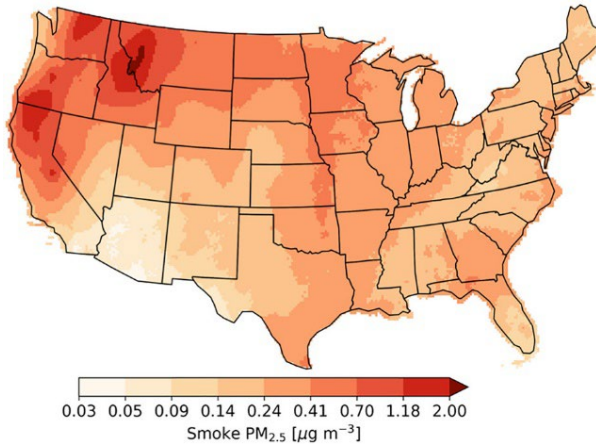


# PurpleAirs in Schools Project

## Free Air Sensors for your school to monitor Montana's air pollutant of concern: Particulate Matter (PM<sub>2.5</sub>)

Mean Smoke PM<sub>2.5</sub> 2006-2018



Plot from O'Dell et al. 2021

### Significance of Smoke Impacts in Montana

- Montanans are subjected to some of the highest concentrations of smoke-derived PM<sub>2.5</sub> in the United States.
- Montana represents a high outlier for percentage of annual mortalities attributed to smoke exposure.
- Wildfires and smoke-attributed PM<sub>2.5</sub> are expected to increase due to intensifying drought, warming due to climate change and forests heavily over-burdened with wildland fuels.
- Wildfire smoke can have negative health effects on students participating in back-to-school extracurricular activities such as outdoor sport practices and events.

***We aim to empower all Montanans, including those living in our most rural and underserved communities, with knowledge and air quality data currently unavailable to them.***

### School and Student Benefits

1. Inform decision-making regarding the health and safety of students and athletes during poor air quality events.
  - For example, it can be difficult to decide whether it is safe to practice sports outside especially if the closest air monitor is a few towns away!
2. Improve preparedness for your school and community ahead of poor air quality events especially during fire season.
3. Give teachers, students, and parents real-time and historical data to learn about local air quality issues.
  - Provides opportunities for students to interact with real-world data and investigate the existent threat of smoke.
  - Build student engagement in the fields of science, data and web-based technologies, and environmental health.
4. Ensure future generations have access to local air quality information and awareness of public health risks.

***Armed with air quality data and knowledge about the risks of smoke, Montanans can reduce their exposure to, and health effects associated with, smoke and PM<sub>2.5</sub>***

### Requirements

- Install indoor and outdoor air quality sensors and connect them to the school's wifi.
  - Indoor sensor installed in science teacher's classroom.
  - Outdoor sensor installed anywhere there is power and good wifi connection.
- PurpleAir PM<sub>2.5</sub> sensors are about the size of a grapefruit and simple to install.
  - The equipment along with guidance and continuous support will be provided.
- PurpleAir sensors are reliable enough to meet the needs of individuals, schools, and organizations for public health decision-making.

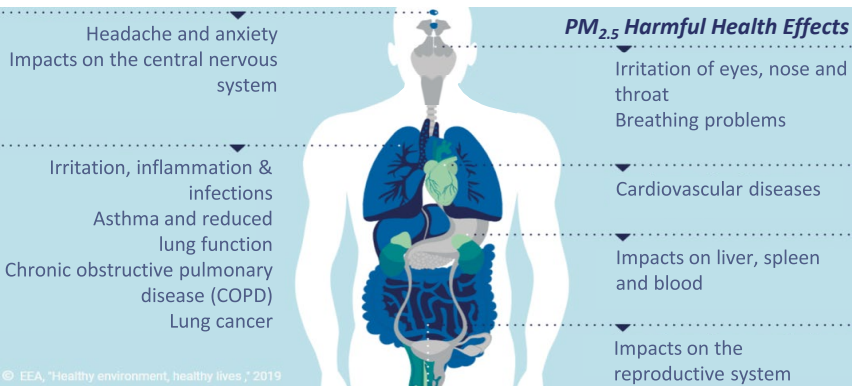


Image by: Thom Bridge, Missoulian

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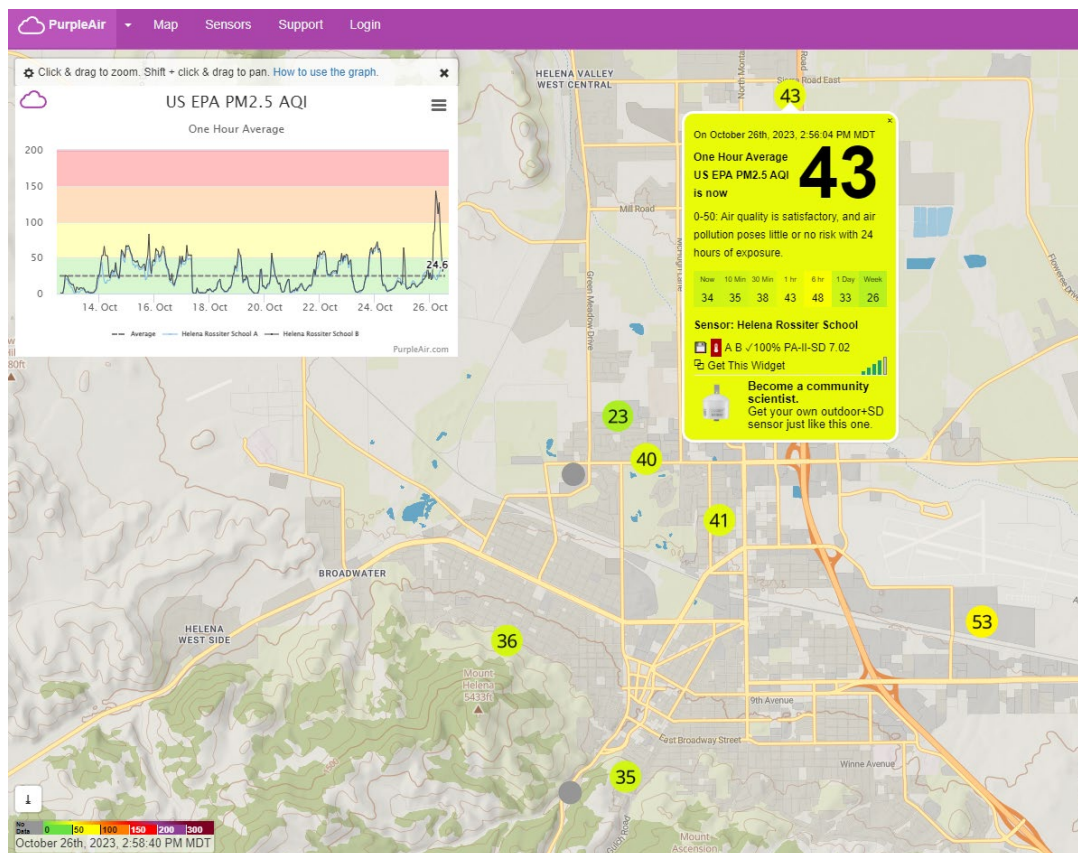
## Free Air Sensors for your school to monitor Montana's air pollutant of concern: Particulate Matter (PM<sub>2.5</sub>)

### PurpleAir Sensors Report the Air Quality Index

- Air quality index (AQI) is calculated from the measured PM<sub>2.5</sub> concentration which is correlated to an AQI value.
- AQI value is on a scale of 0 to 500.
  - Lower the AQI value, the better the air quality.
- AQI index values reflect levels of health concern associated with exposure to PM<sub>2.5</sub>.
- Ranges of health concern are communicated via color scale

AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

The online PurpleAir Air Quality Map displays your sensors in addition to other sensors that have been installed in your community. The sensors provide the real-time AQI Level of Health Concern as well as a plot of the Health Concern trends.



To get your **free air sensors** or more information contact Keri Nauman at MT DEQ (406-444-6698 & [keri.nauman@mt.gov](mailto:keri.nauman@mt.gov)) or Dave Jones at UM (406-243-4861 & [david.jones@mso.umt.edu](mailto:david.jones@mso.umt.edu)).