

Introduction to Community Air monitoring South Kern.



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CENTRAL CALIFORNIA
ENVIRONMENTAL JUSTICE NETWORK

Outline

- CCEJN: Mission & Vision
- Introduction to Community Air Monitoring Network
- Planning for CAMN
- Sensor & Monitors
- Using & Sustaining the Network

CCEJN Background

Vision

TO END ENVIRONMENTAL RACISM, ACHIEVE ECONOMIC JUSTICE, AND HEALTH EQUITY THROUGH SUSTAINABLE REGIONAL SOLUTIONS.

Mission Statement

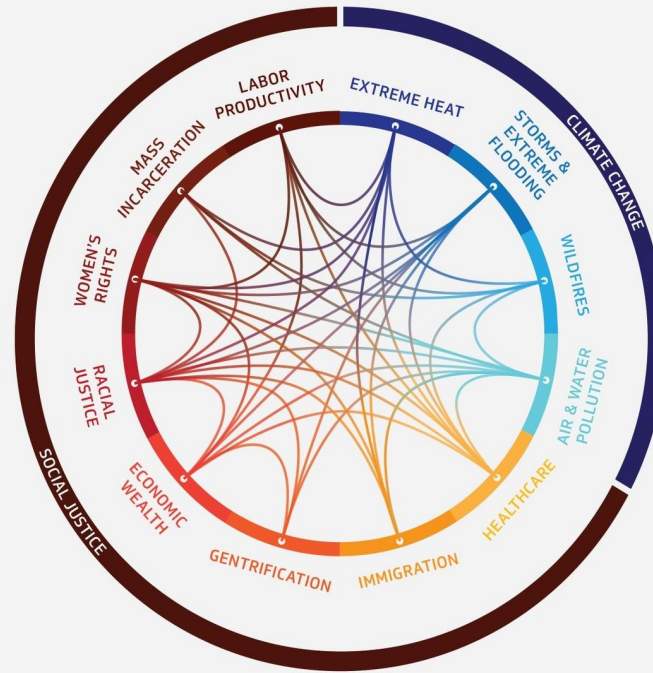
To empower our communities and secure our children's future by eliminating negative environmental impacts in low-income and communities of color

Major Programs:

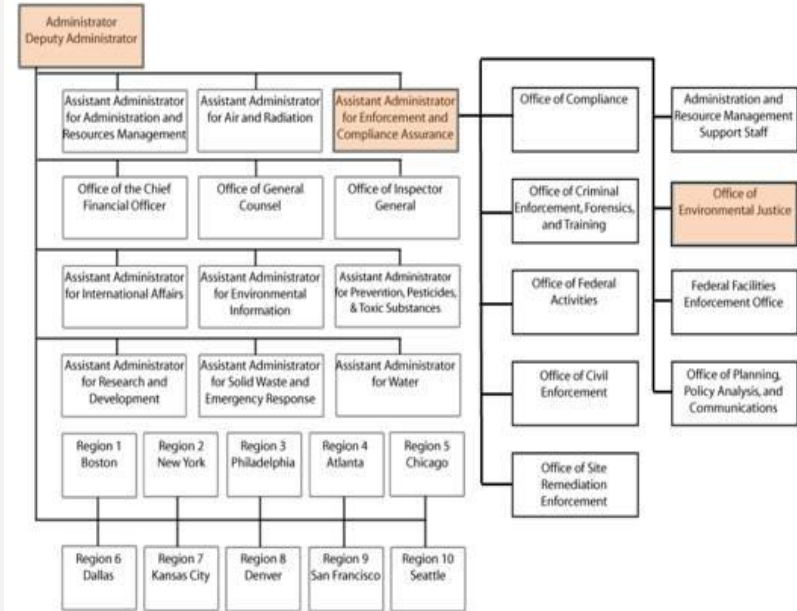
- IVAN Reporting Fresno & Kern
- Community Science Projects: Air monitoring, Ground truthing, Pollution logs.
- Pesticides & Oil and Gas Policy/Organizing/Advocacy work
- Youth Education Programs



CLIMATE JUSTICE IS SOCIAL JUSTICE



EPA Organizational Chart



Introduction to Community Air Monitoring- CCEJN

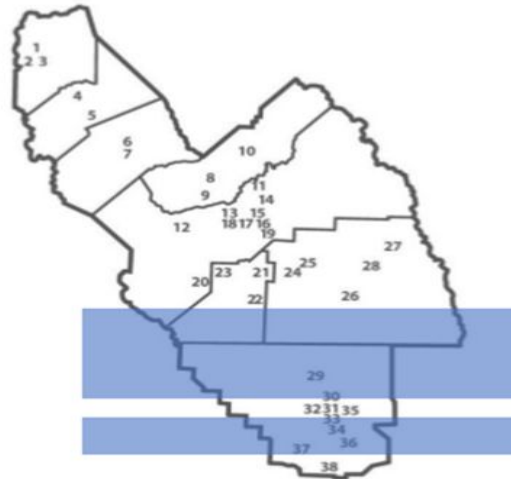
- 1.) How does it start? Using the lens of Community Science & Ground truthing in community organizing, residents start raising questions, creating pollution logs, and data collection via IVAN online.
- 2.) Using regulatory databases & mapping tools, understand the Source of Pollution in local communities.
- 3.) Use data collect to create change.

Planning for Community Air Monitoring Network – CCEJN

- Understanding CAMN's & their benefits was the beginning. We worked with partners who have pioneered these work. (CCV, WOIP, Long Beach Port communities, etc.)
- Community level monitoring & data collection using low-cost sensor vs regional averages using reference monitors (Gov & research) Pros & Cons.
- *Goals:* To collect data in locations where there is no monitoring & where there are high number of polluting permitted facilities. We additional ground truth, collect pollution logs, participate in walking & mapping sources of pollution exercise to create a community profile giving us a snapshot of what is needed to track and monitor.
- Getting to know the sources of pollution, what they release, how much, and what emission pollute these communities are some of the factors on planning a CAMN.



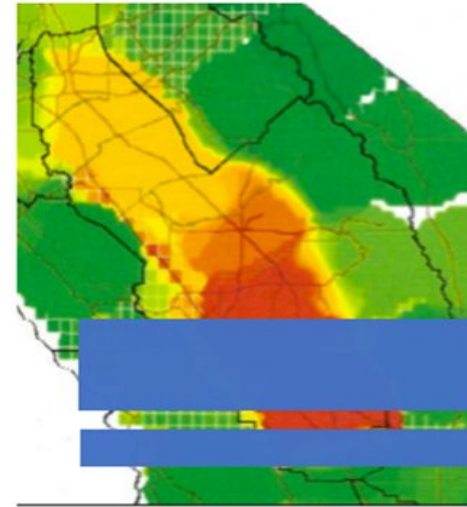
PM2.5 Monitoring Needs in the San Joaquin Valley



As of July 2017

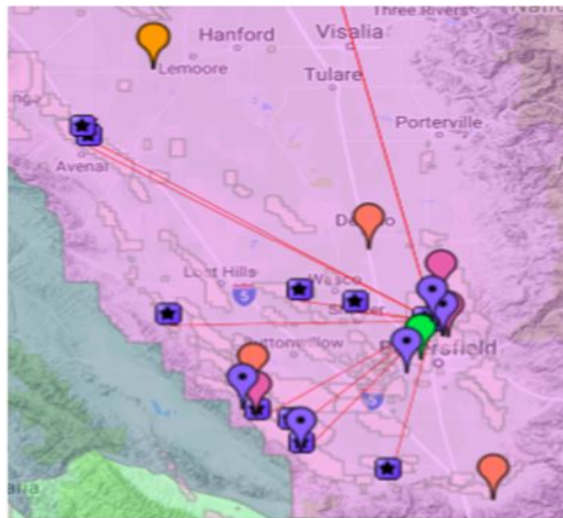
Blue boxes represent areas where there are no PM2.5 monitors

Source of underlying map: SJVUAPCD Draft 2017 Air Monitoring Network Plan



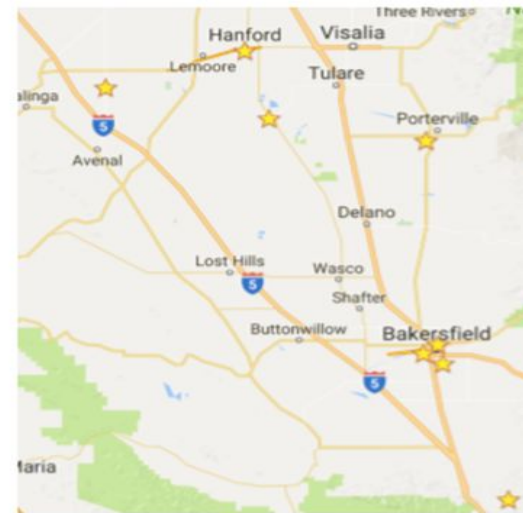
Map of highest concentrations of PM2.5

Source of underlying map: CARB Workshop, Meeting PM2.5 Standards in the San Joaquin Valley, Fresno, California, December 1, 2016



Largest stationary sources of PM2.5 pollution
(purple markers represent oil and gas facilities)

Source: CARB Pollution Mapping Tool (ver 1.1)



Location of PM2.5 Monitors

Sources: SJVUAPCD Draft 2017 Air Monitoring Network Plan and Google Maps

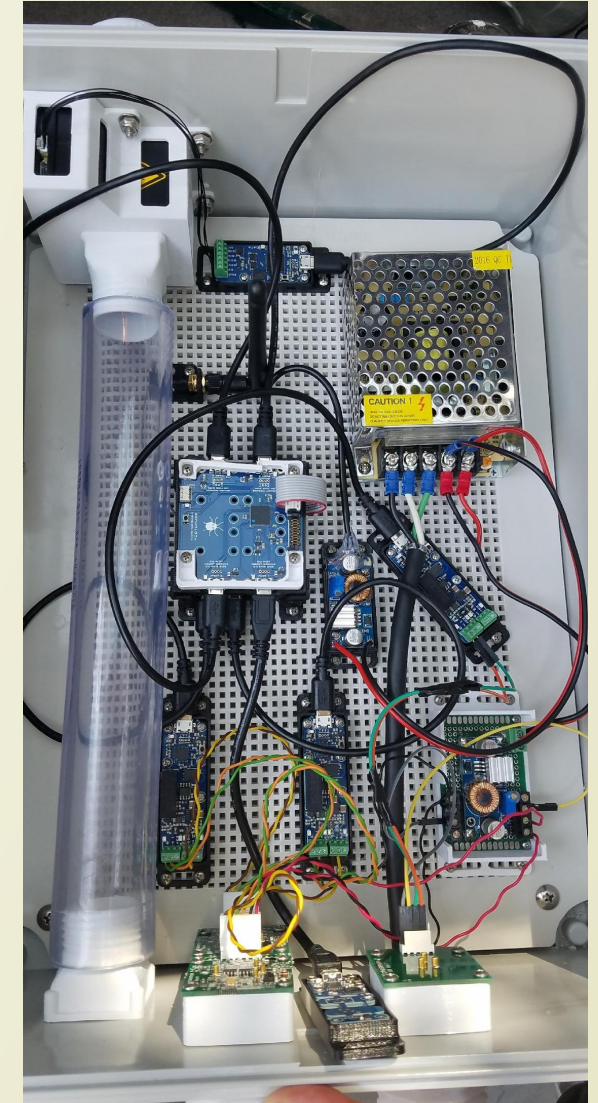
Getting to know the sources of pollution, where regulatory monitors already are placed, and where there is a need for monitors were all parts of the methodology we used to place monitors and how the community could participate in the process.


This is one example.

Credit: CVAQ

Planning CAMN cont. – CCEJN

- Our main audience were the regulatory agencies & impacted community members interested in local data collection
- CCEJN staff was always involved in the education & training of residents across Kern & Fresno on local air quality and monitoring protocols.
- A community created plan was always created before any sensor were deployed.





Why does
community
air monitoring
work and
how to utilize
the data to
create action

- Spectrum of Community Science
- 1) Raise a question about community pollution
- 2) Identify sources of Pollution using grassroots and permit data experts
- 3) Get to know the pollution sources and why air pollution is bad for public health
- 4) Learn to navigate the regulatory process to get informed (IVAN-Kern)
- 5) Gather data using walking tours, pollution logs, reporting incidents, and inspector level data
- 6) Obtain enforcement level data to expedite the process and transparency
- 7) Advocate for change.

Sensors & Monitors

- Once there is a good understanding of the functions of a CAMN, you have build your plan and team, the next step is to identify what sensors and monitors are best for your community.
- In Kern County, Oil & Gas and Agriculture are some of the largest sources of pollution and are most often located fence line to disadvantage, rural communities. For use, VOC's, PM 2.5 and Methane (BTEX) were our primary concern
- Grab samples (VOC's), Dylos PM 2.5, Purple Air, Methane Pods, and Custom Multi-sensor monitors have been used by CCEJN





Sensors & Monitors: Pros and Cons

- 1) it is important to know what you are monitoring for, for ex: are you interested in ambient air quality, in PM 2.5 concentrations, in Diesel/Black Carbon pollution, in methane leaks in oilfields near homes or H2S release from landfills and composting facilities.
- 2) The great thing about stand alone (single pollutant) monitors is that they might capture better data
- 3) The advantage of using custom or multimedia monitors is that you are able to pick and choose which sensors to use and why.

Arvin Air Quality Project.

ARVIN, CA – Among the Worst Air Pollution in the USA

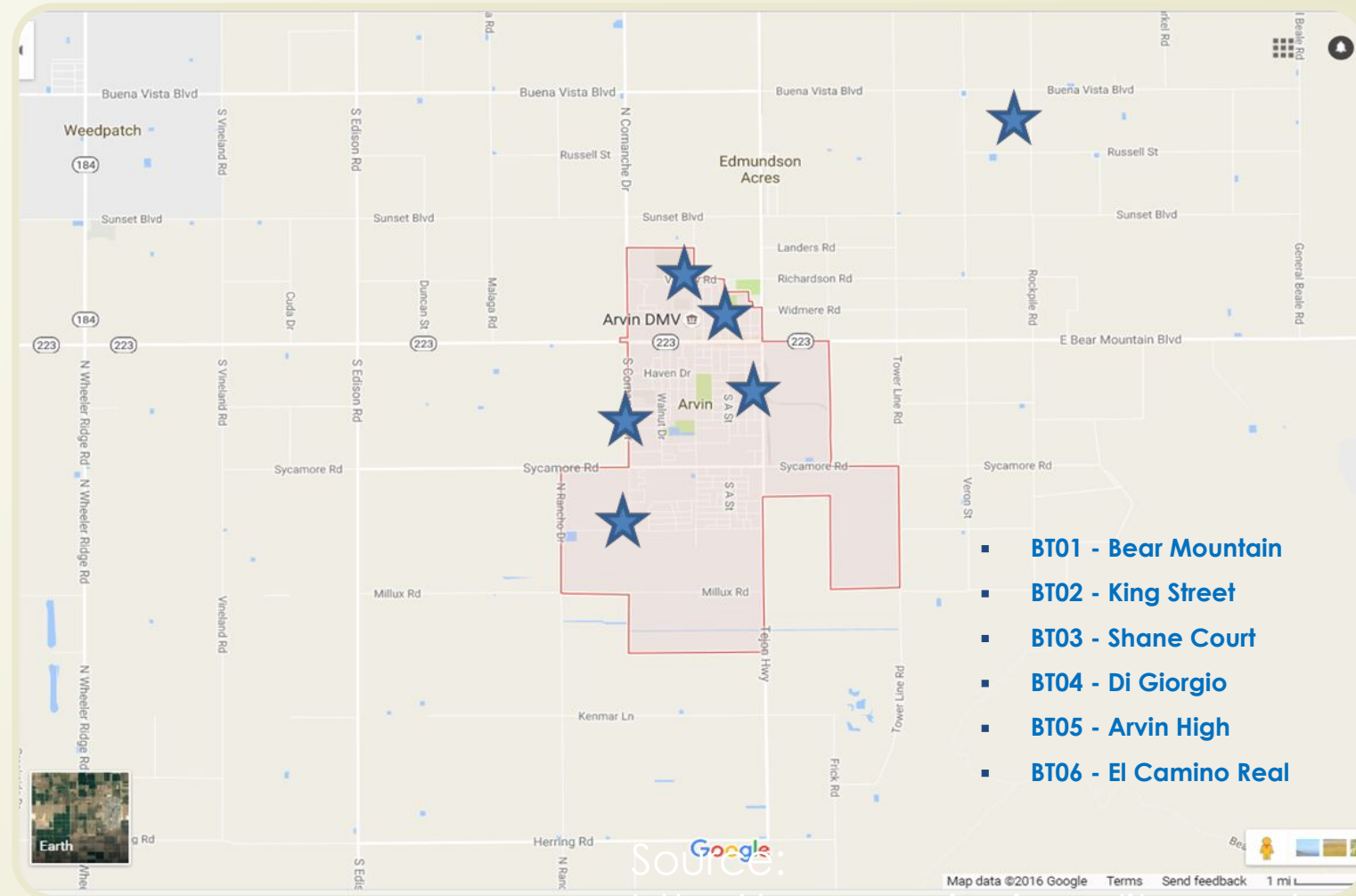
SOURCES OF AIR POLLUTION:

* Oil Field & Industrial Operations

* Pipeline & Storage Tank Leaks

* Agricultural Pollutants
– Pesticides, Herbicides, Fungicides, etc.

* Vehicle Emissions:
Passenger & Diesel Pollution



Source: <http://www.arvinairquality.com/>

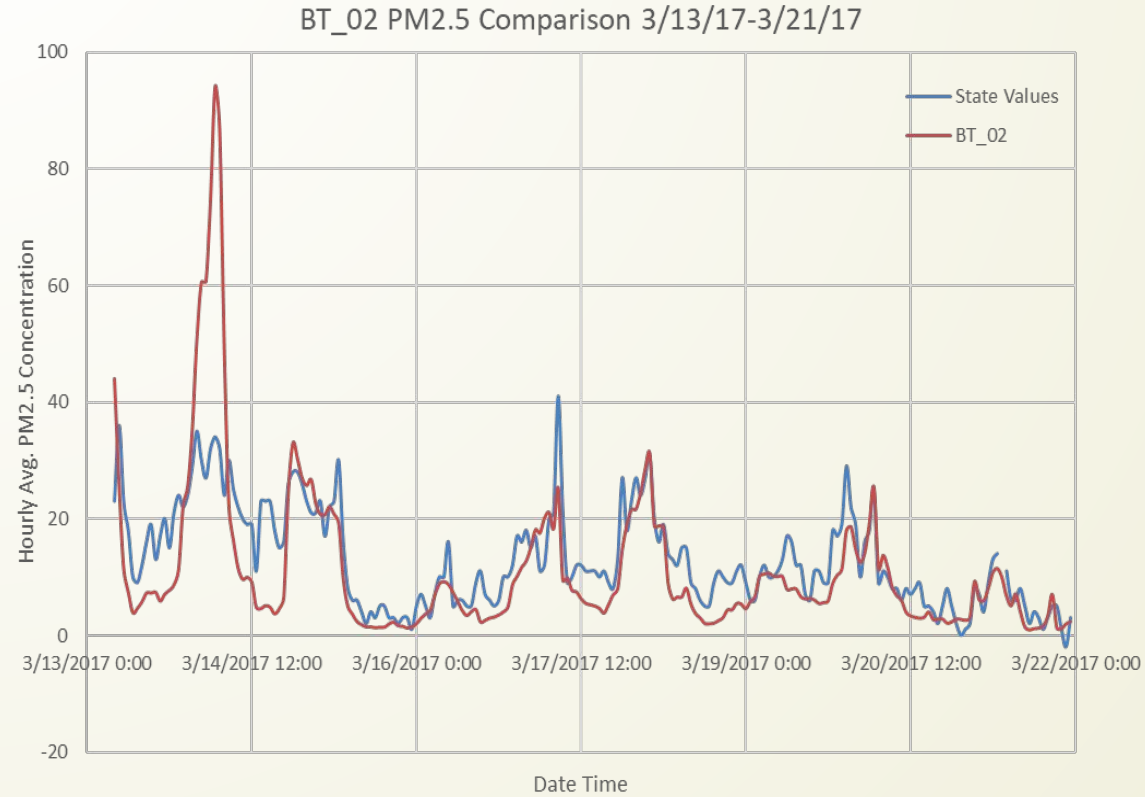
Source: <https://siteportal.calepa.ca.gov/nsite/>;

[http://bakersfieldnow.com/news/local/state-fines-bakersfield-company-75k-for-gas-leak-that-displaced-arvin-families](http://bakersfieldnow.com/news/local/state-fines-bakersfield-company-75k-for-gas-leak-that-displaced-arvin-families;);

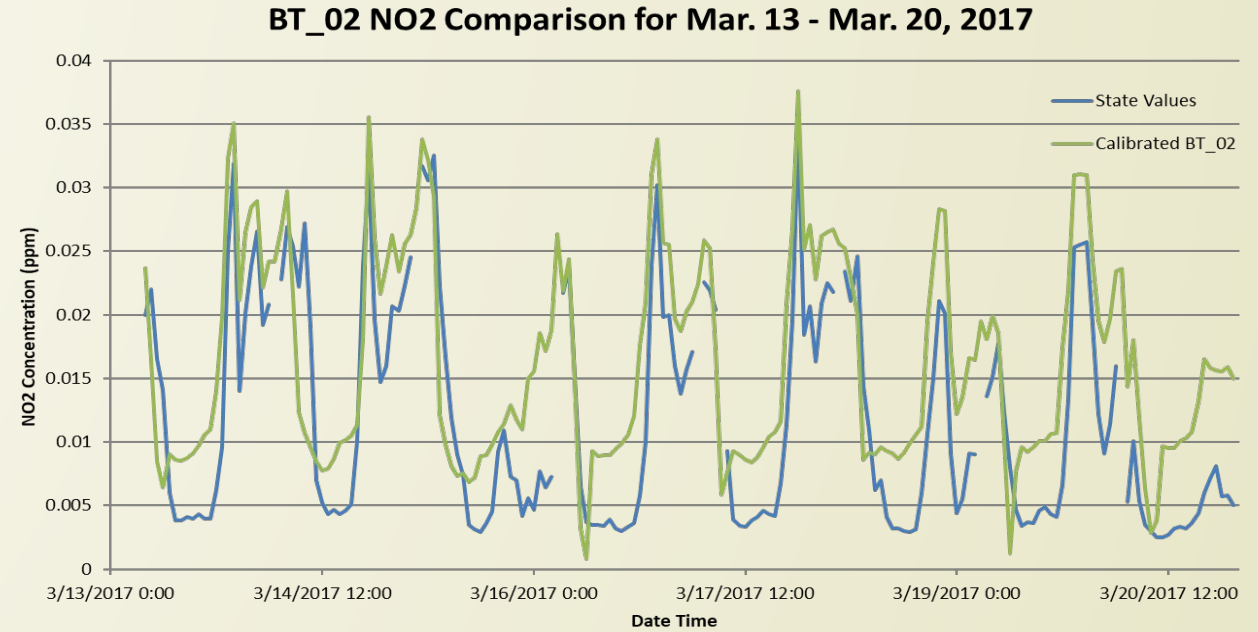
http://www.cdpr.ca.gov/docs/emon/airinit/op_recommendation_final.pdf;

http://www.lung.org/local-content/california/documents/state-of-the-air/2017/sota-2017_ca_san-ioaquin-fact.pdf;

Some results collected from 2014 - 2020

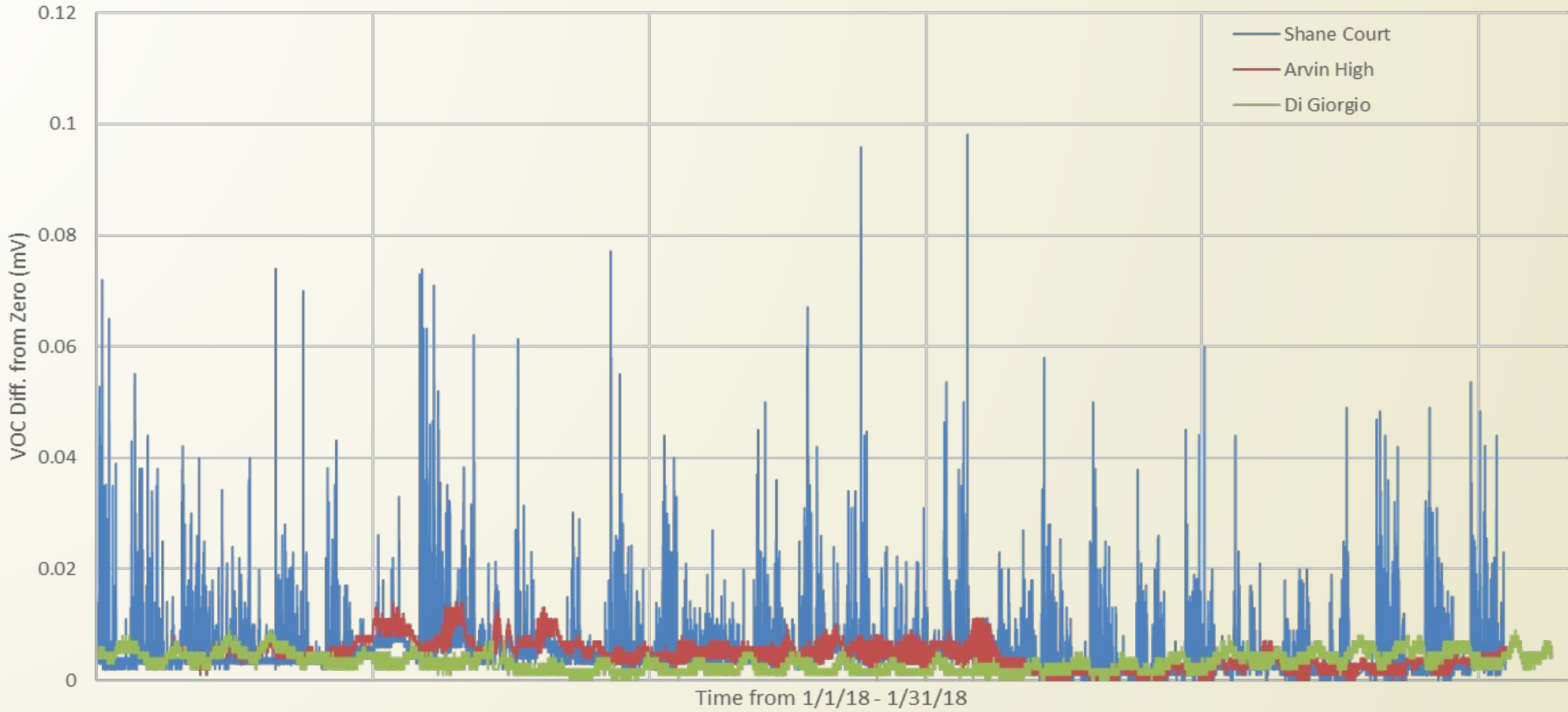


Uncalibrated PM2.5 results from King St. monitor (BT_02) during collocation at CARB Bakersfield monitoring station



Comparison of calibrated nitrogen dioxide results from King St. monitor (BT_02) and CARB Bakersfield monitoring station

VOC Change Comparison 1/1/18-1/31/18



The Shane Court site is located ~10 ft. from an oil platform and a gas tank that may be releasing VOCs. This may explain the large spikes detected by the monitor.



Advocating for change

- By engaging in Community Air Monitoring and Community Science, CCEJN was able to support and assist community leaders in Arvin to build a community profile around sources of pollution and the importance of advocating for change with air monitoring.
- Victory: 300 ft buffer on all new O&G wells in Arvin. 1st step to a statewide setback on the polluting O&G industry



Thank you!

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