

Communicating Instantaneous Air Quality Data: Pilot Project

Testing a New Scale to Explain 1-Minute Air Quality Data

- The U.S. Environmental Protection Agency (EPA) is piloting a new tool for making instantaneous outdoor air quality data useful for the public. The new “sensor scale” is designed to be used with air quality sensors that provide data in short time increments – often as little as one minute.
- Air quality sensors measuring ozone and particle pollution are becoming increasingly available to the public at a relatively low cost. As availability increases, so will the need to help people interpret 1-minute readings that are reported in concentrations such as “parts per billion” or “micrograms per cubic meter.”
- The pilot “sensor scale” shows whether one-minute readings are considered low, medium, high or very high. Each category includes a corresponding message to help users decide when it may be good to take action to reduce their exposure to outdoor air pollution.
- EPA is piloting the scale using data from the Village Green Project, a community-based activity to demonstrate the capabilities of new real-time monitoring technology that can make data available online and by smartphone. Village Green stations currently report outdoor air quality and weather conditions in seven U.S. cities. EPA is using Village Green stations for the pilot, because the devices at those sites are of known quality, giving us confidence in the data they produce. The agency will seek feedback on the scale through August.


Why not the AQI?


- Interpreting 1-minute air quality readings is challenging. EPA can't tell people what a single minute of exposure to ozone or particle pollution means for their health, because studies haven't linked one-minute exposures to harmful health effects. That means using the Air Quality Index (AQI) or EPA's national air quality standards to communicate about 1-minute exposures and health data would be misleading, because both the AQI and the standards are grounded in studies based on much longer pollution exposures.
- So the agency took a different approach: EPA analyzed millions of data points on ozone and particle pollution to develop the low-medium-high-very high scale. The scale is accompanied by messages to help users in the U.S. know quickly whether it's a great time to be active outdoors -- and when checking the AQI could help people determine if they need to make changes to their outdoor activities.

Can I participate in the pilot project?

- We want your feedback! Use your phone or computer to track air quality data and messages from any Village Green station (<http://bit.ly/VillageGreenPilot>). We're especially interested in knowing whether the scale and messages are easy to understand, whether they're helpful to you, and what actions you would take based on the 1-minute data and information. To send us feedback, email us at sensorscalepilot@epa.gov or use the comment box at <http://bit.ly/SensorScalePilot>.
- After the conclusion of the pilot in the fall, EPA will refine the scale and messages as needed, with a goal of making them available to air quality sensor developers later this year. EPA anticipates developing information to help communicate short-term data for other pollutants, such as sulfur dioxide and nitrogen oxides, as air quality sensors for those pollutants become more widely available.

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Pilot version 1-Minute Ozone Readings <i>Not for regulatory purposes</i>	
Low 0-59 ppb	Enjoy your outdoor activities.
Medium 60-89 ppb	If medium readings continue, use the Air Quality Index to plan outdoor activities
High 90-149 ppb	If high readings continue, consider adjusting outdoor activities, especially if you are sensitive to ozone. Check the Air Quality Index to find out.
Very High ≥150 ppb	If high readings continue, consider adjusting outdoor activities. Check the Air Quality Index to find out. Very high readings may mean the sensor is not working properly.
	Sensor may be offline. Check the Air Quality Index.

Pilot version 1-minute particle pollution (PM_{2.5}) readings <i>Not for regulatory purposes</i>	
Low 0-29 µg/m ³	Enjoy your outdoor activities.
Medium 30-69 µg/m ³	If medium readings continue (for an hour or more), use the Air Quality Index to plan outdoor activities.
High 70 - 499 µg/m ³	You may be near a source of particle pollution like dust, smoke or exhaust. Check the Air Quality Index to plan outdoor activities.
Very High ≥500 µg/m ³	You may be near a source of particle pollution like dust, smoke or exhaust. Check the Air Quality Index to find out if you should adjust outdoor activities. Very high readings may mean the sensor is not working properly.
	Sensor may be offline. Check the Air Quality Index.