Overview of an Innovative Community Air Monitoring Program in the SF Bay Area

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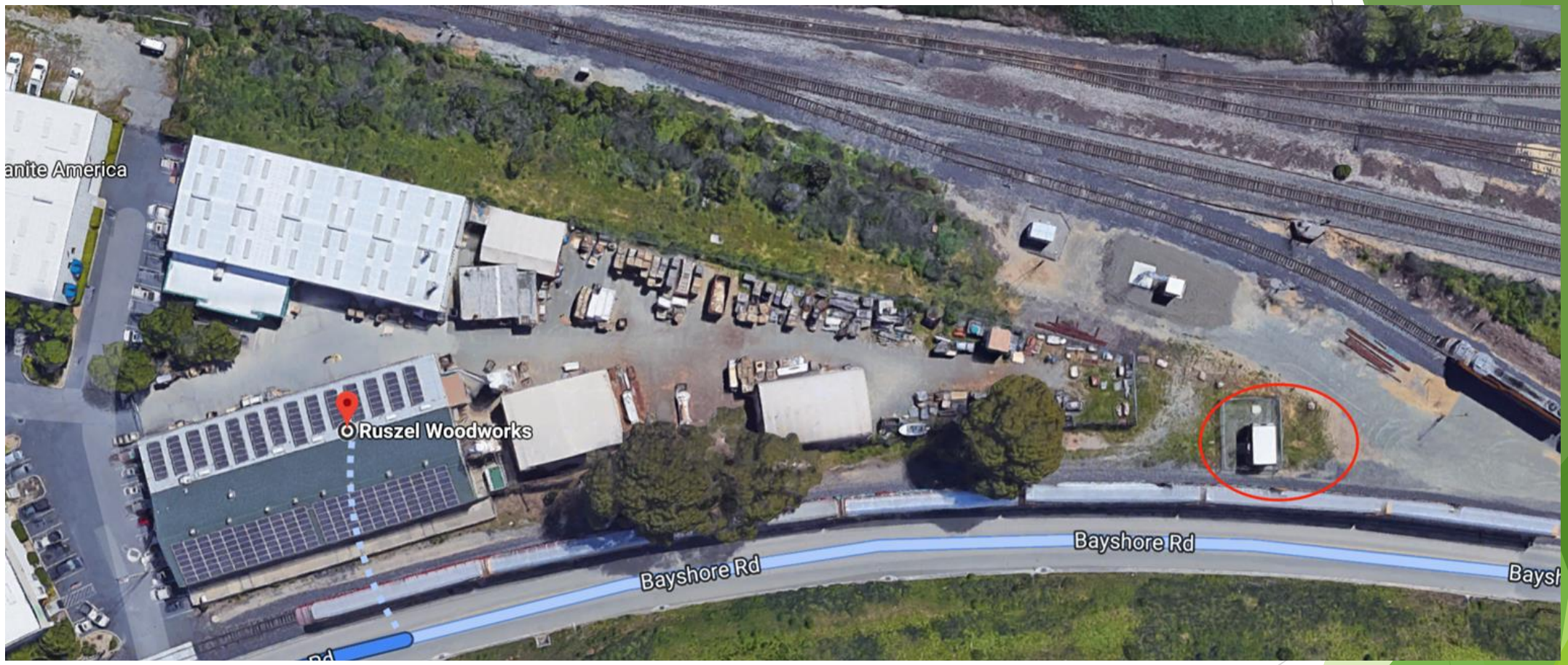
https://www.fenceline.org/bcamp/

Our Location

BCAMP: Operational in 2022

- Site: Vacant communications building on Ruszel Woodworks Property
- Contractor: Argos Scientific Inc. https://www.argos-sci.com/
  - Argos expertise and experience has been key to the success of BCAMP
- Equipment included: meteorological instruments and an array of state-of-the-art air monitoring instrumentation
- BCAMP is an independently operated 501(c)3

Location



Ideal location: Close to highway, railroad, refinery/asphalt plant, and port

BCAMP Basics

- Purpose:
  - to independently operate air monitoring
  - to measure local ambient air quality in real time and archive and report data collected
  - to provide education
  - to operate a public access website

Air Monitoring Equipment

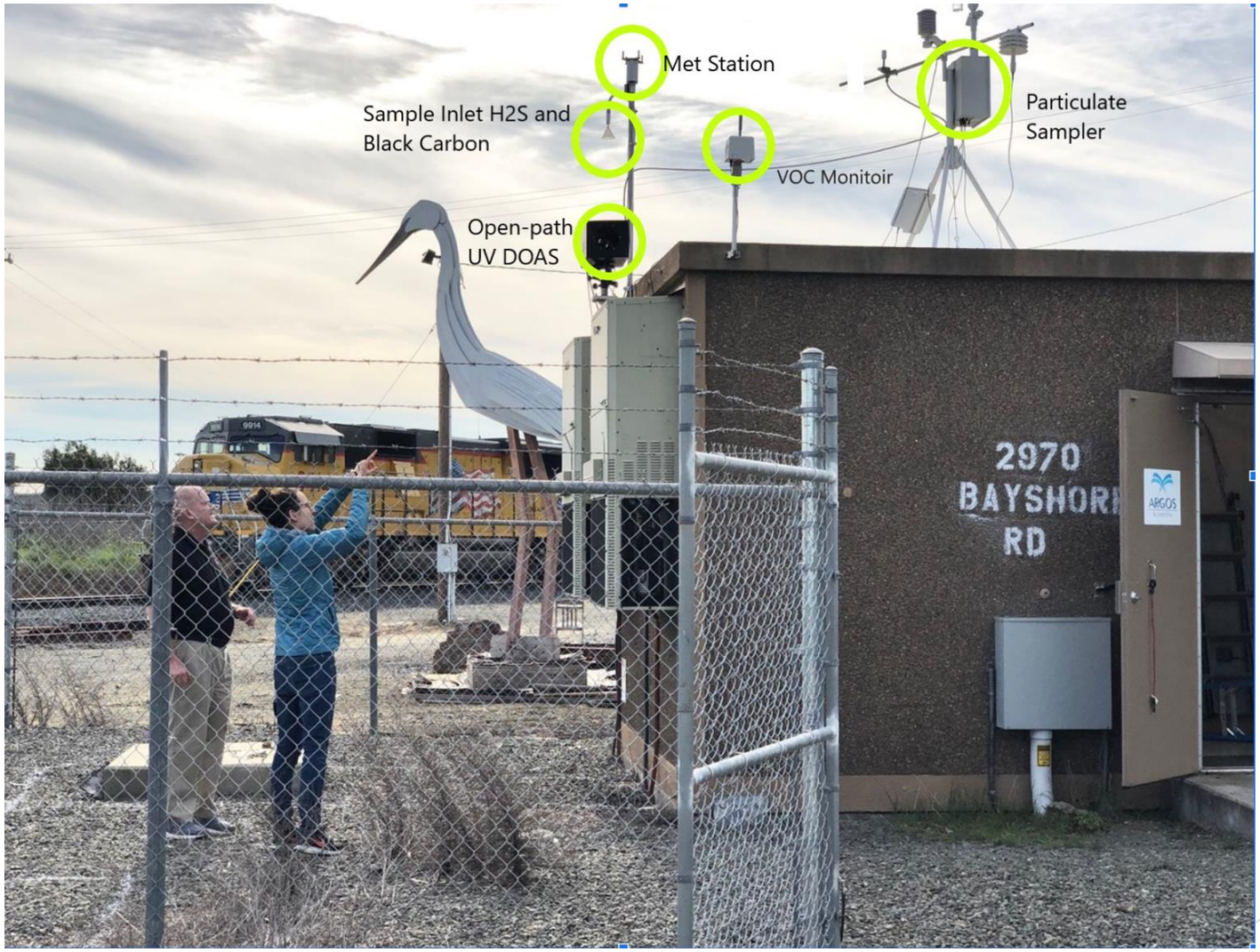
Testing for:	Equipment Type	Minimum Detection Limit	Vendor
Benzene	Open-path UV	3 ppb	Argos Scientific
Toluene	Open-path UV	2.5 ppb	Argos Scientific
Xylene	Open-path UV	2.5 ppb	Argos Scientific
Sulfur Dioxide	Open-path UV	30 ppb	Argos Scientific
Hydrogen Sulfide	Point Monitor	2 ppb	Teledyne API
Black Carbon	Point Monitor	0.05 microgram / m3	Magee Scientific
Particulate Matter: 10, 2.5, & 1 micron	Point Monitor	5 micrograms / m3	South Coast Sciences
Ozone	Point Monitor	10 ppb	2BTech
Wind Speed/Direction, Temperature and Pressure	Anemometer		RMYoung, and MetOne

Equipment Selection and Operation

- Equipment is commonly used by regulatory agencies
- Systems are operated based on regulatory guidances (BAAQMD Regulation 12 Rule 15)
- Monthly calibration checks performed NIST traceable gas standards

The net result is legally defensible credible data!!

Our station


Met Station
Sample Inlet H2S and
Black Carbon
Particulate
Sampler
VOC Monitoir
Open-path
UV DOAS
2970
BAYSHORE
RD
ARGOS

Ocean Insight

Summary: BCAMP is an information resource for the benefit of the community

- Data provided used by the community and by researchers to:
  - Help locate high emission sources
  - Ascertain the impact of wildfire smoke
  - Aid emergency responders in the event of a release event
  - And…..so much more
- Data is even more valuable when used in combination with a network of monitoring stations in the area

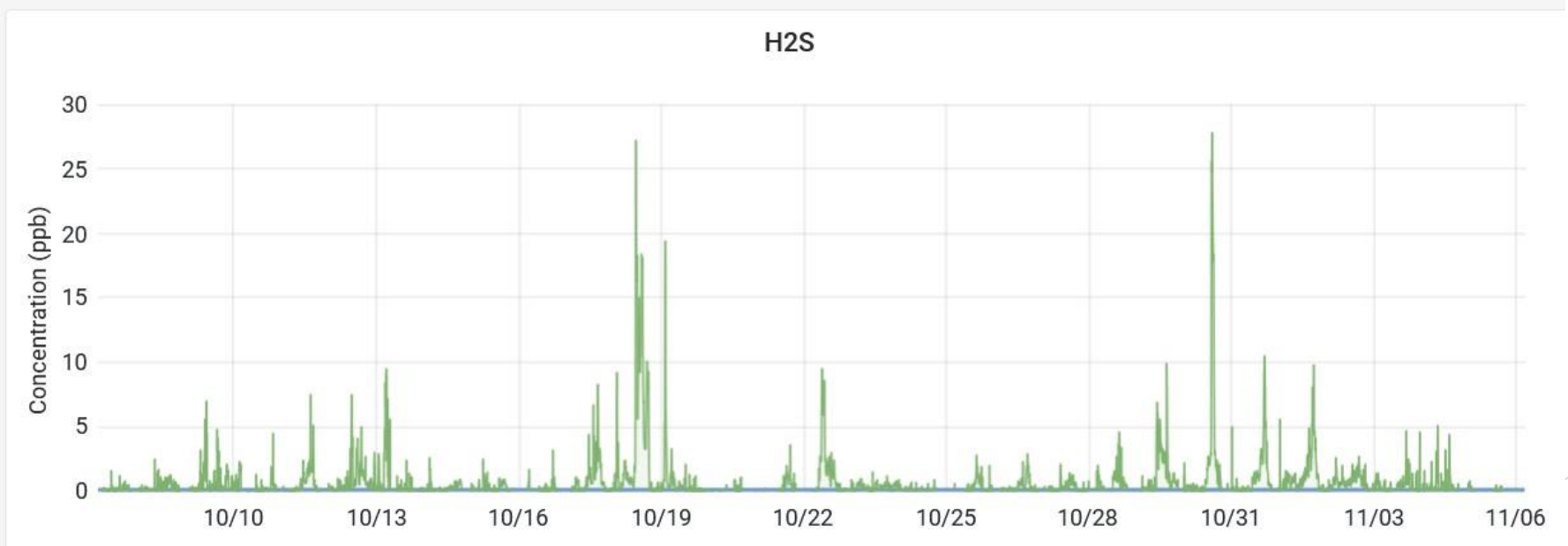
Two example of how BCAMP data has benefited the community

Example 1 - Detecting H_2S and identifying the emission source

Example 2 - Validating real time fenceline data at a refinery

Example 1
H_2S and wind graph

The BCAMP air monitoring systems are set to report data continuously. But looking at the historical data helps in identifying pollution sources.

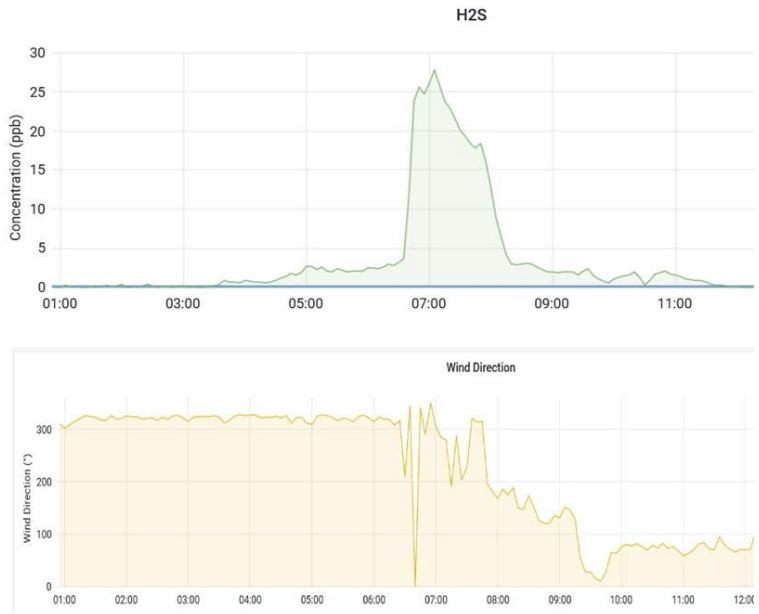


Example 1
H_2S and wind graph

In this example, we were able to trace back the H_2S detection on October 31, 2023 to the local refinery which is located north of the BCAMP Monitoring Station

Data Source - Valero Refinery Real-time Fenceline

Data Source - BCAMP Community Air Monitoring Station



Example 1 - H_2S Detection and Source Identification

- The H_2S detection at the BCAMP Station was:
  - Above odor thresholds
  - Above Community Action levels
  - Based on Met Data wind was coming from the northwest

- At the same time as the detect the Valero Monitoring Stations:
  - Showed detection of H_2S from their southern point monitoring station
- The BCAMP data shows the migration of the H_2S plume from the refinery into the community

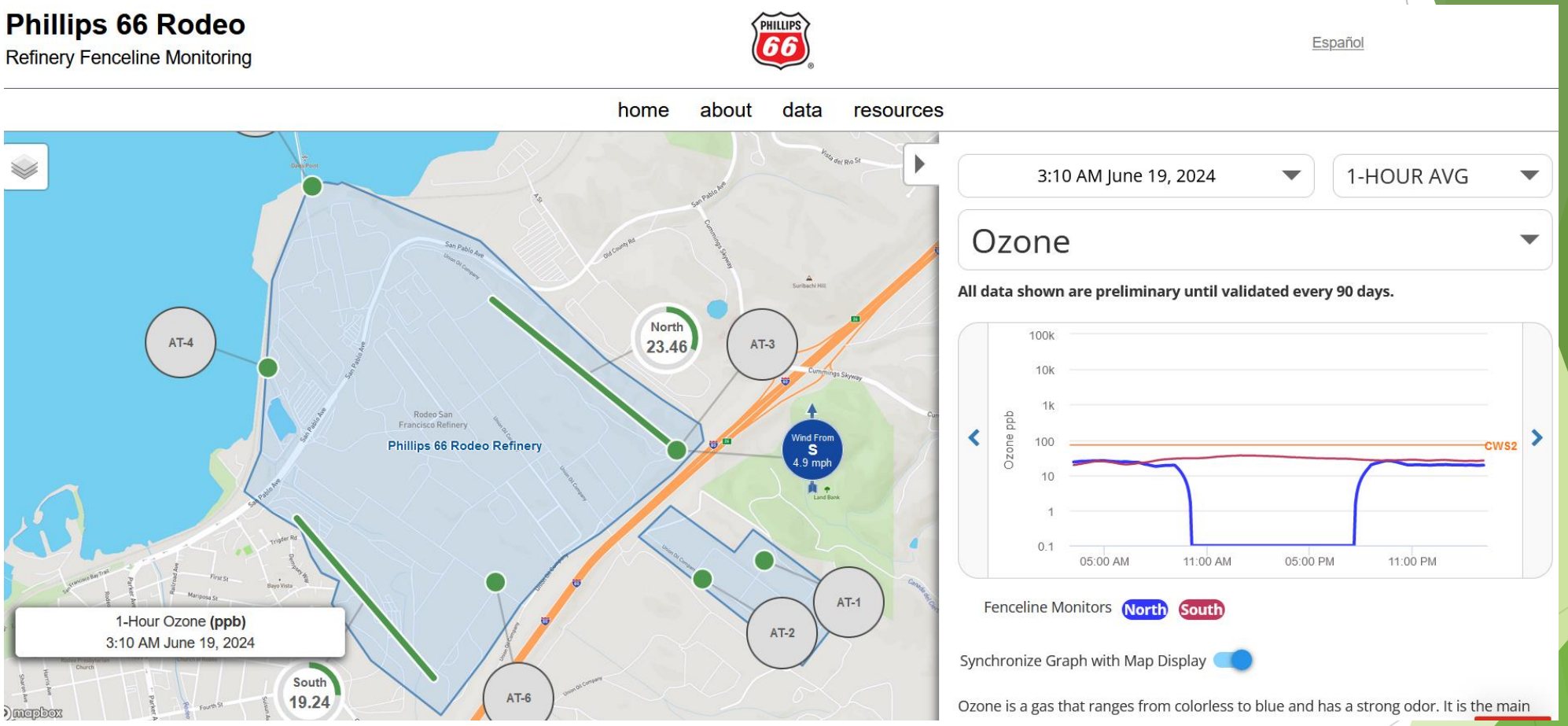
Example 2 - checking accuracy of refinery data

- Local EJ community concerned about real-time fenceline data being reported at local refinery
- BCAMP worked with subject matter experts to review data
- It was determined that some of reported gases on the refinery fenceline system made no sense.
- Example - Ozone readings were zero during the afternoon hours even though it is well known that ozone is almost always present in the Bay Area during these time periods.
- Data from refinery air monitoring program that is under BAAQMD Regulation 12 Rule 15 was thrown into question.

BCAMP's Assistance to the EJ Community

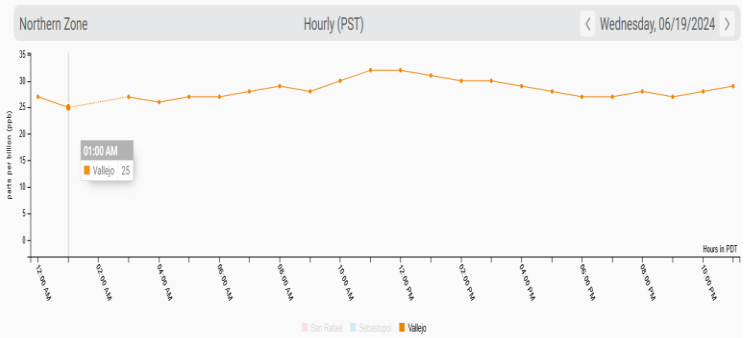
- BCAMP responded by installing a Federal Equivalent Method Ozone monitoring station at a community member's home near the refinery
- Set up a website to demonstrate to the community the actual ozone concentrations in the air
- The results of the BCAMP monitor trend the local air monitoring stations operated by the BAAQMD
- The refinery fence-line systems do not

Example of Community Benefit

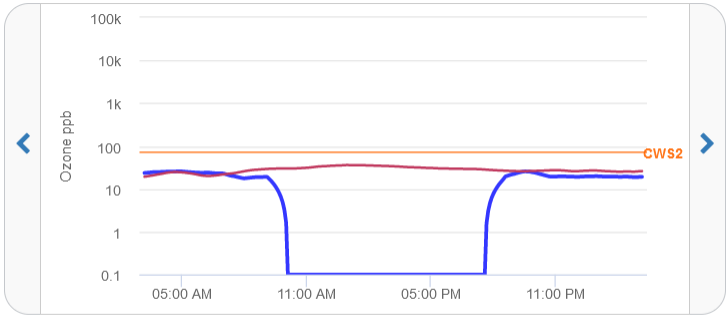


This example shows the ozone being reported by the refinery in the EJ community. Note that during a period of this time, the north fenceline system failed to report data.

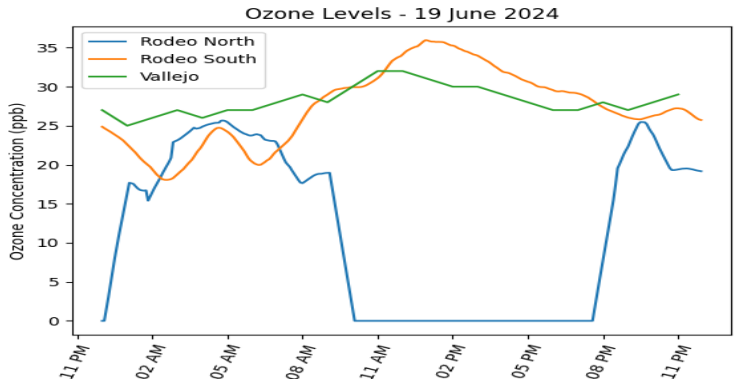
Comparison of readings



Source - BAAQMD



Fenceline Monitors North South



Source – P66 Rodeo Refinery

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&
BAAQMD

Community Benefits of BCAMP

- Community has a resource they can trust
- The Bay Area Air Quality Management District(BAAQMD) are now much more focused on air quality monitoring in Benicia
- System design has allowed BCAMP to support other EJ communities in the refinery corridor
- We have become a better advocate - ripple effect. We mobilize other EJ community members to advocate for better monitoring, regulations and enforcement

Community Benefits of BCAMP

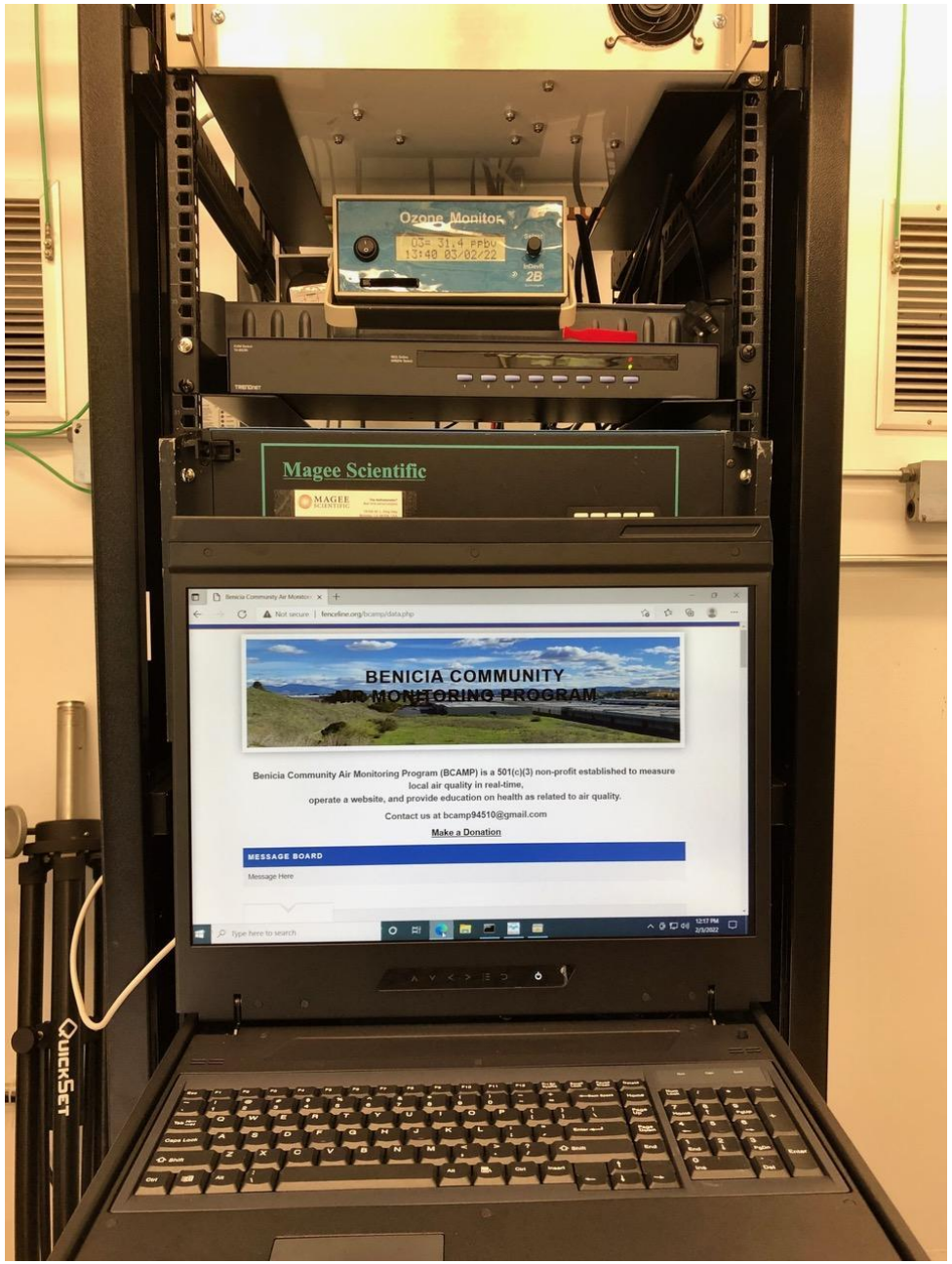
- Nearby EJ communities have access to actionable and credible real time data
- Smell My City uses the information for Community Alerts when pollution levels exceed safety thresholds
- Researchers use our information directly without a public records request.
- Data Quality is high enough that local regulatory agency considers the data actionable

Website Features

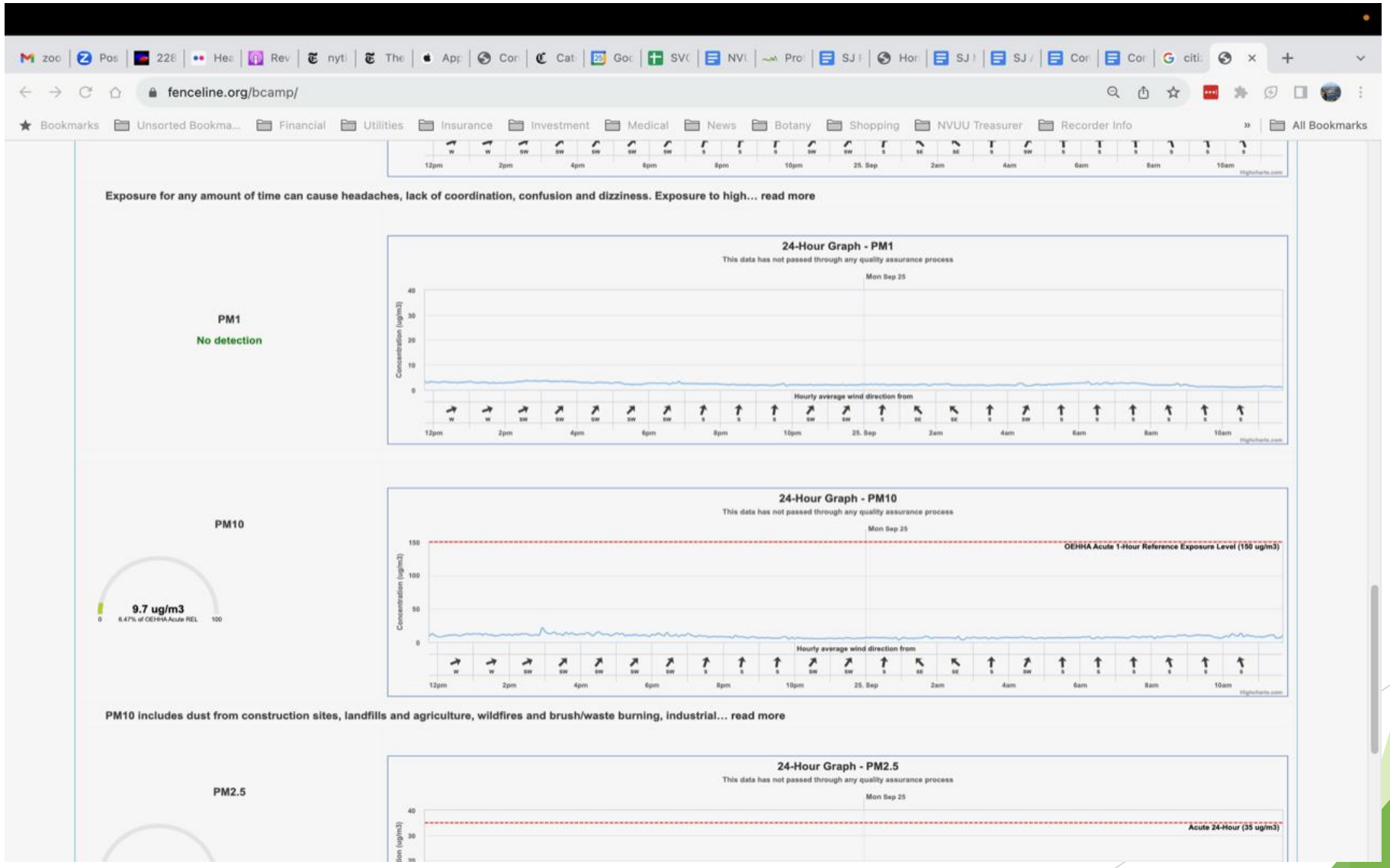
- Link: https://www.fenceline.org/bcamp/
- Real-time data
- Data History
- Links to report an air quality issue
- Reference links for additional information

The Future

- More and broader advocacy
- Help other EJ communities if they need monitors
- Test site for evaluation of new equipment
- Help establish independent stations along the refinery corridor
- Work more closely with refineries to pinpoint emissions
- Develop strategies to continue funding by working with Environmental Justice Communities in the Bay Area


Ozone Monitor
03= 31.4 PPBV
13:40 03/02/22
Magee Scientific
BENICIA COMMUNITY
AIR MONITORING PROGRAM
Benicia Community Air Monitoring Program (BCAMP) is a 501(c)(3) non-profit established to measure local air quality in real-time,
operate a website, and provide education on health as related to air quality.
Contact us at bcamp94510@gmail.com
Make a Donation
MESSAGE BOARD
Message Here
QUICKSET

Website


fenceline.org/bcamp/
Exposure for any amount of time can cause headaches, lack of coordination, confusion and dizziness. Exposure to high... read more
24-Hour Graph - PM1
This data has not passed through any quality assurance process
Mon Sep 25
PM1
No detection
Concentration (ug/m3)
Hourly average wind direction from
12pm
2pm
4pm
6pm
8pm
10pm
25. Sep
2am
4am
6am
8am
10am
24-Hour Graph - PM10
This data has not passed through any quality assurance process
Mon Sep 25
OEHHA Acute 1-Hour Reference Exposure Level (150 ug/m3)
PM10
9.7 ug/m3
6.47% of OEHHA Acute REL
PM10 includes dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial... read more
24-Hour Graph - PM2.5
This data has not passed through any quality assurance process
Mon Sep 25
Acute 24-Hour (35 ug/m3)
PM2.5

Advocacy:
Showing the station to our current state Assemblywomen Lori Wilson

Station opening with local officials, air district and community groups

2003

- Good Neighbor Steering Committee and others campaign to ensure safety and air monitoring
- Settlement Agreement with Valero Refinery and the city included air monitoring
- Air monitoring was in the trailer in the Valero buffer zone

Agreements between Good Neighbor Steering Committee and Valero

- 2008 - $14,000,000 for community, $250,000 for community air monitoring
- 2019 gave BCAMP a total of $460,000 in funding

Contact us with questions

- kathykerridge@gmail.com
- www.fenceline.org/bcamp/
- info@argos-sci.com