



COMMUNITY AIR MONITORING WITH LOW-COST SENSORS

Comite Civico del Valle

COLLABORATORS



LOCAL

Imperial County based
community organization

CALIFORNIA
ENVIRONMENTAL
HEALTH TRACKING
PROGRAM

STATE

Coordinating partner at the
state level for the project



SCHOOL OF PUBLIC HEALTH
UNIVERSITY *of* WASHINGTON

ACADEMIC

Scientific integrity through
academic partnership in
developing open community-
driven data project

IMPERIAL COUNTY



- | Disadvantaged Communities
- | Disproportionately Affected Population
- | 84.3% Hispanic
- | 23.6% Poverty

COMMUNITY STEERING COMMITTEE (CSC)

Fifteen member group of community advocates and concerned residents in Imperial County



HAZARD MAPPING ACTIVITY



Mapping of key hazards of concern involving community members and their on-the-ground efforts; over thirty (30) participants.



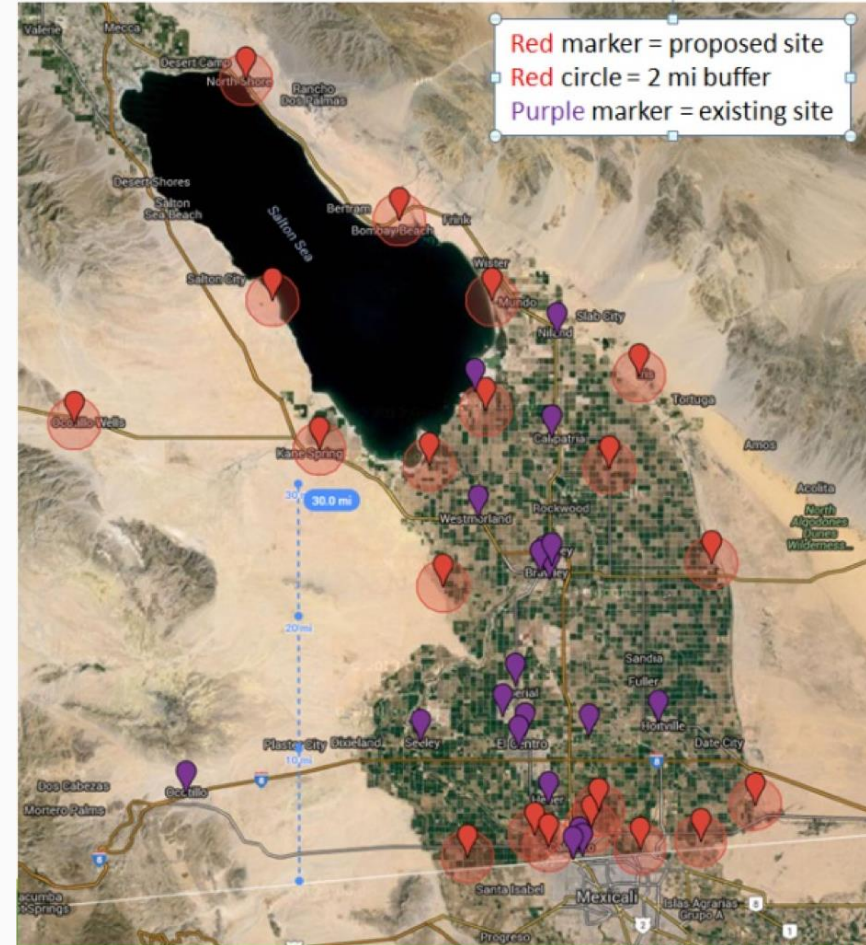
MONITOR DEPLOYMENT



20 – Community Concerns



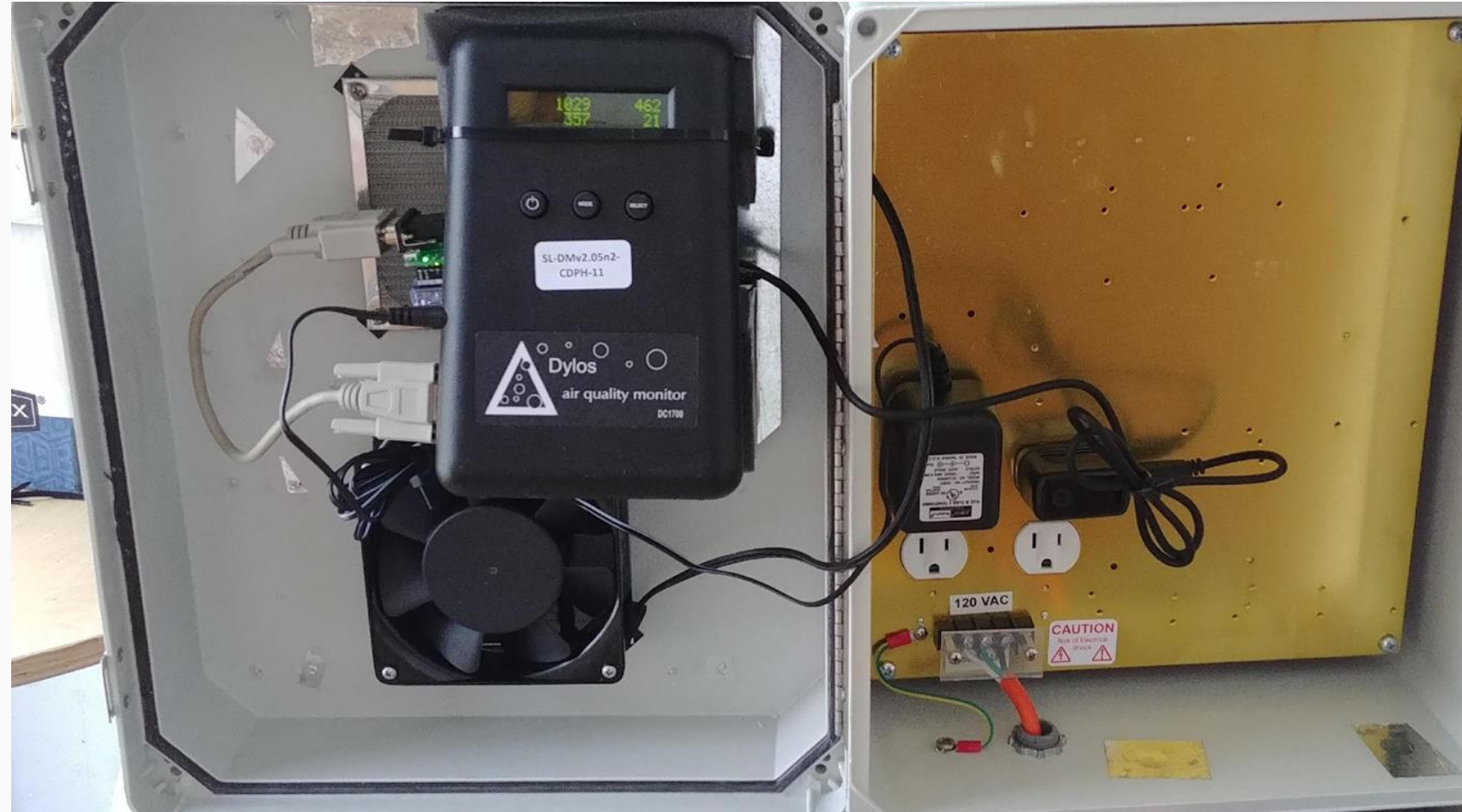
20 – Scientific Criteria



LOW-COST AIR QUALITY SENSORS



- | Dylos DC1700
- | Arduino
- | Network Access
- | Cloud Database
- | Public Web Portal



IVAN AIR DATAFLOW



Monitor

Sensors

Algorithm

SD Card

Network

Server

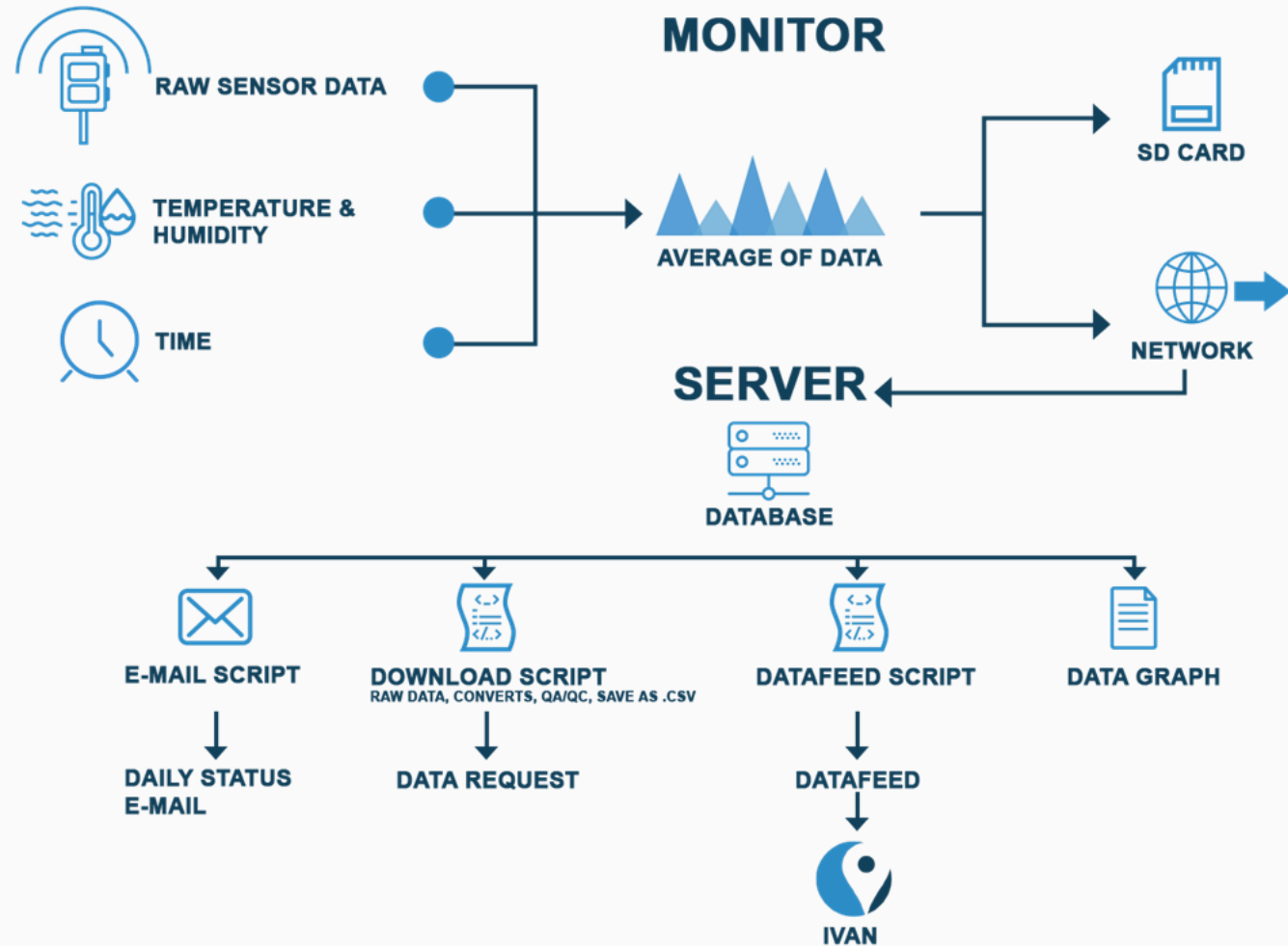
E-Mail Script

Downloader Script

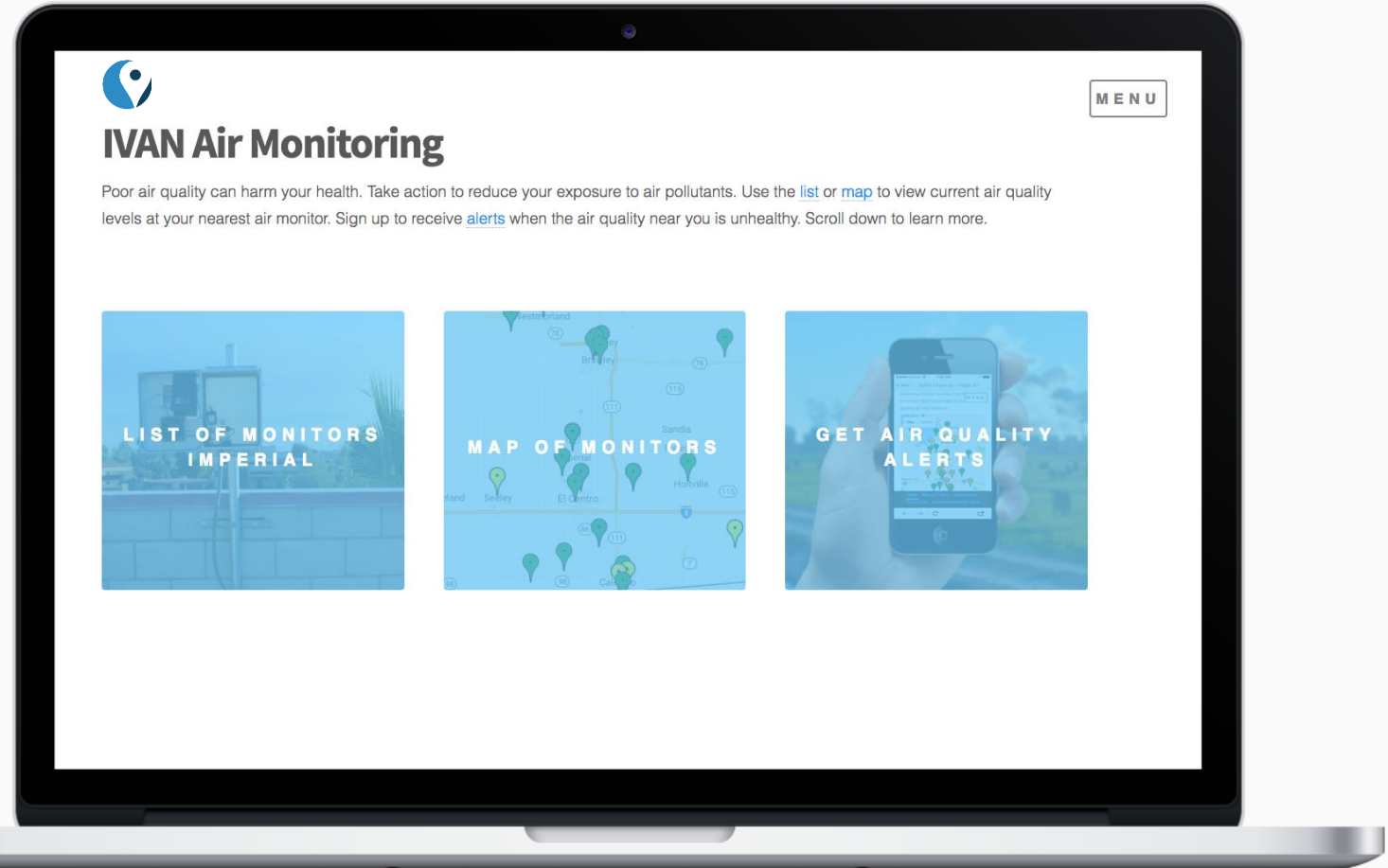
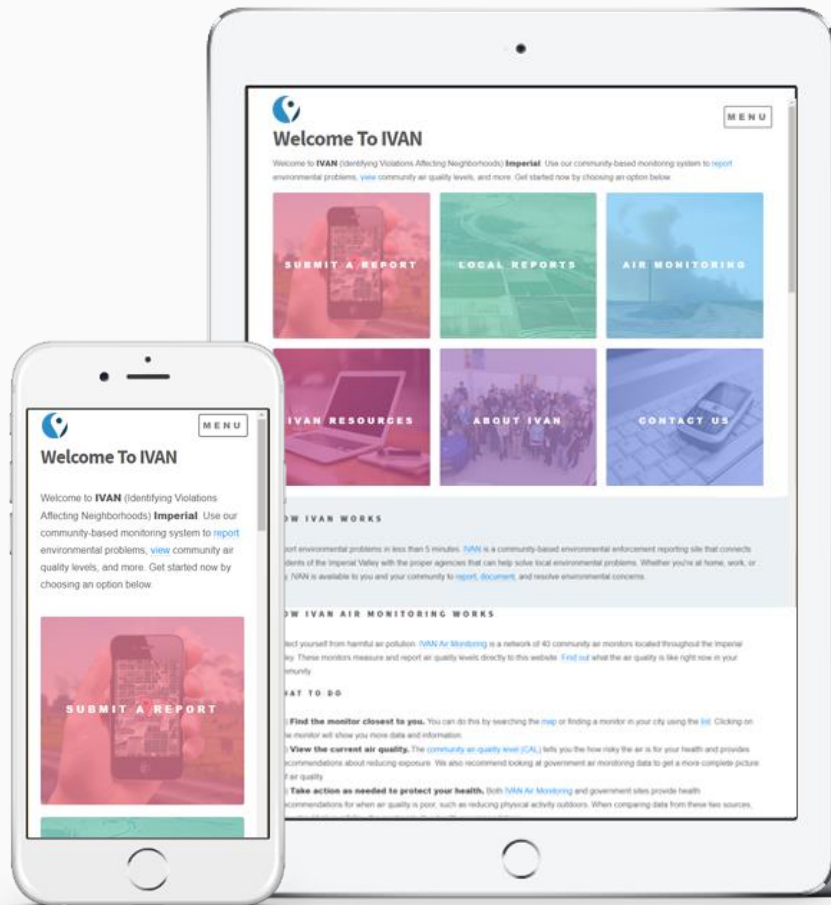
Data-feed Script

IVAN Air

Data-graph



IVAN AIR



COMMUNITY AIR-QUALITY LEVELS

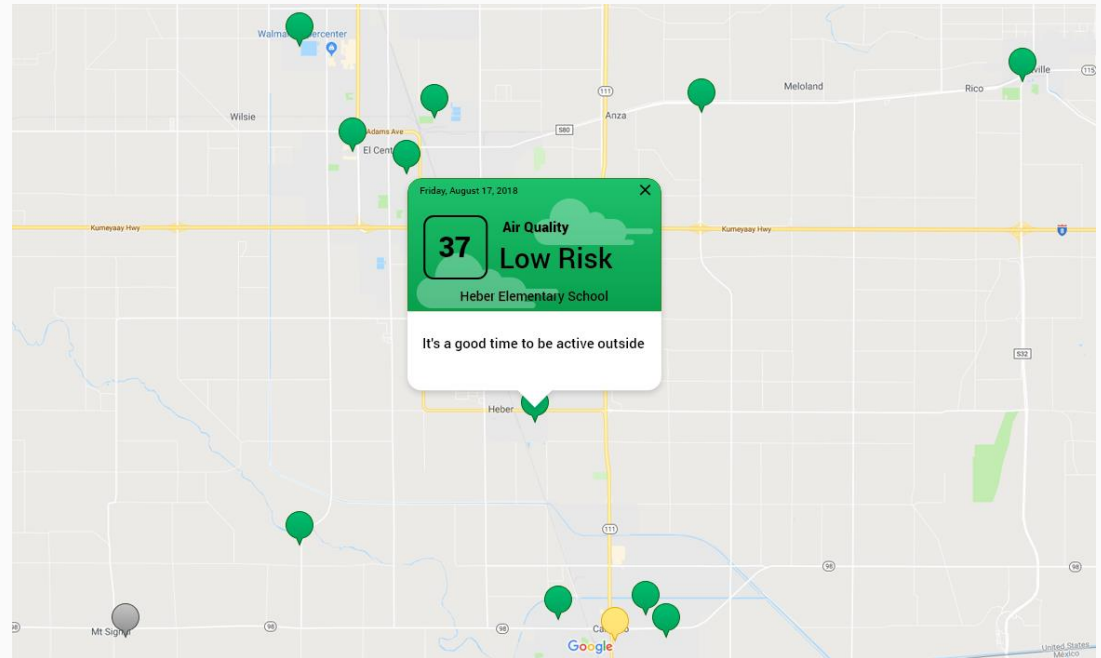


Community Air-Quality Levels (CALs)			
Number range	Category	Color	Health Recommendation
0-50	Low Risk	Green	It's good time to be active outside
51-100	Moderate	Yellow	If you are unusually sensitive to particle pollution, reduce physical activity outdoors. Watch for symptoms like coughing or breathing problems.
101-150	Unhealthy for Sensitive Groups	Orange	Sensitive groups should reduce physical activity outdoors. Watch out for symptoms like coughing, breathing problems, unusual heartbeat, or unusual fatigue.
Above 150	Unhealthy	Red	Avoid physical activity outdoors.

IVAN AIR - MONITORS



City/Area	Location	Community Air-Quality Level (CAL)
Holtville Area	Miller Road and Verde School Road	169
Holtville	Holtville High School	76
Calipatria Area	E Yocum Road and West Road	60
Calipatria	Calipatria Unified School District	57
Calipatria	Calipatria East	55
Near Holtville	Mets Road and West Heber Road	33
Niland	Grace Smith Elementary School	26
Imperial	TL Waggoner Elementary School	21
Calxico Area	Ferrell Road and Kubler Road	21
Brawley	North 11th Street and River Drive	20
Heber	Heber Elementary School	19
Westmorland Area	Andre Road and Pellett Road	19
Avenal, CA	Stratford Ave & E Lassen St	19
Calxico	Encinas Ave and Ethel Street	18



COMMUNITY MONITOR LOCATIONS



Brawley Union High School

First installation



Calipatria high school

Community partner location



CARB Station (Calexico)

Co-located with regulatory monitor

AIR QUALITY NOTIFICATION SYSTEM



Get Air Quality Alerts

Get email alerts when air quality near you is unhealthy. Sign up below

Email *

Which monitors do you want alerts for? Select up to 3 monitors *

At which air quality level do you want to receive alerts? When the air quality reaches: *

Select air quality level

TELL US ABOUT YOURSELF

Where do you currently get information about the air quality in Imperial County? (Select all that apply) *

(Select all that apply)

How often do you access information about air quality in Imperial County? *

Select ...

Do you know what to do to protect your health when air quality is poor? *

Select ...

How likely are you to take action to reduce your exposure to air pollution when air quality is poor? *

MENU

ivan-imperial.org

Map Satellite

MENU

Map About CALs Disclaimer
More info Government air data
Report an air problem

Imperial Valley Air Quality Alert

Niland - English Road

Saturday, December 17 - 1:00 AM

PM2.5 AQI 151-200 People with respiratory or heart disease, the elderly, and children are the groups most at risk, especially when they are physically active. Persons with cardiopulmonary disease and the elderly may experience increased aggravation of heart or lung disease and premature mortality. The general population may experience increased respiratory effects. U.S. EPA cautions that "people with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion." "Prolonged" generally means four or more hours with short rest periods. "Heavy exertion" is that which would increase the resting breathing rate four fold or greater. You can reduce exposure to particulate material by - Reducing the intensity and duration of your outdoor activities - Postponing outdoor activities to days when particulate levels are lower

Current Maximum AQI for Other Imperial Valley Cities

Calexico - Ethel Street: **Unhealthy** (PM2.5)

To change your AirAlert subscription, go to <http://www.imperialvalleyair.org/airalert.cfm>

DEMOCRATIZED DATA



IVAN Air driving forward movement of democratizing air quality data in a community-driven manner

Community model differs from privatized-data and government regulatory structures

GETTING INVOLVED

1. How can I become involved in IVAN Air Monitoring? +
2. How can I get a monitor set up near me? +
3. How can I sponsor a monitor? +

ABOUT THE DATA

1. What kind of air quality data can I get here? +
2. Are these data validated? +
3. What can I do with this information? +
4. What does it mean if the data are different from government data? +
5. Can I get the raw data from the monitors? +
6. Where can I get other air quality data for Imperial County? +
7. What are Community Air-Quality Levels (CALs)? +
8. Can I compare Community Air-Quality Levels (CALs) to the Air Quality Index (AQI)? +
9. How are the data produced? +
10. What does it mean if a monitor is offline? +

Thank You!

Luis Olmedo, Executive

Director

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www.IVANair.org