Data Provider	Pollutants
South Coast	East Los Angeles, Boyle Heights, West Commerce	South Coast AQMD	PM _{2.5} , PM ₁₀ , CO, Particle number, O ₃ , NO, NO _x , SO ₂ , CH ₄ , Total NMOC, BC, H ₂ S
	South Los Angeles	South Coast AQMD	PM _{2.5} , NO, NO _x , O ₃ , CO
	Southeast Los Angeles **	South Coast AQMD	PM _{2.5} , BC, Particle number, NO, NO _x , CH ₄ , H ₂ S
	San Bernardino, Muscog	South Coast AQMD	PM _{2.5} , PM ₁₀ , BC, CO, Particle number, NO, NO _x , O ₃
	Wilmington, West Long Beach, Carson	South Coast AQMD	PM _{2.5} , PM ₁₀ , BC, NO, NO _x , CO, Particle number, O ₃ , SO ₂
	Eastern Coachella Valley	South Coast AQMD	PM _{2.5} , PM ₁₀ , BC, O ₃ , H ₂ S
San Diego	Portside EJ Neighborhoods	San Diego County APCD	BC
	International Border Community	San Diego County APCD	BC, PM _{2.5} *
San Joaquin Valley	Stockton	San Joaquin Valley APCD	PM _{2.5} , SO ₂
	Arvin / Lamont	San Joaquin Valley APCD	PM _{2.5} , SO ₂ , Total VOCs
	Shafter	San Joaquin Valley APCD	PM _{2.5} , PM ₁₀ , SO ₂ , H ₂ S, NO*, NO ₂ *, NO _x *, O ₃ , CO, Total VOCs*, BTEX*
	South Central Fresno	San Joaquin Valley APCD	PM _{2.5} , CO, SO ₂ , H ₂ S, NO, NO _x , O ₃ , Total VOCs*, BTEX*
Imperial County	Calexico, El Centro, Heber	Comité Civico del Valle, Inc.	PM _{2.5} , PM ₁₀
Bay Area	Richmond - North Richmond - San Pablo	Groundwork Richmond	PM _{2.5} , PM ₁₀
	West Oakland **	Aclima	PM _{2.5} , O ₃ , NO ₂
Sacramento Metro	South Sacramento - Florin	Sacramento Metropolitan AQMD	PM _{2.5} , PM ₁₀ , PM ₁₀ Metals*, BC*, Total VOCs*

Community Air Grant Projects

Introduction

- Also included in AB 617 is a provision for grants to community-based organizations (CBOs) for technical assistance and to support their efforts to participate in the AB 617 process
- Since 2018, CARB's Community Air Grants Program has supported ***more than 50 projects*** that have monitoring components
- These projects are supported to set up or expand the monitoring networks in several AB 617 communities, as well as many other disadvantaged and low-income communities

Community Air Grant Projects *with Data Available from CARB*

District	Data Provider	Pollutants
South Coast	Comité Civico del Valle, Inc.	PM _{2.5} , PM ₁₀
	Soboba Band of Luiseño Indians	PM _{2.5} , PM ₁₀
San Joaquin Valley	Comité Civico del Valle, Inc. on behalf of The LEAP Institute	PM _{2.5} , PM ₁₀
Imperial County	Comité Civico del Valle, Inc.	PM _{2.5} , PM ₁₀
Bay Area	Brightline Defense Project	PM _{2.5} , PM ₁₀
	Comité Civico del Valle, Inc. on behalf of Greenaction for Health and Environmental Justice	PM _{2.5} , PM ₁₀
Great Basin	Big Pine Paiute Tribe of the Owens Valley	PM _{2.5} , PM ₁₀

Special Projects / Studies

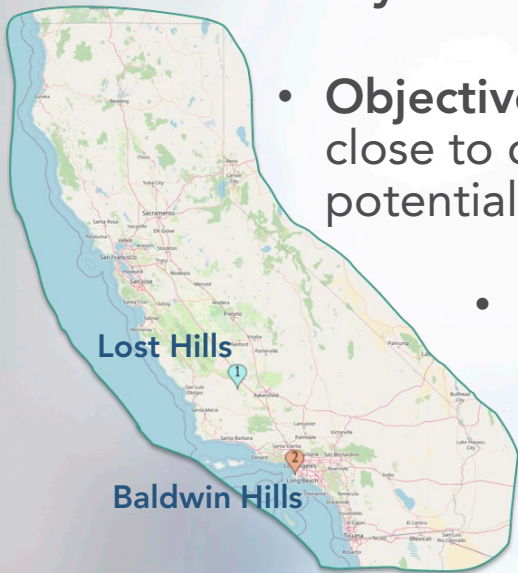
SNAPS (CARB)

Study of Neighborhood Air near Petroleum Sources

- **Objective:** Characterize air quality in neighborhoods close to oil and gas extraction facilities and assess potential cumulative impacts from all surrounding sources

- **Project Information:**

- Limited-term (1 year), intensive monitoring at Lost Hills (2019-2020) and Baldwin Hills (2023-2024)
- Measure 200+ gaseous and particulate species
- Conduct source apportionment and health risk assessment



Special Projects / Studies

San Ysidro Pilot Monitoring Project (CARB)

- **Objectives:** Quantify the air quality burden in this border community, increase education and awareness of local air quality issues, and help the public make informed decisions to reduce exposure
- **Project Information:**
 - One-year fixed monitoring for PM, NO₂ and BC with low-cost sensors and VOCs with research-grade analyzer
 - Short-term mobile monitoring for air toxics



Special Projects / Studies

Additional Examples

- Monitoring of ethylene oxide (EtO) (SCAQMD, CARB)
- Monitoring of hexavalent chromium (SCAQMD, City of Paramount, etc.)
- Community monitoring near refineries (air districts and refineries)
- Mobile monitoring (CARB, air districts, researchers, and private entities)
- U.S. EPA Enhanced Air Quality Monitoring Competitive Grant through the American Rescue Plan (CARB, air districts, CBOs, etc.)

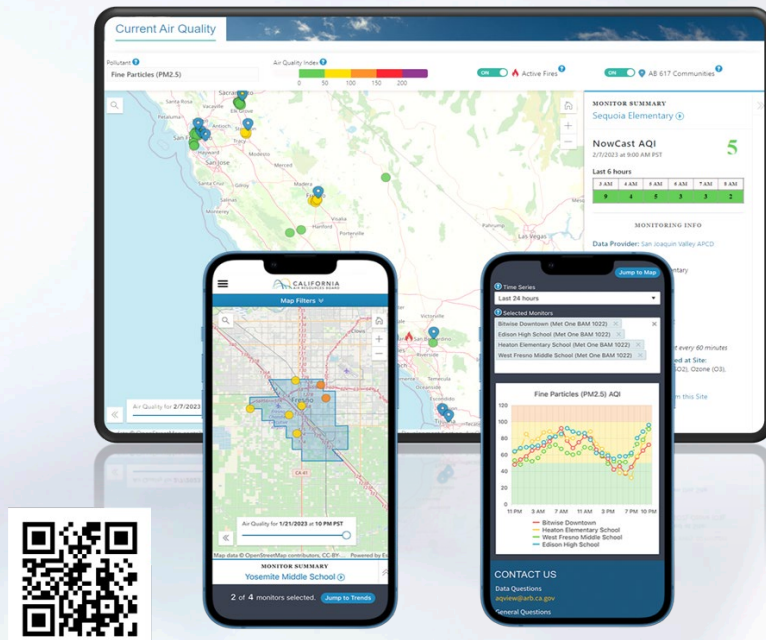
Quality Assurance Programs

- **CARB – Sensor Evaluation Program**
(starting 2023)
- **South Coast AQMD - AQ-SPEC** (Air Quality Sensor Performance Evaluation Center)
- **San Joaquin Valley APCD - TEST**
(Technical Evaluation of Sensor Technology)
- **U.S. EPA - Air Sensor Toolbox**



Community Air Quality Viewer (AQview) *Introduction*

- An innovative **cloud-based** data system for managing air monitoring data
- Provides visualization and easy access of air quality data from **diverse sources** in **near real-time**
- Designed with simple, intuitive, and **mobile-friendly** interfaces
- Provides **transparency** in how data are collected and processed



<https://aqview.arb.ca.gov/>

AQview

Existing Features

Continuous Monitoring

This download tool provides air quality data from monitors that are continuously streaming to AQview and is updated on an hourly basis. Data available here are primarily from AB 617 community air quality monitoring sites. As AQview continues to expand, monitoring data from a larger variety of sources will be added to this download tool. For technical details about the data provided here, please see the Data Download Explainer. An inventory of the data made available can be found in our Pollutants in AQview page.

Download Air Quality Data

Select One Primary Filter

County: Data Provider:

Select Parameters and Dates

Additional Monitoring & Reports

Select Parameters

These air basin specific tables are a repository of air quality data, reports, and other data products primarily from selected AB 617 communities and other recent community monitoring efforts. These data do not conform to the AQview continuous data format (e.g., lab-analyzed data, mobile monitoring data, etc.) and are therefore not available from the Continuous Monitoring Download Tool. For more detailed information on these data, please visit the Data Source links in each table below or contact the data provider directly. Additional data will be added as they become available.

Sacramento Valley

Data Provider	Area Monitored	Pollutants
SMAQMD	South Sacramento-Florin	Black G
SMAQMD	South Sacramento-Florin	Toxic G
SMAQMD	South Sacramento-Florin	Toxic M

Current Air Quality

Pollutant: Fine Particles (PM_{2.5})

Air Quality Index

ON Active Fires

ON AB 617 Communities

MONITOR SUMMARY

Edison High School

NowCast AQI

4/9/2023 at 10:00 PM PDT

Last 6 hours

10 11 12 13 14 15

MONITORING INFO

Data Provider: San Joaquin Valley APCD

County: Fresno

Site Name: Edison High School

Elevation: 92 m

Monitor Id: BAM 1022

Model: Met One BAM 1022

Owner: SJVAPCD

Source: SJVAPCD

4 of 4 monitors selected. [View to Table](#)

Time Series

Selected Monitors

Station: Edison High School (Met One BAM 1022)

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Tell us what you think about AQview...

Ask a question

Comment on existing feature

Suggest new feature

Report an issue

Other feedback

On the map, my selected site was not highlighted.

While I read the monitoring summary I would like to see the highlighted or different colored circle of the selected site.

Customer Response

Thanks for the suggestion! Our Team is actively working on including a site selection field in the download tool. Stay tuned to see it in a future version of AQview.

Start a discussion

Suggest new feature

Report an issue

Other feedback

Start a discussion

Suggest new feature

Report an issue

Other feedback

Start a discussion

Suggest new feature

Report an issue

Other feedback



Automated Quality Control

Upper and Lower Limits, Spikes, Repeating Values



Data Download

Measurement Data, Metadata



Reports Repository

Lab-Analyzed Data, Previous Studies + Reports



Data Visualization

Hourly PM_{2.5} AQI Map, Time Series



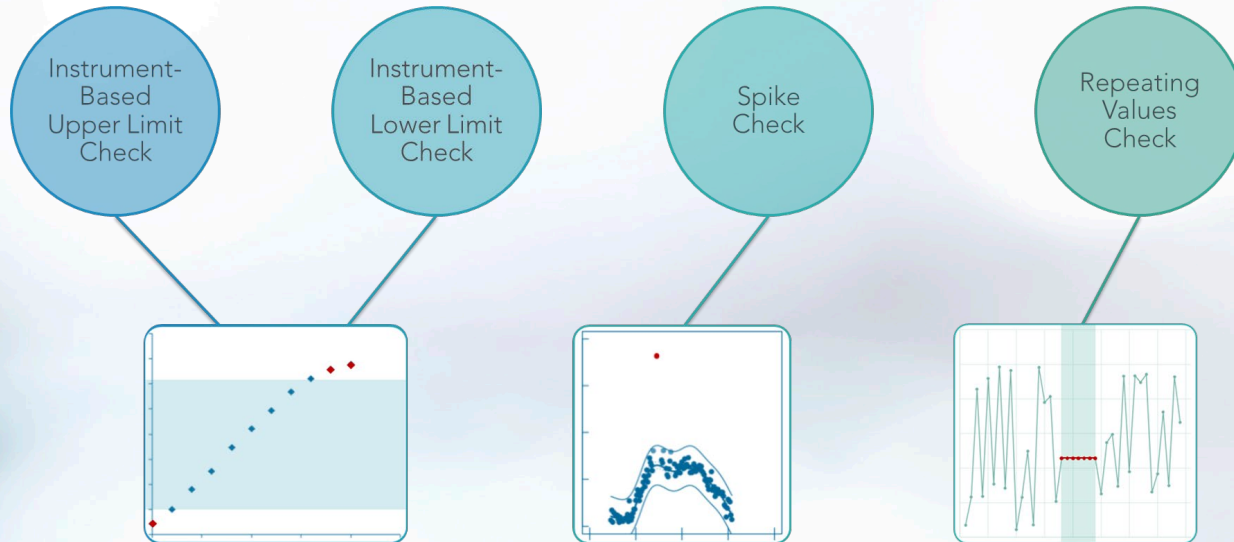
Feedback Forum

Ask, Suggest, Report

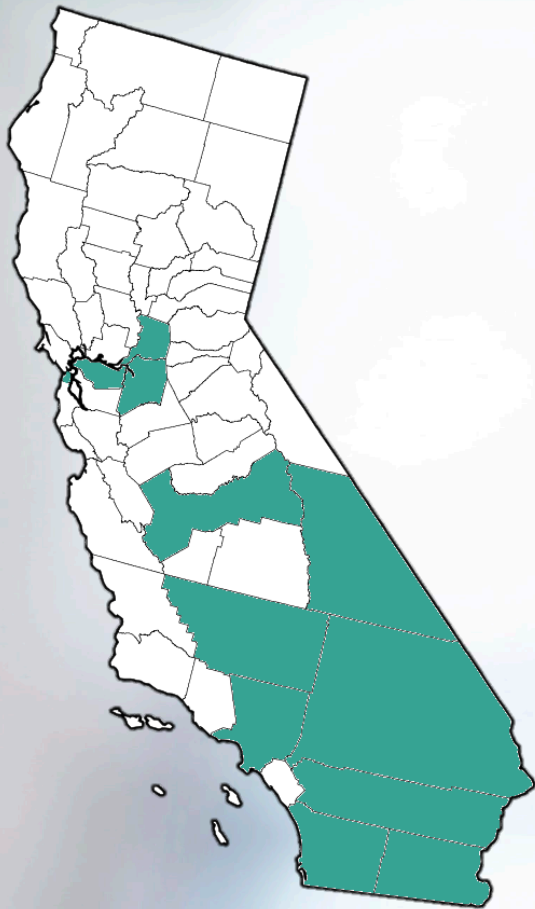
AQview

Data Quality Control Checks

- AQview provides assessments of data quality through robust quality control checks to identify and flag any data records that appear questionable or invalid



AQview Data Summary



Region	Communities/ Networks	Sites	Pollutants*
Bay Area	3	69	PM _{2.5} , PM ₁₀
Sacramento Valley	1	23	PM _{2.5} , PM ₁₀ , BC, Metals, VOCs
San Joaquin Valley	5	24	PM _{2.5} , PM ₁₀ , VOCs, Gases
Great Basin	1	1	PM _{2.5} , PM ₁₀
South Coast	8	21	PM _{2.5} , PM ₁₀ , BC, VOCs, Gases
San Diego	2	7	BC
Imperial	2	46	PM _{2.5} , PM ₁₀

**Availability of pollutants varies by site.*

Gases: NO, NO₂, O₃, CO, SO₂, H₂S, CH₄

VOCs: Many species including BTEX

See a complete data inventory for AQview here:

https://aqview.arb.ca.gov/resources/files/Pollutants_in_AQview.pdf

Data Available in AQview

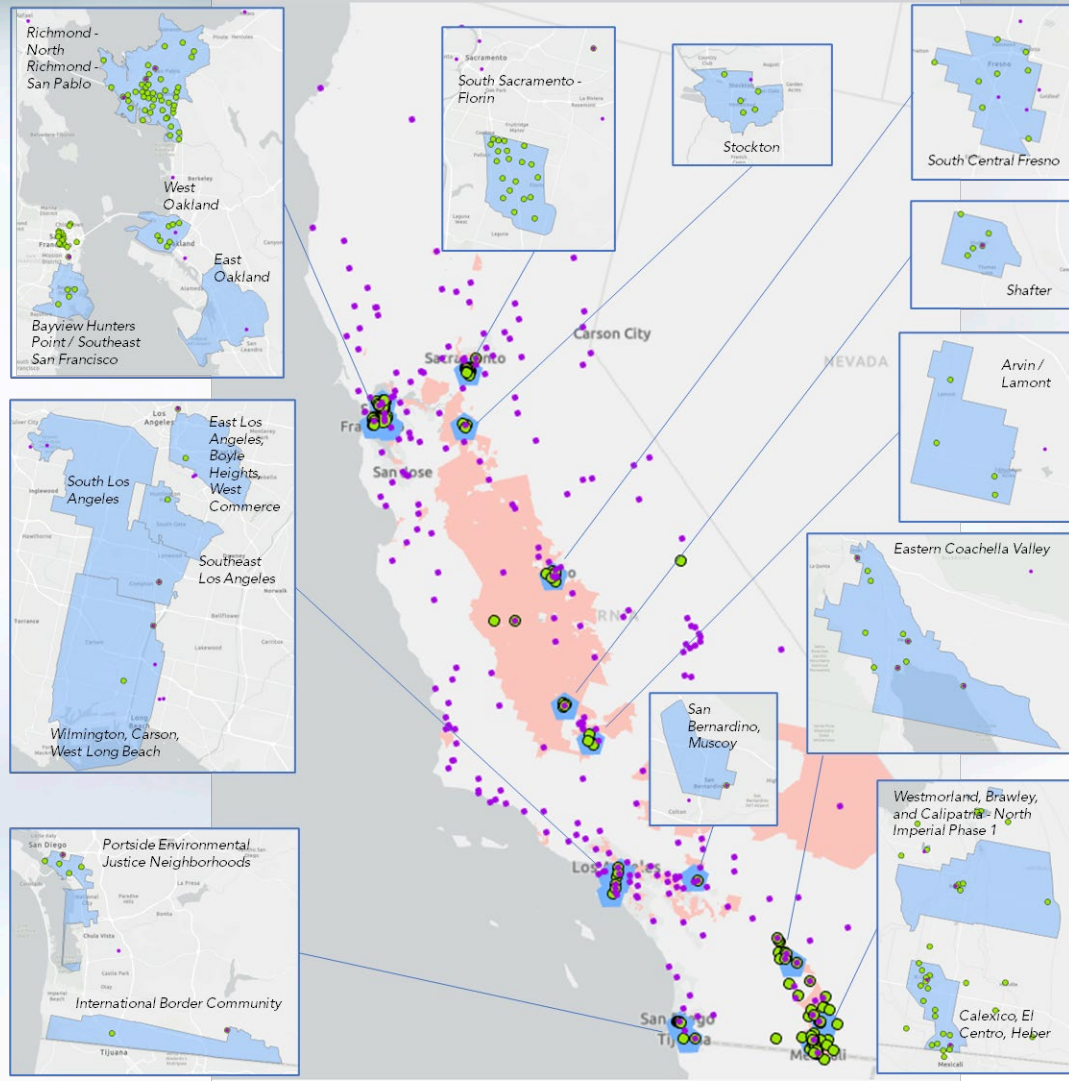
More to come!

Additional Data in AQview

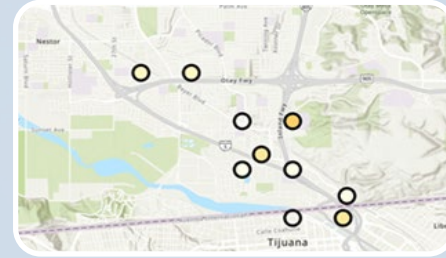
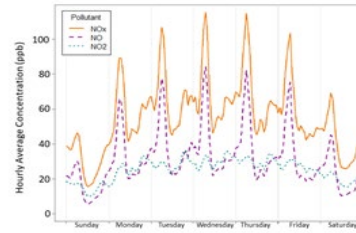
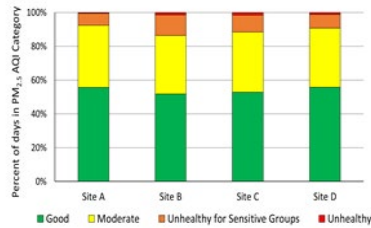
- Regulatory Monitoring
- Public Sensor Networks
- More Community Monitoring

Analysis and Interpretation of Air Monitoring Data

- Community-scale Monitoring Site
- Regulatory Monitoring Site (active)
- ▮ AB 617 Community
- ▮ SB 535 Disadvantaged Community



Data Analysis & Interpretation

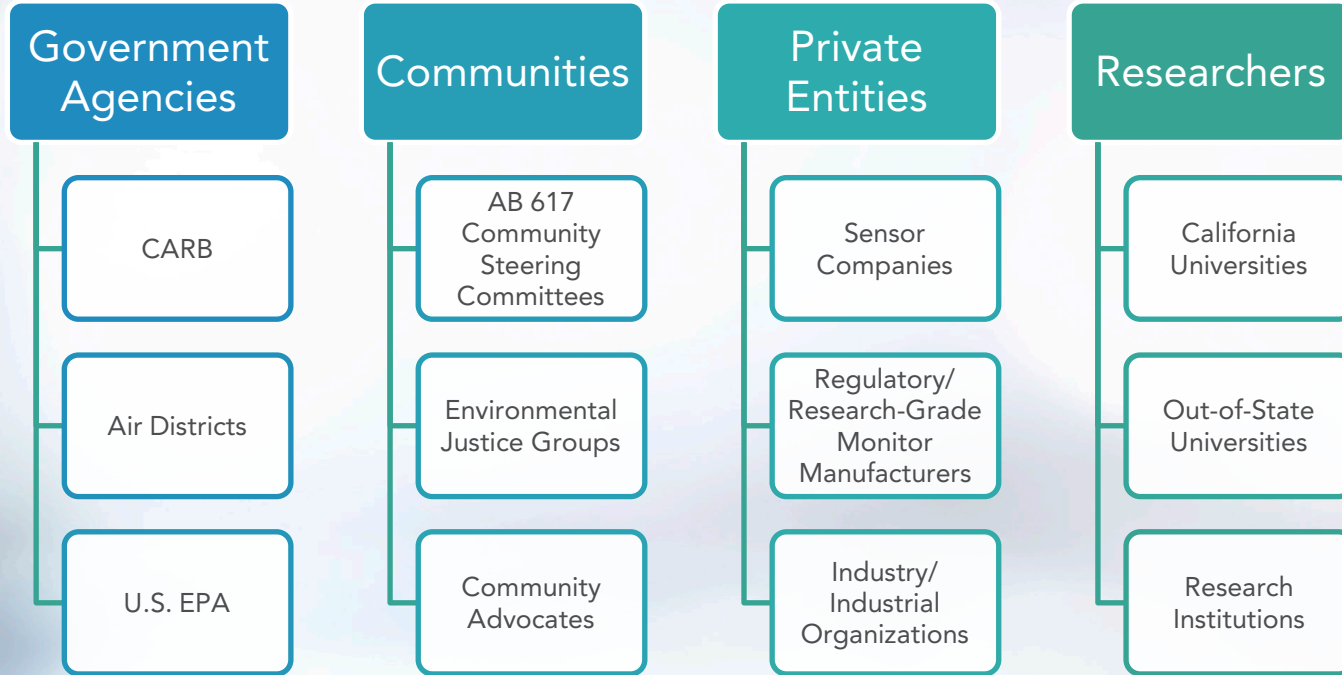


Inform current air quality and help make decision on outdoor activities

Show seasonal and time of day patterns, as well as long-term trends

Identify areas with high risks and potential impacting sources

Collaboration



And Many More!

Thank you!



Contact Us: aqview@arb.ca.gov

- Yanju Chen
- Eugene Kim
- Annemarie Flores
- Raiford Hann
- Emily Gorrie
- Taylor Helgestad
- Natalia Lopez

Visit: <https://aqview.arb.ca.gov>