

NCDAQ/ABAQA Purple Air Sensor Partnership

Kimberly Hornberger, Environmental Program Consultant
NC Division of Air Quality – Raleigh, NC
November 2025

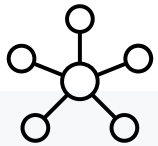


NCDAQ/ABAQA partnership background:

September 2024-Hurricane Helene impacts Asheville and WNC and causes $79 Billion in damage across North Carolina.



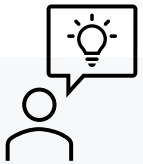
NCDAQ is asked to provide non-regulatory air monitoring in Asheville and WNC to supplement monitoring network.



Concerns about air quality could being negatively impacted by burning of storm debris, wildfire smoke, and other fires.



October 2025 - Brainstorming ideas and looking at available options for non-regulatory monitoring with goal of providing additional real-time air quality data to the public.



EPA Region 4 Sensor Loan Program– EPA expedited the sensor loan application process and sent the Purple Air sensors very quickly.



Began deploying Purple Air Sensors Nov/Dec 2024 – Present. Loan renewal in process.

WNC Post-Helene Particulate Monitoring Meetings

- Workgroup meets via Teams call every Wednesday morning from 9:00-9:30
- Open discussion and sharing of information.
- Status updates for EBAMs, Purple Air Sensors and other related items.
- Weekly communication between representatives from the Asheville Regional Office, Asheville Buncombe Air Quality Agency, Raleigh Central Office Ambient and Planning Section, ECB, LAB, and Mooresville and Winston-Salem Regional Offices. (~20 staff involved)

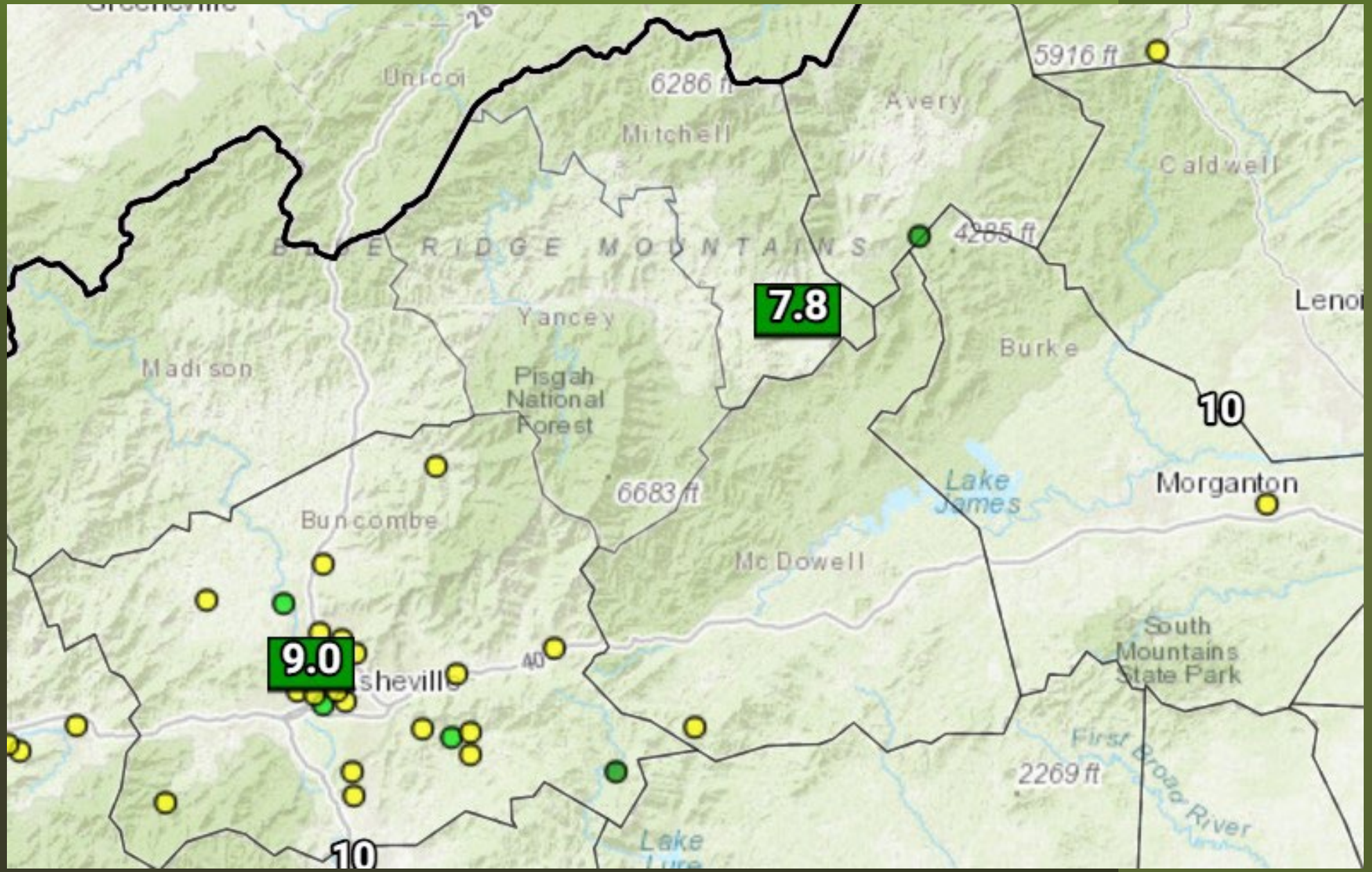
Asheville-Buncombe Air Quality Agency

DEQ NORTH CAROLINA

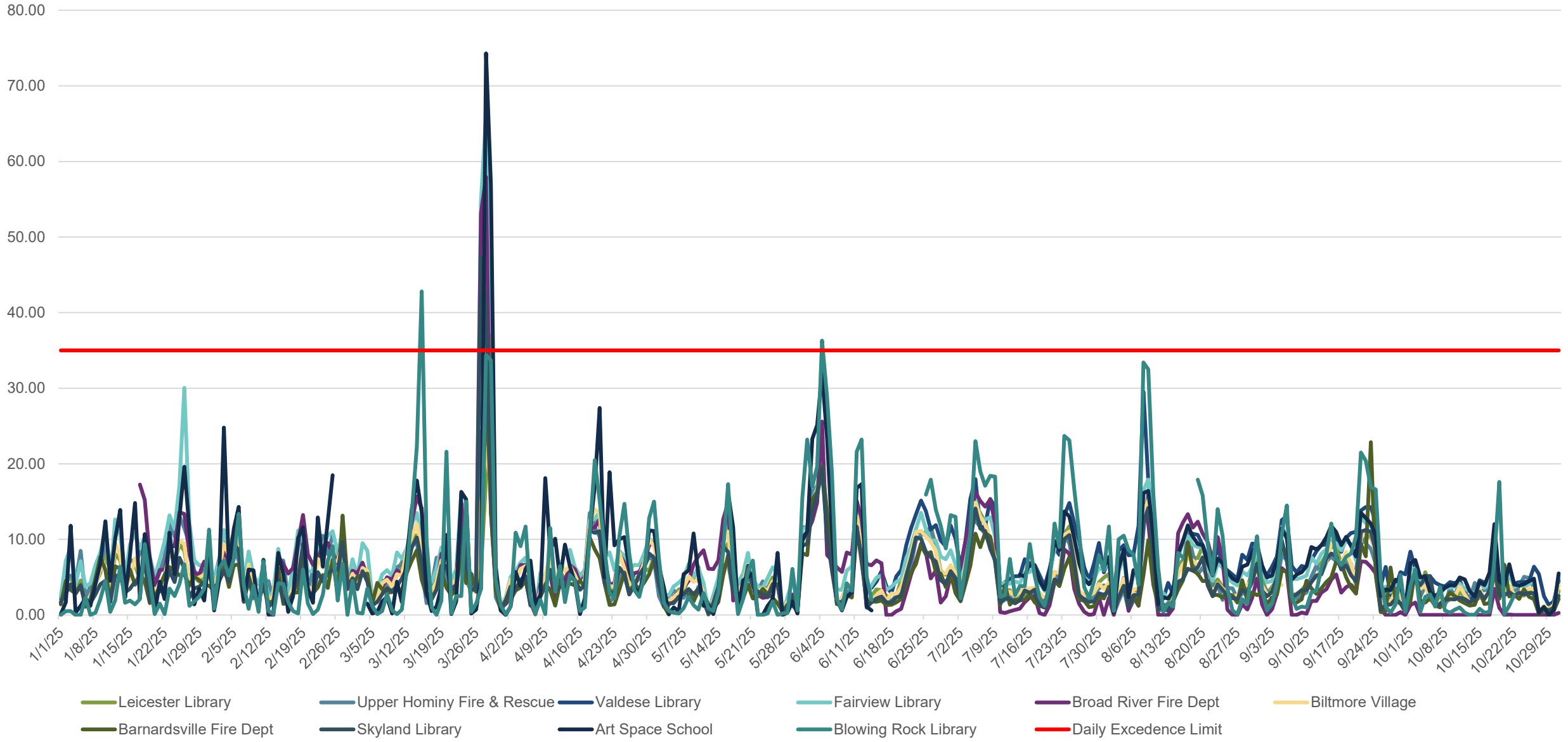
Department of Environmental Quality






Unicoi
6286 ft
Mitchell
Avery
5916 ft
Caldwell
BLUE RIDGE MOUNTAINS
4285 ft
7.8
Yancey
Madison
Pisgah National Forest
Burke
10
Lenoi
6683 ft
Lake James
Morganton
Buncombe
Mc Dowell
9.0
40
South Mountains State Park
2269 ft
First Broad River
Lake
10

Purple Air Sensors 24-Hour Average
January 1 - October 31, 2025



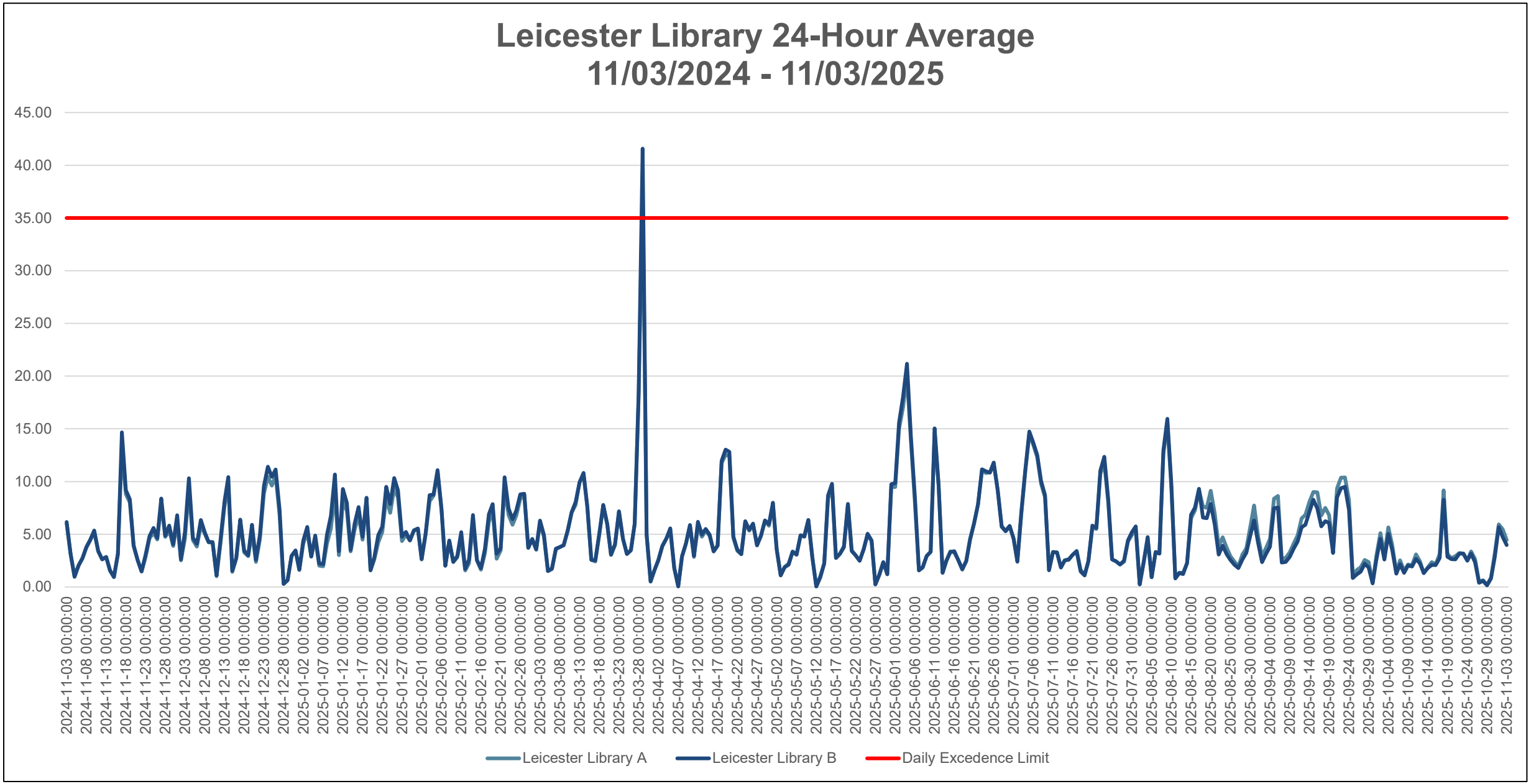

Leicester Library 24-Hour Average
11/03/2024 - 11/03/2025
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
2024-11-03 00:00:00
2024-11-08 00:00:00
2024-11-13 00:00:00
2024-11-18 00:00:00
2024-11-23 00:00:00
2024-11-28 00:00:00
2024-12-03 00:00:00
2024-12-08 00:00:00
2024-12-13 00:00:00
2024-12-18 00:00:00
2024-12-23 00:00:00
2024-12-28 00:00:00
2025-01-02 00:00:00
2025-01-07 00:00:00
2025-01-12 00:00:00
2025-01-17 00:00:00
2025-01-22 00:00:00
2025-01-27 00:00:00
2025-02-01 00:00:00
2025-02-06 00:00:00
2025-02-11 00:00:00
2025-02-16 00:00:00
2025-02-21 00:00:00
2025-02-26 00:00:00
2025-03-03 00:00:00
2025-03-08 00:00:00
2025-03-13 00:00:00
2025-03-18 00:00:00
2025-03-23 00:00:00
2025-03-28 00:00:00
2025-04-02 00:00:00
2025-04-07 00:00:00
2025-04-12 00:00:00
2025-04-17 00:00:00
2025-04-22 00:00:00
2025-04-27 00:00:00
2025-05-02 00:00:00
2025-05-07 00:00:00
2025-05-12 00:00:00
2025-05-17 00:00:00
2025-05-22 00:00:00
2025-05-27 00:00:00
2025-06-01 00:00:00
2025-06-06 00:00:00
2025-06-11 00:00:00
2025-06-16 00:00:00
2025-06-21 00:00:00
2025-06-26 00:00:00
2025-07-01 00:00:00
2025-07-06 00:00:00
2025-07-11 00:00:00
2025-07-16 00:00:00
2025-07-21 00:00:00
2025-07-26 00:00:00
2025-07-31 00:00:00
2025-08-05 00:00:00
2025-08-10 00:00:00
2025-08-15 00:00:00
2025-08-20 00:00:00
2025-08-25 00:00:00
2025-08-30 00:00:00
2025-09-04 00:00:00
2025-09-09 00:00:00
2025-09-14 00:00:00
2025-09-19 00:00:00
2025-09-24 00:00:00
2025-09-29 00:00:00
2025-10-04 00:00:00
2025-10-09 00:00:00
2025-10-14 00:00:00
2025-10-19 00:00:00
2025-10-24 00:00:00
2025-10-29 00:00:00
2025-11-03 00:00:00
Leicester Library A
Leicester Library B
Daily Excedence Limit

Table Rock Fire

Started on March 21, 2025, and lasted through first week of April 2025.

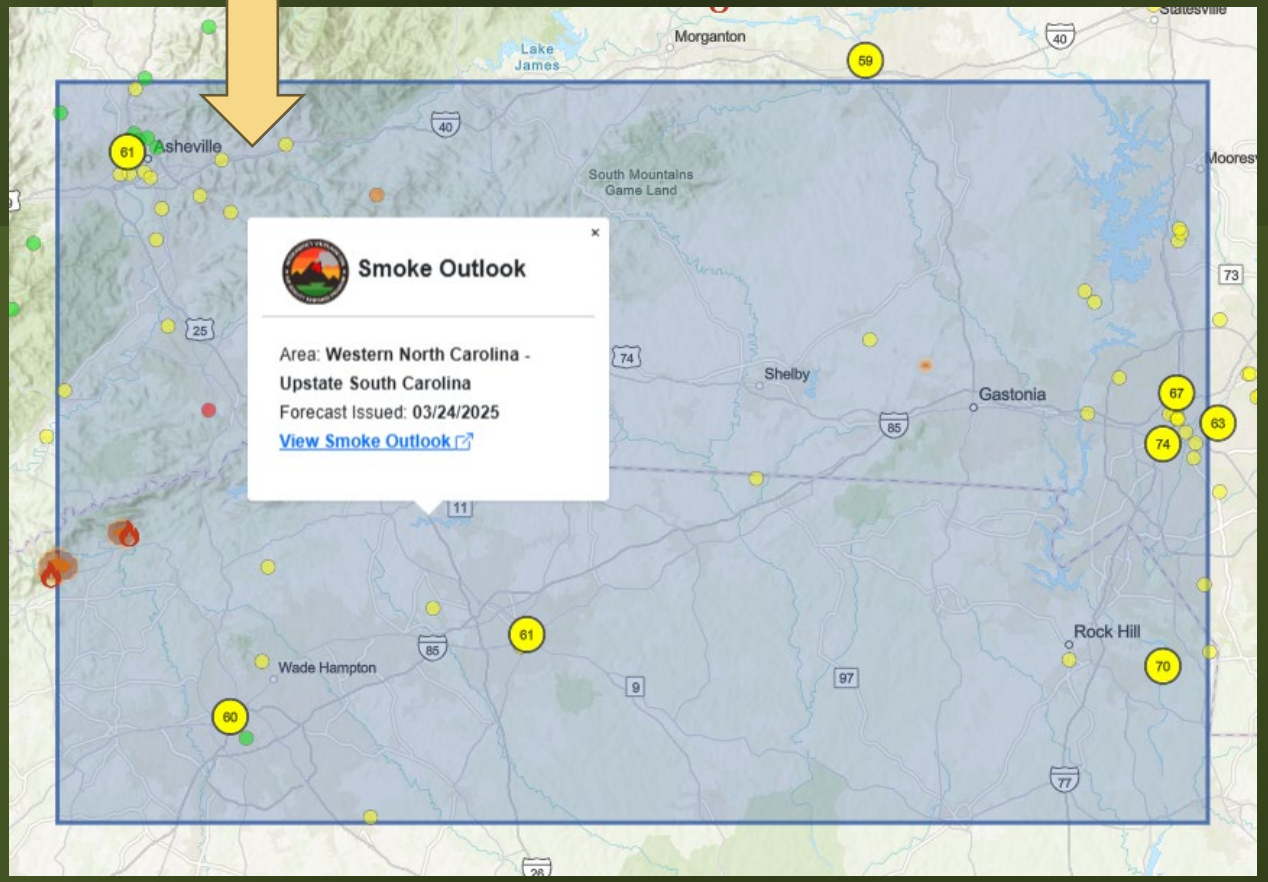
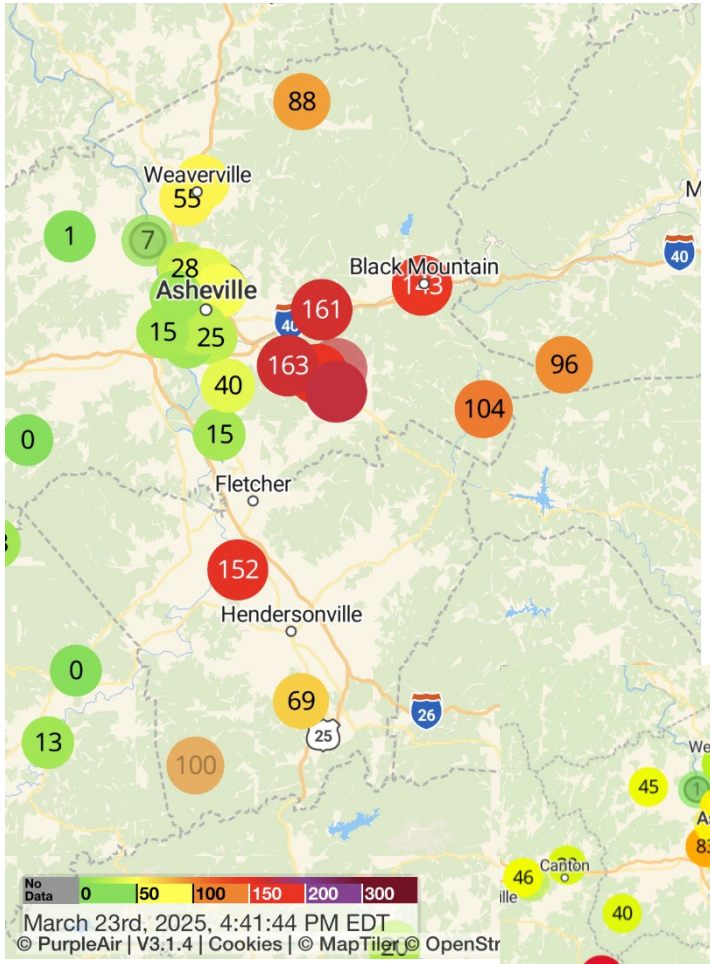




Table Rock wildfire breaks record, becoming Upstate's largest-ever as rain hopes emerge

BY CAITLIN HERRINGTON CHERRINGTON@POSTANDCOURIER.COM
MAR 29, 2025

A Chinook helicopter makes water drops on the Table Rock Fire, March 27, 2025.
TONY KUKULICH/STAFF



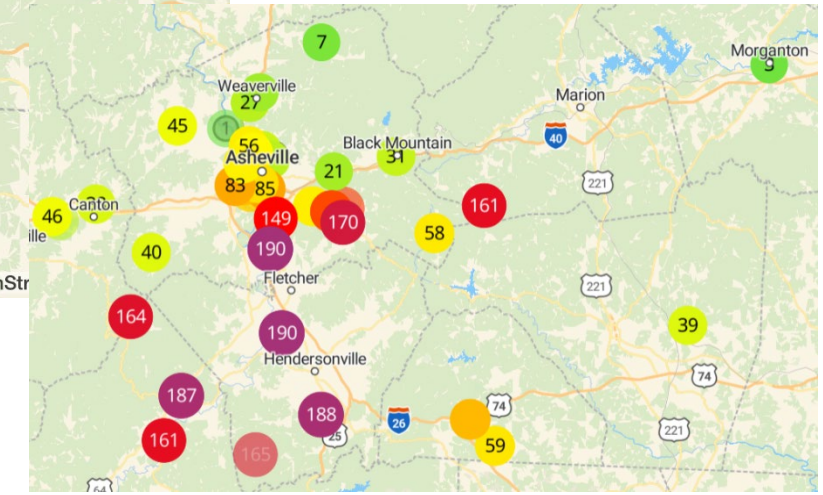
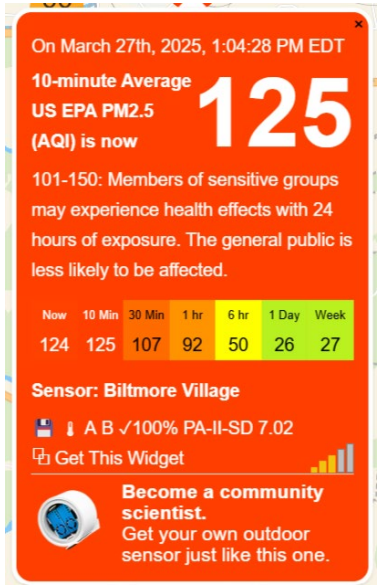
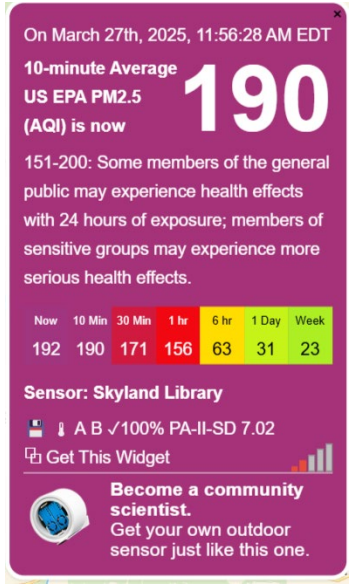


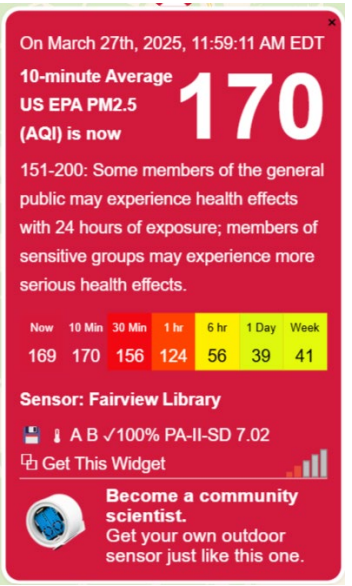
Table Rock Complex fire fully contained after burning more than 15,000 acres

April 9, 2025 by Nicole Madden

The South Carolina Forestry Commission announced Tuesday that the Table Rock Complex fires have been fully contained. The Table Rock and Persimmon Ridge fires burned more than 15,000 acres in Greenville and Pickens counties and part of North Carolina.







Department of Environmental Quality

WEATHER

Heads up: Smoke from Canadian fires makes it into North Carolina sky Sunday, Monday

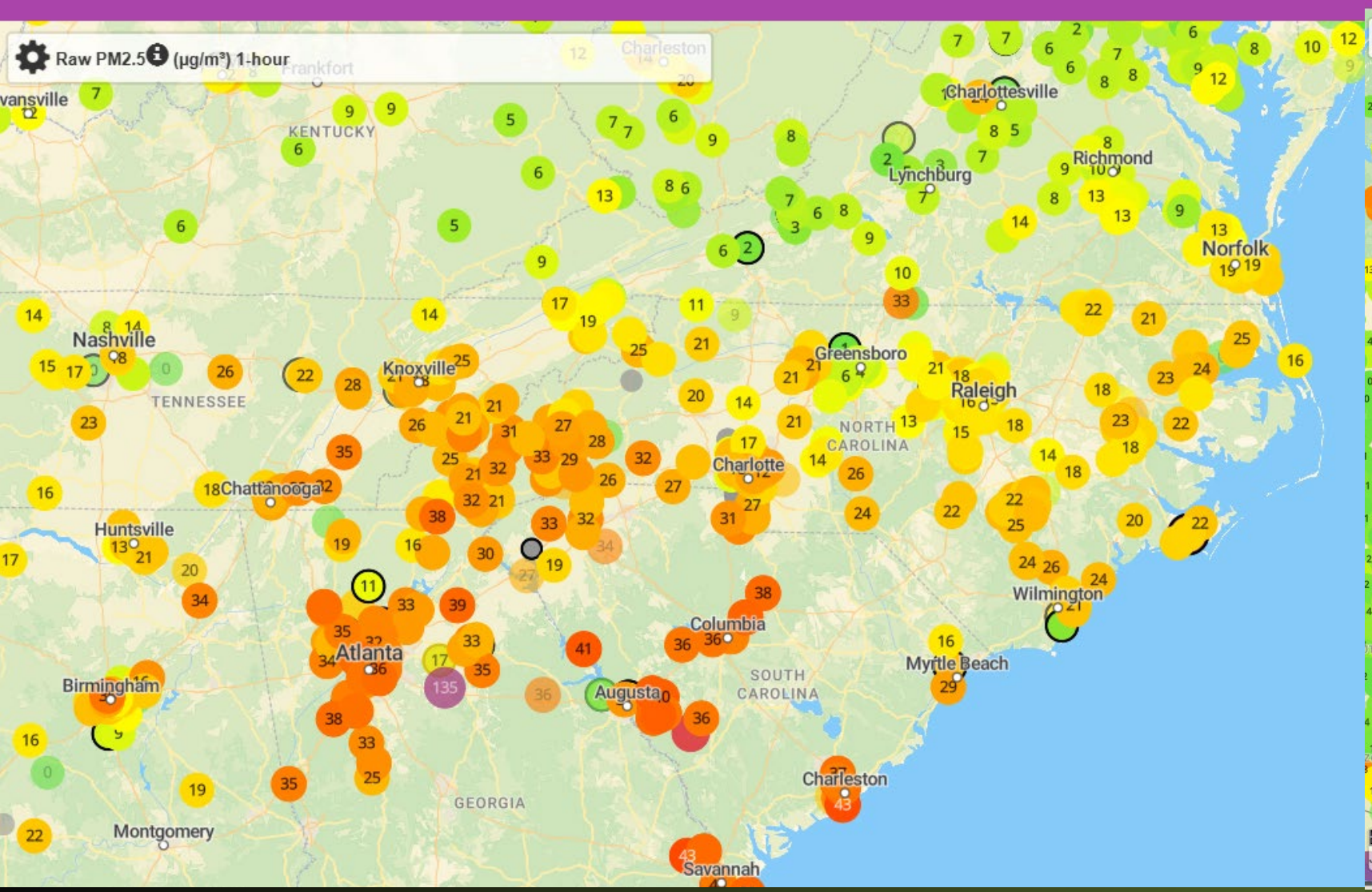
Smoke from Canadian wildfires is drifting into the U.S. this weekend

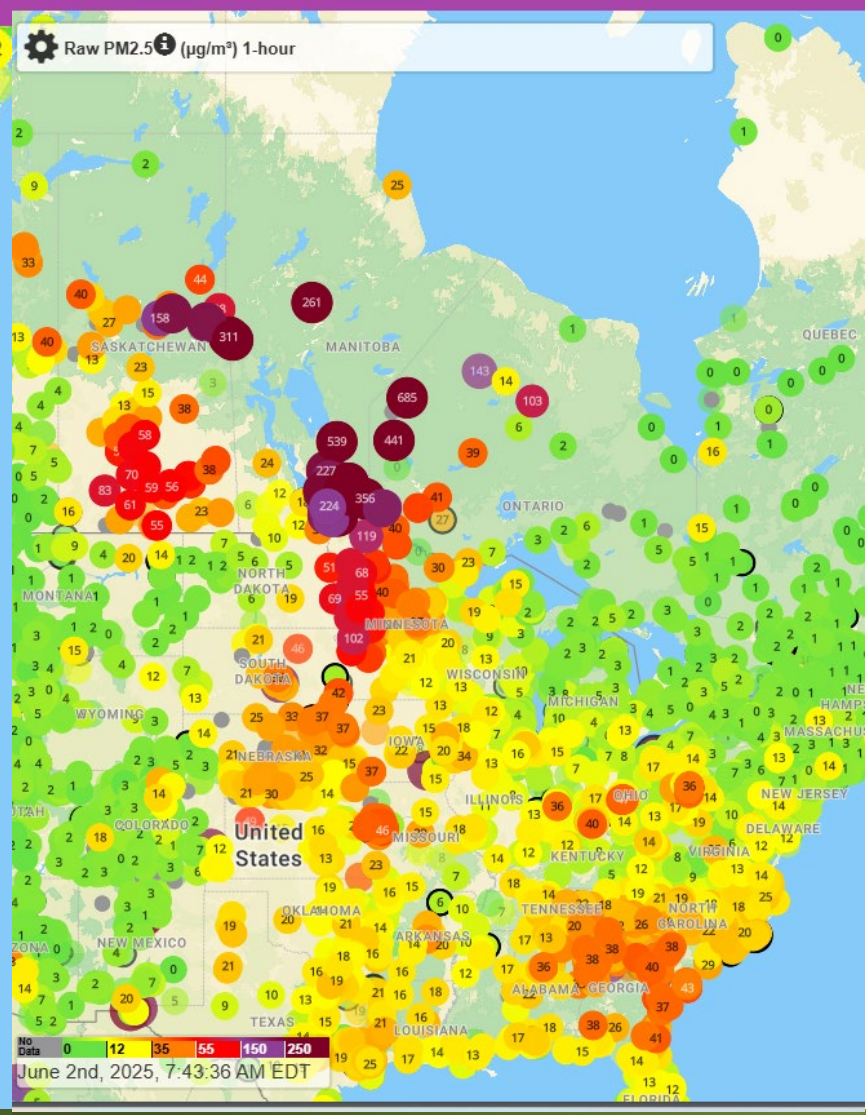
Posted 7:38 a.m. May 31 - Updated 4:26 a.m. Yesterday



This photo provided by the Manitoba government shows wildfires in Sherridon, Manitoba, Canada, on Tuesday, May 27, 2025. (Manitoba government via AP)

By **Chris Michaels** , WRAL meteorologist





Canadian Wildfires June 2025

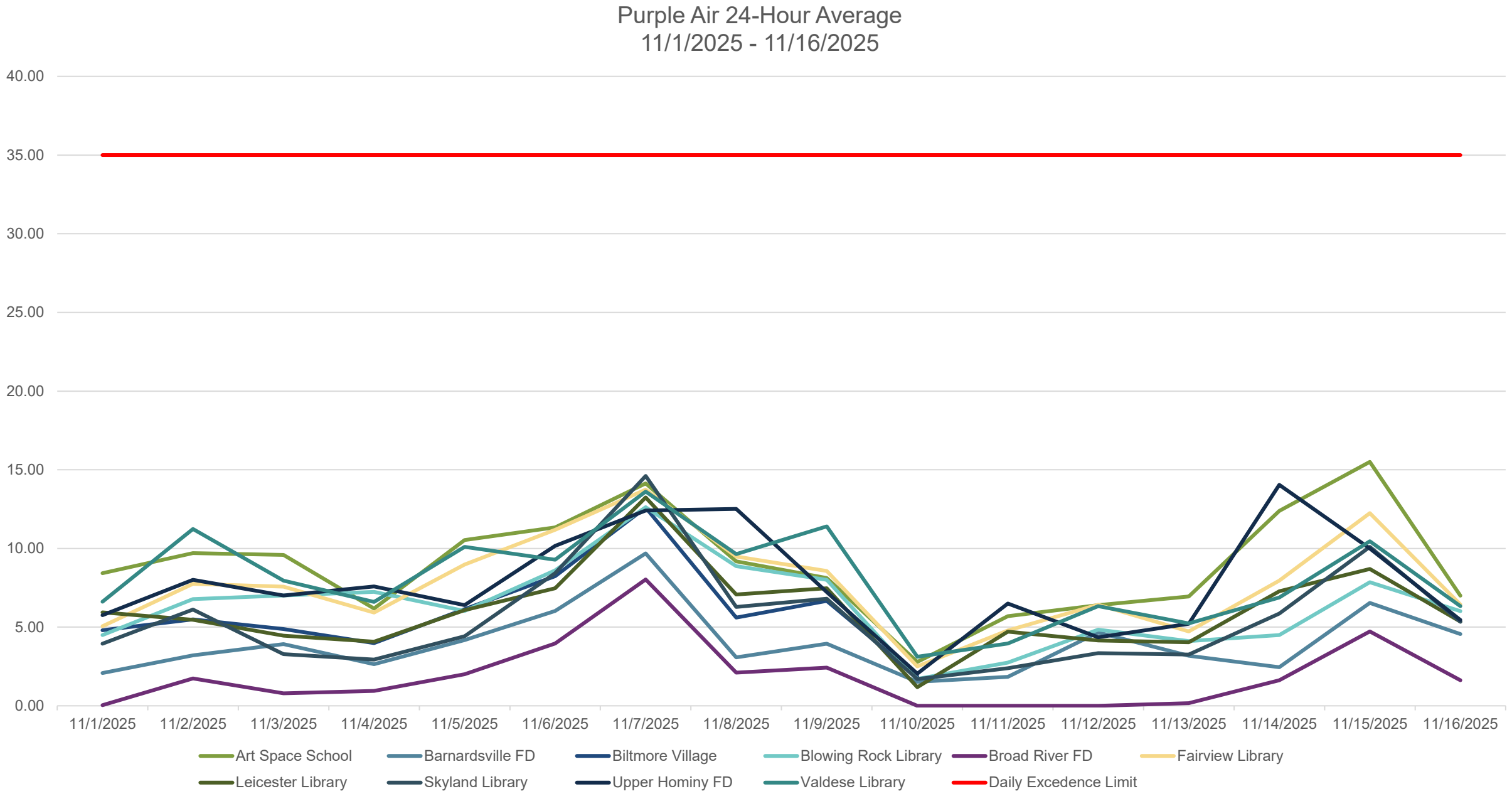
Crews battle wind-driven 28-acre fire, 85% contained in Buncombe County

by Ruby Annas & Marisa Sardonia | Thu, November 13, 2025 at 3:03 PM

Updated Thu, November 13, 2025 at 10:41 PM



NOV. 13, 2025 - A woods fire near Lower Brush Creek Road in Buncombe County, N.C. (Photo: WLOS Staff)


Purple Air 24-Hour Average
11/1/2025 - 11/16/2025
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
11/1/2025
11/2/2025
11/3/2025
11/4/2025
11/5/2025
11/6/2025
11/7/2025
11/8/2025
11/9/2025
11/10/2025
11/11/2025
11/12/2025
11/13/2025
11/14/2025
11/15/2025
11/16/2025
Art Space School
Barnardsville FD
Biltmore Village
Blowing Rock Library
Broad River FD
Fairview Library
Leicester Library
Skyland Library
Upper Hominy FD
Valdese Library
Daily Excedence Limit

Challenges & Successes

Difficult to find a suitable location to plug-in that had strong Wi-Fi. Regular site visits needed to re-connect to Wi-Fi or troubleshoot offline sensors.

Some of the Purple Air Sensors would not work and had to be returned to EPA. Difficult to troubleshoot. Need to have an inventory of spares.

Asheville distance from Raleigh ~5 Hours. ABAQA, ARO, and MRO made doing this project possible.

IT/connectivity issues with EBAMs. Could not provide real-time data to the public. Data had to be manually downloaded and distributed. .

EBAMS – Regular site visits required to change filter tape or troubleshoot problems. Cold weather months were particularly tough on tape breakages.

- ✓ Quick response from EPA R4. Sensor loan application process was expedited.
- ✓ EPA suggested locating sensors at libraries and fire departments.
- ✓ Staff participation allowed for the network of air sensors and EBAMs to be established quickly.
- ✓ Excellent ongoing communication between EPA, NCDAQ, and ABAQA.
- ✓ Experience working with Purple Air Sensors and allow staff to better assist the public with air sensor questions and colocation requests.

Photos by Steve Ensley





Thank you!



Kimberly.Hornberger@deq.nc.gov

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