An aerial photograph of a volcanic eruption. A large, dark, rocky mountain range is visible, with a central peak emitting a massive, billowing plume of white ash and steam that extends far into the sky. The plume has a distinct, rounded top and a long, horizontal tail. The surrounding landscape is rugged and appears to be covered in volcanic ash and lava flows. The sky is a clear, deep blue.

AIRNow Air Monitoring Data Decision Support System

2008 Northern California Wild Fires

Summary of fires

- 1 million+ acres burned
- 2,000+ individual fires burning at the same time
- 25,000+ firefighters
- Thousands of tons of $PM_{2.5}$ emitted each day
- Millions of people affected by smoke
- **Unhealthy** to **Hazardous** AQI levels observed (ozone and $PM_{2.5}$)



June 23, 2008 6PM (PDT)

Site Name	Current Ozone AQI	Max Ozone AQI (PDT)
Cool	127	127 at 6PM
Davis	40	74 at 2PM
Elk Grove	71	87 at 4PM
Folsom	186	220 at 5PM
Grass Valley	104	104 at 6PM
North Highlands	48	48 at 5PM
Placerville	177	177 at 6PM
Roseville - N.Sunrise/Douglas	137	140 at 5PM
Sacramento - Airport Road	50	132 at 3PM
Sacramento - Del Paso Manor	11	16 at 6PM
Sacramento - T Street	51	104 at 2PM
Sloughhouse	122	147 at 3PM
Yacaville	38	45 at 3PM
Woodland	49	90 at 4PM
Yuba City	47	47 at 6PM

Source: www.sparetheair.com

Mobile Monitor Deployment (1 of 6)

Motivation

- Fires and widespread regional air quality impacts were expected to continue for weeks or months
- Supplement to existing air quality monitoring network needed to assess wildfire impacts

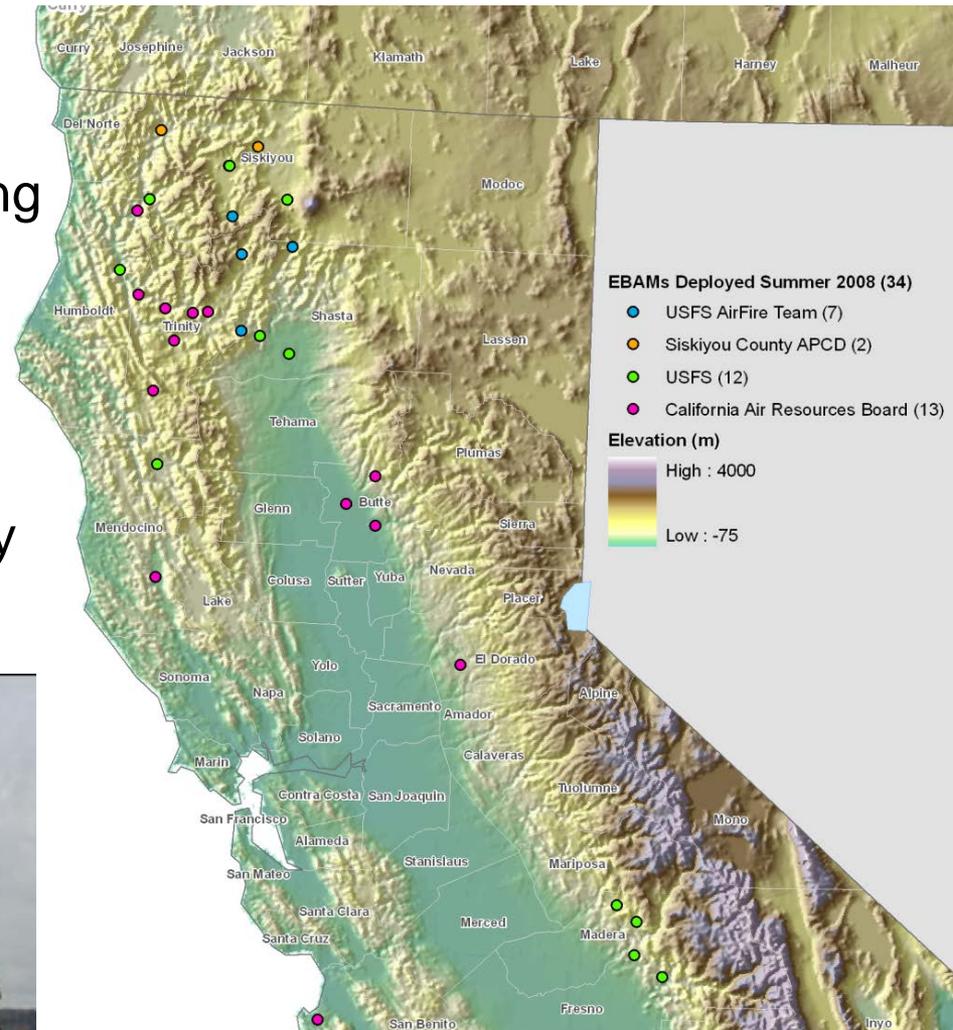


Smoke on July 11, 2008

Mobile Monitor Deployment (2 of 6)

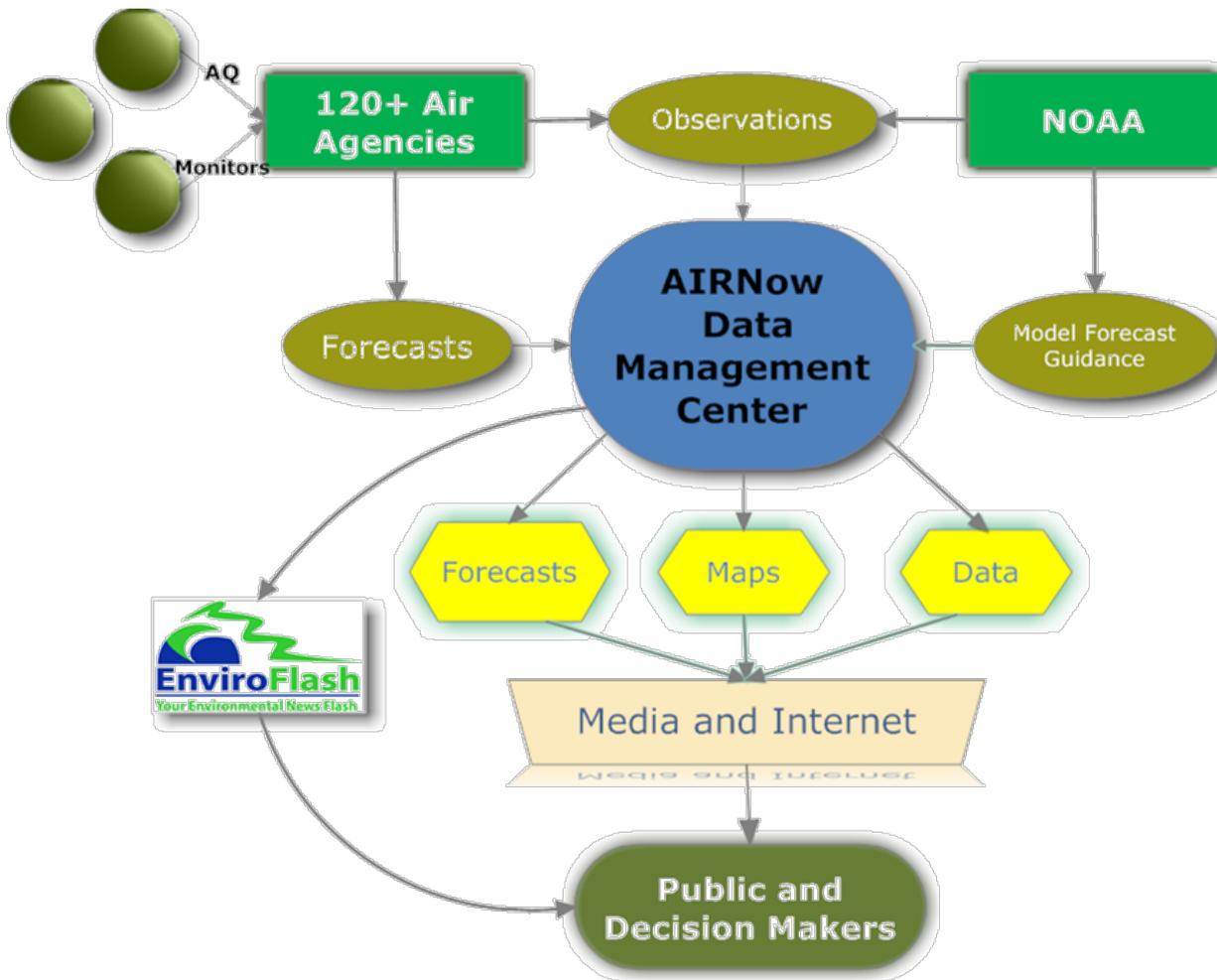
Purpose

- Focus on areas of Northern California with sparse monitoring coverage
- Assess smoke impact
- Support fire management and incident command teams
- Provide resources for air quality agencies



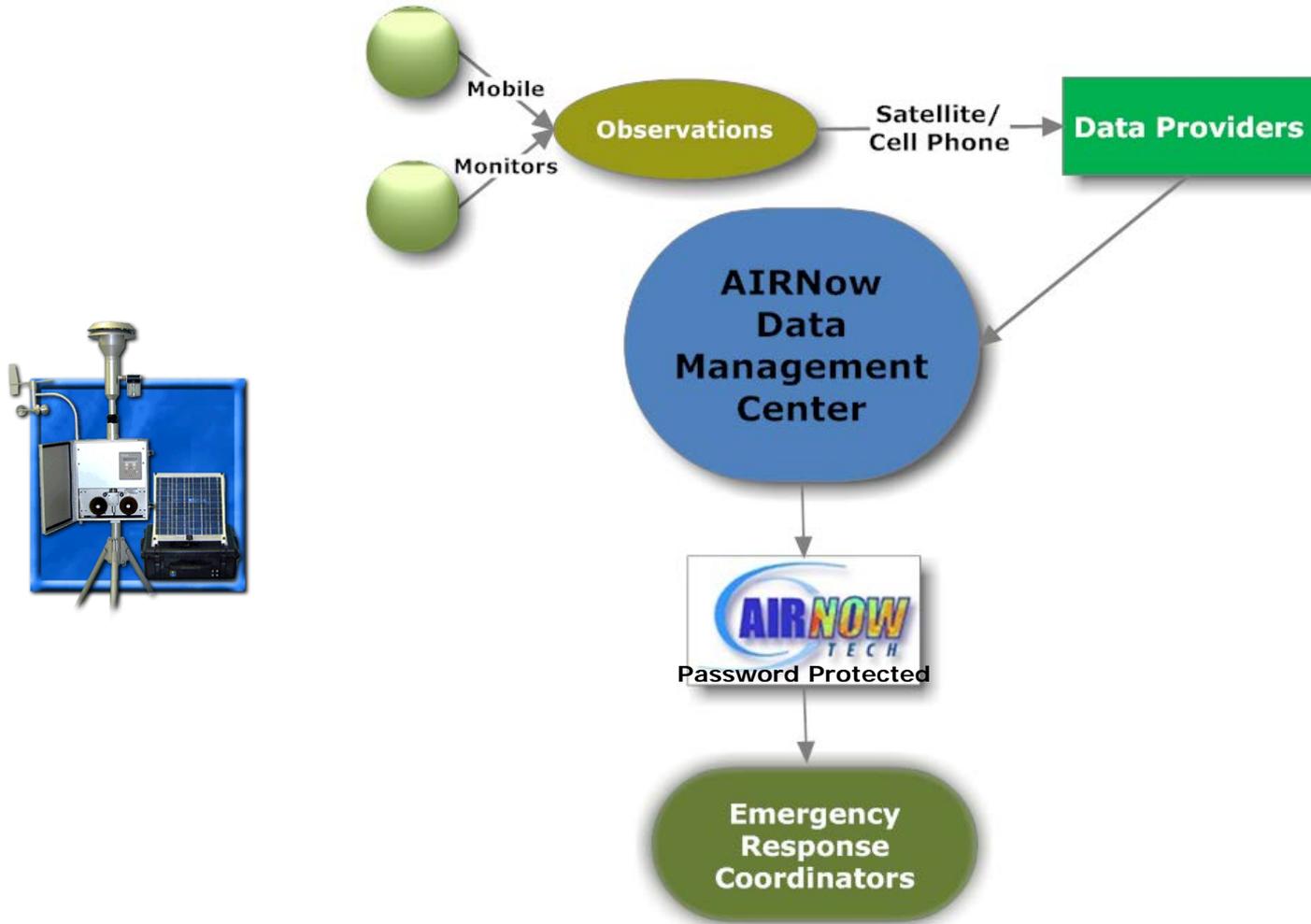
Mobile Monitor Deployment (3 of 6)

Data Flow of Stationary Monitor Data



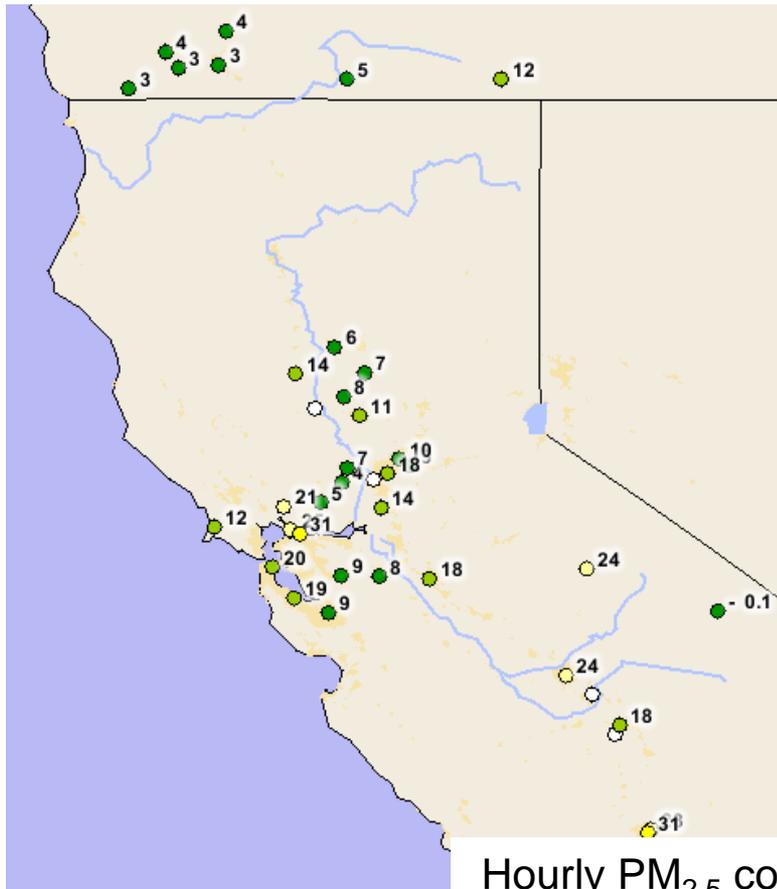
Mobile Monitor Deployment (4 of 6)

Data Flow of Mobile Monitor Data

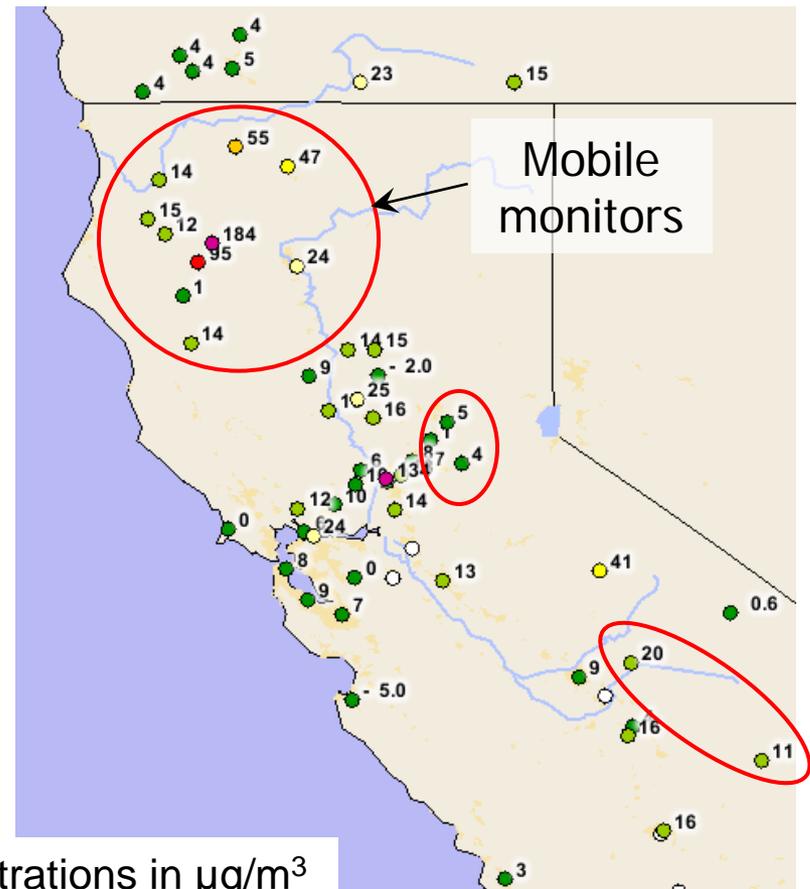


Mobile Monitor Deployment (5 of 6)

Real-time data stream to EPA AIRNow and AIRNow-Tech

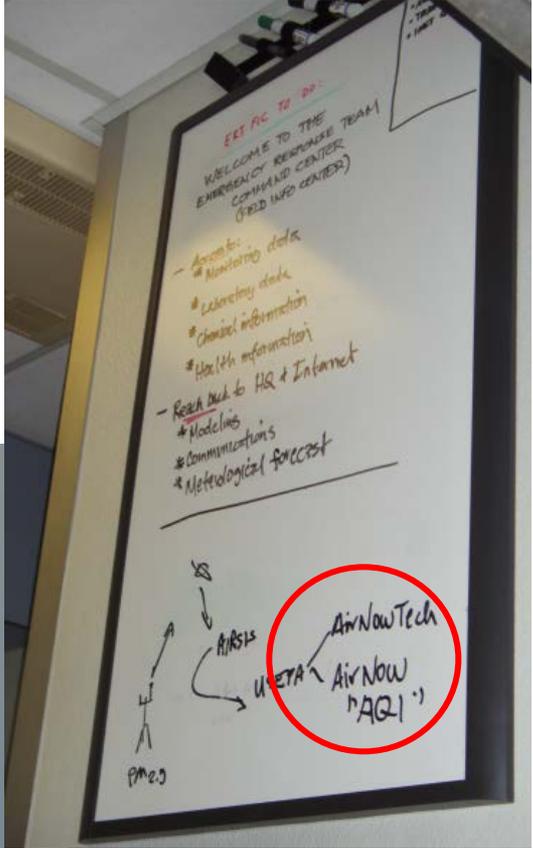
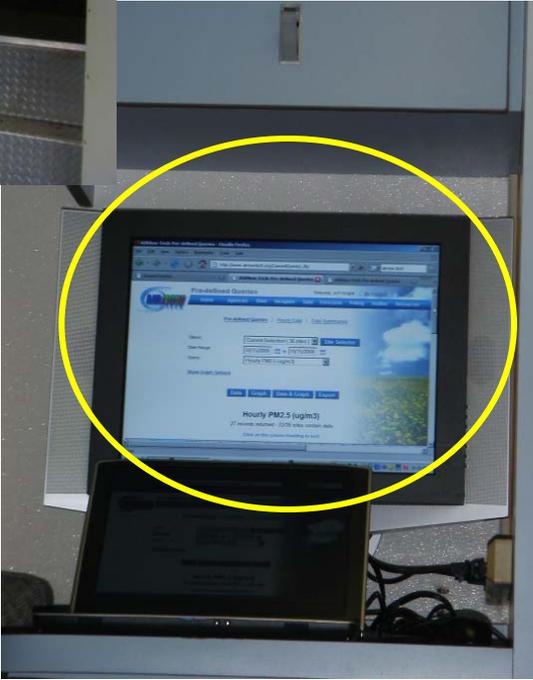


Early June 2008



Late July 2008

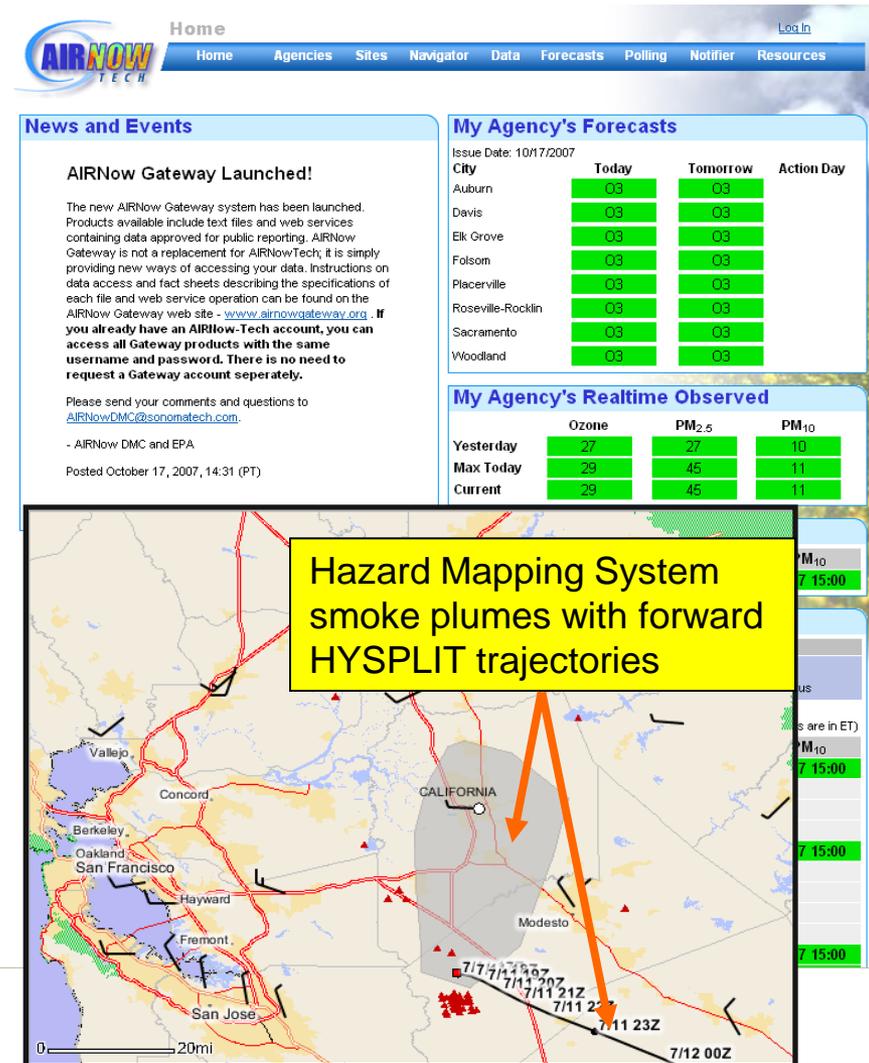
Mobile Monitor Deployment (6 of 6)



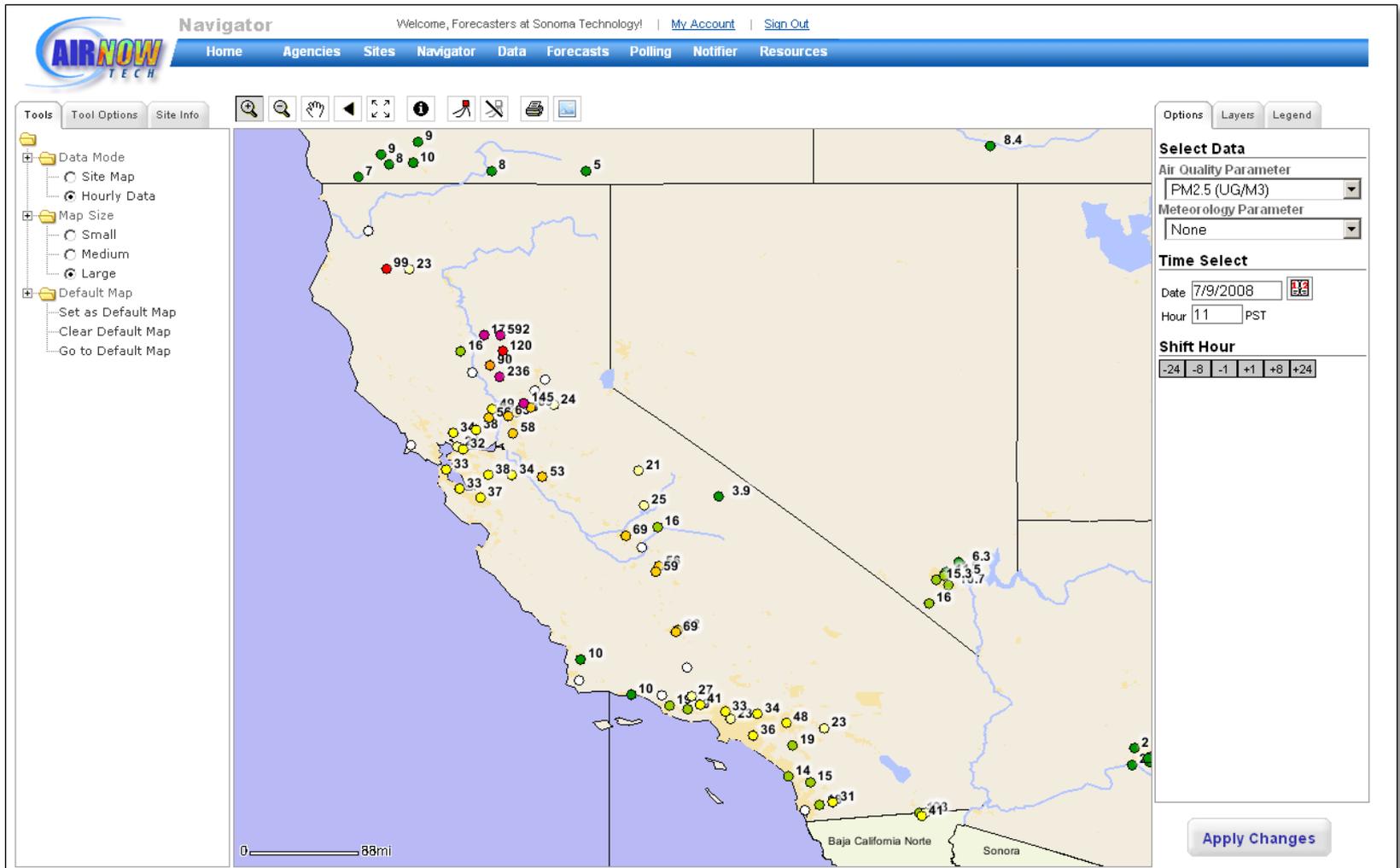
AIRNow-Tech (1 of 5)

AIRNowTech.org

- Decision Support System – management and analysis tool for the AIRNow Program
- Password protected website
- GIS functions – HYSPLIT trajectory tool, satellite, and smoke products
- Data queries, personalized tools, preferences, and services
- Ability to view meteorological and air quality data

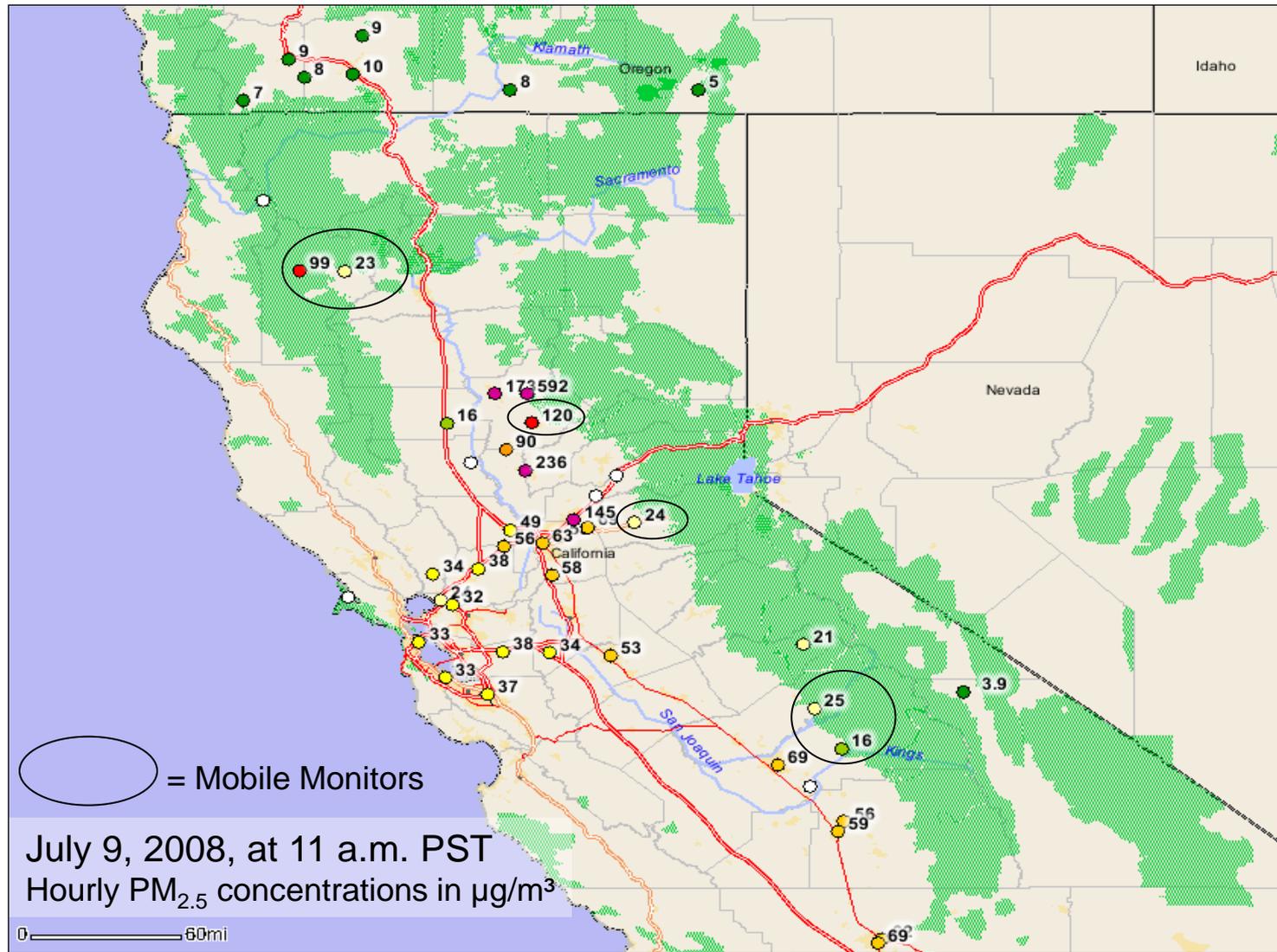


AIRNow-Tech (2 of 5)

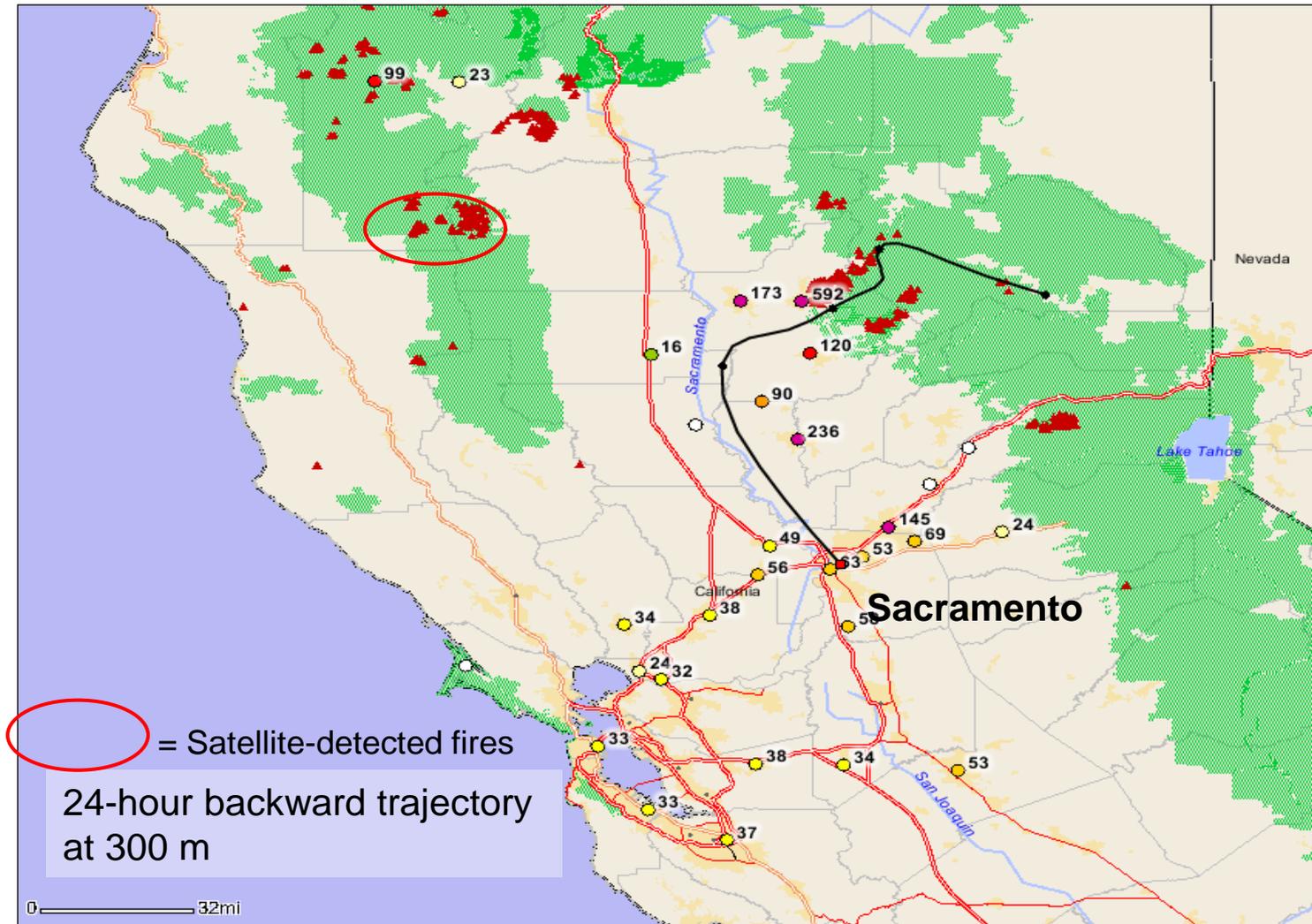


PM_{2.5} concentrations in µg/m³ in AIRNow-Tech's Navigator

AIRNow-Tech (3 of 5)

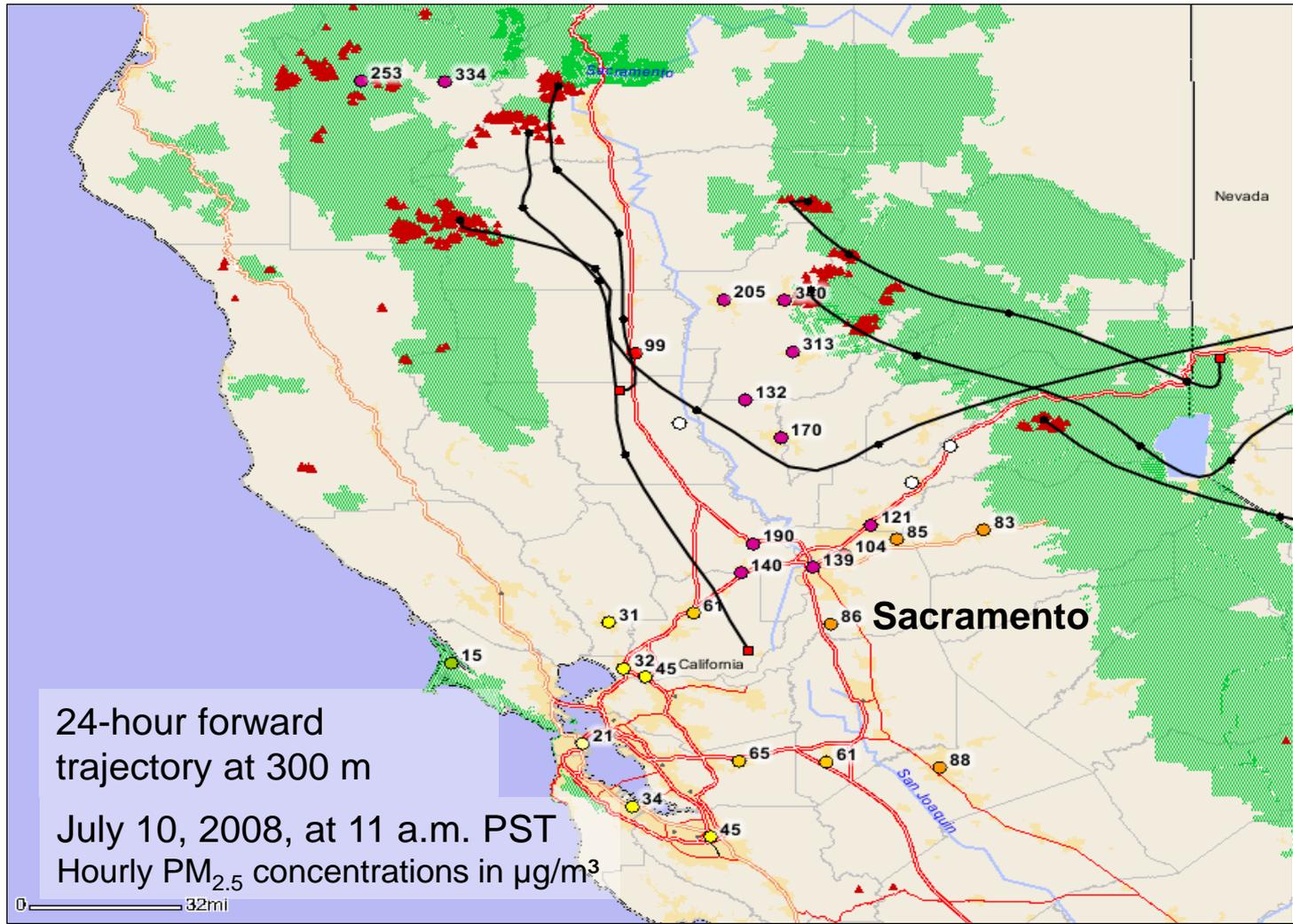


AIRNow-Tech (4 of 5)



Backward trajectory showing where Sacramento's air came from during the last 24 hours

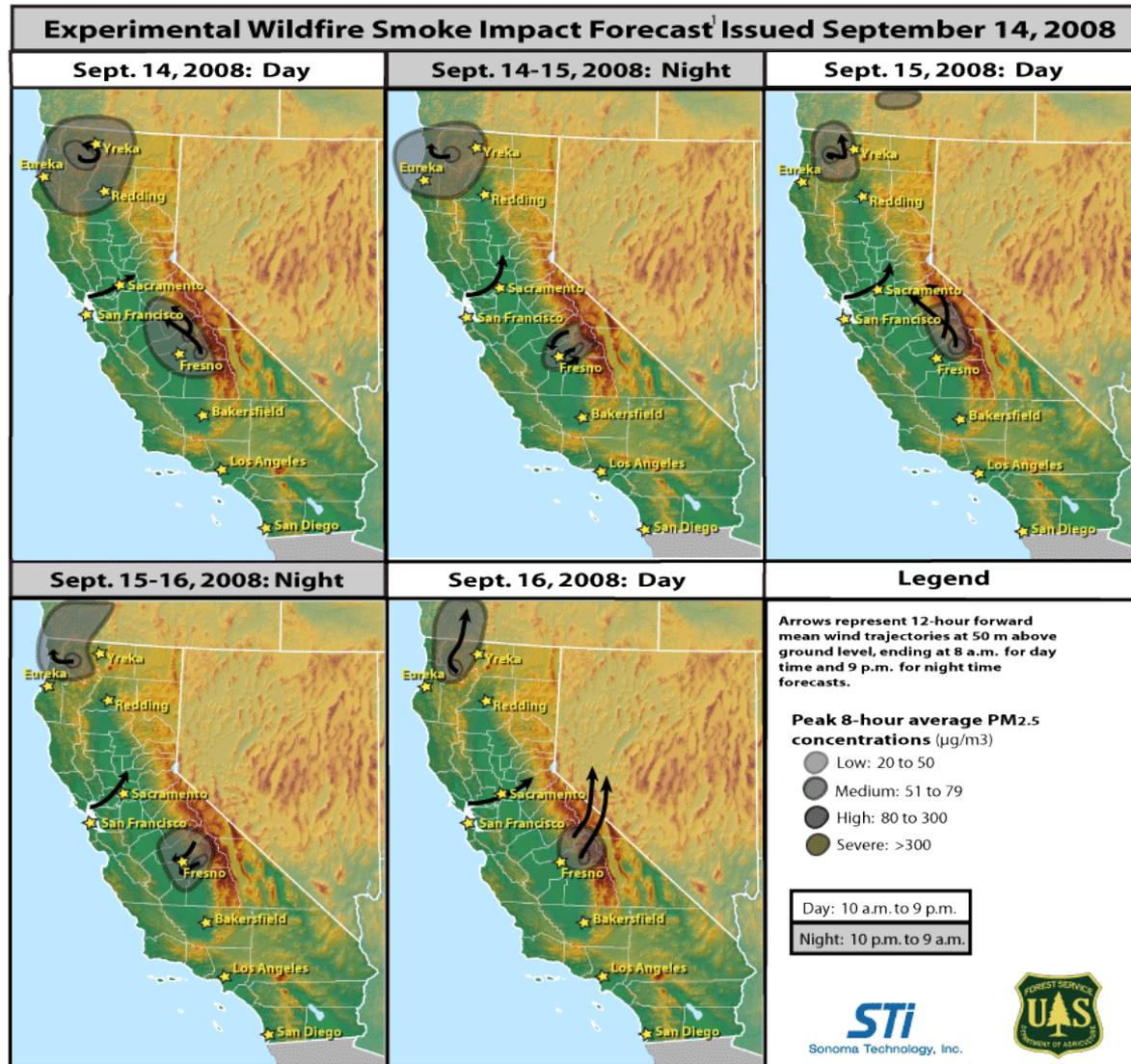
AIRNow-Tech (5 of 5)



Forward trajectory showing where the smoke from the wildfires was going during the next 24 hours

Use of Data (1 of 2)

- USFS Emergency Smoke Response Systems
- Smoke impact forecasting – daily map and forecast discussions
- Outreach – air quality advisories
- Press releases



Use of Data (2 of 2)

Press Release: 2008-07-08 Health advisory for Northern California - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.arb.ca.gov/newsrel/nr062308b.htm

California Environmental Protection Agency
NEWS RELEASE
Air Resources Board

Release 08-58
FOR IMMEDIATE RELEASE
August 18, 2008

Dimitri Stanich
(916)322-2625
www.arb.ca.gov

Health advisory for Northern and Central California

**Wildfires in Northwest California
Keep Air Quality Index in the Unhealthy to Very Unhealthy Range**

SACRAMENTO -- Poor air quality continues to plague the northwestern counties of California as the wildfires create very unhealthy conditions. Parts of eastern Humboldt County have experienced unusually persistent smoky days this week. Governor Arnold Schwarzenegger declared a state of emergency ([link](#)) in Humboldt County on August 6, 2008, "as a result of unprecedented smoke conditions and unhealthy air quality." Residents are urged to take all necessary precautions to protect their health. The North Coast Unified Air Quality Management District has again issued health advisories for its local communities.

Particulate monitors are located in Orleans, Big Bar, Junction City, Ruth, Hayfork, Weaverville, Ft. Jones, Somes Bar, and Willow Creek. These serve as the basis for the health advisories.

Experimental Smoke Impact Forecast for California: August 18, 2008

August 18, 2008	August 19, 2008	August 20, 2008

Arrows represent 24-hour forward mean wind trajectories at 50 m above ground level, ending at midnight each day.

The graphic above is a depiction of the breadth and relative concentration of the smoke plume forecast for a three-day period. It was generated by an experimental smoke model by the US Forest Service using known and projected aspects of fire behavior, terrain, and the weather. If you have any comments, questions, or suggestions about the model output, please contact Mr. Trent Proctor, of the USFS at 559-784-1500 x1114, or email him at tproctor@fs.fed.us.

The Air Resources Board and numerous local air quality agencies in Northern California recommend individuals in areas with 'Unhealthy' air quality indexes suspend outdoor activities. For information on air quality in your area go to www.Airnow.gov and use the drop down menu to select California, or go to the North Coast Unified AQMD web site at www.ncuaqmd.org.

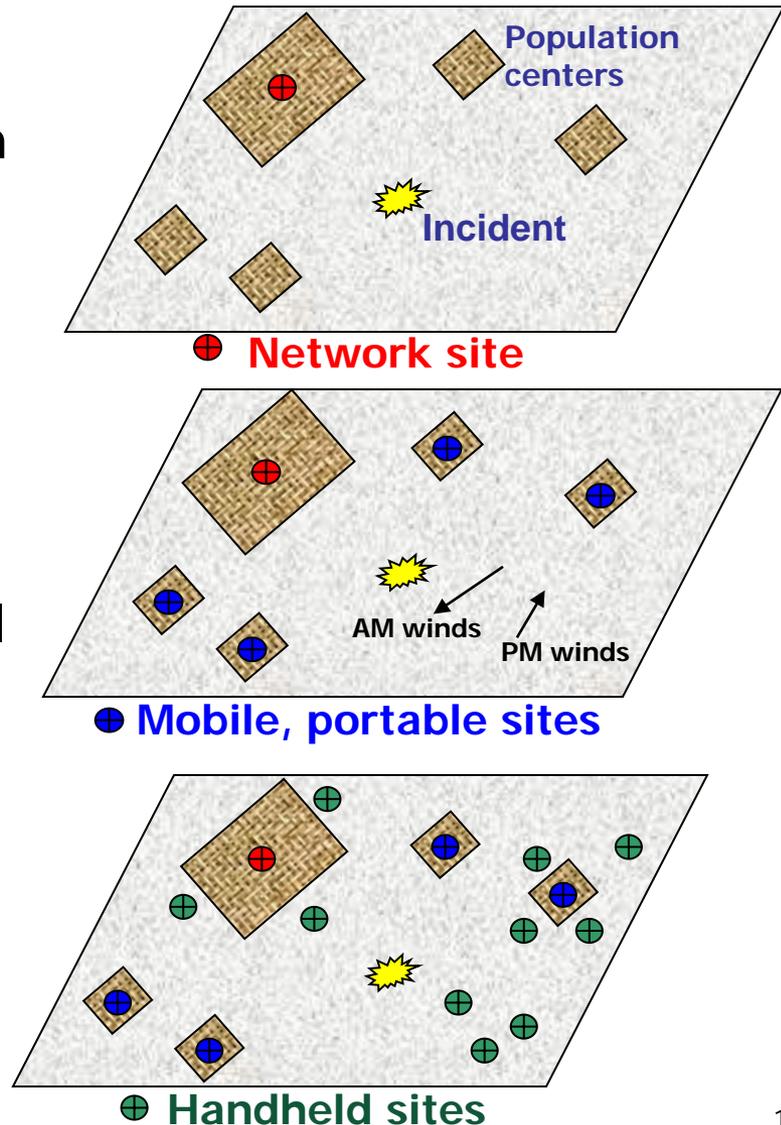
The following pictures, from different vantage points, were provided by the North Coast district of the Hoopa Valley earlier this month and demonstrate how visibility can help determine the health category at the moment.

Done

California Air Resources Board used graphic in news release on August 18, 2008 (<http://www.arb.ca.gov/newsrel/nr062308b.htm>).

Particulate Matter Monitoring Considerations During Emergency Response

- Monitoring in populated areas
 - Representative of local population
 - Senior centers, schools and day care centers, evacuation centers, town center, residential areas, incident command units
 - Diurnal winds patterns
- Operational considerations
 - Power, security, troubleshooting (all systems), periodic maintenance
- Maintain reserve
 - Back-up, unexpected questions
- Layered approach



Questions ??