SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Importance of Air Monitoring

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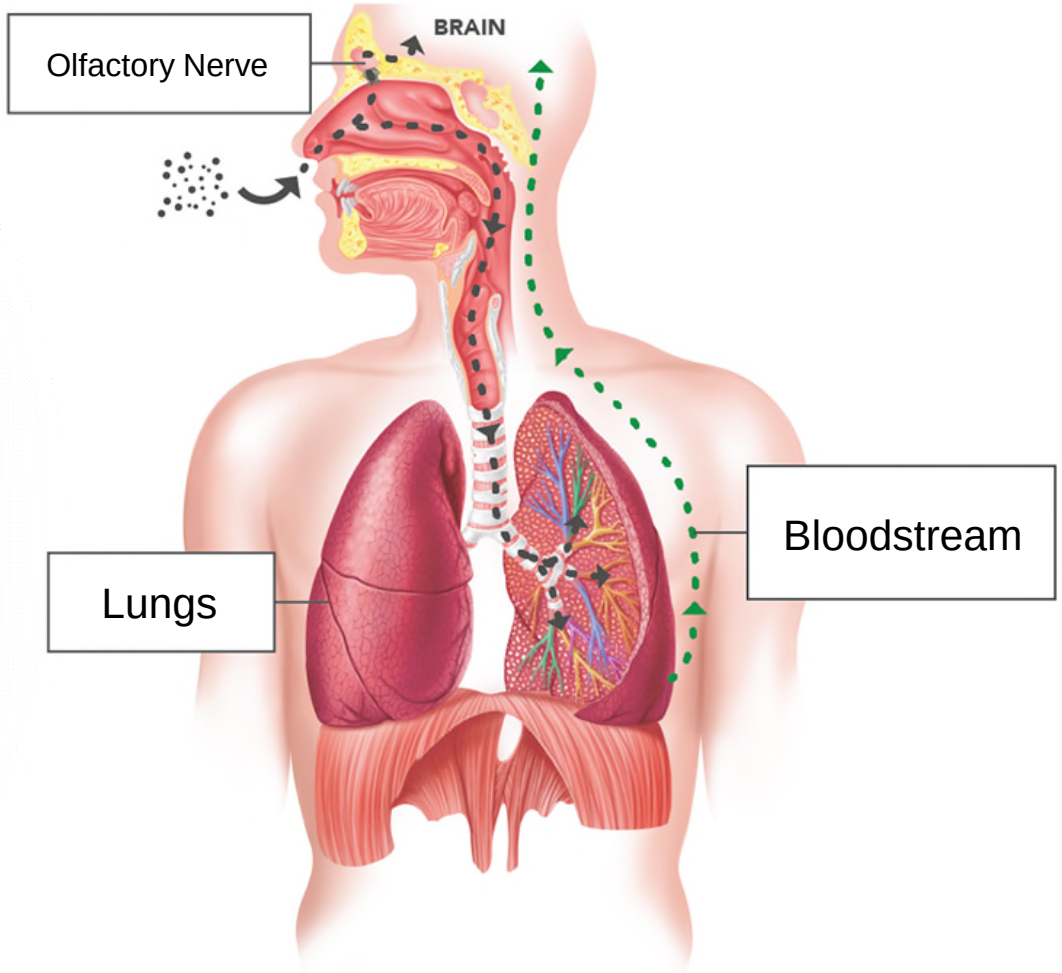
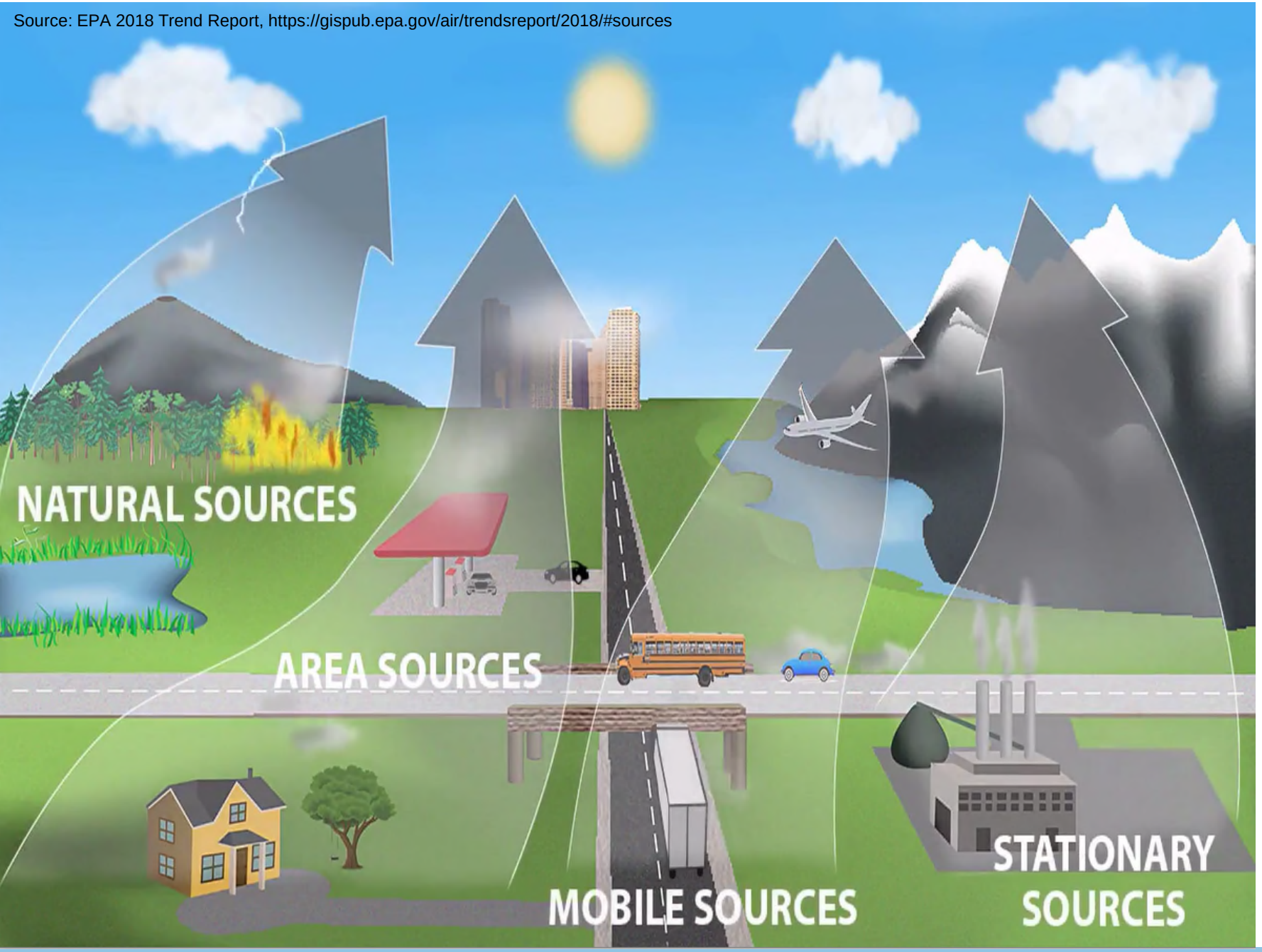
Why is Air Pollution Important to You?

- Air pollution is harmful
  - Lung disease, toxic effects, heart attacks
- Air pollution can impact different parts of the body
- Children and elderly are most susceptible
- Air pollution effects our economy and quality of life



Source: Modified from CARB, https://ww2.arb.ca.gov/resources/fact-sheets/air-pollution-and-brain

Source: EPA 2018 Trend Report, https://gispub.epa.gov/air/trendsreport/2018/#sources



Air pollution can be grouped into:

- Natural sources
- Area-Wide sources
- Mobile sources
- Stationary sources

What We Know

- ✓ District/regional air quality data
- ✓ District-wide emission inventory
  - Estimation of pollutants, broken down by category
  - Greenhouse gases, criteria, and some toxic air pollutants
  - District – point and area sources, CARB – mobile
- ✓ Modeled air quality
  - Regional and source

What We Need

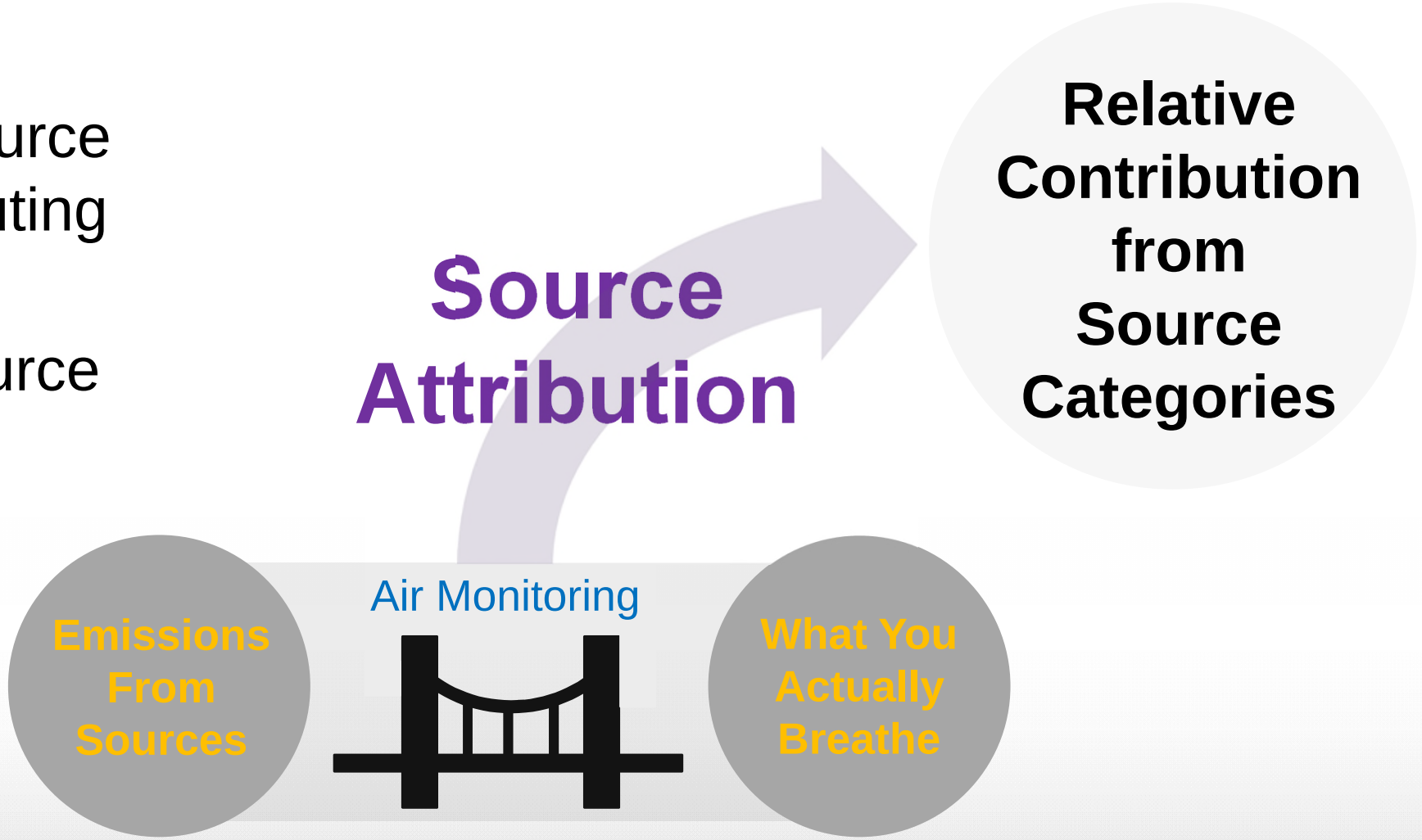
- → More measurements
  - Finer scale
  - Specific pollutants
  - → Models and emission inventories improve with more data!
- → Localized impacts

Measure What **You** Are Breathing

Air monitoring **bridges the gap** between emissions from sources and what you're actually breathing

What We Can Do with the Measurements

- Identify general source categories contributing to air pollution
- Process called Source Attribution



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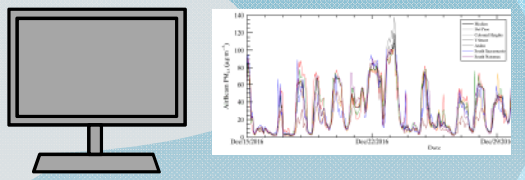
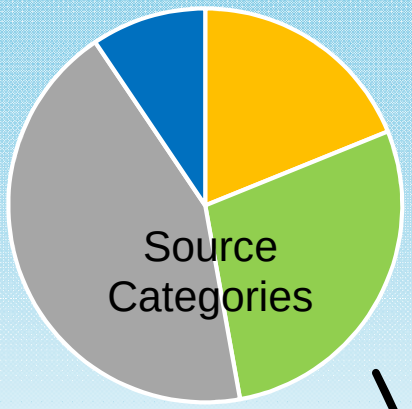
Air Quality Measurements





Meteorological Measurements

Source Attribution

Mobile Sources

Cars, Trucks, Buses, Trains, Aircraft, Boats, Farm Equipment

Area-Wide Sources

Residential Wood Burning, Coatings, Construction, Dust, Cooking

Natural Sources

Wildfire, Prescribed Burning, Volcanoes, Dust

Stationary Sources

Electric Utilities, Refineries, Food/Ag Industrial Processes

How Does Monitoring Relate to **Reducing Risk**?

Air Monitoring

Understanding of what air pollution is made of and what the impact is

Source Attribution

What general types of sources are contributing to the pollution?

Reduce Emissions

Community Emission Reduction Plan

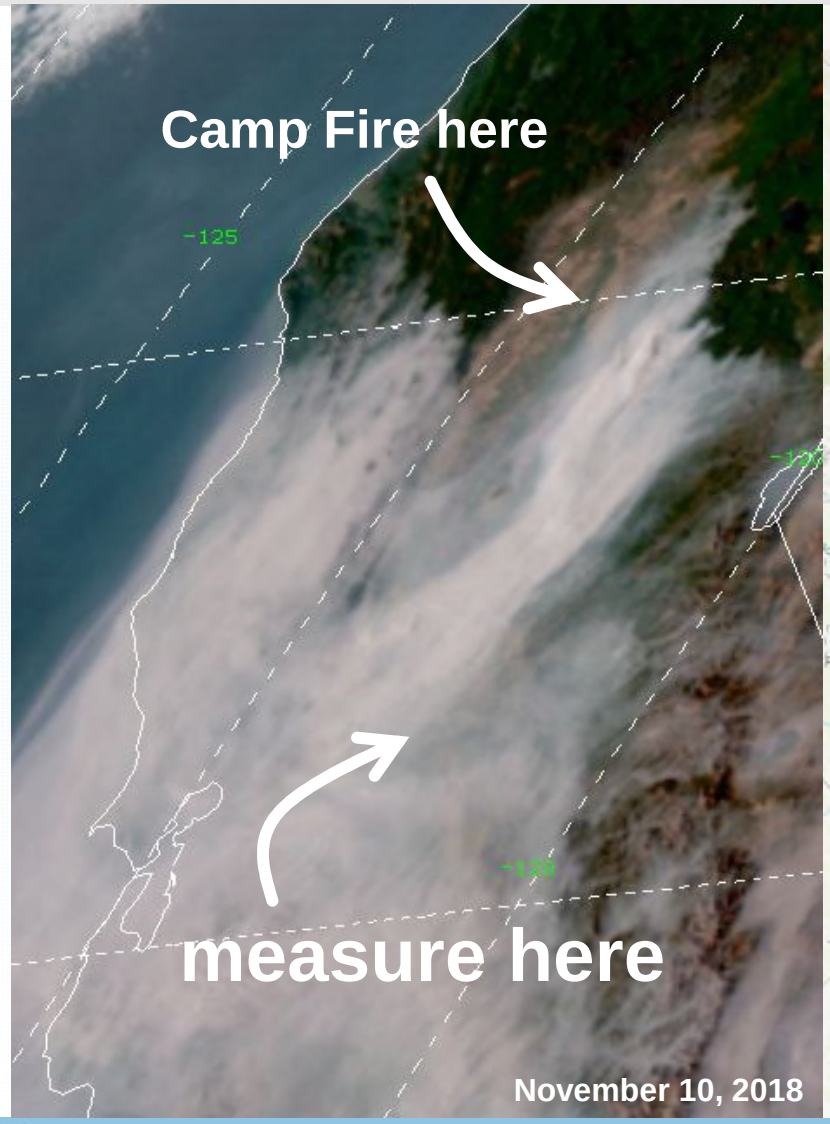
(Incentives & Rules)

Goal

Improve Air Quality and Reduce Risk in the Community

Where Should We Monitor?

- Point of impact
  - Where people are breathing
- Not necessarily at the source of the emissions
  - Example: wildfires



Source: NASA, https://worldview.earthdata.nasa.gov/

Where Should We Monitor?

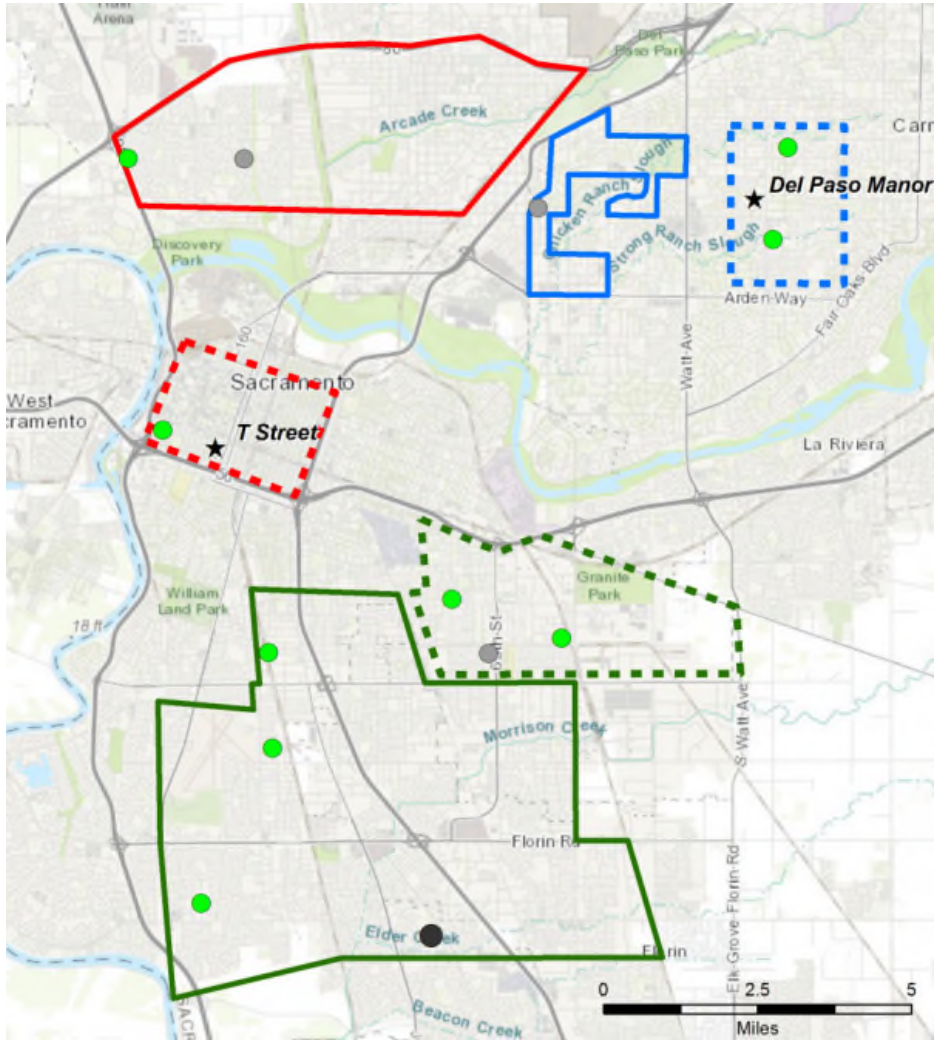
- Example: Wood Smoke study
- Winter 2016-2017
- Objectives:
  - Determine impact of wood smoke in EJ versus non-EJ communities
  - Traffic versus Wood Smoke
- Need to be strategic!

Wintertime Air Toxics from Wood Smoke in Sacramento

http://www.airquality.org/Air-Quality-Health/Air-Monitoring

Where Should We Monitor?

- Study design and monitor locations were **determined by the objectives**
  - Number of monitors
  - Pollutants measured
  - Frequency of measurements
  - Within resources
- Where, when, and how!



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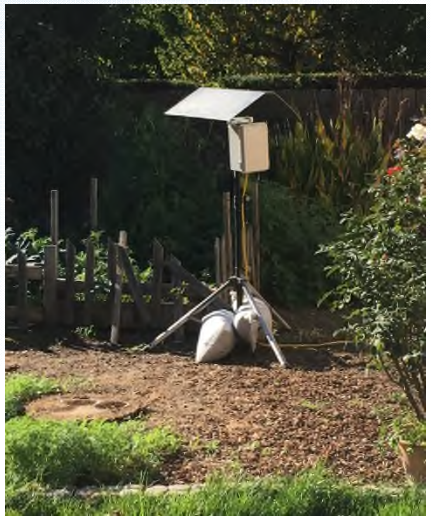
Evolution and Use of New Technologies

Traditional Air Monitoring

- Fixed sites
- Highly Accurate
- Expensive

Low-Cost Sensors

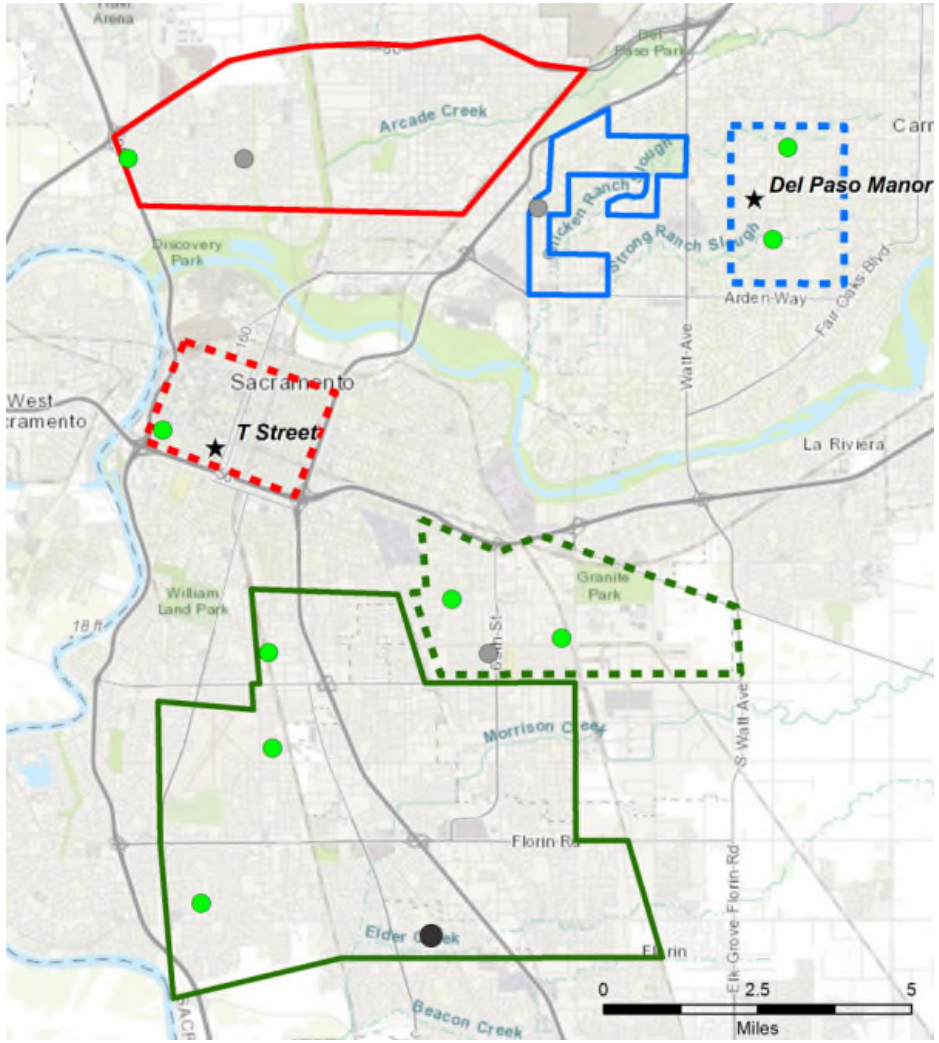
- Easy to move around
- Can be used indoor and outdoor
- Relatively inexpensive



Example of a backyard monitor

Ways We Can Leverage New Technologies

- Increase spatial coverage
- Can identify hot spots to do more enhanced monitoring
- Provide relative concentrations within a community
- Example: Wood Smoke Study



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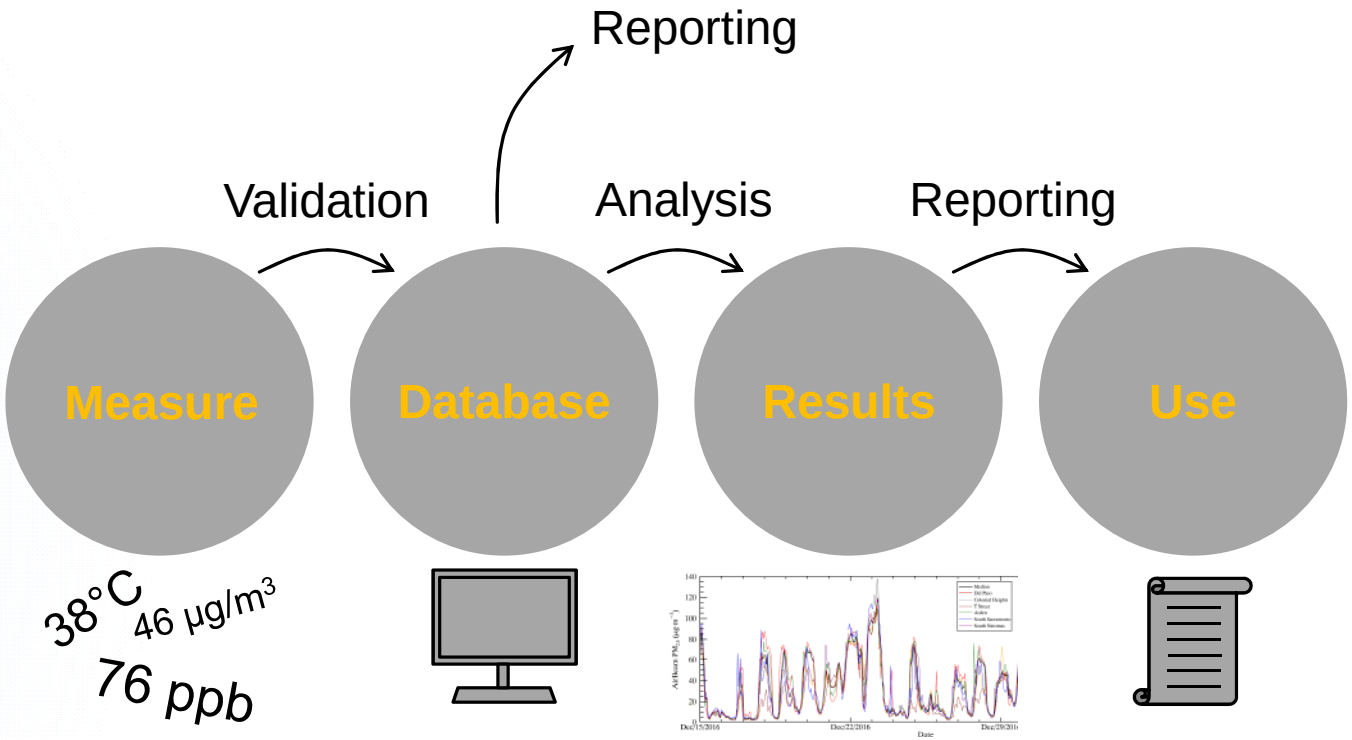
What Do We Do with the Data?

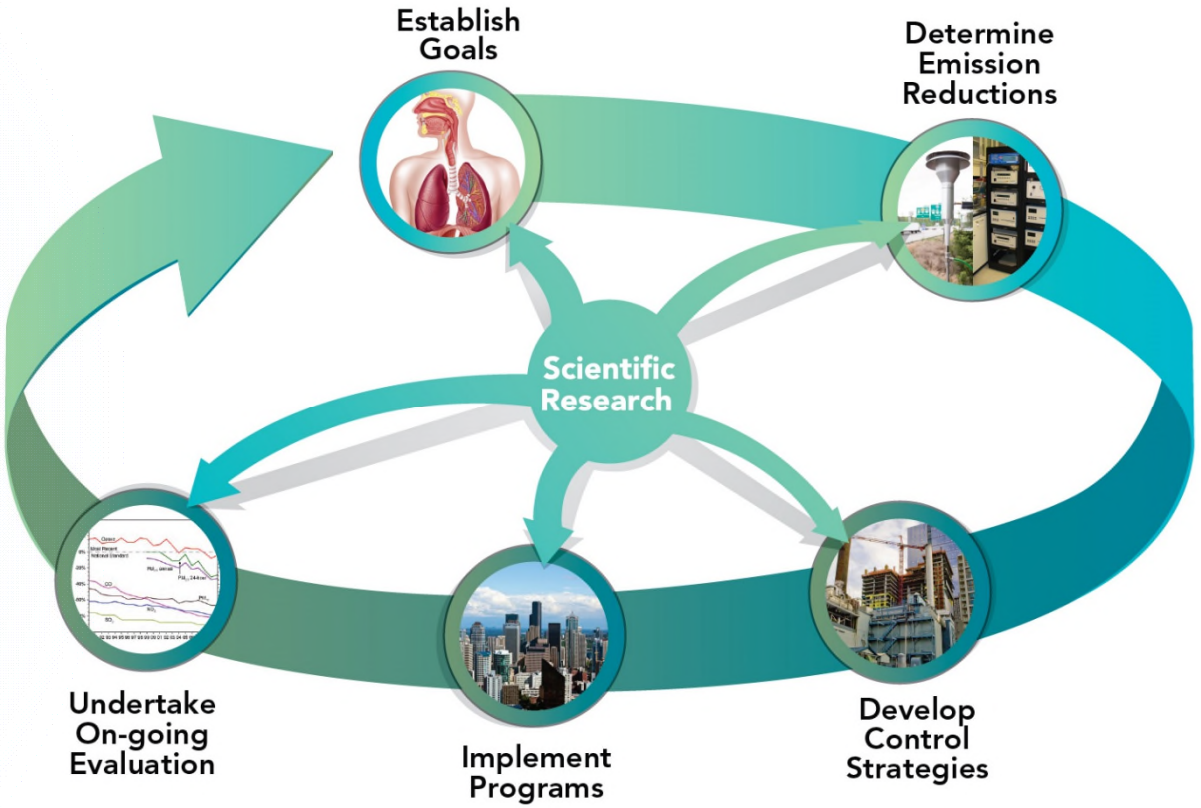
- Measure air pollutants
- Validate and store data
- Report data to public
- Analyze the data
- Determine the results from the analysis
- Report results to public
- Use this information to focus efforts



Outcome of Monitoring Results

This is the why!

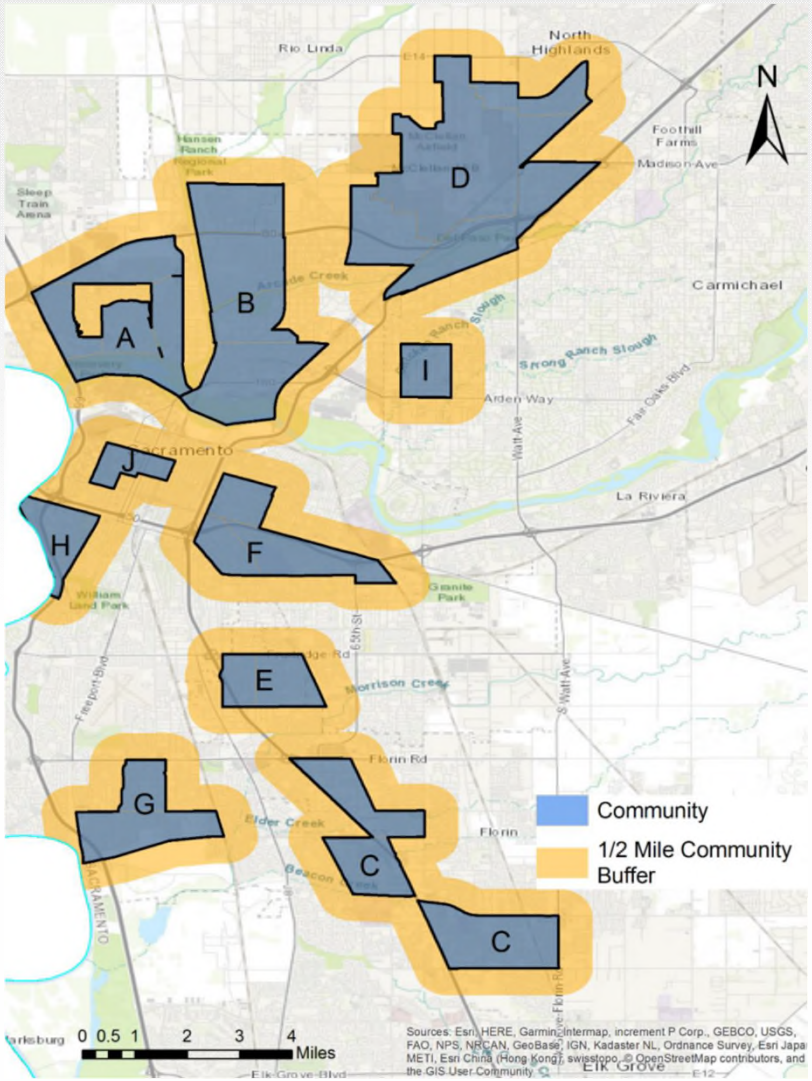
- Understand the air quality
  - Community scale
  - Validate emission inventories
- Develop ways to **protect public health**
  - Incentive programs
  - Control strategies
  - Education programs
  - Outreach efforts
- Informed by scientific research the whole way



Source: EPA, https://www.epa.gov/air-quality-management-process/air-quality-management-process-cycle

Year 1 (FY 2017-2018) Project list

Project Name	Project Description	AB 617 Community
DAC Mobility Hub	Electric Vehicle Charging Infrastructure	B
Chandos ZEV Food Truck	Electric Vehicle Charging Infrastructure	Yolo-Solano
Car Share - Mutual Housing on the Greenway	Electric Vehicle Charging Infrastructure	E
Car Share - River Garden	Electric Vehicle Charging Infrastructure	A
Car Share - Sky Park	Electric Vehicle Charging Infrastructure	E
Sacramento City Unified School District	EV School Bus	E, G, C
Natomas Unified School District	EV School Bus	A
Twin Rivers Unified School District	EV School Bus	B, D
Vacaville Unified School District	EV School Bus	Yolo-Solano
Winters Unified School District	EV School Bus	Yolo-Solano
A-Z Bus Sales, Inc.	Electric Vehicle Charging Infrastructure	E
McClellan Park Holdings, LLC	Electric Vehicle Charging Infrastructure	D



Questions?