AirNow's Fire and Smoke Map
Frequently Asked Questions:
Public

About the map: The AirNow Fire and Smoke Map is a collaborative effort between the U.S. Forest Service (USFS)-led Interagency Wildland Fire Air Quality Response Program and the U.S. Environmental Protection Agency (EPA). It provides the public with the levels of fine particle pollution ($PM_{2.5}$) in the air, smoke plumes, and special Smoke Outlooks, where available, during fires. The map pulls together air quality information from several sources including permanent air quality monitors that report to AirNow, temporary monitors deployed by agencies for smoke events, and air quality sensors that provide information in areas where there are no official air monitoring stations.

USFS and EPA will continue to improve the map to ensure actionable information about wildland fire smoke is shared with the public and state, local, and Tribal agencies.

Notes and disclaimers:

- The data on the AirNow Fire and Smoke Map are intended to help individuals make decisions to protect their health during fires.
- If there is a wildfire in your area, please stay tuned to local authorities for the latest information on fire and smoke safety.
- Mention of trade names or commercial products does not constitute EPA or USFS endorsement or recommendation for use.

For information on how to use the Fire and Smoke Map, please see the User Guide.

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General Questions

What is the NowCast AQI?

The NowCast AQI is the calculation that EPA uses to relate hourly readings from air quality monitors to the U.S. Air Quality Index (AQI). EPA uses the NowCast to depict current air quality using the AQI colors and scale (the AQI for particle pollution is a 24-hour index). The NowCast for particle pollution shows air quality for the most current hour available by using a calculation that involves multiple hours of past data. It uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. See the calculation.

What is the difference between the NowCast AQI and the hourly $PM_{2.5}$ concentration?

The NowCast AQI shows air quality for the most current hour available at a monitor or sensor by using a calculation that involves multiple hours of past data. The hourly $PM_{2.5}$ concentration is a 1-hour average concentration measured by an air quality monitor or sensor.

What are Smoke Outlooks?

Smoke Outlooks are daily issued forecasts during a wildfire that provide past, current, and possible future PM2.5 air quality using the AQI. The outlooks also include other important information about the fire and exposure reduction strategies.

The Interagency Wildland Fire Air Quality Response Program deploys Air Resource Advisors (ARAs) who work with Incident Management Teams responding to large wildfires. ARAs analyze, summarize, and communicate smoke impacts and exposure reduction strategies to incident management teams, air quality regulators, public health agencies, and the public. When assigned to a fire, ARAs issue Smoke Outlooks for areas where smoke from wildfires may be of concern. The Smoke Outlooks issued by ARAs are automatically provided in the AirNow Fire and Smoke map once issued.

Where can I find additional information about smoke affecting the air quality near me?

Please contact your State, Tribal, or local air quality agency and/or local public health agencies for additional air quality information and air quality alerts.

Information Available on the Map

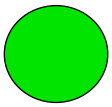
What pollutants are reported on the map?

The Fire and Smoke Map shows fine particle pollution PM2.5 from several sources including permanent air quality monitors that report to AirNow, temporary monitors deployed by agencies for smoke events, and air quality sensors that provide information in areas where there are no official air monitoring stations. Included sensor data must meet performance targets and technical considerations. Users can click or tap on the settings gear ( ) on the upper right of the map to select/de-select map layers showing the different data sources.

To see other pollutants, visit the AirNow interactive map, which shows ozone, $PM_{2.5}$, and PM_{10} data from permanent outdoor air quality monitoring stations that report to AirNow.

What do the different circles on the map mean?

AirNow uses different circle sizes to show the type of air measurement device that is reporting data to the Fire and Smoke Map:

	Large Circles	Represent the **permanent, regulatory-grade monitors** that are used to report outdoor air quality to the public on AirNow.gov. These are generally operated by state, local, or Tribal air quality experts.
	Medium Circles with a "T"	Represent **temporarily located monitors** (such as E-BAMs or E- Samplers) that agencies have placed to monitor smoke events.
	Small Circles	Represent **sensors** that meet performance targets and technical considerations (e.g., PurpleAir, Clarity, state built and operated sensors).

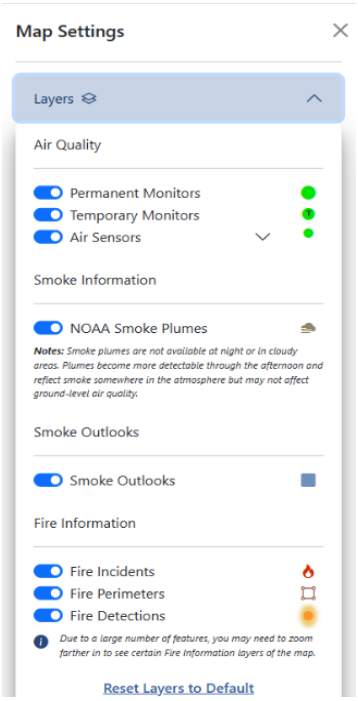
What do the colors of the circles mean?

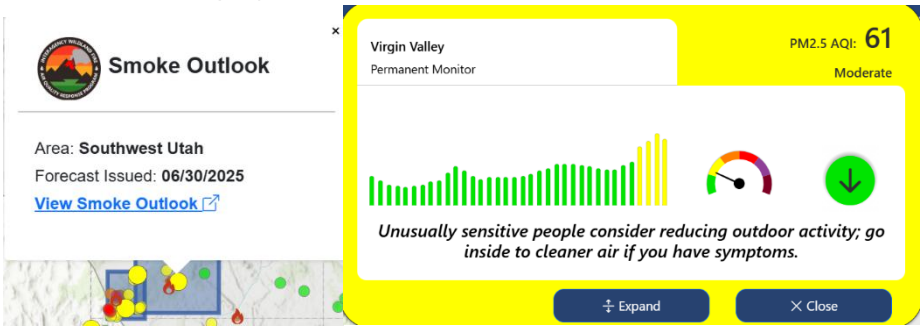
The colors show the U.S. Air Quality Index (AQI) category, as calculated using EPA's NowCast. The AQI for PM2.5 is a 24-hour index that is tied to national standards for particle pollution and the scientific, health-based studies behind them. To show the most recent hour of AQI, AirNow uses a formula called a "NowCast" to estimate the AQI for the current hour. To see the legend on the map, click on the Legend on the bottom right corner of the map. Note: If a circle is gray, that indicates the data is not available.

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

What else can I learn from the map about my location?

- If you click on a monitor or sensor, you get quick access to key information including: the current AQI category at a monitor or sensor location, information about actions to consider taking, and information showing whether air quality is stable or getting better or worse.
- You can also select different map layers, using the settings icon in the upper righthand corner of the map.
- You can find out whether smoke statements are available for an area which are indicated by the blue rectangle around a fire icon. These include smoke forecast outlooks, which are issued by the U.S. Forest Service for large wildland fires on which Air Resource Advisors have been deployed.





What is the data source for the large fire incidents on the map?

Active large fire incidents from the U.S. National Interagency Fire Center incident management situation reports are shown as for large incidents and for satellite-detected fires. You can toggle these layers on/off using the settings icon in the upper righthand corner of the map. Clicking on a large incident fire icon displays information about the fire. Note that these incidents may not be updated for several days due to the nature of the reporting systems used. Additional information on these incidents is available through the InciWeb system. While the information presented by this feed can be several days old, it does provide important management information including the fire name, overall fire size, and containment.

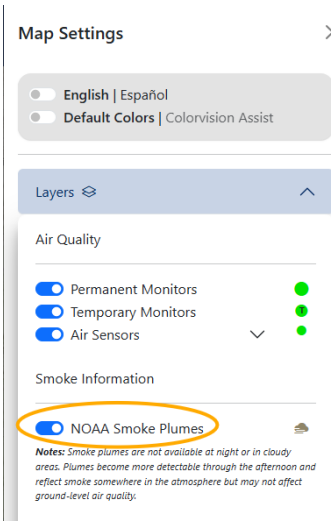
Where does the wind data layer come from and how can it be used?

The wind data layer is from the National Oceanic and Atmospheric Administration's (NOAA) High-Resolution Rapid Refresh Model (HRRR) and display transport wind data. The wind data can provide the user with a general direction of smoke plumes. Transport winds are calculated as the mass-weighted average wind through the planetary boundary layer. Winds at this height of the atmosphere display the likely direction in which smoke at this level will be carried. However, additional factors impact smoke direction including winds in other layers in the atmosphere, topography, and temperature.

How are fire and smoke plumes detected in my area?

Fire and smoke plume detections are from the NOAA's Hazard Mapping System Fire and Smoke Products. Trained analysts manually integrate data from various automated fire detection algorithms with information from satellite instruments, resulting in a quality-controlled display of fire locations and smoke plumes.

Note that the information on fire position should be used as general guidance and for strategic planning and not for tactical decisions, such as the activation of a response to fight these fires and evacuation efforts, without other information to corroborate the fire's existence and location.



Why don't I see the smoke plumes on the map?

Smoke plumes are not available at all times of the day. Satellites can only see smoke during daylight hours on clear days, and it takes time to process the data from a satellite observation to a human reviewed smoke plume outline. Smoke plume data comes from NOAA's Hazard Mapping System (HMS) and becomes available in the late afternoon on east coast time and is then removed in the early morning when the data is outdated. Smoke plumes on the map after dark or in the early morning were observed before sundown and remain on the map to help users understand where smoke is likely to be present overnight.

Users can choose to display available smoke plume information by toggling on the smoke plume layer. If you cannot see the smoke plumes, first ensure that the smoke plume layer option is toggled on for display. If you still cannot see any plumes, this indicates smoke plume information is not available at that location or at that time. Small text under the toggle notes the latest update and the time associated with the satellite observation displayed.

What can I learn from smoke plume data?

The points on the map reflect monitors and sensors measuring air quality near the ground. These are most reflective of the air we breathe. Smoke plume data shows the general location of smoke as detected by satellites. Satellites can detect smoke plumes anywhere in the atmosphere, including smoke that is high up in the atmosphere. As a result, the plumes you see on the map may not affect your air quality on the ground.

Sensors and Sensor Data Used on the Map

What is an air sensor?

Air sensors are a class of non-regulatory technology for measuring pollutants in the air. This term often describes an integrated set of hardware and software that uses one or more "sensing elements" (sometimes called sensors) to detect or measure pollutant concentrations. Air sensors are lower in cost, portable, and generally easier to operate than the regulatory monitors widely used in the United States. Learn more about sensors at https://www.epa.gov/air-sensor-toolbox.

Where does the sensor data on the map come from?

The sensor data displayed on the Fire and Smoke Map includes PurpleAir, Clarity, SensWA, and SensOR sensors. PurpleAir and Clarity data come from the commercial manufacturers of these devices. Washington Ecology build, own, and operate SensWA sensors and Oregon Department of Environmental Quality build, own, and operate SensOR sensors. Map users can turn on and off specific types of sensors using the map settings, if desired.

Why are there no sensors shown for my area?

There are several possible reasons why no sensor data appears on the map for your area. There may be no publicly available sensors in your area, the sensors in your area may have failed to meet the quality control screening criteria developed for the Fire and Smoke Map, or the sensor data may be temporarily unavailable or offline (gray circles). Newly registered sensors may not appear on the map for up to 48 hours. Sensors identified by state, local, or Tribal agencies as problematic (such as sensors that are strongly influenced by local pollution sources, sensors that have shown erroneous data for a long time compared to other nearby sensors, or sensors believed to be mis-labeled or mis-located) may be removed from the map.

There is not a monitor or sensor in my community, how do I add one?

For permanent and temporary monitors, State, local, and Tribal air agency partners maintain and operate their respective monitoring networks in accordance with Federal monitoring requirements and report data to AirNow.

For individuals or communities interested in hosting their own sensor(s), EPA has information on air sensors through a resource called the Air Sensor Toolbox, including sensor performance, guides to siting & installation, and best practices.

What sensors are shown on the Fire and Smoke Map?

As of June 2026, the map shows commercial, public, crowdsourced data from PurpleAir sensors, open data from commercial Clarity sensors, and data from SensOR and SensWA sensors which are owned and operated by state air monitoring agencies. EPA is working to develop a process to allow other sensors to appear on the map.

Does EPA recommend specific sensor brands or models?

EPA does not endorse any particular commercial product. Mention of trade names or commercial products does not constitute EPA or USFS endorsement or recommendation for use. You can learn more about sensors on EPA's Air Sensor Toolbox.

How can manufacturers add their sensors to the Fire and Smoke Map?

As of June 2026, EPA is working to develop a process to allow other sensors to appear on the map.

While that work is underway, it would be advantageous for manufacturers and others to continue collecting data side-by-side with highly robust and accurate regulatory monitors (known as collocated data), to demonstrate performance and comparability.

Since the Fire and Smoke Map is most widely used during wildland fire and smoke events, it is imperative that collocation data be collected during smoke events when concentrations may be very high. Because the map is always available, collocations capturing typical ambient conditions throughout the U.S. are also valuable. EPA's Performance Testing Protocols, Metrics, and Target Values for Fine Particulate Matter Air Sensors Report provides guidance for setup and reporting of sensor performance by collocation.

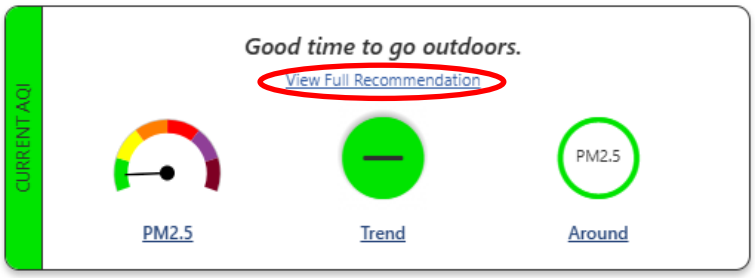
Sensors are most valuable when they can fill in data gaps which could mean deployments in rural or remote locations and in locations without readily available or intermittent power or cellular connectivity. Sensor manufacturers may wish to consider these issues when designing sensor devices or data quality assurance or correction methodologies.

For additional information, visit Air Sensor Performance Targets and Testing Protocols.

Protecting Yourself from Wildfire

What actions can I take to protect myself from wildfire smoke?

To view specific recommendations for your location from the Fire and Smoke map, click on a sensor or monitor of interest, click Expand, then select "View Full Recommendation" under "Current AQI". Wildfire smoke can affect your health in many ways, but there are several steps you can take to help protect yourself such as limiting outdoor activities. Learn more about how wildfire smoke affects you and what you can do before, during, and after a wildfire on the AirNow Wildfires webpage and get more detailed information and resources at https://www.epa.gov/wildfires.



Using the $PM_{2.5}$ Trend Information

How can I find plots of the last 24 hours or last week of $PM_{2.5}$ data?

To see a time series of $PM_{2.5}$ data, click on the sensor or monitor you're interested in. You'll see a bar graph of the NowCast AQI over the last 24 hours. You can click the "Expand" button and then, in the "History" section, click "View More Charts" to access more graphs. Use the top toggles to choose between 'NowCast AQI', 'Hourly PM2.5' or 'Sub-hourly'.

Why do sensors or monitors in the same area sometimes show different $PM_{2.5}$ concentrations, trends, and/or AQI levels?

Sensors and monitors can reflect only the conditions at their specific location, but smoke can vary considerably – even over small distances and times. This is particularly true as smoke plumes move in and out of an area and/or are influenced by terrain or meteorology.

What if I am experiencing heat and smoke?

Under an issued Heat Advisory or Extreme Heat Warning and smoky conditions, it is important to take action to protect your health and prioritize safety. See the '[Protect Yourself from Smoke and Extreme Heat'](#) fact sheet for more information.

The table highlights recommendations when an AQI level is above the Good category and there is either a Heat Advisory or an Extreme Heat Warning issued in your area.

AQI Category	Unhealthy for Sensitive Groups or Unhealthy	Very Unhealthy	Hazardous
Actions to take when under a Heat Advisory or Extreme Heat Warning	1. Reduce, reschedule or postpone outdoor activity or consider going indoors. 2. Drink plenty of water. 3. Take frequent breaks in the shade. 4. Go indoors to cleaner and cooler air if symptoms. 5. Do not close windows if there is no air conditioning.	1. Limit or avoid outdoor activity. 2. Drink plenty of water. 3. Take frequent breaks in the shade. 4. Go indoors to cleaner and cooler air during an Extreme Heat Warning or if symptomatic during a Heat Advisory. 5. Do not close windows if there is no air conditioning.	1. Avoid all outdoor physical activity. 2. Drink plenty of water. 3. Stay indoors in cleaner and cooler air as much as possible. 4. Check with your state or local government to find out whether there are cleaner air and cooling shelters or call 2-1-1 for referrals to local shelters. 5. Do not close windows if there is no air conditioning. Close window shades or blinds.

Understanding the $PM_{2.5}$ Trends Data

What do the $PM_{2.5}$ trend symbols mean?

The $PM_{2.5}$ trend symbol is used to indicate if air quality conditions are stable, improving, getting worse, or variable (unstable with no clear trend).

Here are descriptions of the trend symbols/categories.

Stable

The trend is stable if the most recent data from nearby PurpleAir sensors are all within the range of the current NowCast AQI category. The color indicates the NowCast AQI category.

	**Variable**	The trend is variable if the most recent data from nearby PurpleAir sensors show that air quality has shifted both above and below the current the NowCast AQI category. The color indicates the current NowCast AQI category.
	**Worsening**	The trend is worsening if the most recent data from nearby PurpleAir sensors are all within AQI categories above the current $PM_{2.5}$ NowCast category. The message will indicate the current NowCast AQI category, and the category the air quality may reach if current conditions/trends persist. The color of the icon represents the likely future NowCast AQI category.
	**Improving**	The trend is improving if the most recent data from nearby PurpleAir sensors are all within AQI categories below the current NowCast AQI category. The message will indicate the current NowCast AQI category, and the category the air quality may reach if current conditions/trends persist. The color of the icon represents the likely future NowCast AQI category.

To minimize the possibility that small fluctuations in air quality are misinterpreted as an improving or worsening trend, a 10 percent "buffer" is used around each NowCast AQI breakpoint. This means trends are not labelled as improving or worsening until data show $PM_{2.5}$ concentrations are 10 percent higher than the concentration breakpoint between two NowCast AQI categories.

How can I find $PM_{2.5}$ trends data?

The trends data for the past 24 hours is shown to the far right when you first click on a sensor or monitor. A down arrow represents improving air quality, and up arrow represents worsening air quality, and a horizontal line indicates stable air quality.

What's the difference between the trends information and the colors I see on the monitor/sensor icons on the Fire and Smoke Map?

The color you see on the monitor/sensor icons on the map (and as the border for a monitor or sensor selection shown in this image) represents the current hourly $PM_{2.5}$ levels in the color-coded categories of the AQI. To show the most recent hour of air quality as the AQI, AirNow uses a formula called a "NowCast" to estimate the AQI for the current hour.

The trends information you see when you click on a monitor or sensor describes the most recent air quality information measured by the sensor or nearby sensors, usually from the past 30 minutes. The color notes the NowCast AQI of the most recent observation and the icon gives an idea of whether air quality near that location is changing.

Should I use the NowCast or the trends information?

While the trends information may more closely align with what you are experiencing than the NowCast AQI which updates the icon on the map hourly, you should use them both to make decisions. When you click on a monitor or sensor on the map, you'll see both current air quality, calculated using the NowCast, and the trend. The NowCast AQI category tells you who should take precautions to protect their health. The trends information shows you whether air quality for the past 30 minutes has been stable, improving, or worsening at your location. You can use that to guide short-term activities, such as opening or closing windows, or going outside to walk the dog. Air quality agencies may use this information and their knowledge of local meteorology to forecast air quality conditions for their area.

Why is the map showing something different than I am experiencing?

The NowCast Air Quality Index or $PM_{2.5}$ concentration reported by monitors or sensors represents the air quality at that monitor/sensor location for a given day and time. Whether air quality where you are is the same depends on many factors including how far away you are from the monitor/sensor location, meteorological conditions like wind speed and wind direction, geographic features like terrain, the location of $PM_{2.5}$ sources, and the size and amount of the particles emitted.

If $PM_{2.5}$ concentrations are stable, no significant winds are present, and no PM sources are near or between you and the monitor/sensor, you can expect that your air quality will be similar to the

monitor/sensor several kilometers away. However, if $PM_{2.5}$ concentrations are changing, if smoke plumes are in the area, or if PM sources are nearby, and/or if there is significant terrain like mountains/hills and valleys, there may be larger differences in air quality between your location and the nearest monitor or sensor. You may even see this type of difference when comparing two nearby sensors.

How is the $PM_{2.5}$ trend forecasted?

The trend shows what has recently been observed by sensors (usually in the past 30 minutes) at the location you have selected. The color code and category included in the trend show what the NowCast AQI category would be in the next few hours IF conditions continue to remain at these levels. If conditions change, the NowCast may not reach this category.

Why is the $PM_{2.5}$ trend listed as "not available?"

Calculating the $PM_{2.5}$ trend requires having timely data. Data lags or other issues may limit data availability, resulting in the $PM_{2.5}$ trend to be listed as "not available."

Differences Between the Fire & Smoke Map and Other Maps

Why should I use the Fire and Smoke Map?

The Fire and Smoke map brings you a host of fire-related information all in one place, including:

- Air quality info from permanent, regulatory-grade monitors operated by experts from state, local and tribal air quality agencies.
- Air quality info from temporary monitors operated by agencies' experts.
- Air quality info from air sensors, corrected to be more comparable with the data reported by the permanent monitors that report to AirNow.
- Fire locations.
- Smoke plume locations.
- Smoke forecast outlooks for large fires.

The AirNow Fire and Smoke Map pop-up gives you quick access to information you can use to help plan your activities: the current AQI category at a monitor or sensor location; information about actions to consider taking; and information showing whether air quality is getting better or worse. You also can find the monitor or sensor location, and ID information about the particular monitor or sensor you have selected.

Is sensor data used on other AirNow maps or just the Fire and Smoke Map?

USFS and EPA are providing the sensor data on the Fire and Smoke Map to give the public additional information they can use to make individual decisions to protect their health during fires. As of June 2026, sensor data is not used on other maps on the AirNow website and is not used to generate the current NowCast Air Quality Index (AQI) or the forecast AQI shown on the "dial" on the AirNow home page or AirNow app.

Sensor Limitations

Is EPA planning to use sensor data to determine whether areas are meeting National Ambient Air Quality Standards?

No. For compliance with the National Ambient Air Quality Standards, monitoring methods must meet the applicable requirements in the Code of Federal Regulations (CFR) - Part(s) of Title 40, Protection of Environment (see, e.g. 40 CFR Parts 50, 53, and 58). Technical requirements include detailed sampling, siting, and quality assurance requirements. Only data from federal reference or equivalent method (FRM/FEM) monitors are used in a regulatory context.

Have additional questions? Contact us on AirNow.