Good Decisions from Good Data
Helping organizations collect, manage, and distribute air quality data

Tim Dye
Sonoma Technology, Inc.
Petaluma, California
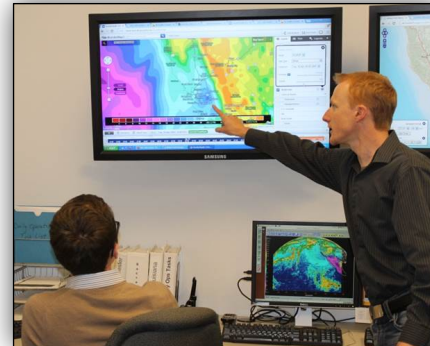
Advances in Earth Science:
Data as a National Asset for Decision-Making
Washington, D.C.
June 22, 2016

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Sonoma Technology, Inc.
Innovative Environmental Solutions

- Small business helping organizations manage and use environmental data
- Work on
  - Air quality
  - Fire and fuels sciences
  - Meteorology
  - Software engineering
- Clients/partners
  - Federal (EPA, State Dept., NOAA, Forest Service)
  - State/local government
  - Private sector (industry, manufacturers)
  - Non-profits
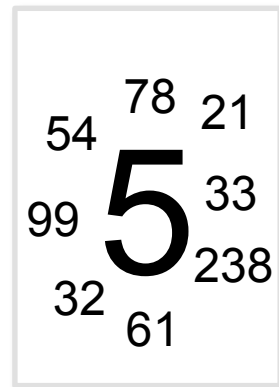
Underpinnings of Decision Support

- Instruments
- Communications
- Data validity and data management
- Data products and dissemination
- Decisions

Observe

Data

78 21
54
99 **5** 33
238
32
61

Information

AQI
AIR QUALITY INDEX
50 100 150 200

Action

Government – AirNow Program
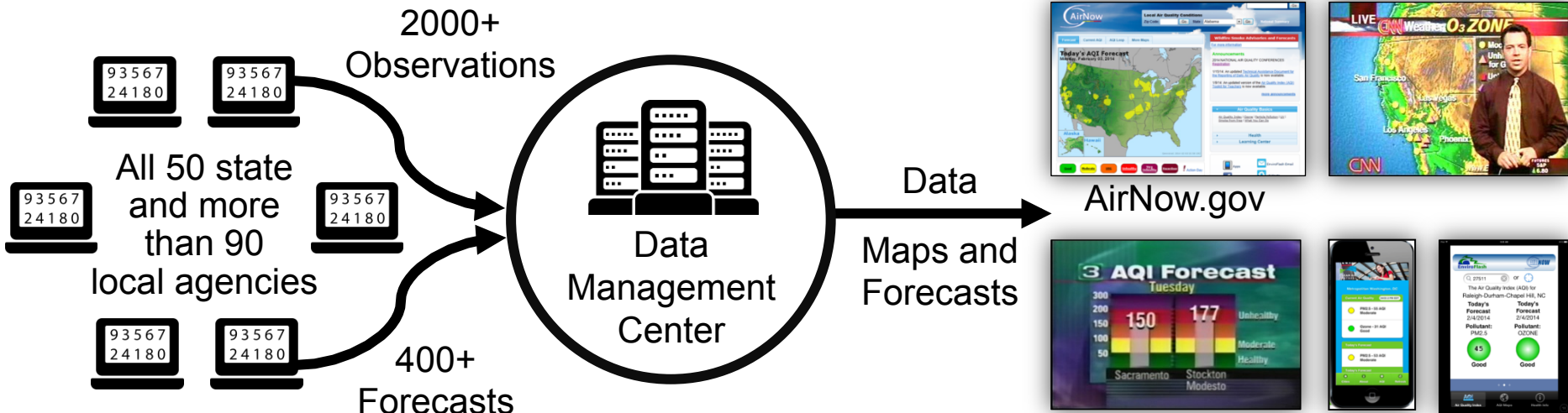
AirNow is the national system* for acquiring and distributing air quality information in real time
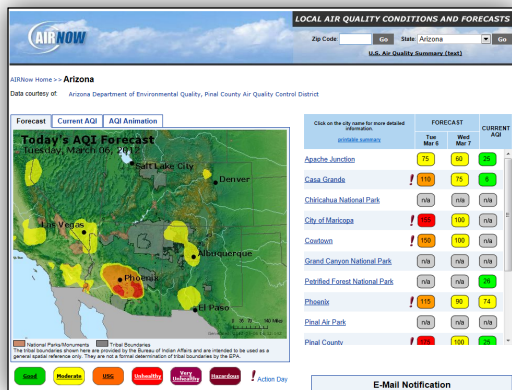
*Funded by U.S. EPA

Ingest

2000+
Observations

All 50 state and more than 90 local agencies

400+
Forecasts

Process

Data Management Center

Data

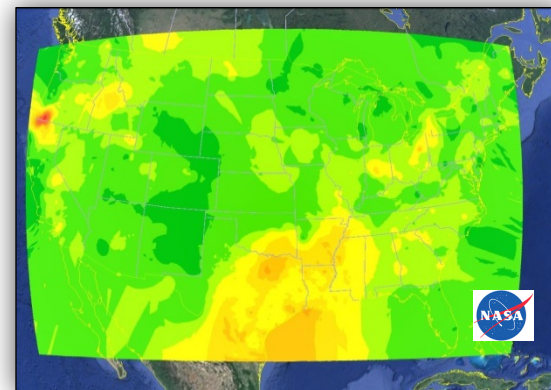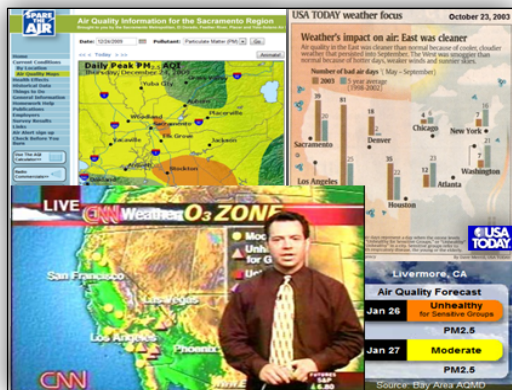Maps and Forecasts

Distribute

AirNow.gov

Decisions Using AirNow's Information

Public: make decisions about exposure using AirNow.gov

Research: develop real-time applications

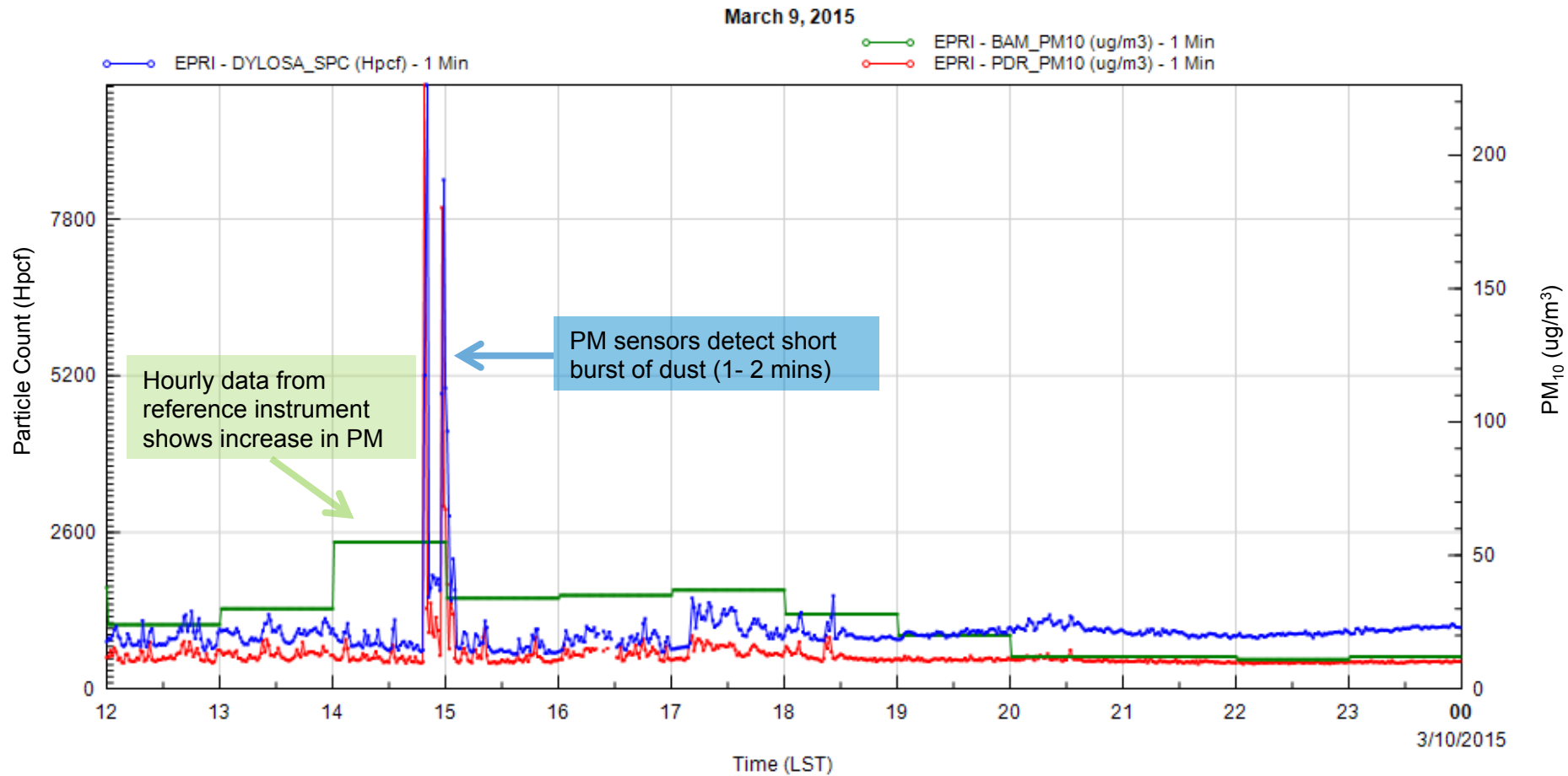Media: inform and alert the public

Industry: use data to make decisions

Industry – New Tech. Helping Address Old Problems

- ## Issue:
  Coal dust at power plants

- ## Potential solution:
  Can low-cost sensors be used to detect blowing dust?

- ## Evaluation study:
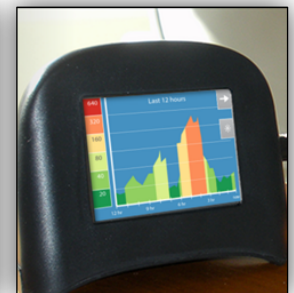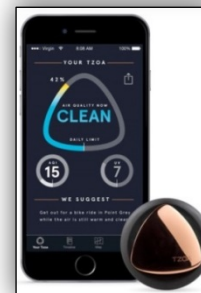 - Reference station
  - New air sensors
  - Weather station

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Industry – New Tech. Helping Address Old Problems

March 9, 2015

Personal Air Measurements

- Air quality sensors used by everybody
- Characteristics:
  - Low-cost
  - Portable
  - Accuracy can vary
- Applications:
  - Improve family health
  - Precise public health
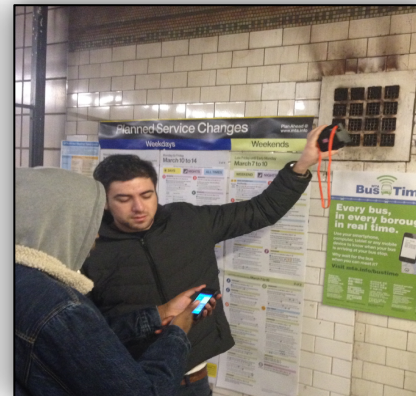 - Better research

STEM Education With Air Sensors

Kids Making Sense – An educational program that teaches youth to measure pollution using air quality sensors and to interpret the data they collect.
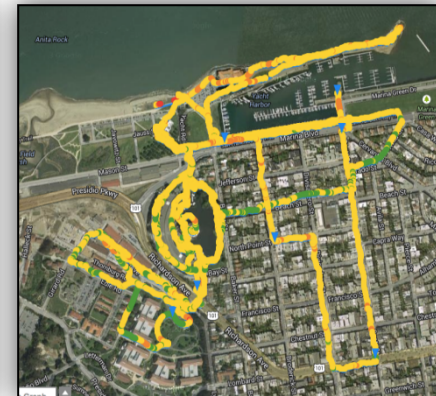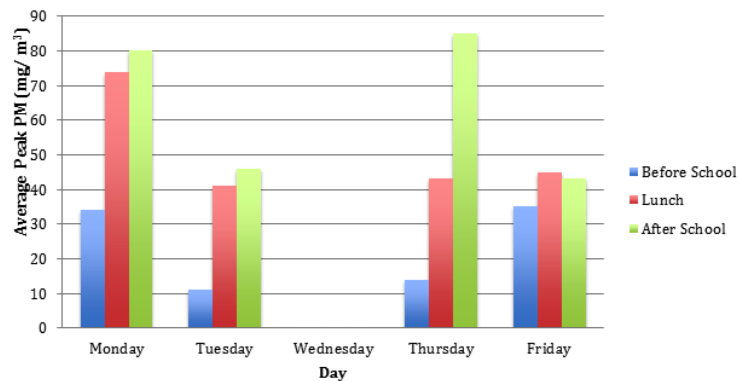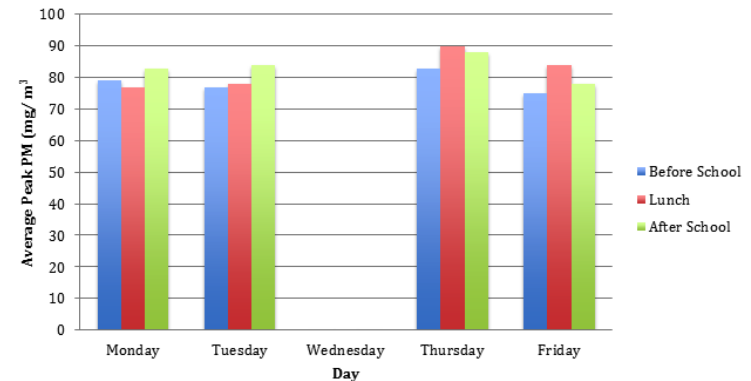

Learn

Measure

Discover

Interpret

Kids Making Sense in Sacramento, CA

LBHS

Graph 1: Main Parking Lot

Average Peak PM (mg/m³)

- Before School
- Lunch
- After School

Day: Monday, Tuesday, Wednesday, Thursday, Friday

Faculty Lot

Average Peak PM (mg/m³)

- Before School
- Lunch
- After School

Day: Monday, Tuesday, Wednesday, Thursday, Friday

Student results: faculty lot had higher PM levels from school buses and delivery trucks, while PM increased throughout the day in the main lot.
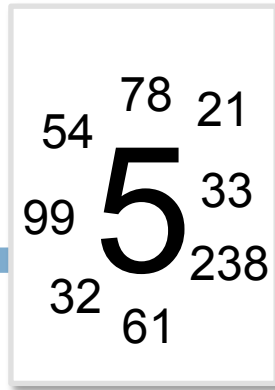
Future Opportunities and Challenges
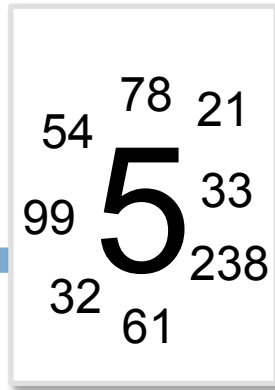
Observe

Data

Information

Action

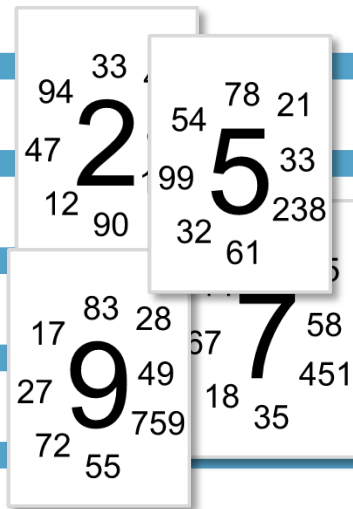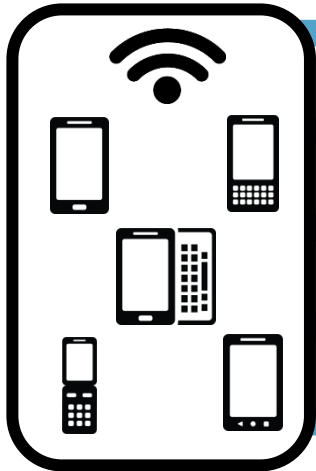# Future Opportunities and Challenges

Observe　　　　**Data**　　　　**Information**　　　　**Action**

Contact

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Environmental Science and Innovative Solutions