

# Low-Cost Air Sensors for Community Partners

## Board of Directors Santa Barbara County Air Pollution Control District

Our Mission: To protect the people and the environment of Santa Barbara County from the effects of air pollution.

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Director / APCO

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December 20, 2018

An infographic titled "WHAT ARE AIR SENSORS?" and "WHAT ARE THE BENEFITS?" and "WHAT ARE SOME CHALLENGES?". The top section, "WHAT ARE AIR SENSORS?", shows icons for Temperature, Wind, Ozone, Particles, Carbon Monoxide, Humidity, NO2, and SOx, with a sensor device and the text "Portable, low-cost devices that measure air quality". The middle section, "WHAT ARE THE BENEFITS?", shows a house icon for "Localized air quality", a stopwatch for "Real-time data", and a smartphone for "Some are mobile compatible". The bottom section, "WHAT ARE SOME CHALLENGES?", shows a clipboard with a red cross for "No health standards for short periods of time", a person in a lab coat for "Devices need to be tested for long period of time for accuracy & precision", and a graph for "Data overload - hard to interpret". The bottom of the infographic includes the text "Learn more at: [ourair.org/air-sensors](http://ourair.org/air-sensors)" and the "OurAir.org" logo with the Twitter handle "@OurAirSBC".

**WHAT ARE AIR SENSORS?**

Temperature, Wind, Ozone, Particles, Carbon Monoxide, Humidity, NO<sub>2</sub>, SO<sub>x</sub>

Portable, low-cost devices that measure air quality

**WHAT ARE THE BENEFITS?**

Localized air quality, Real-time data, Some are mobile compatible

**WHAT ARE SOME CHALLENGES?**

No health standards for short periods of time, Devices need to be tested for long period of time for accuracy & precision, Data overload - hard to interpret

Learn more at: [ourair.org/air-sensors](http://ourair.org/air-sensors)

OurAir.org @OurAirSBC

Infographic originally created by Chris Hewes for Santa Barbara County Air Pollution Control District

# Overview

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- How low-cost sensors work
- Plans for deploying low-cost sensors
- Working with Community Partners
- Website resources

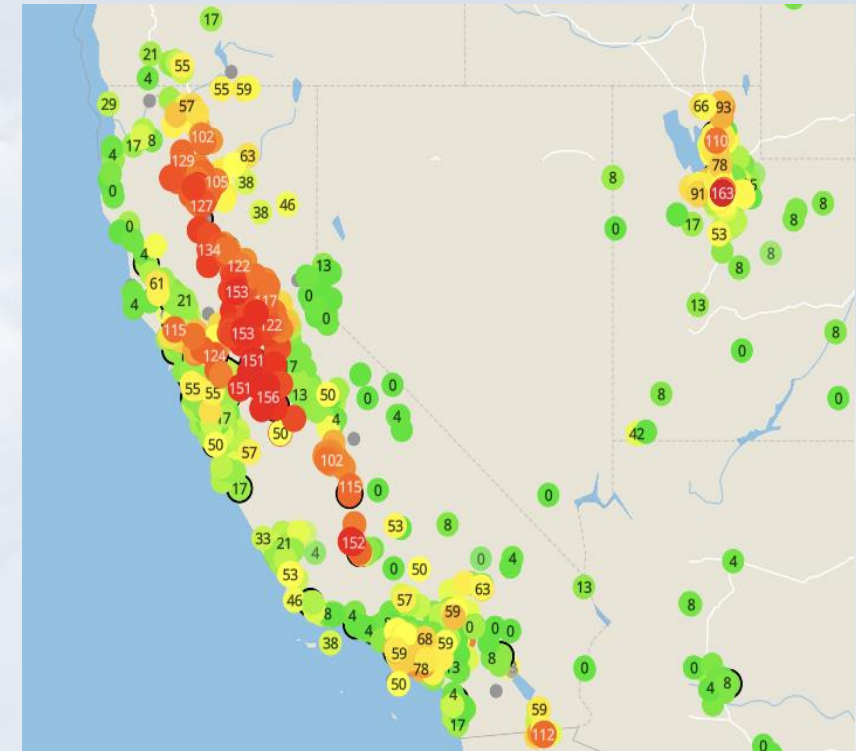
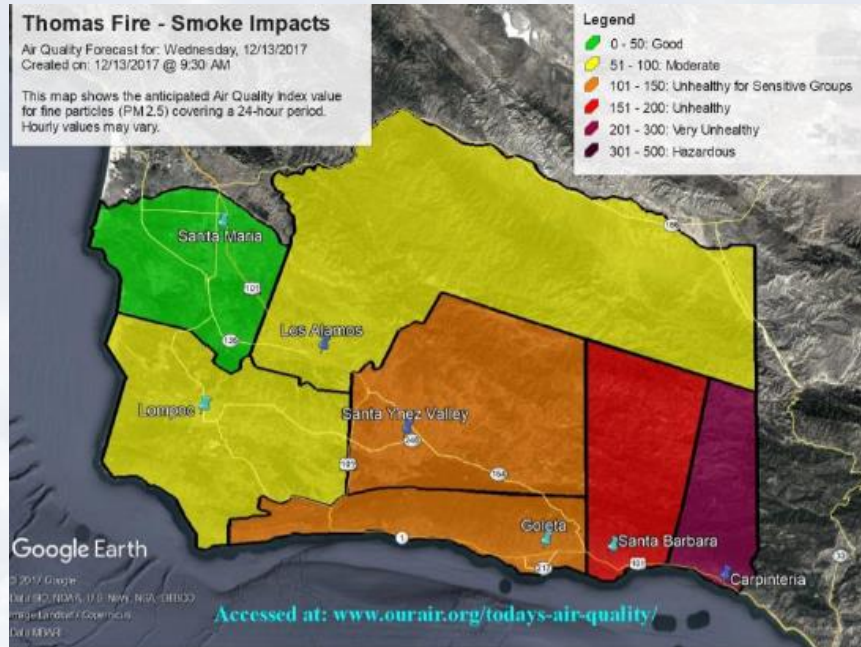
# About Low-Cost Sensors



- Differences between types of monitoring equipment
  - Regional versus localized conditions
- PurpleAir brand sensors
  - Reliability, pricing, ease of use and installation, and popular online map:  
<https://www.purpleair.com/map#1.05/0/-30>

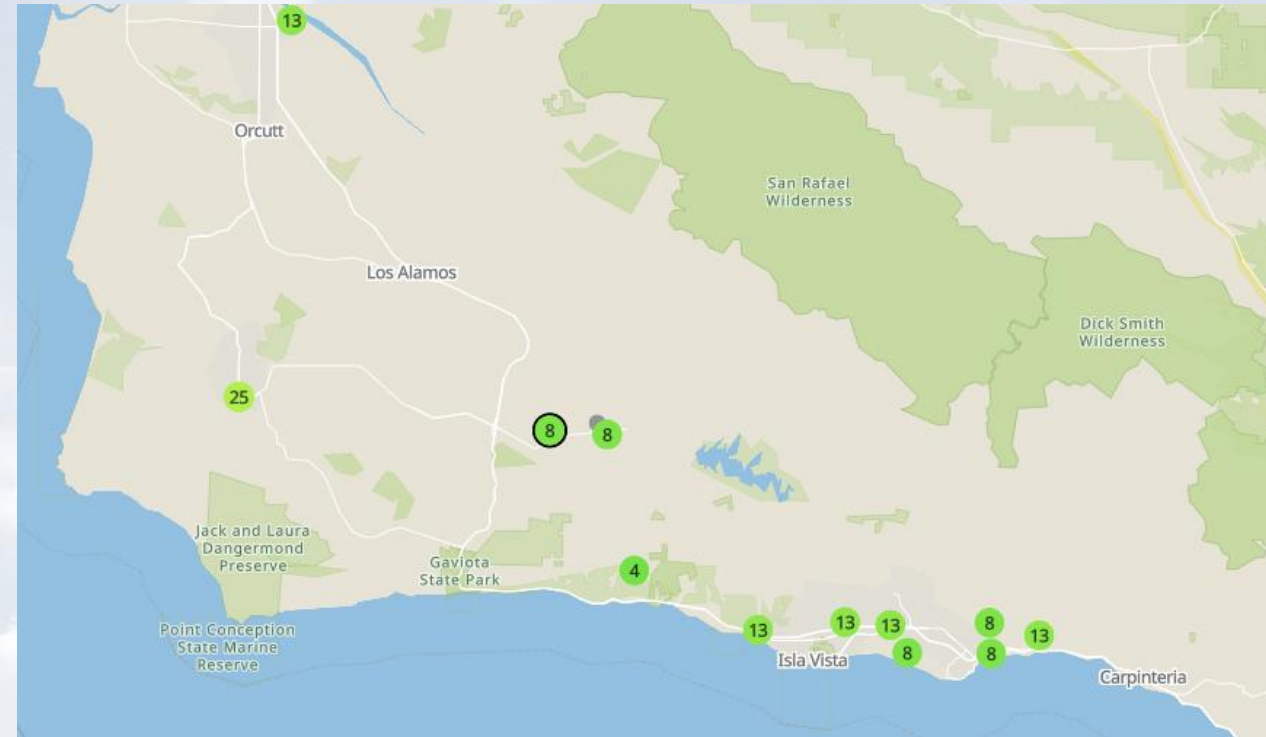
# Popularity of Low-Cost Sensors

- Interest in air quality conditions grew significantly during Thomas Fire
- Increased questions and references to PurpleAir map
- Provide county residents with additional information to make air quality decisions



# Using Low-Cost Sensors in Santa Barbara County

- With Board approval, enter into agreements with Community Partners to strategically deploy PurpleAir sensors throughout the county
- Community Partners: schools, libraries, municipalities, nonprofits
- Sensors don't meet federal, state, or local regulatory requirements – data will not be used for enforcement purposes



On December 19th, 2018, 2:31:26 PM PST

**Real time US EPA PM2.5 AQI is now 8**

0-50: Air quality is considered satisfactory, and air pollution poses little or no risk

Now	10 Min	30 Min	1 hr	6 hr	1 Day	Week
8	8	13	13	17	25	33

Sensor: CAR-B\_Smoke\_SBCAPCD\_Santa Ynez

PA-II 2.80e RSSI: -78

# Website Resources and Information

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- Information for individuals
- Basic installation and maintenance
- How to interpret the data
- Monthly reports for co-located sensors

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

# Recommendation

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- Approve the attached “Low-Cost Air Quality Sensor Agreement” to loan low-cost air sensors (e.g., PurpleAir sensors) to community partners;
- Delegate authority to the Control Officer to enter into said agreements; and
- Authorize the Control Officer to update the Board-approved agreement from time to time to implement requirements and policies identified by District Counsel, Risk Management, and the Auditor that do not require Board approval.

# Contact Information

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