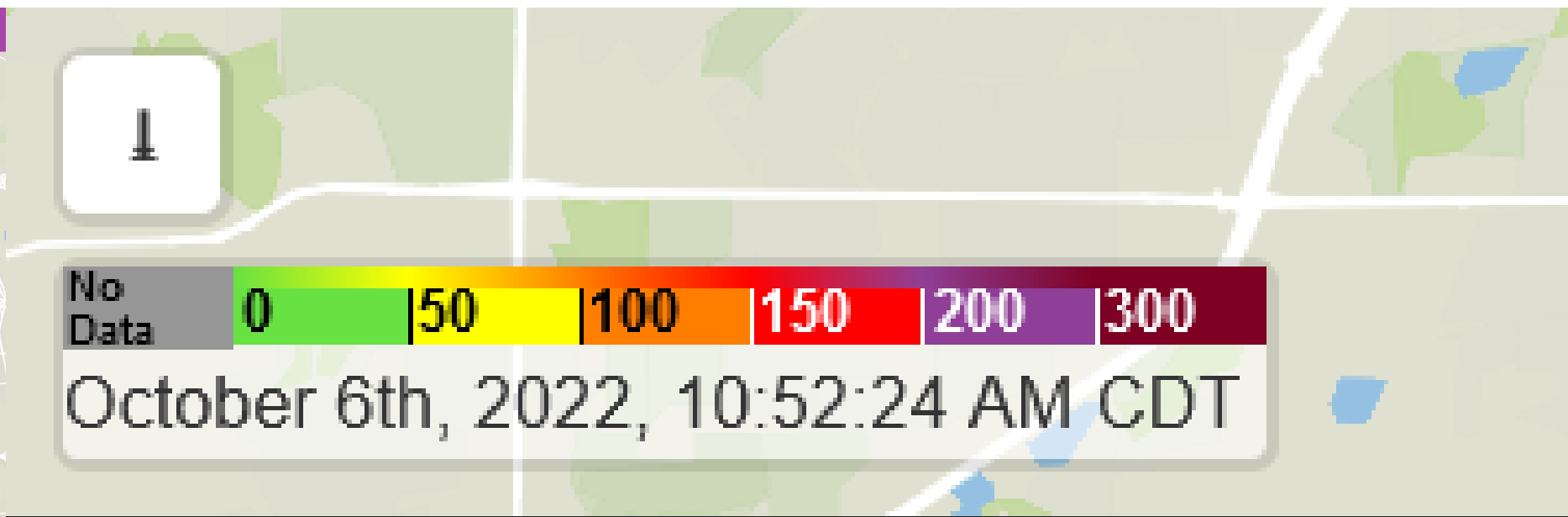
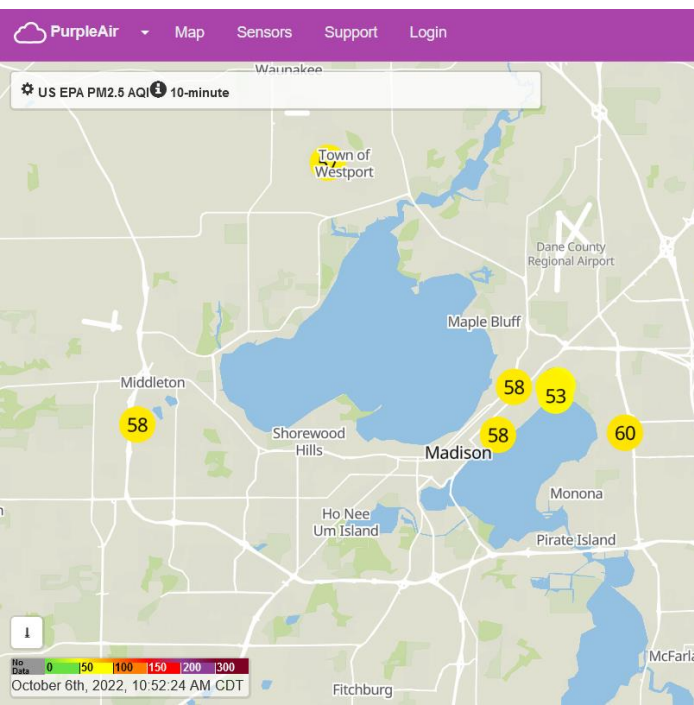


October 6, 2022. Episode 43. Toolbox for Change.

Tools. 1. EXCEL SHEET EVIDENCE    Go to the PurpleAir map, find a neighbor's monitor, and click on the downward arrow in the white box in the lower left corner of the map.



Each neighbor of a residential wood burner downloads data from their own monitor on the PurpleAir Map to an Excel spreadsheet for a representative period of time (a month, such as January 1-31, 2022) choosing 1440 minutes (a 24 hour period).

PurpleAir Map Sensors Support

# Sensor data download tool

This tool allows you to download PurpleAir sensor data in CSV format for selected sensors.

### Important announcement

PurpleAir is in the process of migrating its data to use Google's BigQuery as the background storage instead of ThingSpeak.com. The result of this change will not affect this tool since it will be updated to use the new data source, but it will affect any users who directly use ThingSpeak's API to get historic data.

Users will need to start using the new "history" features in [api.purpleair.com](http://api.purpleair.com) when they are released as the ThingSpeak service will stop working. Please [contact us](#) with any questions or comments.

Select:   Start Date:  End Date:  Average (minutes):

For information on the data and API's provided by PurpleAir, please see this document: [https://docs.google.com/document/d/15ijz94dXJ-YAZLI9iZ\\_RaBwrZ4KtYeCy08goGBwnbCU/edit?usp=sharing](https://docs.google.com/document/d/15ijz94dXJ-YAZLI9iZ_RaBwrZ4KtYeCy08goGBwnbCU/edit?usp=sharing)

**Please note:** This download tool now provides corrected headers for CF=1 and CF=ATM values. See the above link for more information.

PurpleAir Map Sensors Support

Real Time	Short-term	30 minute	1 hour	6 hour	24 hour	One week
<b>37</b> 9µg/m3	<b>37</b> 9µg/m3	<b>40</b> 9µg/m3	<b>40</b> 10µg/m3	<b>41</b> 10µg/m3	<b>44</b> 10µg/m3	<b>39</b> 9µg/m3

**Elinor and Gary (outside)**

Real Time	Short-term	30 minute	1 hour	6 hour	24 hour	One week
<b>70</b> 21µg/m3	<b>64</b> 18µg/m3	<b>56</b> 15µg/m3	<b>52</b> 13µg/m3	<b>39</b> 9µg/m3	<b>35</b> 8µg/m3	<b>41</b> 10µg/m3

**Elinor and Gary C (inside)**

Real Time	Short-term	30 minute	1 hour	6 hour	24 hour	One week
<b>37</b> 9µg/m3	<b>28</b> 7µg/m3	<b>151</b> 56µg/m3	<b>176</b> 104µg/m3	<b>158</b> 69µg/m3	<b>83</b> 27µg/m3	<b>19</b> 5µg/m3

**Elmside Circle Park (outside)**

Real Time	Short-term	30 minute	1 hour	6 hour	24 hour	One week
<b>56</b>	<b>54</b>	<b>45</b>	<b>38</b>	<b>30</b>	<b>29</b>	<b>34</b>

Created: 5/14/2021 LastSeen: 10/6/2022 Age: 0 minutes Version: 7.00

Created: 9/9/2021 LastSeen: 9/14/2021 Age: 386d 23h17m Version: 6.01

Created: 11/17/2017 LastSeen: 10/6/2022 Age: 1 minute Version: 7.00

Each neighbor identifies column PM2.5\_ATM\_ug/m3 and uses the HIDE function to hide all other columns on the sheet except date (highlight columns you want to hide, by left clicking and choosing HIDE. You can also UNHIDE the same way, first highlighting visible fields on either side of the hidden columns).

J2      X      ✓      fx       $=(\$I2*0.5146)+1.8304$

	A	I	J	K	L	M
1	created_at	PM2.5_ATM_ug/m3	Pac=PA*0.5146+1.8304	>5 ug/m3	>8 ug/m3	>12 ug/m3
2	2022-01-01	27.62	16.043652			
3	2022-01-02	6.4	5.12384			
4	2022-01-03	22.25	13.28025			
5	2022-01-04	35.29	19.990634			
6	2022-01-05	20.24	12.245904			
7	2022-01-06	2.17	2.947082			
8	2022-01-07	8.63	6.271398			
9	2022-01-08	36.46	20.592716			
10	2022-01-09	42.04	23.464184			
11	2022-01-10	5.12	4.465152			
12	2022-01-11	17.9	11.04174			
13	2022-01-12	19.14	11.679844			
14	2022-01-13	43.66	24.297836			
15	2022-01-14	16.54	10.341884			
16	2022-01-15	6.19	5.015774			
17	2022-01-16	31.54	18.060884			
18	2022-01-17	22.29	13.300834			
19	2022-01-18	22.78	13.552988			
20	2022-01-19	14.36	9.220056			
21	2022-01-20	4.59	4.192414			
22	2022-01-21	22.13	13.218498			
23	2022-01-22	20.04	12.142984			
24	2022-01-23	7.15	5.50979			
25	2022-01-24	15.01	9.554546			
26	2022-01-25	7.34	5.607564			

Each neighbor creates a column called Pac=PA\*0.5146+1.8304. In that column the calculation is inserted ((PM10\_ATM\_ug/m3 for a specific line, say January 1, 2022) x 0.5140) + 1.8304. In Excel type the equation =(\$I2\*0.5146)+1.8304 in box J2. Then click on left lower corner of J2 and pull the equation down to box J32.

	A	I	J	K	L	M
1	created_at	PM2.5_ATM_ug/m3	Pac=PA*0.5146+1.8304	>5 ug/m3	>8 ug/m3	>12 ug/m3
2	2022-01-01	27.62	16.043652			
3	2022-01-02	6.4	5.12384			
4	2022-01-03	22.25	13.28025			
5	2022-01-04	35.29	19.990634			
6	2022-01-05	20.24	12.245904			
7	2022-01-06	2.17	2.947082			
8	2022-01-07	8.63	6.271398			
9	2022-01-08	36.46	20.592716			
10	2022-01-09	42.04	23.464184			
11	2022-01-10	5.12	4.465152			
12	2022-01-11	17.9	11.04174			
13	2022-01-12	19.14	11.679844			
14	2022-01-13	43.66	24.297836			
15	2022-01-14	16.54	10.341884			
16	2022-01-15	6.19	5.015774			
17	2022-01-16	31.54	18.060884			
18	2022-01-17	22.29	13.300834			
19	2022-01-18	22.78	13.552988			
20	2022-01-19	14.36	9.220056			
21	2022-01-20	4.59	4.192414			
22	2022-01-21	22.13	13.218498			
23	2022-01-22	20.04	12.142984			
24	2022-01-23	7.15	5.50979			
25	2022-01-24	15.01	9.554546			
26	2022-01-25	7.34	5.607564			

Copy and paste column J Days 1 to 31 to columns K L and M. To compare the number of days that PM 2.5 is above 5 ug/m3 (World Health Organization standard for PM 2.5), above 8 ug/m3 (expected new U S standard for PM 2.5 after November 2022) and above 12 ug/m3 (current U S standard for PM 2.5),

J2    X ✓ fx    =(\$I2\*0.5146)+1.8304

	A	I	J	K	L	M
1	created_at	PM2.5_ATM_ug/m3	Pac=PA*0.5146+1.8304	>5 ug/m3	>8 ug/m3	>12 ug/m3
2	2022-01-01	27.62	16.043652			
3	2022-01-02	6.4	5.12384			
4	2022-01-03	22.25	13.28025			

	A	I	J	K	L	M
1	created_at	PM2.5_ATM_ug/m3	Pac=PA*0.5146+1.8304	>5 ug/m3	>8 ug/m3	>12 ug/m3
2	2022-01-01	27.62	16.043652	16.04365	16.04365	16.04365
3	2022-01-02	6.4	5.12384	5.12384	5.12384	5.12384
4	2022-01-03	22.25	13.28025	13.28025	13.28025	13.28025
5	2022-01-04	35.29	19.990634	19.99063	19.99063	19.99063
6	2022-01-05	20.24	12.245904	12.2459	12.2459	12.2459
7	2022-01-06	2.17	2.947082	2.947082	2.947082	2.947082
8	2022-01-07	8.63	6.271398	6.271398	6.271398	6.271398
9	2022-01-08	36.46	20.592716	20.59272	20.59272	20.59272
10	2022-01-09	42.04	23.464184	23.46418	23.46418	23.46418
11	2022-01-10	5.12	4.465152	4.465152	4.465152	4.465152
12	2022-01-11	17.9	11.04174	11.04174	11.04174	11.04174
13	2022-01-12	19.14	11.679844	11.67984	11.67984	11.67984
14	2022-01-13	43.66	24.297836	24.29784	24.29784	24.29784
15	2022-01-14	16.54	10.341884	10.34188	10.34188	10.34188
16	2022-01-15	6.19	5.015774	5.015774	5.015774	5.015774
17	2022-01-16	31.54	18.060884	18.06088	18.06088	18.06088
18	2022-01-17	22.29	13.300834	13.30083	13.30083	13.30083
19	2022-01-18	22.78	13.552988	13.55299	13.55299	13.55299
20	2022-01-19	14.36	9.220056	9.220056	9.220056	9.220056
21	2022-01-20	4.59	4.192414	4.192414	4.192414	4.192414
22	2022-01-21	22.13	13.218498	13.2185	13.2185	13.2185
23	2022-01-22	20.04	12.142984	12.14298	12.14298	12.14298
24	2022-01-23	7.15	5.50979	5.50979	5.50979	5.50979
25	2022-01-24	15.01	9.554546	9.554546	9.554546	9.554546
26	2022-01-25	7.34	5.607564	5.607564	5.607564	5.607564

The screenshot shows the Excel ribbon with the 'Home' tab selected. The 'Conditional Formatting' dropdown menu is open, showing options like 'General', 'Format as Table', and 'Cell Styles'. The spreadsheet below shows columns J, K, L, and M with conditional formatting rules applied. Column J is highlighted in yellow for values greater than 1.8304. Column K is highlighted in light red for values greater than 5. Column L is highlighted in light red for values greater than 8. Column M is highlighted in light red for values greater than 12.

	A	I	J	K	L	M	N	O	P	Q	R
1	created_at	PM2.5_ATM_ug/m3	Pac=PA*0.5146+1.8304	>5 ug/m3	>8 ug/m3	>12 ug/m3					
2	2022-01-01	27.62	16.043652	16.04365	16.04365	16.04365					
3	2022-01-02	6.4	5.12384	5.12384	5.12384	5.12384					

use HOME>CONDITIONAL FORMATTING>HIGHLIGHT CELLS RULES>GREATER THAN>choose A COLOR to HIGHLIGHT ABOVE 12, CHOOSE A COLOR to HIGHLIGHT ABOVE 8, AND CHOOSE A COLOR to HIGHLIGHT ABOVE 5.

The screenshot shows the Excel ribbon and spreadsheet. The 'Greater Than' dialog box is open, showing the formula  $=($I2*0.5146)+1.8304$  in the formula bar. The dialog box is set to format cells that are greater than 14.831769 with 'Light Red Fill with Dark Red Text'. The spreadsheet below shows columns J, K, L, and M with conditional formatting rules applied. Column J is highlighted in yellow for values greater than 1.8304. Column K is highlighted in light red for values greater than 5. Column L is highlighted in light red for values greater than 8. Column M is highlighted in light red for values greater than 12.

	A	I	J	K	L	M	N	O	P
9	2022-01-08	36.46	20.592716	20.59272	20.59272	20.59272			
10	2022-01-09	42.04	23.464184	23.46418	23.46418	23.46418			
11	2022-01-10	5.12	4.465152	4.465152	4.465152	4.465152			
12	2022-01-11	17.9	11.04174	11.04174	11.04174	11.04174			
13	2022-01-12	19.14	11.679844	11.67984	11.67984	11.67984			
14	2022-01-13	43.66	24.297836	24.29784	24.29784	24.29784			
15	2022-01-14	16.54	10.341884	10.34188	10.34188	10.34188			
16	2022-01-15	6.19	5.015774	5.015774	5.015774	5.015774			
17	2022-01-16	31.54	18.060884	18.06088	18.06088	18.06088			
18	2022-01-17	22.29	13.300834	13.30083	13.30083	13.30083			
19	2022-01-18	22.78	13.552988	13.55299	13.55299	13.55299			
20	2022-01-19	14.36	9.220556	9.22056	9.22056	9.22056			
21	2022-01-20	4.59							
22	2022-01-21	22.13							
23	2022-01-22	20.04							
24	2022-01-23	7.15							
25	2022-01-24	15.01							
26	2022-01-25	7.34							
27	2022-01-26	15.6	9.83610	9.83610	9.83610	9.83610			
28	2022-01-27	12.05	8.03133	8.03133	8.03133	8.03133			
29	2022-01-28	6.65	5.25249	5.25249	5.25249	5.25249			
30	2022-01-29	15.73	9.925058	9.925058	9.925058	9.925058			
31	2022-01-30	32.9	18.76074	18.76074	18.76074	18.76074			
32	2022-01-31	48.36	26.716456	26.71646	26.71646	26.71646			

use HOME>CONDITIONAL FORMATTING>HIGHLIGHT CELLS RULES>GREATER THAN>choose A COLOR to HIGHLIGHT ABOVE 12, CHOOSE A COLOR to HIGHLIGHT ABOVE 8, AND CHOOSE A COLOR to HIGHLIGHT ABOVE 5.

AutoSave Off | Elinor and Gary (outside) (43.080776 -89.313634) Primary 1440

File Home Insert Page Layout Formulas Data Review View Help

Undo | Paste | Clipboard | Font: Calibri 11 | Alignment

P24

	A	I	J	K	L	M	N
1	created_at	PM2.5_ATM_ug/m3	Pac=PA*0.5146+1.8304	>5 ug/m3	>8 ug/m3	>12 ug/m3	
2	2022-01-01	27.62	16.043652	16.04365	16.04365	16.04365	
3	2022-01-02	6.4	5.12384	5.12384	5.12384	5.12384	
4	2022-01-03	22.25	13.28025	13.28025	13.28025	13.28025	
5	2022-01-04	35.29	19.990634	19.99063	19.99063	19.99063	
6	2022-01-05	20.24	12.245904	12.2459	12.2459	12.2459	
7	2022-01-06	2.17	2.947082	2.947082	2.947082	2.947082	
8	2022-01-07	8.63	6.271398	6.271398	6.271398	6.271398	
9	2022-01-08	36.46	20.592716	20.59272	20.59272	20.59272	
10	2022-01-09	42.04	23.464184	23.46418	23.46418	23.46418	
11	2022-01-10	5.12	4.465152	4.465152	4.465152	4.465152	
12	2022-01-11	17.9	11.04174	11.04174	11.04174	11.04174	
13	2022-01-12	19.14	11.679844	11.67984	11.67984	11.67984	
14	2022-01-13	43.66	24.297836	24.29784	24.29784	24.29784	
15	2022-01-14	16.54	10.341884	10.34188	10.34188	10.34188	
16	2022-01-15	6.19	5.015774	5.015774	5.015774	5.015774	
17	2022-01-16	31.54	18.060884	18.06088	18.06088	18.06088	
18	2022-01-17	22.29	13.300834	13.30083	13.30083	13.30083	
19	2022-01-18	22.78	13.552988	13.55299	13.55299	13.55299	
20	2022-01-19	14.36	9.220056	9.220056	9.220056	9.220056	
21	2022-01-20	4.59	4.192414	4.192414	4.192414	4.192414	
22	2022-01-21	22.13	13.218498	13.2185	13.2185	13.2185	
23	2022-01-22	20.04	12.142984	12.14298	12.14298	12.14298	
24	2022-01-23	7.15	5.50979	5.50979	5.50979	5.50979	
25	2022-01-24	15.01	9.554546	9.554546	9.554546	9.554546	
26	2022-01-25	7.24	5.607564	5.607564	5.607564	5.607564	

Save the Excel sheet and use as evidence of PM 2.5 levels above EPA standard.

Use Excel Sheet evidence to introduce ordinances or other enforceable laws to municipalities or governments.



Comment and testify about the health effects of PM 2.5 pollution during the comment period November 2022 onward when the EPA will consider lowering the PM 2.5 standard from 12 micrograms per meter cubed in a 24 hour period to 8. The World Health Organization standard is currently 5. Health organizations such as Asthma Australia have stated that minimal levels of PM 2.5 also cause human disease.

Distribute PM 2.5 monitors, possibly free, to near neighbors of residential wood burners. This will be done in a pilot program in Alaska starting in 2022. It has been done in the London, England area since the spring of 2022. It was done in Chicago starting in August 2022, although that was to monitor PM 2.5 from traffic.

Governments should consider handing out PurpleAir monitors free to needy residents, since disadvantaged and poor neighborhoods are disproportionately affected by PM 2.5 from residential wood smoke.

Members of the public are taking air quality monitoring into their own hands to get a clearer picture of pollution in their community, in turn, fueling campaigns pushing for legislative and policy-level changes. Across the country, the work can be read as a blueprint, informing others how they can begin to enact change in their area. Residents Against Wood Smoke Emission Particulates (RAWSEP) advocates for ordinances or other enforceable laws to shut down residential wood burning which exceeds the (expected) EPA standard of 8 micrograms per cubic meter of PM 2.5 average in a 24 hour period.

RAWSEP advocates for monitoring to be done by PurpleAir PM 2.5 monitors at the fenceline of near neighbors of residential wood burners. Residents against Wood Smoke Emission Particulates has already published videos and podcasts about tools to stop Residential Wood Burning. They are Episodes 30, 31, 39 and 40. This Episode 43 is a “Toolbox” for Change, combining the tools to give a blueprint of how to propose an ordinance, and how to gather evidence for enforcing an ordinance in order to shut down polluting residential wood burning.

PM 2.5, particulate matter of 2.5 micrometer size, is the perfect size to infiltrate the human lung, causing a cascade of human health problems. Health concerns raised by residential wood burning is the focus of RAWSEP. PM 2.5 also contributes to climate change. Collectively, RAWSEP members have decided to view information about wood burning (biomass burning, including industrial wood burning) through the lens of historical PM 2.5 monitor data and focus their attention on decisions made and actions taken in recognition of the true level of particulate pollution in the air of near neighbors experiencing residential wood burning.

Collectively, RAWSEP members believe governmental decisions about residential wood burning should be made recognizing first and foremost the level of particulates generated by residential wood burning that threaten human health and life of near neighbors, since residential particulate pollution is hyper-localized. But like industrial wood burning, residential wood burning, also threatens further escalation of climate change.