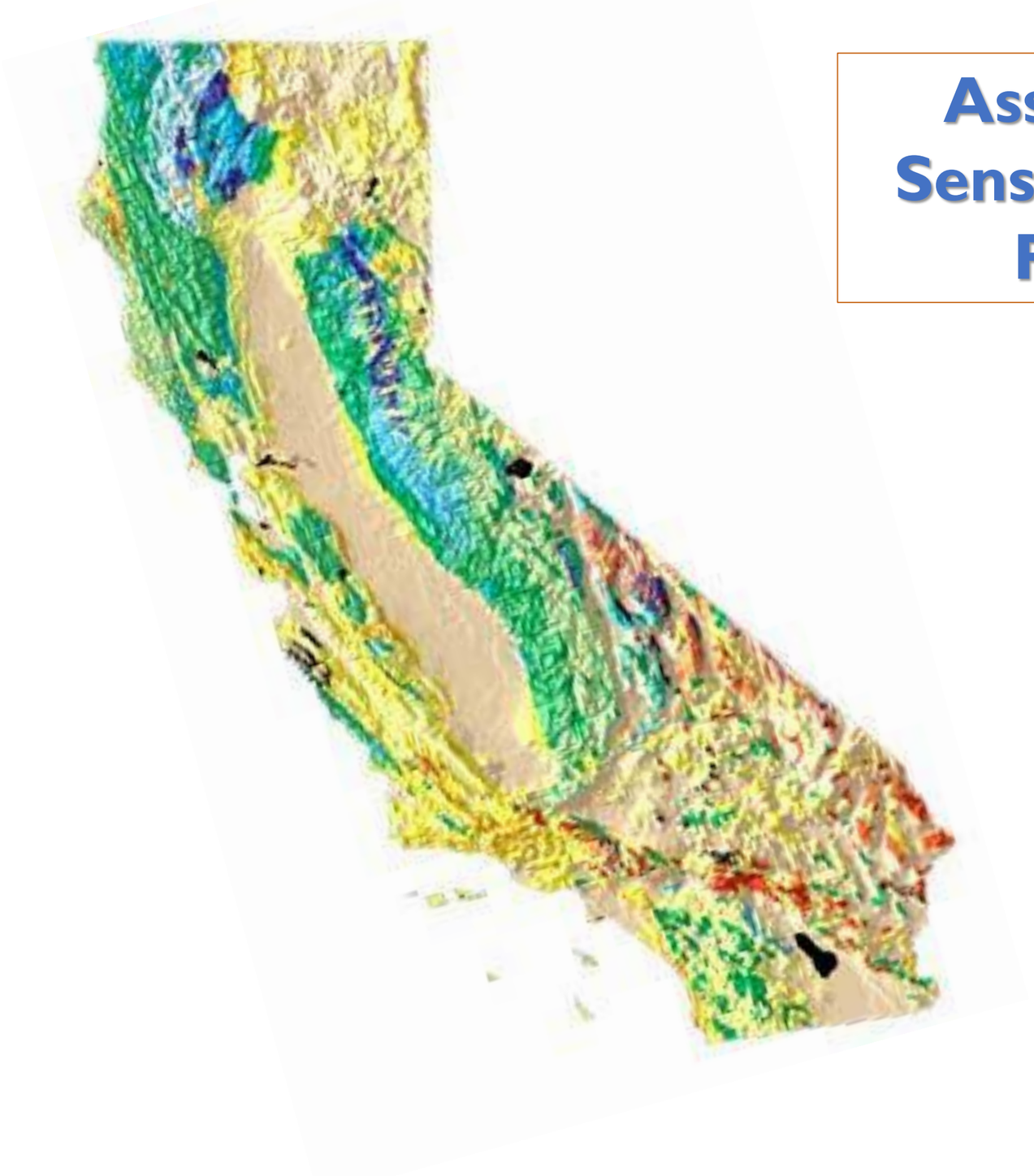


Assembly Bill 617 and Low Cost Sensors – How Can this Technology Provide Actionable Results?

Bay Area Air Quality Management District

Air Sensors International Conference 2018

Eric Stevenson
Director of Meteorology and Measurement
Bay Area Air Quality Management District

Review of Goals/Outcomes of Current Network

- Regional and limited source-oriented NAAQS compliance and trends determination with a focus on population
- Aids in “truth testing” of regional and single source-oriented models
- Disassociated with emissions inventory and non-regional source attribution

AB 617 program components – designed so elements link and iteratively improve

- Community selection
- Monitoring
- Emission reduction action plans
- Emissions inventory
- Incentives
- BARCT Update/Clearinghouse

Change of focus to hyper-local air quality impacts

- Determine impacts of local contributions and focusing monitoring to identifying localized disproportional impacts
- Identify localized “hotspots”, contributions from individual sources and contributions from background and regional sources
- Develop source attributions based on monitoring
- Truth test highly resolved modeling and improve emissions inventories

Community Monitoring Methods

Screening to identify issues

- Conducted by district and communities
- Mobile monitoring
- Dense network of low-cost sensors
- Satellite and other remote observations
- Observations other than pollution concentrations
- May help track progress

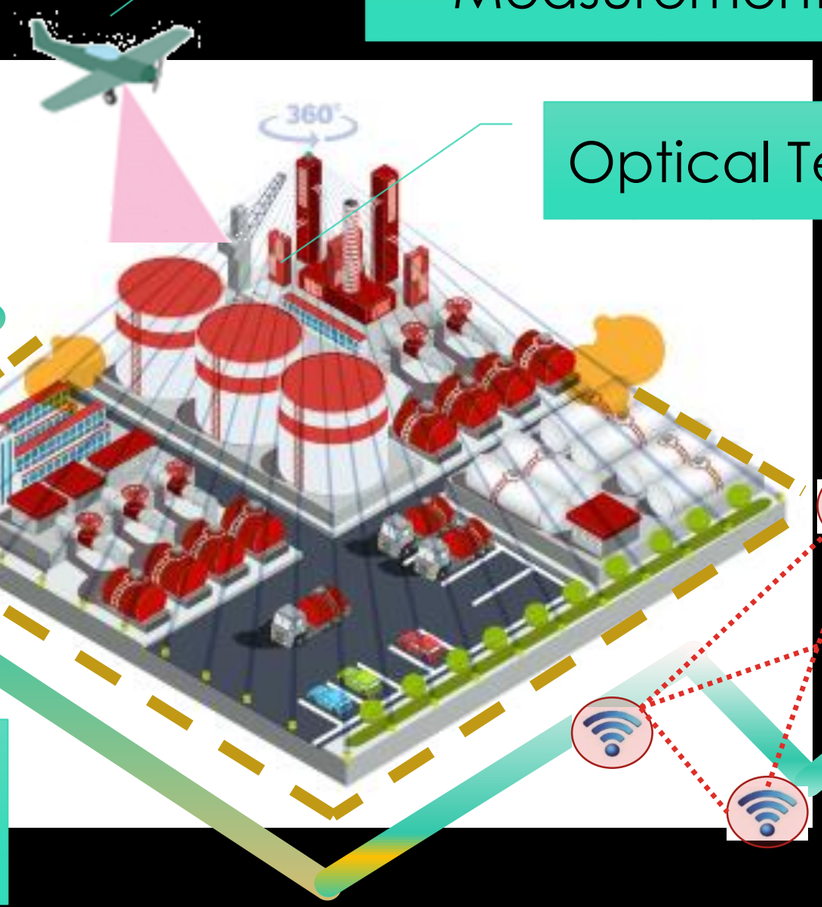
Special studies to quantify contribution of sources

- Advanced techniques to isolate and quantify source contribution
- need speciation of PM or toxics to differentiate sources
- combination of ambient and source monitoring

Fixed sites using well-documented methods are still needed to anchor screening, track regional air quality and meet state and federal requirements

COMPLEMENTARY APPROACHES TO AB 617 MONITORING

Flight Measurements



Optical Tent

Air Monitoring Station

Community Monitoring/ Sensor Networks

Mobile Monitoring

Fence line Monitoring

How Can Sensor be used to assist in the effort?

- Need to develop standard for data export and ingestion
- Need to include ways for QA/QC to be evenly applied so that data are comparable
- Need to provide a way for appropriate visualization and context, so that people can determine appropriate ways to limit exposure

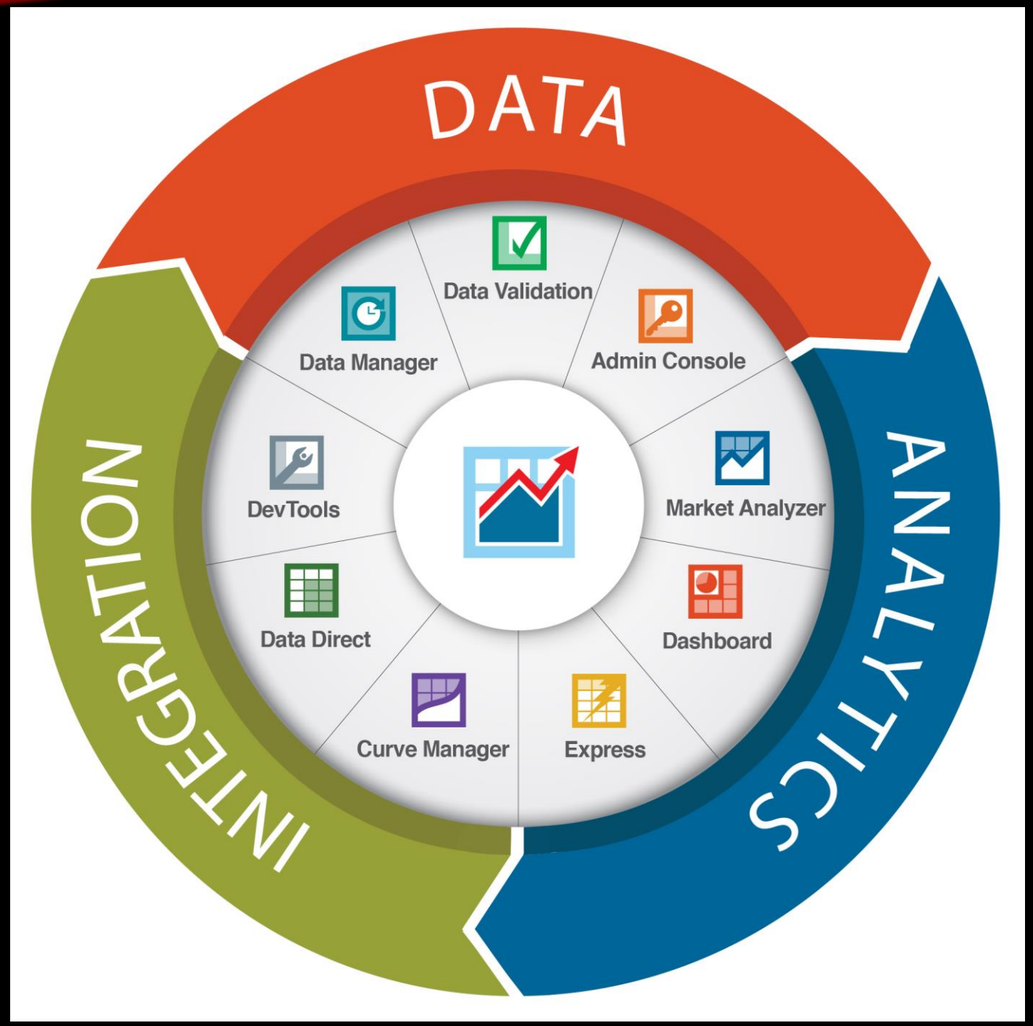
Communities can assist with sensor studies if:

- They are provided technical expertise on how to develop a network so data are actionable
- Provided or develop analytical skills necessary
- A means of data storage is provided to allow transparent access and further evaluation

DATA QUALITY

- Not all measurements are equal
- Remember to match quality requirements to monitoring goal
- Education and provide technical assistance

DATA COLLECTION AND MANAGEMENT



- Large amounts of data with geolocation
- Methods to make all data “apples to apples”
- Provide ways to give graphics and information context

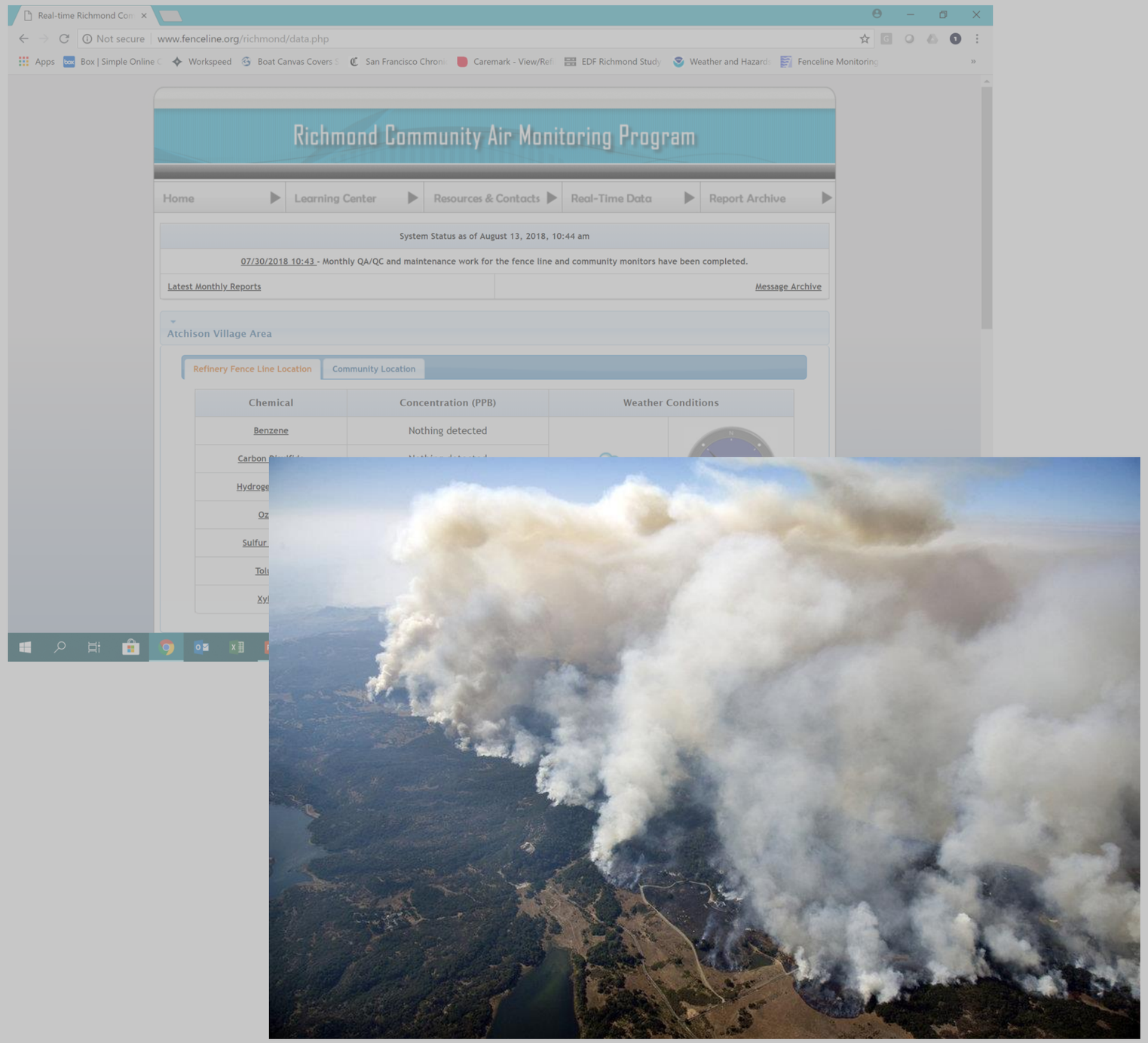
Further Integration

Communities expect incidents to be better characterized and measured

- Need to be able to evaluate “steady state”, episodic and unintended releases
- Providing information about limitations

Regions expect better capabilities during regional events (wildfires)

- Provide forecasts of impacts
- Explain how concentrations, forecasts and impacts affect health outcomes



Path Forward

Develop methods to gain better spatial coverage, while balancing temporal coverage

- This will help identify sources that impact communities
- Need to be able to evaluate “steady state”, episodic and unintended releases

Achieving more spatial and temporal measurements to achieve the goals improving better health outcomes

- Decrease air quality disparities with the goal of eliminating them entirely
- Enhance enforcement and compliance


QUESTIONS?