

Communicating to the Public about Respiratory Protection: EPA Perspectives on the Regulatory Landscape



Susan Lyon Stone
Senior Environmental Health Scientist
U.S. Environmental Protection Agency
stone.susan@epa.gov



Respiratory Protection for the Public and Workers without Respiratory Protection
Programs at their Workplaces
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Legislative Requirements

Section 319 of the Clean Air Act governs the establishment of uniform air quality index for reporting of air quality. This section directs the EPA Administrator to

“promulgate regulations establishing an air quality monitoring system throughout the United States which utilizes uniform air quality monitoring criteria and methodology and measures such air quality according to a uniform air quality index” and “provides for daily analysis and reporting of air quality based upon such uniform air quality index* * *”.

63 FR 67819, December 9, 1998

U.S. Code of Federal Regulations

Title 40: Protection of Environment

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

§58.50 Index reporting.

- (a) The State or where applicable, local agency shall report to the general public on a daily basis through prominent notice an air quality index that complies with the requirements of appendix G to this part.
- (b) Reporting is required for all individual MSA with a population exceeding 350,000.
- (c) The population of a metropolitan statistical area for purposes of index reporting is the latest available U.S. census population.

[71 FR 61302, Oct. 17, 2006, as amended at 80 FR 65466, Oct. 26, 2015]

https://www.ecfr.gov/cgi-bin/text-idx?SID=4513018169e3ead3604e0d51e603b018&mc=true&node=sp40.6.58.f&rqn=div6#se40.6.58_150

Air Quality Index (AQI) - Linking Air Quality and Health

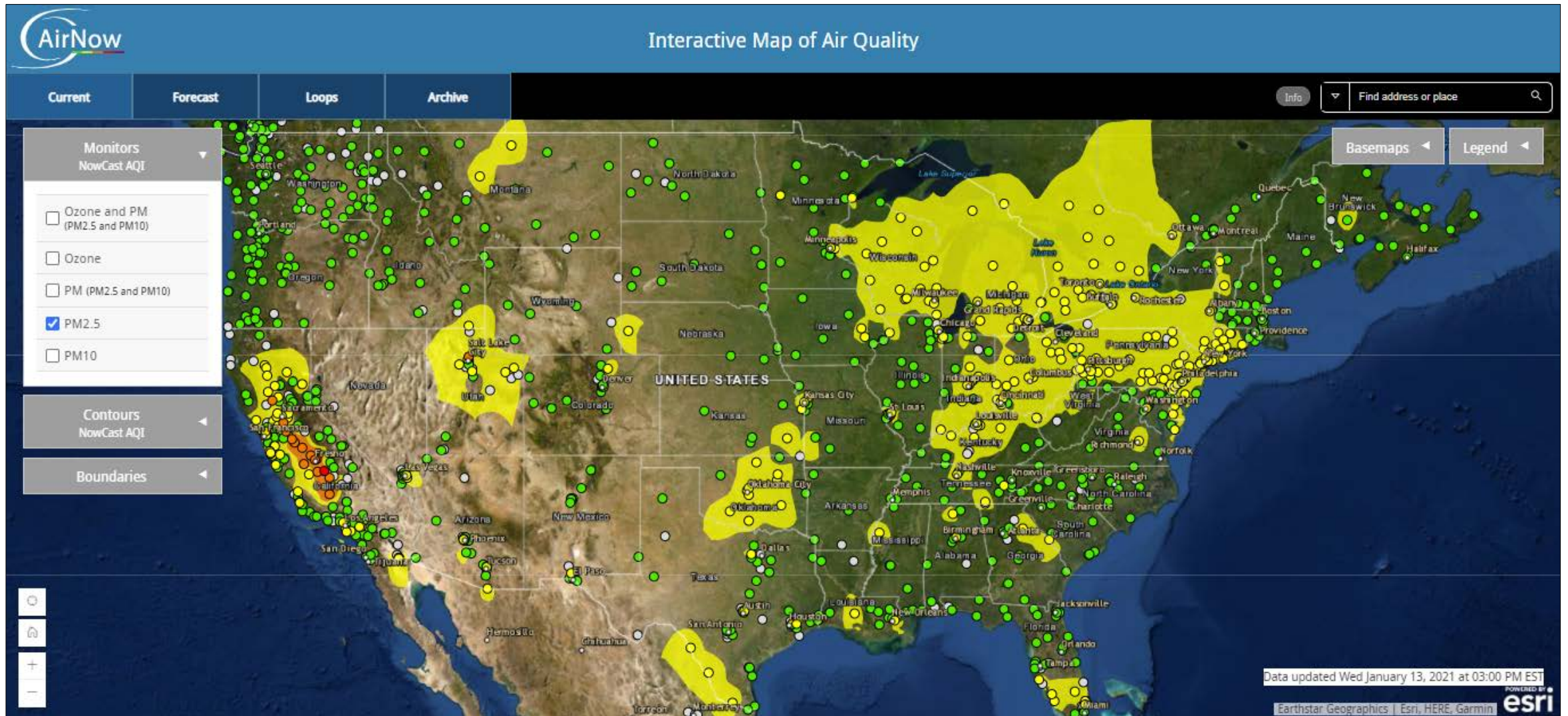
- AQI is EPA's color-coded tool for communicating air quality and health information to the public
 - Nationally uniform – used by federal/state/tribal/local agencies, all FRM/FEM monitors
 - Updated to reflect the latest standards and science
- Most common pollutants: PM (24-hr average), O₃ (8-hr average)
- AQI has many uses
 - Next-day forecasting
 - Current air quality (NowCast)
 - Historical air quality



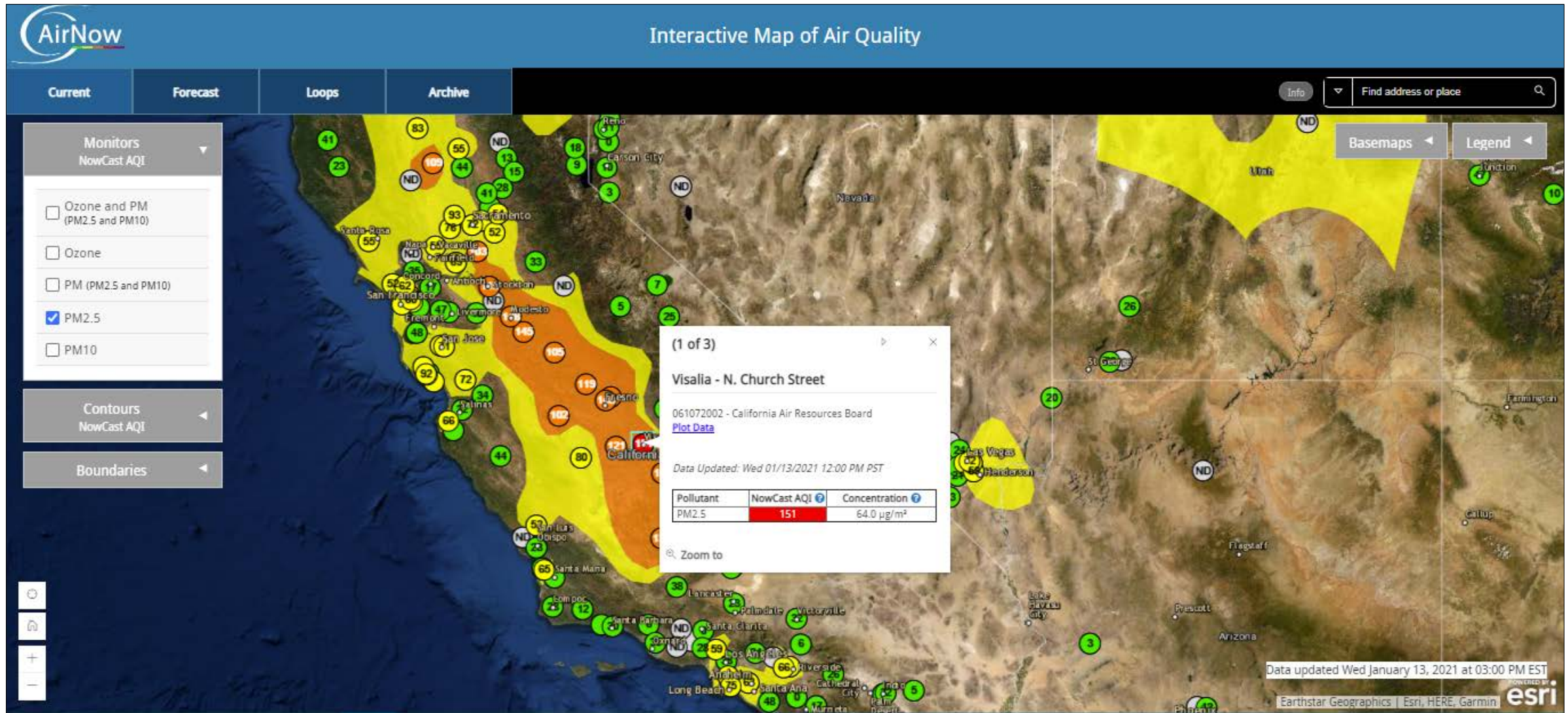
PM2.5 Daily AQI Values 2010-2019, Missoula Co, MT
Data Viz (www.airnow.gov)

The Air Quality Index	
Index Values	AQI Category
0 - 50	Good
51 - 100	Moderate
101 - 150	Unhealthy for Sensitive Groups
151 - 200	Unhealthy
201 - 300	Very Unhealthy
301 - 500	Hazardous

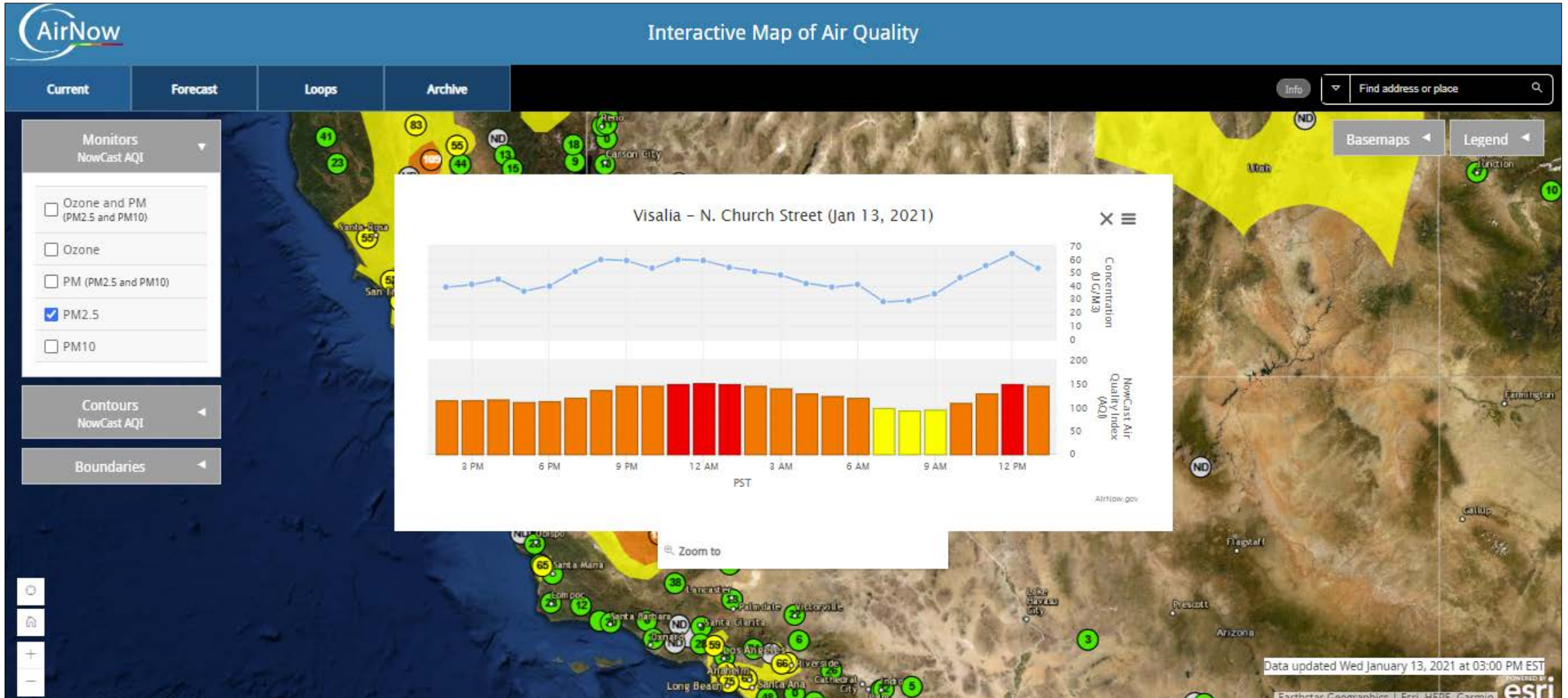
AirNow Interactive Map of Air Quality



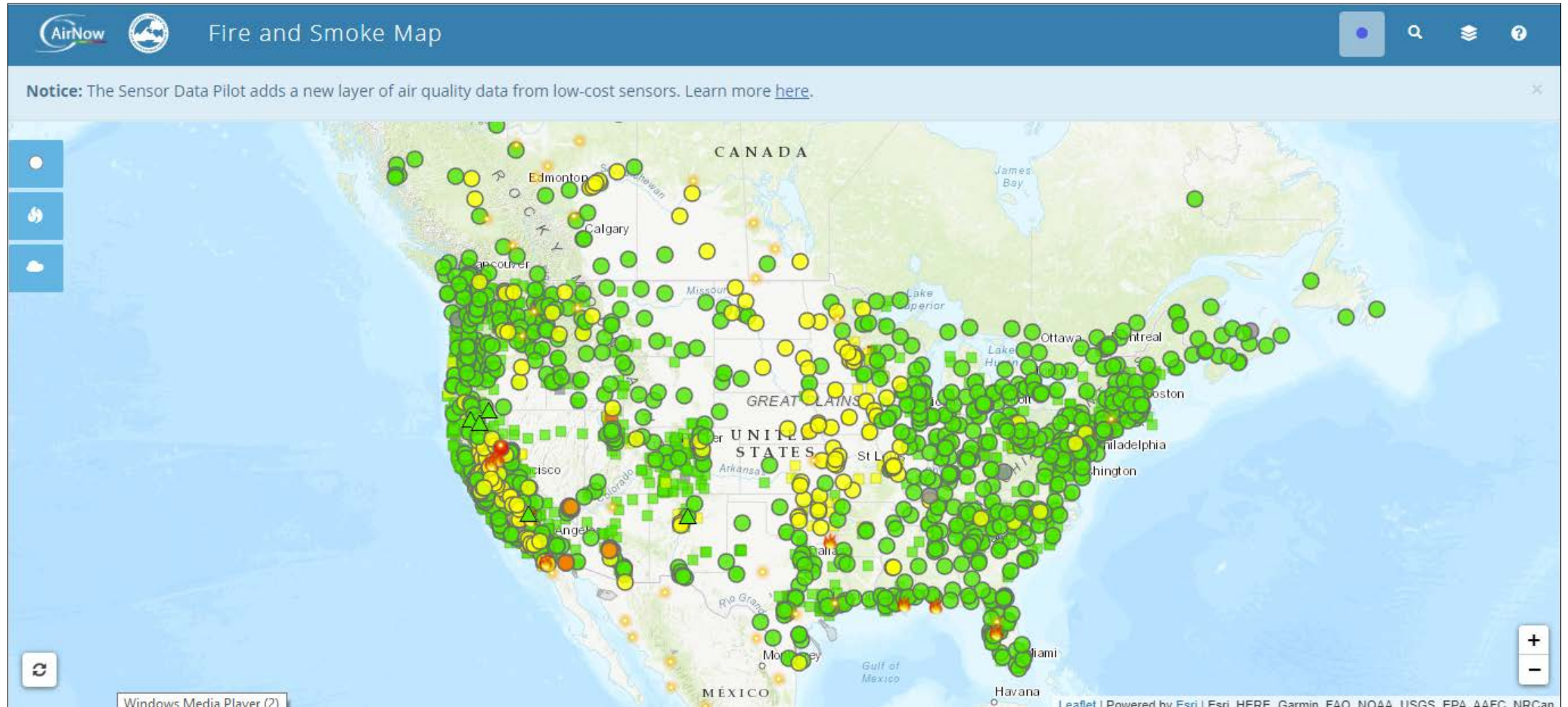
AirNow Interactive Map of Air Quality



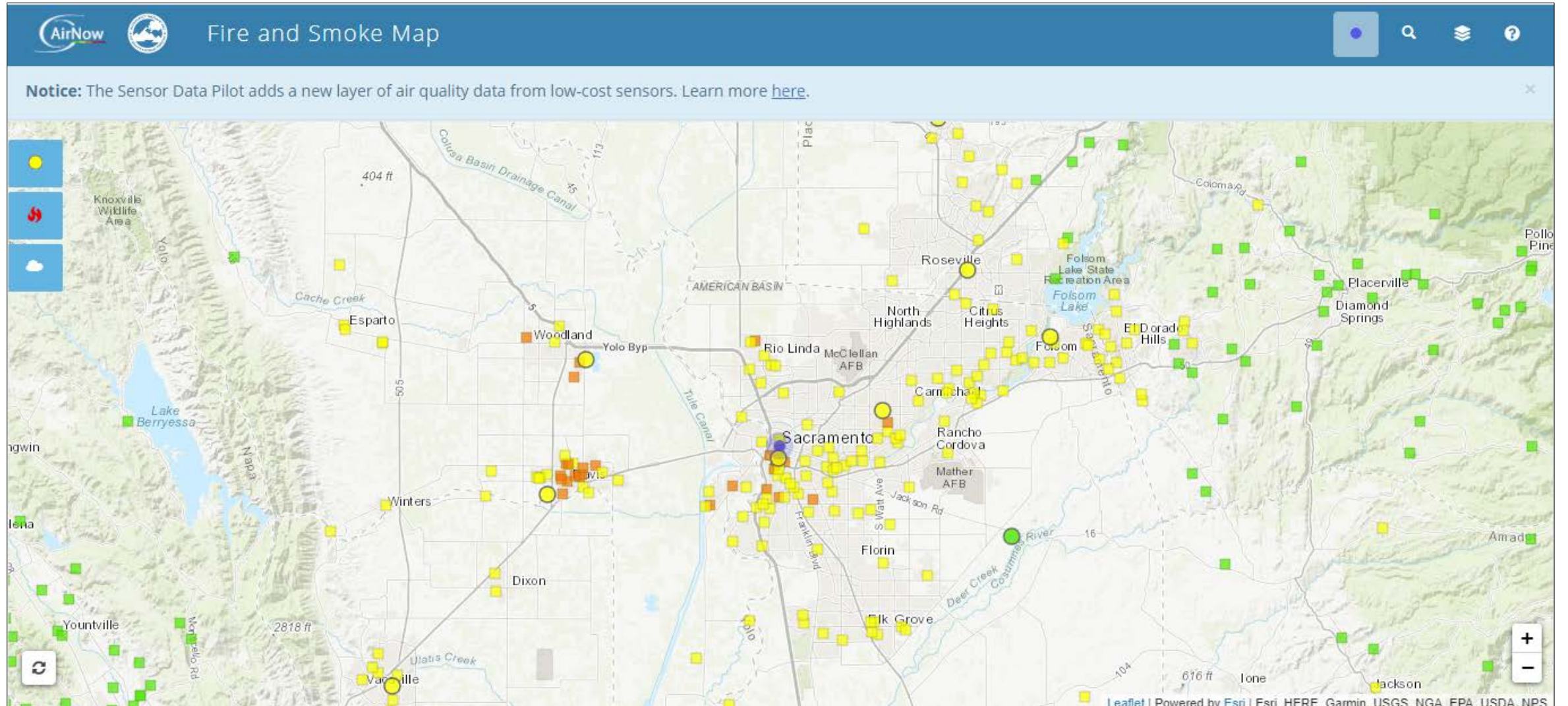
AirNow Interactive Map of Air Quality



AirNow Fire and Smoke Map



AirNow Fire and Smoke Map with Sensor Data Layer



Air Resource Advisor Outlooks



Smoke Outlook for 8/28 - 8/29
Wine Country LNU Lightning Complex
 Issued at: 2020-08-28 09:52 PDT

Fire

Activity on the Hennessey fire is maintaining air quality concerns especially to the North and Northeast of the fire due to continued growth and burnout operations. The fire is currently at 313,516 ac and 31% contained. The Walbridge fire continues to burn and is currently at 55,353 ac with 33% containment. The Myers fire on the coast is creating minor and localized air quality concerns. Myers fire is currently 98% contained at 2,360 ac.

Smoke

Air quality is expected to decline today in areas North of the Hennessey fire in the direction of growth. Additionally, areas in the south of the forecast may experience decreased air quality due to a swirling effect of smoke from regional fires. With multiple fires in the region smoke conditions can change quickly. Current air quality conditions can be viewed throughout the day at <https://fire.airnow.gov/>

Special Statement

While containment percentages grow within the LNU Complex, fires continue to interior burn and put up significant amount of smoke.



Daily AQI Forecast* for Aug 28, 2020

Station	Yesterday hourly			Thu 8/27	Forecast* Comment for Today -- Fri, Aug 28	Fri 8/28	Sat 8/29
	tu	noon	to				
Napa					USG with potential periods of unhealthy		
Calistoga					Moderate smoke impacts can be expected throughout the day		
Woodland					Moderate smoke impacts can be expected throughout the day		
Vacaville					USG with potential periods of unhealthy		
UCD					Air quality is expected to decrease to USG throughout the day		
Hidden Valley					Expect periods of unhealthy air quality throughout the day		
Lakeport					Moderate smoke impacts can be expected throughout the day		
Guerneville					Expect slightly improved conditions from yesterday with moderate to USG impacts throughout the day		
Healdsburg					Air quality is expected to decrease to USG throughout the day		
Cloverdale					Expect slightly improved conditions from yesterday with moderate impacts throughout the day		
Brooks					Expect air quality to decrease significantly with periods of unhealthy to very unhealthy conditions throughout the day.		
Winters					Expect decreasing air quality conditions into the afternoon with periods of moderate to USG conditions		
Sebastopol					Moderate with periods of USG		

Issued 2020-08-28 09:52 PDT by Aaron Wilkerson, ARA LNU Lightning Complex (awilkerson@blm.gov)

Air Quality Index (AQI)	Actions to Protect Yourself
Good	None
Moderate	Unusually sensitive individuals should consider limiting prolonged or heavy exertion.
USG	People within Sensitive Groups* should reduce prolonged or heavy outdoor exertion.
Unhealthy	People within Sensitive Groups* should avoid all physical outdoor activity.
Very Unhealthy	Everyone should avoid prolonged or heavy exertion.
Hazardous	Everyone should avoid any outdoor activity.

***Disclaimer:** This forecast is based on fine particulates only; ozone is not included. Forecasts may be wrong; use at own risk. Use caution as conditions can change quickly. See your health professional as needed. Smoke sensitive group should take appropriate precautions.

Additional Links

Regional Smoke Outlooks -- <https://fire.airnow.gov/>

Issued by USFS Wildland Fire Air Quality Response Program -- www.wildlandfireairquality.com
 Wine Country updates -- <https://www.airnow.gov/outlooks/WineCountry>
 *Smoke and Health Info -- www.airnow.gov/index.cfm?action=smoke-index

New Video Tools

EPA has developed three short videos to help people understand the nature of low cost sensors and how air quality measurements relate to public health, as well as a public service announcement to introduce the videos.

The videos cover how EPA collects and uses regulatory data, how EPA communicates health messaging, and questions that the public can ask themselves as they consider how to use sensors.

Links to videos:

- [Air Sensor PSA](#)
- [Air Sensor PSA \(Spanish\)](#)
- [Air Sensors: Regulatory Data and Sensor Data Quality](#)
- [Calidad de los Datos Regulatorios y de los Datos del Sensor](#)
- [Air Sensors: Measurements and Your Health](#)
- [Medidas y Su Salud](#)
- [Air Sensors: Sources of Air Quality Information](#)
- [Fuentes de Información sobre la Calidad del Aire](#)



Wildfire Smoke: A Guide for Public Health Officials and Factsheets



WILDFIRE SMOKE FACTSHEET

Indoor Air Filtration

When wildfire smoke gets inside your home it can make your indoor air unhealthy, but there are steps you can take to protect your health and improve the air quality in your home. Reducing indoor sources of pollution is a major step toward lowering the concentrations of particles indoors. For example, avoid burning candles, smoking tobacco products, using aerosol products, and avoid using a gas or wood-burning stove or fireplace. Another step is air filtration. This fact sheet discusses effective options for filtering and reducing indoor air pollution.

Filtration Options

There are two effective options for improving air filtration in the home: 1) upgrading the central air system filter, and 2) using high efficiency portable air cleaners. Before discussing filtration options, it is important to understand the basics of filter efficiency.

Filter Efficiency

The most common industry standard for filter efficiency is the Minimum Efficiency Reporting Value (MERV). The most efficient filters available for home use are MERV 13-16. These filters can capture as much as 95 percent of the most common indoor air pollutants. High efficiency particulate air (HEPA) filters are the most efficient. You must replace your central air system filter regularly. HEPA filters will not catch smoke or ash particles. HEPA filters are not designed to catch smoke or ash particles.

WILDFIRE SMOKE FACTSHEET

Protect Your Pets from Wildfire Smoke

Your pets can be affected by wildfire smoke. If you feel the effects of smoke, they probably do, too! Pets with heart or lung disease and older pets are at greater risk of poor air quality.



WILDFIRE SMOKE FACTSHEET

Protect Your Lungs from Wildfire Smoke or Ash

Wildfire smoke and ash can irritate your eyes, nose, throat, and lungs. They can make you cough or wheeze, and can make it hard to breathe. A respirator is a device (mask) that covers your nose and mouth, fits tightly to your face, and can filter out smoke or ash particles before you breathe them in. Respirators are not sized for children.

Protecting Your Health

The most effective way to protect yourself during wildfire emergencies is to stay indoors or limit your time outdoors when there is smoke in the air. This is especially important if you have heart or lung disease and are at higher risk for adverse health effects. Reducing physical activity and using HEPA-filtered air cleaners indoors are other ways to reduce your smoke exposure. Consider temporary relocation out of the smoky area if possible. By limiting your exposure one of these ways, you may not need to wear a respirator.

Respirators Can Help Protect Your Lungs



N95 or P100 respirators can help protect your lungs from smoke or ash. Straps must go above and below the ears.

WILDFIRE SMOKE FACTSHEET

Reduce Your Smoke Exposure

When wildfires create smoky conditions, there are things you can do, indoors and out, to reduce your exposure to smoke. Reducing exposure is important for everyone's health — especially children, older adults, and people with heart or lung disease.

Reduce smoke exposure indoors

- **Stay inside** with the doors and windows closed. Whether you have a central air conditioning system or a room unit, use high efficiency filters to capture fine particles from smoke. Ask an air conditioning professional what type of high efficiency filter your air conditioner can accept.
- **Seek shelter elsewhere** if you do not have an air conditioner and it is too warm to stay inside with the windows closed.
- **Do not add to indoor air pollution.** Do not burn candles or use gas, propane, wood-burning stoves, fireplaces, or aerosol sprays. Do not fry or broil meat, smoke tobacco products, or vacuum. All of these can increase air pollution indoors.
- **Use a portable air cleaner** to reduce indoor air pollution. Make sure it is sized for the room and that it does not make ozone, which is a harmful air pollutant. Portable air cleaners can be used along with efficient central air systems with efficient filters to maximize the reduction of indoor particles.
- **Create a "clean room"** in your home. Choose a room with no fireplace and as few windows and doors as possible, such as a bedroom. Use a portable air cleaner in the room.
- **Have a supply of N95 respirators** and learn how to use them. They are sold at many home improvement stores and online.
- **Long-term smoke events** usually have periods when the air is better. When air quality improves, even temporarily, **air out your home** to reduce indoor air pollution.



Use a portable air cleaner to reduce indoor air pollution.

WILDFIRE SMOKE FACTSHEET

Prepare for Fire Season

People who live in areas that are regularly affected by smoke or where the wildfire risk is high, take steps to know how to get ready before a wildfire. Know how to protect yourself from wildfire smoke. It is especially important for the health of children, older adults, and people with heart or lung disease.

Prepare for a Wildfire

- If you have heart or lung disease, check with your doctor about what you should do during smoke events.
- If you have asthma or another lung disease, update your respiratory management plan.
- Have a supply of N95 masks and learn how to use them. They are sold at many home improvement stores and online.
- Organize your important items ahead of time and know where to go in case you have to evacuate.



Before there is a wildfire, there is time to prepare. Get a portable air cleaner, HEPA filter, and electronic air filter. Do not produce ozone, can make it worse.

You will receive alerts and using air quality reports and forecasts, from

Wildfire Guide - Updating Evidence-based Information



[AirNow](#)[AQI & Health](#)[Fires](#)[Maps & Data](#)[Education](#)[International](#)[Resources](#)



[Get Current and Forecast Air Quality for Your Area](#)

ZIP Code, City, or State 

Wildfire Guide Post-Publication Updates

This web page is for Wildfire Smoke Guide authors and contributors will post fact sheets, web links, and other new information developed since 2019. The goal is to provide public health officials with the latest information between revisions of the Guide.

Wildfire Preparedness and Response during COVID-19

- CDC - [Wildfire Smoke and COVID-19](#)
- CDC - [Public Health Strategies to Reduce Exposure to Wildfire Smoke during the COVID-19 Pandemic](#)
- CDC-USFS - [Wildfire Smoke and COVID-19: Frequently Asked Questions and Resources for Air Resource Advisors and Other Environmental Health Professionals](#)
- CDC - [COVID-19 Considerations for Cleaner Air Shelters and Cleaner Air Spaces to Protect the Public from Wildfire Smoke](#)
- CDC - [Natural Disasters and Severe Weather](#)
- CDC - [Interim Guidance for General Population Disaster Shelters During the COVID-19 Pandemic](#)
- CDC - [FAQs for Wildland Firefighters](#)
- CDC - [Environmental Health Assessment Form for Disaster Shelters](#)

Indoor Air Quality and COVID-19

- EPA - [Frequent Questions about Indoor Air and Coronavirus \(COVID-19\)](#)

Other Smoke and COVID-19 Related Materials

- CDC - [Open Burning during the COVID-19 Pandemic](#)

Due to the intersection of wildfire smoke and COVID-19 during the pandemic, below are general resources from CDC about COVID-19:

- [How to protect yourself and what to do if you are sick](#)
- [COVID-19 Communication Materials \(posters, handouts, flyers, videos\)](#)

Downloadable Factsheets for People with Heart or Lung Disease

In English and Spanish



ASTHMA AND OUTDOOR AIR POLLUTION

1 Air pollution can make asthma symptoms worse and trigger attacks.

If you or your child has asthma, have you ever noticed symptoms get worse when the air is polluted? Air pollution can make it harder to breathe. It can also cause other symptoms, like coughing, wheezing, chest discomfort, and a burning feeling in the lungs.

Two key air pollutants can affect asthma. One is *ozone* (found in smog). The other is *particle pollution* (found in haze, smoke, and dust). When ozone and particle pollution are in the air, adults and children with asthma are more likely to have symptoms.

2 You can take steps to help protect your health from air pollution.

► **Get to know how sensitive you are to air pollution.**

- Notice your asthma symptoms when you are physically active. Do they happen more often when the air is more polluted? If so, you may be sensitive to air pollution.

- Also notice any asthma symptoms that begin up to a day *after* you have been outdoors in polluted air. Air pollution can make you more sensitive to asthma triggers, like mold and dust mites. If you are more sensitive than usual to indoor asthma triggers, it could be due to air pollution outdoors.

► **Know when and where air pollution may be bad.**

- Ozone is often worst on hot summer days, especially in the afternoons and early evenings.
- Particle pollution can be bad any time of year, even in winter. It can be especially bad when the weather is calm, allowing air pollution to build up. Particle levels can also be high:
 - Near busy roads, during rush hour, and around factories.
 - When there is smoke in the air from wood stoves, fireplaces, or burning vegetation.

Asthma

<https://www3.epa.gov/airnow/asthma-flyer.pdf>



Heart Disease, Stroke, and Outdoor Air Pollution

1 Did you know that air pollution can trigger heart attacks, stroke, and other health effects?

Medical studies show that air pollution can trigger heart attacks, stroke, and irregular heart rhythms—especially in people who are already at risk for these conditions. Also, for people with a medical condition called heart failure, air pollution can further reduce the ability of the heart to pump blood the way that it should. Very small particles are the pollutants of greatest concern for triggering these effects. Particle pollution is found in haze, smoke, and dust—and sometimes in air that looks clean. This fact sheet tells you how you can:

- Get up-to-date information about your local air quality.
- Protect your health when particle pollution is at unhealthy levels.

2 Are you at higher risk?

Older adults and people with risk factors for heart disease or stroke may be at greater risk. You are at greater risk if you:

- Have had a heart attack, angina, bypass surgery, angioplasty with or without a stent, a stroke, blockages in the neck or leg arteries, heart failure, heart rhythm problems, diabetes, or chronic obstructive lung disease.

You may be at greater risk of heart disease or stroke (and therefore at greater risk from particle pollution) if any of these apply:

- You are a man 45 years or older, or a woman 55 years or older.
- You have a family history of stroke or early heart disease (father or brother diagnosed before age 55; mother or sister diagnosed before age 65).
- You have high blood pressure or high blood cholesterol.
- You are overweight or not physically active.
- You smoke cigarettes.

3 How can you protect your health?

Regular exercise is important for staying healthy, especially if you have heart disease. By adjusting when and where you exercise, you can lead a healthier lifestyle and help reduce your risk of heart problems or stroke triggered by air pollution. In addition:

- If you have heart disease or have experienced a stroke, check with your health care provider about the best ways to protect your health when the air quality is unhealthy.
- If you're at risk of heart disease or stroke and plan to exercise more than usual, discuss this with your health care provider.

► **Know when and where particle pollution levels may be unhealthy.**

Particle pollution levels can be high any time of year. Particle levels can also be high:

- Near busy roads, in urban areas (especially during rush hour), and in industrial areas.
- When there is smoke in the air from wood stoves, fireplaces, burning vegetation, or forest fires.



Cardiovascular Disease

<https://www3.epa.gov/airnow/heartflyer.pdf>

PM Web Course for Healthcare Professionals



The screenshot shows the EPA website header with the EPA logo and navigation links: Environmental Topics, Laws & Regulations, and About EPA. A search bar is also present. The main heading is "Wildfire Smoke and Your Patients' Health". Below the heading is a large image of a wildfire with people in the foreground. To the right of the image is a text box stating: "This course is intended for physicians, registered nurses, asthma educators and others involved in clinical or health education." Below the image are two buttons: "1 Start the Course" and "2 Obtain Continuing Education Credits". At the bottom right, there is a link: "Meet the developers of this course."

EPA United States Environmental Protection Agency

Environmental Topics Laws & Regulations About EPA Search EPA.gov

Wildfire Smoke and Your Patients' Health

CONTACT US SHARE

Learn about the health effects associated with wildfire smoke and actions for patients to take before and during a wildfire to reduce exposure.

This course is intended for physicians, registered nurses, asthma educators and others involved in clinical or health education.

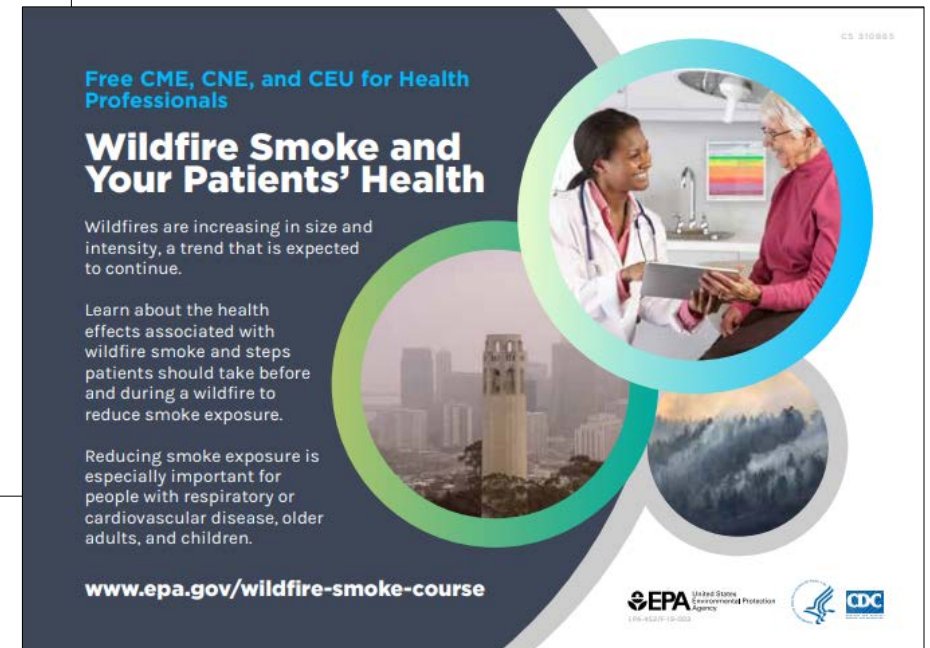
- Start the Course
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[Meet the developers of this course.](#)

Promotional Palm Card

<https://www.airnow.gov/sites/default/files/2019-12/wildfire-smoke-and-your-patients-health-2019.pdf>

<https://www.epa.gov/wildfire-smoke-course>



The palm card features a dark blue background with three circular images: a doctor and a patient, a city skyline, and a wildfire. The text on the card includes: "Free CME, CNE, and CEU for Health Professionals", "Wildfire Smoke and Your Patients' Health", "Wildfires are increasing in size and intensity, a trend that is expected to continue.", "Learn about the health effects associated with wildfire smoke and steps patients should take before and during a wildfire to reduce smoke exposure.", "Reducing smoke exposure is especially important for people with respiratory or cardiovascular disease, older adults, and children.", and the website "www.epa.gov/wildfire-smoke-course". Logos for EPA, CDC, and the United States Environmental Protection Agency are at the bottom.

Free CME, CNE, and CEU for Health Professionals

Wildfire Smoke and Your Patients' Health

Wildfires are increasing in size and intensity, a trend that is expected to continue.

Learn about the health effects associated with wildfire smoke and steps patients should take before and during a wildfire to reduce smoke exposure.

Reducing smoke exposure is especially important for people with respiratory or cardiovascular disease, older adults, and children.

www.epa.gov/wildfire-smoke-course

EPA United States Environmental Protection Agency

CDC

Looking Ahead

- Air quality information on AirNow
 - Improve spatial resolution
 - Improve temporal resolution
 - Improve forecasting
- *Wildfire Smoke: Guide for Public Health Officials*
 - Update evidence-based information
 - Evaluate recommendations of CDC assessment
- Reaching at-risk populations
 - Develop more tools for health professionals
 - Develop/enhance information for schools, daycares, and camps

Air Quality and Outdoor Activity Guidance for Schools	
Regular physical activity — at least 60 minutes each day — promotes health and fitness. The table below shows when and how to modify outdoor physical activity based on the Air Quality Index. This guidance can help protect the health of all children, including teenagers, who are more sensitive than adults to air pollution. Check the air quality daily at www.airnow.gov.	
Air Quality Index	Outdoor Activity Guidance
 GOOD	Great day to be active outside!
 MODERATE	Good day to be active outside! Students who are unusually sensitive to air pollution could have symptoms.*
 UNHEALTHY FOR SENSITIVE GROUPS	It's OK to be active outside, especially for short activities such as recess and physical education (PE). For longer activities such as athletic practice, take more breaks and do less intense activities. Watch for symptoms and take action as needed.* Students with asthma should follow their asthma action plans and keep their quick-relief medicine handy.
 UNHEALTHY	For all outdoor activities , take more breaks and do less intense activities. Consider moving longer or more intense activities indoors or rescheduling them to another day or time. Watch for symptoms and take action as needed.* Students with asthma should follow their asthma action plans and keep their quick-relief medicine handy.
 VERY UNHEALTHY	Move all activities indoors or reschedule them to another day.
* Watch for Symptoms Air pollution can make asthma symptoms worse and trigger attacks. Symptoms of asthma include coughing, wheezing, difficulty breathing, and chest tightness. Even students who do not have asthma could experience these symptoms. If symptoms occur: The student might need to take a break, do a less intense activity, stop all activity, go indoors, or use quick relief medicine as prescribed. If symptoms don't improve, get medical help. Go for 60! CDC recommends that children get 60 or more minutes of physical activity each day. www.cdc.gov/healthyouth/physicalactivityguidelines.htm Plan Ahead for Ozone There is less ozone in the morning. On days when ozone is expected to be at unhealthy levels, plan outdoor activities in the morning.	