4.1.7 Wayne County AoA - Conclusions

Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne counties have historically been part of the nonattainment area for $PM_{2.5}$ NAAQS under the 1997 and 2006 standards.

The meteorological analyses showed concentrations at the violating monitors are most frequently from the southwest. The magnitude of exceedance analysis was able to identify outliers for high $PM_{2.5}$ days at the exceeding monitors. When the HYSPLIT data was analyzed for these dates, it again showed a strong southwesterly influence with a smaller but still significant northwesterly influence. The data showed that when monitors experience $PM_{2.5}$ concentrations above 9.0 $\mu g/m^3$, winds are from the south and southwest.

The results of the $PM_{2.5}$ Source Contribution study conducted by the University of Michigan showed a strong mobile contribution to the exceeding monitors in Wayne County. The study also showed high contributions from ferrous metal (e.g., steel and coke) and soils/dust (construction, paved, and unpaved roads) that align with the point and nonpoint emissions analysis conducted for this area.

Review of the 2022 emissions data showed that Wayne County has the highest $PM_{2.5}$ and precursor emissions from all sectors (i.e., point, nonpoint, onroad, and nonroad), followed to a lesser extent by Oakland, St. Clair, and Macomb counties. Across the board, the nonpoint sector is the largest contributor to direct $PM_{2.5}$ and precursors for the Wayne County AoA with a majority of emissions coming from residential wood combustion, commercial cooking, and dust from paved and unpaved roads. The highest $PM_{2.5}$ point source emissions are located within Wayne County. While there are large NOx and SO_2 contributions from the St. Clair/Belle River and Monroe power plants, these facilities are expected to have significant reductions in the near future. Additionally, St. Clair and Monroe counties are not typically in the path where air parcels predominately come from to impact monitors based on the meteorology portion of this analysis. USEPA findings (see Footnote 2) additionally state that NO_x and SO_2 reductions over the last decade have created more of an environment where $PM_{2.5}$ direct emissions from urban areas are found to be the main contributors to $PM_{2.5}$ pollution across the nation.

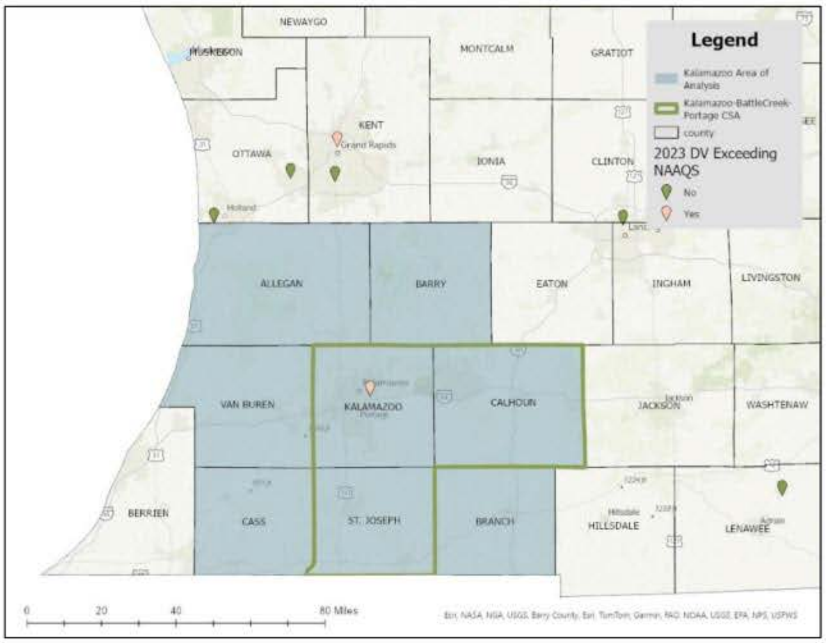
Michigan agrees that $PM_{2.5}$ likely comes from local urban sources within the Wayne County AoA, especially considering that there are several exceeding monitors within a localized area of Wayne County, while monitors attaining the $PM_{2.5}$ NAAQS are situated at the northern end of the county and at the borders of the adjacent counties. Michigan's historic DV trends analysis shows a long-term decline in $PM_{2.5}$ concentrations at the Oak Park and East 7 Mile attaining monitoring sites, with the exception of peaks in 2023 likely due to Canadian wildfire influences. This historic trend at neighboring monitors further demonstrates that $PM_{2.5}$ in the Wayne County AoA is likely attributable to local influences within the urban area rather than broad sources across several counties.

Given the results of all these analyses, Michigan recommends that Wayne County be designated as nonattainment.

4.2.0 Kalamazoo County Area

The Kalamazoo Area was evaluated because the Kalamazoo air monitoring site (260770008) has a 2021-2023 DV of 10.4 µg/m^3, exceeding the 9.0 µg/m^3 $PM_{2.5}$ NAAQS. Michigan analyzed the CSA identified as the Kalamazoo-Battle Creek-Portage Area, as well as adjoining Allegan, Barry, Branch, Cass, and Van Buren counties while evaluating the Kalamazoo area. The Kalamazoo-Battle Creek-Portage Area consists of Kalamazoo, Calhoun, and St. Joseph counties. Included as Figure 37 below is the AoA for the Kalamazoo-Portage, Michigan Area. The red markers depicted in Figure 37 are air quality monitor locations with 2021-2023 DV above the revised $PM_{2.5}$ NAAQS; the green markers depict air quality monitor locations with 2021-2023 DV below the revised $PM_{2.5}$ NAAQS. Historically, the Kalamazoo Area has not had any $PM_{2.5}$ NAAs.

Figure 37. Area of Analysis for the Kalamazoo-Portage, Michigan Area.



The sections included below present the five factors analysis Michigan completed for this area.

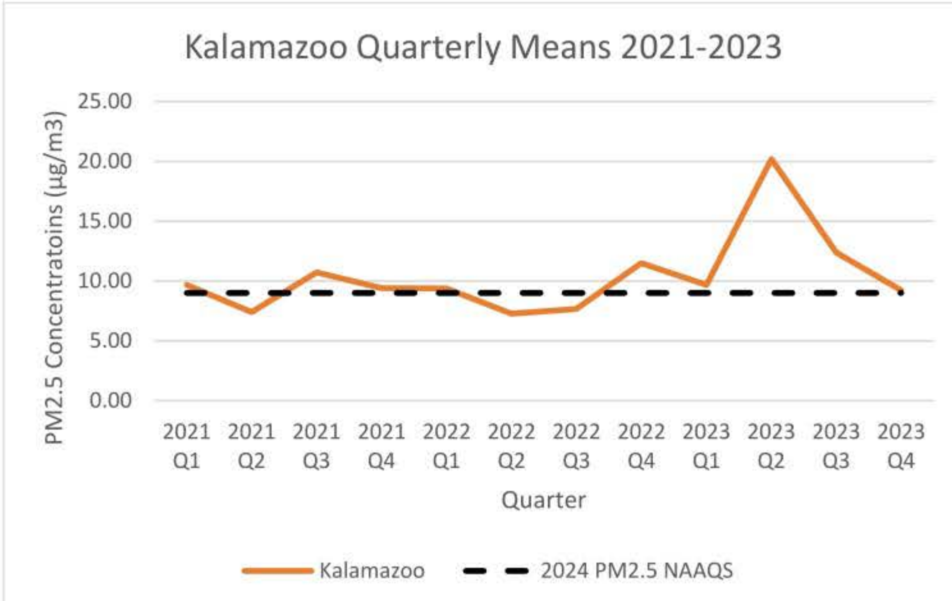
4.2.1 Kalamazoo - Air Quality Data

Air Quality Data

The AoA for the Kalamazoo-Battle Creek-Portage Area, Michigan consists of one air monitoring site. This site is located at the Kalamazoo County fairgrounds in the central portion of Kalamazoo County and is depicted in Figure 37 as a red marker, as it is exceeding the NAAQS at 10.4 µg/m^3.

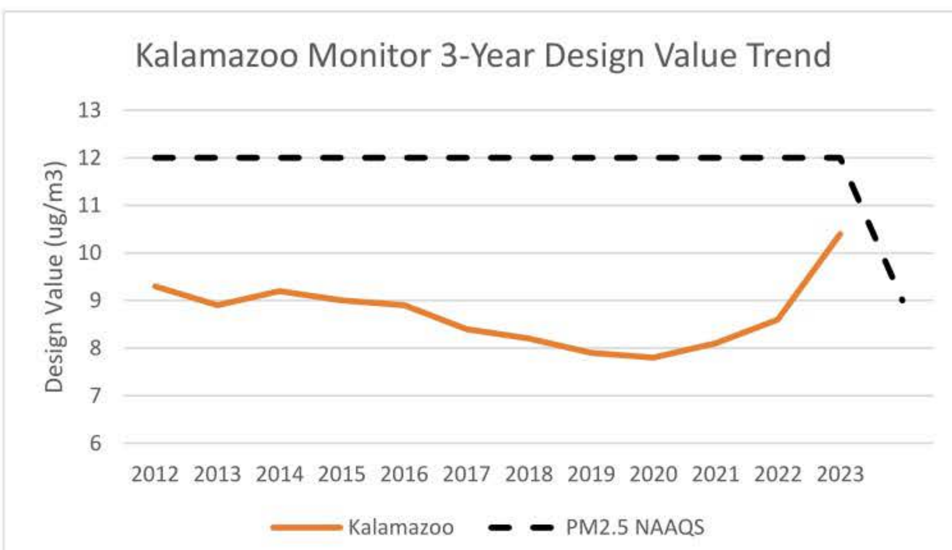
A trends analysis is depicted in Figure 38, which shows quarterly mean concentrations of $PM_{2.5}$ from 2021-2023. A high quarter can increase the mean for a year, and therefore can increase the DV. There is a slight uptick in $PM_{2.5}$ concentrations in the first and third quarters of 2021, the fourth quarter of 2022, and the third quarter of 2023, associated with the fall and winter months when $PM_{2.5}$ concentrations are generally higher. Additionally, the large peak of $PM_{2.5}$ concentrations in the second quarter of 2023 is associated with the Canadian wildfires that occurred during that time period. The high $PM_{2.5}$ concentration in the second quarter of 2023 increased the overall DV for 2021-2023, as seen in Figure 38.

Figure 38. Kalamazoo Quarterly Means Trends Analysis.



Lastly, Michigan compiled 10 years of $PM_{2.5}$ DVs for a historical analysis, presented below in Figure 39. The Kalamazoo monitoring site generally trended downward from 2012 to 2020; however, from 2021 to 2023 $PM_{2.5}$ concentrations trended upward. It is likely that the upward trend for the monitoring site depicted in Figure 39 is associated with the Canadian wildfire impact seen earlier in the second and third quarters of 2023 and to a much lesser extent, wildfire smoke observed over Michigan in the summer of 2021.

Figure 39. Kalamazoo Monitor 3-year Design Value Trend.



$PM_{2.5}$ Compositional Analysis

Urban Increment Analysis

To better understand and differentiate the influence of more distant emissions sources from the influence of closer emissions sources, Michigan conducted an urban increment analysis. For this analysis Michigan utilized two different methodologies. The first method compared speciation data from the closest CSN monitors in urban areas with that of IMPROVE sites within 150 miles of the exceeding monitoring site. The IMPROVE sites are meant to represent rural background $PM_{2.5}$ concentrations. The second methodology utilized satellite-derived global and regional $PM_{2.5}$ data for 2022 developed by the Atmospheric Composition and Analysis Group at Washington University[19]. Urban and suburban census tract areas were then removed to determine rural and urban mean concentrations. A complete description of the process used for this methodology can be found in Attachments 3 and 4. The findings for the Kalamazoo County AoA of both methodologies are discussed below.

USEPA Urban Increment Methodology

As described in the Designations Guidance, "the basic approach for the urban increment analysis is to calculate the difference between the ambient $PM_{2.5}$ speciation levels at an urban area monitoring site and the ambient $PM_{2.5}$ speciation levels at a nearby rural monitoring site(s)." To calculate the rural background the USEPA recommends averaging the data from all IMPROVE monitors located within 150 miles of a violating AQS site, and if no IMPROVE monitors are within 150 miles, data from the next closest IMPROVE site should be used. Based on this methodology, Michigan used annual/quarterly $PM_{2.5}$ speciation data from ISWS Climate Station, Illinois IMPROVE monitor located in central Illinois to represent the $PM_{2.5}$ rural background concentration, since no other IMPROVE monitors were within the 150-mile radius from the Kalamazoo Fairgrounds monitoring site. The Kalamazoo Fairgrounds monitor is not a CSN monitor, so the next closest CSN monitor was used, the Grand Rapids (GR) – Monroe monitor, which is situated about 50 miles north of the Kalamazoo Fairgrounds monitor. The Grand Rapids area that this CSN monitor is in has an overall higher emissions profile than that of Kalamazoo, which Michigan took into consideration when evaluating the urban increment data. Table 15 shows the CSN and IMPROVE sites utilized as part of this analysis and the distance the IMPROVE monitor was from the exceeding Kalamazoo Fairgrounds $PM_{2.5}$ monitoring site.

Table 15. Kalamazoo Fairgrounds Monitor – CSN/IMPROVE Monitor Pairing for Urban Increment

County	AQS Site ID	Local Site Name	Valid 2021-2023 Annual Design Value (µg/m³)	Nearest CSN Site Name (State Abrev)	Nearest IMPROVE Site Name (State Abrev)	Nearest IMPROVE Site Distance (mi) from AQS Site
Kalamazoo	260770008	Kalamazoo Fairgrounds	10.4	GR-Monroe (MI)	ISWS Climate Station (IL)	213

In Table 16 below, Michigan presents the speciated and total annual average $PM_{2.5}$ urban increments for the Kalamazoo Fairgrounds AQS monitor based on quarterly speciated $PM_{2.5}$ concentration data from the GR-Monroe CSN monitor and the ISWS Climate Station, Illinois IMPROVE monitor. The quarterly speciated data that was used to produce these calculations can be found in Attachment 3 - Urban Increment USEPA Methodology. As shown in Table 16 and Figure 40, the $PM_{2.5}$ component that contributed the most to the total $PM_{2.5}$ urban increment on an average annual basis is the organic matter portion of $PM_{2.5}$ (1.537 µg/m³). It is important to emphasize that this analysis was completed using data from the GR-Monroe CSN monitor (closest CSN monitor), which is approximately 50 miles

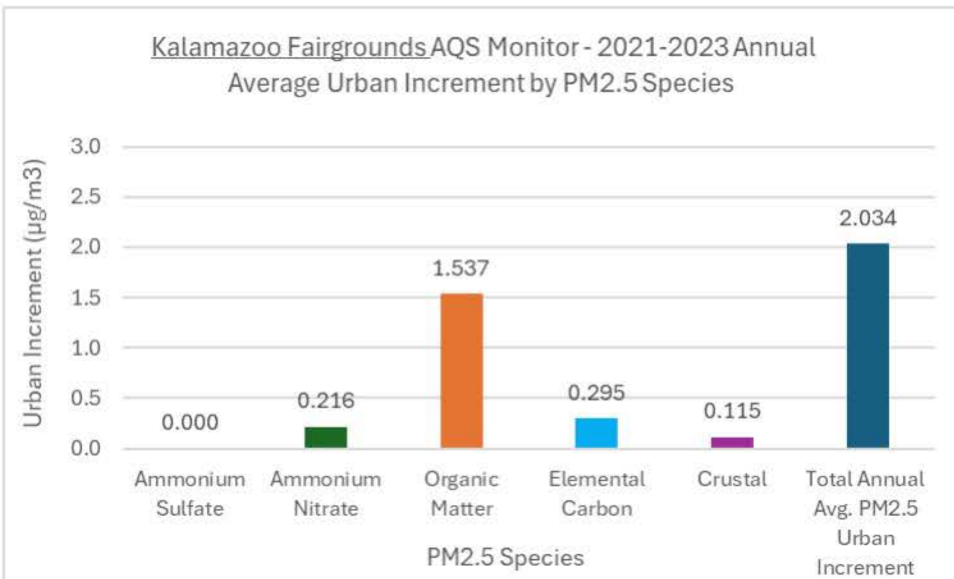
[19] Satellite-derived PM2.5. Atmospheric Composition Analysis Group. (n.d.). https://sites.wustl.edu/acag/datasets/surface-pm2-5/

north of the Kalamazoo Fairgrounds monitoring site and outside of the Kalamazoo County AoA. As such, the results of this analysis are given the appropriate consideration.

Table 16. Kalamazoo Fairground Monitor – 2021-2023 Annual Average Urban Increments by $PM_{2.5}$ Species

Local Site Name [Site ID]	Annual Avg. Ammonium Sulfate Increment	Annual Avg. Ammonium Nitrate Increment	Annual Avg. OM Increment	Annual Avg. EC Increment	Annual Avg. Crustal Increment	Total Annual Avg. $PM_{2.5}$ Urban Increment	Units
Kalamazoo Fairgrounds [260770008]	0.000	0.216	1.537	0.295	0.115	2.034	(µg/m3)

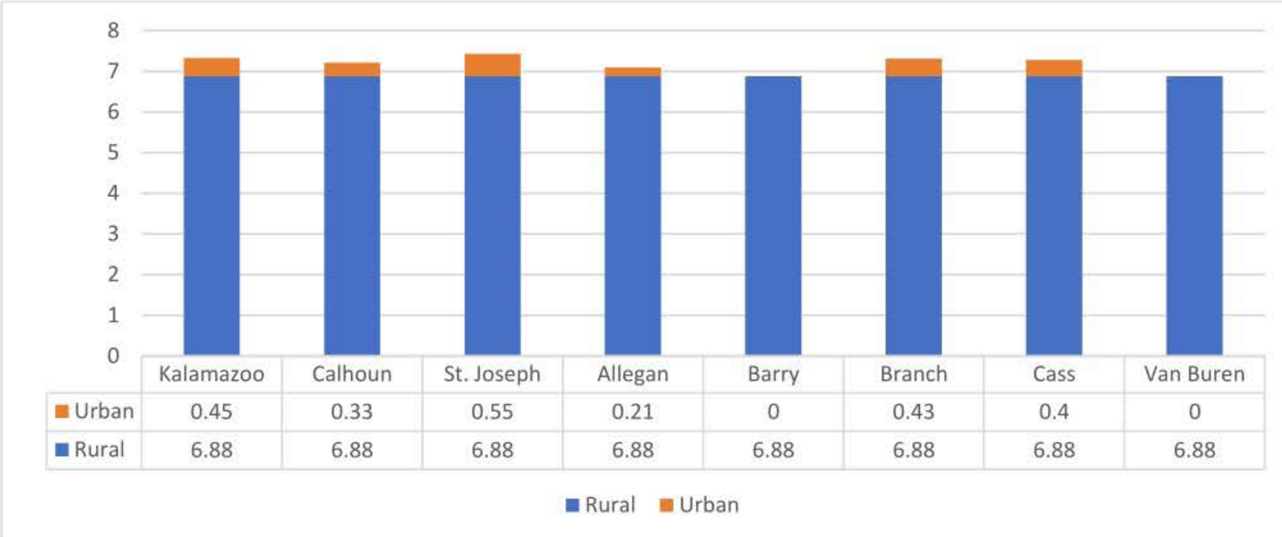
Figure 40. Kalamazoo Fairgrounds Monitor – 2021-2023 Annual Average Urban Increments by $PM_{2.5}$ Species.



Satellite-derived Urban Increment Methodology

As stated, Michigan conducted a secondary approach to calculating the urban increment, as outlined in Attachment 4. The findings of this satellite-derived urban increment analysis are presented in Figure 41, which shows a rural background of 6.88 µg/m^3 and urban increments less than 0.55 µg/m^3. Note that in two counties, there was no urban increment. The urban increments are low in this area of the state. The two larger cities within this area are relatively small in comparison with Detroit. Therefore, the smaller urban increments are expected for this mostly rural area of the state.

Figure 41. Satellite-derived Urban Increments for Kalamazoo AoA.



There are some differences between the two methodologies, which also have their own respective limitations. With the USEPA Designations Guidance methodology, Michigan is able to better understand the speciated breakdown across the whole 3-year period (2021-2023), whereas the satellite data the analysis is limited to 2022 $PM_{2.5}$ data. Conversely, the USEPA approach looks only at exceeding monitoring sites and not surrounding areas, and is limited by the use of a single CSN monitor in Kent County. The satellite-derived approach is able to show potential urban increments for the surrounding counties in the AoA. For both approaches the totals found at the monitor or county do not align directly with the monitoring DVs. This is again due to the constraints of relying on CSN and IMPROVE monitors. CSN monitors are a component of national $PM_{2.5}$ monitoring, the purpose of which is not to establish if the NAAQS are being attained. Rather, they are intended to provide expanded gravimetric $PM_{2.5}$ measurements, to support assessment of trends, development of effective SIPs and determination of regulatory compliance, development of control strategies, aiding in the interpretation of health studies of $PM_{2.5}$ constituents, characterization of annual and seasonal spatial variation of aerosols, and comparison to the IMPROVE network.

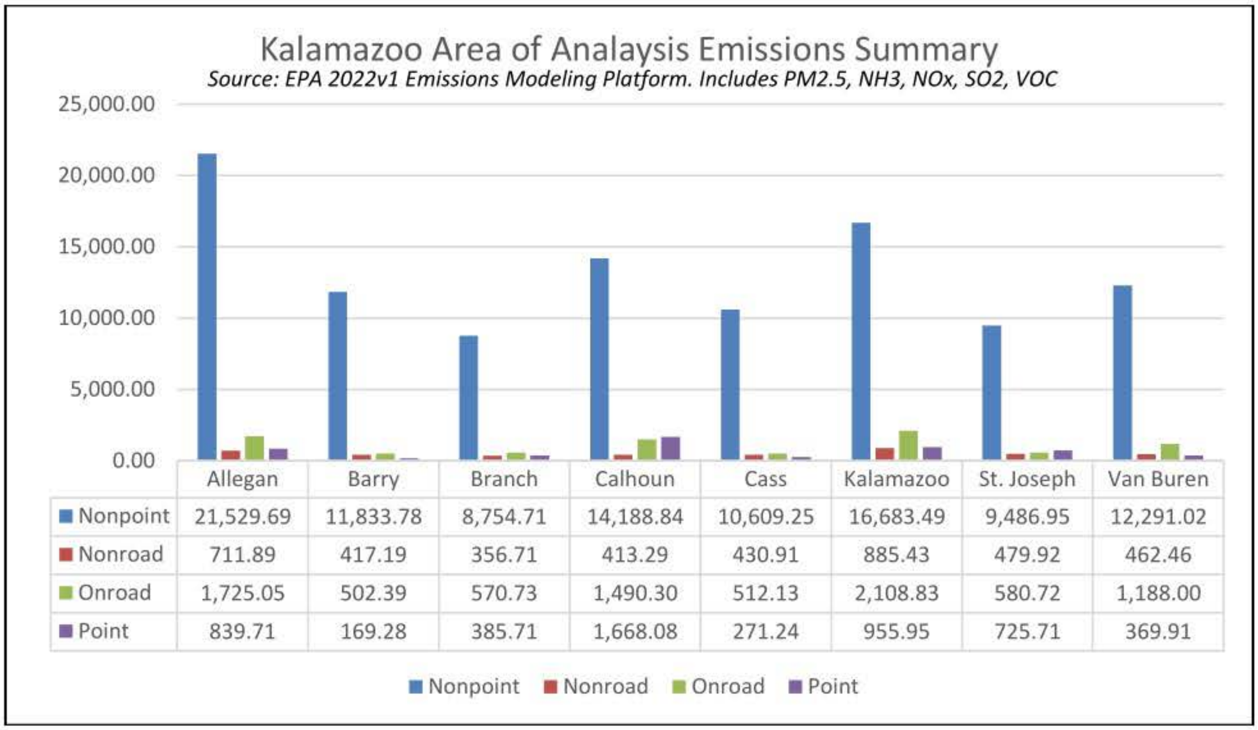
Michigan has factored in these limitations in determining the final nonattainment boundaries. Due to the constraints of this analysis, Michigan did not heavily weight the findings but rather utilized broad conclusions to help better understand the causes of $PM_{2.5}$ pollution in the Kalamazoo County AoA. From this analysis, the main conclusions are that organic matter, followed by crustal matter, and to a lesser extent ammonium nitrate contribute most to the $PM_{2.5}$ urban increments, with the acknowledgement that these results are most representative of the Grand Rapids area and to a lesser extent the Kalamazoo County AoA. The urban increments from the USEPA method attribute about 2 $\mu g/m^3$ to urban influence, whereas the satellite-derived results were less than 0.55 $\mu g/m^3$ in counties throughout the AoA. This remains consistent with what Michigan would expect, since the area in question is heavily rural, with two smaller urban areas whose influence is not anticipated to be large.

4.2.2 Kalamazoo - Emissions Data

Emissions Trends

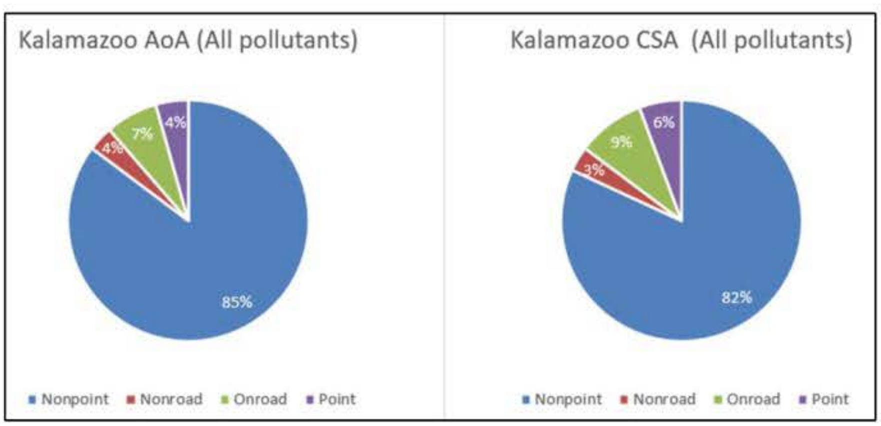
Figure 42 presents $PM_{2.5}$, NO_x, SO_x, VOC, and NH_3 ($PM_{2.5}$ and precursors) emissions data for the Kalamazoo County AoA (see Footnote 6). The most significant emissions in the Kalamazoo County AoA are from nonpoint (85%) followed by onroad (7%), point (4%), and lastly nonroad (5%) sources. Figure 43 represents the emissions distribution in a pie chart showing distribution percentages. To assist in determining potential influence of adjacent county emissions on the exceeding monitors within Kalamazoo County, Michigan reviewed emissions trends from the Kalamazoo-Battle Creek-Portage CSA, which included Kalamazoo, Calhoun, and St. Joseph counties. When looking at the Kalamazoo-Battle Creek-Portage CSA, the distribution of sector contributions shifts but the order remains the same as for the Kalamazoo AoA. The sector and county contributions are discussed further below.

Figure 42. $PM_{2.5}$ and Precursor Emissions Data for the Kalamazoo County AoA.



	Allegan	Barry	Branch	Calhoun	Cass	Kalamazoo	St. Joseph	Van Buren
Nonpoint	21,529.69	11,833.78	8,754.71	14,188.84	10,609.25	16,683.49	9,486.95	12,291.02
Nonroad	711.89	417.19	356.71	413.29	430.91	885.43	479.92	462.46
Onroad	1,725.05	502.39	570.73	1,490.30	512.13	2,108.83	580.72	1,188.00
Point	839.71	169.28	385.71	1,668.08	271.24	955.95	725.71	369.91

Figure 43. $PM_{2.5}$ and Precursor Emissions Distribution for Kalamazoo County AoA and CSA.



The top 10 $PM_{2.5}$ nonpoint sector categories are listed in Table 17 for the Kalamazoo County AoA and in Table 18 for the Kalamazoo-Battle Creek-Portage CSA. Since many of the nonpoint source sectors are correlated with population, it is reasonable to expect more nonpoint emissions from areas with higher population densities. Later in this section there is a discussion of the population density within the Kalamazoo County AoA (see Figure 46). Therefore, Michigan took into consideration population density when assessing the nonpoint source county level inventory. Fuel Combustion from residential wood is highest for both the Kalamazoo AoA and the Kalamazoo-Battle Creek-Portage CSA, followed by dust from unpaved roads, and agriculture – crops and livestock dust. The Kalamazoo County AoA overall has higher emissions from the nonpoint sectors than the Kalamazoo-Battle Creek-Portage CSA; however, the distribution is relatively the same between the two areas with only a few small differences.

Table 17. Top 10 Nonpoint Sector Categories for the Kalamazoo County AoA in tons per year for Combined $PM_{2.5}$.

Nonpoint sector category	**PM2.5(tpy)**	**Overall percentage**
Fuel Comb - Residential - Wood	2,607.89	32.7
Dust - Unpaved Road Dust	1,514.54	19.0
Agriculture - Crops & Livestock Dust	1,117.50	14.0
Waste Disposal	946.07	11.9
Dust - Paved Road Dust	561.82	7.1
Commercial Cooking	378.53	4.8
Fuel Comb - Industrial Boilers, ICEs - Biomass	363.95	4.6
Dust - Construction Dust	111.20	1.4
Fires - Prescribed Fires	102.43	1.3
Industrial Processes - Mining	101.59	1.3

Table 18. Top 10 Nonpoint Sector Categories for the Kalamazoo-Battle Creek-Portage CSA in tons per year for Combined $PM_{2.5}$.

Nonpoint sector category	**PM2.5 (tpy)**	**Overall percentage**
Fuel Comb - Residential - Wood	1,108.96	32.1
Dust - Unpaved Road Dust	509.52	14.7
Agriculture - Crops & Livestock Dust	467.59	13.5
Waste Disposal	361.70	10.5
Commercial Cooking	251.75	7.3
Dust - Paved Road Dust	249.04	7.2
Fuel Comb - Industrial Boilers, ICEs - Biomass	219.12	6.3
Dust - Construction Dust	93.09	2.7
Industrial Processes - Mining	52.60	1.5
Fires - Prescribed Fires	50.95	1.5

For the $PM_{2.5}$ and precursor point source contributions based on Figure 42, Calhoun County has the highest point contribution. Michigan also looked at individual pollutant contributions based on the data provided by the USEPA for 2022 County and Facility level[4] (see Table 19), for which Calhoun County is highest for $PM_{2.5}$ and all precursors. Table 20 shows the top 10 facilities for each pollutant and which county they are in.

Table 19. Kalamazoo County AoA county-level $PM_{2.5}$ and precursor point source emissions breakdown.[20]

County	$PM_{2.5}$ Primary	NH3	NOx	SO_2	VOC
Allegan	72.9	1.8	422.3	36.9	305.8
Barry	11.1	0.3	91.8	4.3	61.7
Branch	59.5	2.5	148.7	27.1	148
Calhoun	461.6	79.6	516.6	37.9	572.4
Cass	17	51.2	71.4	6.7	124.8
Kalamazoo	68	11	355.4	9.4	512.1
St. Joseph	54.3	2.3	226.1	7	435.9
Van Buren	93.9	17.5	219.5	17.4	21.5

Table 20. Facility Level Emissions Data by Pollutant for the Kalamazoo County AoA.[2]

$PM_{2.5}$ *(Total 423 tpy)*		
Calhoun	Knauf Insulation, Inc.	148.76
Calhoun	The Andersons Marathon Holdings LLC	92.11
Calhoun	Post Foods	68.20
Calhoun	Keebler Foods Company	15.00
St. Joseph	Banks Hardwoods, Inc.	10.02
NO_x *(Total 1,098 tpy)*		
Calhoun	The Andersons Marathon Holdings LLC	124.71
St. Joseph	Consumers Energy - White Pigeon Compressor Station	97.49
Kalamazoo	Graphic Packaging International LLC	95.96
Calhoun	WestRock California, LLC	91.75
Kalamazoo	Pharmacia & Upjohn Co. LLC, a subsidiary of Pfizer	64.67
Calhoun	Post Foods	55.84
Kalamazoo	Western Michigan University	51.26
Kalamazoo	Kaiser Aluminum Fabricated Products LLC	36.21
Kalamazoo	CMS Generation Kalamazoo River Generating Station	33.17
Calhoun	C&C Energy LLC	32.09
Calhoun	Woodworth Inc. Homer	31.84
St. Joseph	Banks Hardwoods, Inc.	29.97
Calhoun	Graphic Packaging International, LLC	27.63
Calhoun	Battle Creek	24.73
St. Joseph	Westside Recycling and Disposal Facility	22.33
NH3 *(Total 92.98 tpy)*		
Calhoun	Knauf Insulation, Inc.	73.17
Kalamazoo	Graphic Packaging International, LLC	6.86

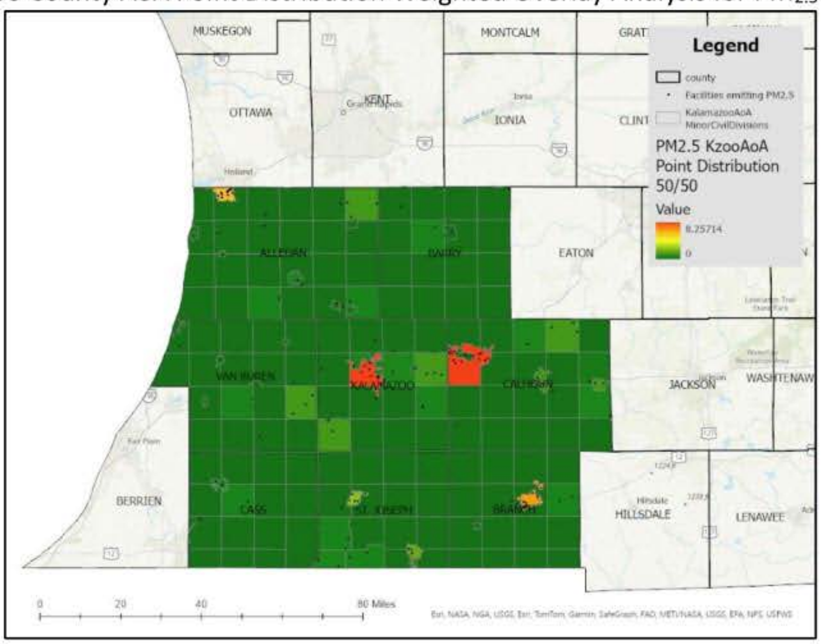
[20] USEPA 2022 County and Facility Emissions for PM2.5 Designations spreadsheet, https://www.epa.gov/particle-pollution-designations/particle-pollution-designations-memorandum-and-data-2024-revised#C

Kalamazoo	Pharmacia & Upjohn Co. LLC, a subsidiary of Pfizer	2.56
Calhoun	Woodworth, Inc. Homer	2.49
Calhoun	WestRock California, LLC	1.422
SO_2 *(Total 54.31 tpy)*		
Calhoun	The Andersons Marathon Holdings LLC	15.47
Calhoun	C&C Energy LLC	12.47
St. Joseph	Westside Recycling and Disposal Facility	4.69
Calhoun	C&C Expanded Sanitary Landfill	4.47
Calhoun	Knauf Insulation, Inc.	2.25
VOC *(Total 1,520.41 tpy)*		
Kalamazoo	Kalsec, Incorporated	192.37
Calhoun	The Andersons Marathon Holdings LLC	127.93
Calhoun	DENSO Manufacturing Michigan, Inc.	101.85
St. Joseph	Metal Technologies, Inc. Three Rivers Gray Iron	70.17
St. Joseph	Banks Hardwood, Inc.	65.84
Kalamazoo	Graphic Packaging International LLC	59.64
St. Joseph	Morgan Olson, LLC	58.42
Kalamazoo	Schafer Bakery Division - Kalamazoo Plant	47.97
Calhoun	Post Foods	43.29
St. Joseph	Bayer Great Lakes Production Co., LLC	39.12
Calhoun	Duncan Aviation Inc.	38.72
Calhoun	Brembo North America, Inc.	35.25
Kalamazoo	Summit Polymers-Vicksburg	34.69
Calhoun	Knauf Insulation, Inc.	34.06
St. Joseph	Prairie River Woodworking, LLC	32.47
St. Joseph	Westside Recycling and Disposal Facility	32.21
St. Joseph	Aquatic Co.	32.19
Calhoun	Buckeye Terminals, LLC-Marshall Terminal	29.66
Kalamazoo	Allnex USA, Inc.	27.57
Calhoun	WestRock California, LLC	26.46
Kalamazoo	Summit Polymers Plant 18	24.76
St. Joseph	Summit Polymers, Inc. - Syntech Plant	24.55
St. Joseph	Ox Paperboard White Pigeon Mill	24.07
Calhoun	TRMI	22.50

Calhoun County has the highest overall point source emissions contributions for the Kalamazoo AoA. Michigan reviewed the largest facilities contributing to those emissions, listed in Table 20. These facilities included: Denso Manufacturing (State Registration Number (SRN): N1192), The Andersons Marathon Holdings LLC (SRN: B8570), Knauf Insulation (SRN: B7205), and Post Foods LLC (SRN: B1548). Knauf Insulation and The Andersons Marathon Holdings LLC are both located on the eastern edge of Calhoun County, while Post Foods LLC and Denso are located near the City of Battle Creek in the northwestern portion of Calhoun County. All these facilities are regulated by the AQD under the USEPA-approved Renewable Operating Permit (ROP) program and are subject to Michigan's Air Pollution Control Rules for Prevention of Significant Deterioration of Air Quality for $PM_{2.5}$ and respective precursor emissions, as well as related National Emission Standards developed by the USEPA. To comply with these regulations the Andersons Marathon Holdings LLC, Knauf Insulation, and Post Foods all have implemented $PM_{2.5}$ control equipment such as, but not limited to baghouses, wet scrubbers, thermal oxidizers, low NOx burners, and cartridge filter dust collection systems. A complete review of these facilities and their ROPs can be found on Michigan's Air Quality Permitting webpage, which provides a Source Master List Sorted by SRN.[21] The wind rose and HYSPLIT analysis do not show a strong easterly or northeasterly wind influence on the Kalamazoo monitor, therefore any additional reductions made from these facilities are not anticipated to have an impact on the overall DV at the Kalamazoo monitoring site.

Lastly, to better understand the overall distribution of $PM_{2.5}$ and precursors at point sources in the Kalamazoo County AoA, Michigan utilized the $PM_{2.5}$ facility level data from the 2022v1 EMP provided by the USEPA, and completed a weighted overlay analysis to determine where areas of high $PM_{2.5}$ and precursor emissions coincided with high facility count at a city/township level. This helped better refine the county level data discussed earlier. To complete this analysis, the data from the 2022v1 EMP were converted to a raster and totals for total $PM_{2.5}$ emissions and facility count were summarized for each city and township area. These data were then rasterized and scored on a scale from 0 to 1. Both the emissions and count layers were then multiplied against each other with equal weight (i.e., 50% each). The final output is shown in Figure 45, which depicts areas with high $PM_{2.5}$ emissions and facility count in red, and areas with fewer emissions and facilities in dark green.

Figure 45. Kalamazoo County AoA Point Distribution Weighted Overlay Analysis for $PM_{2.5}$ emissions.



The results of this analysis show a large facility and $PM_{2.5}$ emissions concentration in the cities of Kalamazoo and Battle Creek. However, there are only a handful of large sources in the counties, and they are mostly located outside of these two big city boundaries. In this case, the weighted overlay highlights where many facilities with small emissions are located. Most of the Kalamazoo AoA has few to no point sources and the emissions are relatively low in comparison to the statewide level.

[21] Source ID Company Address City ZIP Code County On-Line Documents* Source Master List Sorted by Source ID. (n.d.). Retrieved December 16, 2024, from https://www.egle.state.mi.us/aps/downloads/srn/Sources_By_SRN.pdf

Population density and degree of urbanization

Michigan looked at the population density and degree of urbanization for the Kalamazoo County AoA using the U.S. Census Bureau's 2020 Census Demographic and Housing Characteristics. Figure 46 shows that Kalamazoo County has the highest population density in the Kalamazoo County AoA and therefore has the highest degree of urbanization. The areas of highest population density are in central and western Kalamazoo County. Further, northwestern Calhoun County has the second highest area of population density. Michigan gathered total 2023 county-level population data for each county in the Kalamazoo County AoA, and calculated percentages representing the contribution of each county's total population to the total population of the Kalamazoo County AoA, as shown in Table 21 (see Footnote 10). In 2023, the largest counties in the Kalamazoo AoA by population were Kalamazoo County (262,215), Calhoun County (133,366), and Allegan County (121,939).

Figure 46. Population Density Map for the Kalamazoo Area of Analysis.

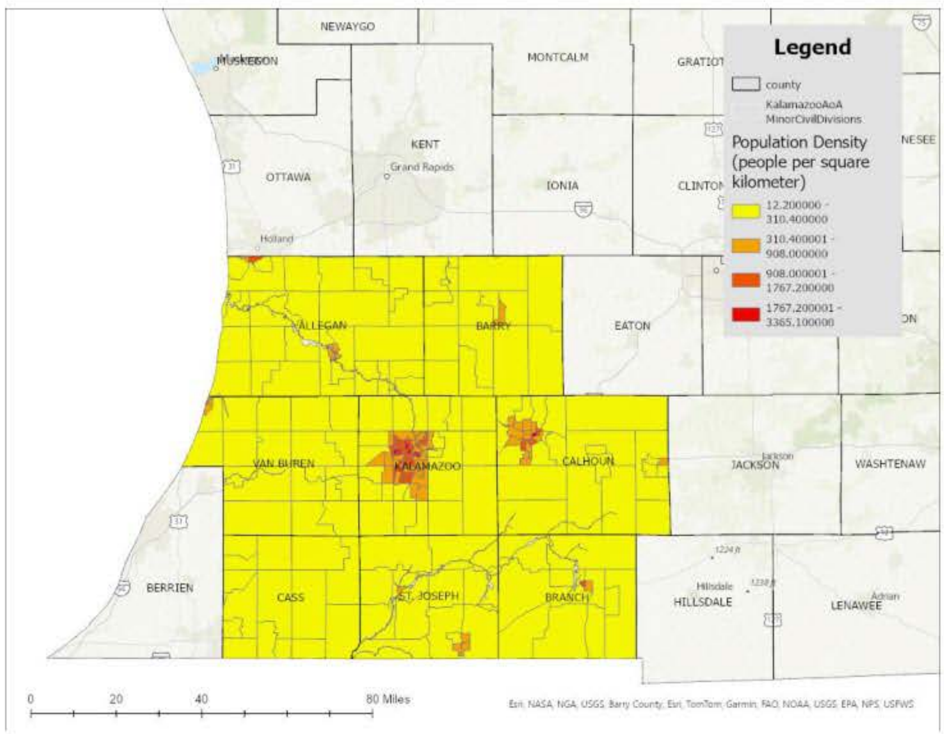


Table 21. Annual estimate of the resident population of each county in the Kalamazoo County AoA in 2023.

County	Total Population by County	Percentage (%) of Total Kalamazoo AoA Population by County
Allegan	121,939	15.0
Barry	63,808	7.8
Branch	45,215	5.5
Calhoun	133,366	16.4
Cass	51,642	6.3
Kalamazoo	262,215	32.2
St. Joseph	60,878	7.5
Van Buren	75,798	9.3
Total Kalamazoo AoA Population	814,861	

Traffic and Commuting Patterns

The Designations Guidance recommended that analyses relating to traffic and commuting patterns "examine the location of major transportation arteries and information on traffic volume and commuting in and around the area containing a violating monitor." Michigan chose to adhere to this recommendation, and included the following supplemental analyses to help bolster and support the emissions-related evaluations in this section for the Kalamazoo County AoA.

For the eight-county Kalamazoo AoA, which includes Allegan, Barry, Branch, Calhoun, Cass, Kalamazoo, St. Joseph, and Van Buren counties, Michigan looked at total annual VMT data at the county level. Additionally, Michigan accessed county-level commercial VMT data to gain a better understanding of the impact of emissions from heavy-duty onroad vehicles that travel within these eight counties on the violating $PM_{2.5}$ monitor within Kalamazoo County.

In Table 22, annual average VMT data are shown for the years 2021, 2022, and 2023. The data were extracted from the *2023 Michigan Roadway Statewide Statistics Report* (2023 MRSSR)[22], which was developed by the MDOT. Similarly, the USEPA released a spreadsheet on November 25, 2024, entitled "2022 Vehicle Miles Traveled" appended to its *Particle Pollution Designations Memorandum and Data for the 2024 Revised Annual $PM_{2.5}$ NAAQS* webpage that contains VMT estimates for each state-county pairing in the United States for the year 2022.[23] The VMT estimates included within the spreadsheet were found to be identical to the 2022 VMT estimates in the 2023 MRSSR. Rather than rely upon one year of VMT data, Michigan calculated a three-year (2021-2023) annual average VMT (in thousands) for

[22] (2023, December 31). 2023 Michigan Roadway Statewide Statistics - Legal System (LS) by County [Review of 2023 Michigan Roadway Statewide Statistics - Legal System (LS) by County]. Michigan MDOT. https://www.michigan.gov/mdot/-/media/Project/Websites/MDOT/Programs/Planning/Asset-Management/HPMS/Statewide-Statistics-LS-County.pdf?rev=ba3c4320b5b34678a505a7dd061649b6&hash=D31A3CE838AAC2BAA1FAB05BD6FC9F12

[23] (2024). Particle Pollution Designations Memorandum and Data for the 2024 Revised Annual PM2.5 NAAQS [Review of Particle Pollution Designations Memorandum and Data for the 2024 Revised Annual PM2.5 NAAQS]. USEPA. https://www.epa.gov/particle-pollution-designations/particle-pollution-designations-memorandum-and-data-2024-revised

each county within the Kalamazoo AoA. It was found that Kalamazoo County (2,491,592), Calhoun County (1,606,376), and Allegan County (1,573,748) had the largest three-year annual average VMT within the Kalamazoo AoA. This finding is also depicted in Figure 47. In regard to commercial VMT, which is an estimate of vehicle travel by commercial vehicles (single-unit and combination trucks and buses), it was determined that Calhoun County (239,738), Kalamazoo County (232,714), and Van Buren County (187,149) had the largest three-year average commercial VMT within the Kalamazoo AoA. This finding is shown in Table 23 and Figure 48.

Table 22. Annual VMT Estimates by County in the Kalamazoo County AoA (in thousands).

County	2021	2022	2023	Three-Year Annual Average (2021-2023)
Allegan	1,568,234	1,560,109	1,592,901	1,573,748
Barry	416,541	416,246	423,294	418,694
Branch	495,119	490,515	481,088	488,907
Calhoun	1,604,328	1,585,927	1,628,873	1,606,376
Cass	481,052	475,615	493,473	483,380
Kalamazoo	2,467,969	2,477,543	2,529,263	2,491,592
St. Joseph	529,363	552,882	592,912	558,386
Van Buren	1,040,427	1,027,593	1,050,008	1,039,343
Totals	8,603,033	8,586,430	8,791,812	8,660,425

Figure 47. Annual VMT Estimates by County in the Kalamazoo County AoA.

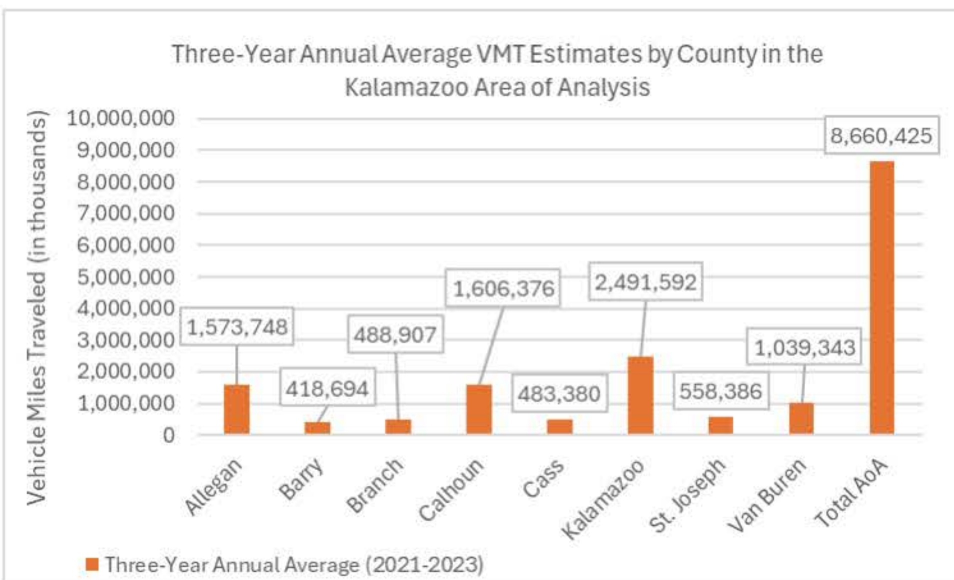
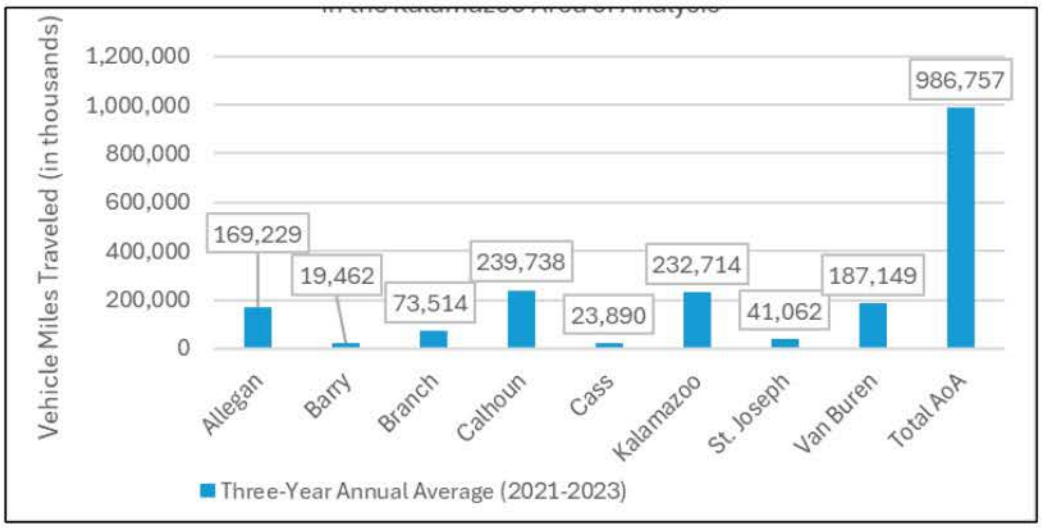


Table 23. Commercial VMT Estimates by County in the Kalamazoo County AoA (in thousands).

County	2021	2022	2023	Three-Year Annual Average (2021-2023)
Allegan	175,570	166,220	165,896	169,229
Barry	22,645	17,764	17,976	19,462
Branch	79,335	73,957	67,251	73,514
Calhoun	245,460	234,265	239,489	239,738
Cass	26,754	22,490	22,425	23,890
Kalamazoo	253,064	230,136	214,942	232,714
St. Joseph	41,165	40,622	41,398	41,062
Van Buren	187,958	181,517	191,972	187,149
Total AoA	1,031,951	966,971	961,349	986,757

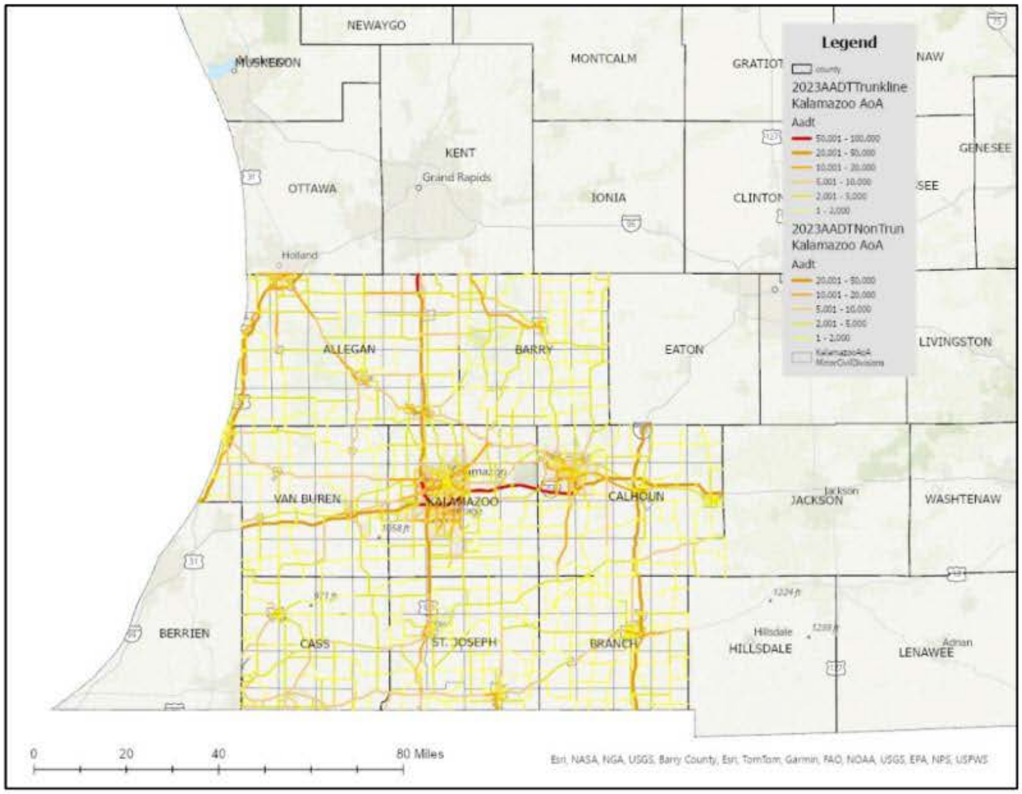
Figure 48. Annual commercial VMT estimates by county in the Kalamazoo County AoA.



In an effort to locate the major transportation arteries of the Kalamazoo County AoA, Michigan utilized MDOT's AADT Tool to export 2023 AADT data for trunkline and non-trunkline roads within the eight-county area.[24] The visual findings of this portion of the Traffic and Commuting Patterns analysis can be seen in Figure 49, which shows the largest clusters and concentrations of trunkline and non-trunkline roads with an AADT of over 20,001 as located in the central portion of Kalamazoo County (City of Kalamazoo, City of Portage, etc.) and the northwest quadrant of Calhoun County (City of Battle Creek).

[24] (2023). Michigan Traffic AADT [Review of Michigan Traffic AADT]. Michigan MDOT. https://experience.arcgis.com/experience/05113e1c2c1742a0b07cd22a77b46ee2/page/Michigan-Traffic-AADT/

Figure 49. 2023 AADT Estimates for Trunkline and Non-trunkline Roads in the Kalamazoo County AoA.

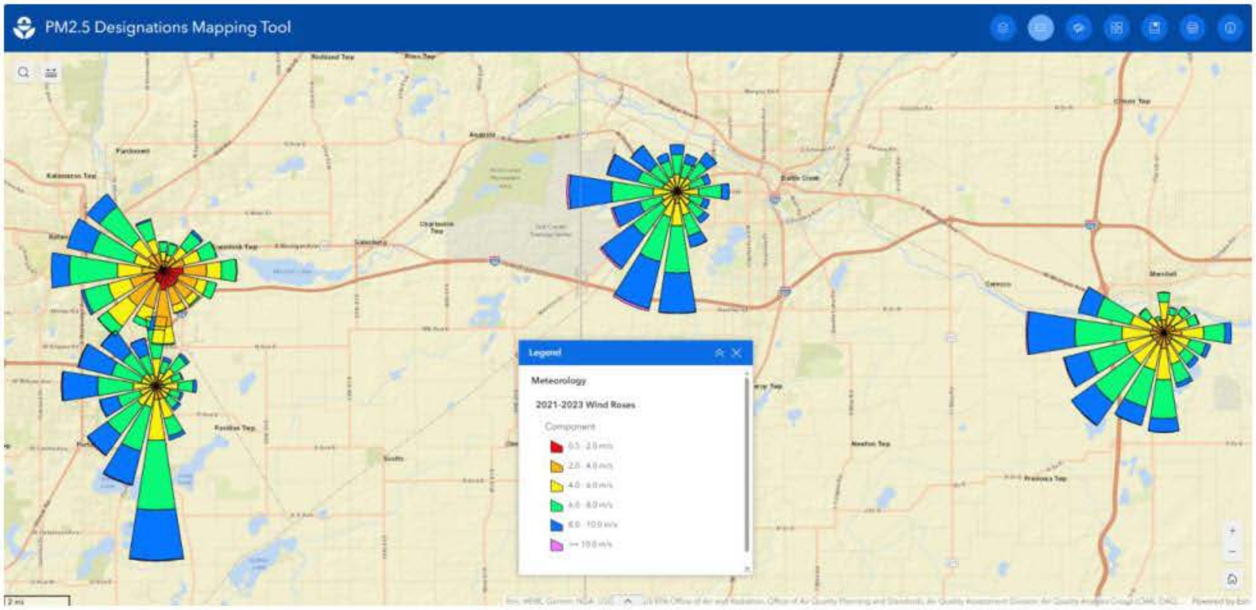


4.2.3 Kalamazoo - Meteorology

Wind Rose Analysis

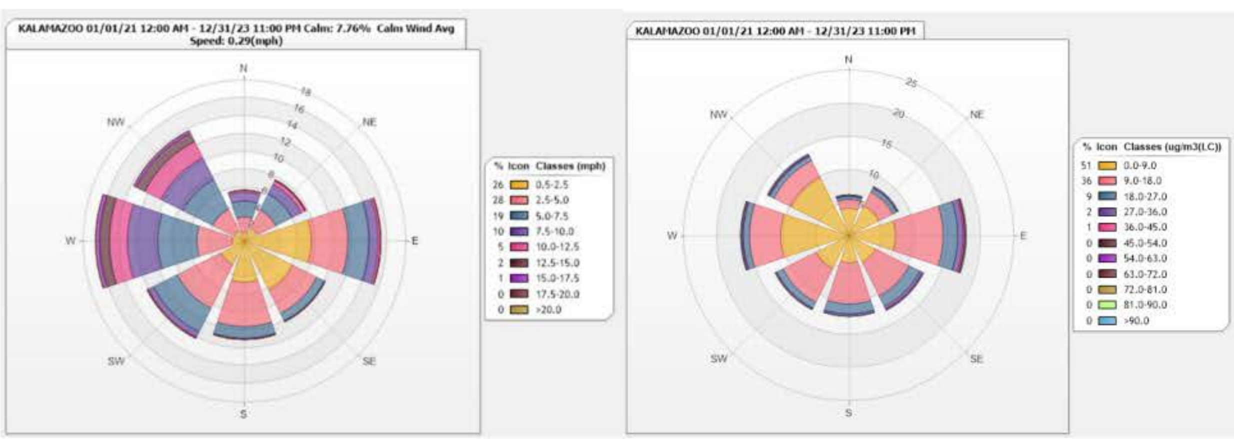
As discussed in Section 3.3 Factor 3: Meteorology, EGLE staff generated wind and pollution roses for the monitoring sites and several airports in the Kalamazoo area prior to the USEPA's finalizing wind roses on the $PM_{2.5}$ Designations Mapping Tool. Displayed in Figure 50 are the wind roses from the USEPA's $PM_{2.5}$ Designation Mapping Tool for the Kalamazoo area. The USEPA's wind roses are in m/s and show data from the 2021-2023 DV timeframe. Discussed further below in this section are wind and pollution roses for the Kalamazoo monitoring site.

Figure 50. Wind Roses from the USEPA's $PM_{2.5}$ Designation Mapping Tool.



Kalamazoo (260770008)
Wind and pollution roses for the Kalamazoo monitoring site are shown in Figure 51. The wind rose indicates that the most common wind speed, 28% of the time, was between 2.5 and 5.0 mph. The wind rose indicates that the wind mostly comes from the west, east, northwest, and southwest at this monitoring site. Additionally, the pollution rose shows that 51% of the time $PM_{2.5}$ concentrations are between 0.0 and 9.0 µg/m^3. The pollution rose also indicates that $PM_{2.5}$ migrates to the monitoring site from the east, west, and northwest the majority of the time.

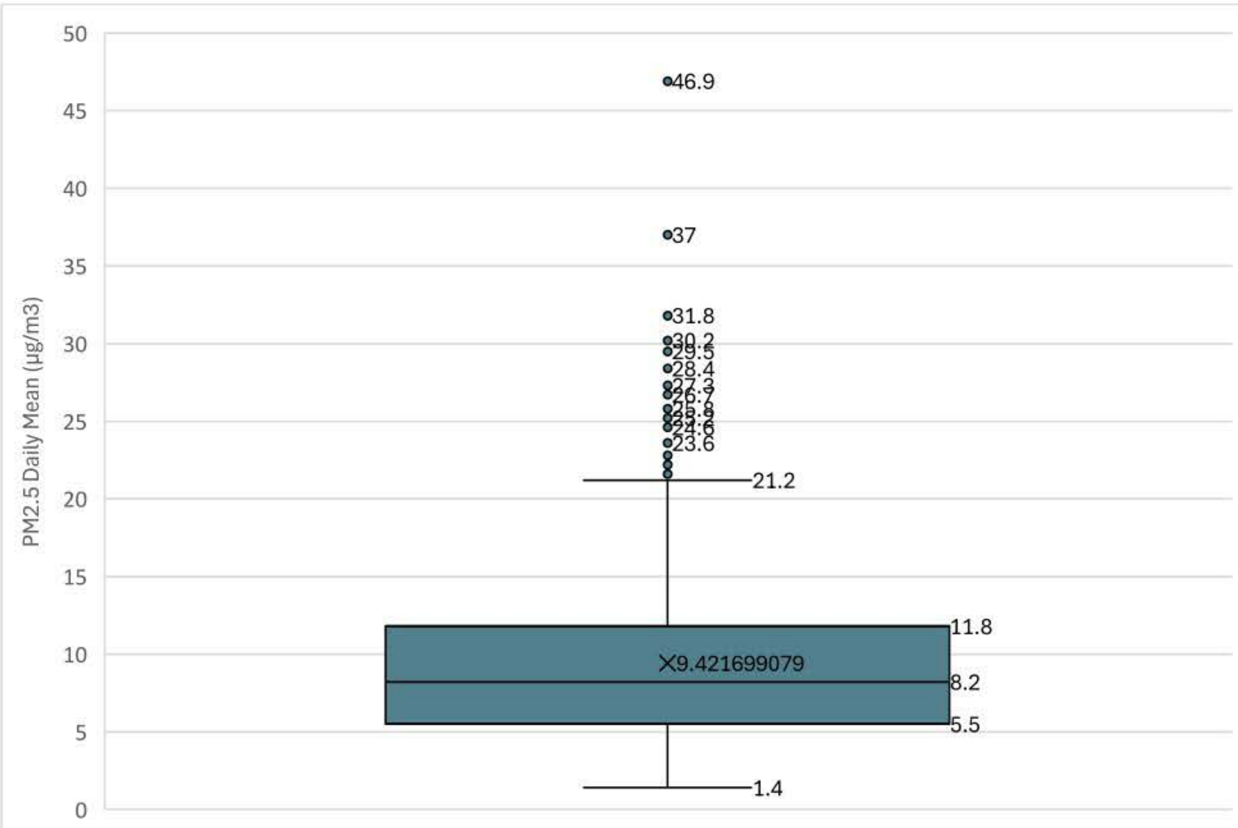
Figure 51. Kalamazoo Wind (left) and Pollution Roses (right) for 2021-2023 DV.



Magnitude of Exceedances
Michigan reviewed daily $PM_{2.5}$ means to understand the distribution and level of exceedances at the violating air monitors in Kalamazoo County. In this magnitude of exceedance analysis, Michigan removed days that were potentially influenced by wildfire events to best determine any local areas contributing to the violations at the monitors that are within the regulatory authority of the state. To determine days potentially influenced by wildfires, Michigan utilized the USEPA $PM_{2.5}$ Tiering Tool for Exceptional Events

Analysis[25]. The days removed for the Wayne County magnitude of exceedance study were all from June 2023 and July 25 through 29, 2023; August 1, 2021; as well as July 4 for 2021, 2022, and 2023 (note: it is likely additional days were impacted by wildfire smoke during the three-year timeframe; however, these are the days excluded using this screening approach for this exercise). The remaining dates and daily $PM_{2.5}$ levels were analyzed using a box plot to determine outliers which most represent the highest levels of pollution. Figure 52 shows the results of this analysis.

Figure 52. Kalamazoo County Magnitude of Exceedance Analysis.



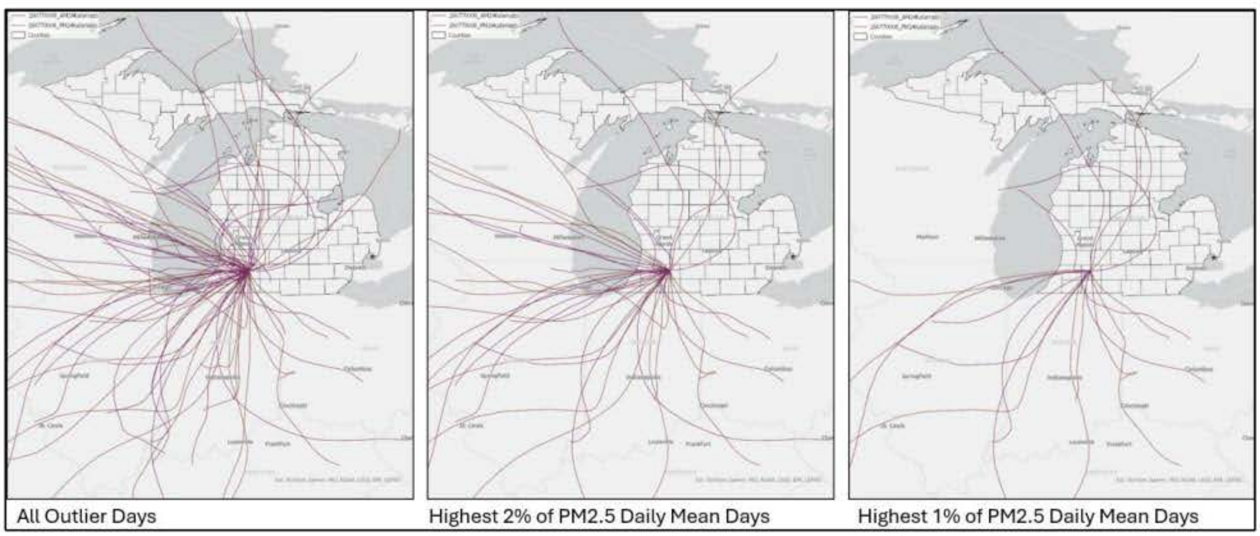
In Figure 52, the dots represent outlier that significantly deviate from the majority of data within the set. The box portion represents the middle 50% of the data, the line inside the box represents the median value, and the lines extending from the box (whiskers) show the minimum and maximum values representing 1.5 times the interquartile range. The following HYSPLIT model analysis examines the resulting outlier dates from this magnitude of exceedance study in relation to back trajectories to better identify the path the pollutant particles may have traveled prior to arriving at the air quality monitors.

[25] PM2.5 Tiering Tool - for Exceptional Events Analysis | US EPA. (2024, February 22). US EPA. https://www.epa.gov/air-quality-analysis/pm25-tiering-tool-exceptional-events-analysis

HYSPLIT Trajectories

HYSPLIT is a model developed by NOAA and is a complete system for computing simple air parcel trajectories[26]. This tool uses gridded meteorology data to simulate how wind advects air parcels. The USEPA provided AM and PM HYSPLIT modeling for the 2021-2023 period nationally for all exceeding monitors. The methodology they used can be found in the Designations Guidance document. Michigan plotted the exceeding monitor HYSPLIT data using ArcGIS Pro to geographically analyze the data. Utilizing the results of the magnitude of exceedance study, Michigan created definition queries to review back trajectories for all outlier dates, representing the highest 2% and 1% of $PM_{2.5}$ daily means. Figure 53 shows a compilation of the resulting maps from this analysis for both the AM and PM HYSPLIT datasets. The AM data set shows the back trajectory of each outlier day at 8 AM backwards for 24 hours, illustrating where air traveled primarily from the prior day. The PM dataset shows the back trajectory of each outlier day at 10 PM backwards for 24 hours, illustrating where air traveled primarily the day of and night prior to the outlier day. Both are important considerations when pairing with the $PM_{2.5}$ daily mean data which represent the whole day rather than a particular time period during the day.

Figure 53. AM and PM HYSPLIT Map showing outlier days from the Magnitude of Exceedance study at the Kalamazoo Air Monitor for 2021-2023.



The maps in Figure 53 show that the majority of the air parcels, on days with elevated $PM_{2.5}$ concentrations, come from southerly and westerly directions, with some northeasterly and northwesterly influence. This distribution remains similar even when looking at only the highest 1% of $PM_{2.5}$ daily mean days. Michigan utilized tools within ArcGIS Pro to determine the start and end points of each daily back trajectory and to calculate the general direction of each line. There are limitations to this methodology since these trajectories are not straight lines and a line could curve and end in a different directional quadrant than where it spent most of its time. Figures 54 and 55 show the number of lines from the monitoring location that originated from the northeast, northwest, southeast, and southwest quadrants for both the AM and PM HYPLIT data, respectively. The analysis includes all outlier dates from the Kalamazoo air monitor determined from the previous magnitude of exceedance analysis for 2021-2023. The figures also include a 20% error bar to conservatively represent the limitation of determining the directional quadrant, as discussed earlier.

[26] HYSPLIT. (n.d.). Air Resources Laboratory. https://www.arl.noaa.gov/hysplit/

Figure 54. Count AM HYPSLITs for each directional quadrant at the Kalamazoo County air monitor for all outlier dates from 2021-2023.

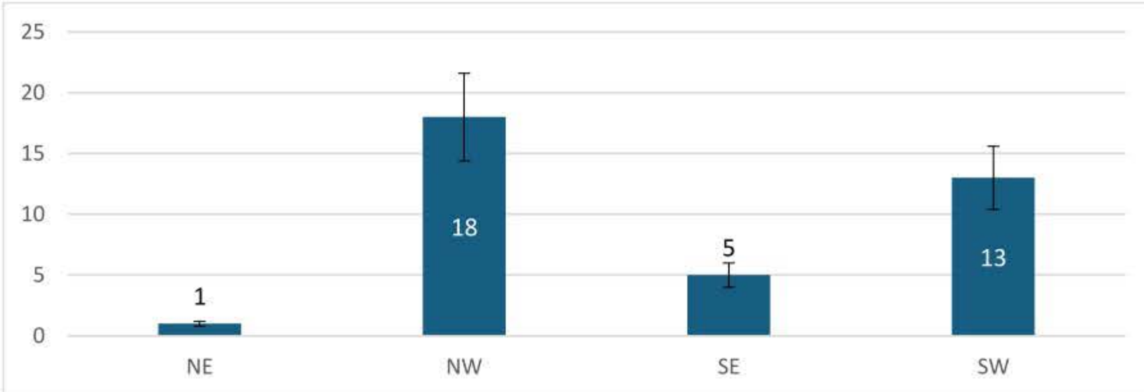
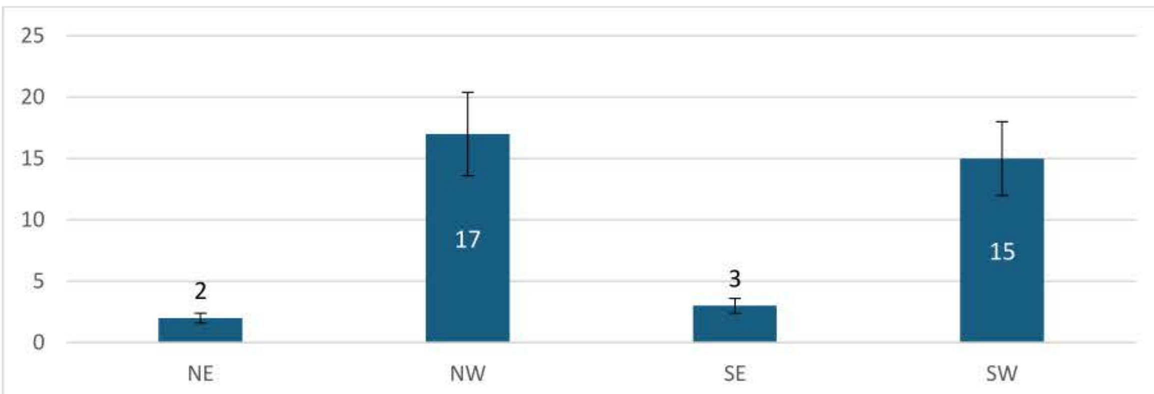


Figure 55. Count PM HYPSLITs for each directional quadrant at the Kalamazoo County air monitor for all outlier dates from 2021-2023.



Figures 54 and 55 show that for both AM and PM HYSPLITs on the outlier dates, the most influence is from the northwest (46-49%) and southwest (35-40%). The wind rose analysis discussed earlier showed that the monitors do not experience one dominant wind direction but rather a spread from the west, east and southwest, with a significant contribution from the westerly direction. Since this data is broken down into four directions, there are limitations on determining how much of the influence may be coming from westerly winds as opposed to northwesterly or southwesterly winds. When the quantitative data from Figures 54 and 55 are paired with the qualitative maps in Figure 53, it can be deduced that for higher daily levels of $PM_{2.5}$ air parcels come from the west, as well as the northwest and southwest, with more coming from the southwest. The modest easterly influence also is noted from this analysis.

4.2.4 Kalamazoo - Geography and Topography

The Kalamazoo County AoA does not have any significant geographical or topographical obstructions known to affect air pollution transport. Therefore, this factor does not impact the analysis of this area.

4.2.5 Kalamazoo - Jurisdictional Boundaries

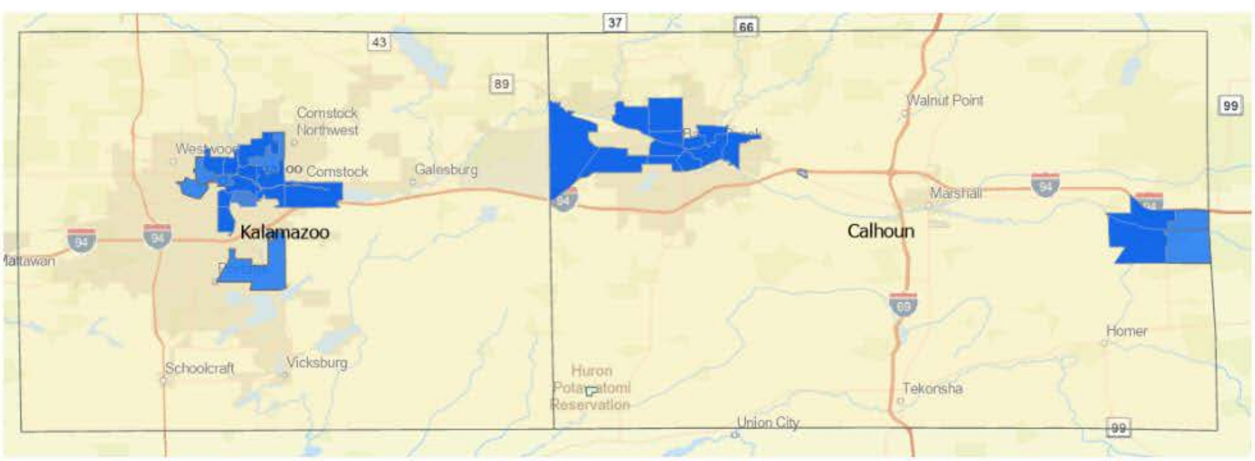
The Kalamazoo area has not been in nonattainment for any of the previous $PM_{2.5}$ NAAQS. The Kalamazoo air monitor is part of a one-county CBSA, the Kalamazoo-Portage CBSA, and the larger three-county CSA area, the Kalamazoo-Battle Creek-Portage CSA, which includes Kalamazoo, Calhoun, and St. Joseph counties. Michigan's analysis included both the CBSA and CSA as well as the adjacent counties of Allegan, Barry, Branch, Cass, and Van Buren.

4.2.6 Kalamazoo - Environmental Justice

The Designations Guidance suggested that states use the USEPA's classification criteria for "disadvantaged communities" for purposes of outreach or developing designation recommendations that address environmental justice concern in the communities, townships, and counties surrounding a violating monitor for the $PM_{2.5}$ NAAQS. According to the USEPA, "Disadvantaged communities are defined as any community that meets at least one of the following characteristics: communities reflected in the CEJST; any census block group that is at or above the 90th percentile for any of the Environmental Justice Screening and Mapping Tool's (EJSCREEN) Supplemental Indexes when compared to the nation or state; and/or any geographic area within Tribal lands as included in EJSCREEN," (see Footnotes 1, 15, and 16).

For the Kalamazoo AoA, Michigan decided to conduct an evaluation based on the USEPA's methodology to identify location(s) of the census tracts that meet the USEPA's "disadvantaged community" criteria. Michigan chose to conduct an EJ analysis for only two counties of the eight Kalamazoo County AoA (Calhoun and Kalamazoo County) considering that these two counties make up approximately 50% of the total population of the Kalamazoo AoA (as shown in Table 21). In Figure 56, clusters of "disadvantaged community" census block groups (shown in blue) can be seen in central Kalamazoo County (City of Kalamazoo, City of Portage, etc.), the northwest portion of Calhoun County (City of Battle Creek), and an eastern portion of Calhoun County (City of Albion). It should also be emphasized that the federally recognized tribal land of the Nottawaseppi Huron Band of Potawatomi Indians is in the southwest corner of Calhoun County (near Athens) and central Calhoun County (near Ceresco).

Figure 56. "Disadvantaged Communities" at the Census Block Group Level in Kalamazoo and Calhoun Counties



Per the *Designations Guidance* Memorandum, Michigan completed outreach to interested parties in the Kalamazoo area. Michigan staff spoke with the following communities and associations regarding the revised 2024 $PM_{2.5}$ NAAQS, the designations process, and future attainment planning: The City of Kalamazoo Environmental Concerns Committee, Kalamazoo Area Transportation Study, and the

Kalamazoo Area Environmental Health Advisory Council. Michigan staff also attended the annual Michigan Tribal Environmental Group meeting in Sault Ste. Marie on July 17, 2024, and engaged with tribal leaders and staff (including those from the Nottawaseppi Huron Band of Potawatomi Indians in Calhoun County) on the topic of the revised $PM_{2.5}$ NAAQS, and the state/tribal area designations process that follows.

On December 2, 2024, the USEPA posted a non-regulatory docket (EPA-HQ-OAR-2024-0078) to Regulations.gov for the purpose of providing an opportunity for the public to provide feedback on the recommendations that states submit to the USEPA, and outreach that the USEPA might undertake in issuing final designations. To better inform the public of this, Michigan utilized its GovDelivery email distribution service to disseminate the links to the non-regulatory docket and other recently posted USEPA $PM_{2.5}$ resources.

4.2.7 Kalamazoo – Conclusions

Kalamazoo County and the AoA counties have not historically been part of a $PM_{2.5}$ NAA. The analyses Michigan conducted show that winds experienced at the violating monitor are generally from east, west, and southwest directions. The HYSPLIT back trajectories for the days when the monitor experiences the highest $PM_{2.5}$ pollution further showed a northwesterly and southwesterly influence. The exceeding Kalamazoo monitor is situated immediately southeast of the largest city in the area, Kalamazoo, and approximately 15 miles west-southwest of the second largest, the City of Battle Creek. The largest point sources in the area reside in the western portion of Calhoun County, which is not considered to contribute to the exceedance at the monitoring site, since there was no strong correlation found from the urban increment, wind rose, or HYSPLIT analyses. The second largest point source contributions are from Kalamazoo County. In addition, Kalamazoo County has the highest onroad and nonroad emissions.

While the nonpoint sector is the largest contributor to the Kalamazoo area, many nonpoint inventory sectors are typically correlated with population density. The Kalamazoo County AoA is largely rural, with only small areas in Kalamazoo and the City of Battle Creek containing the highest populations. However, the nonpoint sectors in Tables 17 and 18 show that the most important sectors of $PM_{2.5}$ and precursor emissions in both the Kalamazoo County AoA and Kalamazoo-Battle Creek-Portage CSA are fuel combustion of residential wood, dust from unpaved roads, and agricultural – crops and livestock dust. As previously acknowledged, much of the Kalamazoo County AoA is rural, so the larger nonpoint contributions from these sectors are in alignment with the overall land use of the area.

Michigan's urban increment analysis showed less influence from surrounding areas on the Kalamazoo County AoA than in the Wayne County AoA discussed earlier in this document. Moreover, organic carbon was the dominant urban species contributing to $PM_{2.5}$ at the nearest CSN monitor at Grand Rapids, similar to what was found in the Wayne County AoA.

While the point source distribution showed high emissions from Calhoun County, when all factors are considered those areas east of the monitor are not expected to influence the Kalamazoo monitoring site. Therefore, Michigan recommends the nonattainment area be limited to Kalamazoo County.

4.3.0 Houghton Lake Monitor

The Houghton Lake monitor (AQS ID: 26-113-0001) located in Missaukee County has a 2023 DV of 9.4 $\mu g/m^3$. Michigan reviewed historical DV trends, potential area contributions, wildfire impacts, and estimated the 2024 DV for which the USEPA will base their final designations. Based on this information, Michigan recommends the area be designated as in attainment.

Michigan reviewed and estimated the 2024 DV for the Houghton Lake monitor based on quarter 1 through quarter 3 monitored data and estimated quarter 4 data for 2024. The review of the data suggests the monitor will be attaining the new NAAQS with the 2024 DV. The USEPA has stated they will be making their final designations based on the 2024 DV. From this 2024 DV analysis, along with the low emissions inventory and rural geography of the area, Michigan is recommending attainment for the area around the Houghton Lake monitor.

4.3.1 Houghton Lake - Air Quality Data

Michigan compiled 19 years of $PM_{2.5}$ DVs for a historical analysis, which is presented in Figure 57. The Houghton Lake monitoring site $PM_{2.5}$ concentrations generally trend down from 2005 to 2020; however, from 2021 to 2023, $PM_{2.5}$ concentrations trended upward. In 2021 and 2023 (and to a lesser extent 2022) Michigan saw an increase in wildfire smoke plumes over the state during the warmer months. It is likely that the upward trend in recent years at this rural site is due to the impacts from these distant wildfires. The peak in the second quarter of 2023 is associated with the well-documented Canadian wildfire impacts during the second and third quarters of 2023 in the upper Midwest.

Figure 57. Houghton Lake DVs from 2005-2023.

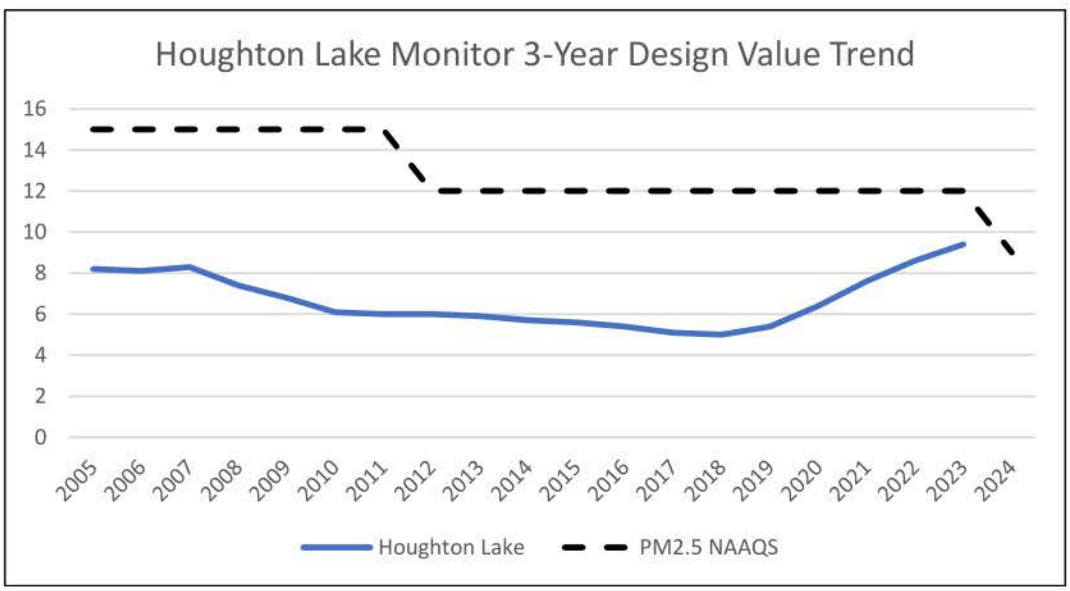
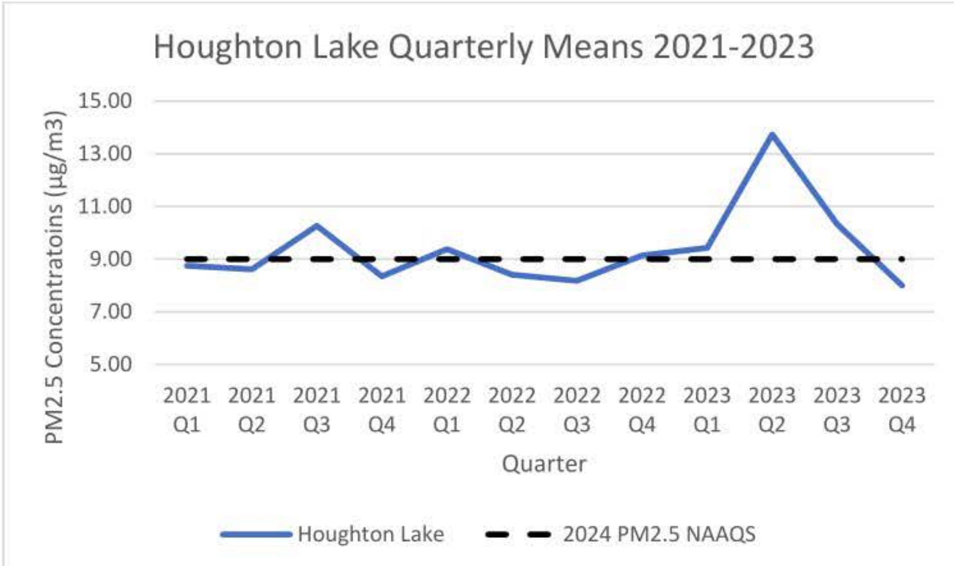


Figure 58. Houghton Lake quarterly means from 2021-2023.



Air quality in Missaukee County, where the exceeding Houghton Lake monitor (26-113-0001) is located, was impacted in June and July 2023, by smoke entering the region from wildfires in Canada. Wildfires across Canada during this period produced smoke plumes that impacted surface air quality throughout the Great Lakes Basin. The smoke from these fires produced $PM_{2.5}$ pollution episodes across the region that had significant health impacts as well as implications for the regulatory air monitors. One of the regulatory impacts of the wildfire smoke was the effect on the air quality DV for Missaukee County within the Cadillac CBSA. The Houghton Lake monitor is the only air quality monitor located in the Cadillac CBSA. The days evaluated for wildfire impacts in 2023 were: June 3 through 9, 22, 27 through 29, and July 25 through 27. Table 24 shows the resulting 2021-2023 DV with and without these dates included. Based on this analysis, the Houghton Lake monitor would be meeting the $PM_{2.5}$ NAAQS but for the impacts of the Canadian wildfire smoke.

Table 24. 2023 DV Comparison with and without wildfire events.

Site (AQS ID)	**Design Value including wildfire dates**	**Design Value excluding wildfire dates**
Houghton Lake (26-113-0001)	9.4	9.0

The USEPA will be making final designations based on 2022-2024 monitoring data; therefore, Michigan also evaluated preliminary 2024 data to estimate a 2022-2024 DV. This designation recommendation was written prior to the conclusion of 2024 so to estimate the 2024 DV for the Houghton Lake monitor, Michigan used 2022 and 2023 data along with monitor-reported data for quarters 1 through 3 of 2024, which included $PM_{2.5}$ data exported from AQS (January through June) and Air Now Tech (July through September). Three methodologies were used to estimate the 2024 quarter 4 value. The first methodology used 2019-2023 quarter 4 data to derive a 5-year average, which represented the 2024 quarter 4 mean. The second methodology estimated quarter 4 by using Air Now Tech data (October and November) and estimated the December 2024 value by using the 2019 through 2023 average 24-hour daily concentration. The third methodology estimated quarter 4 by using Air Now Tech data (October and November) and estimated the December 2024 value by using the 2019 through 2023 maximum 24-hour daily concentration.

The results of this analysis, presented in Table 25, show that under each scenario the Houghton Lake monitor will be below the 9 µg/m^3 2024 $PM_{2.5}$ NAAQS. This is most likely to be reflected in the data the USEPA will use to make their final area designations.

Table 25. Houghton Lake Monitor Estimated 2024 DV Analysis

County	Site ID	2021-2023 DV	Est. DV[1]	Est. DV[2]	Est. DV[3]
Missaukee	26-113-0001	9.4	8.04	7.80	7.91

1. 2019-2023 Q4 average used to calculate 2024 Q4 average and annual mean.
2. 2019-2023 average 24-hour daily concentration used for Dec. to calculate 2024 Q4 average and annual mean.
3. 2019-2023 maximum 24-hour daily concentration used for Dec. to calculate 2024 Q4 average and annual mean.

Considering the long-term trends in the ambient data, the obvious wildfire smoke impacts, and the local land use and rural nature of the area, along with the preliminary 2024 monitoring data, Michigan expects the area to attain the new annual $PM_{2.5}$ NAAQS once the 2024 data are validated and certified. If, during validation of the 2024 data, it is determined the 2024 DV will not attain the standard, the wildfire smoke events of 2023 will have regulatory significance and Michigan will expeditiously prepare an Exceptional Events Demonstration for the USEPA's consideration.

4.3.2 Houghton Lake - Emissions Data

The Houghton Lake air monitor is in Missaukee County, a part of the Cadillac CBSA, which also includes Wexford County. Michigan reviewed county and facility level emissions for these counties. Table 26a shows the overall emissions from each county and Table 26b shows the facility breakdown for $PM_{2.5}$ and all precursors.

Table 26a. County Level $PM_{2.5}$ and precursor emissions for the Cadillac CBSA (tpy).

Missaukee County	**$PM_{2.5}$**	**NH_3**	**NO_x**	**SO_2**	**VOC**
Point	24.4	0	205.2	182.6	56.8
Nonpoint	220	1,166.8	204.1	15.8	1,149.4
Onroad	3.8	10.1	110.1	0.4	60.7
Nonroad	14.9	0.3	101.6	0.1	392.4
Wexford County	**$PM_{2.5}$**	**NH_3**	**NO_x**	**SO_2**	**VOC**
Point	23.1	0.1	229.4	65.2	269.6
Nonpoint	318.6	241.1	156	8.8	677.4
Onroad	9.4	27.2	271.6	1.1	137.9
Nonroad	8.8	0.2	68.5	0.1	250

Table 26b. Facility $PM_{2.5}$ and precursor emissions for the Cadillac CBSA (tpy).

$PM_{2.5}$ (Total 36.01 tpy)		
Wexford	Cadillac Casting, Inc.	18.63
Missaukee	National Energy of McBain LLC	8.64
Missaukee	Biewer Sawmill Inc.	3.69
Wexford	Rieth Riley Construction Co. Inc.	1.47
Wexford	Cadillac Renewable Energy Facility	0.98
Wexford	Wexford County Landfill	0.71
Wexford	Akwel Cadillac USA, Inc.	0.59
Missaukee	SRM Concrete LLC	0.57
Wexford	Hutchinson Antivibration Systems, Inc.	0.37
Wexford	Wexford County	0.22
Wexford	AAR Mobility Systems	0.08
Missaukee	Home Acres Sky Ranch	0.05
Wexford	Hound Resources - Wexford 10 Facility	0.01
Missaukee	Moorestown Airpark	0.01
Wexford	Bunchs Half Acre	0.00
Wexford	Rec Boat Holdings-Trailer	0.00
Wexford	AAR Mobility Systems	0.00
Wexford	Rec Boat Holdings LLC - Cruiser Plant	0.00
Wexford	Rec Boat Holdings LLC - Sport and Engineering	0.00
NO_x (Total 434.61 tpy)		
Wexford	Cadillac Renewable Energy Facility	189.90
Missaukee	National Energy of McBain LLC	148.66
Missaukee	Biewer Sawmill Inc.	47.52
Wexford	Cadillac Casting, Inc.	15.12
Missaukee	SRM Concrete LLC	8.91
Wexford	Hound Resources - Wexford 10 Facility	8.46
Wexford	Rieth Riley Construction Co. Inc.	5.66
Wexford	Wexford County Landfill	4.23
Wexford	Hutchinson Antivibration Systems, Inc.	2.57
Wexford	Akwel Cadillac USA, Inc.	2.39
Wexford	Wexford County	0.64
Wexford	AAR Mobility Systems	0.47
Missaukee	Home Acres Sky Ranch	0.09
Missaukee	Moorestown Airpark	0.01
Wexford	Bunchs Half Acre	0.00
Wexford	Rec Boat Holdings-Trailer	0.00
Wexford	AAR Mobility Systems	0.00
Wexford	Rec Boat Holdings LLC - Cruiser Plant	0.00
Wexford	Rec Boat Holdings LLC - Sport and Engineering	0.00
NH_3 (Total 0.10 tpy)		
Wexford	Akwel Cadillac USA, Inc.	0.08
Wexford	AAR Mobility Systems	0.01
Missaukee	National Energy of McBain LLC	0.00
Wexford	Hutchinson Antivibration Systems, Inc.	0.00

Wexford	Cadillac Renewable Energy Facility	0.00
Missaukee	Biewer Sawmill Inc.	0.00
Wexford	Cadillac Casting, Inc.	0.00
Missaukee	SRM Concrete LLC	0.00
Wexford	Hound Resources - Wexford 10 Facility	0.00
Wexford	Rieth Riley Construction Co. Inc.	0.00
Wexford	Wexford County Landfill	0.00
Wexford	Wexford County	0.00
Missaukee	Home Acres Sky Ranch	0.00
Missaukee	Moorestown Airpark	0.00
Wexford	Bunchs Half Acre	0.00
Wexford	Rec Boat Holdings-Trailer	0.00
Wexford	AAR Mobility Systems	0.00
Wexford	Rec Boat Holdings LLC - Cruiser Plant	0.00
Wexford	Rec Boat Holdings LLC - Sport and Engineering	0.00
SO_2 (Total 247.84 tpy)		
Missaukee	National Energy of McBain LLC	177.48
Wexford	Cadillac Renewable Energy Facility	62.51
Missaukee	Biewer Sawmill Inc.	4.55
Wexford	Wexford County Landfill	2.06
Missaukee	SRM Concrete LLC	0.59
Wexford	Rieth Riley Construction Co. Inc.	0.40
Wexford	Wexford County	0.10
Wexford	Cadillac Casting, Inc.	0.10
Missaukee	Homes Acres Sky Ranch	0.02
Wexford	Hutchinson Antivibration Systems, Inc.	0.02
Wexford	Akwel Cadillac USA, Inc.	0.01
Wexford	AAR Mobility Systems	0.00
Missaukee	Moorestown Airpark	0.00
Wexford	Hound Resources - Wexford 10 Facility	0.00
Wexford	Bunchs Half Acre	0.00
Wexford	Rec Boat Holdings-Trailer	0.00
Wexford	AAR Mobility Systems	0.00
Wexford	Rec Boat Holdings LLC - Cruiser Plant	0.00
Wexford	Rec Boat Holdings LLC - Sport and Engineering	0.00
VOC (Total 326.37 tpy)		
Wexford	Cadillac Casting, Inc.	95.44
Wexford	Rec Boat Holdings LLC - Cruiser Plant	58.99
Wexford	Rec Boat Holdings LLC - Sport and Engineering	55.31
Missaukee	Biewer Sawmill Inc.	55.24
Wexford	Akwel Cadillac USA, Inc.	27.63
Wexford	Wexford County Landfill	8.32
Wexford	AAR Mobility Systems	8.16
Wexford	AAR Mobility Systems	5.85
Wexford	Hutchinson Antivibration Systems, Inc.	3.86
Wexford	Rec Boat Holdings-Trailer	1.95

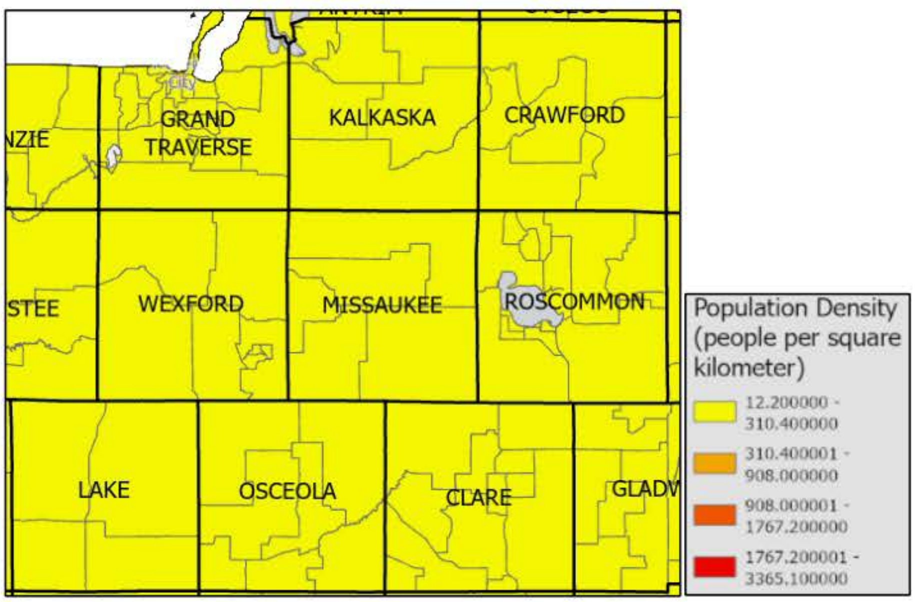
Wexford	Rieth Riley Construction Co. Inc.	1.16
Wexford	Hound Resources - Wexford 10 Facility	1.08
Wexford	Wexford County	0.90
Wexford	Cadillac Renewable Energy Facility	0.89
Missaukee	SRM Concrete, LLC	0.73
Missaukee	National Energy of McBain, LLC	0.62
Missaukee	Home Acres Sky Ranch	0.19
Missaukee	Moorestown Airpark	0.03
Wexford	Bunchs Half Acre	0.01

There are only 19 point source facilities in the Cadillac CBSA, all with $PM_{2.5}$ emissions under 10 tpy, therefore there are no significant or large industrial sources of direct $PM_{2.5}$ impacting the Houghton Lake monitor.

Population Density and Degree of Urbanization

Michigan looked at the population density and degree of urbanization for Missaukee County and surrounding areas using the U.S. Census Bureau's 2020 Census Demographic and Housing Characteristics. Review of Figure 59 shows that there are no large cities or areas of high population density.

Figure 59. Population Density Map for Missaukee County.



4.3.3 Houghton Lake – Meteorology

Upon completion of the wildfire impacts, 2024 DV analysis, emission, and population density analyses, this factor was not relevant to Michigan's final recommendation.

4.3.4 Houghton Lake - Geography and Topography

Missaukee County does not have any significant geographical or topographical obstructions known to affect air pollution transport. Therefore, this factor does not impact the analysis of this area.

4.3.5 Houghton Lake - Jurisdictional Boundaries

The Houghton Lake monitor is part of Missaukee County, which is part of the Cadillac CBSA. The Cadillac CBSA is made up of Missaukee and Wexford counties. This area has not previously been in nonattainment for previous $PM_{2.5}$ NAAQS.

4.3.6 Houghton Lake – Conclusions

After review of potential wildfire impacts to the 2023 DV and 2024 DV discussed above, Michigan recommends this area be designated as in attainment. The area is part of a very rural northern airshed with minimal $PM_{2.5}$ and precursor emissions and facilities. The USEPA will be basing their final designations based on the 2022-2024 $PM_{2.5}$ monitoring data, which is anticipated to show attainment at this monitor, and Michigan concludes the facilities and population in this area are not contributing to nonattainment.

4.4.0 Washtenaw Area

The Ypsilanti monitor (AQS ID: 26-161-0008) located in Washtenaw County has a 2023 DV of 9.3 $\mu g/m^3$. Michigan reviewed historical DV trends, wildfire impacts, and estimated the 2024 DV for which the USEPA will base their final designations. Michigan is recommends the area be designated as in attainment.

Michigan reviewed and estimated the 2024 DV for the Ypsilanti monitor based on quarter 1 through quarter 3 monitoring data and estimated quarter 4 data for 2024. The review of this data suggests the monitor will be attaining the new NAAQS with the 2024 DV. The USEPA has stated they will be making their final designation based on the 2024 DVs. From this 2024 DV analysis and the historic DV trends, Michigan recommends the designation of attainment for Washtenaw County, which contains the Ypsilanti monitor.

4.4.1 Washtenaw - Air Quality Data

Michigan compiled 10 years of $PM_{2.5}$ DVs for a historical analysis, which is presented in Figure 60. Review of this figure indicates the Ypsilanti monitoring site is generally trending down from 2012 to 2020; however, from 2021 to 2023 $PM_{2.5}$ concentrations trended upward. In 2021 and 2023 (and to a lesser extent 2022) Michigan saw an increase in wildfire smoke plumes over the state during the warmer months. It is likely that the upward trend in recent years at this site is due, at least in part, to the impacts from these distant wildfires. The peak in quarter 2 of 2023 for the monitoring site depicted on Figure 61 is associated with the well-documented Canadian wildfire impacts during the second and third quarters of 2023 in the upper Midwest.

Figure 60. Ypsilanti DVs from 2012-2023.

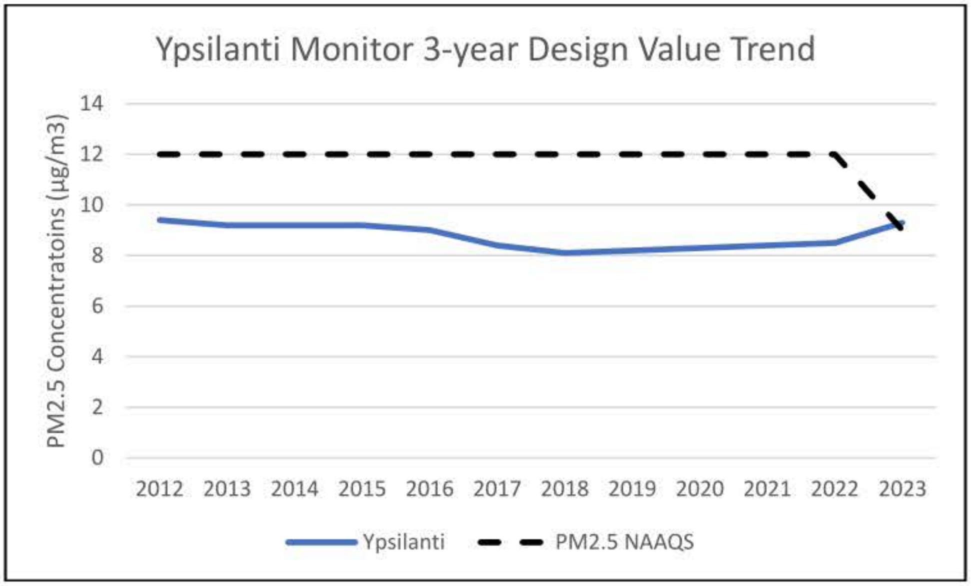
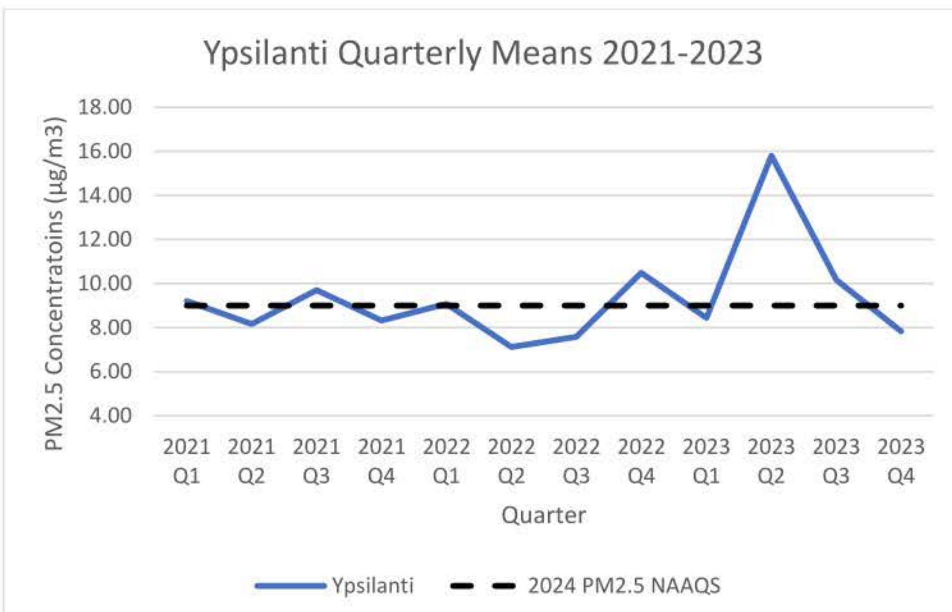


Figure 61. Ypsilanti quarterly means from 2021-2023.



Air quality in Washtenaw County where the exceeding Ypsilanti monitor (26-161-0008) is located was impacted in June 2023 by smoke entering the region from wildfires in Canada. Wildfires across Canada during this period produced smoke plumes that impacted surface air quality throughout the Great Lakes Basin. The smoke from these fires produced $PM_{2.5}$ pollution episodes across the region that had significant health impacts as well as implications for the regulatory air monitors. One of the regulatory impacts of the fire smoke was the effect on the air quality DV for Washtenaw County. The Ypsilanti monitor is the only air quality monitor located in the county. The days evaluated for wildfire impacts in 2023 were: June 7 through 8, and 27 through 29. Table 27 shows the resulting 2021-2023 DV with and without these dates included. Based on this analysis, the Ypsilanti monitor would be meeting the $PM_{2.5}$ NAAQS but for the impacts from the Canadian wildfire smoke.

Table 27. 2023 DV Comparison with and without wildfire events.

Site (AQS ID)	Design Value including wildfire dates	Design Value excluding wildfire dates
Ypsilanti (26-161-0008)	9.3	8.9

The USEPA will be making final designations based on 2022-2024 monitoring data, therefore Michigan also evaluated preliminary 2024 data to estimate a 2022-2024 DV. This designation recommendation was written prior to the conclusion of 2024, so to estimate the 2024 DV for the Ypsilanti monitor Michigan used 2022 and 2023 data along with monitor-reported data for quarters 1 through 3 of 2024, which included $PM_{2.5}$ data exported from AQS (January through June) and Air Now Tech (July through September). Three methodologies were used to estimate the 2024 quarter 4 value. The first methodology used 2019-2023 quarter 4 data to derive a 5-year average, which represented the 2024 quarter 4 mean. The second methodology estimated quarter 4 by using Air Now Tech data (October and November) and estimated the December 2024 value by using the 2019 through 2023 average 24-hour daily concentration. The third methodology estimated quarter 4 by using Air Now Tech data (October and November) and estimated the December 2024 value by using the 2019 through 2023 maximum 24-hour daily concentration.

The results of this analysis are shown in Table 28 below. The results show that under each scenario the Ypsilanti monitor will be below the 9 $\mu g/m^3$ 2024 $PM_{2.5}$ NAAQS. This is most likely to be reflected in the data the USEPA will use to make their final area designations.

Table 28. Houghton Lake Monitor Estimated 2024 DV Analysis

County	Site ID	2021-2023 DV	Est. DV[1]	Est. DV[2]	Est. DV[3]
Washtenaw	26-161-0008	9.3	8.78	8.67	8.87

1. 2019-2023 Q4 average used to calculate 2024 Q4 average and annual mean.
2. 2019-2023 average 24-hr daily concentration used for Dec. to calculate 2024 Q4 average and annual mean.
3. 2019-2023 maximum 24-hr daily concentration used for Dec. to calculate 2024 Q4 average and annual mean.

Considering the obvious wildfire smoke impacts, and the local land use, along with the preliminary 2024 monitoring data, Michigan expects the area to attain the new annual $PM_{2.5}$ NAAQS once the 2024 data are validated and certified. If, during the validation of the 2024 data, it is determined the 2024 DV will not attain the standard, the wildfire smoke events of 2023 will have regulatory significance and Michigan will expeditiously prepare an Exceptional Events Demonstration for the USEPA's consideration.

4.4.2 Washtenaw - Emissions Data

Upon completion of the wildfire impacts and 2022-2024 DV analyses, this factor was not relevant to Michigan's final recommendation.

4.4.3 Washtenaw - Meteorology

Upon completion of the wildfire impacts and 2022-2024 DV analyses, this factor was not relevant to Michigan's final recommendation.

4.4.4 Washtenaw – Geography and Topography

Washtenaw County does not have any significant geographical or topographical obstructions known to affect air pollution transport. Therefore, this factor does not impact the analysis of this area.

4.4.5 Washtenaw – Jurisdictional Boundaries

The Ypsilanti air monitor is part of Washtenaw County, which is part of the Ann Arbor CBSA. This area was previously part of the Detroit – Ann Arbor NAA for the 1997 and 2006 $PM_{2.5}$ NAAQS.

4.4.6 Washtenaw – Conclusions

After review of potential wildfire impacts to the 2023 DV and 2024 DV discussed above, Michigan recommends this area be designated as in attainment. The Ypsilanti monitor is expected to be in attainment based on the 2022-2024 data the USEPA will use to make their final designations. However, it is important to note that Michigan still considered Washtenaw County as part of the Wayne County AoA to determine any potential influences Washtenaw County had on the exceeding monitors in Wayne County.

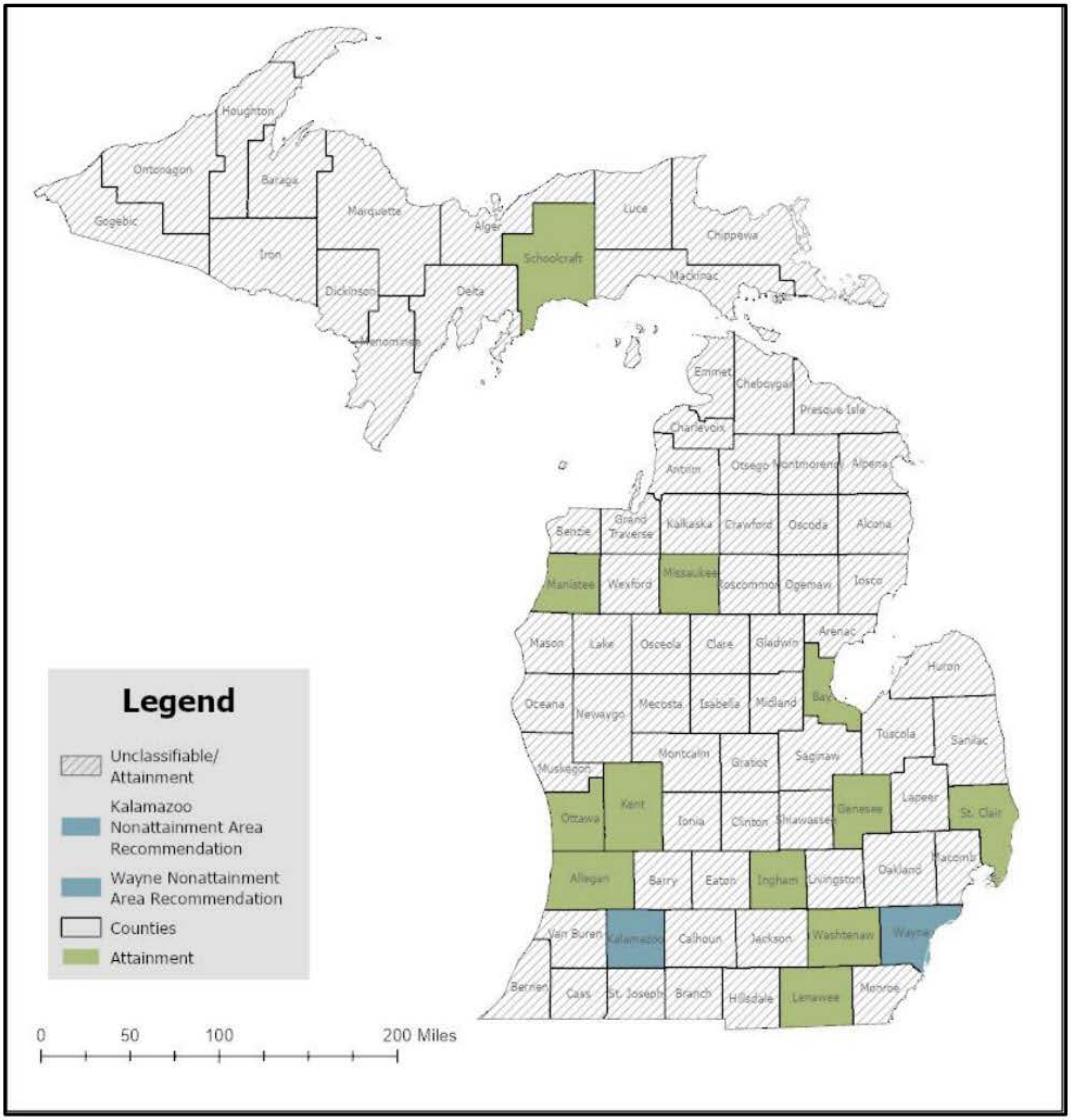
4.5.0 Kent County Area

Michigan is submitting a separate Exceptional Events Demonstration, which shows regulatory significance of wildfire impacts occurring on June 6 through 8, 26 through 29, 2023 and July 25 and 26, 2023 at the Grand Rapids monitor (AQS ID: 26-081-0020). This demonstration shows that with those dates excluded, the Grand Rapids monitor would be in attainment for the 2024 $PM_{2.5}$ NAAQS; therefore, Michigan did not evaluate the five factors within the USEPA's Designations Guidance for this area.

5.0 Conclusion and Final Designation Recommendations

In this document, the State of Michigan makes recommendations to the USEPA concerning the designation of attainment, unclassifiable/attainment, and nonattainment areas in Michigan for the 2024 annual $PM_{2.5}$ NAAQS. The designation recommendations are based primarily on air quality monitoring data for 2021-2023, with two areas also addressing preliminary data for 2022-2024. Figure 62 shows Michigan's final 2024 $PM_{2.5}$ NAAQS Designation Recommendation, while the following sections summarize the areas Michigan is recommending as attainment, unclassifiable/attainment, and nonattainment based on the analyses discussed in this document.

Figure 62. Michigan's 2024 $PM_{2.5}$ NAAQS Designation Recommendations.



5.1 Recommended Nonattainment Areas

Table 29. Michigan's designation recommendation for nonattainment areas for the 2024 $PM_{2.5}$ NAAQS.

CBSA	Counties in the CBSA	Historical 1997 Nonattainment Counties	Historical 2006 Nonattainment Counties	Historical 2012 Nonattainment Counties	Recommended Nonattainment Counties for 2024 NAAQS
Detroit-Warren-Dearborn CBSA	Lapeer, St. Clair, Macomb, Oakland, Livingston, and Wayne.	Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, Wayne.	Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, Wayne.	None	Wayne
CBSA, the Kalamazoo-Portage CBSA	Kalamazoo	None	None	None	Kalamazoo

5.2 Recommended Attainment Areas

Michigan recommends that the USEPA designate the counties listed below as attainment areas because they have monitors showing attainment of the 2024 annual $PM_{2.5}$ standard based on the 2021-2023 monitoring data, attainment is anticipated based on 2022-2024 monitoring data, or Michigan is submitting an Exceptional Event Demonstration to exclude wildfire dates that will then show attainment based on the 2021-2023 monitoring data. Additionally, these areas are not contributing to nonattainment of the standard in other areas.

Attainment Counties: Allegan, Bay, Genessee, Ingham, Kent, Lenawee, Macomb, Manistee, Missaukee, Oakland, Ottawa, Schoolcraft, St. Clair, and Washtenaw.

5.3 Unclassifiable/Attainment Areas

Michigan recommends the USEPA designate the counties set forth below as unclassifiable/attainment areas because they do not have monitors showing attainment or nonattainment of the 2024 annual $PM_{2.5}$ standard. Additionally, they have not been determined to be contributing to nonattainment of the standard in another area.

The recommended "unclassifiable/attainment areas" counties are provided as follows:

Alcona County
Alger County
Alpena County
Antrim County
Arenac County
Baraga County
Barry County
Benzie County
Berrien County
Branch County
Calhoun County
Cass County
Charlevoix County
Cheboygan County
Chippewa County
Clare County
Clinton County
Crawford County

Delta County

Dickinson County

Eaton County

Emmet County

Gladwin County

Gogebic County

Grand Traverse County

Gratiot County

Hillsdale County

Houghton County

Huron County

Ionia County

Iosco County

Iron County

Isabella County

Jackson County

Kalkaska County

Keweenaw County

Lake County

Lapeer County

Leelanau County

Livingston County

Luce County

Mackinac County

Marquette County

Mason County

Mecosta County

Menominee County

Midland County

Monroe County

Montcalm County

Montmorency County

Muskegon County

Newaygo County

Oceana County

Ogemaw County

Ontonagon County

Osceola County

Oscoda County

Otsego County

Presque Isle County

Roscommon County

Saginaw County

Sanilac County

Shiawassee County

St. Joseph County

Tuscola County

Van Buren County

Wexford County

Attachment 1

Michigan CSA and CBSA Maps

Below are maps showing Michigan's Combined Statistical Area (CSA) and Core Based Statistical Area (CBSA) as of the creation of this document. The areas are color coded with a legend featuring the names for each area.

Figure 1. Michigan CSAs

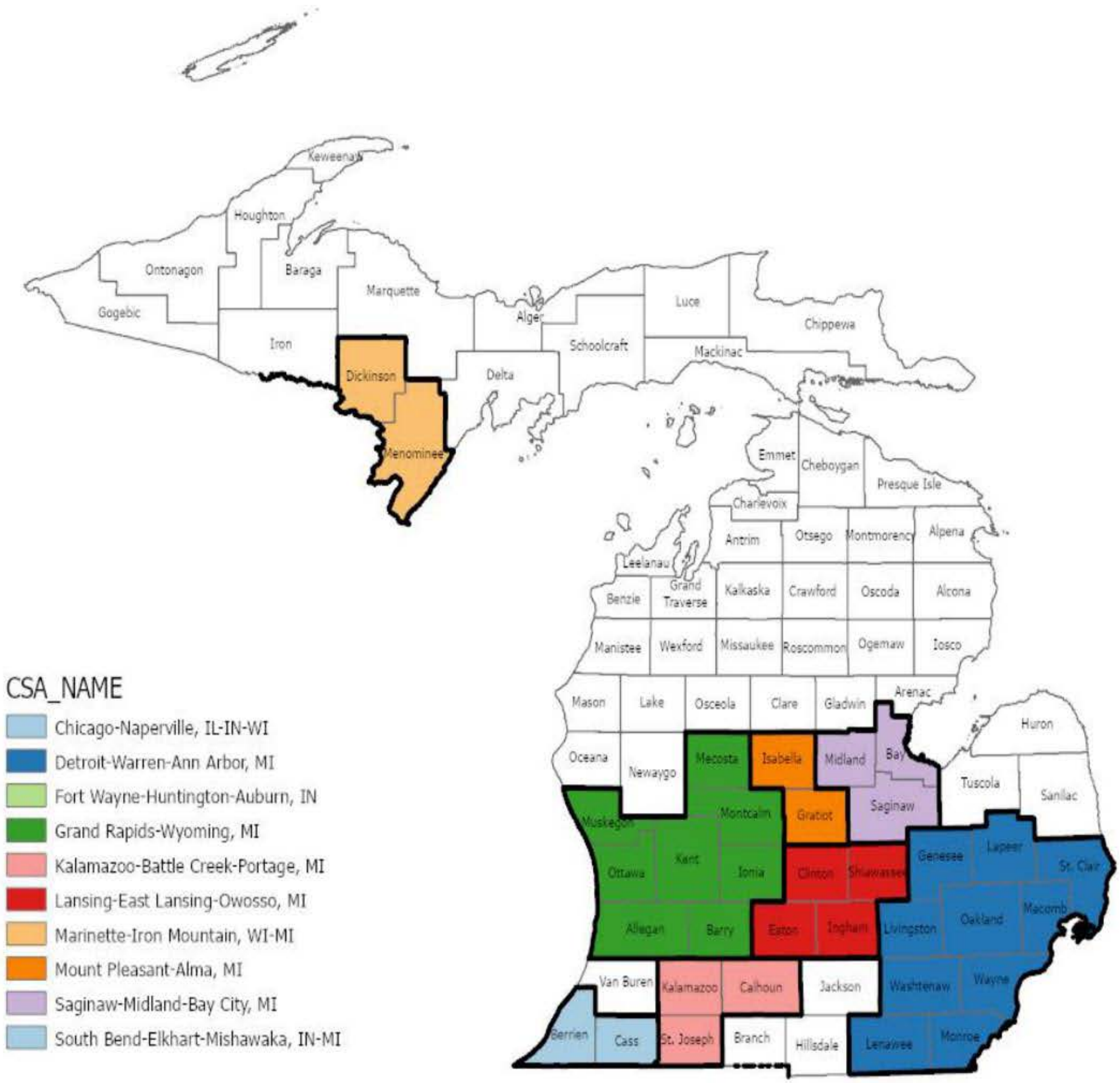
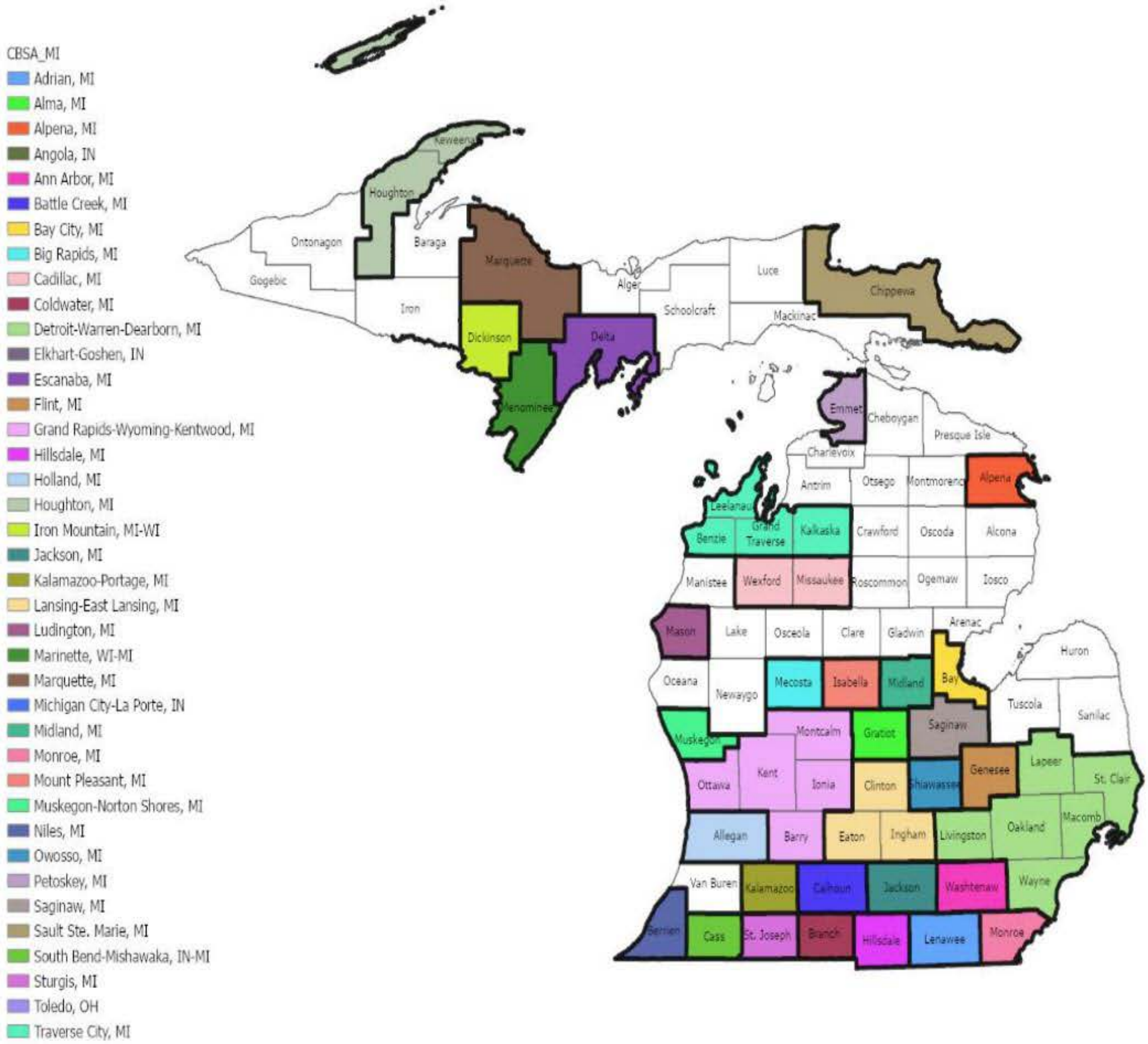


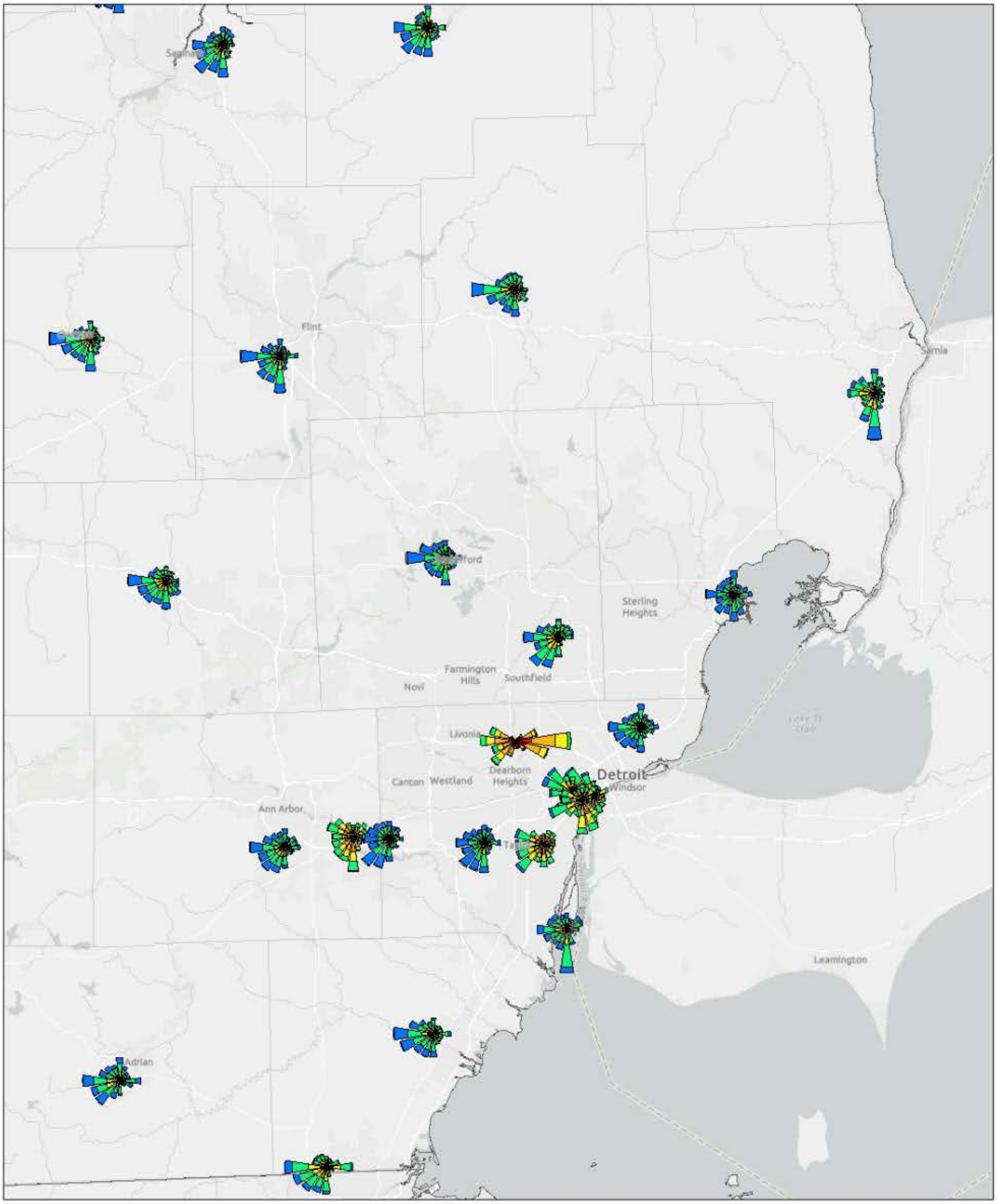
Figure 2. Michigan CBSAs



Attachment 2

Southeast Michigan Wind Roses

Detroit Area Wind Roses



12/11/2024, 2:22:02 PM

1:817,423

0 5 10 20 mi

0 10 20 40 km

Province of Ontario, Oakland County, Michigan, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Attachment 3

Urban Increment USEPA Methodology

Quarterly Speciated Urban Increment Data (2021-2023)

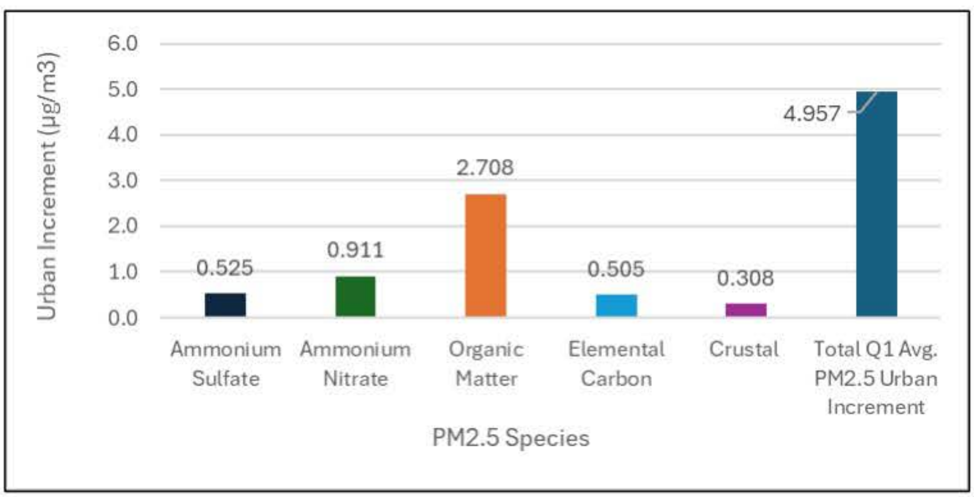
Military Park, DP4th, and DET-SW AQS Monitors [Quarterly Averages (Q1-Q4)]

In Table1 Michigan presents the results of its computations for the speciated and total quarter 1 (Q1) average $PM_{2.5}$ urban increments for Michigan's Military Park, DP4th, and Detroit-SW monitors using three years (2021-2023) of quarter 1 speciated $PM_{2.5}$ concentration data from the Detroit-SW CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 1 and Figure 1, the $PM_{2.5}$ component that contributed the most (on average) to the Q1 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (2.708 (μg/m^3)).

Table 1. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q1 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q1 Avg. Ammonium Sulfate Increment	Q1 Avg. Ammonium Nitrate Increment	Q1 Avg. OM Increment	Q1 Avg. EC Increment	Q1 Avg. Crustal Increment	Total Q1 Avg. PM2.5 Urban Increment	Units
Military Park [261630100], DP4th [261630098], DET-SW [261630015]	0.525	0.911	2.708	0.505	0.308	4.957	(μg/m3)

Figure 1. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q1 Average Urban Increment by $PM_{2.5}$ Species

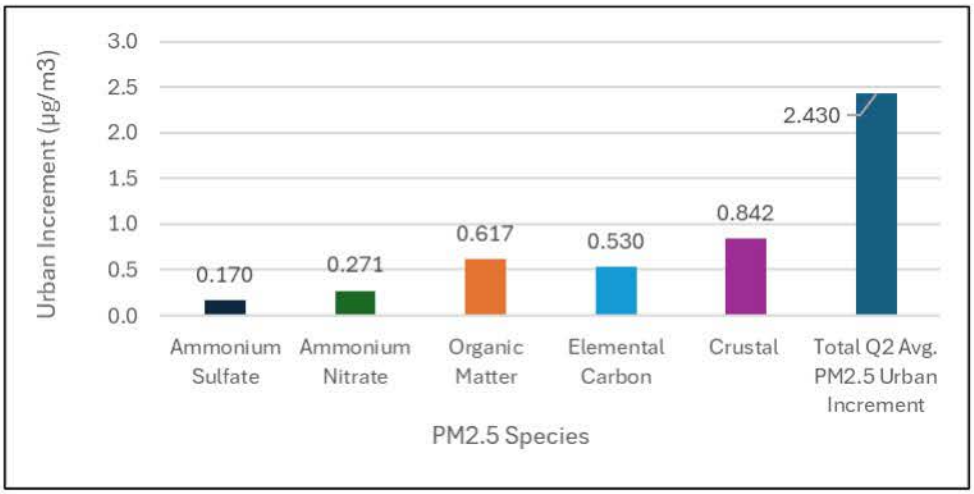


In Table 2 Michigan presents the results of its computations for the speciated and total quarter 2 (Q2) average $PM_{2.5}$ urban increments for Michigan's Military Park, DP4th, and Detroit-SW monitors using three years (2021-2023) of quarter 2 speciated $PM_{2.5}$ concentration data from the Detroit-SW CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 2 and Figure 2, the $PM_{2.5}$ component that contributed the most (on average) to the Q2 $PM_{2.5}$ urban increment is the crustal portion of $PM_{2.5}$ (.842 (μg/m^3)).

Table 2. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q2 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q2 Avg. Ammonium Sulfate Increment	Q2 Avg. Ammonium Nitrate Increment	Q2 Avg. OM Increment	Q2 Avg. EC Increment	Q2 Avg. Crustal Increment	Total Q2 Avg. $PM_{2.5}$ Urban Increment	Units
Military Park [261630100], DP4th [261630098], DET-SW [261630015]	0.170	0.271	0.617	0.530	0.842	2.430	(µg/m3)

Figure 2. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q2 Average Urban Increment by $PM_{2.5}$ Species

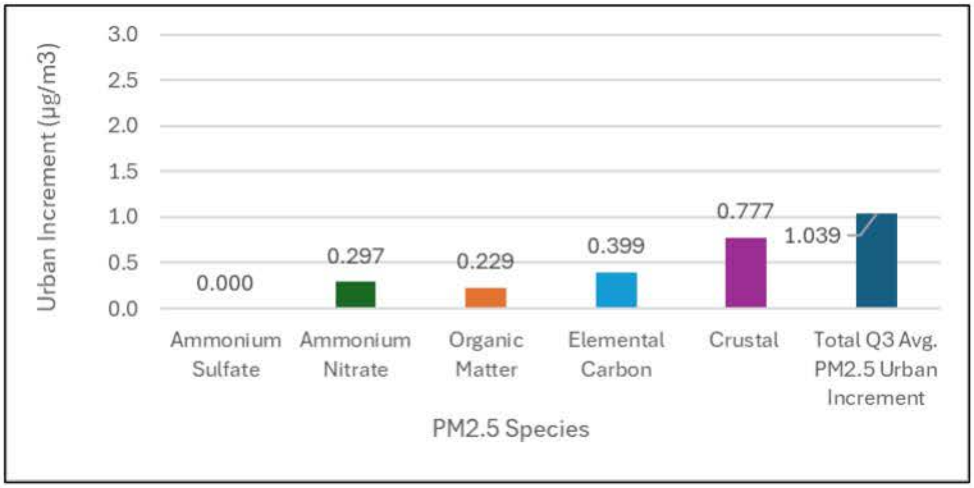


In Table 3 Michigan presents the results of its computations for the speciated and total quarter 3 (Q3) average $PM_{2.5}$ urban increments for Michigan's Military Park, DP4th, and Detroit-SW monitors using three years (2021-2023) of quarter 3 speciated $PM_{2.5}$ concentration data from the Detroit-SW CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 3 and Figure 3, the $PM_{2.5}$ component that contributed the most (on average) to the Q3 $PM_{2.5}$ urban increment is the crustal portion of $PM_{2.5}$ (.777 (µg/m^3)).

Table 3. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q3 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q3 Avg. Ammonium Sulfate Increment	Q3 Avg. Ammonium Nitrate Increment	Q3 Avg. OM Increment	Q3 Avg. EC Increment	Q3 Avg. Crustal Increment	Total Q3 Avg. $PM_{2.5}$ Urban Increment	Units
Military Park [261630100], DP4th [261630098], DET-SW [261630015]	0.000	0.297	0.229	0.399	0.777	1.039	(µg/m3)

Figure 3. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q3 Average Urban Increment by $PM_{2.5}$ Species

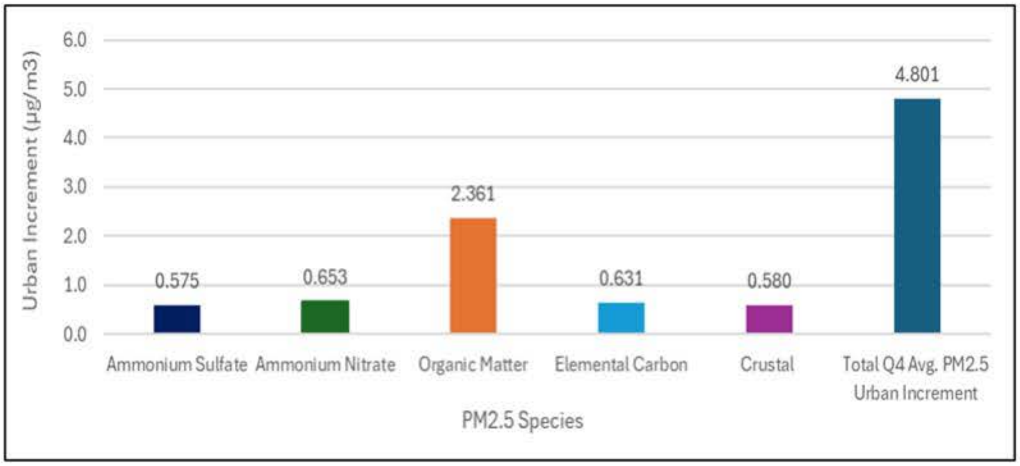


In Table 4 Michigan presents the results of its computations for the speciated and total quarter 4 (Q4) average $PM_{2.5}$ urban increments for Michigan's Military Park, DP4th, and Detroit-SW monitors using three years (2021-2023) of quarter 4 speciated $PM_{2.5}$ concentration data from the Detroit-SW CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 4 and Figure 4, the $PM_{2.5}$ component that contributed the most (on average) to the Q4 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (2.361 (µg/m^3)).

Table 4. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q4 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q4 Avg. Ammonium Sulfate Increment	Q4 Avg. Ammonium Nitrate Increment	Q4 Avg. OM Increment	Q4 Avg. EC Increment	Q4 Avg. Crustal Increment	Total Q4 Avg. $PM_{2.5}$ Urban Increment	Units
Military Park [261630100], DP4th [261630098], DET-SW [261630015]	0.575	0.653	2.361	0.631	0.580	4.801	(µg/m3)

Figure 4. Military Park, DP4th, and DET-SW Monitors – 2021-2023 Q4 Average Urban Increment by $PM_{2.5}$ Species



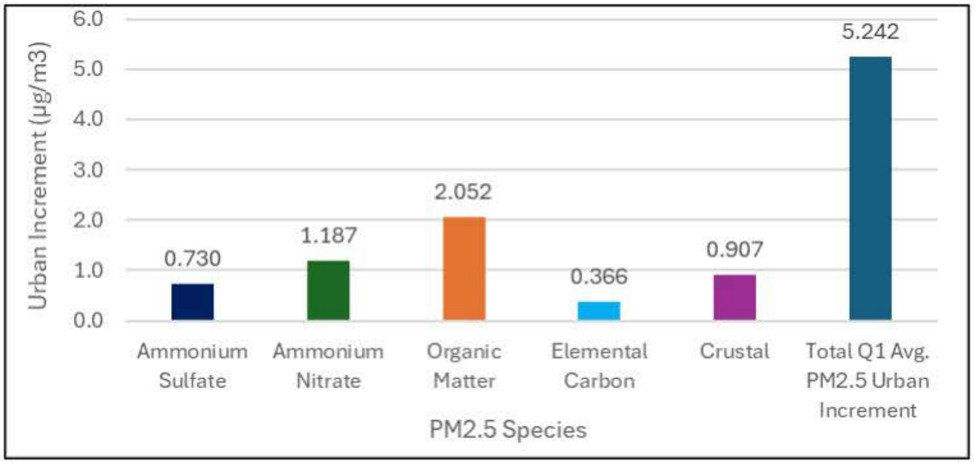
Trinity St. Marks, Eliza-NR, and Dearborn Public Schools AQS Monitors [Quarterly Averages (Q1-Q4)]

In Table 5 Michigan presents the results of its computations for the speciated and total quarter 1 (Q1) average $PM_{2.5}$ urban increments for Michigan's Trinity St. Marks, Eliza-NR, and Dearborn Public Schools monitors using three years (2021-2023) of quarter 1 speciated $PM_{2.5}$ concentration data from the Dearborn Public Schools CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 5 and Figure 5, the $PM_{2.5}$ component that contributed the most (on average) to the Q1 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (2.052 (µg/m^3)).

Table 5. Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q1 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q1 Avg. Ammonium Sulfate Increment	Q1 Avg. Ammonium Nitrate Increment	Q1 Avg. OM Increment	Q1 Avg. EC Increment	Q1 Avg. Crustal Increment	Total Q1 Avg. $PM_{2.5}$ Urban Increment	Units
Trinity St. Marks [261630099], Eliza-NR [261630093], Dearborn Public Schools [261630033]	0.730	1.187	2.052	0.366	0.907	5.242	(µg/m3)

Figure 5.Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q1 Average Urban Increment by PM$_{2.5}$ Species

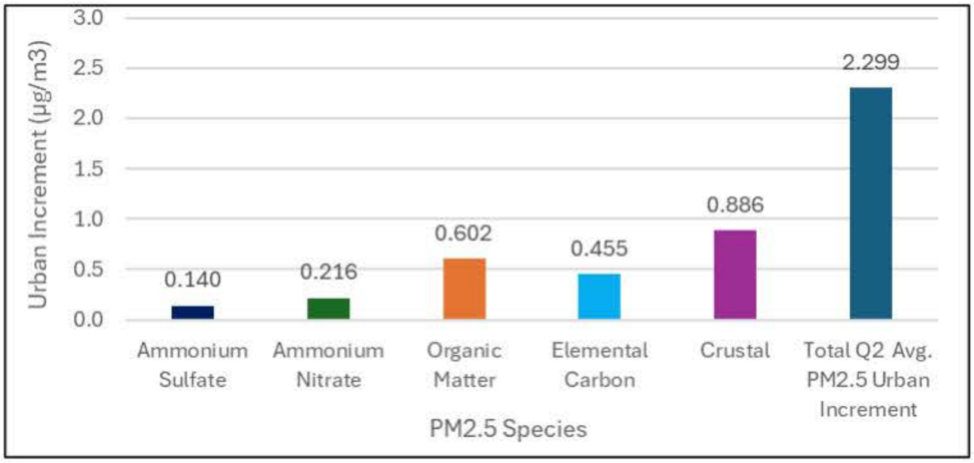


In Table 6 Michigan presents the results of its computations for the speciated and total quarter 2 (Q2) average PM$_{2.5}$ urban increments for Michigan's Trinity St. Marks, Eliza-NR, and Dearborn Public Schools monitors using three years (2021-2023) of quarter 2 speciated PM$_{2.5}$ concentration data from the Dearborn Public Schools CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 6 and Figure 6, the PM$_{2.5}$ component that contributed the most (on average) to the Q2 PM$_{2.5}$ urban increment is the crustal portion of PM$_{2.5}$ (.886 (µg/m^3)).

Table 6. Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q2 Average Urban Increment by PM$_{2.5}$ Species

Local Site Name [Site ID]	Q2 Avg. Ammonium Sulfate Increment	Q2 Avg. Ammonium Nitrate Increment	Q2 Avg. OM Increment	Q2 Avg. EC Increment	Q2 Avg. Crustal Increment	Total Q2 Avg. PM$_{2.5}$ Urban Increment	Units
Trinity St. Marks [261630099], Eliza-NR [261630093], Dearborn Public Schools [261630033]	0.140	0.216	0.602	0.455	0.886	2.299	(µg/m3)

Figure 6. Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q2 Average Urban Increment by $PM_{2.5}$ Species

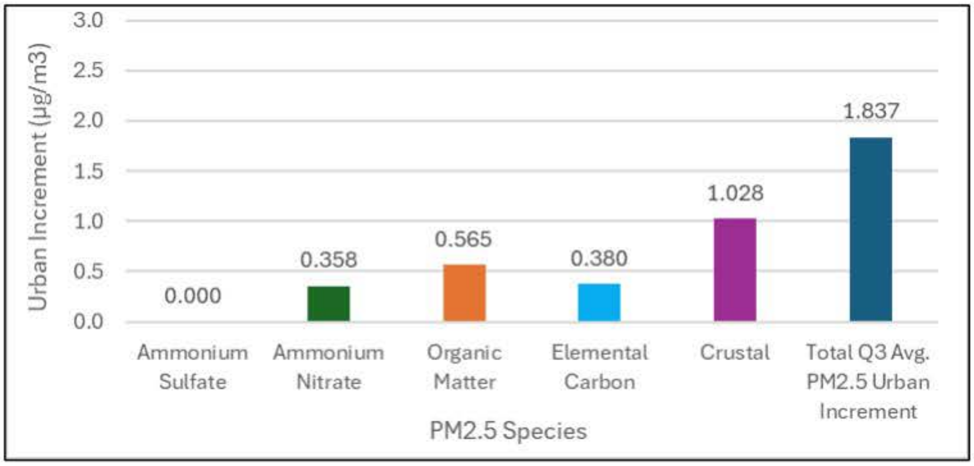


In Table 7 Michigan presents the results of its computations for the speciated and total quarter 3 (Q3) average $PM_{2.5}$ urban increments for Michigan's Trinity St. Marks, Eliza-NR, and Dearborn Public Schools monitors using three years (2021-2023) of quarter 3 speciated $PM_{2.5}$ concentration data from the Dearborn Public Schools CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 7 and Figure 7, the $PM_{2.5}$ component that contributed the most (on average) to the Q3 $PM_{2.5}$ urban increment is the crustal portion of $PM_{2.5}$ (1.028 (µg/m^3)).

Table 7. Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q3 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q3 Avg. Ammonium Sulfate Increment	Q3 Avg. Ammonium Nitrate Increment	Q3 Avg. OM Increment	Q3 Avg. EC Increment	Q3 Avg. Crustal Increment	Total Q3 Avg. $PM_{2.5}$ Urban Increment	Units
Trinity St. Marks [261630099], Eliza-NR [261630093], Dearborn Public Schools [261630033]	0.000	0.358	0.565	0.380	1.028	1.837	(µg/m3)

Figure 7. Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q3 Average Urban Increment by $PM_{2.5}$ Species

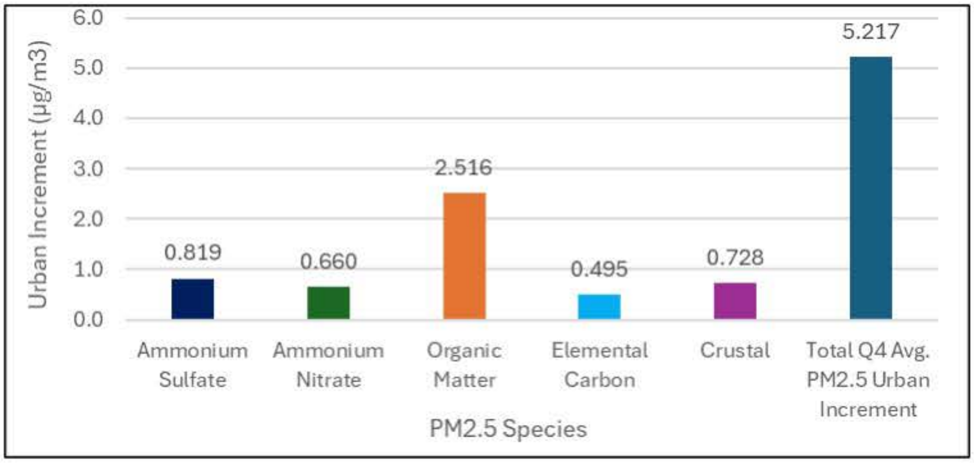


In Table 8. Michigan presents the results of its computations for the speciated and total quarter 4 (Q4) average $PM_{2.5}$ urban increments for Michigan's Trinity St. Marks, Eliza-NR, and Dearborn Public Schools monitors using three years (2021-2023) of quarter 4 speciated $PM_{2.5}$ concentration data from the Dearborn Public Schools CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 8 and Figure 8, the $PM_{2.5}$ component that contributed the most (on average) to the Q4 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (2.516 (µg/m^3)).

Table 8. Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q4 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q4 Avg. Ammonium Sulfate Increment	Q4 Avg. Ammonium Nitrate Increment	Q4 Avg. OM Increment	Q4 Avg. EC Increment	Q4 Avg. Crustal Increment	Total Q4 Avg. $PM_{2.5}$ Urban Increment	Units
Trinity St. Marks [261630099], Eliza-NR [261630093], Dearborn Public Schools [261630033]	0.819	0.660	2.516	0.495	0.728	5.217	(µg/m3)

Figure 8. Trinity St. Marks, Eliza-NR, and Dearborn Public Schools Monitors – 2021-2023 Q4 Average Urban Increment by $PM_{2.5}$ Species



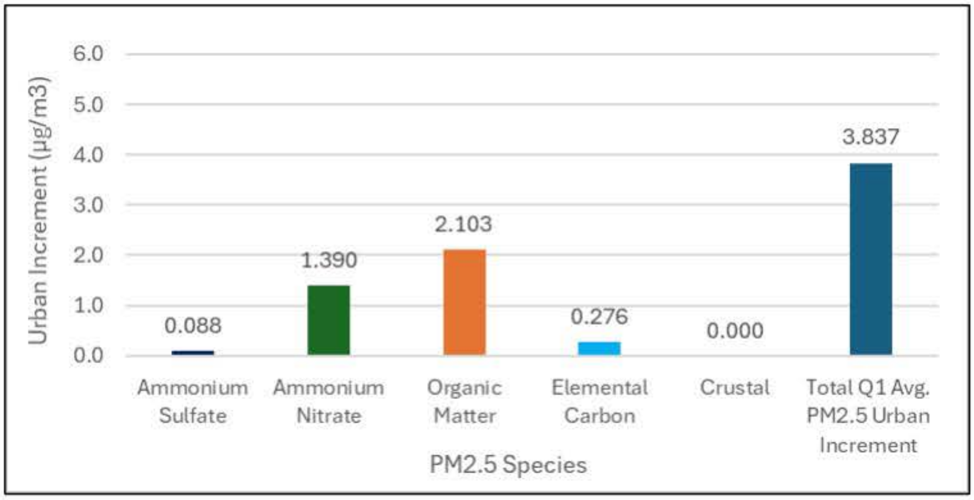
Allen Park AQS Monitor [Quarterly Averages (Q1-Q4)]

In Table 9 Michigan presents the results of its computations for the speciated and total quarter 1 (Q1) average $PM_{2.5}$ urban increments for Michigan's Allen Park monitor using three years (2021-2023) of quarter 1 speciated $PM_{2.5}$ concentration data from the Allen Park CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 9 and Figure 9, the $PM_{2.5}$ component that contributed the most (on average) to the Q1 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (2.103 (µg/m3)). Similarly, the urban/local contribution of ammonium nitrate to the total Q1 average $PM_{2.5}$ concentration was also found to be significant (1.390 (µg/m^3)).

Table 9. Allen Park Monitor – 2021-2023 Q1 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q1 Avg. Ammonium Sulfate Increment	Q1 Avg. Ammonium Nitrate Increment	Q1 Avg. OM Increment	Q1 Avg. EC Increment	Q1 Avg. Crustal Increment	Total Q1 Avg. $PM_{2.5}$ Urban Increment	Units
Allen Park [261630001]	0.088	1.390	2.103	0.276	0.000	3.837	(µg/m3)

Figure 9. Allen Park Monitor – 2021-2023 Q1 Average Urban Increment by $PM_{2.5}$ Species

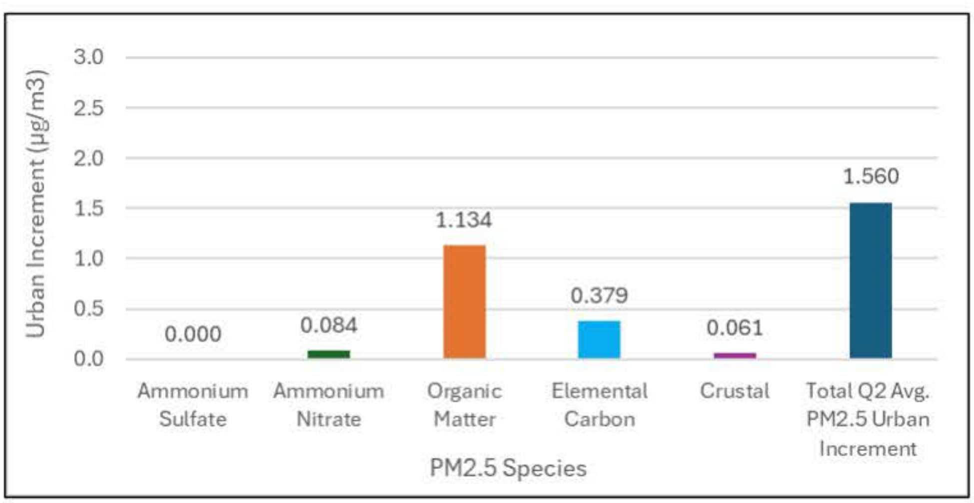


In Table 10 Michigan presents the results of its computations for the speciated and total quarter 2 (Q2) average $PM_{2.5}$ urban increments for Michigan's Allen Park monitor using three years (2021-2023) of quarter 2 speciated $PM_{2.5}$ concentration data from the Allen Park CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 10 and Figure 10, the $PM_{2.5}$ component that contributed the most (on average) to the Q2 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (1.134 (µg/m^3)).

Table 10. Allen Park Monitor – 2021-2023 Q2 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q2 Avg. Ammonium Sulfate Increment	Q2 Avg. Ammonium Nitrate Increment	Q2 Avg. OM Increment	Q2 Avg. EC Increment	Q2 Avg. Crustal Increment	Total Q2 Avg. $PM_{2.5}$ Urban Increment	Units
Allen Park [261630001]	0.000	0.084	1.134	0.379	0.061	1.560	(µg/m3)

Figure 10. Allen Park Monitor – 2021-2023 Q2 Average Urban Increment by $PM_{2.5}$ Species

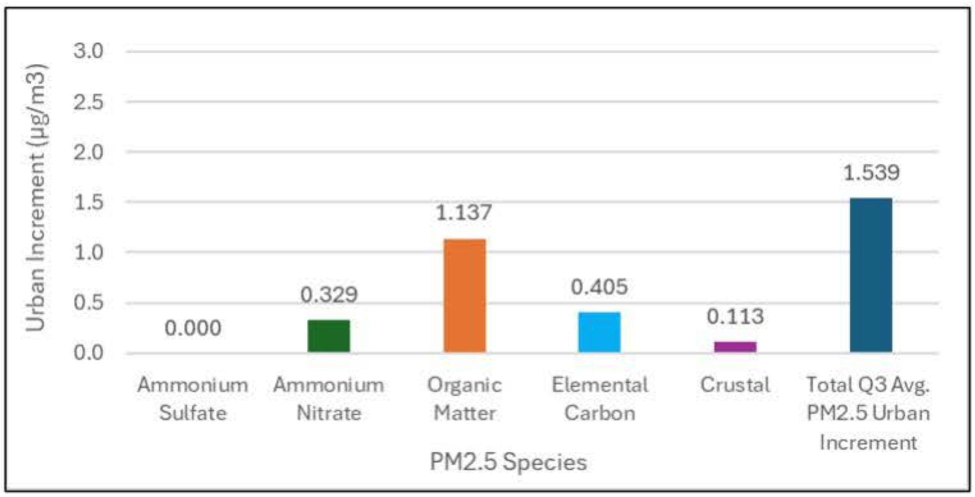


In Table 11 Michigan presents the results of its computations for the speciated and total quarter 3 (Q3) average $PM_{2.5}$ urban increments for Michigan's Allen Park monitor using three years (2021-2023) of quarter 3 speciated $PM_{2.5}$ concentration data from the Allen Park CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 11 and Figure 11, the $PM_{2.5}$ component that contributed the most (on average) to the Q3 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (1.137 (µg/m^3)).

Table 11. Allen Park Monitor – 2021-2023 Q3 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q3 Avg. Ammonium Sulfate Increment	Q3 Avg. Ammonium Nitrate Increment	Q3 Avg. OM Increment	Q3 Avg. EC Increment	Q3 Avg. Crustal Increment	Total Q3 Avg. $PM_{2.5}$ Urban Increment	Units
Allen Park [261630001]	0.000	0.329	1.137	0.405	0.113	1.539	(µg/m3)

Figure 11. Allen Park Monitor – 2021-2023 Q3 Average Urban Increment by $PM_{2.5}$ Species

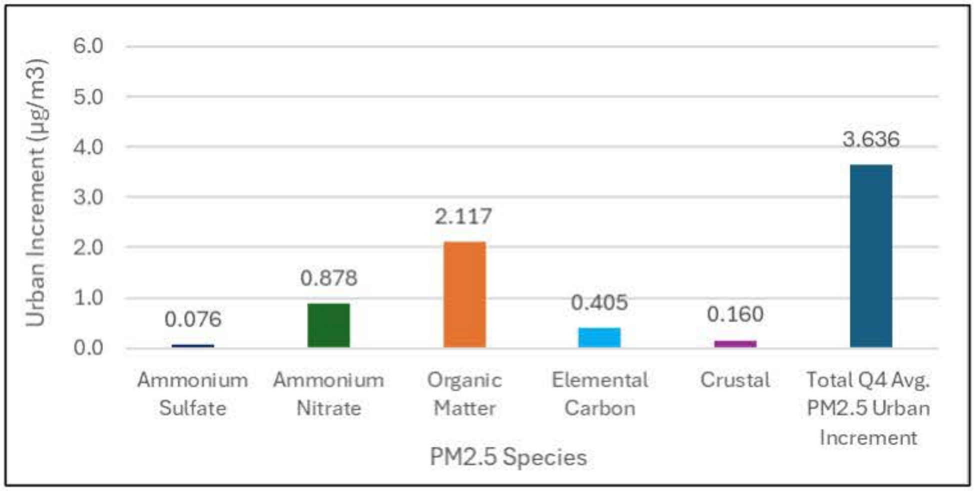


In Table 12 Michigan presents the results of its computations for the speciated and total quarter 4 (Q4) average $PM_{2.5}$ urban increments for Michigan's Allen Park monitor using three years (2021-2023) of quarter 4 speciated $PM_{2.5}$ concentration data from the Allen Park CSN monitor and the St. John's Road – Quaker City, Ohio IMPROVE monitor. As shown in Table 12 and Figure 12, the $PM_{2.5}$ component that contributed the most (on average) to the Q4 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (2.117 (µg/m^3)).

Table 12. Allen Park Monitor – 2021-2023 Q4 Average Urban Increment by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q4 Avg. Ammonium Sulfate Increment	Q4 Avg. Ammonium Nitrate Increment	Q4 Avg. OM Increment	Q4 Avg. EC Increment	Q4 Avg. Crustal Increment	Total Q4 Avg. $PM_{2.5}$ Urban Increment	Units
Allen Park [261630001]	0.076	0.878	2.117	0.405	0.160	3.636	(µg/m3)

Figure 12. Allen Park Monitor – 2021-2023 Q4 Average Urban Increment by $PM_{2.5}$ Species



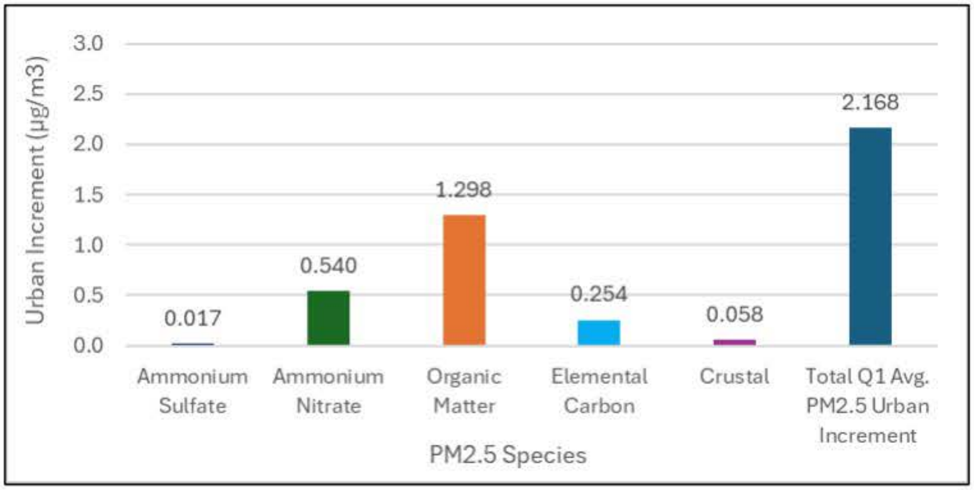
Kalamazoo Fairgrounds AQS Monitor [Quarterly Averages (Q1-Q4)]

In Table 13Michigan presents the results of its computations for the speciated and total quarter 1 (Q1) average $PM_{2.5}$ urban increments for Michigan's Kalamazoo Fairgrounds AQS monitor using three years (2021-2023) of quarter 1 speciated $PM_{2.5}$ concentration data from the GR-Monroe CSN monitor and the ISWS Climate Station, Illinois IMPROVE monitor. As shown in Table 13 and Figure 13, the $PM_{2.5}$ component that contributed the most (on average) to the Q1 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (1.298 (µg/m^3)).

Table 13. Kalamazoo Fairground Monitor – 2021-2023 Q1 Average Urban Increments by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q1 Avg. Ammonium Sulfate Increment	Q1 Avg. Ammonium Nitrate Increment	Q1 Avg. OM Increment	Q1 Avg. EC Increment	Q1 Avg. Crustal Increment	Total Q1 Avg. $PM_{2.5}$ Urban Increment	Units
Kalamazoo Fairgrounds [260770008]	0.017	0.540	1.298	0.254	0.058	2.168	(µg/m3)

Figure 13. Kalamazoo Fairgrounds Monitor – 2021-2023 Q1 Average Urban Increments by $PM_{2.5}$ Species

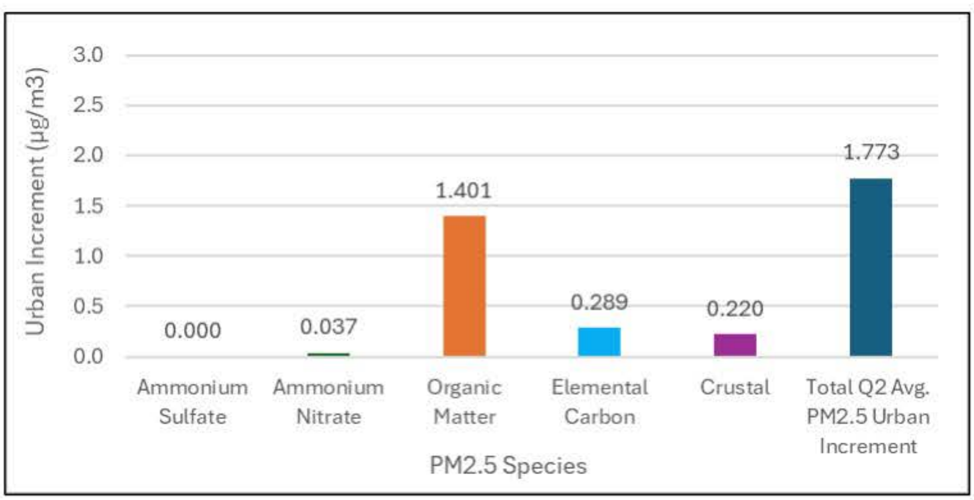


In Table 14 Michigan presents the results of its computations for the speciated and total quarter 2 (Q2) average $PM_{2.5}$ urban increments for Michigan's Kalamazoo Fairgrounds AQS monitor using three years (2021-2023) of quarter 2 speciated $PM_{2.5}$ concentration data from the GR-Monroe CSN monitor and the ISWS Climate Station, Illinois IMPROVE monitor. As shown in Table 14 and Figure 14, the $PM_{2.5}$ component that contributed the most (on average) to the Q2 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (1.401 (µg/m^3)).

Table 14. Kalamazoo Fairground Monitor – 2021-2023 Q2 Average Urban Increments by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q2 Avg. Ammonium Sulfate Increment	Q2 Avg. Ammonium Nitrate Increment	Q2 Avg. OM Increment	Q2 Avg. EC Increment	Q2 Avg. Crustal Increment	Total Q2 Avg. $PM_{2.5}$ Urban Increment	Units
Kalamazoo Fairgrounds [260770008]	0.000	0.037	1.401	0.289	0.220	1.773	(µg/m3)

Figure 14. Kalamazoo Fairgrounds Monitor – 2021-2023 Q2 Average Urban Increments by $PM_{2.5}$ Species

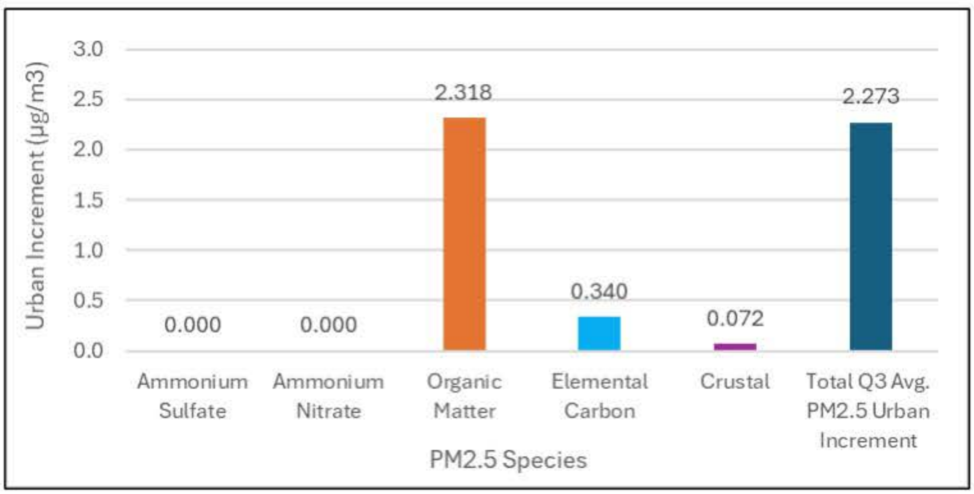


In Table 15 Michigan presents the results of its computations for the speciated and total quarter 3 (Q3) average $PM_{2.5}$ urban increments for Michigan's Kalamazoo Fairgrounds AQS monitor using three years (2021-2023) of quarter 3 speciated $PM_{2.5}$ concentration data from the GR-Monroe CSN monitor and the ISWS Climate Station, Illinois IMPROVE monitor. As shown in Table 15 and Figure 15, the $PM_{2.5}$ component that contributed the most (on average) to the Q3 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (2.318 (µg/m^3)).

Table 15. Kalamazoo Fairground Monitor – 2021-2023 Q3 Average Urban Increments by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q3 Avg. Ammonium Sulfate Increment	Q3 Avg. Ammonium Nitrate Increment	Q3 Avg. OM Increment	Q3 Avg. EC Increment	Q3 Avg. Crustal Increment	Total Q3 Avg. $PM_{2.5}$ Urban Increment	Units
Kalamazoo Fairgrounds [260770008]	0.000	0.000	2.318	0.340	0.072	2.273	(µg/m3)

Figure 15. Kalamazoo Fairgrounds Monitor – 2021-2023 Q3 Average Urban Increments by $PM_{2.5}$ Species

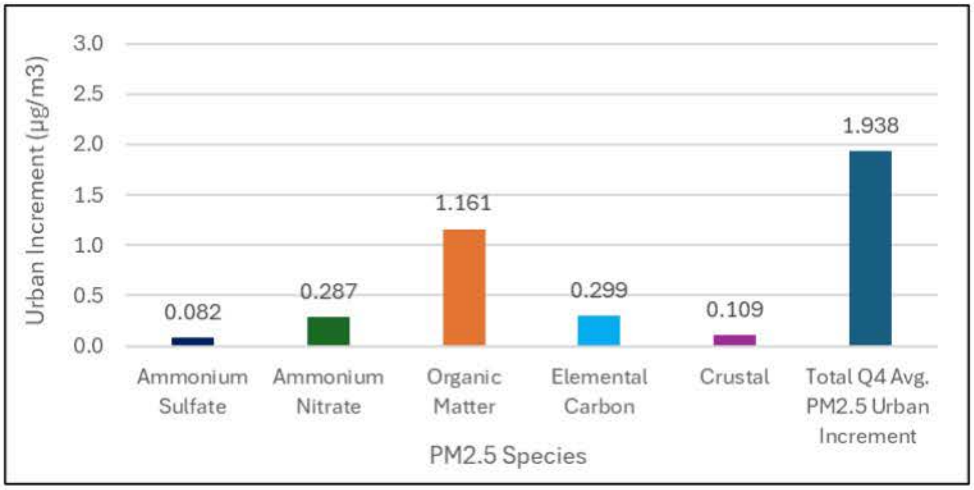


In Table 16 Michigan presents the results of its computations for the speciated and total quarter 4 (Q4) average $PM_{2.5}$ urban increments for Michigan's Kalamazoo Fairgrounds AQS monitor using three years (2021-2023) of quarter 4 speciated $PM_{2.5}$ concentration data from the GR-Monroe CSN monitor and the ISWS Climate Station, Illinois IMPROVE monitor. As shown in Table 16 and Figure 16, the $PM_{2.5}$ component that contributed the most (on average) to the Q4 $PM_{2.5}$ urban increment is the organic matter portion of $PM_{2.5}$ (1.161 (µg/m^3)).

Table 16. Kalamazoo Fairground Monitor – 2021-2023 Q4 Average Urban Increments by $PM_{2.5}$ Species

Local Site Name [Site ID]	Q4 Avg. Ammonium Sulfate Increment	Q4 Avg. Ammonium Nitrate Increment	Q4 Avg. OM Increment	Q4 Avg. EC Increment	Q4 Avg. Crustal Increment	Total Q4 Avg. $PM_{2.5}$ Urban Increment	Units
Kalamazoo Fairgrounds [260770008]	0.082	0.287	1.161	0.299	0.109	1.938	(µg/m3)

Figure 16. Kalamazoo Fairgrounds Monitor – 2021-2023 Q4 Average Urban Increments by $PM_{2.5}$ Species



Attachment 4

Urban Increment Satellite-derived Methodology

Due to the placement of the IMPROVE and CSN monitors under the USEPA methodology, Michigan explored a secondary approach to the urban increment analysis that utilized satellite-derived global and regional $PM_{2.5}$ data developed by the Atmospheric Composition and Analysis Group at Washington University in St. Louis[1]. This satellite data approach was initially explored by the Lake Michigan Air Directors Consortium (LADCO). Michigan had discussions with LADCO to create an urban increment analysis specific to Michigan. The data provided by Washington University was a combination of satellite, modeling, and surface data to produce "annual and monthly ground-level fine particulate matter ($PM_{2.5}$) by combining Aerosol Optical Depth retrievals from the NASA MODIS, MISR, SeaWIFS, and VIIRS with the GEOS-Chem chemical transport model, and subsequently calibrating to global ground-based observations using a residual Convolutional Neural Network." The data is available for the years 1998-2022 on a 0.01-degree grid. Michigan utilized the 2022 annual $PM_{2.5}$ dataset as a viable alternative to surface monitors for use in an urban increment analysis due to the spatial continuity and correlation with surface observations. Michigan acknowledges that there are limitations of this approach due to the lack of 2021 and 2023 data, as well as differences when compared with the exceeding monitor $PM_{2.5}$ 2022 annual means, which are typically higher than what this analysis captures.

In order to complete this analysis, the global data was clipped down to the U.S. national boundary and converted into a raster format to be compatible with the ArcGIS platform. The data was then further clipped down to the State of Michigan boundary and translated to a point feature class representing the centroids of each raster cell (about 1km-by-1km grid cells). The raster values representing the 2022 annual $PM_{2.5}$ were extracted to the point feature class. Figure 4.2-1 is a map showing the resulting $PM_{2.5}$ values using a graduated color scale for each point.

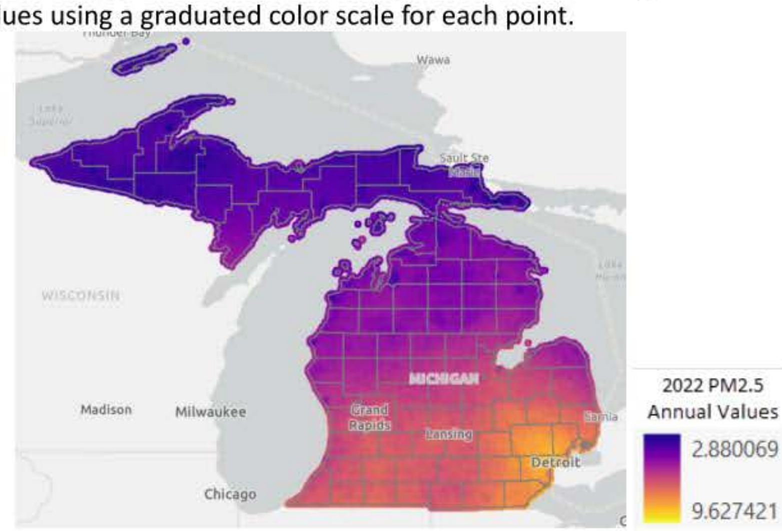


Figure 4.2-1 Washington University 2022 $PM_{2.5}$ Annual data for Michigan.

LADCO initially calculated the rural background for Michigan for the state as a whole, however when compared to other states in the region, Michigan's rural background concentration was much lower than the rest. After discussion, it was noted that the northern portion of Michigan had $PM_{2.5}$ annual numbers that were significantly lower than that of southern Michigan. Combining this with the USEPA methodology that utilizes IMPROVE monitors within 150 miles of the urban area to determine rural background, Michigan determined it would be more accurate to calculate rural background for Kalamazoo based only on the southern portion of Michigan. Michigan utilized the mean concentration

[1] https://sites.wustl.edu/acag/datasets/surface-pm2-5/

(6.99µg/m³) in conjunction with county boundaries to determine the best latitudinal plane to divide the state for this analysis. The chosen plane was designed to be more conservative than using the mean data, and it was also closer to representing a 150-mile radius from Kalamazoo. The left map in Figure 4.2-2 displays data at or above the mean of 6.99 µg/m³ while the right map shows the line drawn at 43.819°N. Figure 4.2-3 shows the 150-mile buffers for the center of Kalamazoo and Wayne counties. These data were utilized to represent the rural background concentration for lower Michigan.

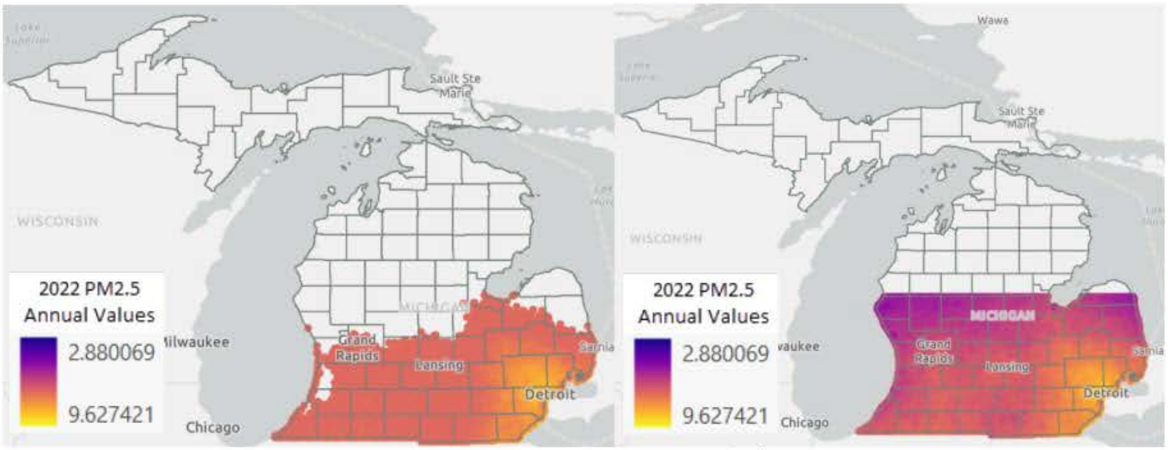


Figure 4.2-2 Left map represents $PM_{2.5}$ values at or above 6.99µg/m³ . Right Map represents latitudinal clip at 43.819°N.

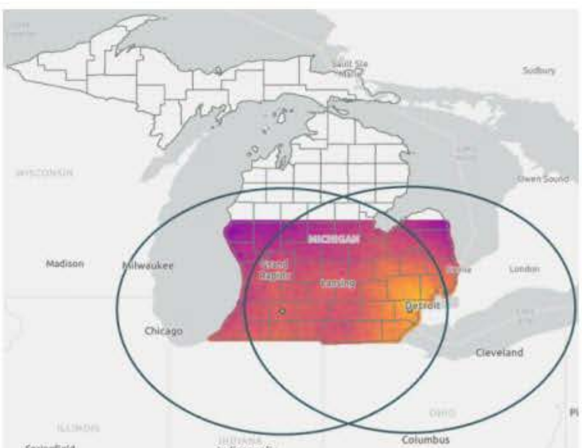


Figure 4.2-3 Map showing Lower Peninsula values compared to 150-mile buffers for the centroids of Kalamazoo and Wayne counties.

To calculate rural and urban concentrations, the urban values needed to be separated out. The American Community Survey 2017 census tract data was used because it classified tracts based on urban, suburban, and rural. The urban and suburban tracts (see Figure 4.2-4) values were removed to calculate the rural background $PM_{2.5}$ concentration for lower Michigan, which is the mean of the remaining values. This resulted in a rural background concentration of 6.88 µg/m³.

Figure 4.2-4 ACS 2017 Urban and suburban tracts shown in blue.

To calculate the urban increment, the mean for each county was calculated based on the 2022 $PM_{2.5}$ annual values within the urban and suburban tracts. The rural mean was then subtracted from the county urban means to yield the urban increment.

MINNESOTA POLLUTION CONTROL AGENCY

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January 16, 2025

Electronic Submission via EPA Portal

Debra Shore, Regional Administrator
U.S. Environmental Protection Agency, Region 5
77 W Jackson Blvd
Chicago, IL 60604-3507

RE: State of Minnesota Designation Recommendation for 2024 Annual $PM_{2.5}$ National Ambient Air Quality Standard

Dear Regional Administrator Shore:

With this letter and the attached/enclosed monitoring data, Governor Tim Walz of Minnesota recommends that all the counties in the State of Minnesota be designated as attainment for the 2024 annual National Ambient Air Quality Standard (NAAQS) for particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), published in the *Federal Register* on March 6, 2024, and effective May 6, 2024 (89 FR 16202).

This recommendation does not include areas in the state that are under Tribal jurisdiction. Tribal governments may submit designation requests to the U.S. Environmental Protection Agency (EPA) under the Tribal Authority Rule of 1998 (63 FR 7254).

The attached/enclosed data demonstrates that no site in Minnesota exceeded the 2024 annual $PM_{2.5}$ NAAQS in the 2021-2023 monitoring period.

The Commissioner of the MPCA, duly authorized by the Governor of the State of Minnesota, is submitting this data and recommendation on behalf of Governor Walz.

If you have any questions or comments about this submission, please contact Lauren Dickerson at lauren.dickerson@state.mn.us or 651-757-2184.

Sincerely,

Katrina Kessler

This document has been electronically signed.

Katrina Kessler
Commissioner

KK/LD:kt/rm

Enclosure/Attachment

State of Minnesota Designation Recommendation for 2024 $PM_{2.5}$ National Ambient Air Quality Standard

Pursuant to Section 107(d) of the Clean Air Act and following the revision of the NAAQS for $PM_{2.5}$, published in the *Federal Register* on March 6, 2024 and effective May 6, 2024, Governor Tim Walz of Minnesota is recommending that all the counties in the state of Minnesota be designated as attainment for the 2024 annual $PM_{2.5}$ NAAQS.

This recommendation does not include areas in the state that are under Tribal jurisdiction. Tribal governments may submit designation requests to the EPA under the Tribal Authority Rule of 1998 (63 FR 7254).

The 2024 annual $PM_{2.5}$ NAAQS is 9.0 micrograms per cubic meter (µg/m^3). The design value is the annual mean concentration, averaged over three consecutive years. Monitoring sites must meet the data completeness requirements listed in Appendix N to 40 C.F.R. pt. 50 to have a valid design value.

This designation recommendation is based on three consecutive years (2021-2023) of air sampling data collected at twenty-three regulatory monitors around the state. To meet the 2024 annual $PM_{2.5}$ NAAQS, the three-year average of the annual mean concentration of $PM_{2.5}$ must not exceed 9.0 micrograms per cubic meter (µg/m^3). The Table 1 data demonstrates that all monitors in Minnesota registered concentrations below the 2024 annual $PM_{2.5}$ NAAQS for the 2021-2023 design value year. Quality-assured $PM_{2.5}$ monitoring data for Minnesota has been submitted and certified to the Air Quality System through 2023. The design values shown here are computed using Federal Reference Method or equivalent data reported by State, Tribal, and Local monitoring agencies to EPA's Air Quality System (AQS) as of August 8, 2024.

Table 1. Monitored $PM_{2.5}$ Design Values

County Name	AQS Site ID	Local Site Name	Valid 2021-2023 Design Value (µg/m^3)	2021 Annual Mean Value (µg/m^3)	2022 Annual Mean Value (µg/m^3)	2023 Annual Mean Value (µg/m^3)
Anoka	270031002	Anoka County Airport (Blaine)	7.4	7.56	5.89	8.60
Becker	270052013	FWS Wetland Management District (Detroit Lakes)	8.6	12.12	5.21	8.34
Beltrami	270072304	Red Lake Nation (Red Lake)	6.9	8.19	4.66	7.72
Carlton	270177417	Fond Du Lac Band (Cloquet)	3.7	3.82	1.37	5.89
Cass	270213410	Leech Lake Nation (Cass Lake)	8.9	13.25	5.87	7.49
Cook	270317810	Grand Portage Band	2.7	3.00	1.17	3.97
Crow Wing	270353204	Brainerd Lakes Regional Airport (Brainerd)	6.7	6.75	5.37	7.94
Dakota	270370470	Apple Valley (Apple Valley)	7.5	6.53	5.39	10.62

County Name	AQS Site ID	Local Site Name	Valid 2021-2023 Design Value (µg/m³)	2021 Annual Mean Value (µg/m³)	2022 Annual Mean Value (µg/m³)	2023 Annual Mean Value (µg/m³)
Dakota	270370480	Near Road I-35 (Lakeville)	8.0	8.83	5.66	9.52
Hennepin	270530962	Near Road I-35/I-94 (Minneapolis)	8.6	8.53	7.11	10.19
Hennepin	270530963	Andersen School (Minneapolis)	8.3	7.52	7.16	10.31
Hennepin	270532006	St. Louis Park City Hall (St. Louis Park)	8.4	9.05	6.51	9.72
Lake	270750005	Boundary Waters	4.9	4.74	4.08	5.81
Lyon	270834210	Southwest Minnesota Regional Airport (Marshall)	7.8	7.46	6.46	9.57
Olmsted	271095008	Ben Franklin School (Rochester)	7.2	5.97	6.03	9.56
Ramsey	271230868	Ramsey Health Center (St. Paul)	9.0	9.81	7.33	9.88
Ramsey	271230871	Harding High School (St. Paul)	8.2	8.06	6.41	10.02
Saint Louis	271377001	Virginia City Hall (Virginia)	6.0	6.39	4.36	7.10
Saint Louis	271377550	U of M – Duluth (Duluth)	4.5	3.08	2.85	7.58
Saint Louis	271377554	Laura Macarthur School (Duluth)	5.6	5.78	3.60	7.56
Scott	271390505	B.F. Pearson School (Shakopee)	7.8	6.68	6.34	10.41
Stearns	271453052	Talahi School (St. Cloud)	Invalid	8.92	6.08	9.42
Wright	271713201	St. Michael Elementary School (St. Michael)	7.9	8.83	5.59	9.19

The St. Cloud Talahi School site was undergoing building repair in year 2022. From June through August that year, MPCA monitoring field staff did not have access to the monitor. This impacted design value validity due to data completeness for design value periods 2020-2022 and 2021-2023. Valid and invalid annual design values at the Talahi School site over the last decade have never been greater than 9.0 µg/m as shown in the Table 2. This is despite the fact the state was highly impacted by wildfire in both years 2021 and 2023.

Table 2. Talahi School (AQS Site ID 27-145-3052) $PM_{2.5}$ Design Values

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Valid Annual Design Value (µg/m³)	7.9	7.0	6.1	5.9	5.7	6.0	6.0	6.0	6.8		
Invalid Annual Design Value (µg/m³)										7.1	8.1

Locations of Minnesota's $PM_{2.5}$ regulatory monitors and data can be seen in Figures 1 and 2.

Figure 1. Greater Minnesota $PM_{2.5}$ monitoring sites 2021-2023

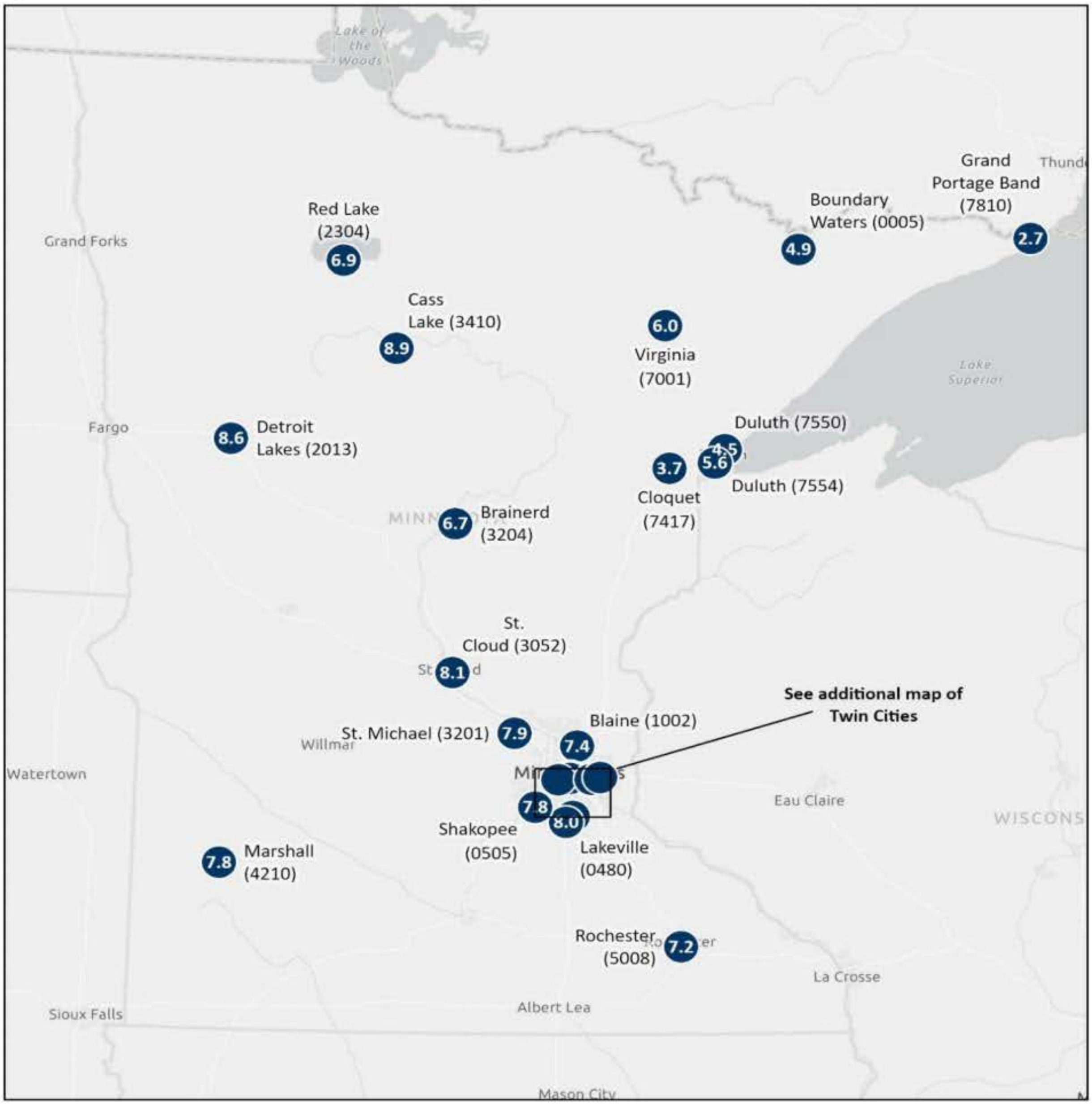
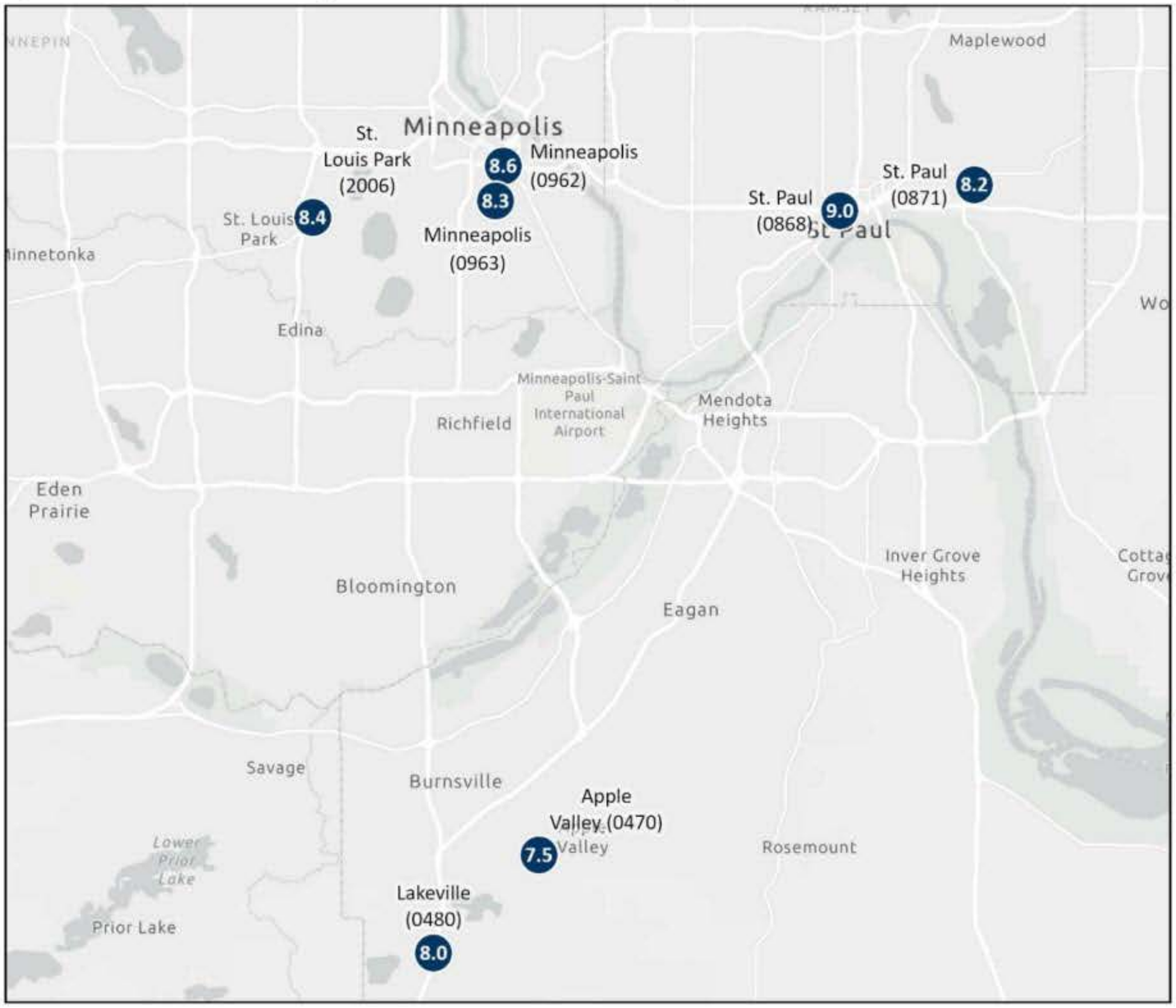
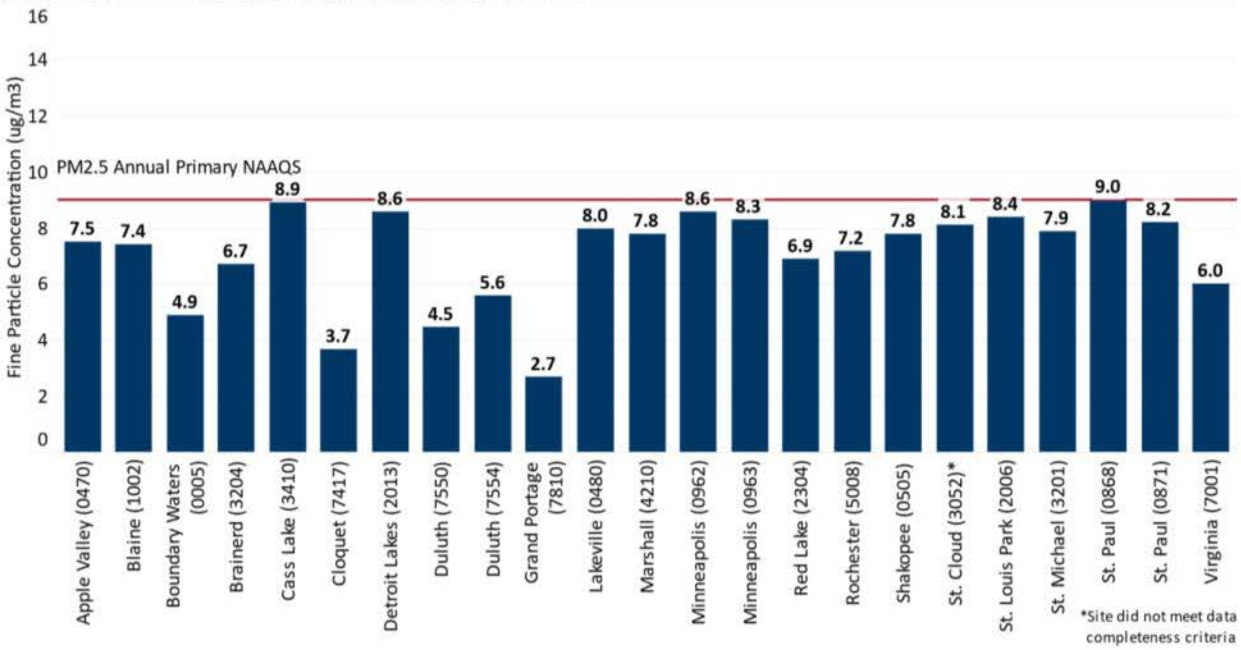


Figure 2. Twin Cities Metropolitan Area $PM_{2.5}$ monitoring sites 2021-2023



The $PM_{2.5}$ annual design values from 2021-2023 are also shown in Figure 3. This is the same data as presented above but in a different format.

Figure 3. PM2.5 Annual Design Values, 2021-2023



For these reasons, Governor Walz recommends that all the counties in Minnesota be designated attainment for the 2024 annual $PM_{2.5}$ NAAQS. The Commissioner of the Minnesota Pollution Control Agency, duly authorized by the Governor of the State of Minnesota, is submitting this data and recommendation on behalf of Governor Walz.

MORONGO
BAND OF
MISSION
INDIANS
A SOVEREIGN NATION

January 28, 2025

Cheree Peterson
Acting Regional Administrator
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105-3901

Re: Recommendation for Separate Unclassifiable Designation for the Morongo Band of Mission Indians under the 2024 PM2.5 NAAQS

Dear Ms. Peterson,

On behalf of the Morongo Band of Mission Indians (Tribe), I am writing to formally recommend a separate designation for PM2.5 2024 National Ambient Air Quality Standards (NAAQS) designation. The Tribe recommends the boundaries for our Tribal lands be separate from the state areas, currently defined under the NAAQS. We recommend that the Environmental Protection Agency (EPA) designate the Morongo Tribal lands as *unclassifiable* under the 2024 NAAQS for PM2.5. This recommendation aligns with section 107(d)(1)(A)(iii) of the Clean Air Act (CAA) and is based on a comprehensive evaluation of the Five-Factor Analysis criteria: air quality data, emissions data, meteorology, geography and topography, and jurisdictional boundaries.

The Tribes operates a robust air monitoring program that aims to provide accurate and representative data for our lands. While the data collected at our federally approved air monitoring station indicates generally favorable air quality conditions for PM2.5, the current dataset is incomplete to definitively determine where PM2.5 levels meet the revised standards of 9.0 $\mu g/m^3$. Furthermore, the unique meteorological and topographical conditions in the region present complexities that require additional evaluation to fully understand their impact on PM2.5 concentrations.

Five-Factor Analysis Supporting Attainment Designation:

1. **Air Quality Data:**
   - PM2.5 levels recorded at the Tribe's monitoring stations suggest compliance with the 2024 PM2.5 NAAQS; however, the dataset is limited and lacks sufficient historical data for regulatory purposes.
   - Additional monitoring and analysis are needed to establish a comprehensive understanding of PM2.5 on Morongo's Tribal lands.
2. **Emissions Data:**
   - Emissions from sources within Tribal jurisdiction are minimal and well-controlled, with no significant contribution to regional PM2.5 levels.
   - The Tribe has implemented proactive measures to reduce emission, including sustainable land management practices and the promotion of clean energy initiatives.
3. **Meteorology:**
   - Local meteorological patterns, including prevailing winds and seasonal temperature inversions, influence the dispersion and concentration of PM2.5 on Tribal Lands.

However, the current analysis does not fully capture these dynamics, necessitating further study.

4. **Geography and Topography:**
   - Morongo Tribal lands are geographically distinct, located in a topographically unique area characterized by steep mountain ranges that act as a funnel, channeling winds and air pollution from neighboring regions from the west.
   - These geographical features complicate the attribution of PM2.5 sources and require additional assessment.
5. **Jurisdictional Boundaries:**
   - As a federally recognized Tribe with Treatment as a State (TAS) status, the Morongo Band of Mission Indians has the capacity and authority to manage air quality within its jurisdiction.
   - A separate unclassifiable designation for the Morongo's Tribal lands acknowledges the current limitations in data while respecting Tribal sovereignty and jurisdiction.

Additional Considerations:

- The Tribe has a proven track record of effective air quality management, demonstrated through successful implementation of Clean Air Act programs and compliance with existing NAAQs.
- Collaboration with EPA Region 9 and the California Air Resources Board (CARB) continues to be a priority, ensuring alignment with broader air quality objectives.

We respectfully recommend that EPA designate Morongo Tribal lands as unclassifiable under the 2024 PM2.5 NAAQS. This designation reflects the current data limitations while allowing the Tribe to continue its efforts to improve air quality and management.

Thank you for your attention to this matter. We look forward to working with EPA to finalize this designation. Should you require additional information or wish to discuss this recommendation further, please do not hesitate to contact Pamela Atcitty at 951-755-5176 or email patcitty@morongo-nsn.gov.

Sincerely,

Charles Martin, Chairman
Morongo Band of Mission Indians

cc: Pamela Atcitty, Environmental Specialist II/Tribal Air Program
Matt Lakin, Air and Radiation Division Director, EPA Region 9
Anita Lee, Assistant Director, Air and Radiation Division, EPA Region 9

State of Mississippi

TATE REEVES
Governor

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

CHRIS WELLS, EXECUTIVE DIRECTOR

February 7, 2025

Ms. Jeananne Gettle, Acting Regional Administrator
U.S. Environmental Protection Agency – Region 4
61 Forsyth Street, S.W.
Atlanta, GA 30303-3104

Re: Mississippi Designations for the 2024 Primary Annual Fine Particulate ($PM_{2.5}$) National Ambient Air Quality Standard

Dear Ms. Gettle:

On February 7, 2024, the U.S. Environmental Protection Agency (EPA) promulgated a revision to the primary annual National Ambient Air Quality Standard (NAAQS) for particulate matter less than 2.5 microns in diameter ("$PM_{2.5}$") from 12.0 to 9.0 micrograms per cubic meter ($\mu g/m^3$). With this promulgation, the Governor of each State is required to submit area designation recommendations within one (1) year of the revision (i.e., February 7, 2025) in accordance with Section 107(d) of the Federal Clean Air Act.

For the State of Mississippi, the Mississippi Department of Environmental Quality (MDEQ) is charged with monitoring ambient air quality and ensuring our compliance with all national standards through the operation of an EPA-approved ambient air regulatory monitoring network. Regarding the revised $PM_{2.5}$ national standard, seven (7) monitoring sites within the denoted monitoring network have been dedicated to the collection of quality-assured ambient $PM_{2.5}$ data.

In coordination with MDEQ in their assessment of annualized ambient $PM_{2.5}$ data (i.e., "design values") from the seven (7) monitoring sites for the three-year period of calendar years 2021 through 2023, I hereby make the following recommendations for the State of Mississippi:

1. **I recommend that the counties of Bolivar, Harrison, Desoto, Hinds, Jackson, and Hancock be designated as "in-attainment" of the revised primary annual $PM_{2.5}$ NAAQS.**

   This recommendation is based on MDEQ's calculation of the respective three-year average design value for the following monitoring sites, which demonstrate that the ambient air quality for the corresponding areas is either at or below the revised $PM_{2.5}$ national standard: Cleveland (AQS I.D. 28-011-0002); Gulfport (AQS I.D. 28-047-0008); Hernando (AQS I.D. 28-033-0002); Jackson (AQS I.D. 28-049-0021). Pascagoula (AQS I.D. 28-059-0007); Waveland (AQS I.D. 28-045-0003).

2. **I recommend that the county of Forrest be designated as "in-attainment" of the revised primary annual $PM_{2.5}$ NAAQS.**

While the calculated three-year average design value for the monitoring site located in Hattiesburg (AQS I.D. 28-035-0004) indicates an exceedance of the revised $PM_{2.5}$ national standard (specifically 9.2 $\mu g/m^3$), I make this recommendation in consideration of the exceptional events demonstration that MDEQ has completed in accordance with Federal regulation 40 CFR 50.14 and attached herein (see "**Attachment C**"). With EPA's expected review and concurrence of MDEQ's request to exclude certain ambient $PM_{2.5}$ data, my recommendation will be further supported by a resulting revised three-year average design value of 8.7 $\mu g/m^3$.

3. **I recommend that the area corresponding to the Jackson NCORE monitoring site (AQS I.D. 28-049-0020) be designated as "in attainment / unclassifiable" of the revised primary annual $PM_{2.5}$ NAAQS.**

   While the calculated three-year average design value for this referenced monitoring site indicates an exceedance of the revised $PM_{2.5}$ national standard (specifically 9.3 $\mu g/m^3$), I make this recommendation in consideration of MDEQ's preliminary analysis of ambient $PM_{2.5}$ data collected for calendar year 2024. While ambient $PM_{2.5}$ data for calendar year 2024 has not yet been quality-assured and certified, MDEQ is confident in their assessment of this data for which EPA will use for its final area designation determinations. Therefore, my recommendation will be further supported by a resulting three-year average design value that equals to or below the revised $PM_{.2.5}$ national standard based on calendar years 2022 through 2024.

4. **I recommend that all remaining counties within Mississippi that do not have a corresponding ambient $PM_{2.5}$ monitoring site be designated as "attainment / unclassifiable", which is consistent with historical EPA designation practices.**

We believe these designation recommendations appropriately reflect current air quality conditions across Mississippi while accounting for demonstrable exceptional events and anticipated improvements in monitored values. Moreover, MDEQ's ambient air regulatory monitoring network continues to both demonstrate Mississippi's initiative to maintain compliance with all national standards and reinforce the effectiveness of the State's air quality management programs. As aforementioned, the enclosed attachments provide detailed supporting documentation for these recommendations.

We will continue to work closely with EPA during their review process and stand ready to provide any additional information needed to support these recommendations.

Thank you for your consideration of these recommendations

Sincerely,

Tate Reeves

Governor Tate Reeves
State of Mississippi

ATTACHMENT A

STATE OF MISSISSIPPI 2024 PRIMARY ANNUAL FINE PARTICULATE MATTER ($PM_{2.5}$) NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS) STATE DESIGNATIONS

The following table identifies Mississippi areas and the State of Mississippi's designations for the 2024 annual $PM_{2.5}$ NAAQS:

Designation	Areas
Attainment	Hattiesburg[2] DeSoto Cleveland Jackson NCORE[1] Hinds Community College Waveland Gulfport Pascagoula
Attainment / Unclassifiable	Remainder of State

[1] Current design value of 9.3 µg/m³ expected to be below 9.1 µg/m³ when 2024 T640x monitoring data is quality assured and certified.

[2] Attainment based on MDEQ's assessment of exceptional events that occurred during calendar years 2022 and 2023. With the exclusion of days impacted by exceptional events, the three-year average design value for calendar years 2021 through 2023 is expected to be less than 9.0 µg/m³.

Date	Site – AQS I.D.	Type of Event	Exceedance Concentration (µg/m³)
February 15 - 16, 2022	28-035-0004	Prescribed Fire	18.4, 17.1
March 3 - 5, 2022	28-035-0004	Prescribed Fire	22.5, 35.5, 27.7
April 4, 2022	28-035-0004	Prescribed Fire	16.8
May 12, 2022	28-035-0004	Wildfire	18.5
June 13 - 15, 2022	28-035-0004	Saharan Dust	30.4, 23.3, 20.1
September 20, 2022	28-035-0004	Wildfire	18.8
October 10 - 11, 2022	28-035-0004	Prescribed Fire	21.0, 25.9
November 2 - 3, 2022	28-035-0004	Prescribed Fire	15.5, 18.7
February 28, 2023	28-035-0004	Prescribed Fire	20.0
March 5, 2023	28-035-0004	Prescribed Fire	20.2
March 6 - 9, 2023	28-035-0004	Mexico/Central American Wildfire	24.7, 19.7, 30.8, 22.8
March 21, 2023	28-035-0004	Prescribed Fire	25.7
May 21 - 26, 2023	28-035-0004	Canadian Wildfire	16.9-23.9
June 9 - 10, 2023	28-035-0004	Canadian Wildfire	18.5, 17.2
June 30 - July 1, 2023	28-035-0004	Canadian Wildfire	17.1, 18.4
July 25 - 29, 2023	28-035-0004	Canadian Wildfire	14.4-19.3
August 18 - 23, 2023	28-035-0004	Canadian Wildfire	14.9-19.0
August 24 - 27, 2023	28-035-0004	Wildfire	21.8, 18.1, 22.8, 23.2
September 8 - 9, 2023	28-035-0004	Canadian Wildfire	16.7, 17.2
October 3 - 5, 2023	28-035-0004	Canadian Wildfire	14.7, 31.0, 19.6

ATTACHMENT B

CERTIFIED 2021-23 ANNUAL AVERAGE FINE PARTICULATE MATTER ($PM_{2.5}$) DESIGN VALUES FOR REGULATORY MONITORS IN THE STATE OF MISSISSIPPI

The Mississippi Department of Environmental Quality (MDEQ) calculated the 2021-23 average annual $PM_{2.5}$ design values for all monitoring sites within the State of Mississippi with regulatory $PM_{2.5}$ monitors in support of state designations for the 2024 primary annual $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS). The 2021-23 average primary annual $PM_{2.5}$ design values were calculated with certified ambient $PM_{2.5}$ data collected during calendar years 2021 through 2023.

2021-2023 Average Primary Annual $PM_{2.5}$ Design Values (by Monitor Location)

Monitor Location	Certified $PM_{2.5}$ Design Value (in µg/m³)
Hattiesburg	9.2*
Jackson NCORE	9.3**
DeSoto	8.7
Cleveland	8.2
Hinds Community College	8.8
Waveland	7.8
Gulfport	8
Pascagoula	7.6

* With the exclusion of days impacted by exceptional events the occurred during calendar years 2022 and 2023, the 2021-23 average design value is expected to be less than 9.0 micrograms per cubic meter.

** Expected to be at or below 9.0 µg/m³ when ambient $PM_{2.5}$ data collected during calendar year 2024 is quality-assured and certified.

Source: U.S. Environmental Protection Agency Air Quality System database (https://www.epa.gov/aqs)

ATTACHMENT C

FINAL EXCEPTIONAL EVENTS DEMONSTRATION FOR $PM_{2.5}$ EXCEEDANCES IN HATTIESBURG, MISSISSIPPI (2022-2023)

Hattiesburg, Mississippi PM2.5 Exceptional Event Demonstration
Years: 2022 and 2023
Concurrence Request
Submitted to: EPA, Region 4
Prepared by: Rodney Cuevas, Mississippi Department of Environmental Quality
Date: December 2024

Table of Contents

Executive Summary

Overview

The Mississippi Department of Environmental Quality (MDEQ) requests EPA's concurrence on excluding PM2.5 concentration data from multiple exceptional events that affected the Hattiesburg monitoring site (AQS ID: 28-035-0004) during 2022 and 2023. These events significantly impacted the monitor's design value for the 2024 annual PM2.5 NAAQS.

Current Design Value (2021-2023): 9.2 μg/m^3

Exceptional Events Summary

1. Prescribed Fire Events (2022)

Date	Concentration (Ug/m3)
February 15-16	18.4, 17.1
March 3-5	22.5, 35.5, 27.7
April 4	16.8
October 10-11	21.0, 25.9
November 2-3	15.5, 18.7

2. Wildfire Events (2022)

Date	Concentration (Ug/m3)
May 12	18.5
September 20	18.8

3. Saharan Dust Event (2022)

Date	Concentration (Ug/m3)
June 13-15	30.4, 23.3, 20.1

4. Prescribed Fire Events (2023)

Date	Concentration (Ug/m3)
February 28	20.0
March 5	20.2
March 21	25.7

5. Mexico/Central American Wildfire (2023)

Date	Concentration (Ug/m3)
March 6-9	24.7, 19.7, 30.8, & 22.8

6. Canadian Wildfire Events (2023)

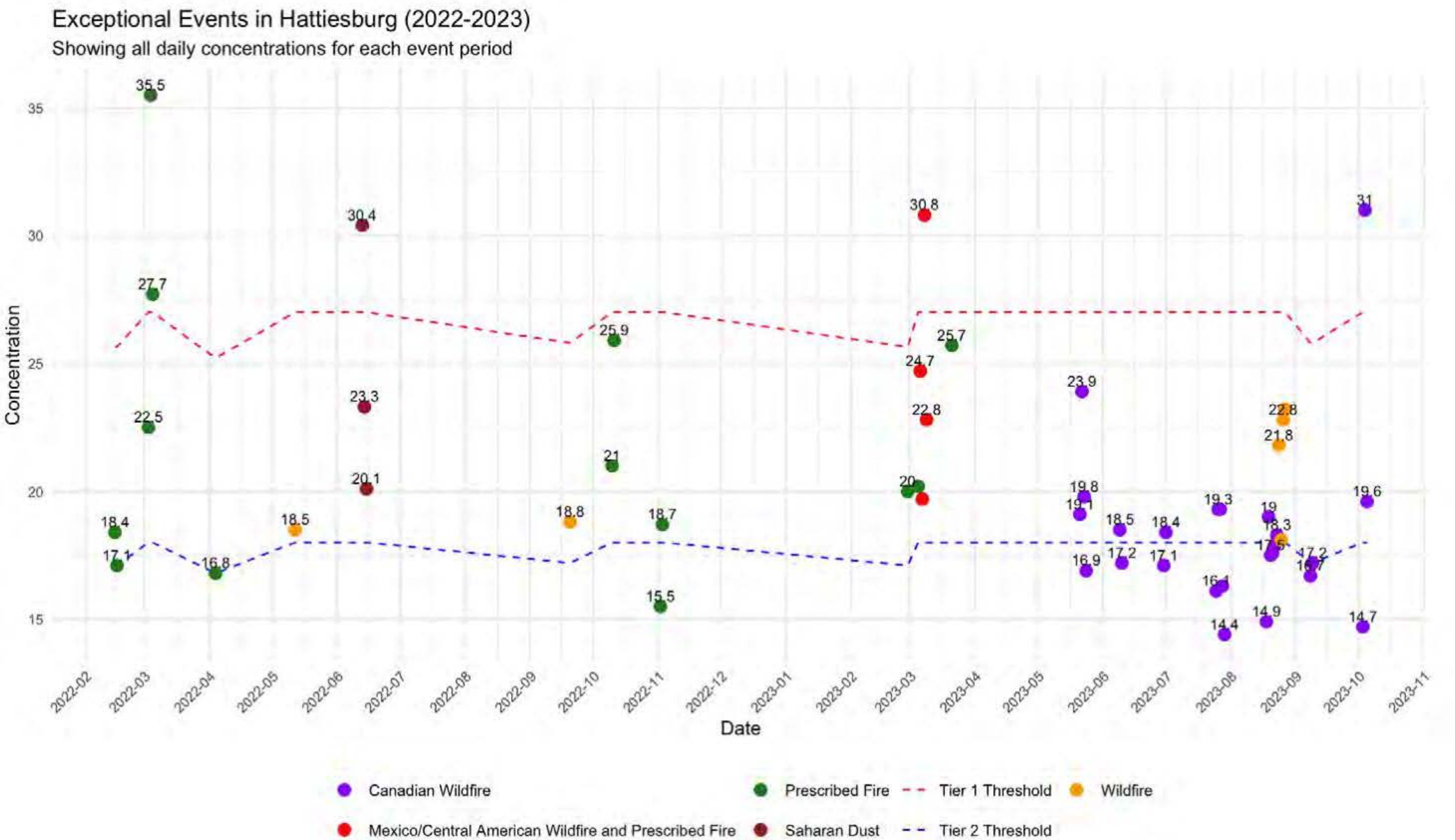
Date	Concentration Range (Ug/m3)
May 21-26	16.9-23.9
June 9-10	18.5, 17.2
June 30-July 1	17.1, 18.4
July 25-29	14.4-19.3
August 18-23	14.9-19.0
September 8-9	16.7, 17.2
October 3-5	14.7, 31.0, 19.6

7. Local/Regional Wildfire Events (2023)

Date	Concentration Range (Ug/m3)
August 24-27	21.8, 18.1, 22.8, 23.2

Exceptional Event Summary Table

Date_of_Event	Event_Type	AQS_Flag	Site_AQS_ID	Site_Name	Exceedance_Concentration	Tiers	Tier_1_Value	Tier_2_Value
February 15-16, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	18.4, 17.1	2	25.65	17.1
March 3-5, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	22.5, 35.5, 27.7	1, 2	27	18
April 4, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	16.8	2	25.2	16.8
May 12, 2022	Wildfire	RT	28-035-0004	Hattiesburg	18.5	2	27	18
June 13-15, 2022	Saharan Dust	RA	28-035-0004	Hattiesburg	30.4, 23.3, 20.1	2	27	18
September 20, 2022	Wildfire	RT	28-035-0004	Hattiesburg	18.8	2	25.8	17.2
October 10-11, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	21.0, 25.9	2	27	18
November 2-3, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	15.5, 18.7	2, 3	27	18
February 28, 2023	Prescribed Fire	RM	28-035-0004	Hattiesburg	20.0	2	25.65	17.1
March 5, 2023	Prescribed Fire	RM	28-035-0004	Hattiesburg	20.2	2	27	18
March 6-9, 2023	Mexico/Central American Wildfire and Prescribed Fire	RG/RM	28-035-0004	Hattiesburg	24.7, 19.7, 30.8, 22.8	1, 2	27	18
March 21, 2023	Prescribed Fire	RM	28-035-0004	Hattiesburg	25.7	2	27	18
May 21-26, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	19.1, 23.9, 19.8, 16.9	2, 3	27	18
June 9-10, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	18.5, 17.2	2, 3	27	18
June 30-July 1, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	17.1, 18.4	2, 3	27	18
July 25-29, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	16.1, 19.3, 19.3, 16.3, 14.4	2, 3	27	18
August 18-23, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	14.9, 19.0, 17.5, 17.6, 17.9, 18.3	2, 3	27	18
August 24-27, 2023	Wildfire	RT	28-035-0004	Hattiesburg	21.8, 18.1, 22.8, 23.2	2, 3	27	18
September 8-9, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	16.7, 17.2	2, 3	25.8	17.2
October 3-5, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	14.7, 31.0, 19.6	1, 2, 3	27	18


Exceptional Events in Hattiesburg (2022-2023)
Showing all daily concentrations for each event period
Concentration
Date
35.5
30.4
30.8
31
27.7
25.9
25.7
24.7
23.9
23.3
22.5
22.8
22.8
21.8
21
20.1
20
19.8
19.1
19.6
19.3
19
18.3
18.4
18.5
18.8
18.7
18.5
18.4
17.1
16.8
17.2
17.1
16.9
17.5
17.2
16.7
16.1
15.5
14.4
14.9
14.7
Canadian Wildfire
Prescribed Fire
Tier 1 Threshold
Wildfire
Mexico/Central American Wildfire and Prescribed Fire
Saharan Dust
Tier 2 Threshold

Supporting Documentation

Each event is supported by comprehensive evidence including:

- Satellite imagery showing smoke/dust plumes.
- HYSPLIT trajectory analyses demonstrating transport.
- Surface meteorological data.
- Upper air analyses.
- Historical concentration comparisons.

Event Characteristics

The events were characterized by:

- Clear transport pathways from source to monitor.
- Concentrations significantly above historical baselines.
- Strong meteorological evidence supporting transport and impacts.
- Multiple lines of evidence establishing clear causal relationships.

Impact Analysis

These exceptional events contributed to elevated annual PM2.5 concentrations, particularly in 2023 where the annual mean reached 10.0 Ug/m3. Excluding these documented exceptional events would lower the 2021-2023 design value to 8.7 Ug/m, bringing the Hattiesburg area into compliance with the 2024 annual PM2.5 NAAQS.

EPA Exceptional Events Criteria

The demonstration provides evidence that each event meets EPA's criteria:

1. Affects air quality.
2. Not reasonably controllable or preventable.
3. Clear causal relationship exists.
4. Natural event or human activity unlikely to recur.
5. Documentation meets EPA requirements including public comment.

Not Reasonably Controllable or Preventable Criterion Analysis

The prescribed fires in question were conducted in accordance with Mississippi's Voluntary Smoke Management Guidelines (https://www.mfc.ms.gov/wp-content/uploads/2022/08/Voluntary_Smoke_Management_Guidelines_2022.pdf) and followed appropriate Basic Smoke Management Practices (BSMP) as outlined in both EPA's 2019 Exceptional Events Guidance for Prescribed Fires and Mississippi's guidelines. Specifically, the burns implemented the following BSMP:

1) Not Reasonably Controllable (Using Basic Smoke Management Practices)
    - Evaluation of smoke dispersion conditions prior to ignition
    - Monitoring of smoke effects on air quality during the burn
    - Record-keeping through burn/smoke journals
    - Public notification to potentially affected populations
    - Implementation of emission reduction techniques
    - Coordination of area burning with appropriate authorities

    These practices align with Table 2 of EPA's 2019 Prescribed Fire guidance document (page 24) for demonstrating the burns were not reasonably controllable. The burns were conducted under Mississippi Forestry Commission permits, which require adherence to daily guides consisting of mixing height and transport wind speed parameters to ensure adequate smoke dispersion.

2) Not Reasonably Preventable (Using Land Management Plans):

The prescribed fires were not reasonably preventable as they were conducted pursuant to established land management objectives for maintaining forest health and reducing hazardous fuel loads. According to Mississippi's natural fire regime, as documented in the state's Voluntary Smoke Management Guidelines, prescribed fire is essential to:

- Reduce naturally occurring vegetative fuels within wildland areas to decrease risk of catastrophic wildfire
- Maintain ecological integrity of fire-dependent natural communities
- Prepare sites for reforestation and control competing vegetation

The fire return interval for this region, based on [specific reference to applicable management plan], indicates a natural fire cycle of [X-Y] years. The prescribed burns in question were conducted within this natural return interval and were necessary to maintain sustainable and resilient wildland ecosystems, as outlined in Section A.4.4 of EPA's 2019 Prescribed Fire guidance.

These burns represent a property right and land management tool recognized under Mississippi's Prescribed Burning Act (§49-19-301), which specifically acknowledges prescribed burning as essential for perpetuation, restoration, and management of many plant and animal communities.

Natural Events Classification and Historical Return Intervals Criterion Analysis

This section addresses the requirements at 40 CFR 50.14(c)(3)(iv)(E) regarding the classification of events as either natural or human activities unlikely to recur at a particular location. The PM2.5 exceedances in Hattiesburg, Mississippi were caused by two natural events: (1) long-range transport of Saharan dust and (2) wildfire smoke impacts.

Saharan Dust as a Natural Event

The Saharan dust events affecting Hattiesburg represent a well-documented natural phenomenon known as the Saharan Air Layer (SAL). This occurs when wind patterns transport mineral dust from the Sahara Desert across the Atlantic Ocean to the southeastern United States. The SAL typically forms between late spring and early fall when millions of tons of dust are lifted by strong winds and thermal convection over North Africa. This dust-laden air mass:

- Travels at an altitude of approximately 5,000 to 20,000 feet
- Moves westward within the trade wind system
- Can transport approximately 60-200 million tons of dust annually
- Typically impacts the southeastern United States during June-August
- Creates natural background PM2.5 elevations that cannot be reasonably controlled

Natural Fire Regime and Historical Evidence

Historical fire frequency data strongly supports the natural occurrence of fire in the Hattiesburg region. According to Guyette et al. (2012), the natural mean fire return interval (MFI) for this region historically ranged from 4-6 years, as demonstrated in the continental U.S. fire frequency mapping. This scientific assessment is based on the Physical Chemistry Fire Frequency Model (PC2FM), which incorporates:

- Temperature influences on fire ignition and spread
- Precipitation patterns affecting fuel accumulation and moisture
- Partial pressure of oxygen impacting combustion
- Historical data from the pre-industrial period (1650-1850 CE)

- Spatial resolution of approximately 1.2 km^2 areas

The relatively short fire return interval (4-6 years) for the Hattiesburg area reflects the region's:

- Warm subtropical climate
- Historical lightning strike patterns
- Natural vegetation assemblages adapted to periodic fire
- Seasonal dry periods conducive to natural ignition
- Topographic and meteorological conditions favoring fire spread

Classification Conclusion

Both the Saharan dust transport and wildfire events meet the criteria for natural events as defined in the Exceptional Events Rule, as neither resulted from controllable human activity. These natural mechanisms for generating and transporting particulate matter:

- Cannot be reasonably controlled through human intervention at the source
- Follow documented natural patterns and frequencies
- Are supported by extensive scientific literature and historical data
- Cannot be prevented through normal air quality management strategies
- Represent fundamental Earth system processes rather than anthropogenic activities

The combination of these natural events created conditions leading to the PM2.5 exceedances in Hattiesburg during the period in question, satisfying the natural event criteria under 40 CFR 50.14(c)(3)(iv)(E).

Mitigation Criterion

Mississippi fulfills the public notification requirement under 40 CFR 51.930(a)(1). Here's a clear explanation: Mississippi Department of Environmental Quality (MDEQ) maintains a comprehensive public notification system for air quality events through multiple channels:

- Primary Notification System – Enviroflash: MDEQ uses Enviroflash as its primary notification platform to provide:
- Daily 3-day forecasts for both Ozone and PM2.5
- Coverage for key areas including DeSoto County, Jackson Metro Area, and MS Gulf Coast
- Forecast notifications by 2:45 PM daily, seven days per week
- Customizable alert thresholds for subscribers
- Multi-Channel Distribution To ensure widespread public access, MDEQ distributes air quality forecasts and alerts through:
- Email notifications via Enviroflash
- MDEQ Twitter Page
- MDEQ Website
- AirNow Mobile App integration

Proactive Monitoring and Extended Coverage MDEQ demonstrates commitment to early warning by:

- Extending the forecasting season to begin March 1st instead of the traditional April 1st start
- Continuously monitoring air quality trends to adjust forecasting periods
- Providing immediate notification when conditions may affect sensitive groups
- Action-Oriented Alerts When elevated levels are detected or anticipated, notifications include specific action items:
- Implementation requirements for DeSoto and MS Gulf Coast Ozone Precursor Reduction Program members

- Burning restrictions during code orange days
- Health advisories for sensitive populations
- Accessibility and Public Engagement MDEQ ensures broad public access through:
- Free subscription service
- Easy enrollment process
- Multiple notification threshold options
- Simple account management features
- Partner and stakeholder engagement

This comprehensive system fulfills and exceeds the mitigation requirement by providing prompt, accessible, and actionable notifications whenever an event occurs or is reasonably anticipated to occur that may result in exceedance of applicable air quality standards.

Request

MDEQ requests EPA's concurrence on these exceptional events to support appropriate regulatory determinations for the Hattiesburg area under the 2024 annual PM2.5 NAAQS.

Introduction

The Mississippi Department of Environmental Quality (MDEQ) has prepared this exceptional events demonstration to document how multiple exceptional events in 2022 and 2023 affected PM2.5 concentrations at the Hattiesburg monitoring site (AQS ID: 28-035-0004). This demonstration follows EPA's Exceptional Events Rule (EER) requirements and guidance, including the 2024 PM2.5 Wildland Fire Exceptional Events Tiering Document.

Concurrence Request Details

MDEQ requests EPA's concurrence on excluding PM2.5 concentration data from 20 distinct exceptional event periods that affected the Hattiesburg monitoring site during 2022 and 2023. These exclusions are regulatory significance as they affect:

- Attainment status under the 2024 revised annual PM2.5 NAAQS.
- The area's 2021-2023 design value calculation.

Current monitoring data shows:

- 2021-2023 Design Value: 9.2 μg/m^3.
- 2023 Annual Mean: 10.0 μg/m^3.
- Design Value with Requested Exclusions: 8.7 μg/m^3.

The events include:

2022 Events (8 total):

- Five prescribed fire events.
- Two wildfire events.
- One Saharan dust event.
- Concentrations ranging from 15.5 to 35.5 μg/m^3.

2023 Events (12 total):

- Three prescribed fire events.
- Seven Canadian wildfire events.
- Two regional wildfire events.
- Concentrations ranging from 14.4 to 31.0 μg/m^3.

Each event in this demonstration satisfies EPA's exceptional events criteria by showing:

- Clear causal relationship between the event and monitored concentrations.
- Event was not reasonably controllable or preventable.
- Event was either a natural event or human activity unlikely to recur.
- All procedural requirements have been met.

Document Overview

This demonstration provides comprehensive technical evidence supporting the exclusion of identified PM2.5 concentration data through:

Historical Data Analysis

- Comparison to 5-year historical record.
- Seasonal and annual trends.
- Percentile rankings of event concentrations.

Clear Causal Relationship Evidence

- Tiered analysis following EPA's PM2.5 guidance.
- Transport pathway documentation.
- Multiple lines of supporting evidence.

Technical Tools and Analyses

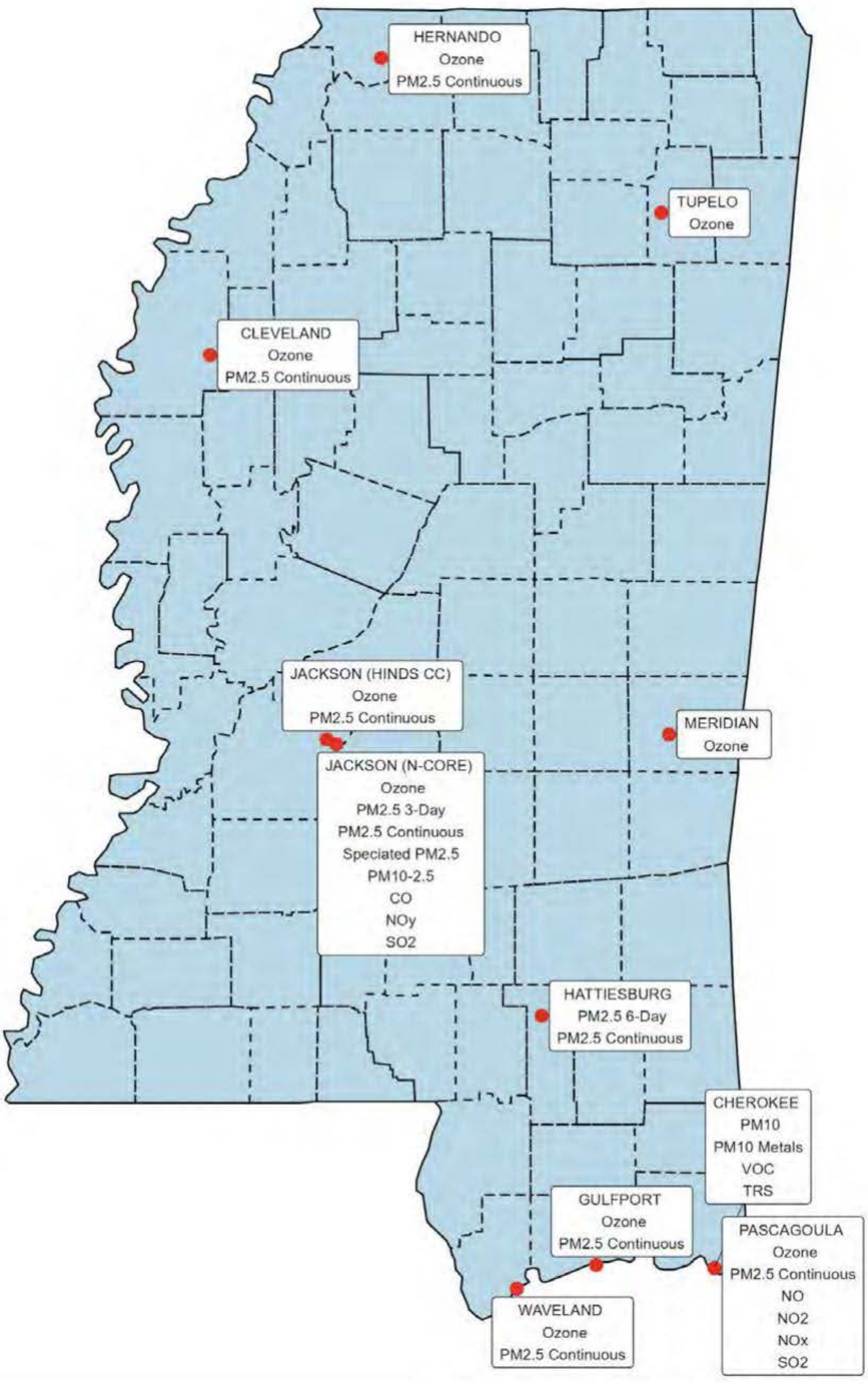
- HYSPLIT trajectory modeling.
- GOES satellite imagery.
- Surface meteorological data.
- Upper air analyses.
- Hour-by-hour concentration progressions.

The demonstration is organized chronologically by year and event, with each event analysis including:

- Event description and classification.
- Historical concentration comparisons.
- Clear causal relationship evidence.
- Transport pathway analysis.
- Meteorological conditions.
- Satellite imagery documentation.

Supporting documentation demonstrates how each event meets EPA's exceptional events criteria while establishing the regulatory significance of the requested data exclusions for the Hattiesburg area's attainment status under the 2024 annual PM2.5 NAAQS.

2024 MDEQ Air Monitoring Network



2022 Exceptional Events

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
February 15 and 16, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	18.4, 17.1	2	Prescribed Fire an Exceptional Event Demonstration: February 15 and 16, 2022

Synopsis: A cold front moved through on February 12th, followed by high pressure positioning directly overhead on February 14th and 15th, leading to light winds and stagnant surface conditions. During this period, multiple prescribed fires were ongoing in the southeast. Strong nocturnal inversions on the morning of the 15th, as well as another strong nocturnal inversion developing on the evening of the 15th, trapped smoke from prescribed fires close to the surface. This resulted in spike in hourly PM2.5 values during these two timeframes, contributing to a 24-hour daily average of 18.4 μg/m^3 at the Hattiesburg monitor on the 15th.

Tuesday, February 15, 2022

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 0228Z February 15, 2022

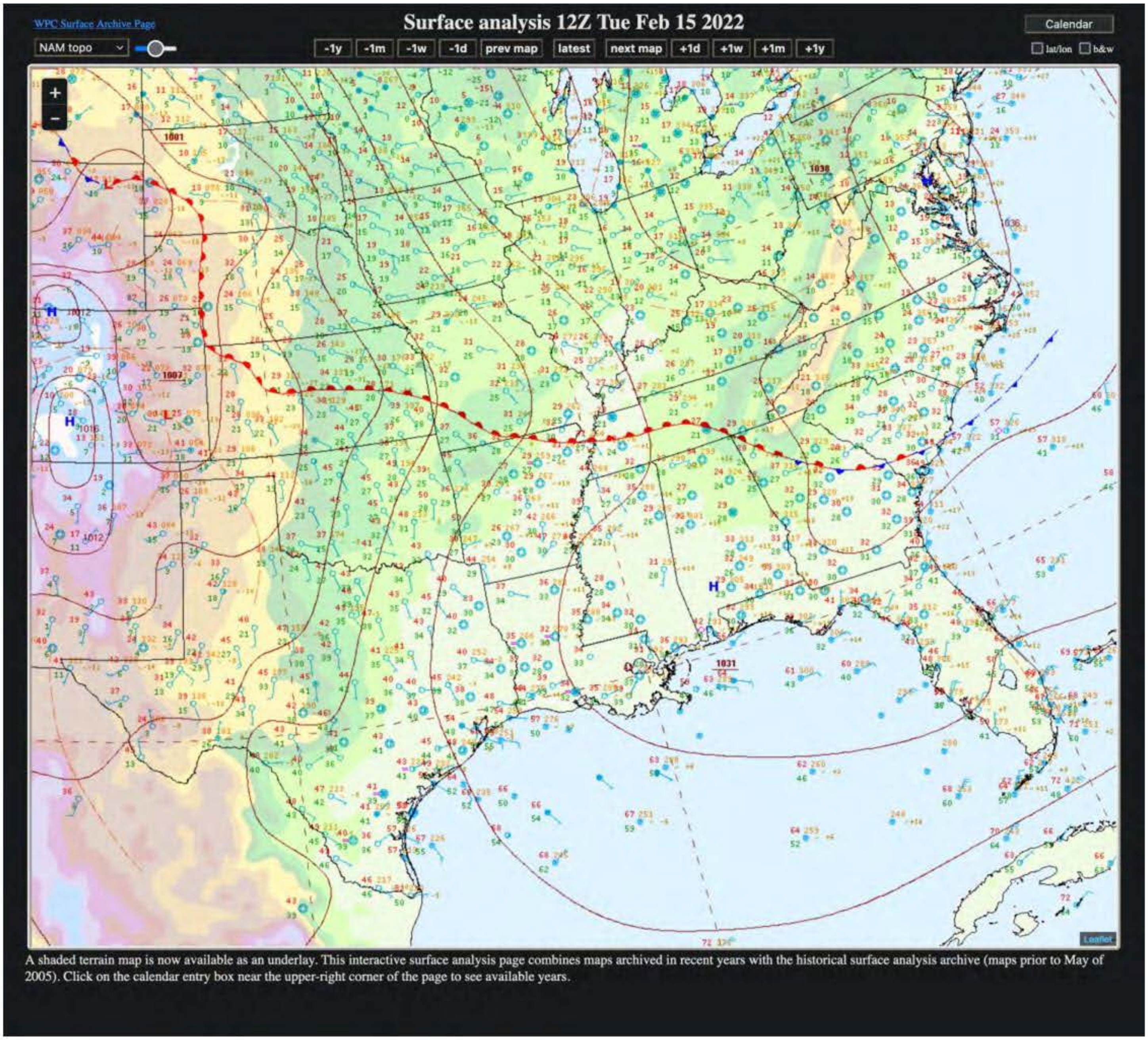
SMOKE:
South-central, Southeastern U.S...
Widespread agricultural burning activity was observed throughout the eastern South-central and southeastern United States. In the southeastern U.S. numerous fires blanketed the area with light density smoke that included large swaths of moderate heavy density smoke. The burning area starts in eastern Texas and continues east through the Gulf states ending in southern Virginia and the smoke in this area is generally moving northeast. Heavier areas of smoke were observed in the Florida panhandle, Alabama, Georgia, and South Carolina. Some heavier smoke could be present in Louisiana, Texas and Arkansas but cloud cover had moved in by this evening.

SMOKE/AEROSOL:
Bay of Campeche/Gulf of Mexico/Southern and Eastern Mexico/Northwestern Central America/Pacific Ocean South of Mexico and Central America...
The combination of thin density smoke from seasonal fires in Mexico and significant smoke contributions from Central America and other atmospheric pollutants including aerosols from oil and gas flaring and other industries in the region was visible today over the western the Bay of Campeche, western Gulf of Mexico, portions of southern and eastern Mexico, western Mexico off Baja California, northwestern Central America, and the Pacific Ocean off the southern and western coast of Mexico and Central America.

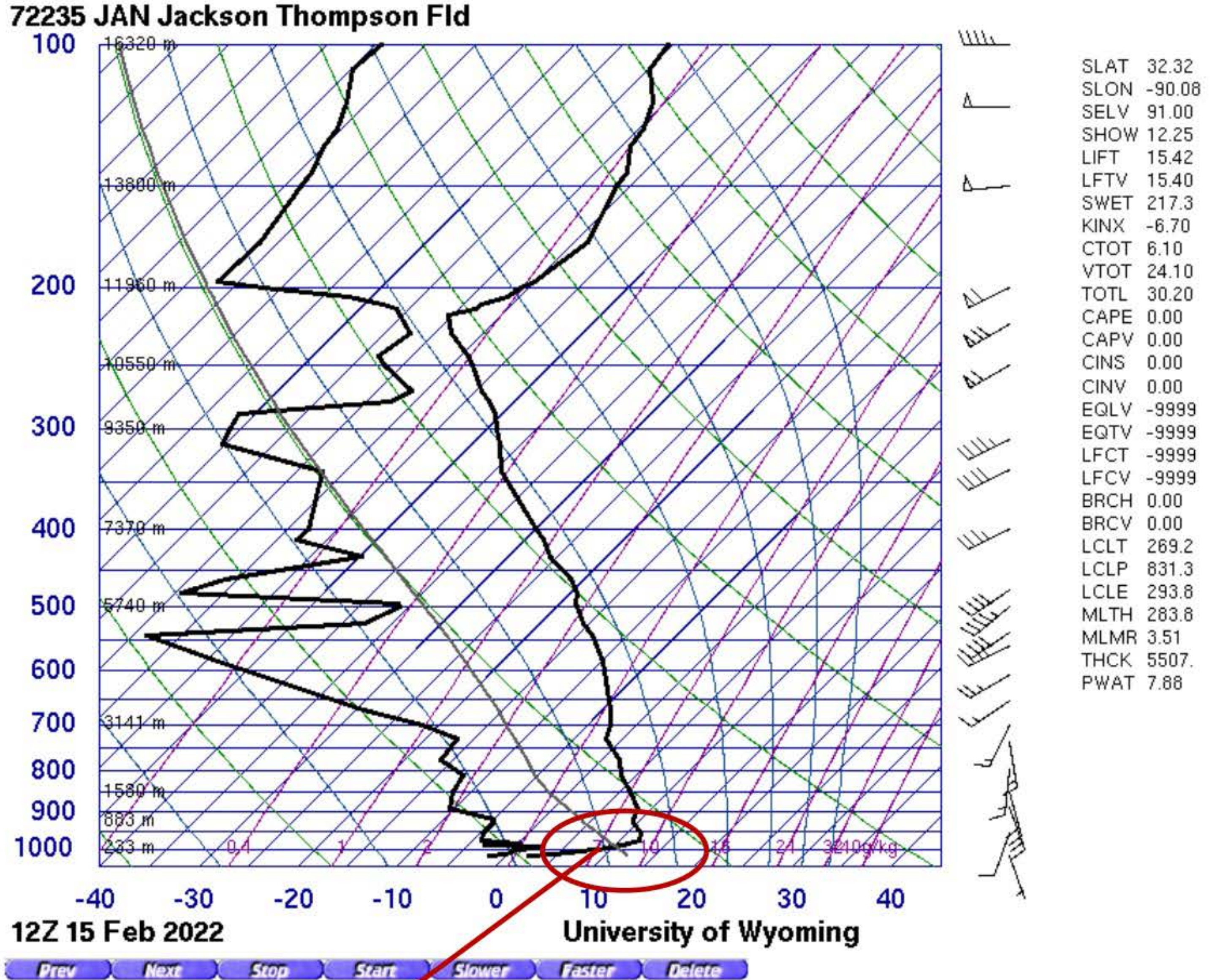
BLOWING DUST:
Arizona, New Mexico, Texas, Northwest Mexico...
Area's of generally light density blowing dust could be seen this evening in northwest Mexico, southern Arizona, the southern half of New Mexico, central and northern Texas. The dust was seen moving north or northeast as night approached.

Eglin

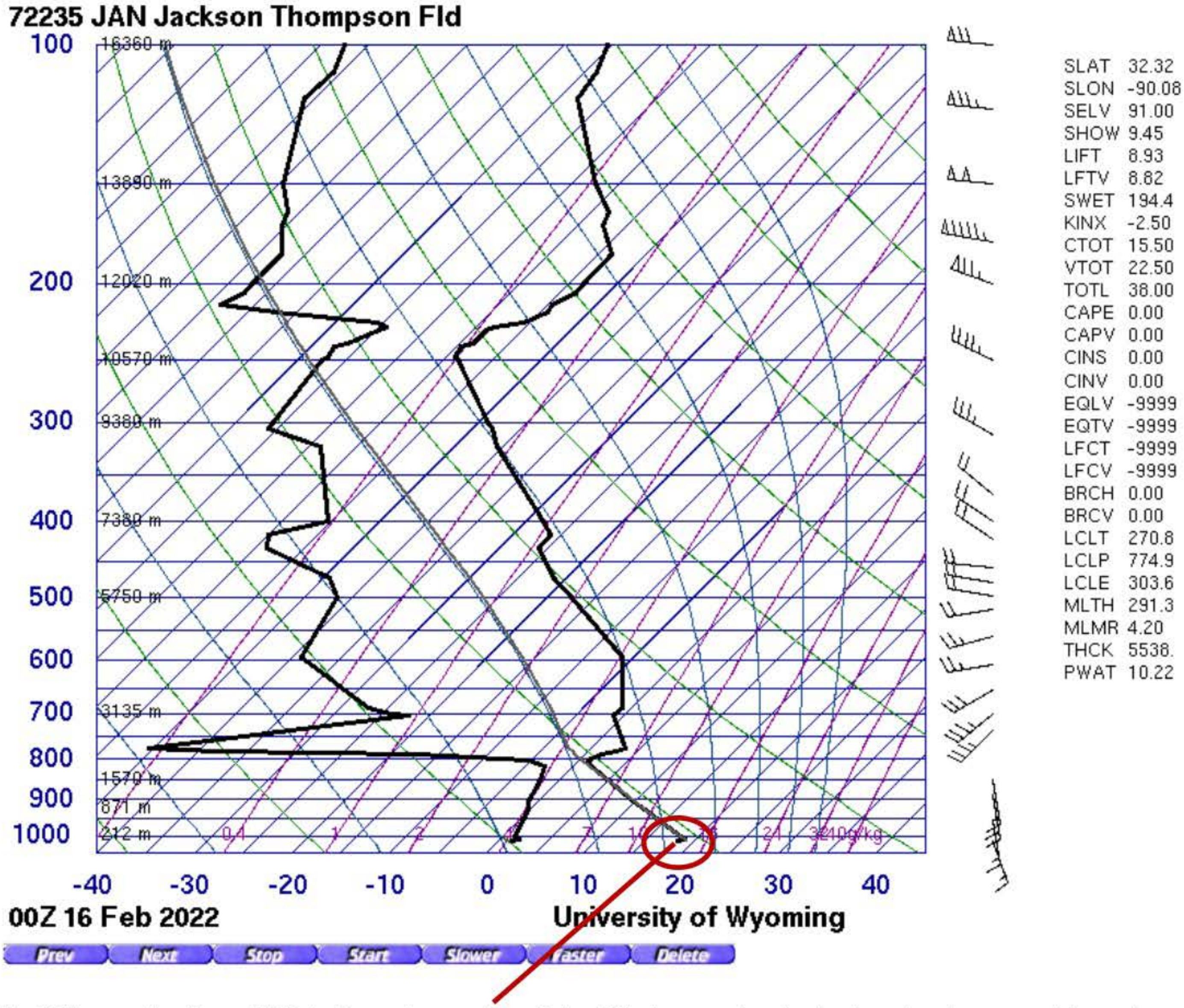
The 2022 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2022/2022B160229.html) narrative dated Feb 16th, 2022, at 0028Z (corresponding to February 15th, 2022, at 6:30 PM CDT) describes smoke from prescribed fires ongoing across the southeastern United States, which was responsible for elevated PM2.5 values.



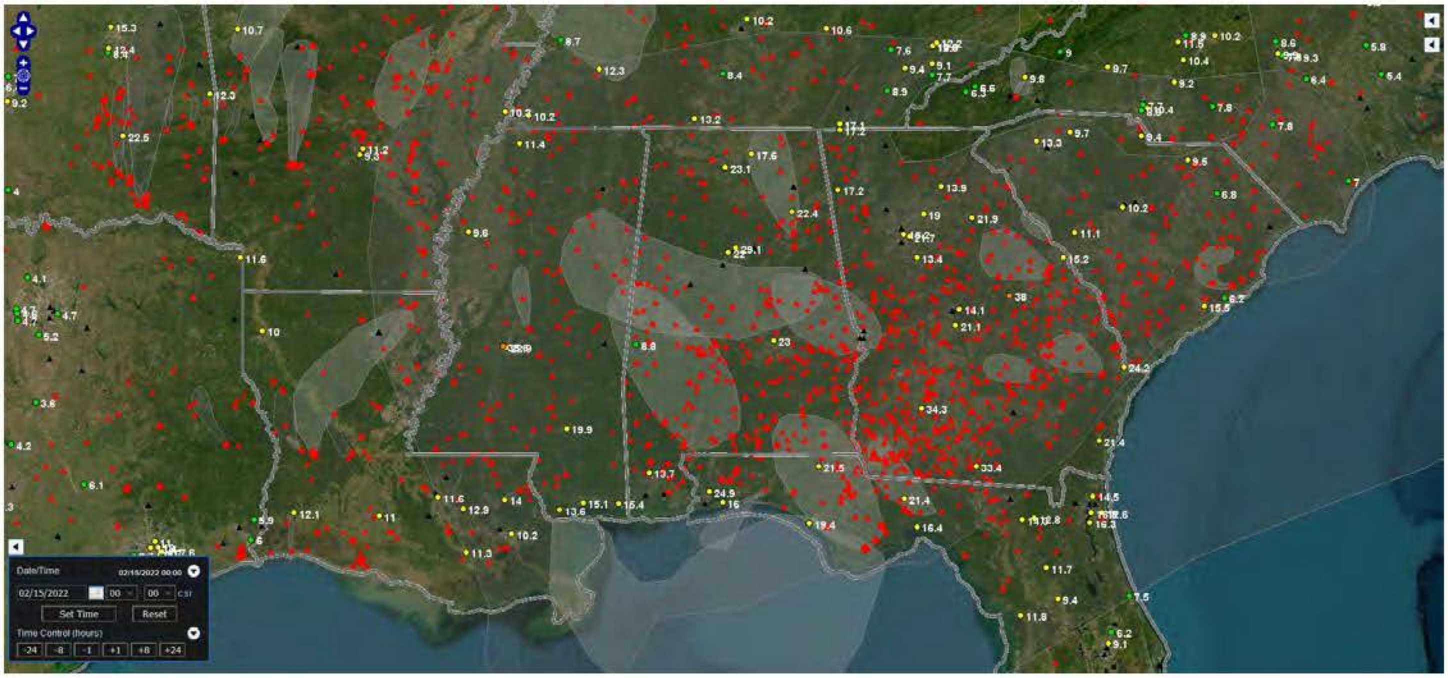
The 12Z surface analysis (February 15th, 2022, at 6 AM CDT) shows High Pressure centered over south-central Alabama, conducive for stagnant conditions, allowing for low level nocturnal inversion formation, helping to trap prescribed fire smoke close to the surface, elevating PM2.5 values, especially during the overnight hours.



The 12Z sounding from NWS Jackson the morning of the 15th shows Strong nocturnal resulting in trapping of smoke from previous days prescribed fires, increasing PM25 values.



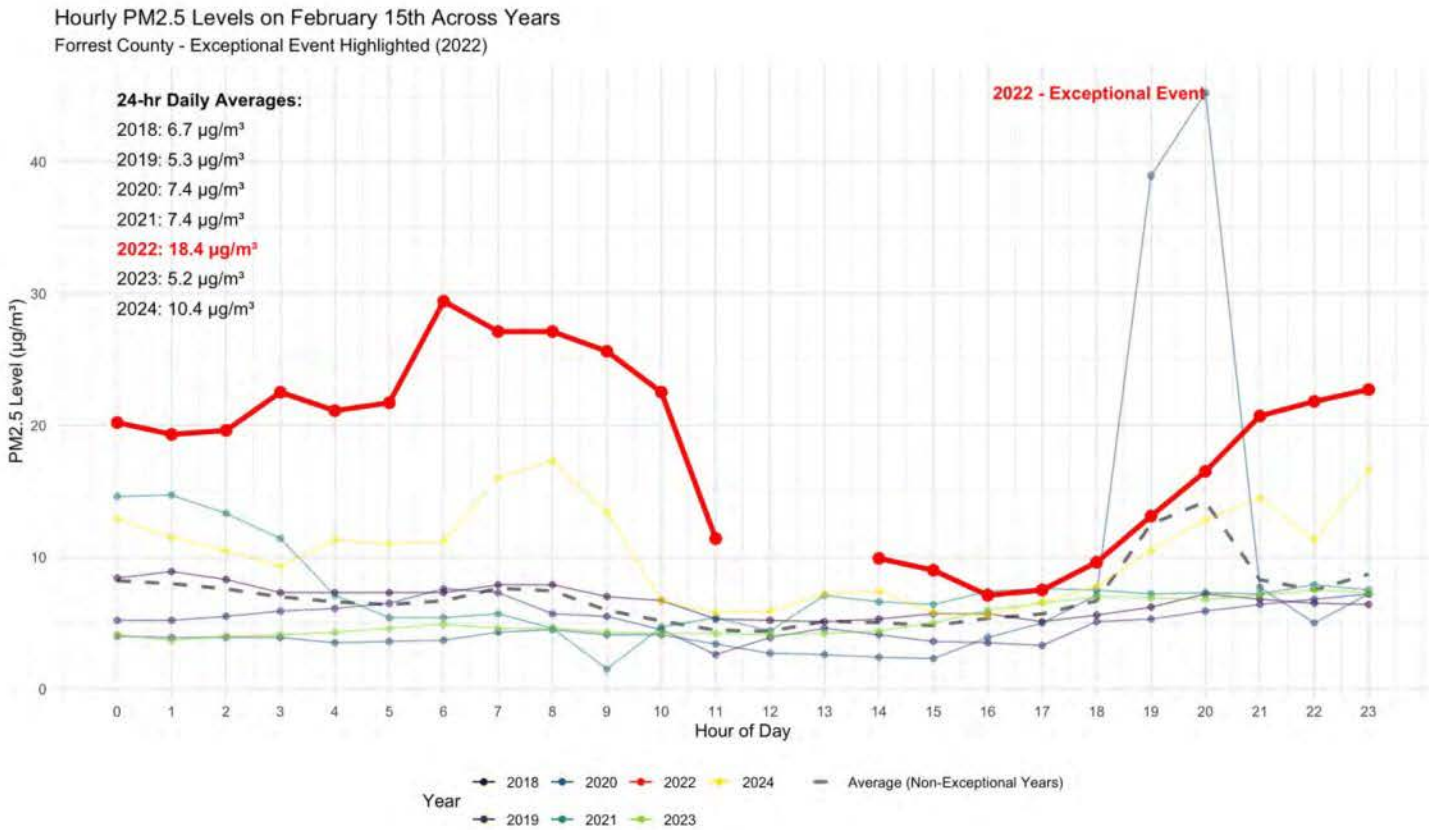
The 00Z sounding from NWS Jackson the evening of the 15th shows a developing low-level nocturnal inversion, as the sounding was launched at dusk. PM2.5 values decreased during peak heating with increasing mixing heights. However, due to ongoing prescribed burning on the 15th and continued strong high pressure in the area, PM2.5 values quickly increased during the evening and overnight hours, as pollutants were trapped near the surface by the re-development of the nocturnal inversion.



The AirNowTech Navigator image taken on, February 15th, 2022, above shows numerous ongoing prescribed fires across the southeast helping contribute to the smoke around the southeast, elevating PM2.5 values.

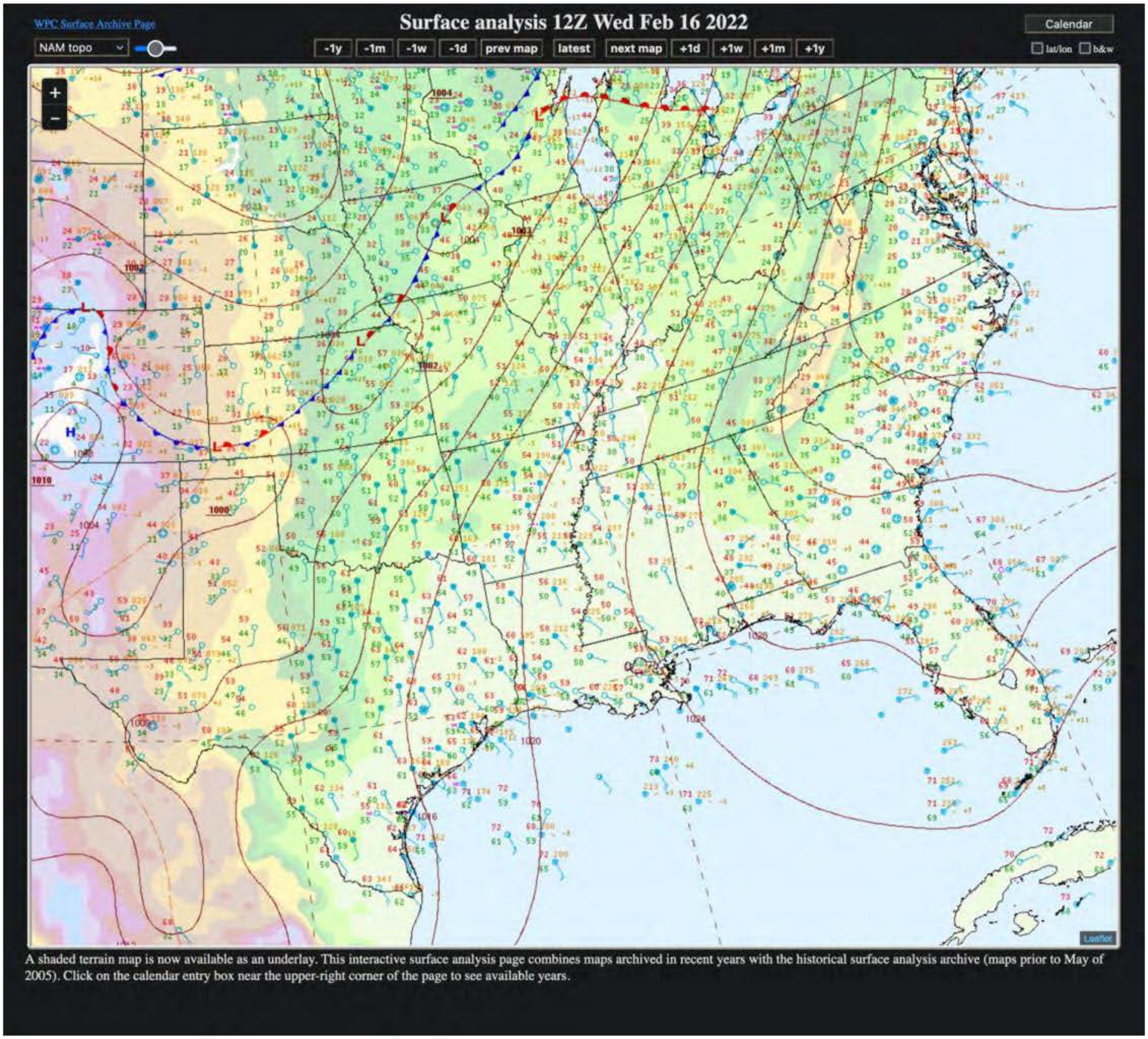
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	02/15/22	22.1	21.2	21.5	24.4	23	23.6	31.3	29	29	27.5	24.4	13.3	13.8	8.4	10.8	9.9	8.7	9.2	11.5	15	18.4	22.6	23.7	24.6	19.93	31.3

The Hattiesburg monitor's hourly PM2.5 values on February 15th began in the twenties and thirties, decreasing to the teens and single digits during peak heating of the day as mixing heights increased, improving ventilation. After sunset into the evening hours, redevelopment of a nocturnal inversion helped trap the day's prescribed fire smoke close to the surface once again, elevating PM2.5 values back into the twenties. This resulted in a daily average PM2.5 value of 19.93 μg/m^3 at the Hattiesburg monitor.

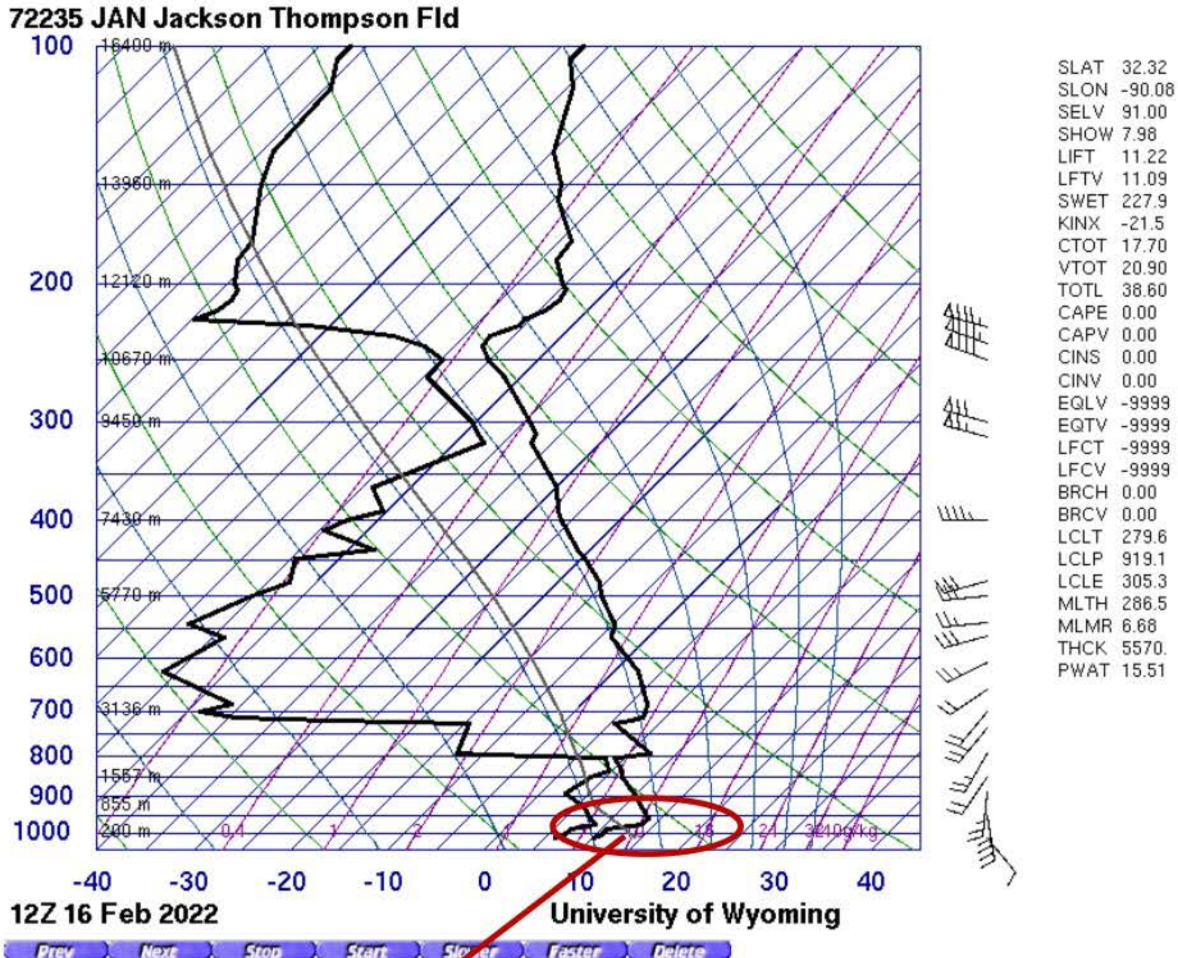


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the significantly higher values in 2022 compared to the average of non-exceptional years.

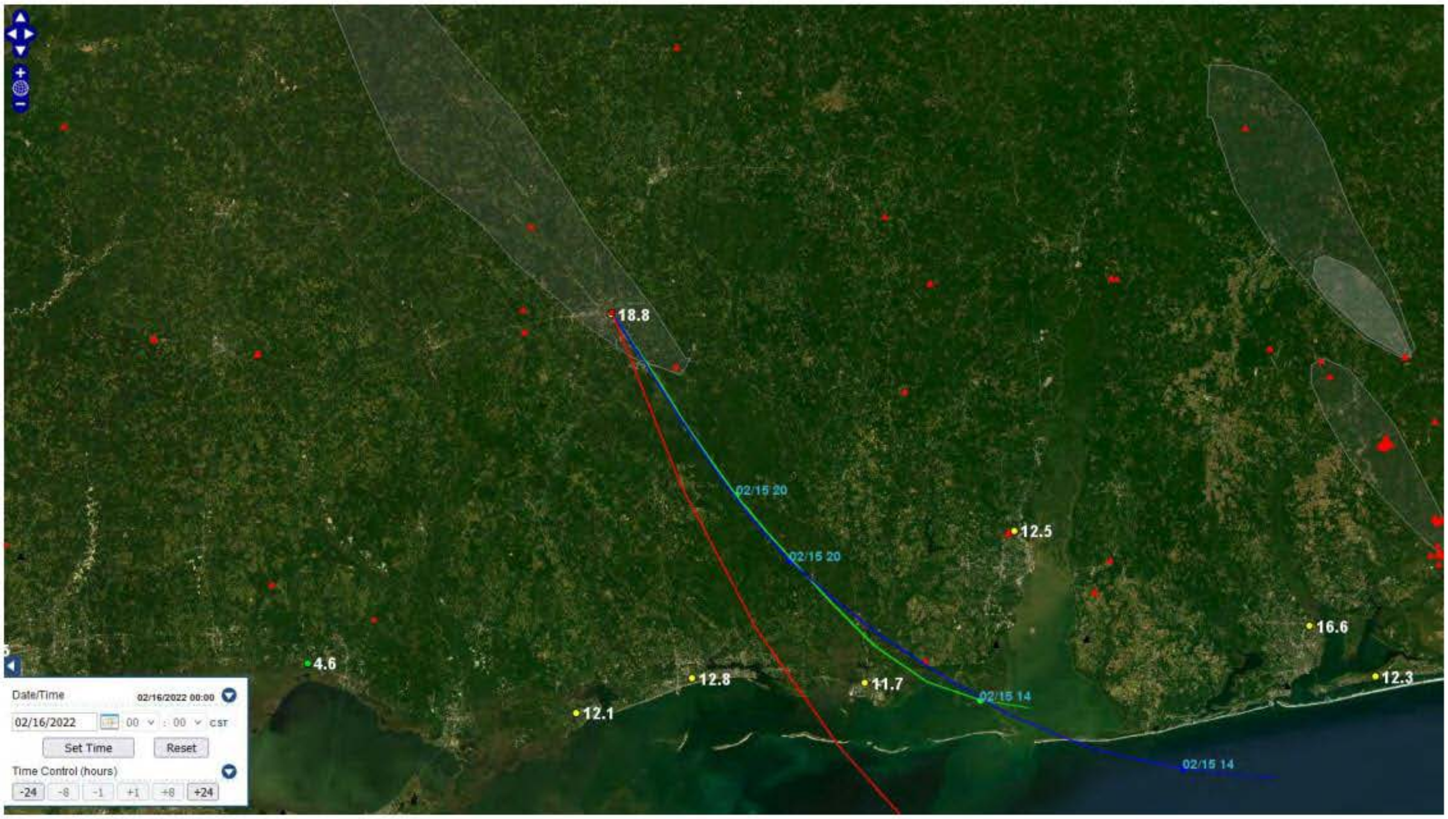
February 16th: During the day on February 16th, surface high pressure shifted eastward, allowing a more southeasterly flow across Mississippi. A prescribed fire occurred just southeast of the Hattiesburg PM monitor, placing the monitor directly in the path of the smoke plume, which moved from southeast to northwest with the southeasterly wind flow. The combination of the Hattiesburg monitor being in the direct path of the smoke plume and a strong nocturnal/frontal inversion during the early morning hours led to anomalously high PM2.5 values, particularly in the morning, with a one-hour maximum of 61.5 µg/m^3.



The 12Z surface analysis (February 16th, 2022, at 6 AM CDT) shows previous day's High Pressure sliding off to the east off the east coast of the U.S, allowing for southeasterly flow to kick in across Mississippi.



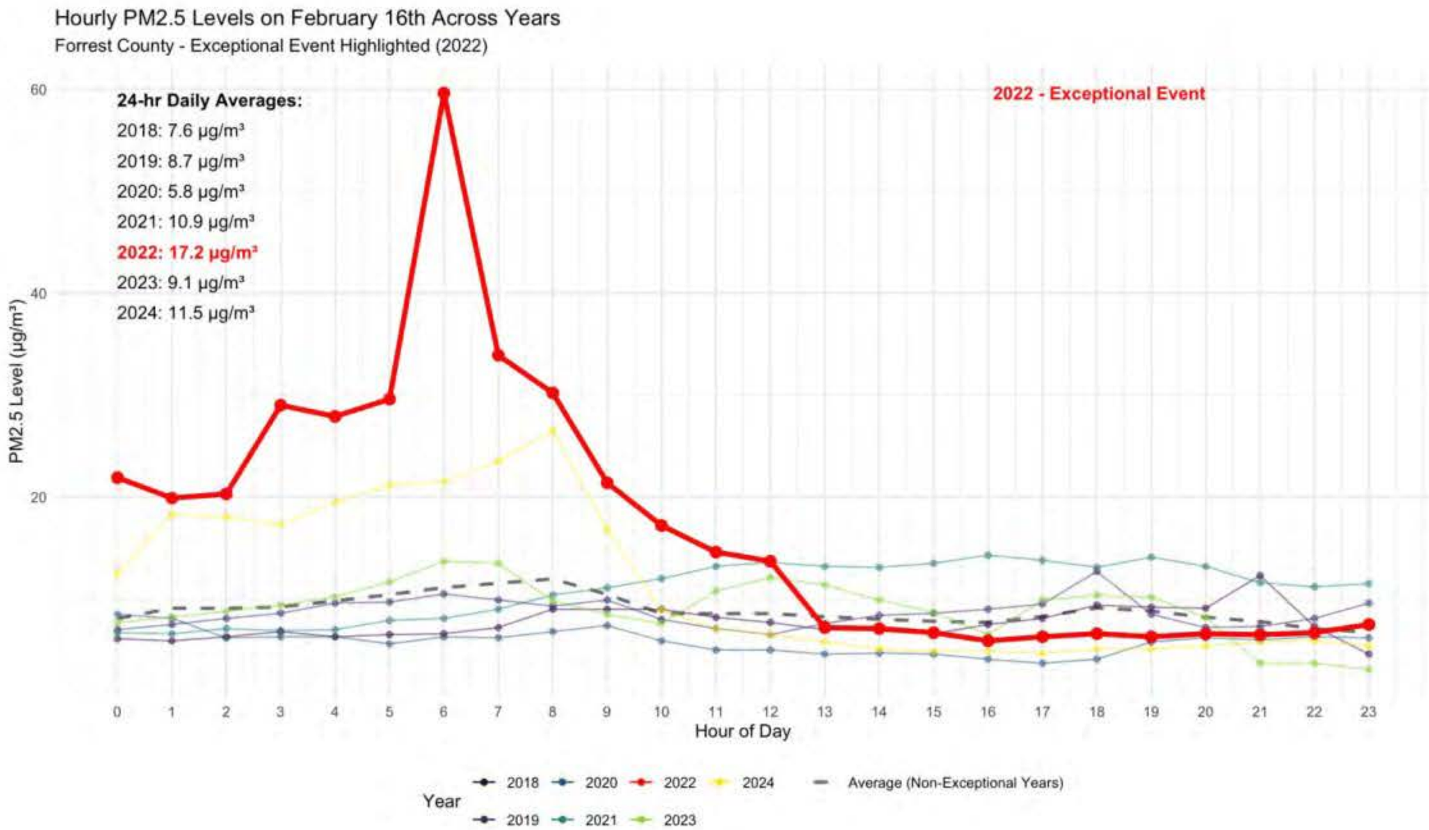
Strong frontal/nocturnal inversion the morning of the 16th, aided in the trapping of PM2.5 values from prescribed fires in the area from the previous day.



The AirNowTech Navigator image taken on, February 16, 2022, shows a prescribed fire occurred just southeast of the Hattiesburg monitor. The smoke plume, as shown was carried by southeasterly wind flow, as indicated by the HYSPLIT back trajectory (at 10m, 50m, and 1500m levels), and blew directly toward the Hattiesburg monitor.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	02/16/22	23.8	21.8	22.2	30.9	29.8	31.5	61.5	35.8	32.1	23.3	19.1	16.5	15.6	8.9	8	7.6	7.2	7.8	8.1	7.7	8.1	8	8.2	9.2	18.86	61.5

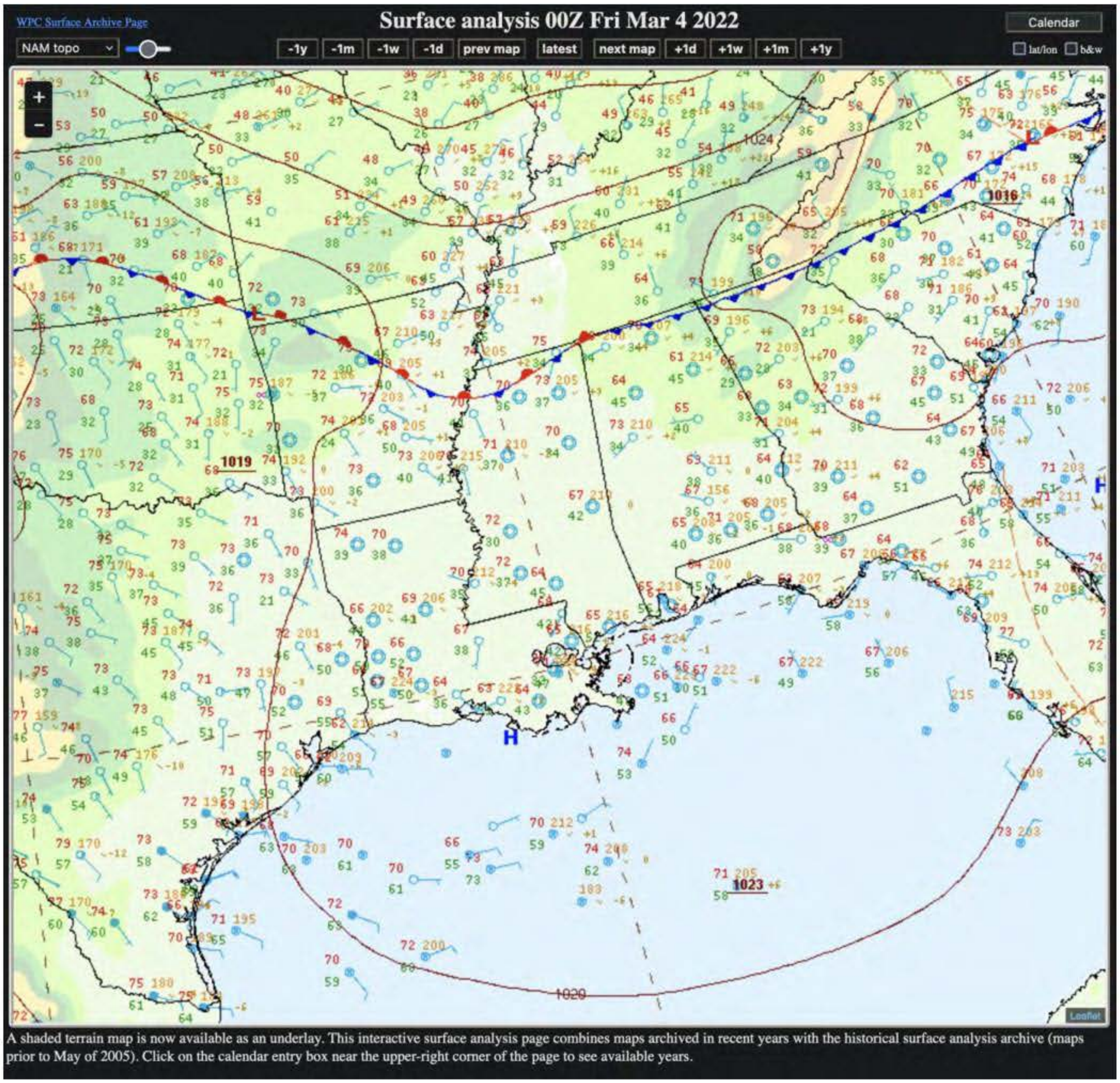
The Hattiesburg monitor's hourly PM2.5 values on February 16th began in the twenties and thirties in the pre-dawn hours in response to a low-level nocturnal inversion, trapping the previous day's smoke from prescribed fires in and around the Hattiesburg monitor. In addition, PM2.5 values increased just after sunrise into the morning hours thanks to a smoke plume that was blowing directly toward the Hattiesburg monitor, with a one-hour PM2.5 maximum value of 61.5 µg/m^3. As the wind shifted, values dropped after the noon hour into the single digits, but since PM2.5 values were so elevated in the morning hours due to smoke from prescribed fires, the 24-hour PM2.5 average ended up being 18.86 µg/m^3.



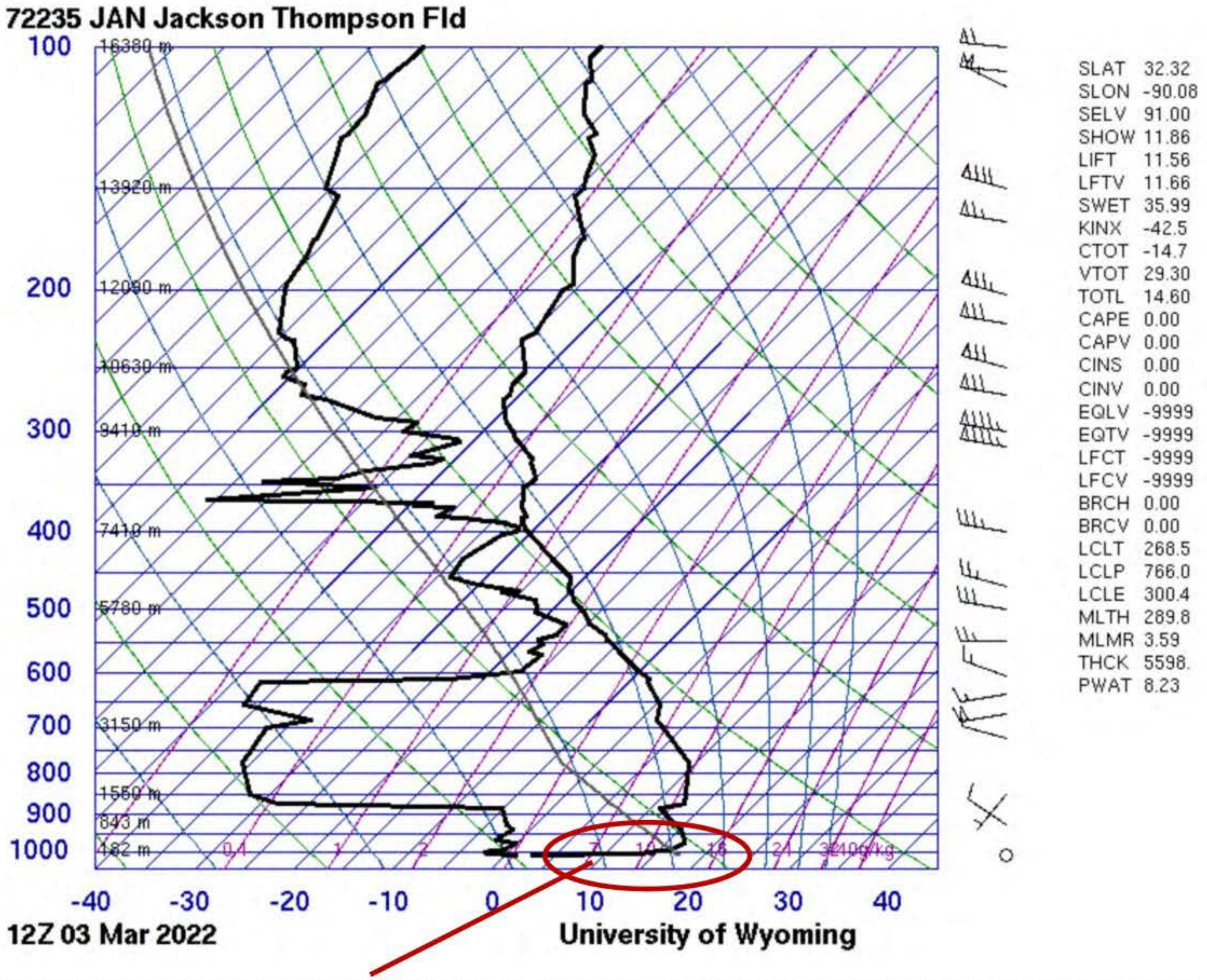
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the significantly higher values in 2022 compared to the average of non-exceptional years. The hourly time series shows the anomalous hourly spike in the morning hours due to a smoke plume from a prescribed fire blowing directly toward the Hattiesburg PM2.5 monitor.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
March 3-5, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	22.5, 35.5, 27.7	1, 2	Prescribed Fire an Exceptional Event Demonstration: March 3-5 2022

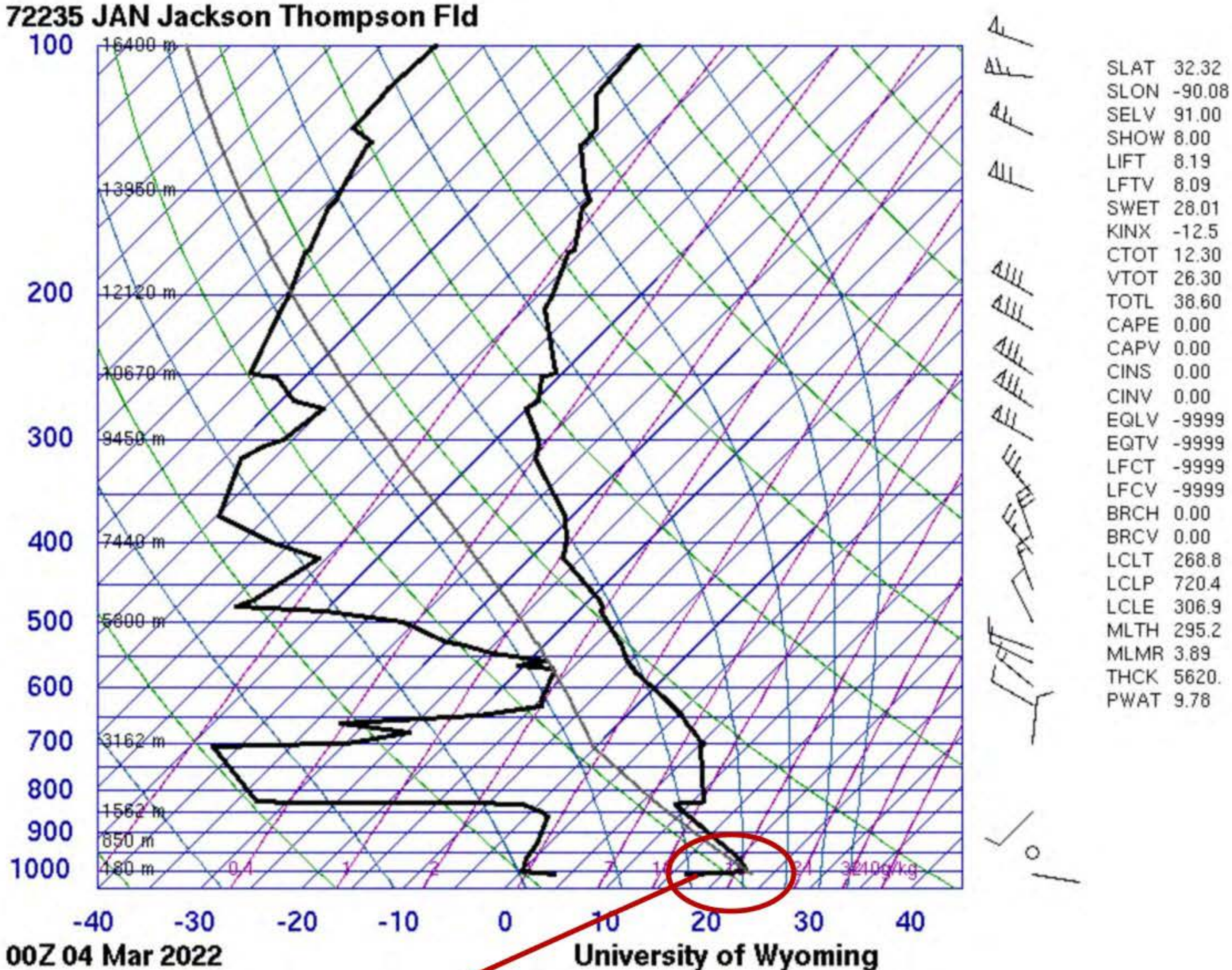
Synopsis: Sprawling surface High pressure has been sitting over the southeastern United States over past few days leading up to prescribed fire exceptional event on March 3rd through the 5th, 2022. There were numerous fires ongoing on the day(s) of the event and prior. Strong surface high pressure led to stagnant/low wind conditions that allowed the culmination of smoke near the surface from these fires over the midsouth and the southeastern United States.



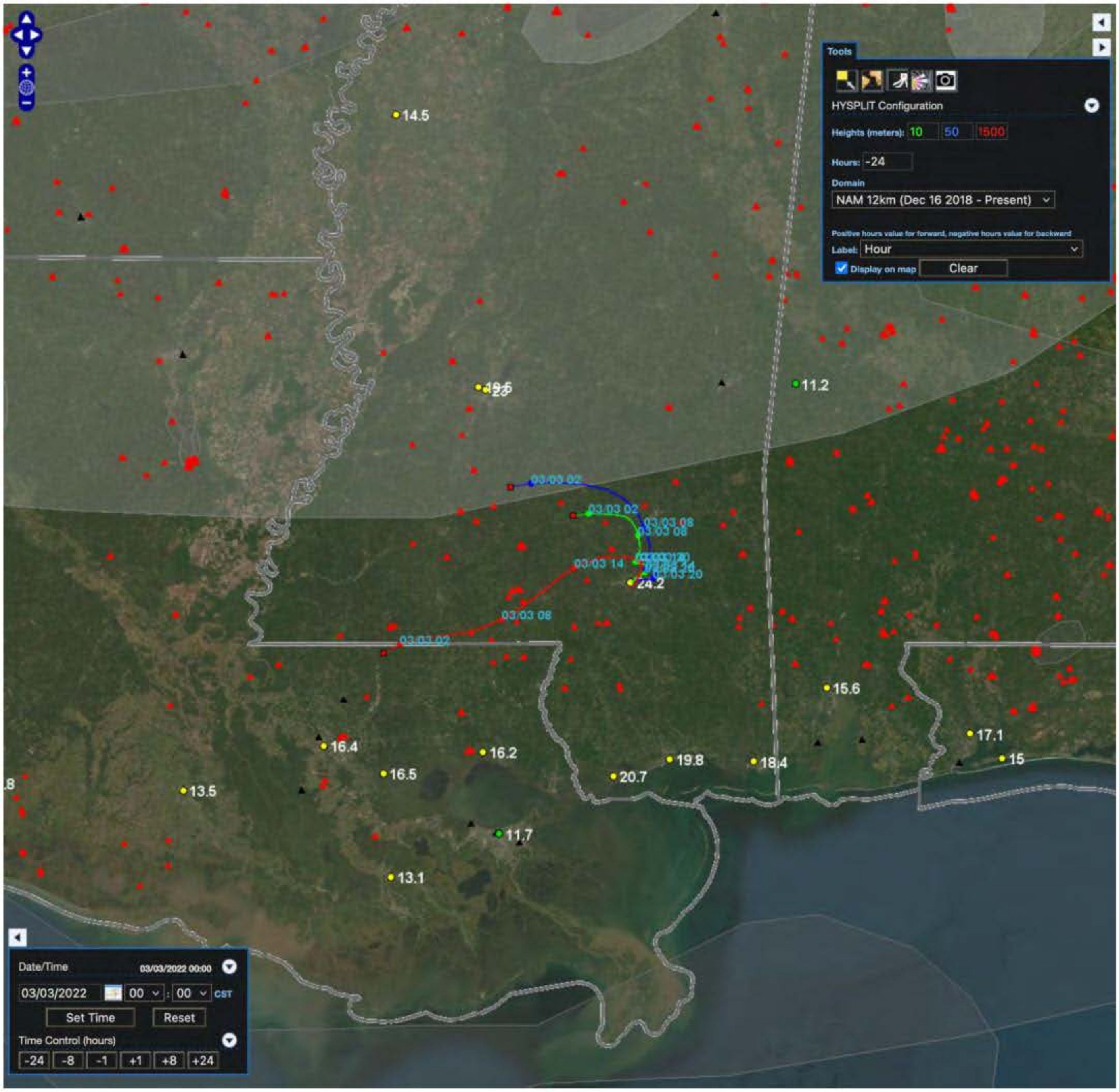
The 00Z surface analysis (March 3rd, 2022, at 6 AM CDT) shows High Pressure centered off the coast of south-central Louisiana, conducive for stagnant conditions, allowing for low level nocturnal inversion formation, helping to trap prescribed fire smoke close to the surface, elevating PM2.5 values, especially during the overnight hours.



Very strong subsidence, low level nocturnal inversion depicted on the Jackson sounding the morning of March the 3rd, 2022 allowed smoke from the fires to collect and become trapped near the surface, resulting in high PM2.5 values.



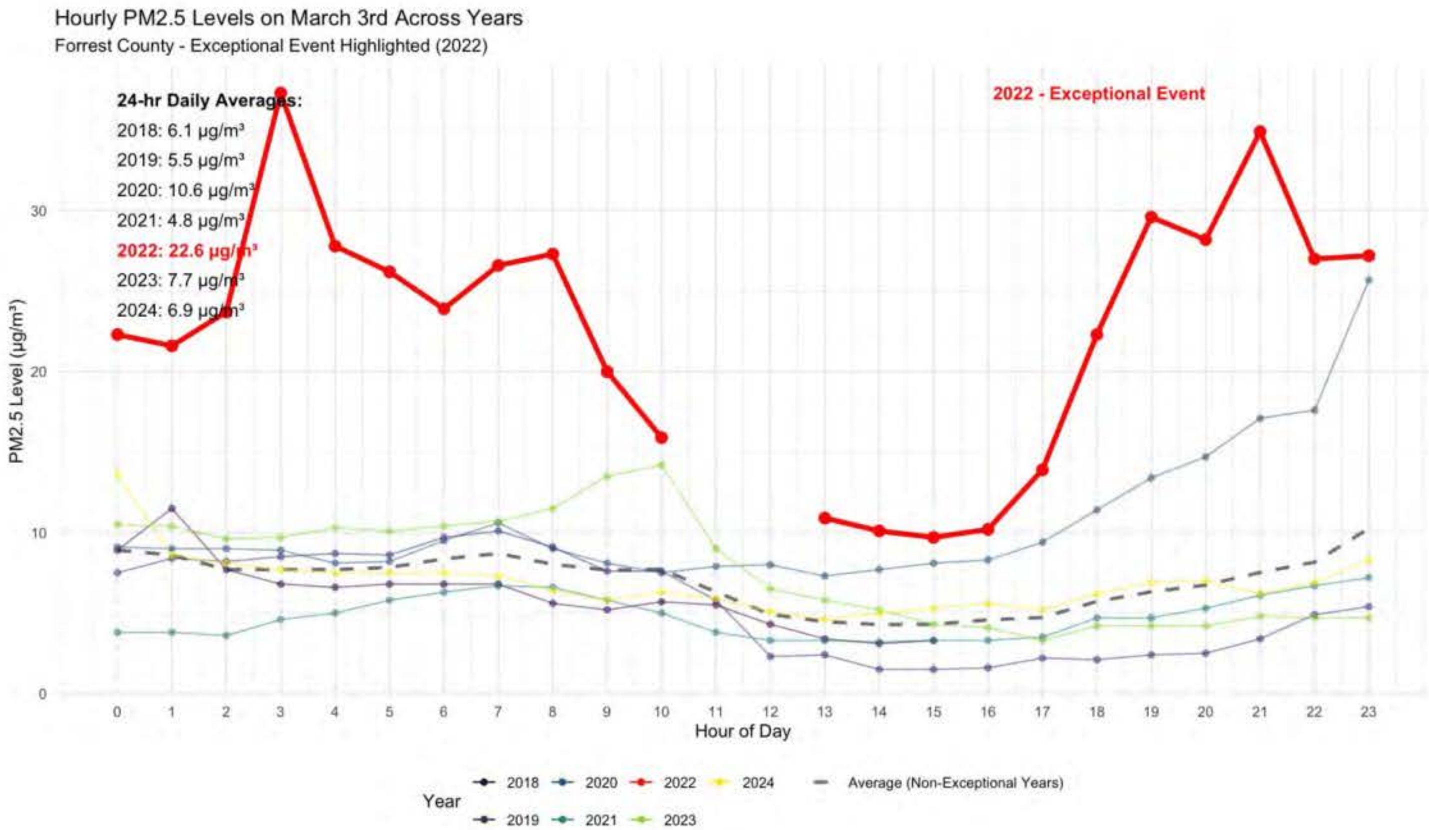
Evening of March the 3rd, when sounding was launched, shows low level nocturnal inversion setting up once again in late evening hours, trapping smoke near the surface from ongoing prescribed fires in the southeast.



Notice the back trajectory at the Hattiesburg monitor is a 24-hour trajectory, and how in the duration of the -24 hours, the parcel has barley traveled at all three levels (10m, 50m, 1500m), indicating very stagnant conditions. This in culmination with high smoke present resulted in elevated PM2.5 values not only at the Hattiesburg monitor, yet high PM all over the southeast.

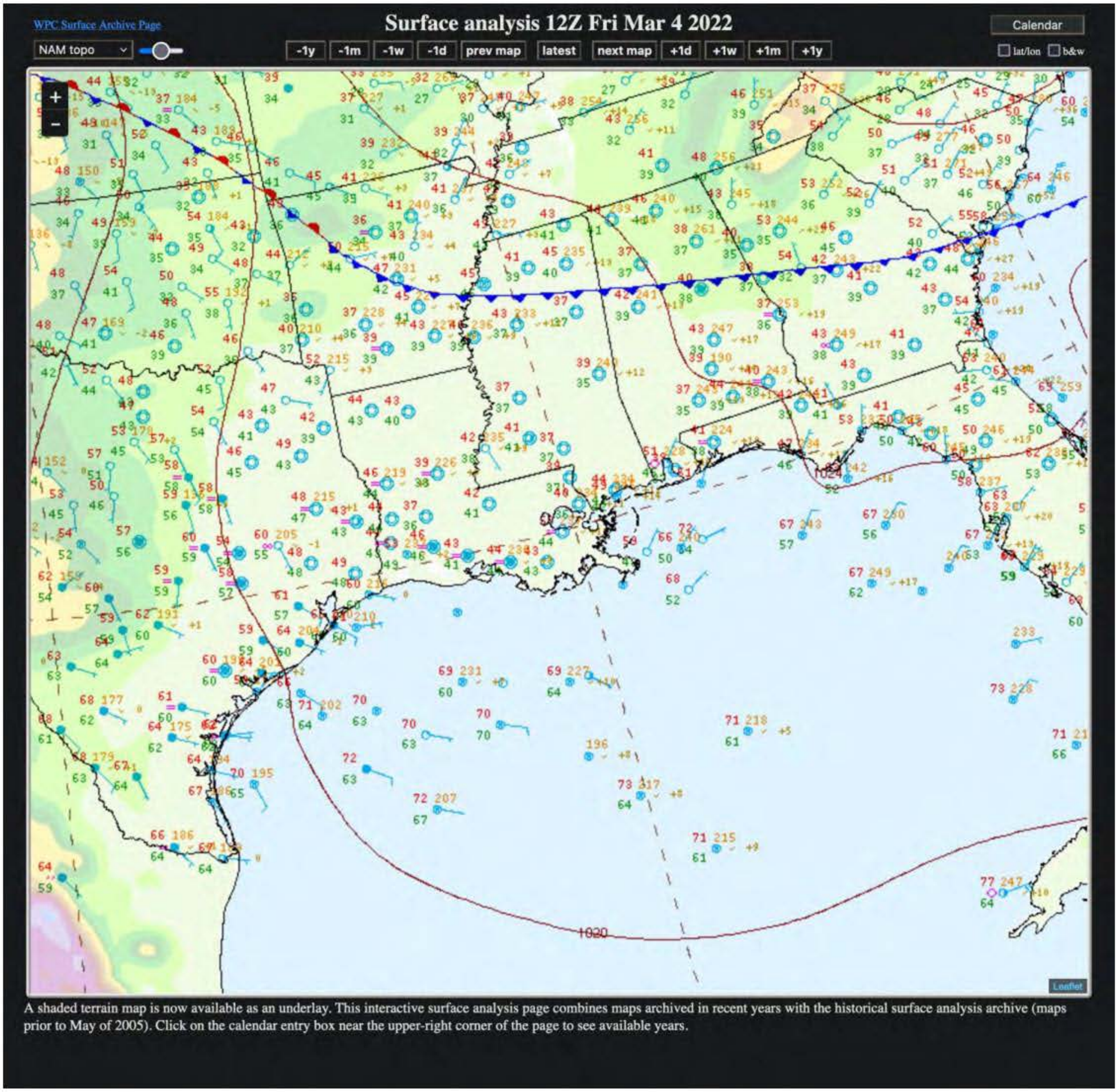
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/03/22	24.2	23.5	25.6	39.2	29.7	28.1	25.8	28.5	29.2	21.9	16.8	2.5	10.3	11.8	11	10.6	11.1	14.8	24.2	31.5	30.1	36.8	28.9	29.1	24.2	39.2

PM2.5 values from the Hattiesburg site depicted above show high concentrations on March 3rd, especially in the early morning hours, with values diminishing during the day due to increasing mixing heights. In the evening, as mixing heights diminished and a low-level nocturnal inversion developed, PM2.5 values began to increase again, resulting in a daily PM2.5 average of 24.2 μg/m^3 at Hattiesburg.

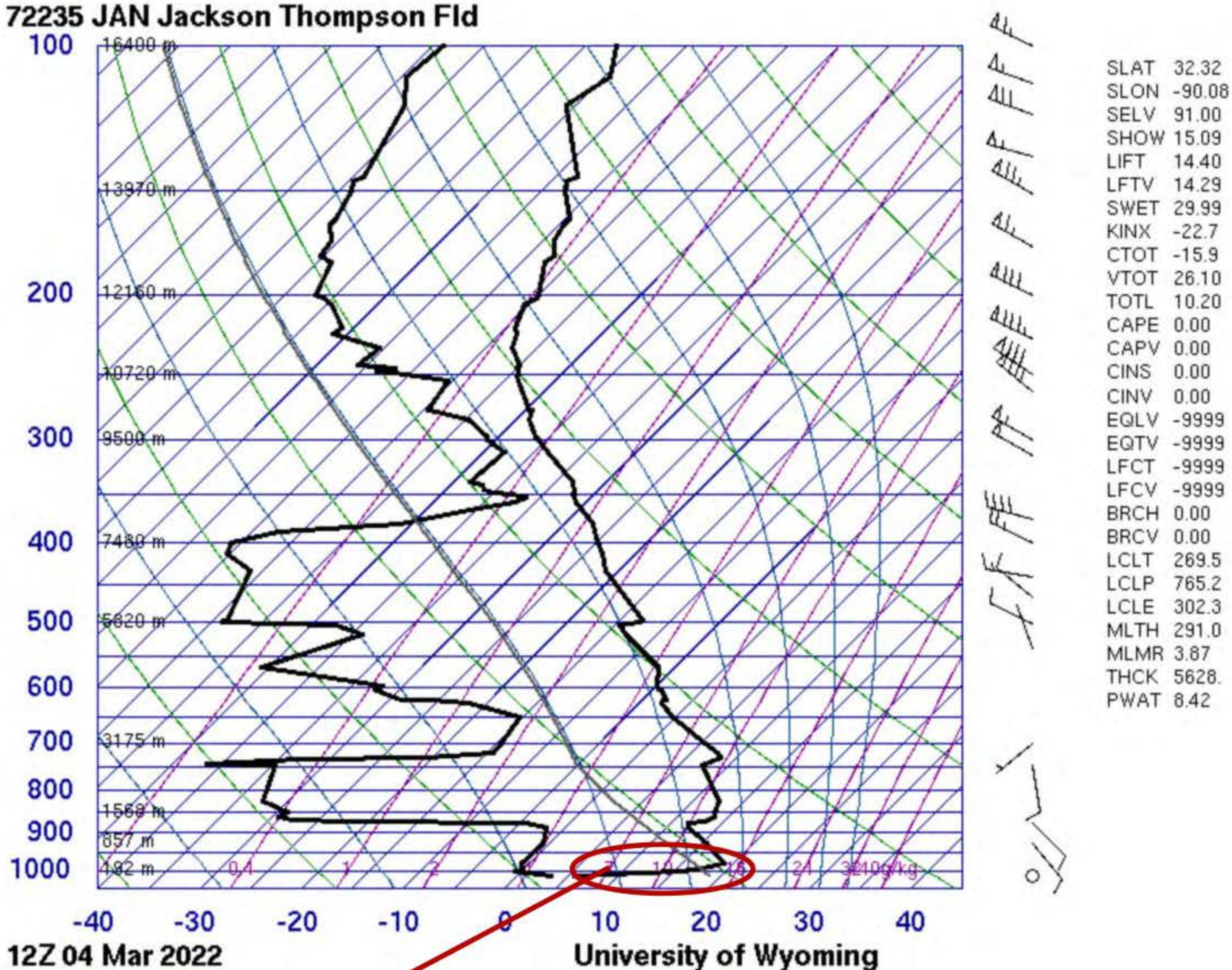


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the significantly higher values in 2022 compared to the average of non-exceptional years.

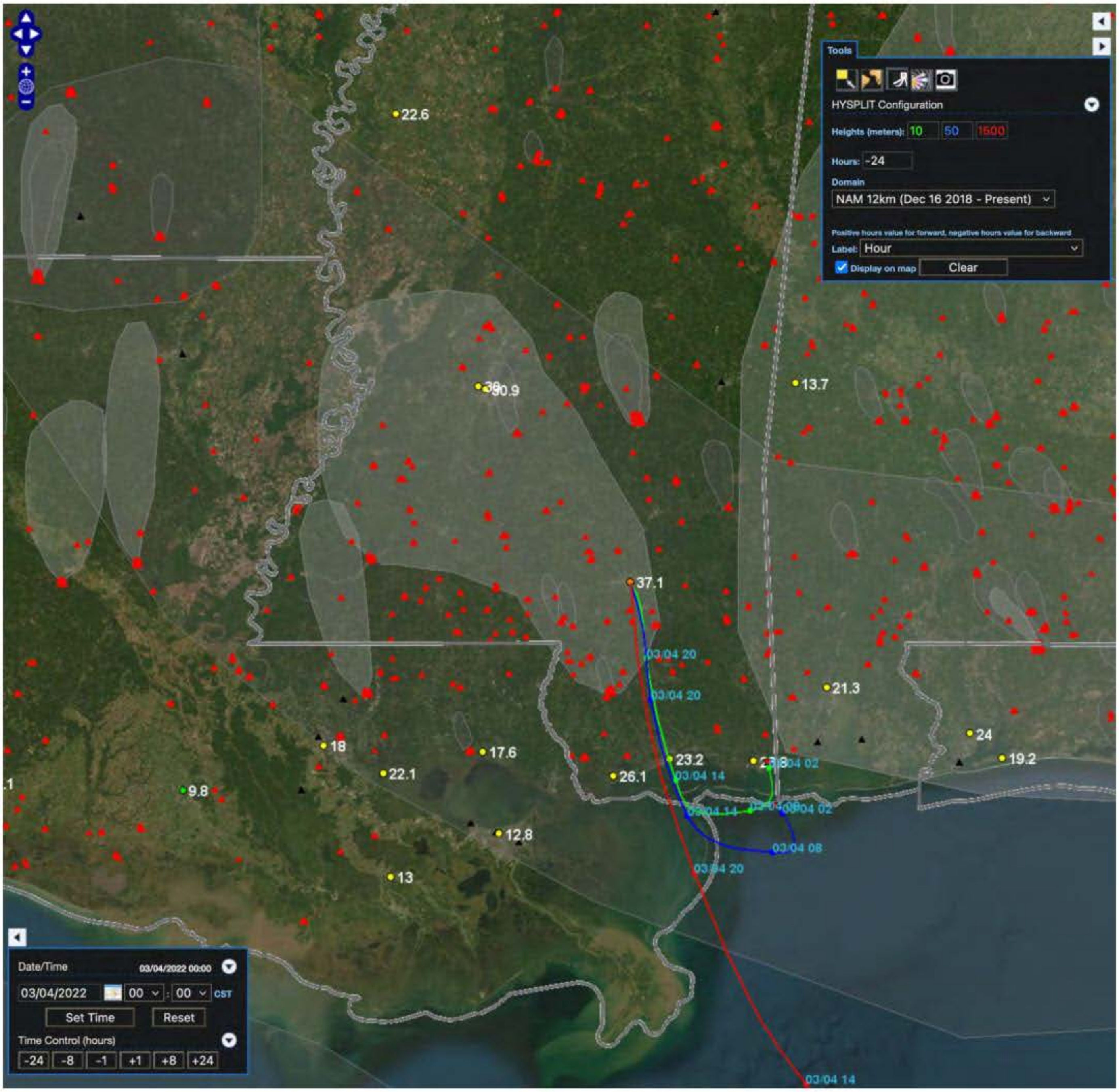
March 4th: Continuation of strong stagnant conditions especially during the early to mid-morning hours with southeasterly flow developing during the afternoon hours. The cumulative collection of smoke from previous days under consistent stagnant conditions with the continuation of prescribed fires, PM2.5 values were very high on this day with hourly values maxing out at 94.2 for one hour on Airnowtech. The 24-Hr average for this day was 37.11 ug/m^3.



The 12Z surface analysis (March 4th, 2022, at 6 AM CDT) shows High Pressure continuing to remain in control, conducive for stagnant conditions, allowing for low level nocturnal inversion formation during the overnight/morning hours on the 4th, helping to trap prescribed fire smoke close to the surface, elevating PM2.5 values.

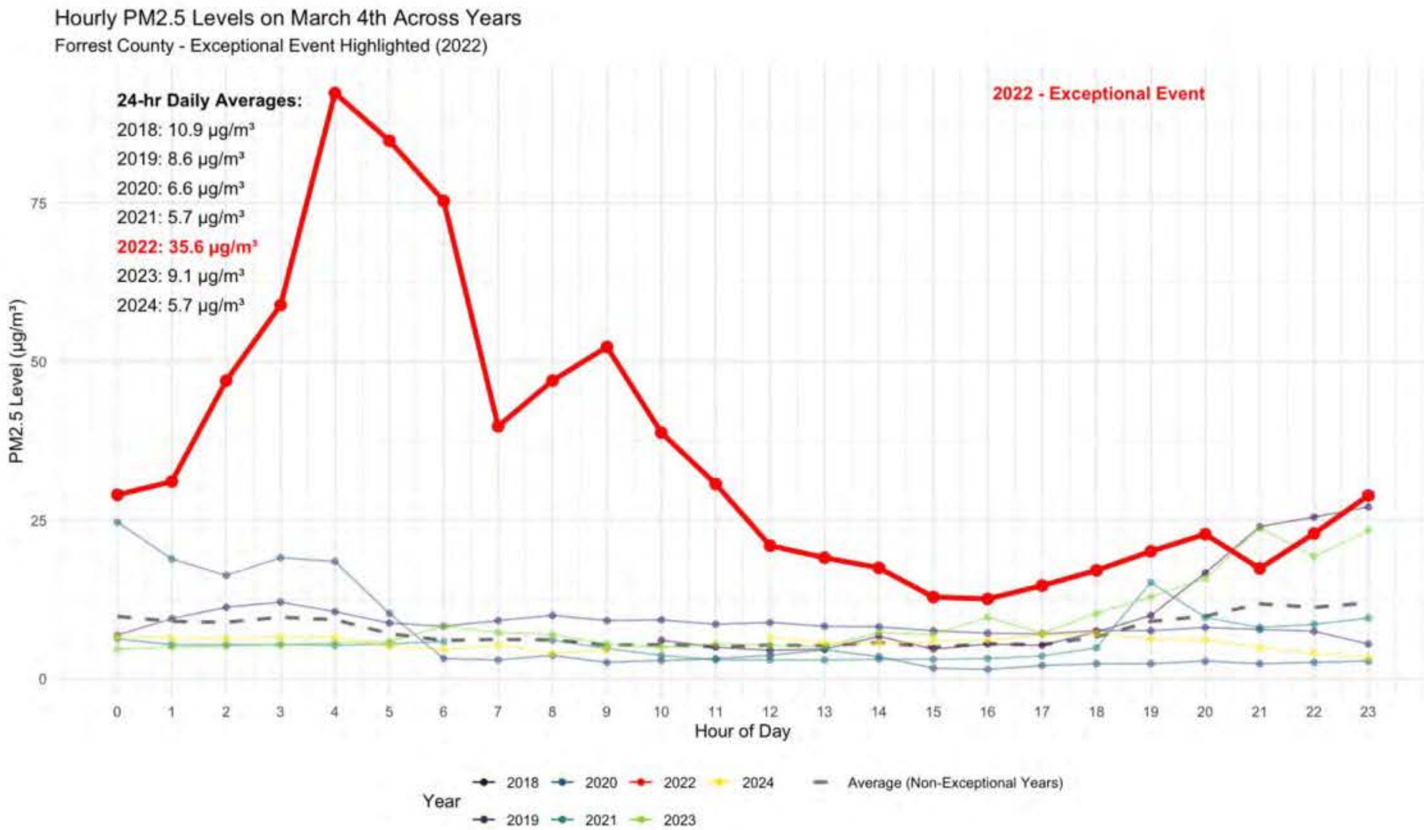


12Z sounding on the 4th from NWS Jackson shows strong nocturnal/subsidence inversion that developed overnight trapping smoke, resulting in high PM25 concentrations.



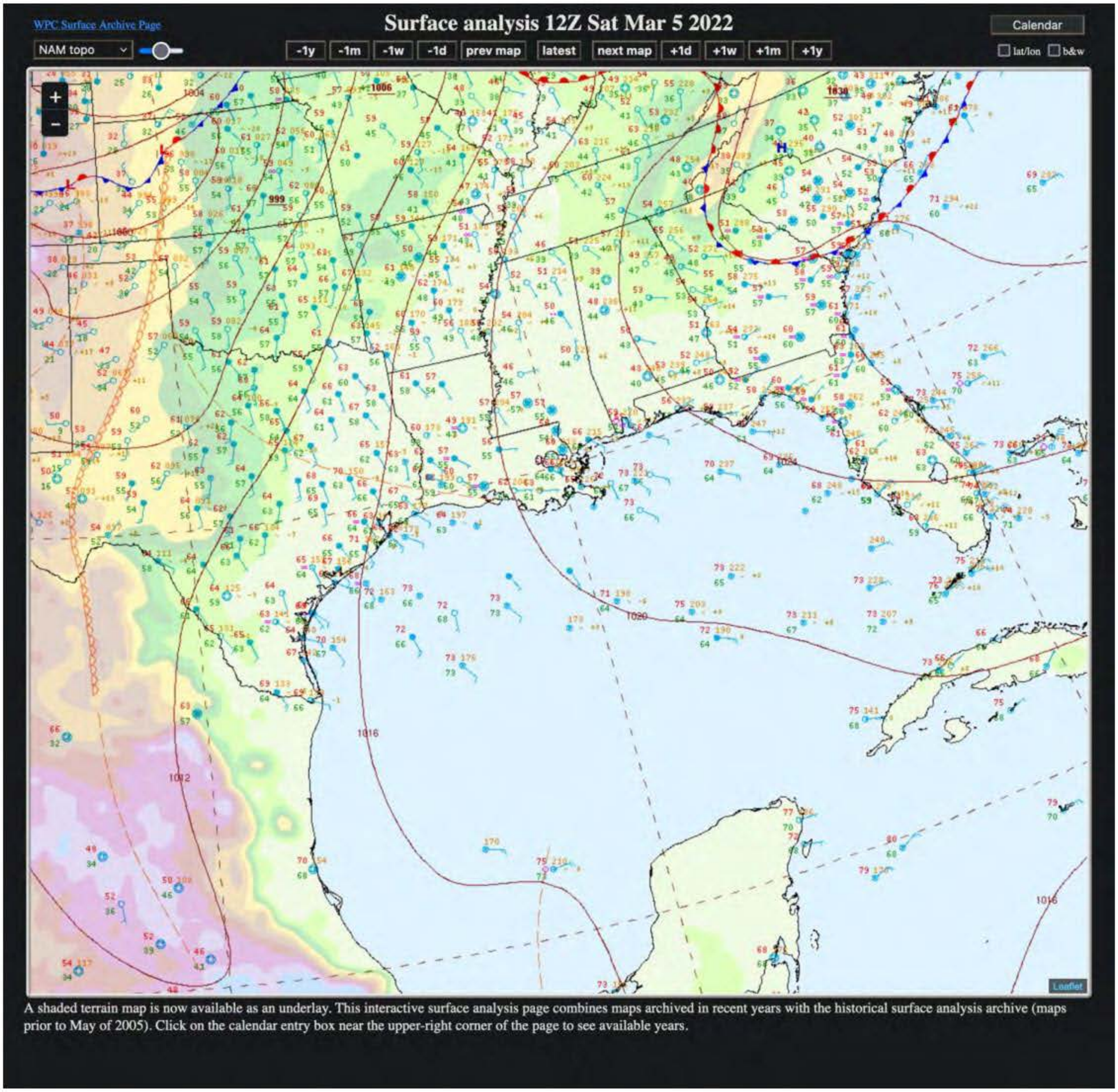
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/04/22	30.9	33	48.9	60.8	94.2	86.7	77.2	41.7	48.9	54.2	39.7	31.6	21.9	20	18.4	13.8	13.5	15.6	18	22	24.7	19.3	24.8	30.8	37.11	94.2

The Hattiesburg monitor recorded elevated PM2.5 values during the early morning hours due to two factors: smoke from previous days' prescribed fires and a strong nocturnal inversion that trapped pollutants near the surface. These conditions pushed readings well above the USG (Unhealthy for Sensitive Groups) range for several hours. As morning progressed into afternoon, daytime heating caused the inversion layer to dissipate and mixing heights to increase, allowing PM2.5 values to drop into the teens. However, values remained elevated throughout the day due to stagnant morning conditions and the development of southeasterly winds in the afternoon. These winds carried smoke from active fires south and southeast of the Hattiesburg monitor directly toward the monitoring station, as shown by the back trajectory in the figure above. During the overnight hours of the 4th going into the 5th, a new low-level inversion developed, once again trapping smoke near the surface. This caused PM2.5 values to rise back into the twenties and thirties.

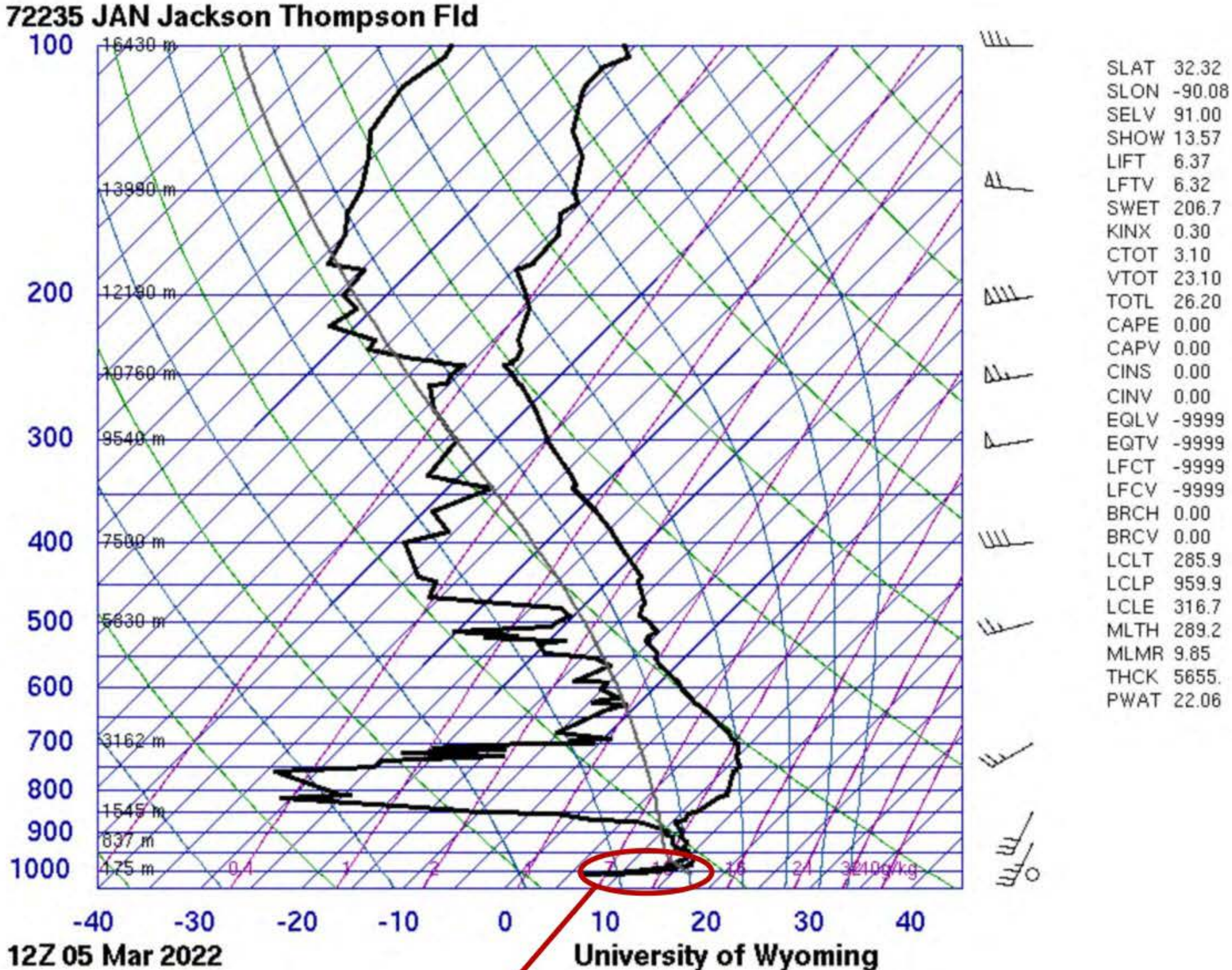


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the significantly higher values in 2022 compared to the average of non-exceptional years.

March 5th: PM2.5 values remained high at the Hattiesburg monitor, especially during the morning hours with a one-hour max of 86.7ug/m^3 resulting from stagnant conditions at the surface in combination with a very shallow frontal inversion that set up during the overnight hours, trapping smoke from previous days fires near the surface.

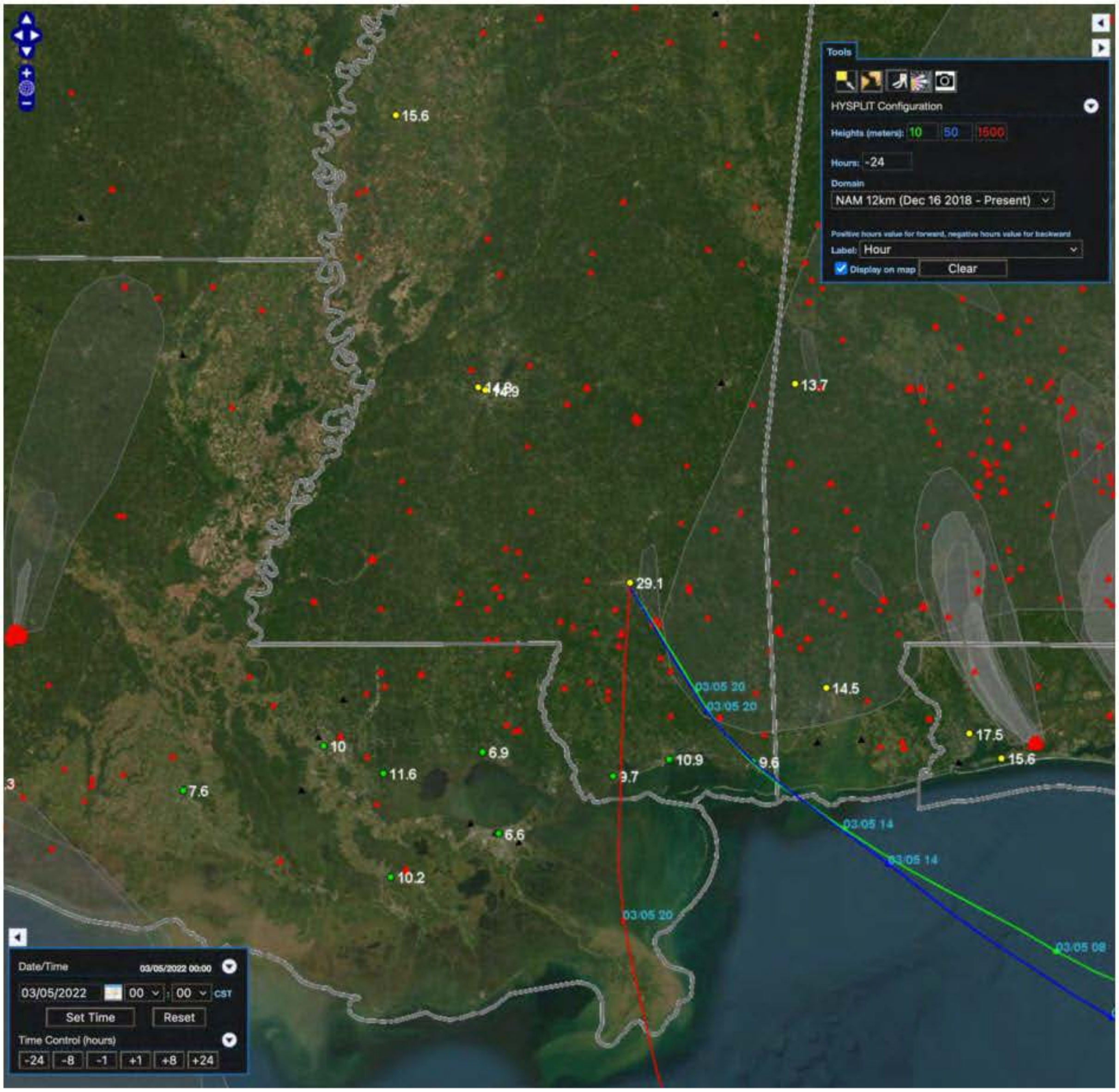


The 12Z surface analysis (March 5th, 2022, at 6 AM CDT) shows stagnant conditions were located in and around the Hattiesburg area, allowing for a healthy nocturnal inversion to set up overnight, trapping smoke near the surface, elevating PM2.5 values at the Hattiesburg monitor.



In combination with calm winds, a shallow frontal inversion set up as seen from KJAN sounding the morning of March the 5th, aiding in trapping of PM2.5 particles.

During the afternoon hours of March 5th, southeasterly winds picked up on the back side of a high-pressure system located off the southeastern seaboard of the United States At this time, there were prescribed fires ongoing to the south and southeast of the Hattiesburg monitor, with the smoke blowing northwest toward the monitor. Throughout the day, the combination of increasing southeasterly winds and rising mixing heights allowed the smoke to disperse, resulting in PM2.5 values dropping into the single digits. As evening approached and darkness fell, the mixing heights became shallow, and while southeasterly winds relaxed, they continued to blow the remaining smoke from the fires toward the Hattiesburg monitor. PM2.5 values rose back into the high teens and twenties around midnight, with the daily average for March 5th being 27.7 μg/m^3.

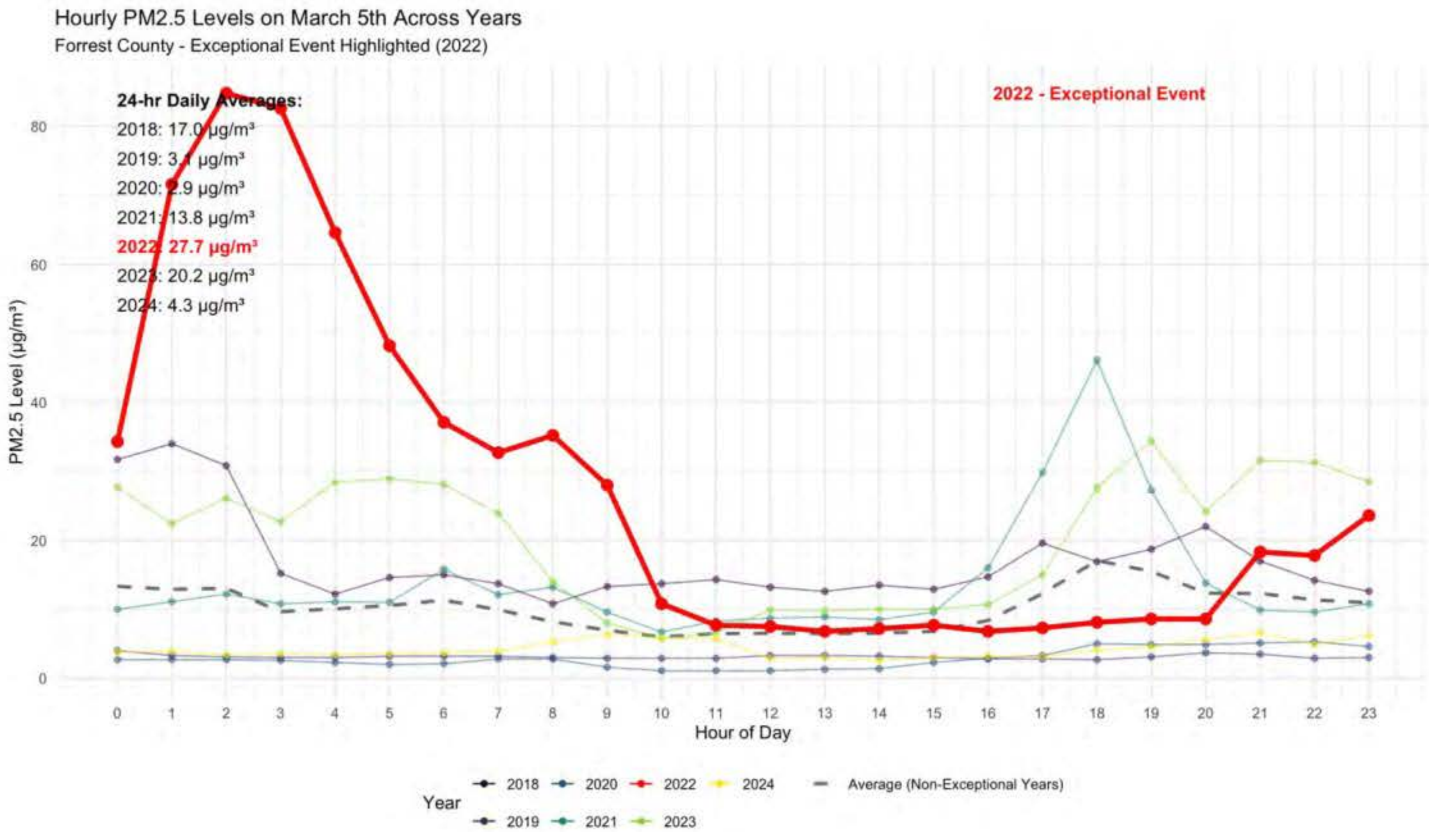


24-Hour Back trajectory showing southeasterly flow, with the parcels at the lowest levels both 10m and 50m blowing directly over the prescribed fires, picking up smoke and moving the smoke directly towards the Hattiesburg monitor.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/05/22	36.2	73.5	86.7	84.5	66.5	50.1	39	34.6	37.1	29.9	11.7	8.6	8.4	7.7	8.1	8.6	7.7	8.2	9	9.5	9.5	19.2	19.7	25.5	29.15	86.7

The Hattiesburg monitor recorded elevated PM2.5 values during the early morning hours due to two factors: smoke from previous days' prescribed fires blowing towards the Hattiesburg monitor (shown by the back trajectory in the figure above) and a strong nocturnal inversion that trapped pollutants near the surface. These conditions pushed readings well above the USG (Unhealthy for Sensitive Groups) range for several hours.

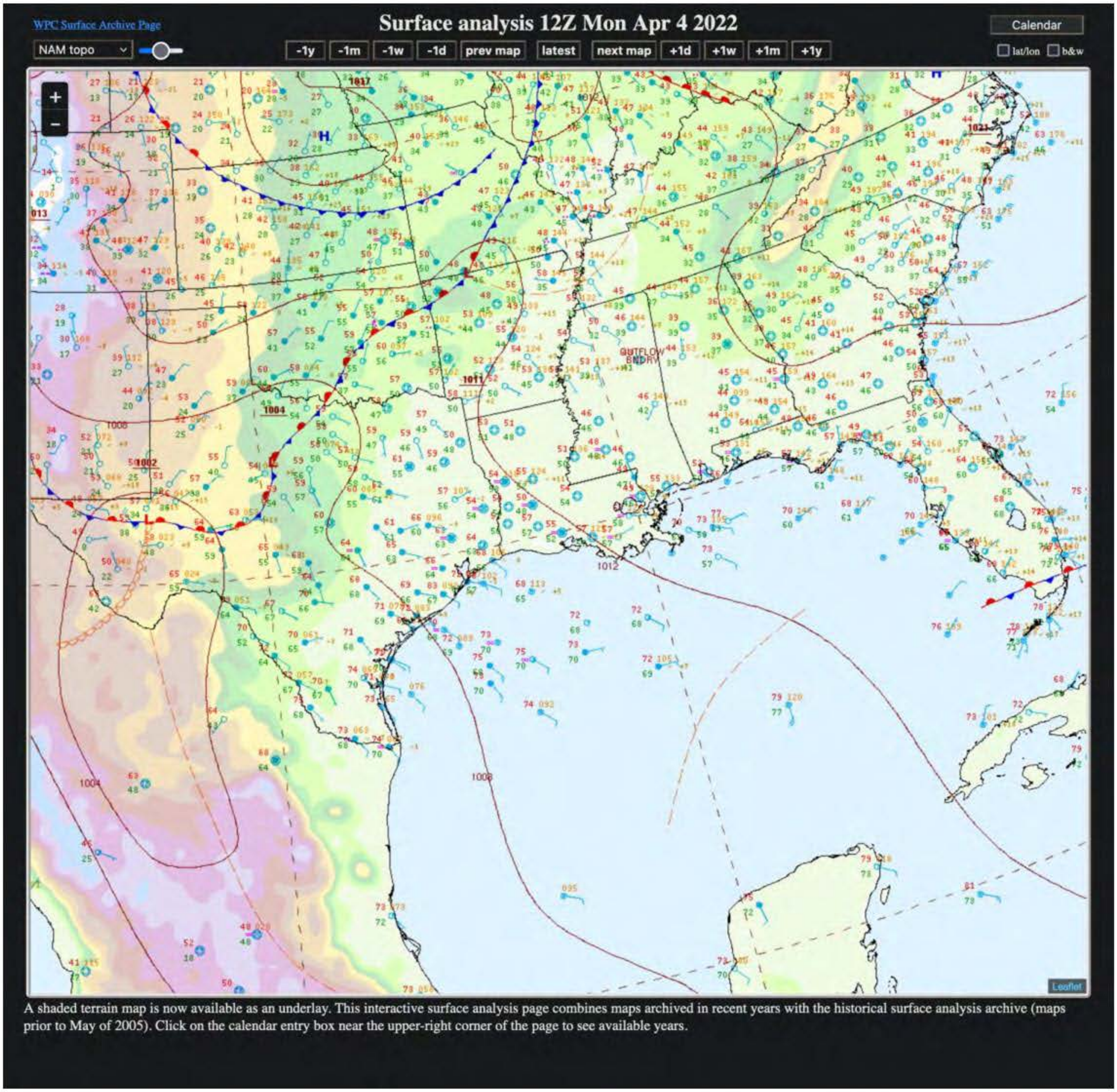
As morning progressed into afternoon, daytime heating caused the inversion layer to dissipate and mixing heights to increase, allowing PM2.5 values to drop into single digits. PM2.5 values began to increase once again on the night of the 5th going into the 6th, as winds relaxed, allowing a shallow nocturnal inversion to set up over the area. This caused PM2.5 values to climb back into the teens and twenties, contributing to a daily 24-hour PM2.5 value of 29.15 µg/m^3.



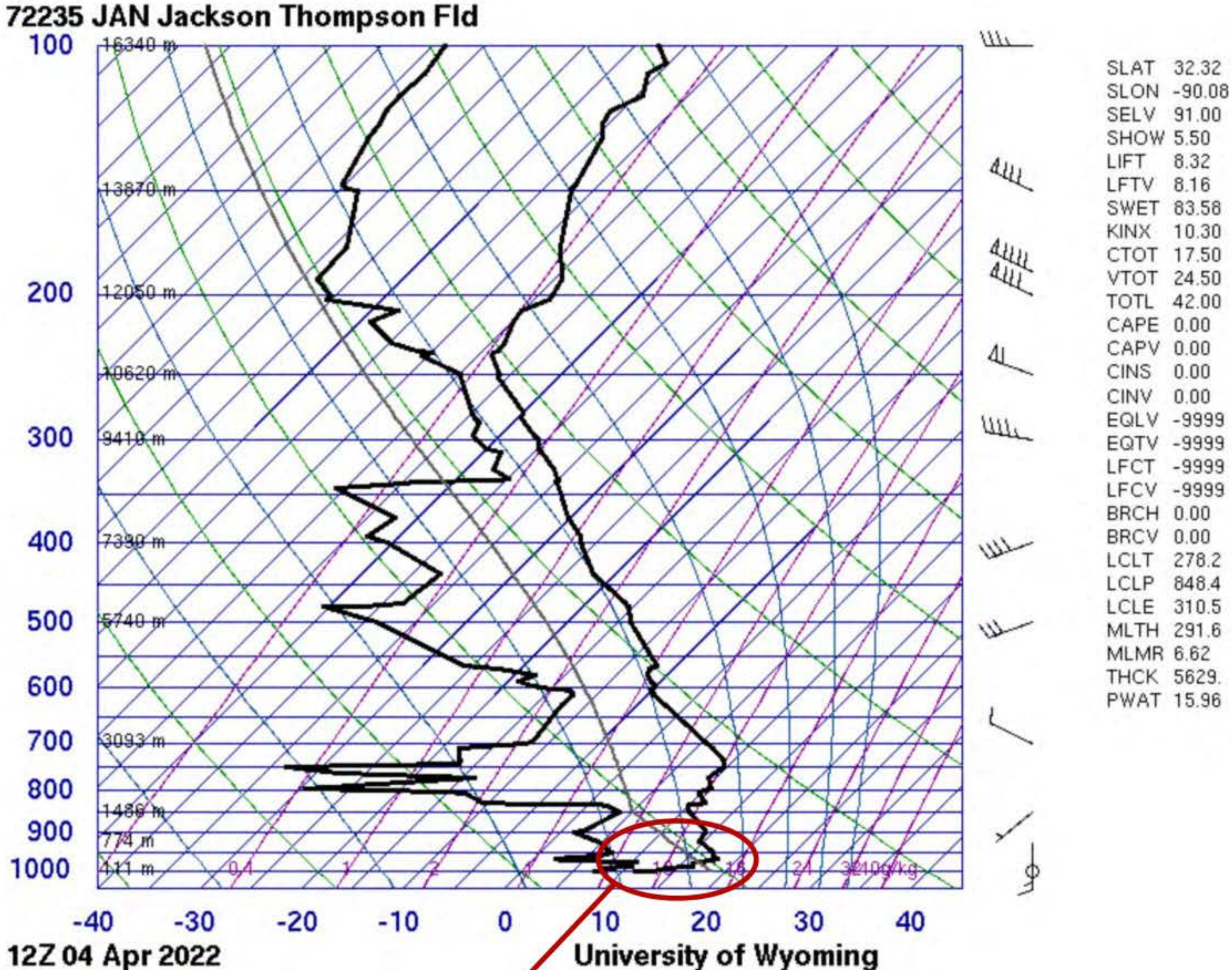
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the significantly higher values specifically in the morning hours in 2022 compared to the average of non-exceptional years.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
April 4, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	16.8	2	Prescribed Fire an Exceptional Event Demonstration: April 4 2022

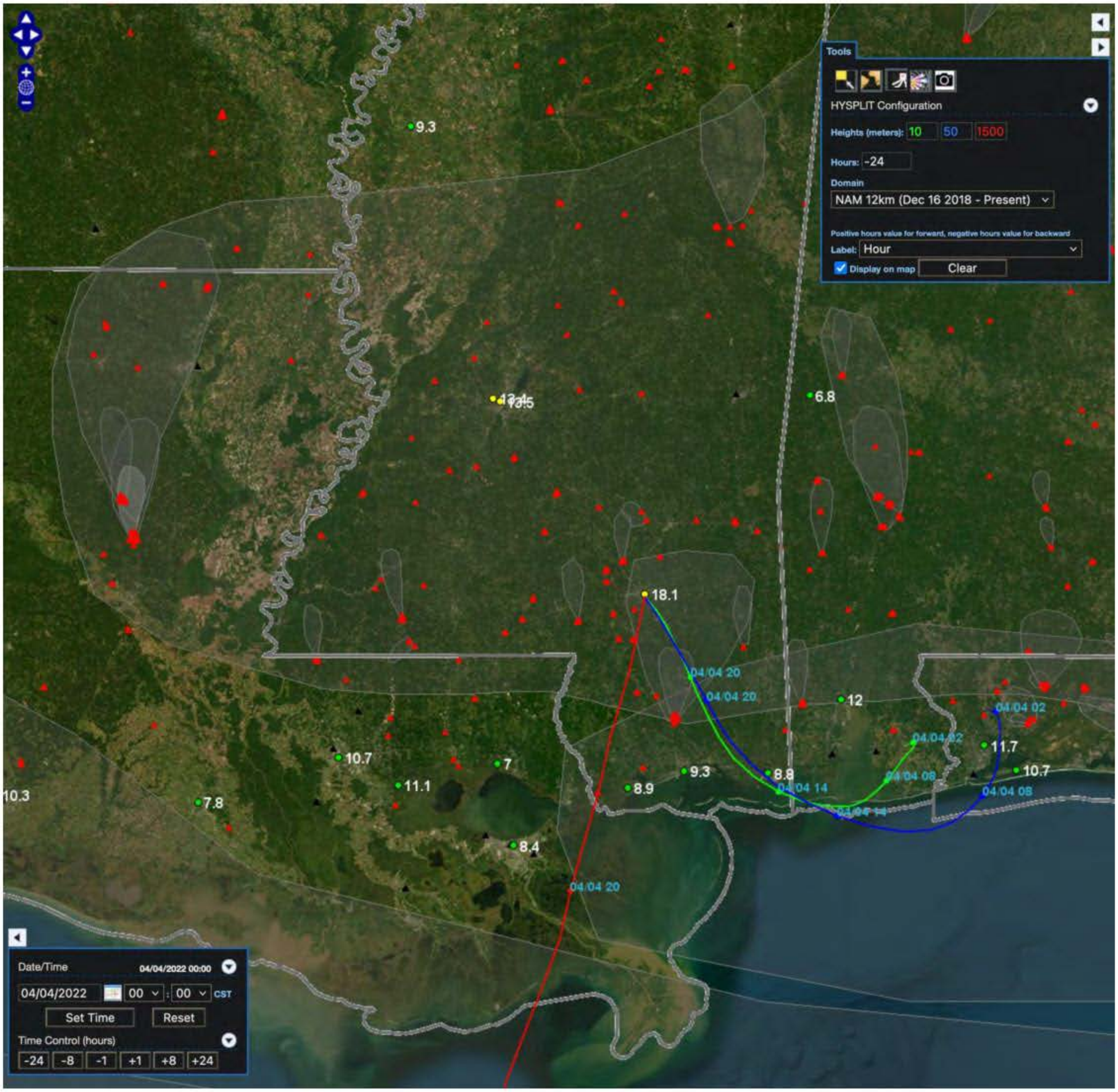
Synopsis: High pressure was in control over the southeast, parked over the Carolinas, leading to calm winds overnight and stagnant conditions. Prescribed fires that had occurred during the previous days caused residual smoke to accumulate in the pre-dawn hours of April 4th, 2022. As the day progressed, mixing heights increased with sunny, warm conditions, allowing for better dispersion of particulate matter (PM), which lowered PM2.5 concentrations. On this day, additional prescribed fires were burning to the south and southeast of the Hattiesburg monitor in the DeSoto National Forest. In the afternoon, smoke from the prescribed fires became embedded in the southeasterly wind flow, carrying the smoke directly toward the Hattiesburg monitor during the evening hours and causing a PM2.5 spike between 7 and 9 PM CDT, with an hourly maximum of 50.4 μg/m^3 occurring at 8 PM CDT. This resulted in a daily PM2.5 average of 16.8 μg/m^3 at the Hattiesburg monitor.



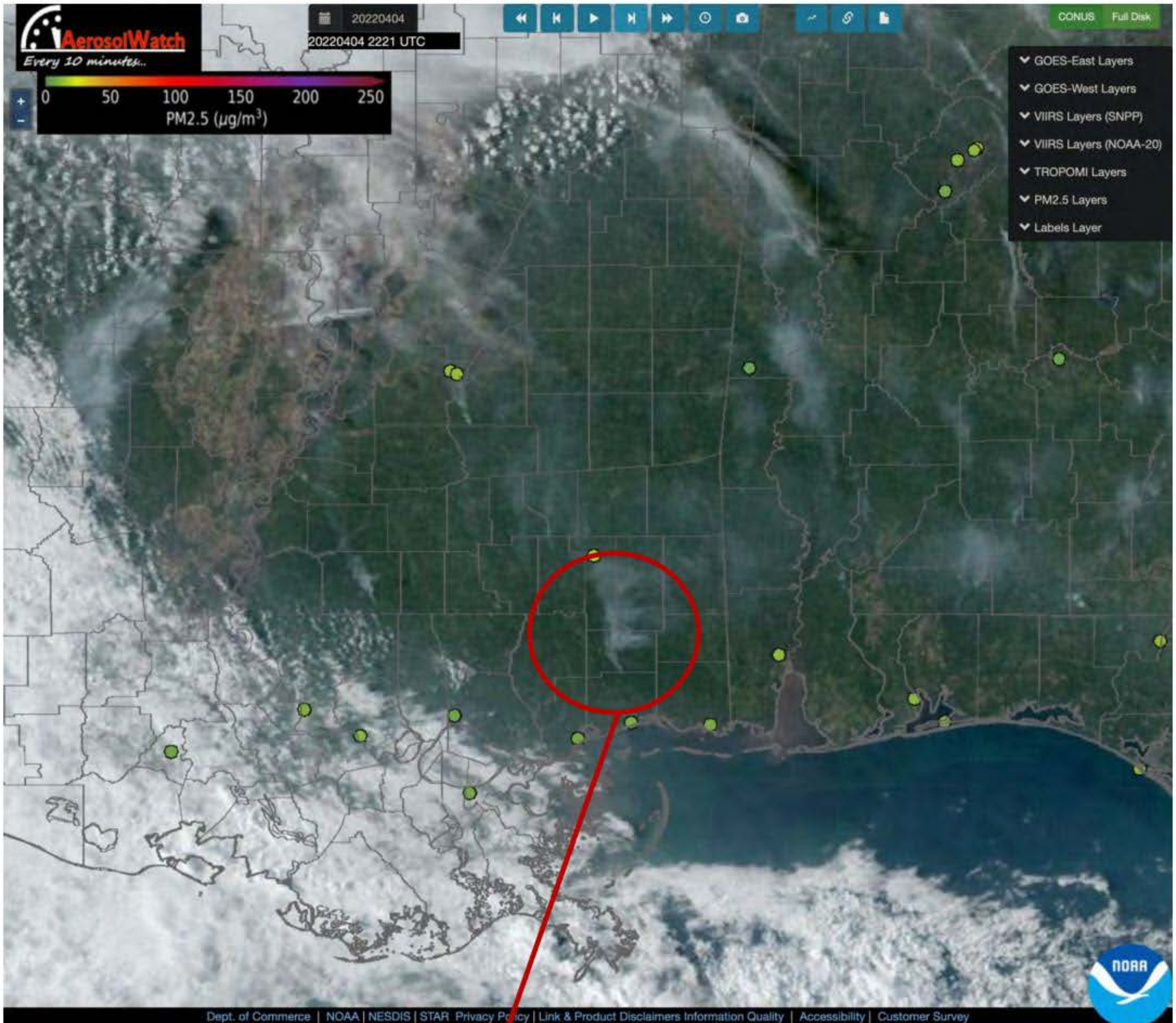
The 12Z surface analysis (April 4th, 2022, at 7 AM CDT) shows High pressure centered over the Mid-Atlantic states with calm winds stagnant conditions across the southeastern United States.



Calm winds and a strong nocturnal inversion the morning of April 4th, 2022, allowed previous days smoke from prescribed fires to collect near the surface, allowing PM2.5 values to climb in the early morning hours of April 4th, 2022.



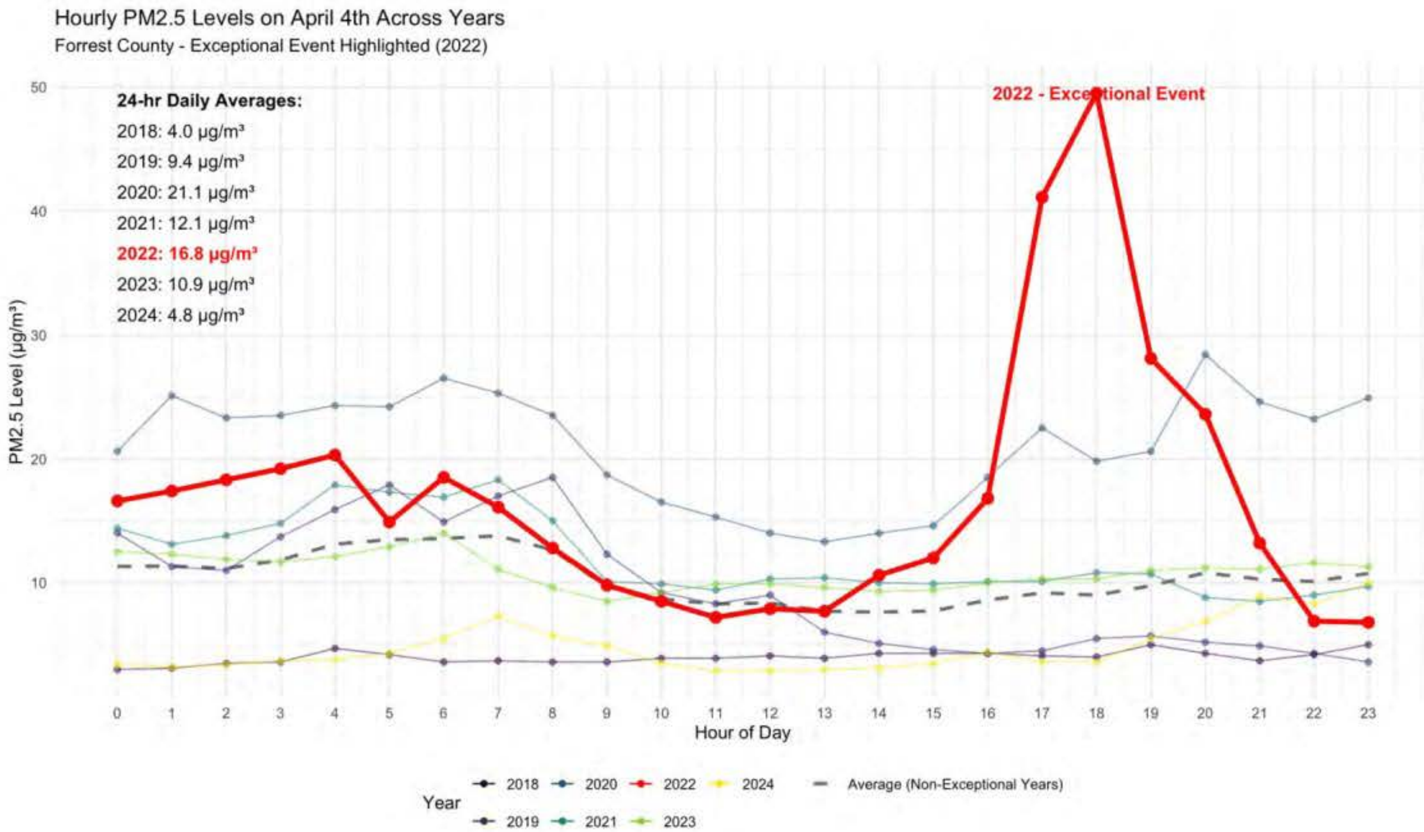
24-Hour Back trajectory shows, prescribed fires burning in the DeSoto National Forest on April the 4th, as the air parcel was moving over the fires from southeast to northwest, carrying the smoke plume from the fires directly towards, the Hattiesburg monitor.



A GOES East True Color image taken on April 4th, 2022, at 2221 UTC shows a smoke plume from a prescribed fire in the DeSoto National Forest. The fire was located south/southeast of the Hattiesburg monitor, and south/southeasterly winds carried the smoke north/northwest toward the monitor, resulting in elevated PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	04/04/22	18.5	19.3	20.2	21.1	22.2	16.8	20.4	18	13.7	10.7	9.4	8.1	8.8	8.6	11.5	12.9	17.7	42	50.4	29	24.5	14.1	8.5	8.4	18.12	50.4

The hourly PM2.5 values at the Hattiesburg monitor on April 4th showed elevated readings in the teens and twenties during morning hours due to smoke from previous days' prescribed fires being trapped underneath a strong nocturnal inversion. As the day progressed, values dropped into single digits due to increasing mixing heights and improved ventilation. However, in the late afternoon and evening, southeasterly winds carried the smoke plume from the prescribed fire over the Hattiesburg monitor, causing a one-hour spike of 50.4 µg/m³. The culmination of these high hourly values resulted in a 24-hour daily average of 18.12 µg/m³ at the Hattiesburg monitor.



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the significantly higher values in 2022 compared to the average of non-exceptional years. Notice how the late evening spike occurred due to smoke being carried in southeasterly wind flow to the Hattiesburg monitor, from the prescribed fires to the south and southeast.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
May 12, 2022	Wildfire	RT	28-035-0004	Hattiesburg	18.5	2	Wildfire C Exceptional Event Demonstration: May 12, 2022

Synopsis: Two main smoke sources affected a good portion of the central and southern United States during this period: the Hermits Peak, Calf Canyon, and Cerro Pelado wildfires in New Mexico, and ongoing fires in Mexico and Central America. In the days leading up to May 12th, strong high pressure over the southeast led to stable and stagnant conditions. At the upper levels, a trough extended over the western United States with ridging over the Lower and Mid-Mississippi Valley, and an upper-level low positioned off the Mid-Atlantic. These synoptic features helped transport smoke from both the New Mexico wildfires and the Mexico/Central American fires into the middle portion of the country and then east and southward, particularly affecting the Mid and Lower Mississippi Valleys on May 12th.

Thursday, May 12, 2022

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1700 May 12, 2022

SMOKE:
New Mexico...
The large wildfires burning in north-central New Mexico, particularly the Hermits Peak and Calf Canyon fires, were observed producing a combined plume of moderate to thick density smoke extending northeastward into western Colorado and over parts of Kansas. The smoke may extend further north into central U.S over parts of Nebraska and South Dakota though cloud cover has precluded analysis over this region in this morning's analysis.

Central and Eastern U.S...
An area of light to moderate density smoke from the Hermits Peak, Calf Canyon, and Cerro Pelado wildfires in New Mexico with contributions from recent burning activity was observed over the Mid-West starting from southern Ontario then continues southwest covering all of Texas and into eastern New Mexico, then east covering most of the eastern U.S., A large area of moderate density smoke stretches from Iowa east all the way into western New York, continuing as far south as the U.S Gulf states and into parts of the northeast Gulf of Mexico. This smoke continues south mixing with "SMOKE/AEROSOL" section.

SMOKE/AEROSOL:
Texas/Mexico/Central America/Gulf of Mexico/Pacific...
A large mass of light to moderate density smoke from heavy seasonal fire activity mixed with aerosols from oil/gas flaring and other industrial sources in Mexico was observed covering most of Mexico, southern Texas, parts of Central America, the Bay of Campeche, most of the Gulf of Mexico, and extending well offshore south of Mexico and Central America into the Pacific. Moderate density smoke covered the western Gulf of Mexico, most of the Bay of Campeche, and eastern and southern Mexico, as well as extending south into the Pacific through the southern coast of Mexico and northwestern Central America.

BLOWING DUST:
New Mexico...
An area of generally light density blowing dust was observed moving southeast/east over northern New Mexico .

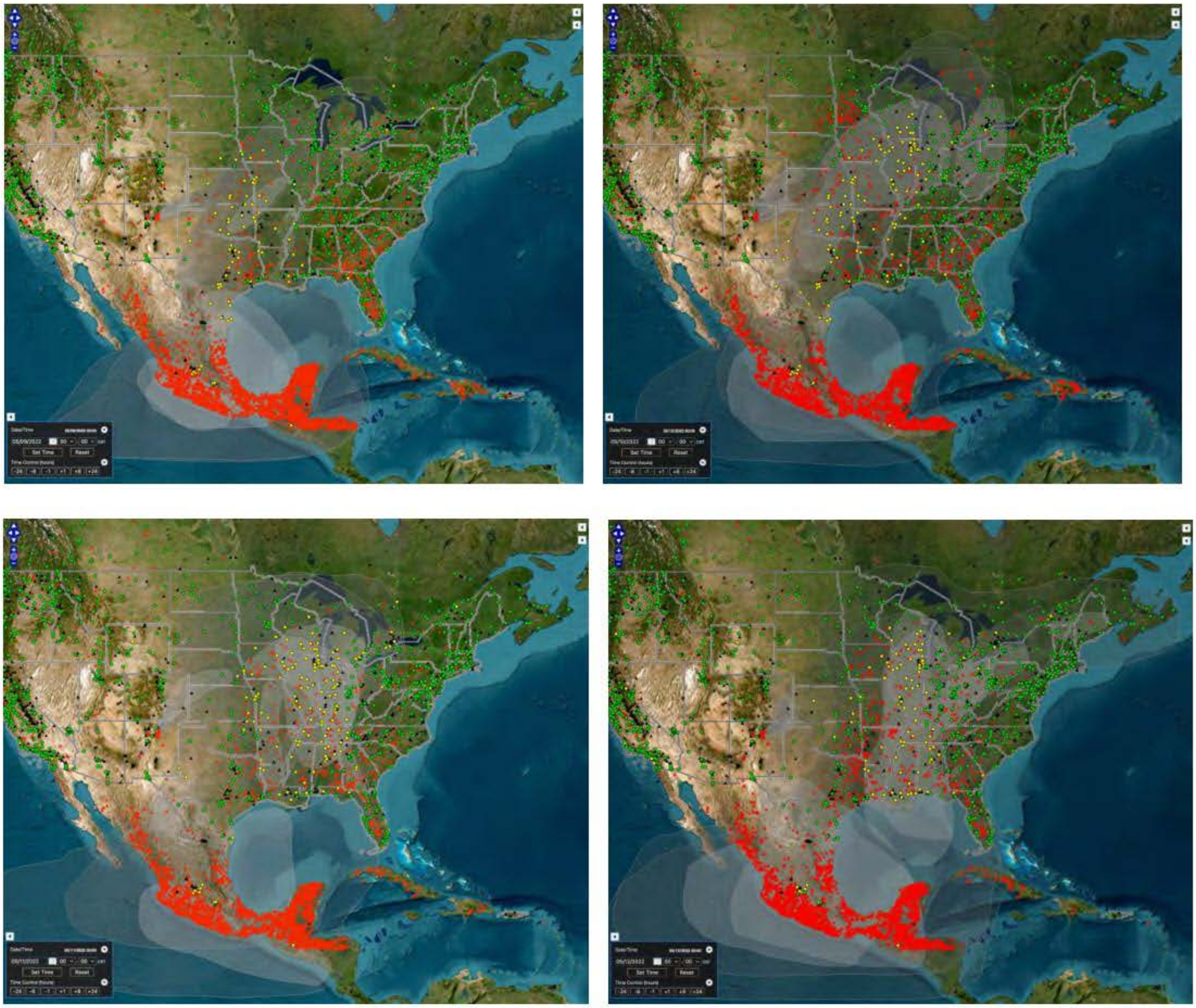
Nguyen

THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

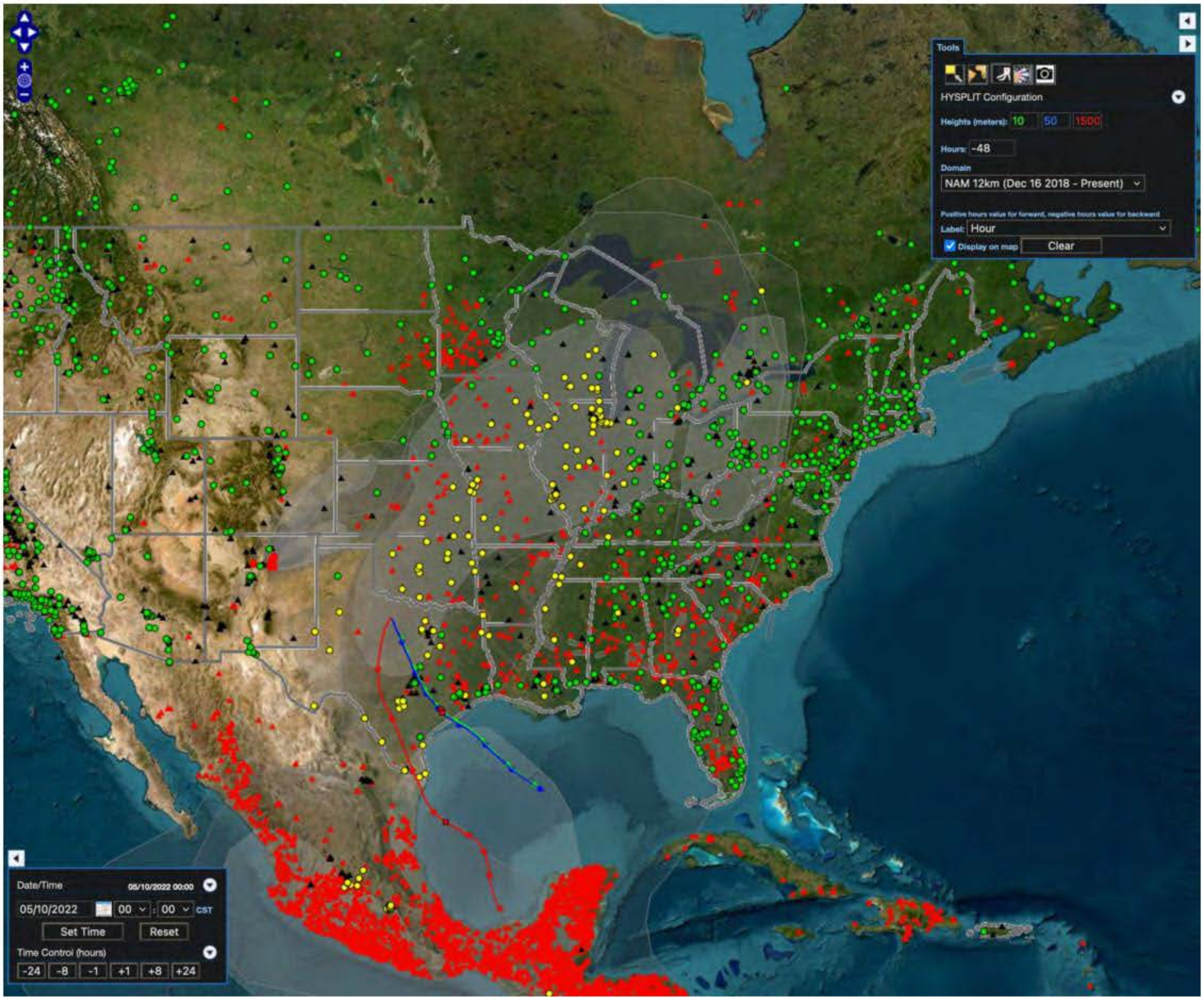
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

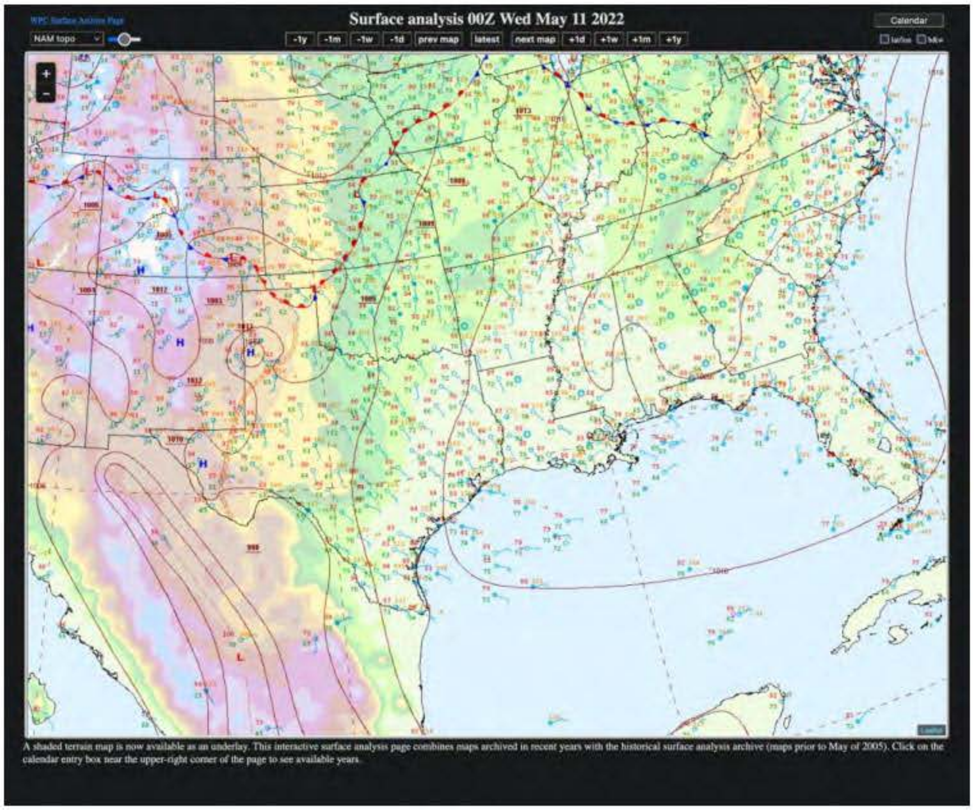
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2022/2022E121617.html) narrative from May 12th, 2022 at 1700Z (May 12th, 2022 at 12:00PM CDT) discusses the smoke scenario in relation to Central and Eastern United States impacts from the Hermits Peak, fire as well as burning activity over the Mid-West, spreading into the east and south to the Gulf states and how this smoke was mixing with fires from Mexico.

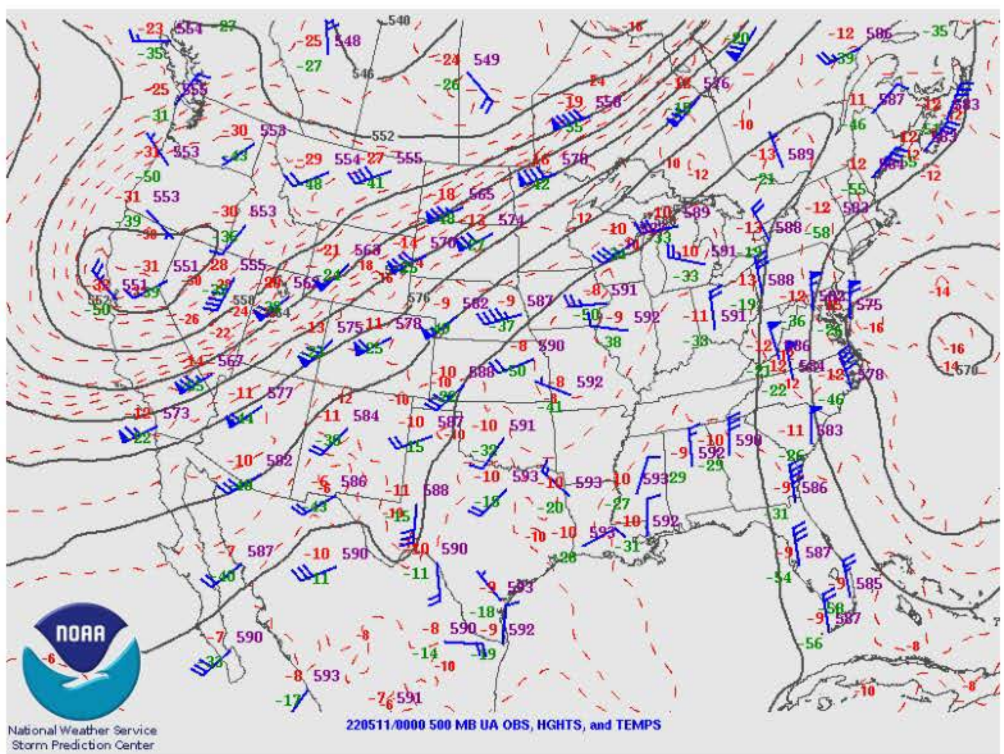


A series of AirNow-Tech Navigator maps from May 9th to May 12th shows the evolution of wildfire smoke from two sources: fires in New Mexico and fires in Mexico/Central America. The maps demonstrate how smoke from Mexico and Central America moved northward between the 9th and 10th into north-central Texas, merging with smoke moving eastward from the New Mexico wildfires. This combined smoke plume then moved into the Mid-Mississippi Valley and Ohio River Valley on the 11th, before shifting south over the Lower Mississippi Valley on the 12th, resulting in elevated PM2.5 readings.



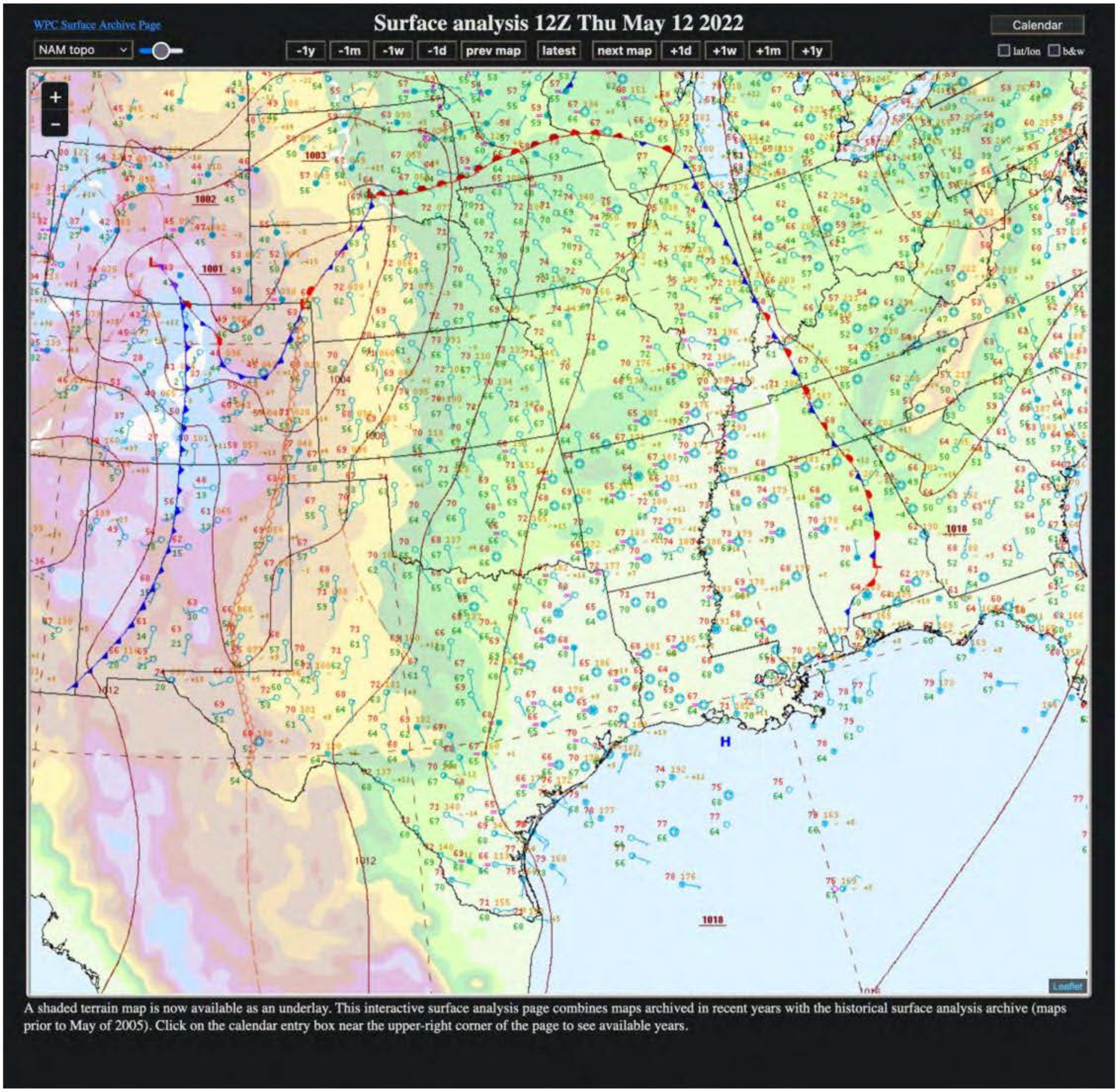
48-hour back trajectories on May 10th, showing 10m, 50m, and 1500m level parcels, demonstrate smoke transport from Mexico/Central American wildfires into Texas. This transport was facilitated by southerly winds on the backside of surface high pressure dominating the southeast, coupled with upper level troughing digging into the Four Corners region, which helped lift and transport the smoke into the south-central United States.



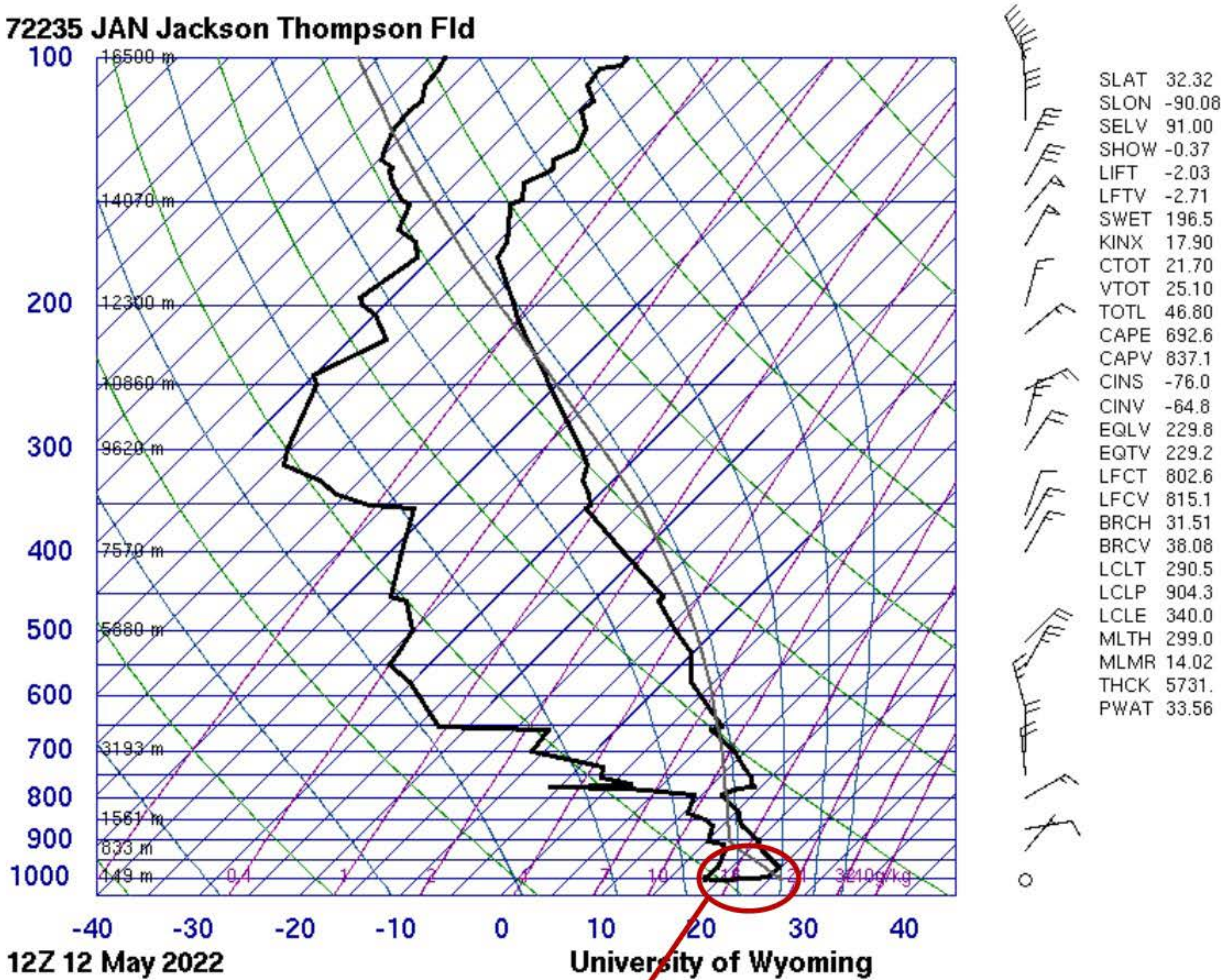


Both surface and upper-level maps illustrate the smoke transport pattern. The surface map shows southeasterly flow over Texas, while at 500mb, a trough digging into the western United States worked in tandem to transport smoke from both the New Mexico wildfires and the Mexico/Central American wildfires into the Midwest. Then, northerly flow on the east side of upper-level ridging over the Mid-Mississippi Valley helped transport smoke southward into the Lower Mississippi Valley

48-hour back trajectories on May 12th, showing 10m, 50m, and 1500m level parcels, demonstrate how smoke already present in the Mid-Mississippi Valley and Ohio River Valley was transported southward into the Lower Mississippi Valley. This transport was facilitated by northerly winds on the east side of upper-level ridging, which carried the smoke into the southern United States, elevating PM2.5 values at the Hattiesburg monitor.



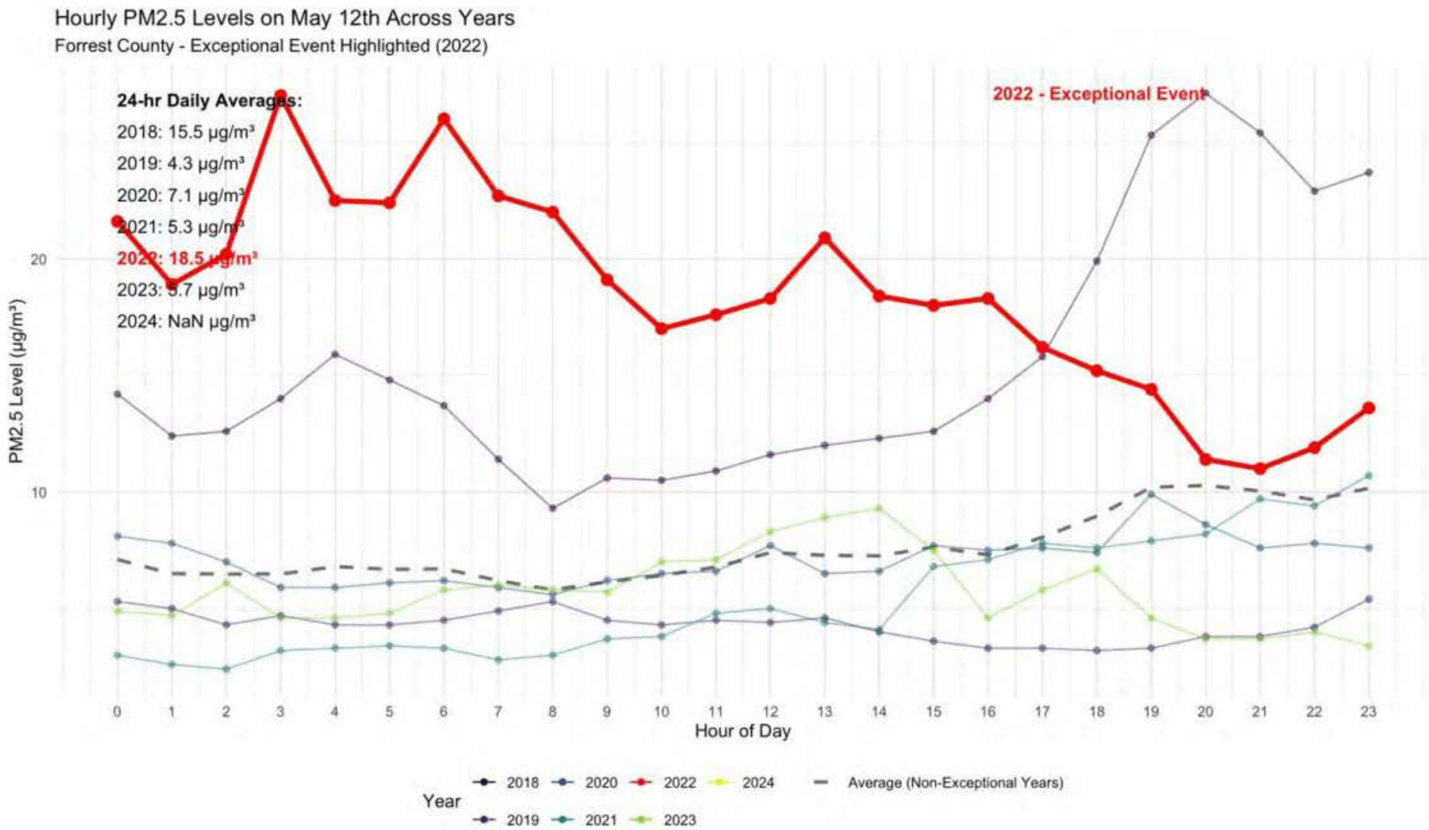
12Z surface map on May 12th shows calm conditions across the southeast with 1018mb High positioned just off central Louisiana coastline. Smoke that has moved in over the southeast, during the morning hours were trapped close to the surface thanks to nocturnal inversion development during the overnight hours under such calm conditions.



12Z sounding on May the 12th, 2022 from Jackson shows strong nocturnal inversion that has developed overnight, helping trap smoke near the surface, heightening PM2.5 values into the 20's.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	05/12/22	22.5	19.8	21.1	27.9	23.4	23.3	26.9	23.6	22.9	20	17.9	18.5	19.2	21.8	19.3	18.9	19.2	17.1	16.1	15.3	12.3	11.9	12.8	14.5	19.43	27.9

Hourly values from AirNow-Tech at the Hattiesburg monitor show PM2.5 values well into the twenties during the morning hours, due to a nocturnal inversion trapping smoke near the surface. As the day progressed, PM2.5 values dropped into the upper teens, and during the overnight hours, further decreased into the lower teens. With the majority of hourly values remaining in the teens and twenties due to transported smoke, the daily average was 19.43 µg/m^3.



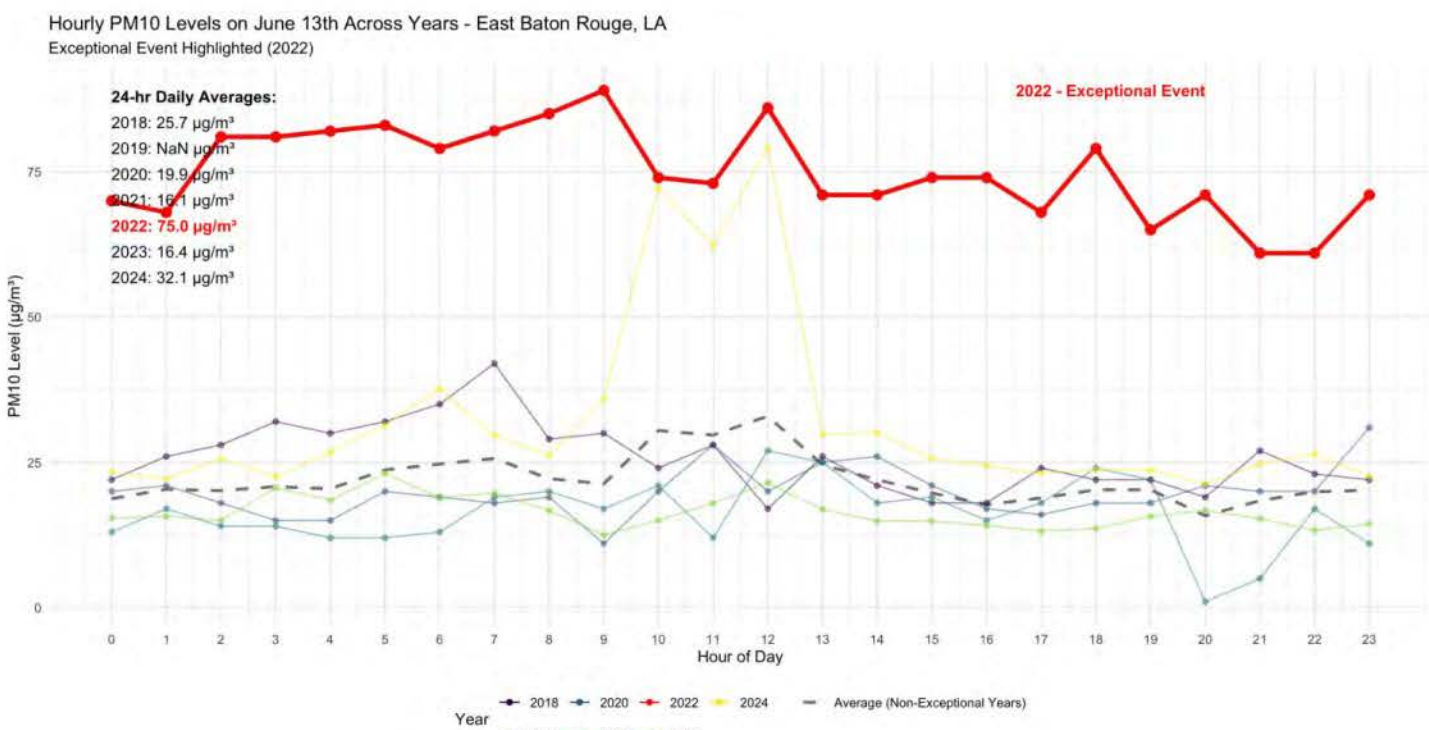
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past six years, highlighting the higher values in 2022 compared to the average of non-exceptional years.

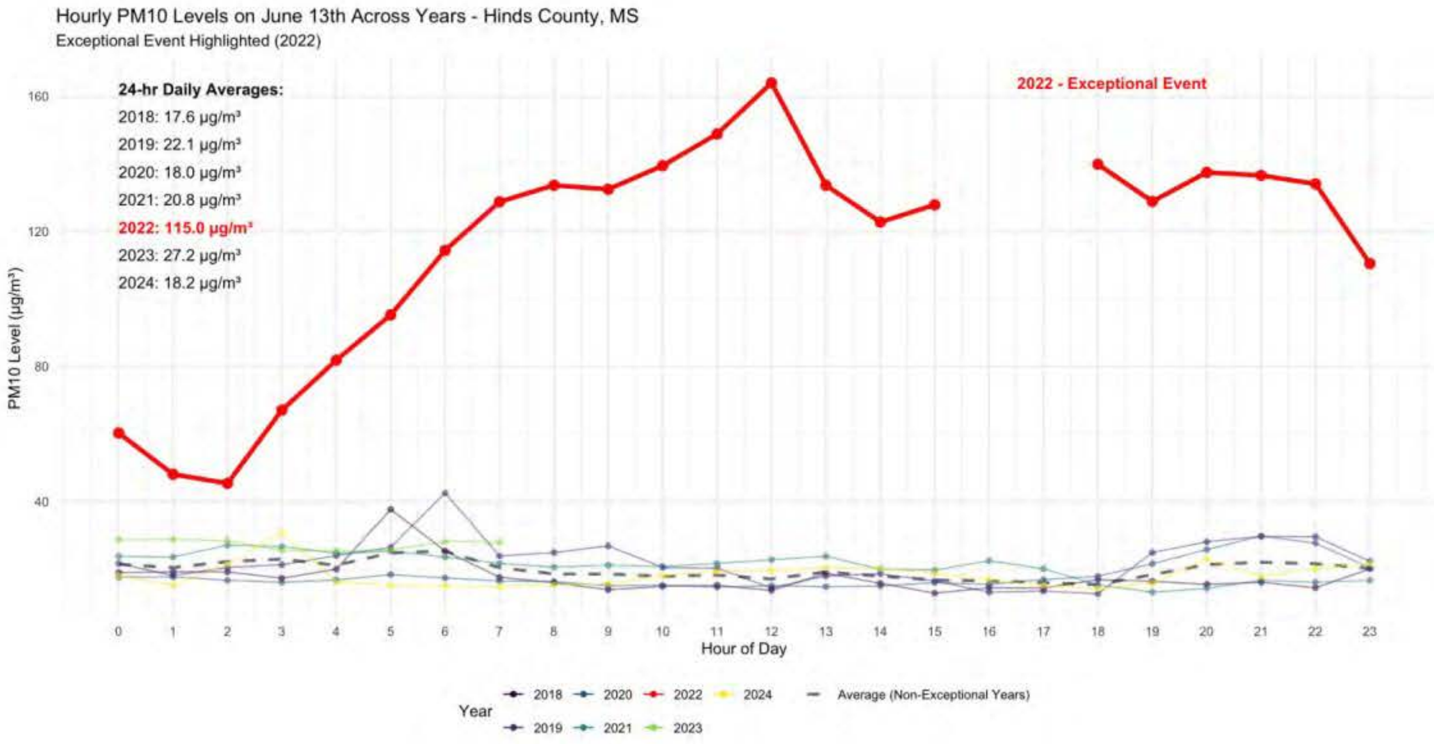
Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
June 13-15, 2022	Saharan Dust	IA	28-035-0004	Hattiesburg	30.4, 23.3, 20.1	2	Saharan Dust Exceptional Event Demonstration: June 13-15, 2022

Synopsis: Southerly flow at the surface thanks to Bermuda Ridge in place anchored off the Eastern Seaboard, issuing in deep tropical moisture over the southeastern United States. Imbedded in this southerly flow is Saharan dust making its way from the Atlantic, into the Gulf of Mexico, affecting the Texas, Louisiana, and Mississippi.

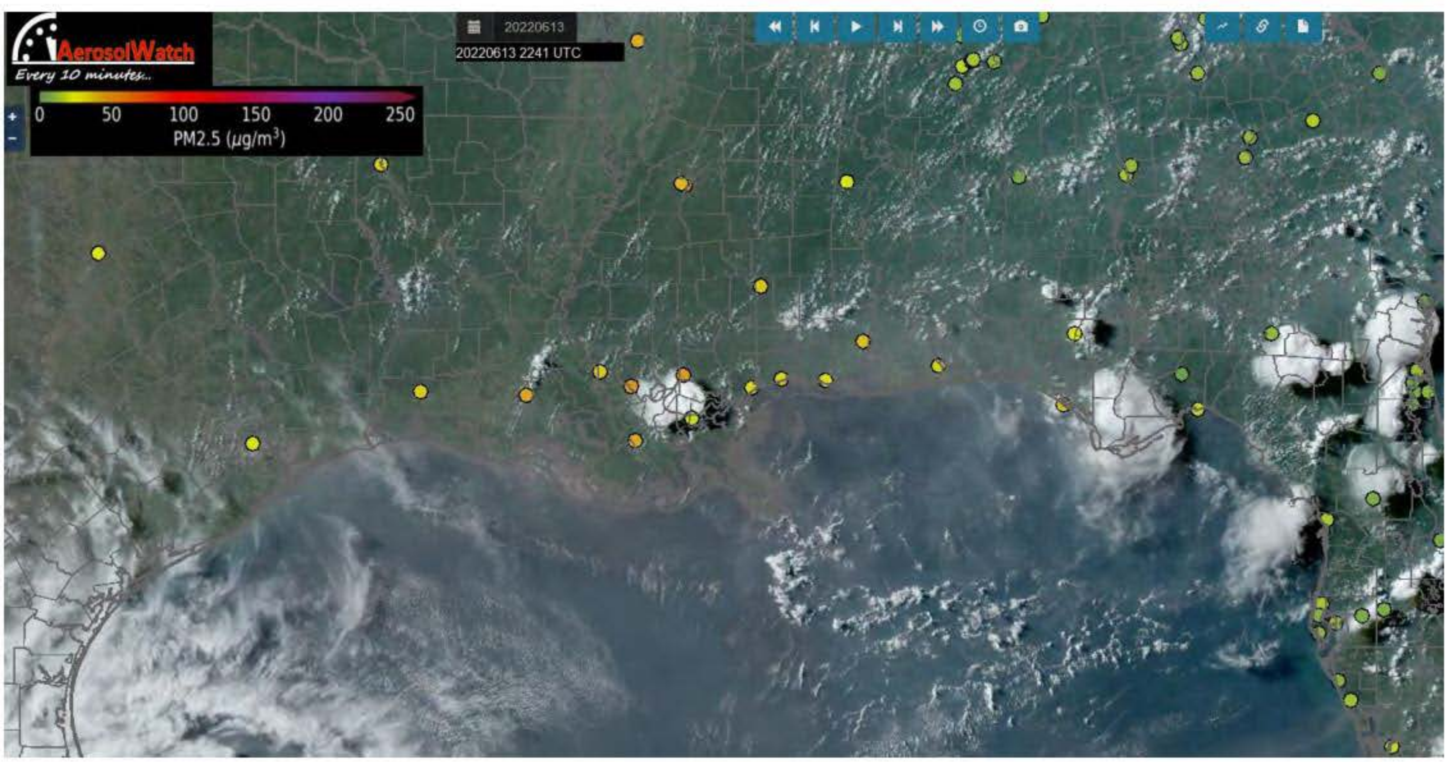
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Capitol/220330009/PM10-81102/1	06/13/22	70	68	81	81	82	83	79	82	85	89	74	73	86	71	71	74	74	68	79	65	71	61	61	71	74.96	89
Jackson NCORE/280490020/PM10-81102/1	06/13/22	60	48	45	67	81	95	114	128	133	132	139	148	163	133	122	127	138	510	139	128	137	136	134	110	115.52	163

Good indication of Saharan dust moving into the southeastern United States is depicted in figure above from PM10 monitoring locations in both Mississippi and Louisiana. Louisiana's Capitol PM10 monitor had a daily PM10 average of 75ug/m^3 and Mississippi's Jackson, NCORE station had a daily PM10 value on June 13th of 116ug/m^3.





The hourly time series cross-sections in the figures above illustrate PM10 levels over the past seven years (2018-2024) at both the East Baton Rouge PM10 monitoring location and Mississippi's NCORE monitoring station. The plots highlight elevated values in 2022 compared to the average of non-exceptional years, attributable largely to Saharan Dust transport across the Gulf States.

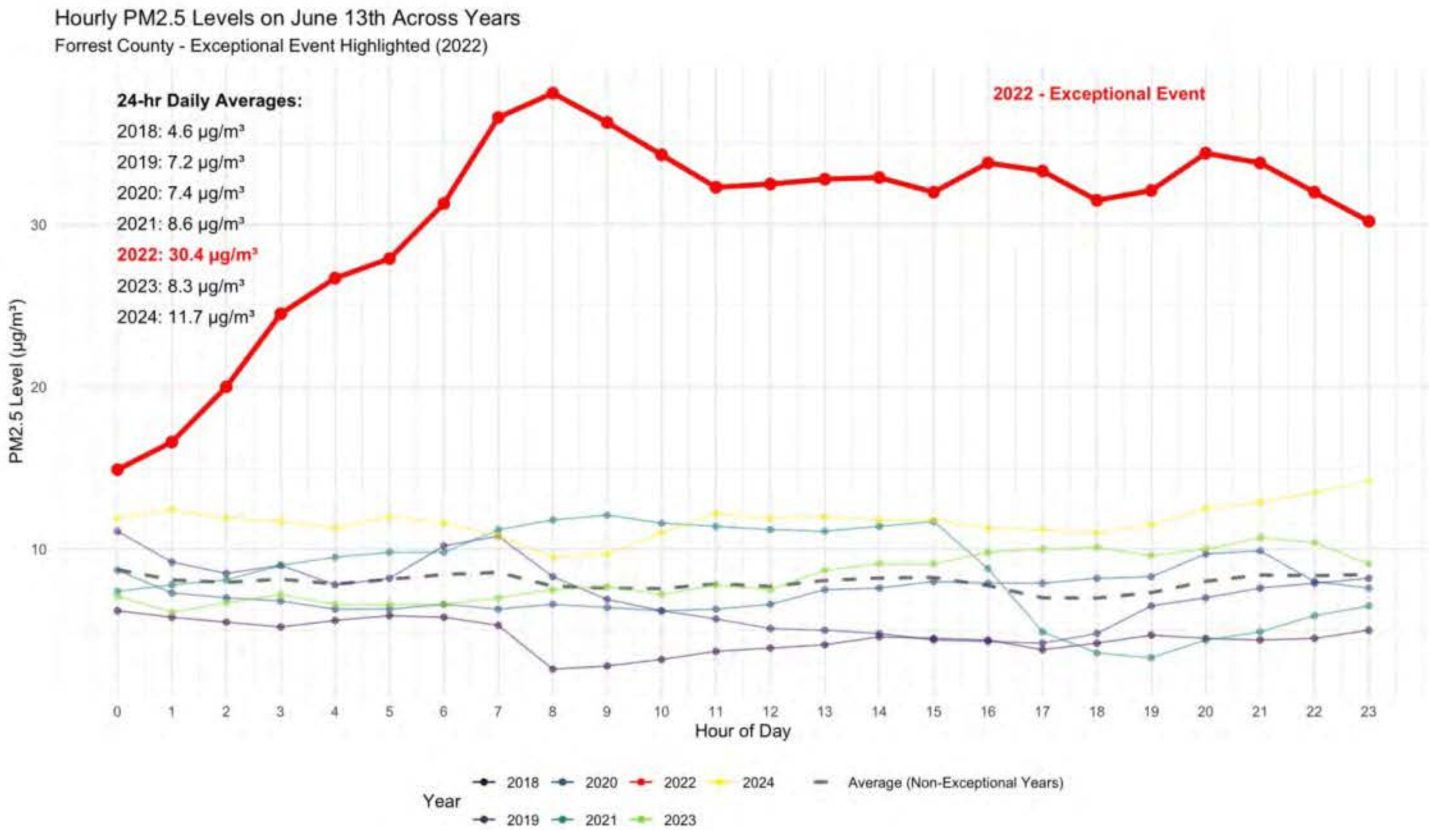


GOES-East GeoColor layer imagry taken at June 13th, 2022 at 2241UTC, showing heavy dust across the northern Gulf of Mexico and inland, across the Gulf States, increasing both PM10 and PM2.5 levels. Shown in the image along with the dust is PM2.5 monitoring site overlays.

72-Hour back trajectories, showing 10m, 50m, and 1500m level parcels bringing Saharan dust from the Gulf of Mexico, onshore, across the Gulf States.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	06/13/22	15.8	17.5	20.9	25.4	27.6	28.8	32.2	37.5	39	37.2	35.2	33.2	33.4	33.7	33.8	32.9	34.7	34.2	32.4	33	35.3	34.7	32.9	31.1	31.35	39

Hattiesburg monitor showing hourly PM2.5 averages during high Saharan dust event with a 24-hour daily average of 31.35ug/m^3 on June 13, 2022.

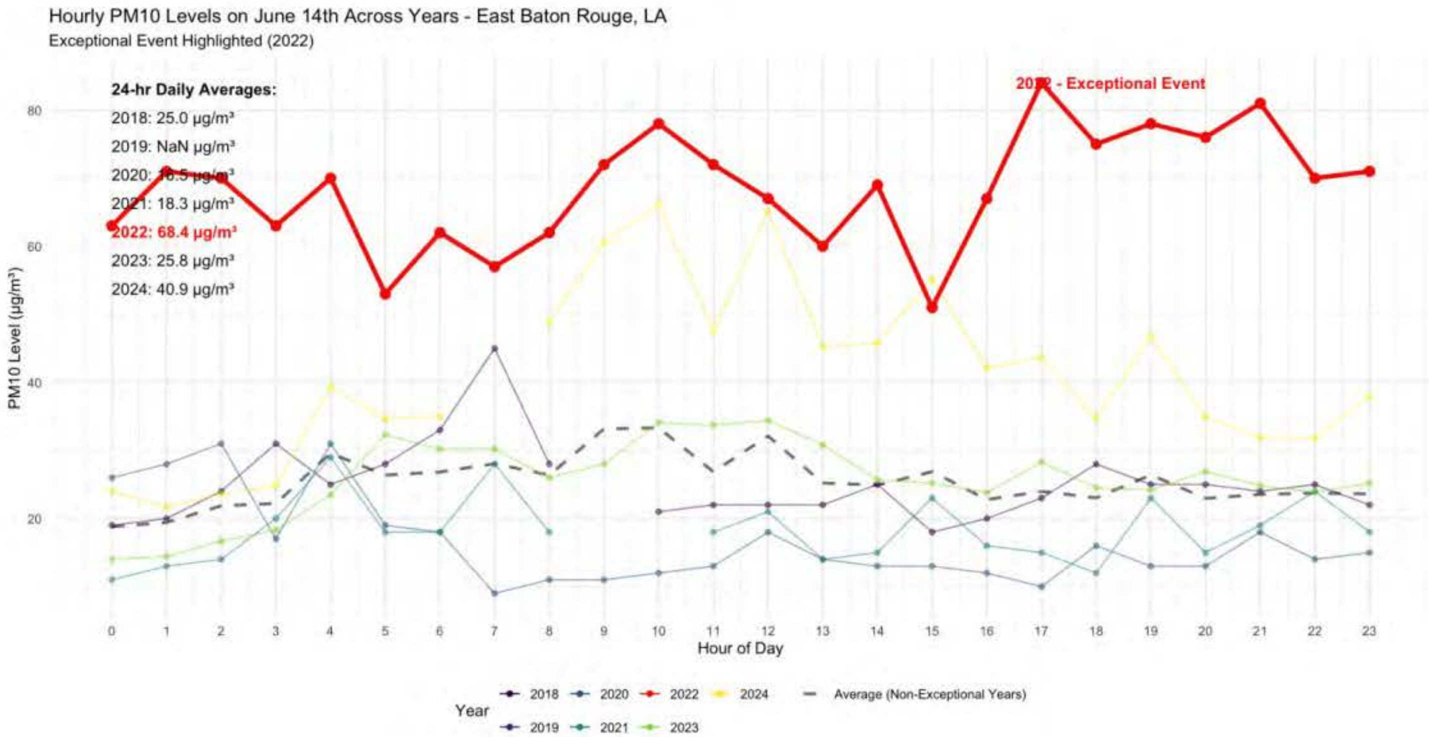


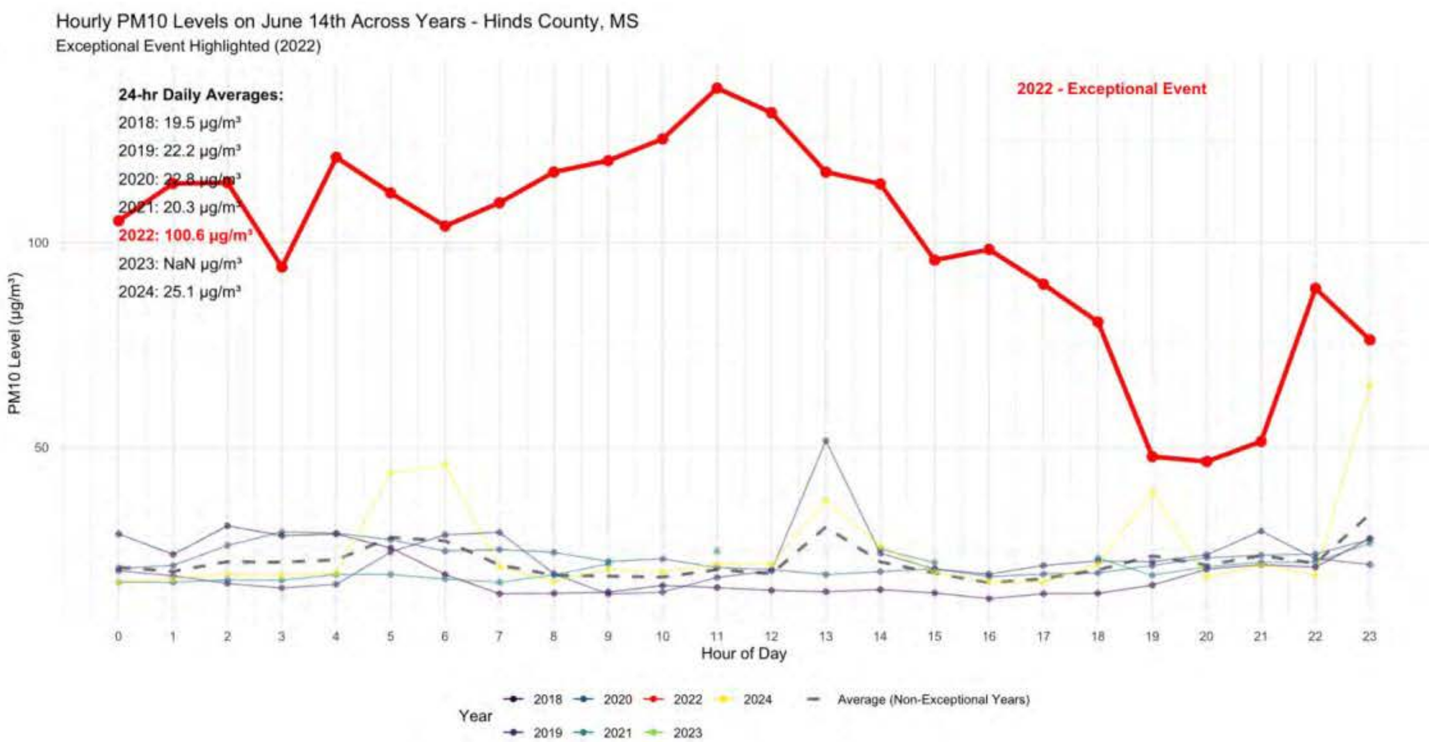
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2022 compared to the average of non-exceptional years thanks in large part to Saharan Dust across the Gulf States.

June 14th: Continuation of Saharan Dust event as persistent southerly flow around backside of Bermuda ridge, continued to issue in Saharan dust over the Gulf States from the Gulf of Mexico. We can see the continuation by looking at the hourly PM10 values for both Louisiana's Capitol PM10 Monitor as well as Mississippi's, Jackson NCORE monitor as seen in the figure below.

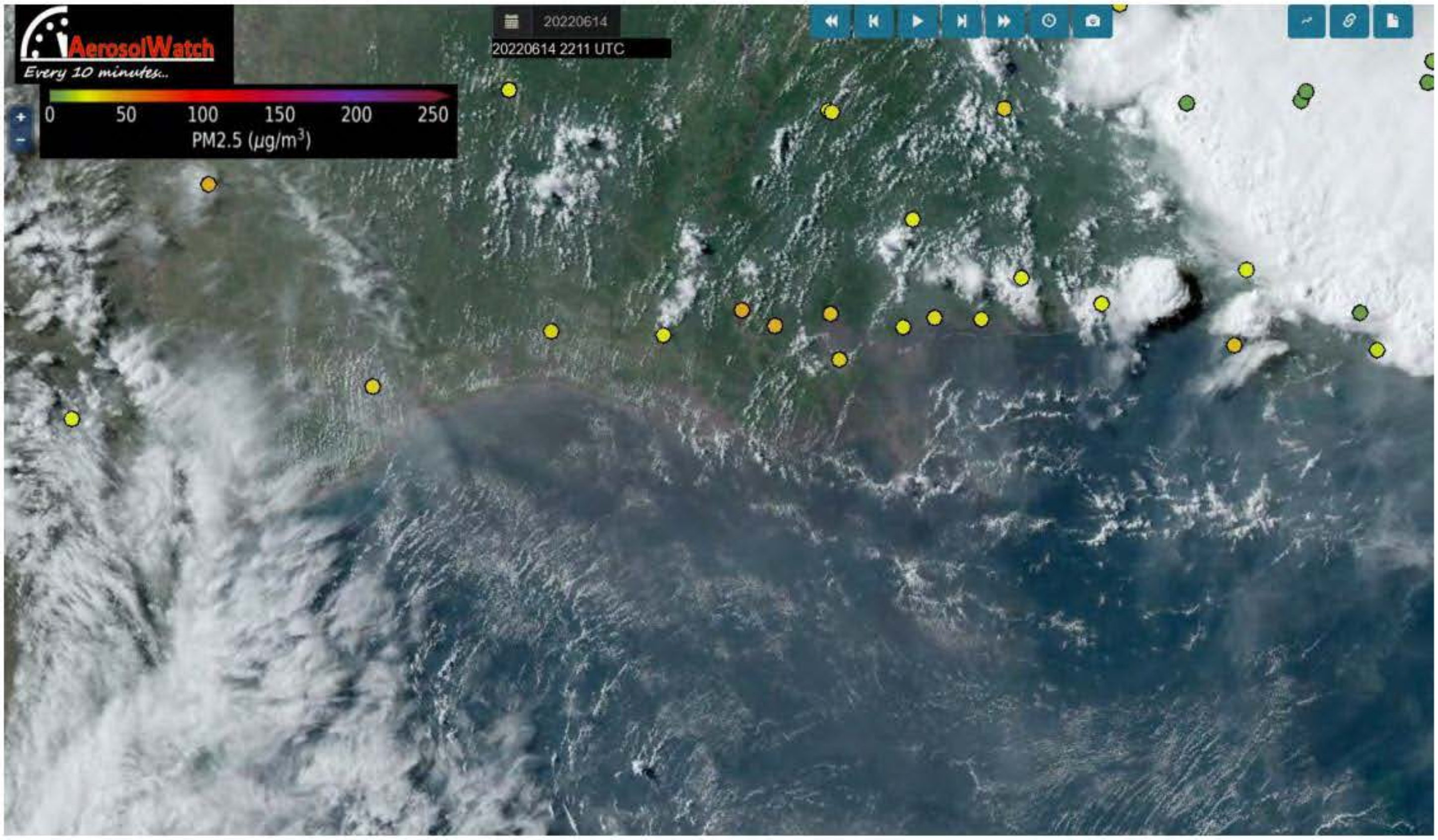
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Capitol/220330009/PM10-81102/1	06/14/22	63	71	70	63	70	53	62	57	62	72	78	72	67	60	69	51	67	84	75	78	76	81	70	71	68.42	84
Jackson NCORE/280490020/PM10-81102/1	06/14/22	105	114	114	94	120	112	104	109	117	120	125	137	131	117	114	95	98	89	80	47	46	51	88	76	100.13	137

PM10 values were high with a daily average of 68 at Louisiana's PM10 monitor and a daily PM10 average of 100 at Mississippi's Jackson NCORE monitor.

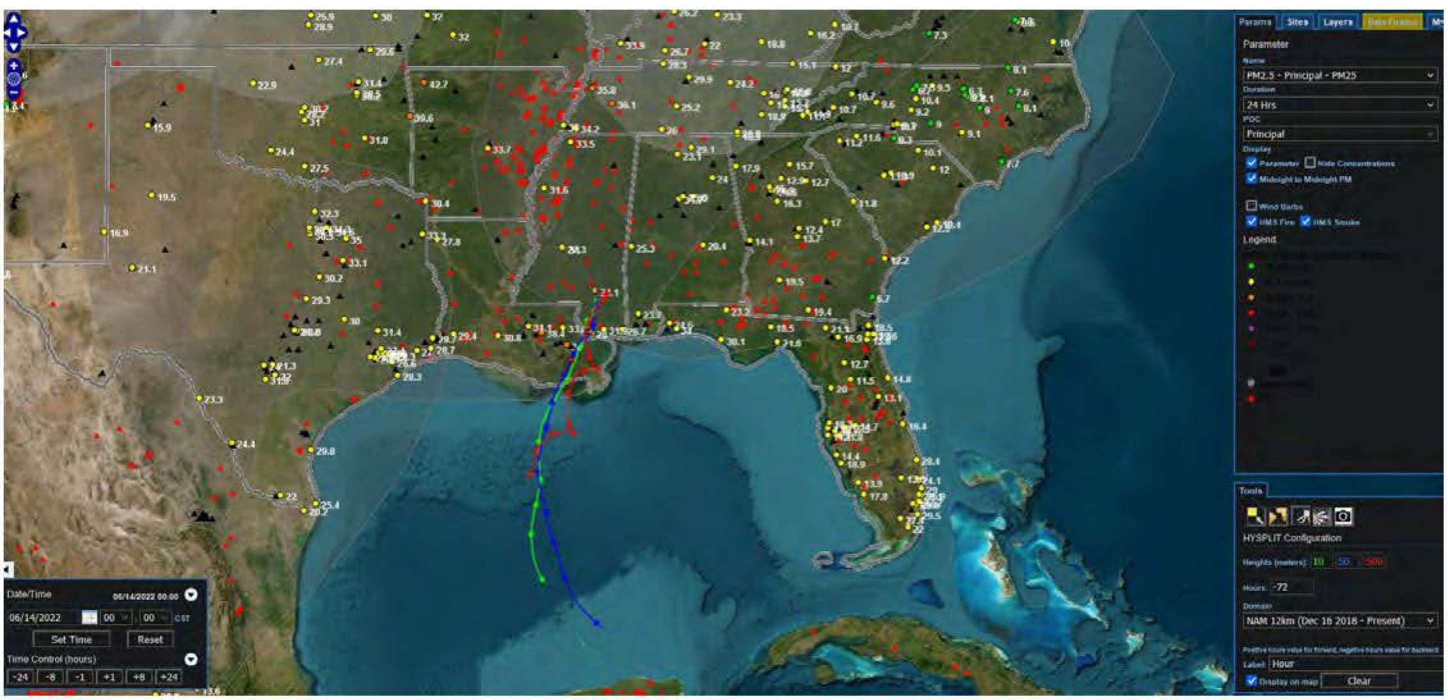




The hourly time series cross-sections in the figures above illustrate PM10 levels over the past seven years (2018-2024) at both the East Baton Rouge PM10 monitoring location and Mississippi's NCORE monitoring station. The plots highlight elevated values in 2022 compared to the average of non-exceptional years, attributable largely to Saharan Dust transport across the Gulf States.



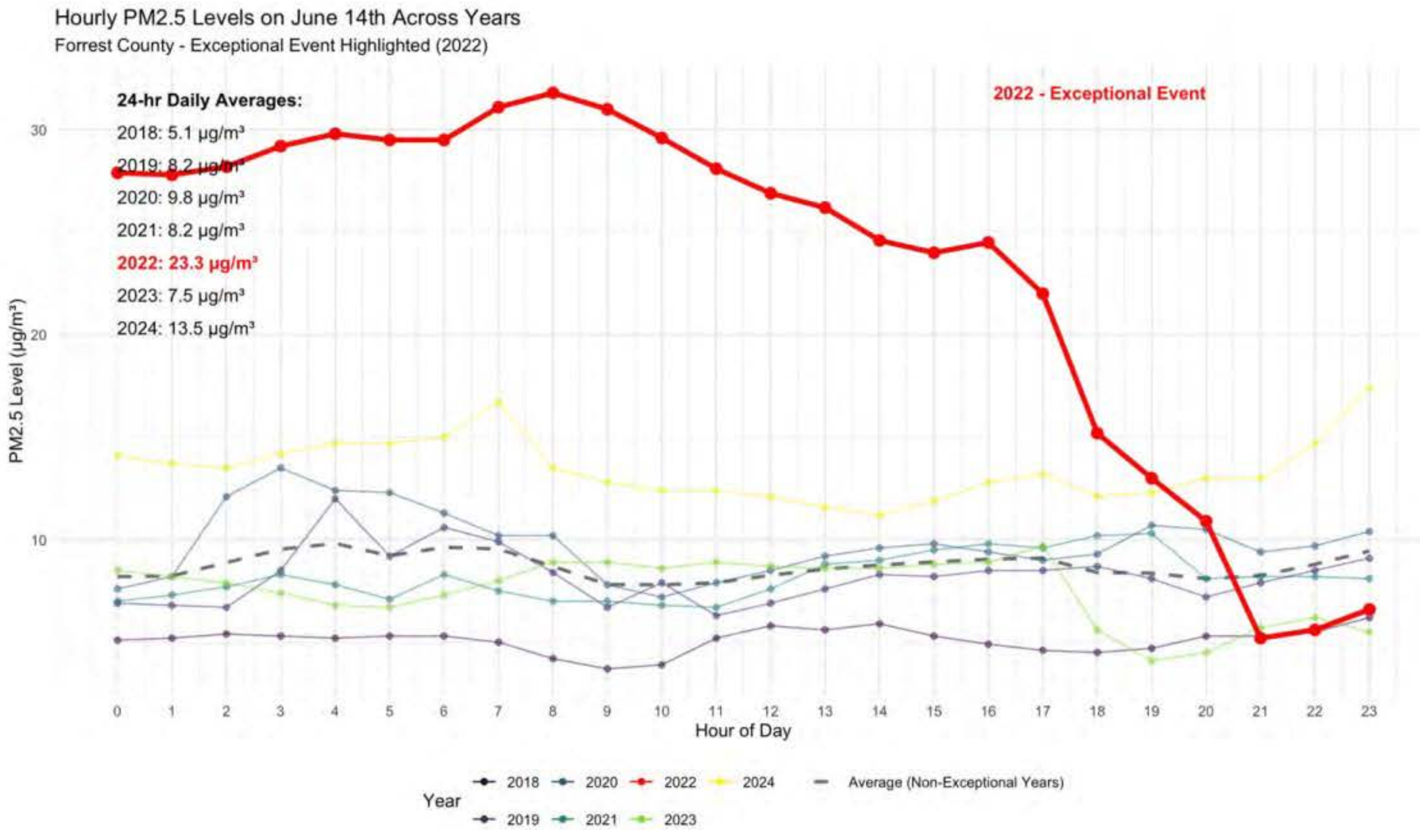
GOES-East GeoColor layer imagry taken at June 14th, 2022 at 2211UTC, showing continued heavy Saharan dust across the northern Gulf of Mexico and inland, across the Gulf States, increasing both PM10 and PM2.5 levels. Shown in the image along with the dust is PM2.5 monitoring site overlays.



72-Hour back trajectories, showing 10m, 50m, and 1500m level parcels continuing to issue in Saharan dust from the Gulf of Mexico, onshore, across the Gulf States on June 14, 2022.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	06/14/22	28.8	28.7	29.1	30.1	30.7	30.4	30.4	32	32.7	31.9	30.5	29	27.8	27.1	25.5	24.9	25.4	22.9	16.1	13.9	11.8	6.1	6.5	7.5	24.16	32.7

Hattiesburg monitor showing hourly PM2.5 averages during high Saharan dust event with a 24-hour daily average of 24.16 ug/m^3 on June 14, 2022

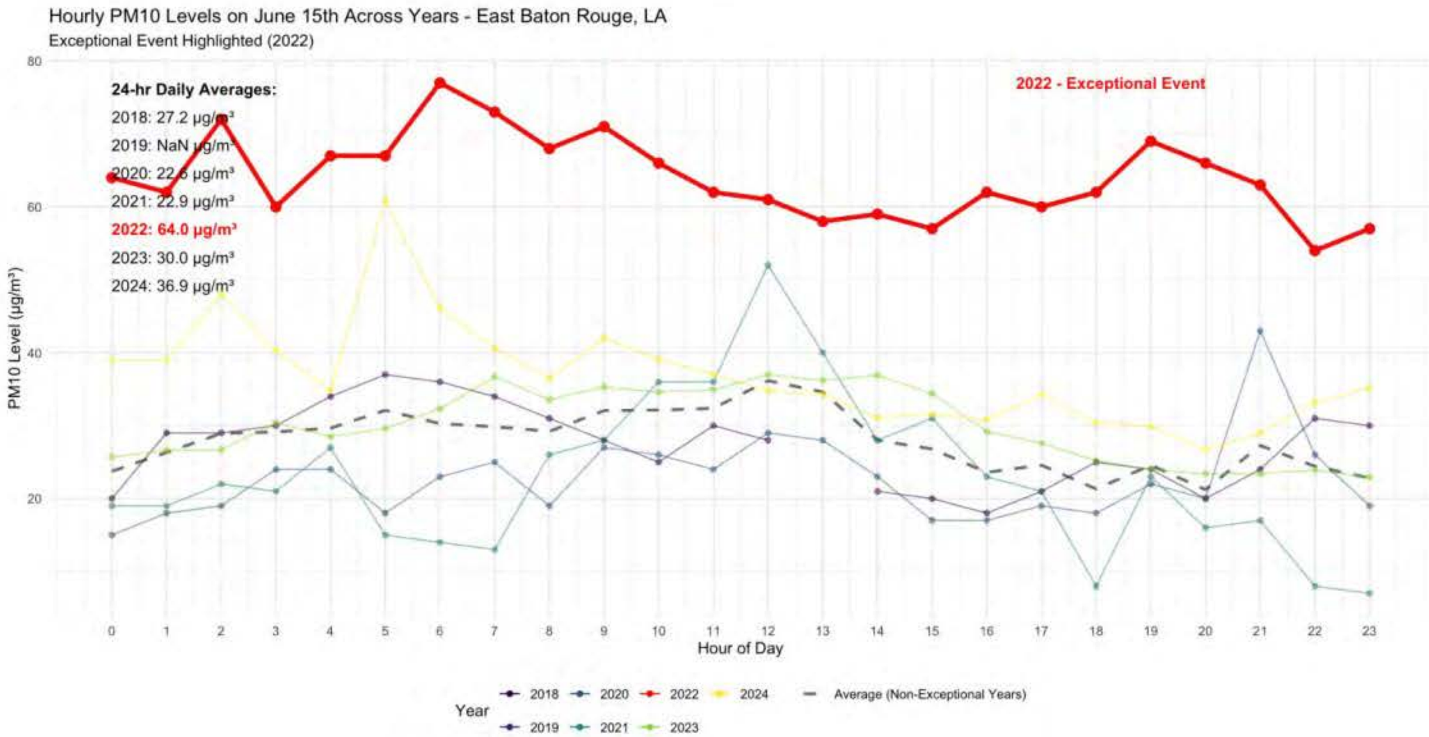


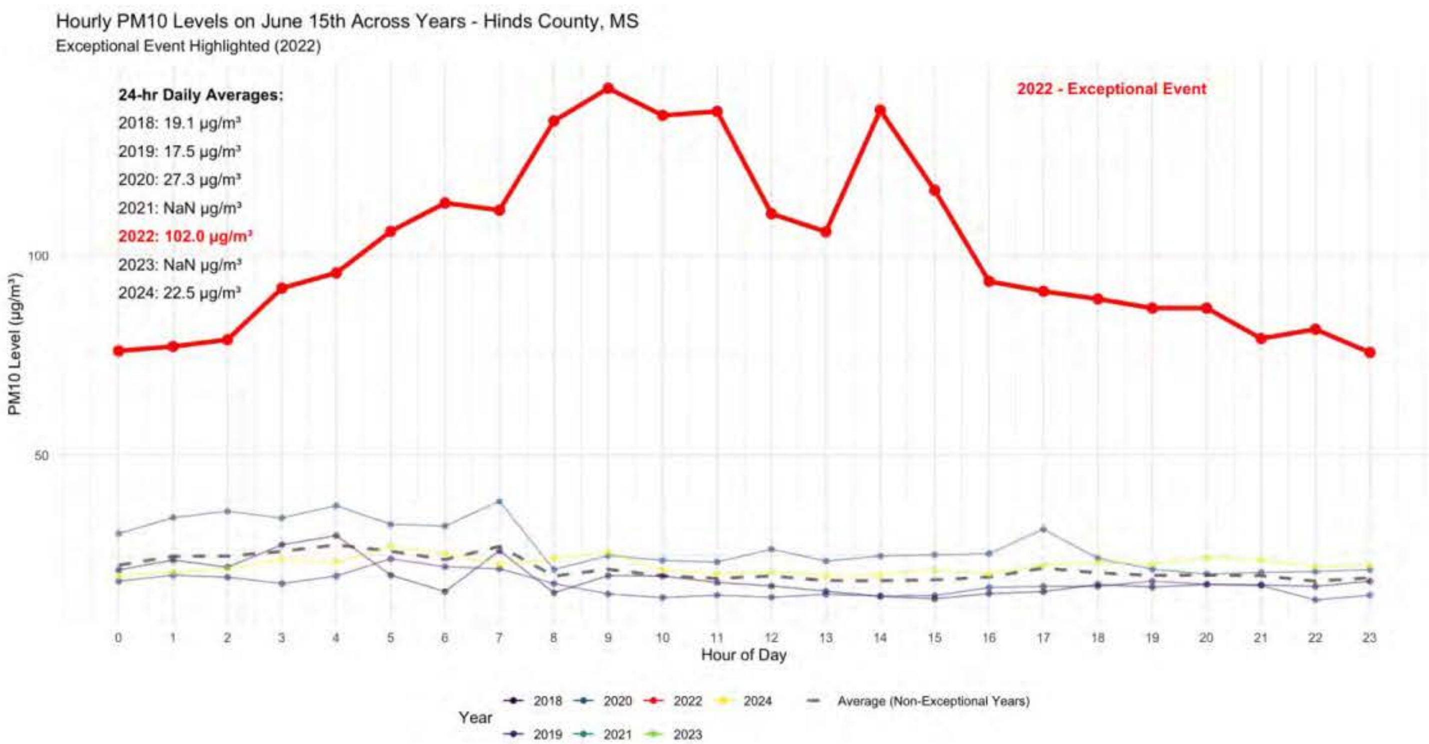
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2022 compared to the average of non-exceptional years thanks in large part to Saharan Dust across the Gulf States.

June 15th: Continuation of Saharan Dust event as persistent southerly flow around backside of Bermuda ridge, continued to issue in Saharan dust over the Gulf States from the Gulf of Mexico. We can see the continuation by looking at the hourly PM10 values for both Louisiana's Capitol PM10 Monitor as well as Mississippi's, Jackson NCORE monitor as seen in the figure below.

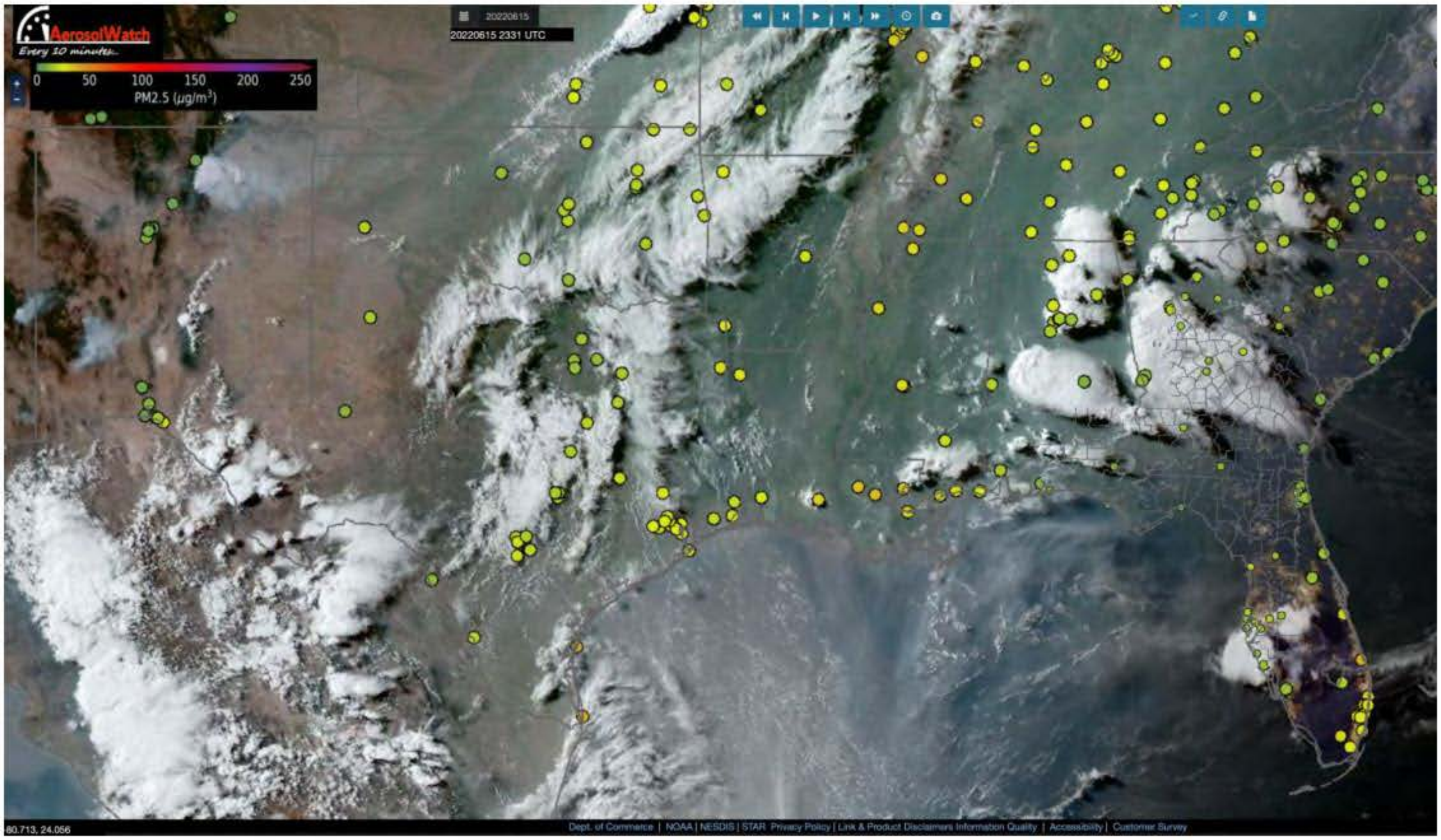
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Capitol/220330009/PM10-81102/1	06/15/22	64	62	72	60	67	67	77	73	68	71	66	62	61	58	59	57	62	60	62	69	66	63	54	57	64.04	77
Jackson NCORE/280490020/PM10-81102/1	06/15/22	76	77	78	91	95	106	113	111	133	141	135	136	110	105	136	116	93	91	89	86	86	79	81	75	101.63	141

PM10 values were high with a daily average of 64 at Louisiana's PM10 monitor and a daily PM10 average of 101 at Mississippi's Jackson NCORE monitor.





The hourly time series cross-sections in the figures above illustrate PM10 levels over the past seven years (2018-2024) at both the East Baton Rouge PM10 monitoring location and Mississippi's NCORE monitoring station. The plots highlight elevated values in 2022 compared to the average of non-exceptional years, attributable largely to Saharan Dust transport across the Gulf States.

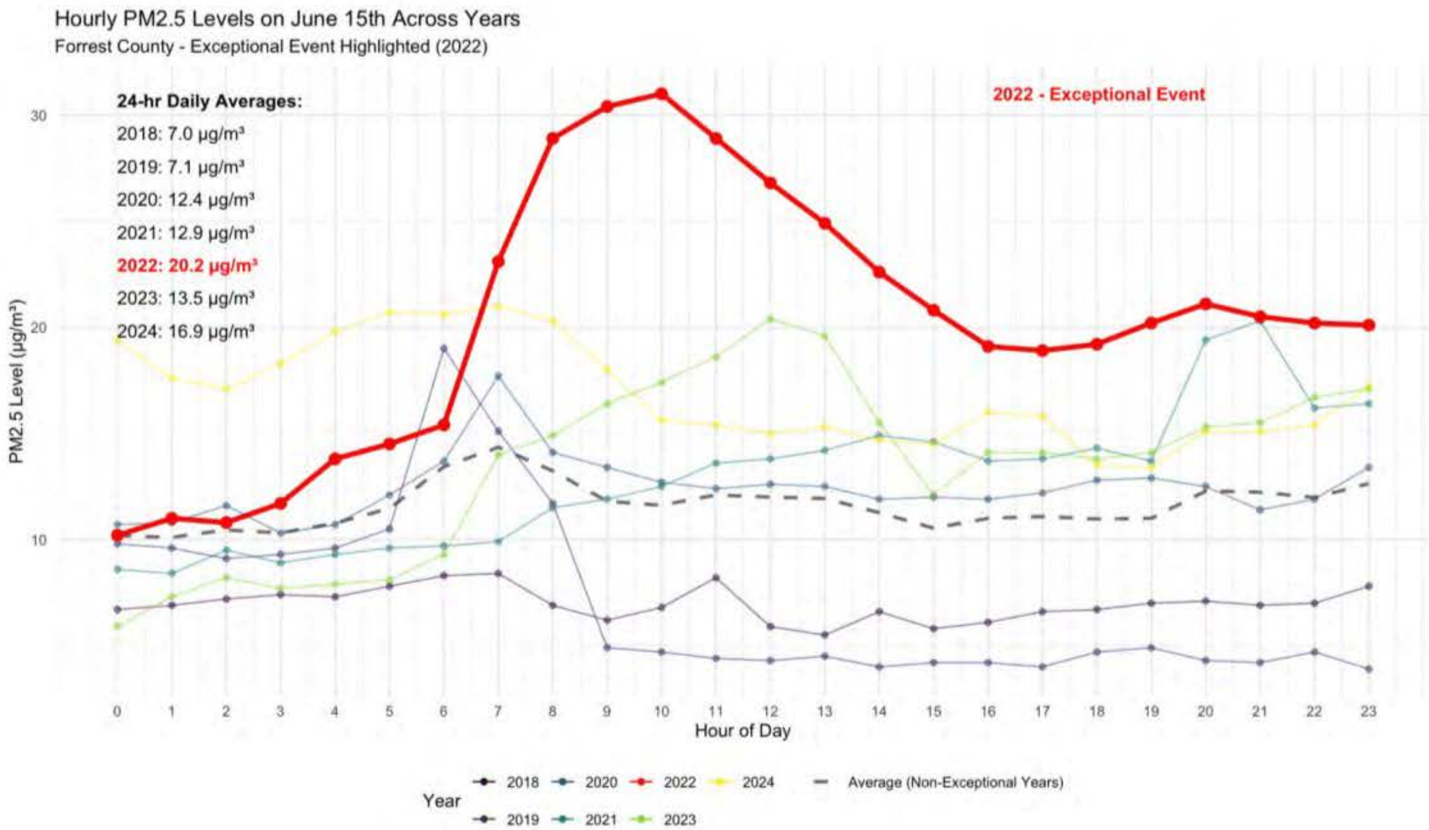


GOES-East GeoColor layer imagry taken at June 15th, 2022 at 2331UTC, showing continued heavy Saharan dust across the northern Gulf of Mexico and inland, across the Gulf States, increasing both PM10 and PM2.5 levels. Shown in the image along with the dust is PM2.5 monitoring site overlays.

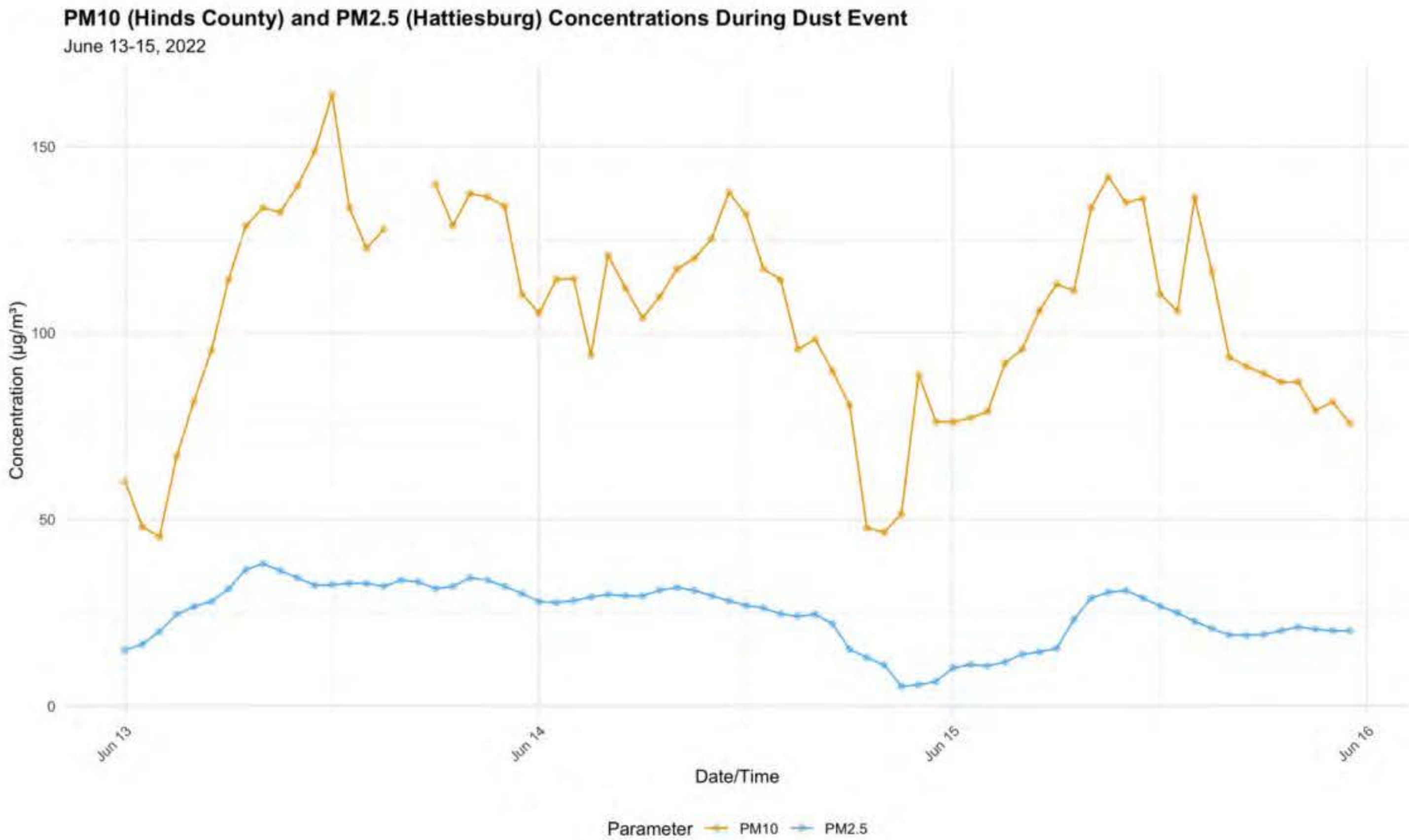
72-Hour back trajectories, showing 10m, 50m, and 1500m level parcels continuing to issue in Saharan dust from the Gulf of Mexico, onshore, across the Gulf States on June 15, 2022.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	06/15/22	11.1	11.9	11.7	12.6	14.7	15.4	16.3	24	29.8	31.3	31.9	29.8	27.7	25.8	23.5	21.7	20	19.8	20.1	21.1	22	21.4	21.1	21	21.07	31.9

Hattiesburg monitor showing hourly PM2.5 averages during high Saharan dust event with a 24-hour daily average of 21.07 ug/m^3 on June 15, 2022



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2022 compared to the average of non-exceptional years thanks in large part to Saharan Dust across the Gulf States.



Here's your text integrated with the academic citations:

During June 13-15, 2022, Mississippi's monitoring sites showed a strong correlation between PM10 and PM2.5 concentrations (correlation coefficient: 0.77), indicating a consistent regional-scale dust impact. This correlation aligns with findings from Rodriguez et al. (2001), who documented similar correlation coefficients (0.75-0.85) during Saharan dust episodes affecting Southern Europe. The hourly PM10 concentrations at the Hinds County NCore site reached a maximum of 163.9 $\mu g/m^3$ with a mean of 105.6 $\mu g/m^3$, while PM2.5 levels in Hattiesburg peaked at 38.1 $\mu g/m^3$ with a mean of 24.6 $\mu g/m^3$ over the 3-day event. The consistent ratio between PM10 and PM2.5, where PM2.5 levels were approximately 20-25% of PM10 concentrations, is characteristic of African dust events, as larger soil particles dominate the particle size distribution. This ratio aligns with findings from Querol et al. (2009), who reported PM2.5/PM10 ratios of 0.20-0.25 during African dust outbreaks in the Mediterranean region.

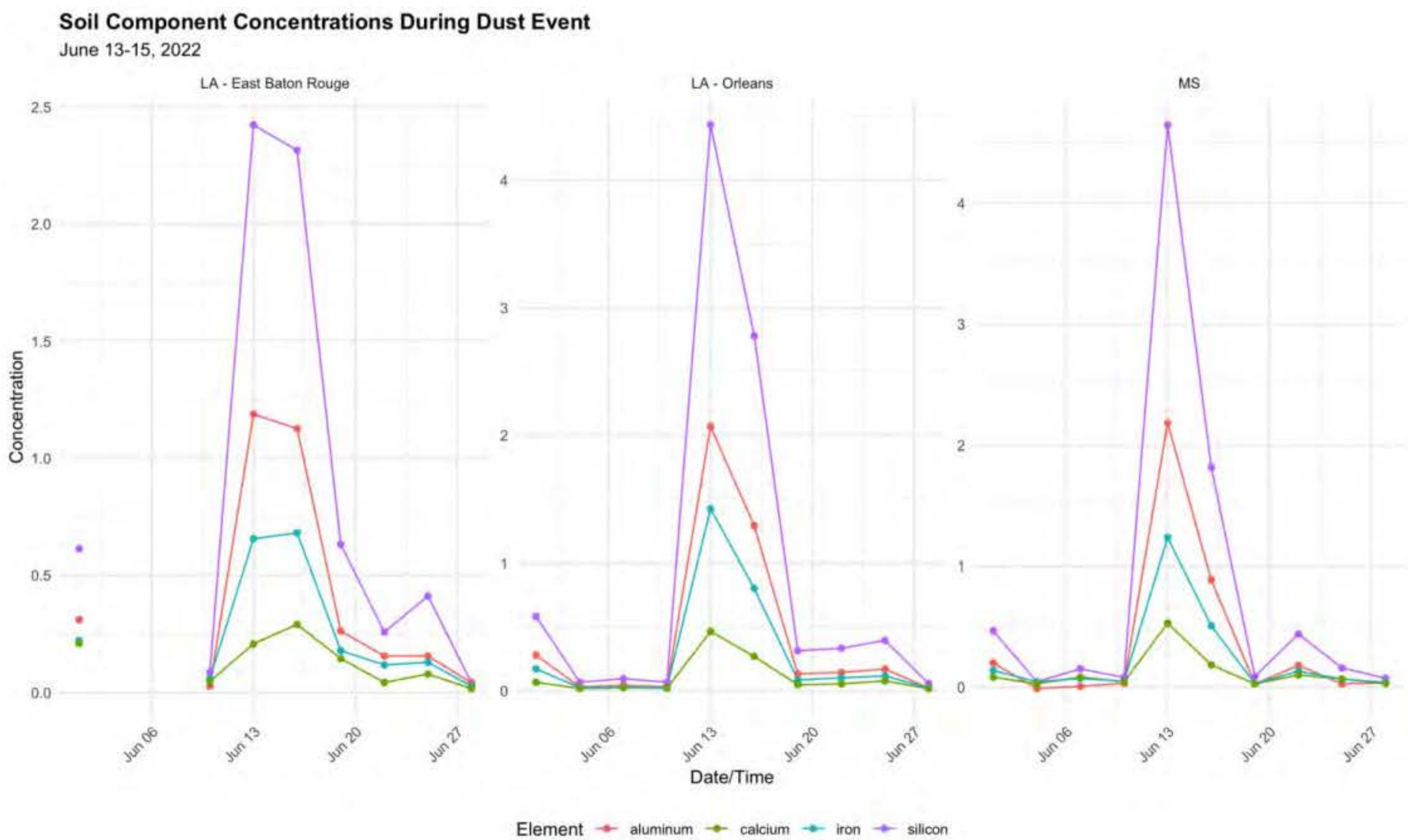
The time series plot demonstrates clear temporal alignment between PM10 and PM2.5 peaks, with both parameters showing elevated concentrations throughout the period. The high PM10 levels, averaging more than 100 $\mu g/m^3$, combined with proportionally elevated PM2.5 concentrations, suggest the presence of significant coarse particle dust typical of long-range transport from the Saharan region. These observations are consistent with research by Prospero (1999), who noted that during intense Saharan dust events, PM10 concentrations frequently exceed 100 $\mu g/m^3$ in affected regions, with PM2.5 typically comprising 20-30% of the total PM10 mass. The substantial standard deviations (PM10: 27.5 $\mu g/m^3$, PM2.5: 8.2 $\mu g/m^3$) reflect the dynamic nature of the dust event, with concentrations varying as dust plumes moved through the region.

References:

- Querol, X., et al. (2009). "African dust contributions to mean ambient PM10 mass-levels across the Mediterranean Basin." Atmospheric Environment, 43(28), 4266-4277.

- Rodriguez, S., et al. (2001). "Saharan dust contributions to PM10 and TSP levels in Southern and Eastern Spain." Atmospheric Environment, 35(14), 2433-2447.

- Prospero, J.M. (1999). "Long-range transport of mineral dust in the global atmosphere: Impact of African dust on the environment of the southeastern United States." Proceedings of the National Academy of Sciences, 96(7), 3396-3403.

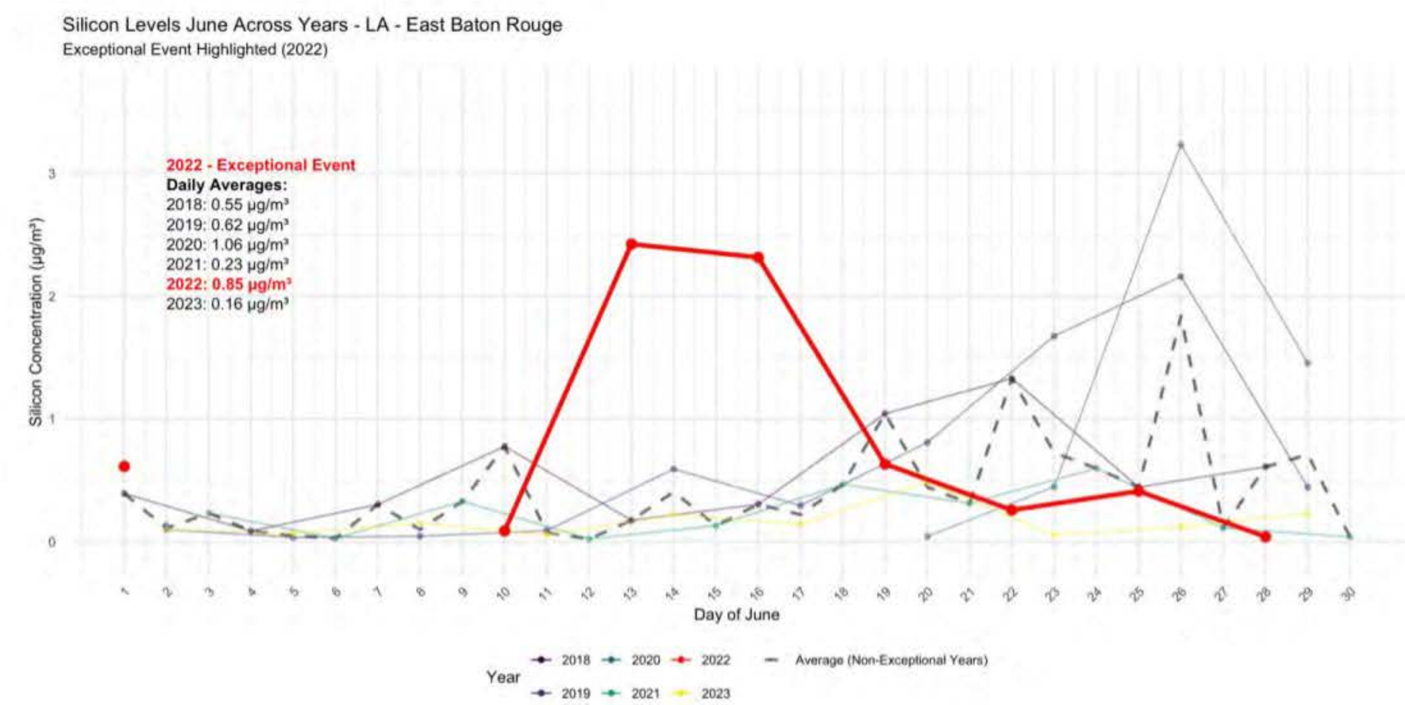


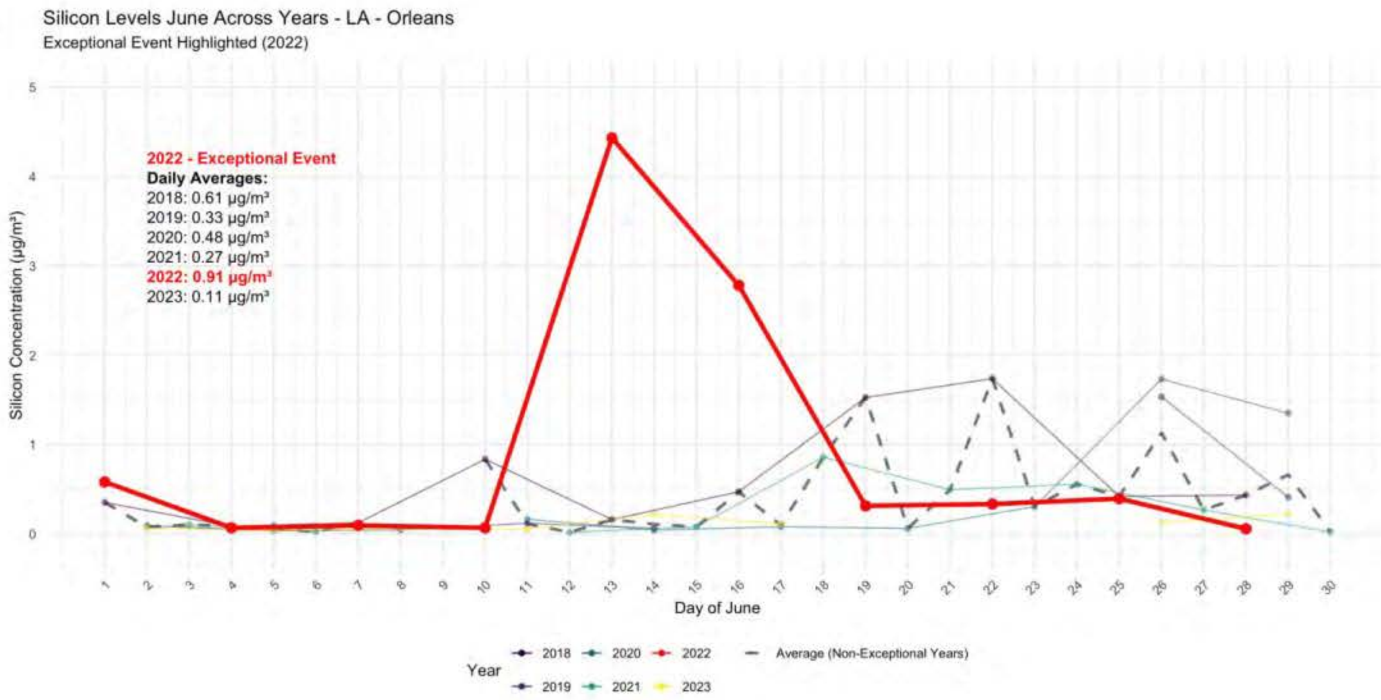
Silicon, aluminum, iron, and calcium are the most abundant soil components in African dust events (Goudie & et al, 2001) (Formenti & et al, 2011). The speciation data from June 2022 strongly supports the presence of these characteristic African dust components during June 13-15, 2022, across Louisiana and Mississippi monitoring sites. All three sites (East Baton Rouge, Orleans, and Mississippi) show a distinct peak in these soil-related elements during this period, with silicon showing the highest concentrations followed by aluminum and iron - a signature pattern typically associated with Saharan dust.

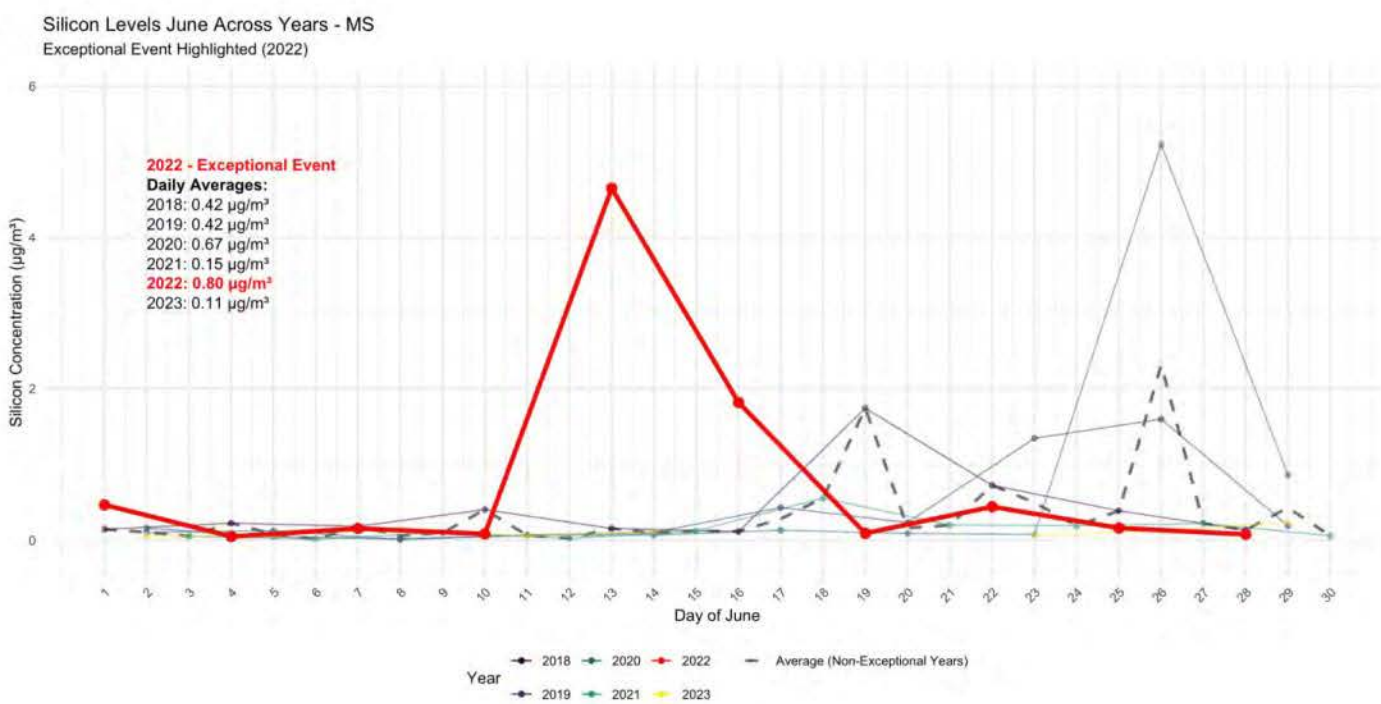
Specifically, silicon concentrations showed a dramatic increase from baseline levels to peak values around 2.4 $\mu g/m^3$ in East Baton Rouge, 4.0 $\mu g/m^3$ in Orleans, and 4.0 $\mu g/m^3$ at Mississippi's NCORE site during June 13th. This spike in silicon, along with corresponding increases in aluminum, iron, and calcium, is characteristic of African dust transport events. The temporal correlation of these elements across all three sites indicates a regional-scale dust impact rather than local sources.

The data shows a clear contrast between the June 13-15 period and the rest of the month. Before and after this event, concentrations of these soil components remained at much lower baseline levels (typically below 0.5 µg/m^3), highlighting the unusual nature of this three-day period. The simultaneous elevation of these crustal elements (Si, Al, Fe, Ca) in their characteristic ratios, combined with the elevated PM2.5 values, provides strong evidence that Saharan dust was the primary contributor to the increased PM2.5 concentrations observed during this period.

This speciation data, when combined with the elevated PM10 and PM2.5 measurements, creates a comprehensive picture of an African dust event affecting the Gulf Coast region during this timeframe.







Based on the time series plots from the three monitoring locations (East Baton Rouge, Orleans, and Mississippi), there is clear evidence of significantly elevated silicon concentrations during June 13-15, 2022, compared to the same period in other years (2018-2023). This elevation is particularly pronounced with peak silicon levels reaching:

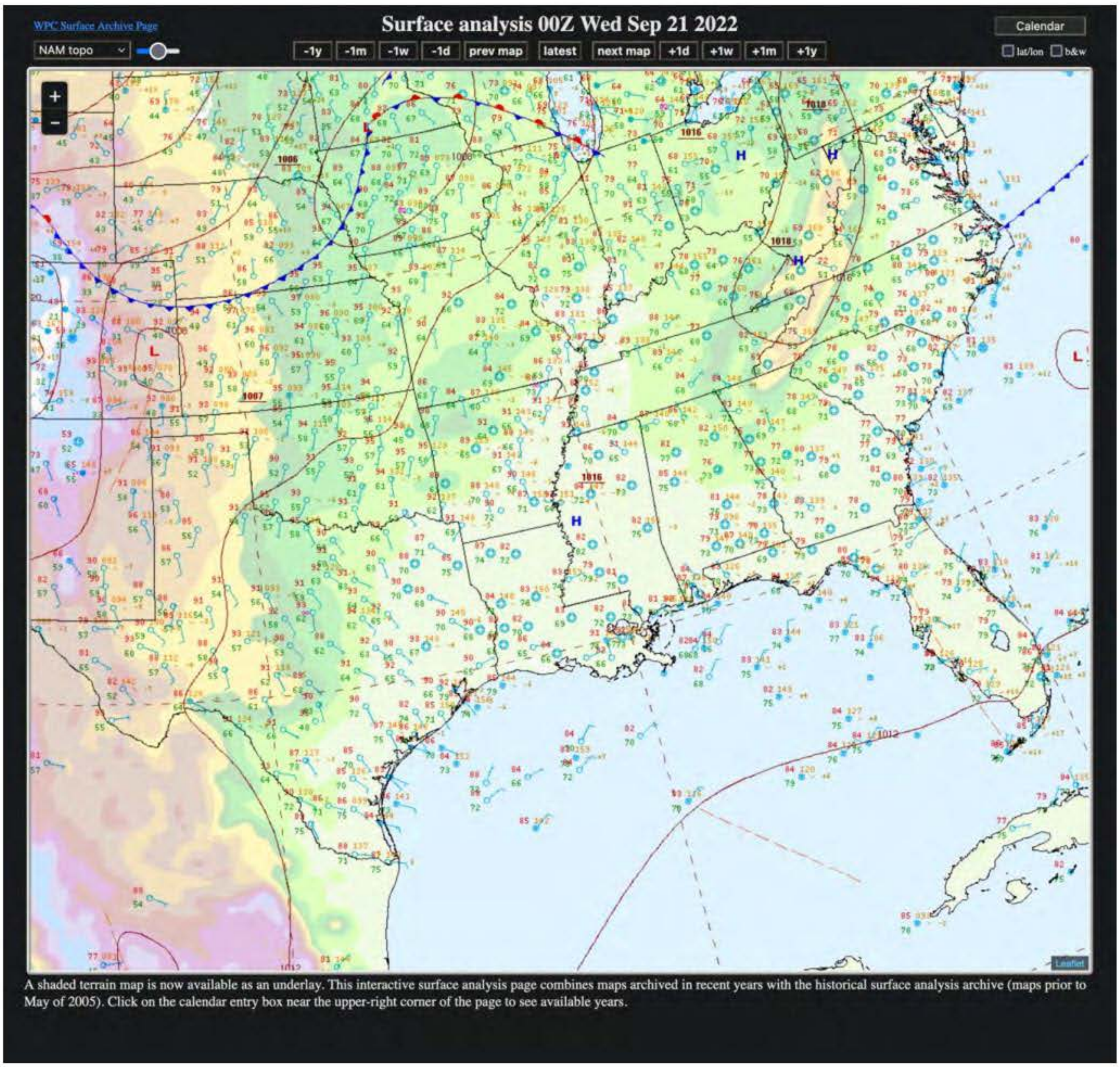
- Approximately 2.5 µg/m^3 in East Baton Rouge
- Over 4.0 µg/m^3 in Orleans
- About 4.5 µg/m^3 in Mississippi

These peak concentrations during the event were roughly 4-8 times higher than the typical baseline concentrations observed in other years (which generally remained below 1.0 μg/m^3). The simultaneous spike in silicon levels across all three sites, coupled with the magnitude of the increase, strongly supports the presence of Saharan dust in the region. Silicon is a key elemental marker for mineral dust, and its dramatic elevation during this period aligns with the transport of Saharan dust across the Gulf of Mexico into the southeastern United States. The temporal pattern shows a sharp increase beginning on June 13, reaching peak concentrations on June 13-14, followed by a gradual decline through June 15, consistent with the passage of a Saharan dust plume through the area.

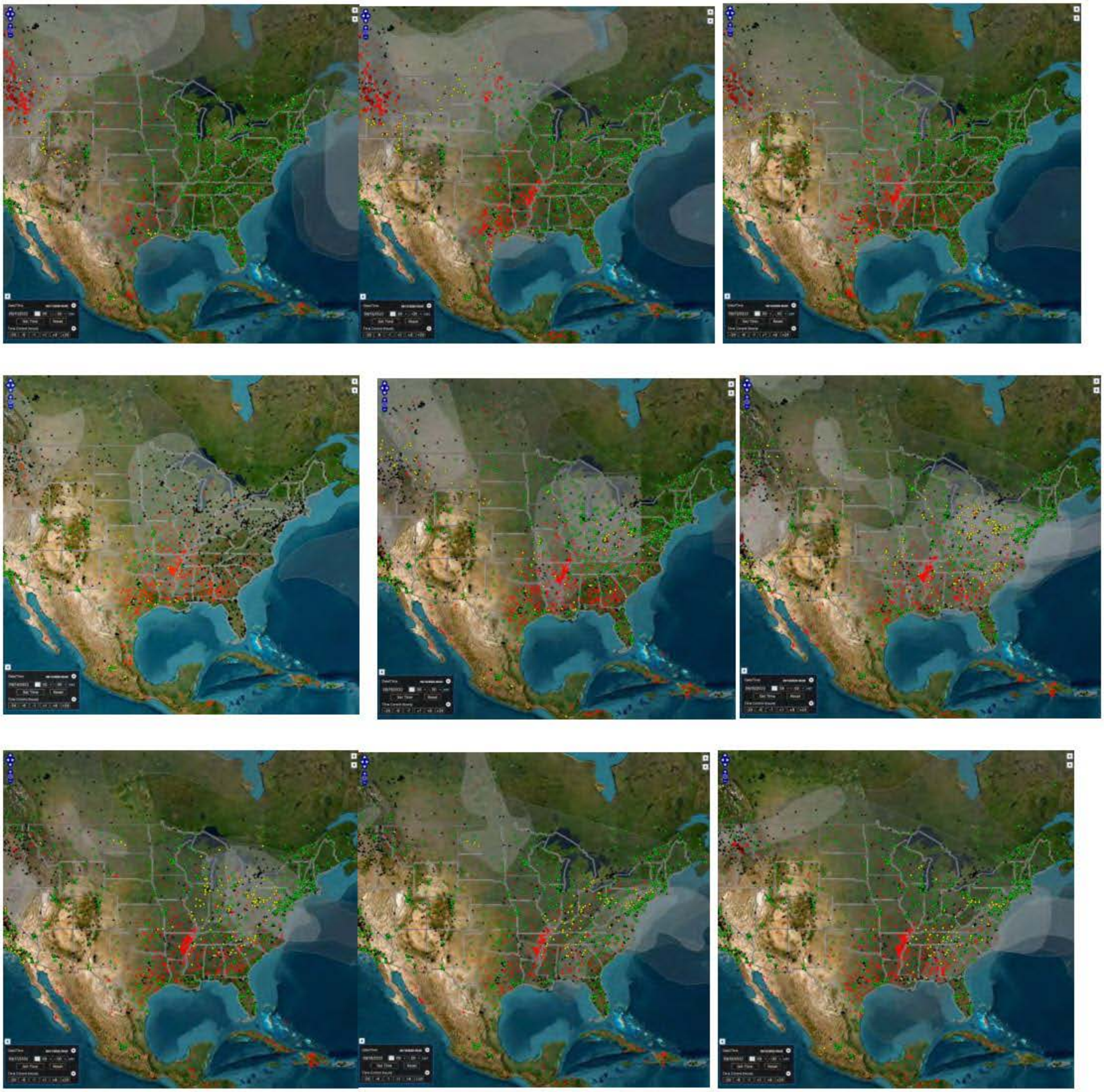
The daily average silicon concentrations during 2022 (0.85 μg/m^3 in East Baton Rouge, 0.91 μg/m^3 in Orleans, and 0.80 μg/m^3 in MS) were substantially higher than those observed in other years, which typically ranged from 0.15 to 0.67 μg/m^3. This regional consistency in timing and magnitude provides strong evidence that the elevated silicon levels were due to the long-range transport of Saharan dust rather than local sources.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
September 20, 2022	Wildfire	RT	28-035-0004	Hattiesburg	18.8	2	Wildfire C Exceptional Event Demonstration: September 20, 2022

Synopsis: Strong surface high pressure was anchored over the southeastern states on September 20th, 2022, and in the days prior, enabling stagnant conditions. A large batch of wildfire smoke during the days prior to September 20th, 2022, was located in the Northeastern United States and along the Eastern Seaboard. The smoke had originated from fires in the upper northwestern United States before moving into the Upper Midwest and eventually into the Northeastern United States and Eastern Seaboard. This batch of smoke rotated anticyclonically around the aforementioned surface high pressure into the Gulf states on the 19th and 20th, leading to elevated PM2.5 levels across the southeastern United States The highest values at the Hattiesburg monitor occurred on September 20th, with a 24-hour daily PM2.5 average of 18.9 μg/m^3.

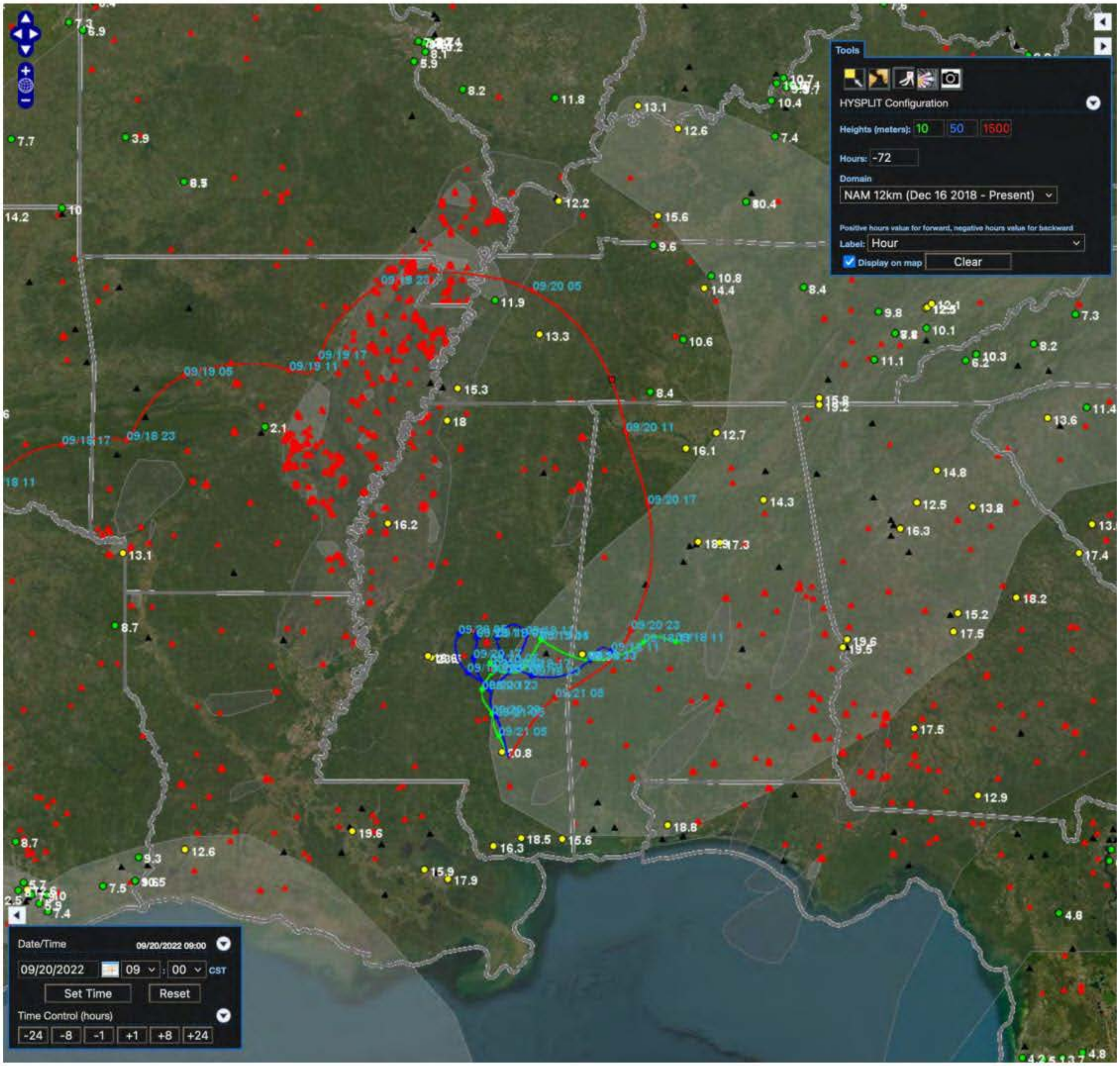


Surface map taken 00UTC Wednesday, September 21st (Tuesday, September 20th, 7PM CDT) showing expansive High pressure over the entire southeastern United States.

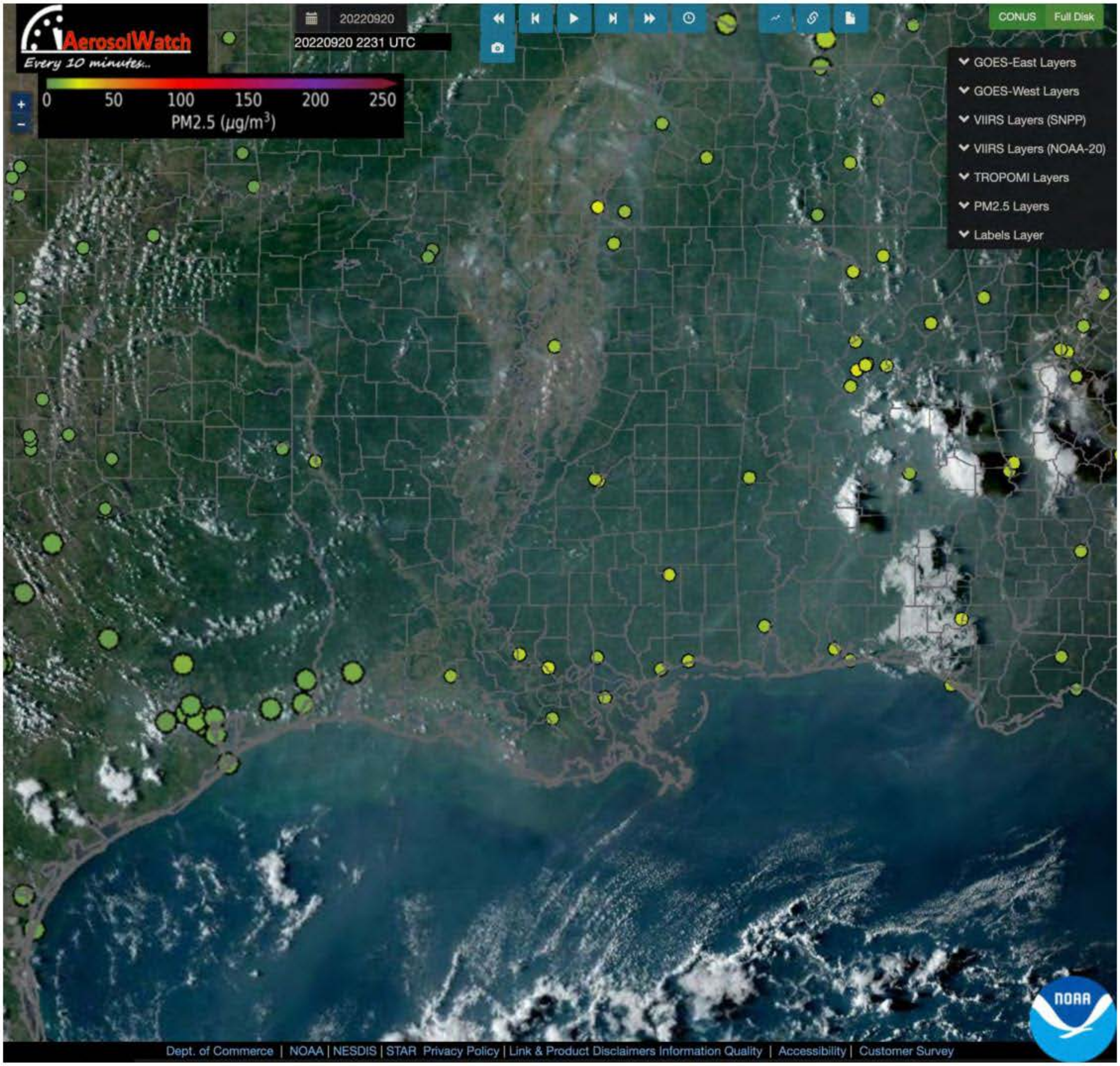


Series of Airnowtech Navigator maps showing from September 11th to September 21st, the evolution of wildfire smoke that originated from western Canada and northwestern United States, how it moved eastward across northern United States, then to the northeast, to the northeastern seaboard, eventually making its way down into the southeastern United States.



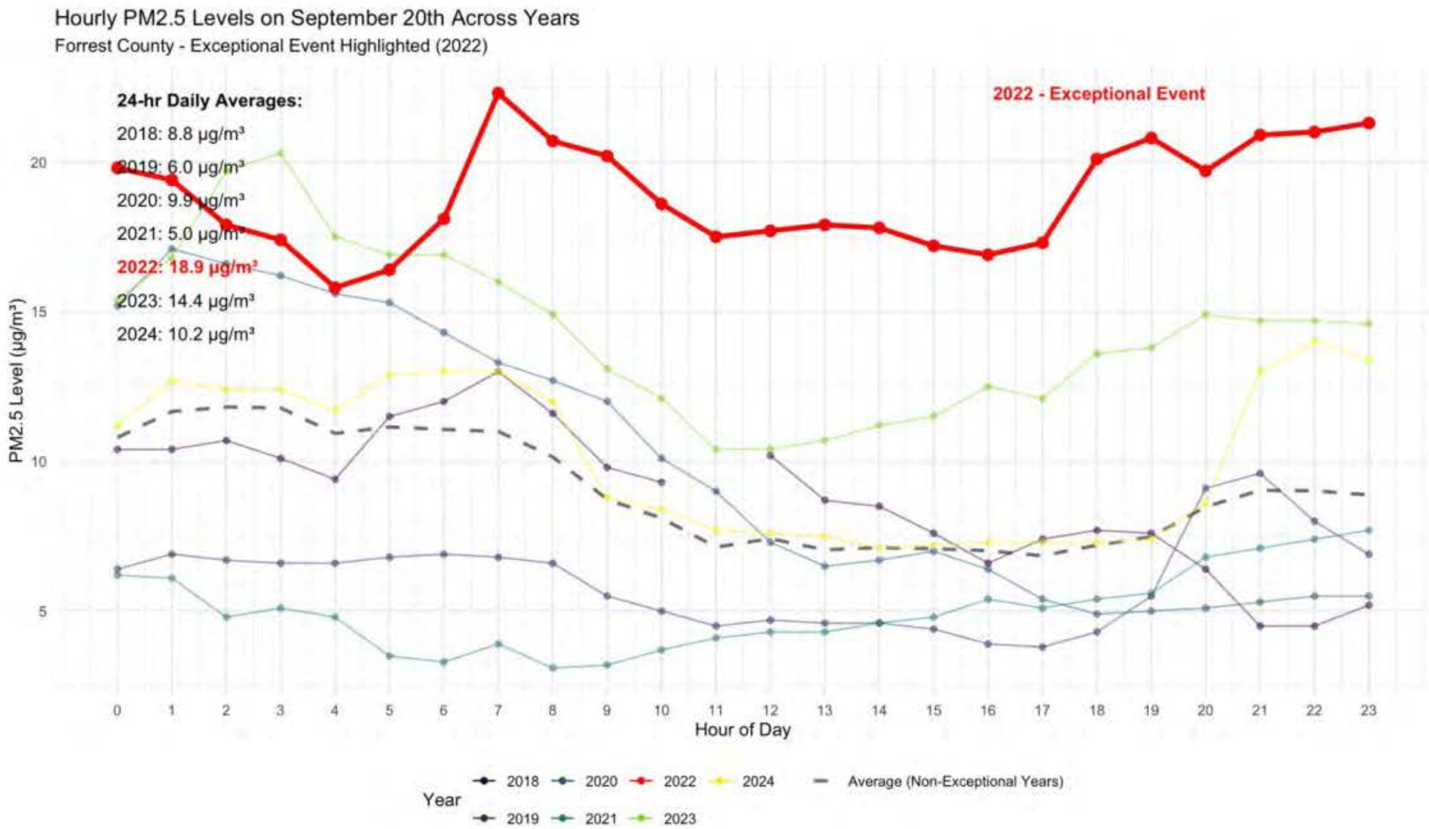
72-Hour back trajectory on day of exceptional event (September 20th, 2022) shows very little movement of the lowest 10m and 50m parcels, indicating stagnant conditions as light easterly / northeasterly flow issued in smoke over that Hattiesburg monitor.



GOES True color imagery at 2231UTC (17:31CDT) showing smoke layer across Mississippi and Alabama, increasing PM2.5 Values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	09/20/22	20.7	20.3	18.8	18.3	17.7	18.3	19	23.2	21.6	21.1	19.5	18.4	18.6	18.8	18.7	18.1	17.8	18.2	21	21.7	20.6	21.8	21.9	22.2	19.85	23.2

Hourly values from AirNowTech showed PM2.5 concentrations in the upper teens and twenties throughout the day as wildfire smoke impacted the monitor, resulting in a PM2.5 daily average of 19.85 μg/m^3.



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2022 compared to the average of non-exceptional years thanks in large part to wildfire smoke impacting the Hattiesburg monitor.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
October 10-11, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	21 & 25.9	2	Prescribed Fire Exceptional Event Demonstration: Oct 10-11, 2022

Synopsis: Strong surface High pressure across the southeast moved in after a cold front passed through from a couple days prior. Light residual smoke was seen across a larger area that included most of the southern states from Texas to Virginia, and extending further to the south over the northern Gulf of Mexico and to the east over the Atlantic Ocean off the southeastern United States coastline. This large area of smoke is due to the widespread prescribed burning activity throughout the southeastern United States

PM25 values at the Hattiesburg monitor during the morning hours into the mid-afternoon hours were reading into the mid-teens' thanks in part to the residual smoke from previous days prescribed fires across the United States that hung around thanks to surface High pressure. PM2.5 values increased during the afternoon and evening hours thanks to a prescribed burn that was occurring to the northeast of the monitor. Surface winds during this time was blowing from northeast to southwest, directing the smoke plume directly over the Hattiesburg monitor, raising PM2.5 values during into the USG range with a one-hour max of 52.9ug/m^3.

Monday, October 10, 2022

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1640Z October 10, 2022

SMOKE:
Northwestern U.S./Southwestern-Central Canada…
Numerous wildfires continue to burn across the Northwestern U.S. and Western Canada with moderate-to-heavy density smoke observed in western Oregon and northwestern Washington. Cloud cover over most of western/northern Canada and Northwestern Territories made prevented smoke analysis obstructing any view on moderate to heavy dense smoke that was being produced in previous analyses, though a small pocket in western region of the Northwest Territories that was observable. Light remnant smoke from the same wildfires was seen spreading across the Northwestern U.S, Alberta, and most of Saskatchewan. The smoke was observed dispersing eastern across northern U.S states bordering Canada.

South Central and Southeastern U.S…
Light residual smoke was seen across a larger area that included most of the southern states from Texas to Virginia, and extending further to the south over the northern Gulf of Mexico and to the east over the Atlantic ocean off the Southeastern U.S. coastline. This large area of smoke is due to the widespread agricultural burning across much of the Mississippi Valley, with additional prescribed burning activity throughout the southeastern U.S

Nguyen

THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

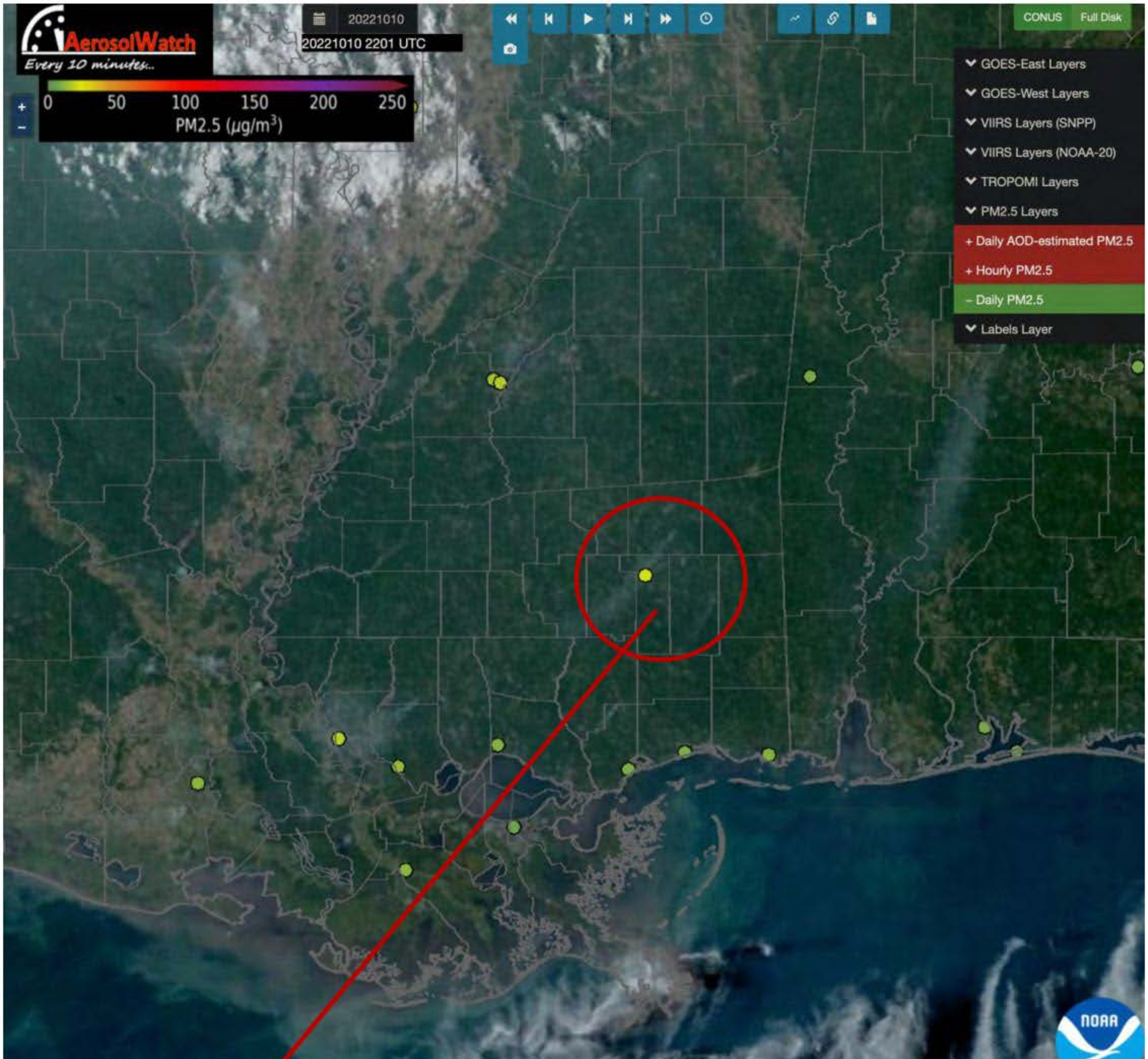
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

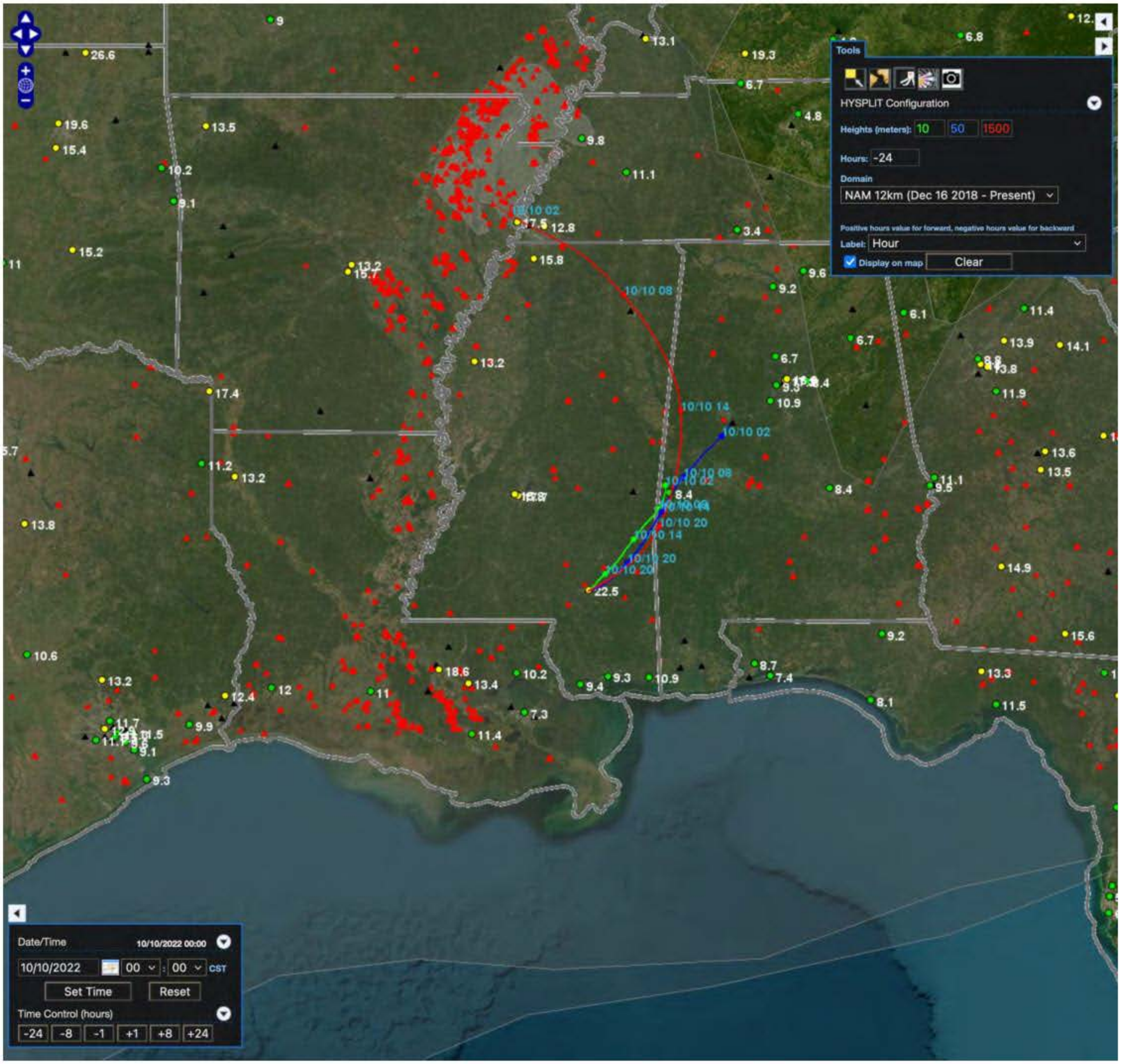
Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2022/2022J101636.html) narrative dated October 10th, 2022, at 1640Z (corresponding to October 10th, 2022, at 11:40 AM CDT). The narrative describes the smoke situation, highlighting how large area of smoke is due to the widespread prescribed burning activity throughout the southeastern United States of the southeastern U.S, elevating PM2.5 values.



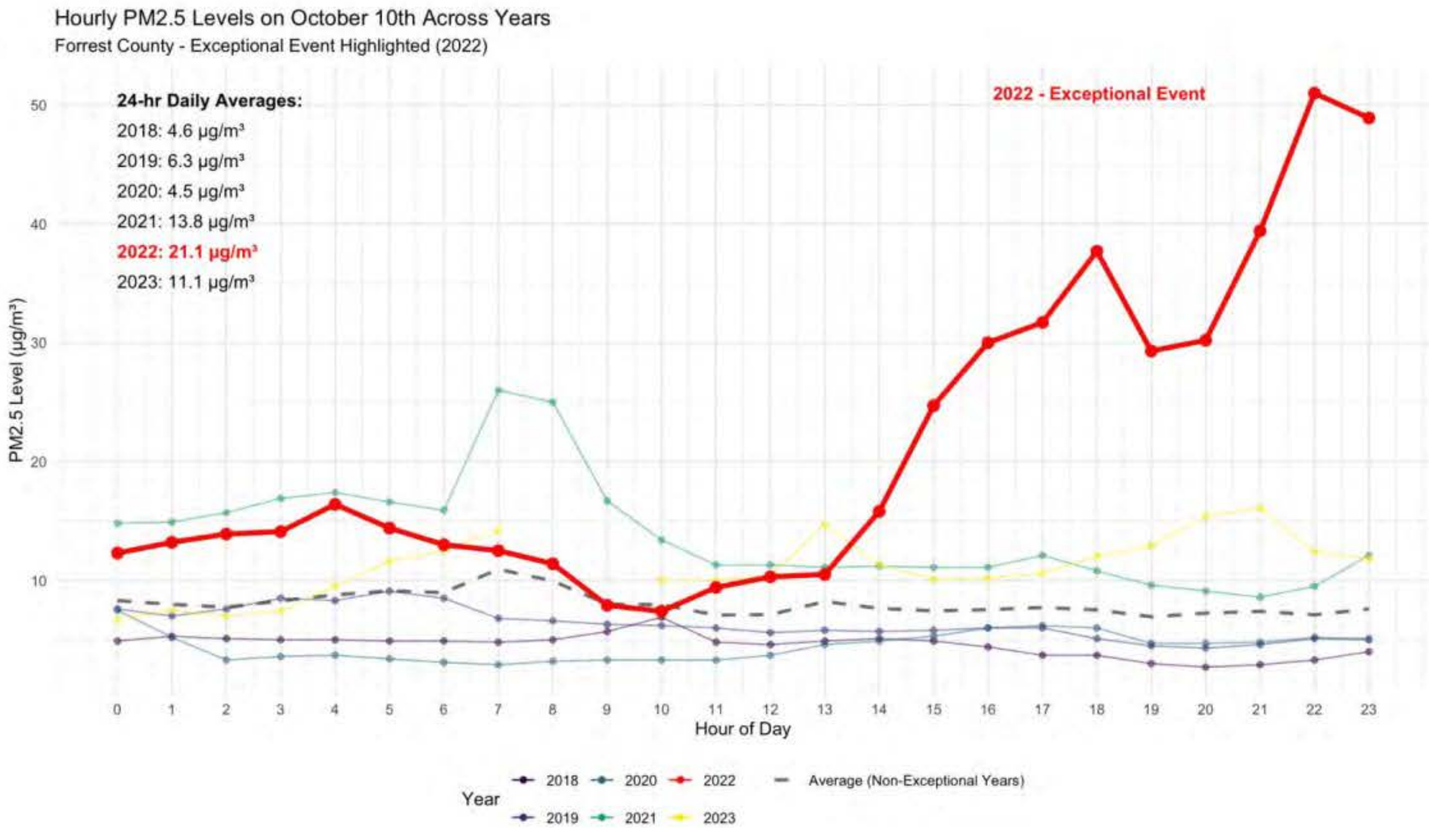
GOES True color imagery at 2201UTC (17:01CDT) showing smoke plume from prescribed fire in DeSoto National Forest affecting downwind Hattiesburg monitor as smoke was caught up in northeasterly wind flow.



24 Hour back trajectory showing parcel movement at both 10m, 50m, and 1500m levels during time of prescribed fire, moving northeast to southwest, verifying Hattiesburg monitor being affected from prescribed fire to the northeast as the plume moved from northeast to southwest.

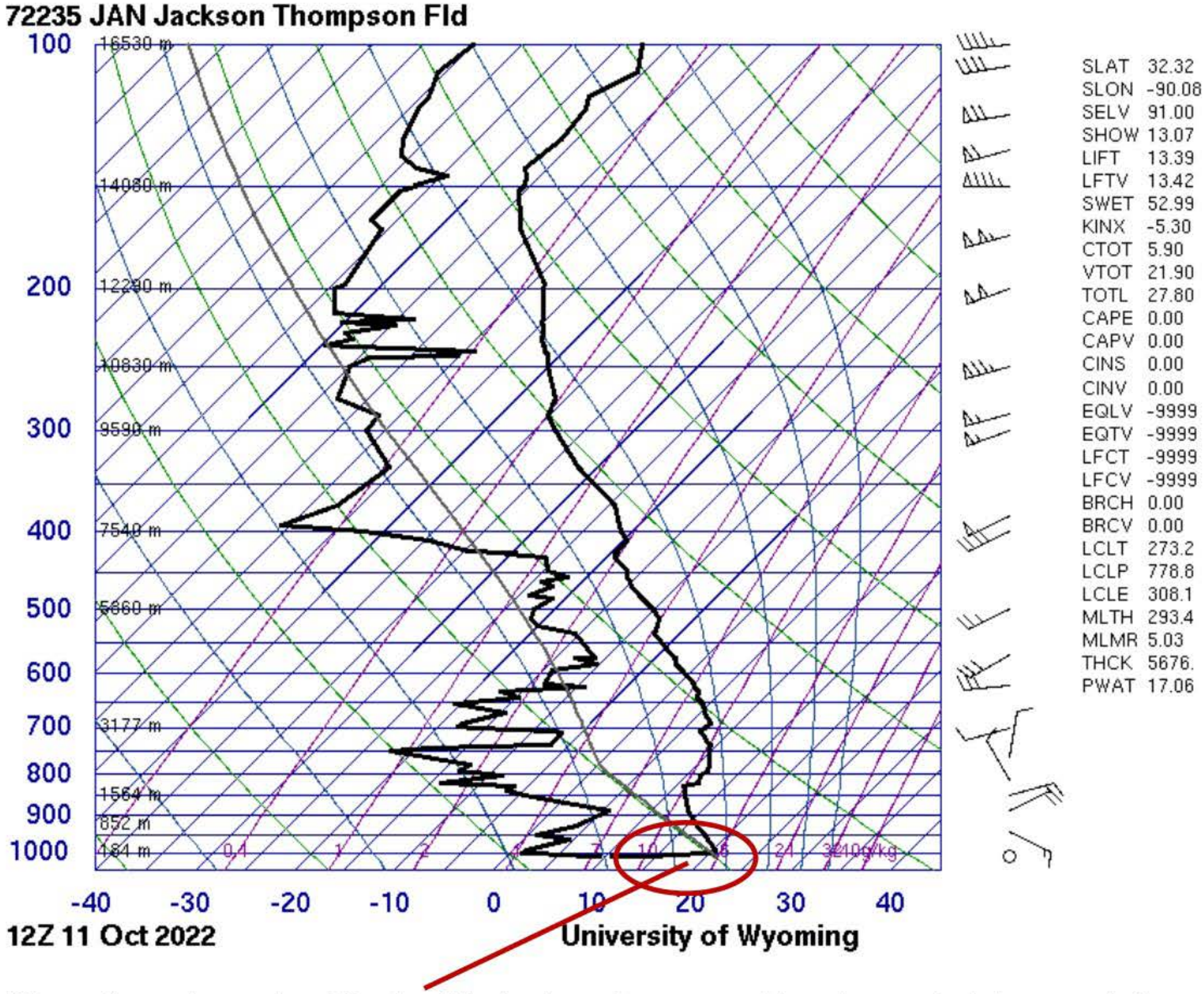
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	10/10/22	14.2	15.1	15.8	16	18.3	16.3	14.9	14.4	12.3	8.8	8.3	10.3	11.2	11.4	16.7	25.6	30.9	32.6	38.6	31.2	32.1	41.3	52.9	50.8	22.5	52.9

Hourly values from AirNowTech show that at the Hattiesburg monitor, PM2.5 values were in the teens during the morning. During the afternoon into late evening, values rapidly increased as the aforementioned smoke plume from the prescribed fire northeast of the monitor moved into the area, resulting in a PM2.5 daily average of 22.5 $\mu g/m^3$.

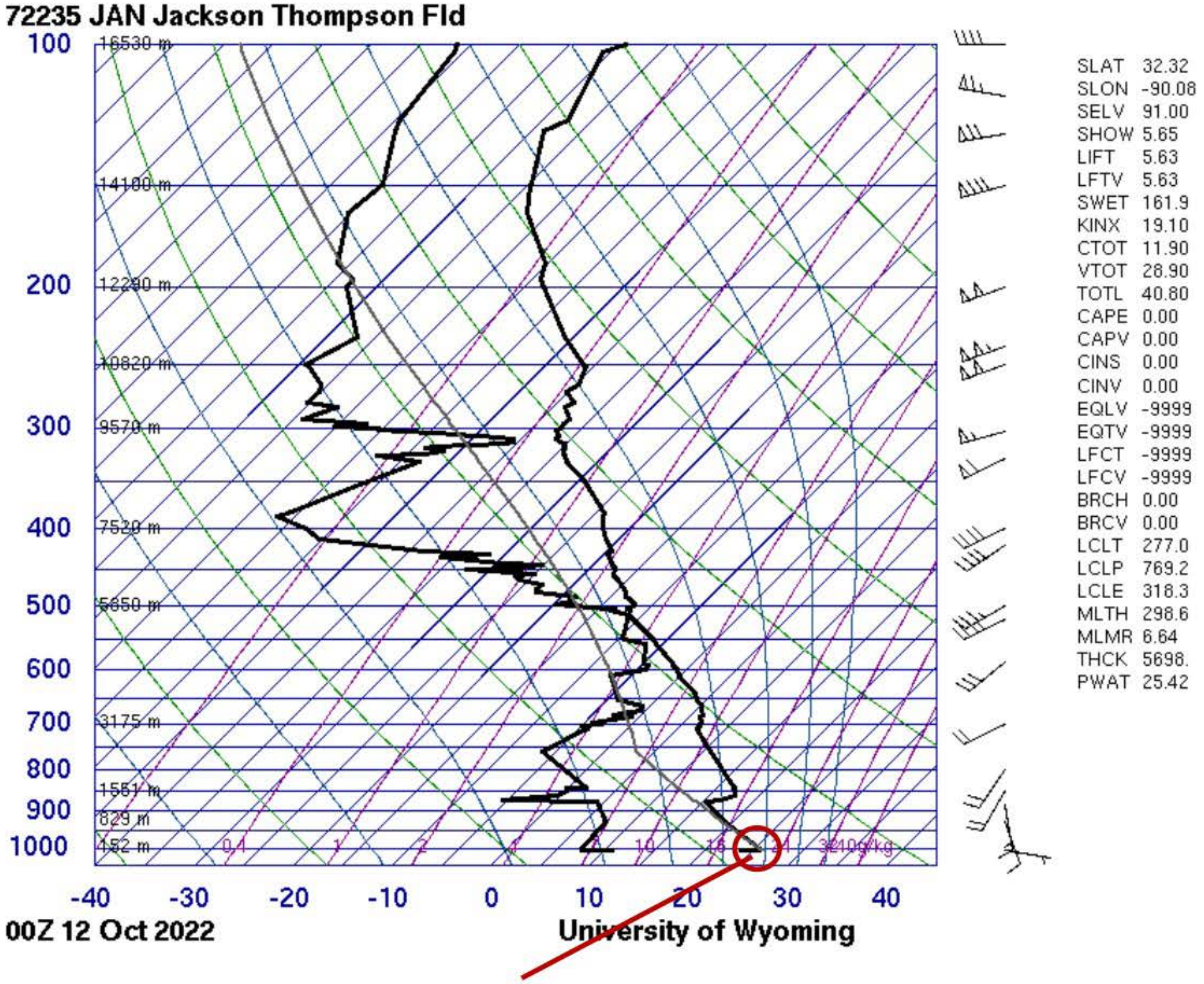


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past six years, highlighting the higher values in 2022 compared to the average of non-exceptional years, especially during the late afternoon into the evening time and overnight, thanks in large part to prescribed fire smoke that was directly to the northeast, impacting the Hattiesburg monitor.

October 11th: High PM2.5 values from the previous day carried over into the morning hours on the 11th due to calm conditions and a strong surface nocturnal inversion, trapping smoke close to the surface over the Hattiesburg monitor. This was especially evident during the early morning hours, with a one-hour maximum of 55.7 µg/m^3 recorded at 5 AM. Strong surface high pressure limited mixing during the day, continuing stagnant conditions and keeping PM2.5 values elevated. As mixing heights fell in the late evening, PM2.5 values increased with the development of a low-level nocturnal inversion at sunset.



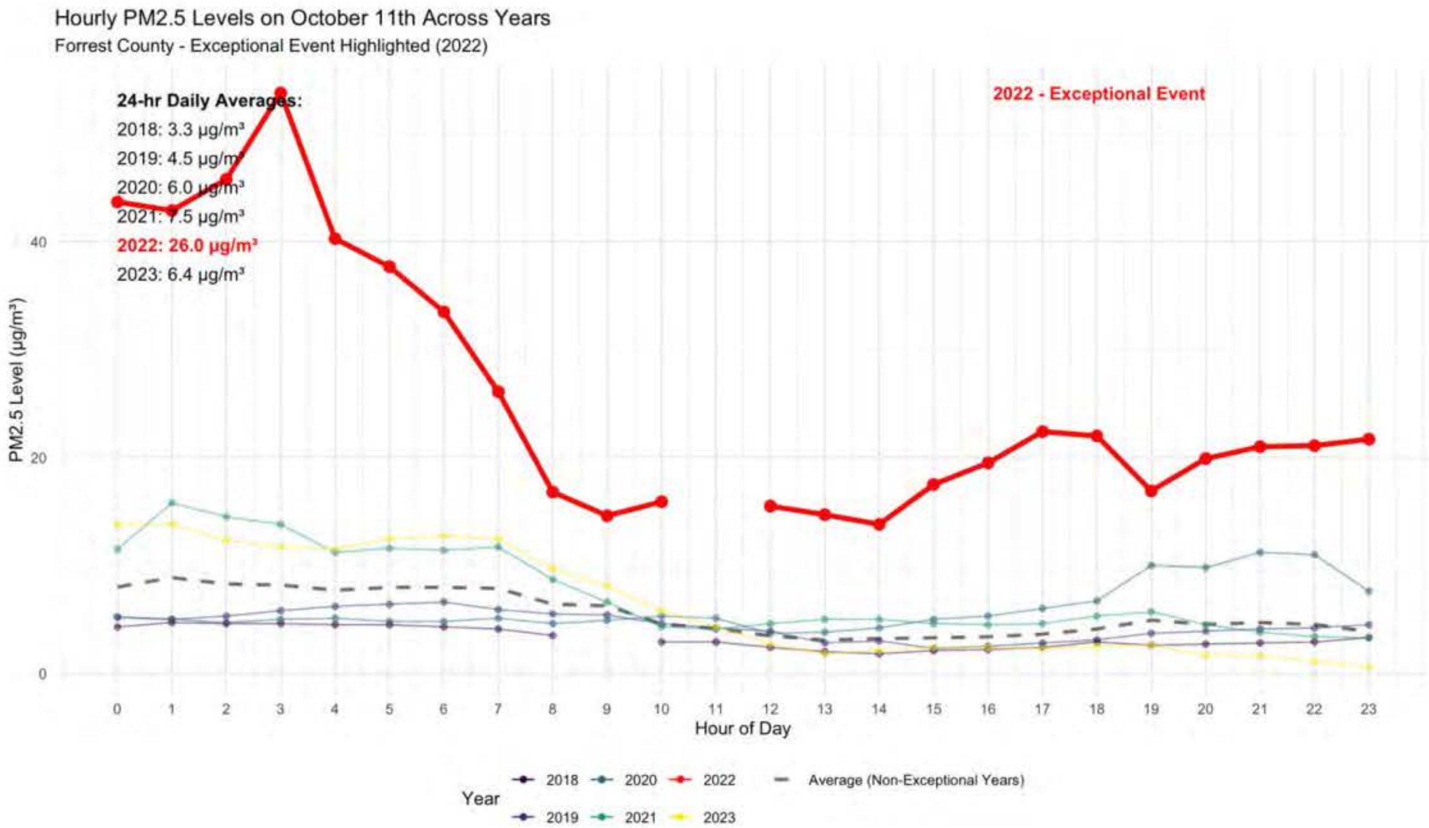
12Z sounding on the morning of October 11th, showing surface nocturnal inversion trapping leftover smoke from previous days prescribed fire at the surface, keeping PM2.5 values elevated overnight.



00Z sounding the evening of October 11th, showing development of low-level nocturnal inversion at sunset, once again, trapping smoke near the surface, increasing PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	10/11/22	45.6	44.8	47.7	55.7	42.2	39.6	35.4	28	17.7	15.5	16.8	12.7	16.4	15.6	14.7	18.4	20.4	23.3	22.9	17.8	20.8	21.9	23	23.6	27.3	55.7

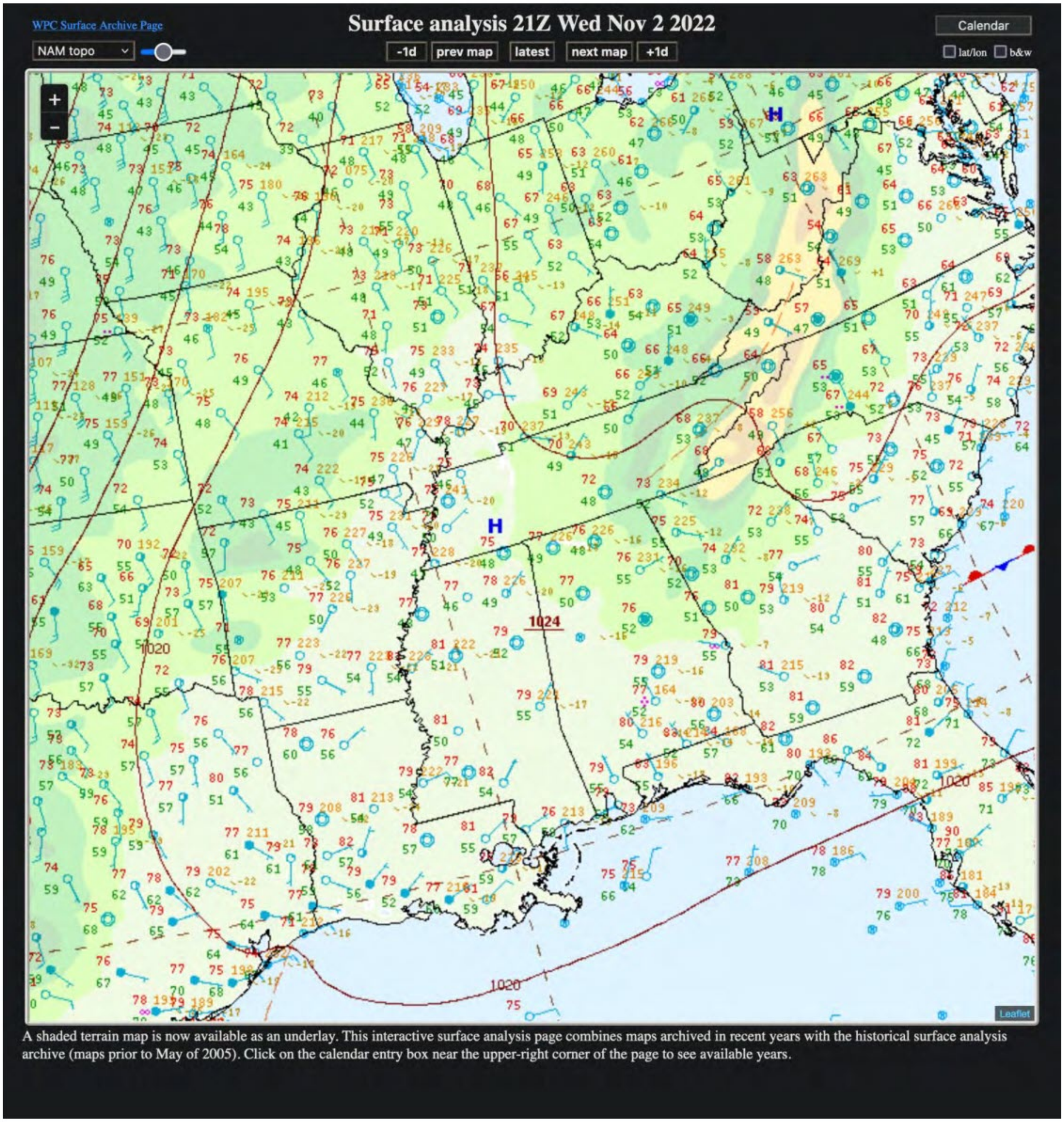
Hourly PM2.5 data in the figure above show high PM2.5 values in the early morning and late evening due to smoke trapping by low-level nocturnal inversions. Although mixing heights increased during peak heating hours, strong high pressure, light to calm winds, and stagnant conditions kept PM2.5 levels elevated in the teens during the afternoon. Values climbed once again into the twenties near and after sunset as mixing heights diminished and a nocturnal inversion redeveloped. The 24-hour daily average for this day was 27.3 μg/m³.



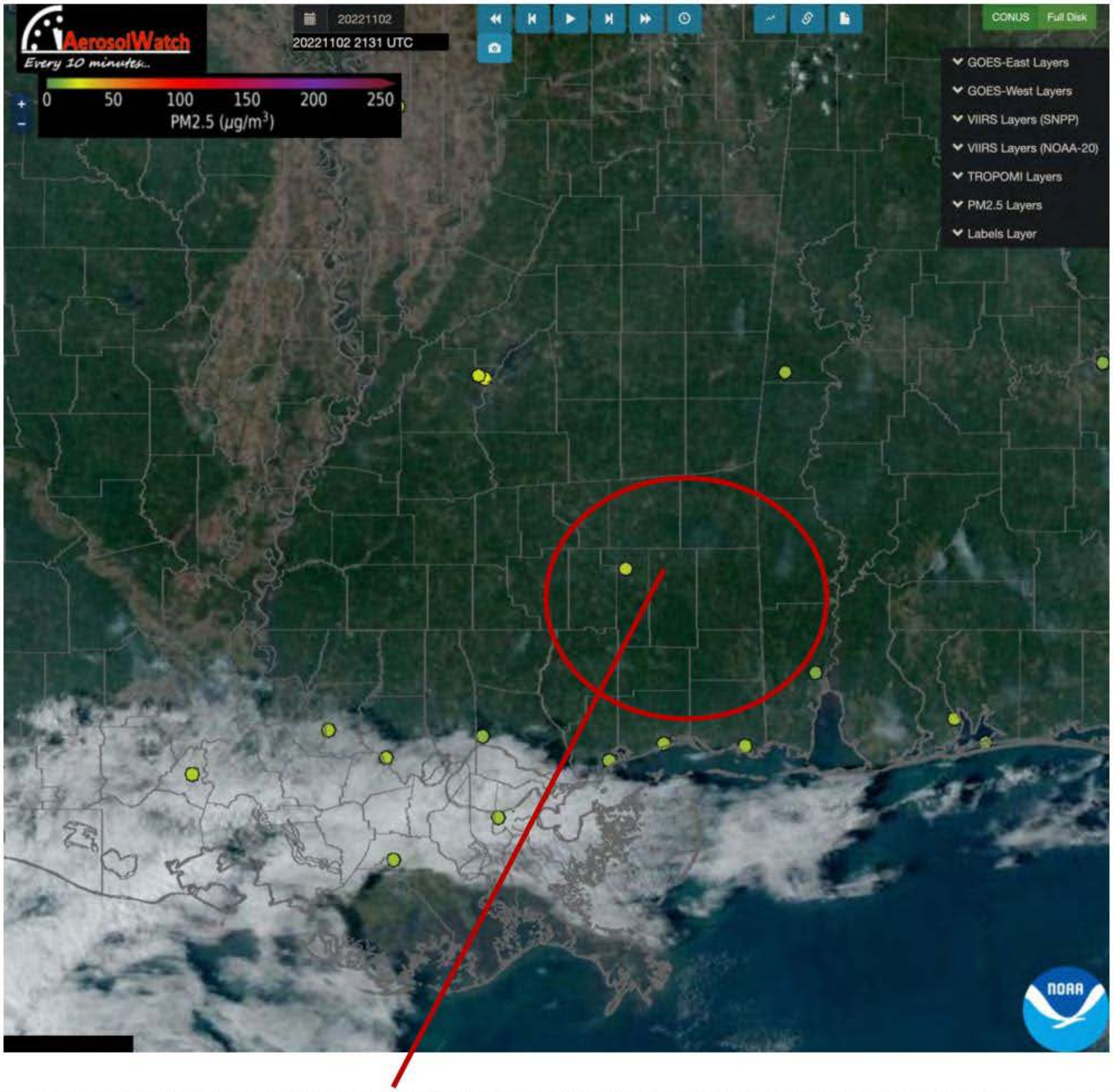
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past six years, highlighting the higher values in 2022 compared to the average of non-exceptional years, especially during the early morning hours, thanks in large part to previous days prescribed fire smoke that became trapped underneath strong surface nocturnal inversion, impacting the Hattiesburg monitor.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
November 2 and 3, 2022	Prescribed Fire	RM	28-035-0004	Hattiesburg	15.5 & 18.7	2, 3	Prescribed Fire an Exceptional Event Demonstration: November 3 2022

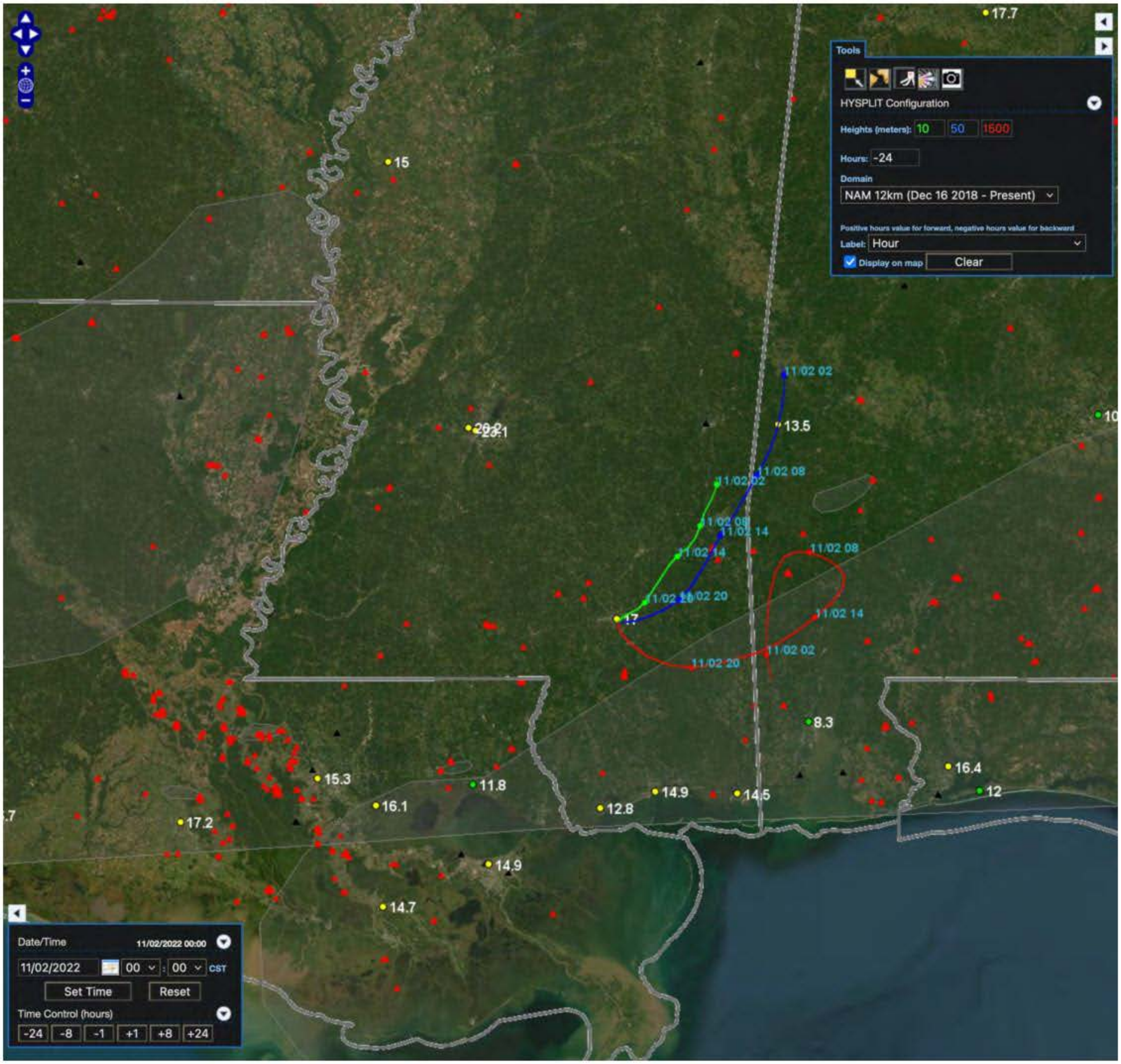
Synopsis: A cold front moved through a few days prior on October 31st, and in its wake, high pressure settled over the southeastern United States from November 2nd through 4th, leading to very stable conditions. Prescribed burning was occurring throughout the southeastern United States on November 2nd and 3rd. Additionally, there were prescribed fires in close proximity to the Hattiesburg monitor on these days. Smoke plumes from fires located east and northeast of the monitor were blowing toward the Hattiesburg monitor on both days, increasing PM2.5 values.



Surface map taken 21UTC Wednesday, November 2nd (4PM CDT), showing high pressure across the Tennessee River Valley, providing light northeasterly flow over southern Mississippi. This flow helped direct smoke plumes from fires northeast of the Hattiesburg monitor southwest toward the monitoring site, elevating PM2.5 values.



GOES True Color image taken on November 2nd, 2022, at 2131UTC showing prescribed fires located to east and northeast of the Hattiesburg monitor on November the 2nd, as smoke plumes were drifting towards the Hattiesburg monitor.

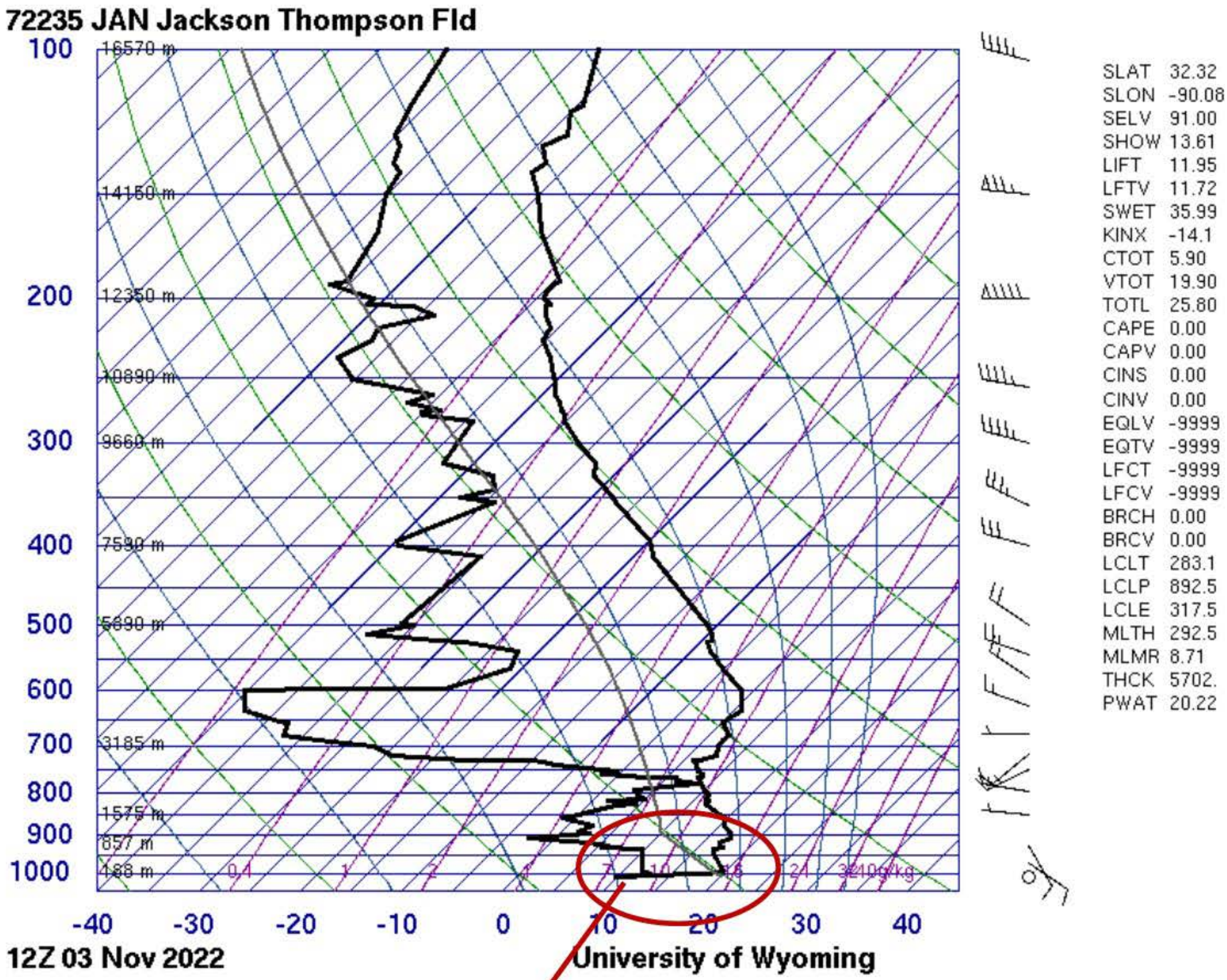


24-Hour back trajectory for November 2nd showing lowest 10m and 50m parcels moving from northeast to southwest, carrying smoke to the Hattiesburg monitor, from prescribed burning directly to the northeast.

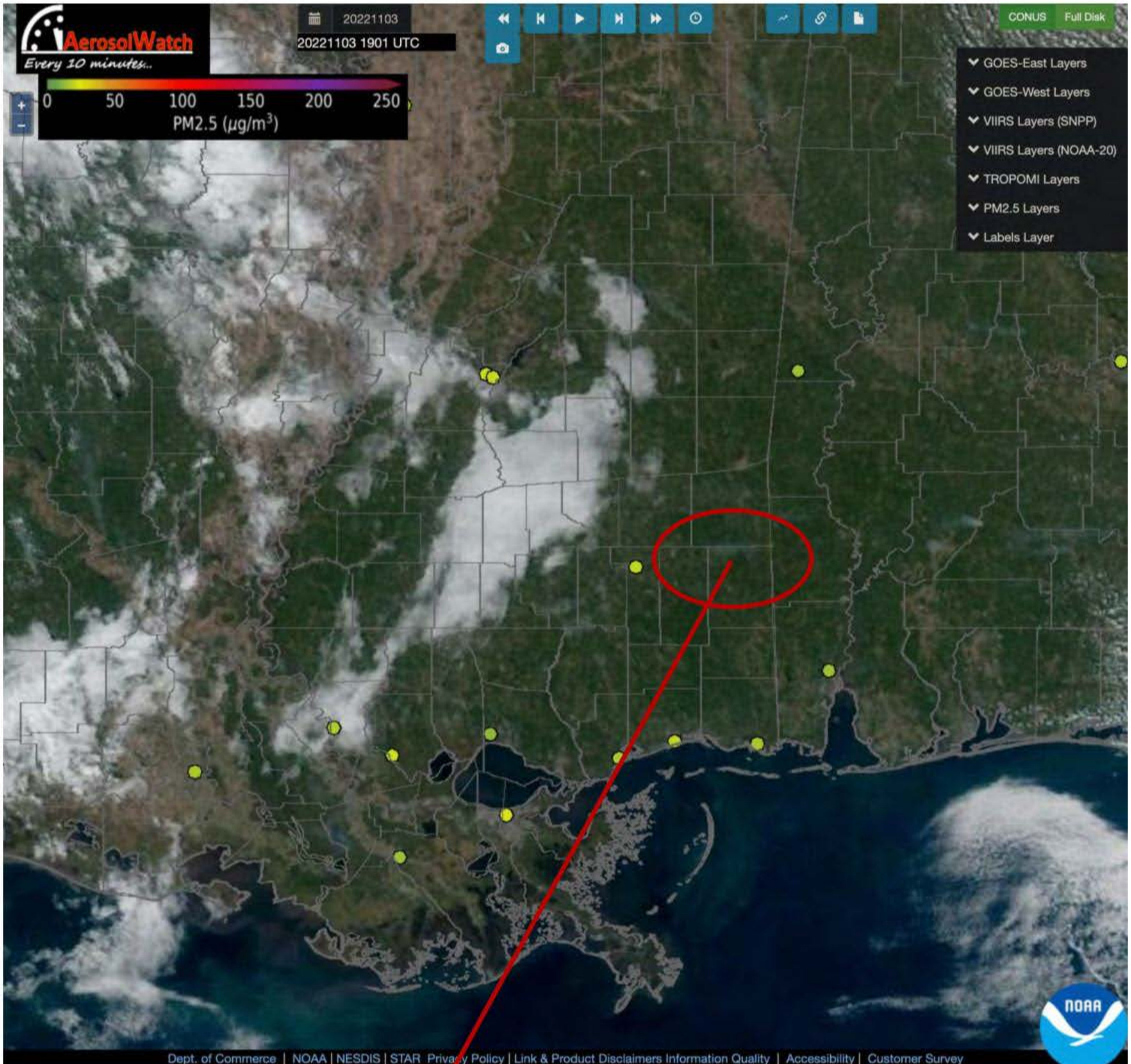
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	11/02/22	18.8	18.5	18.1	18.8	18.6	19.5	20.6	20	18.7	16.6	13.8	13.5	13.2	12.2	11.8	12	12.3	15.6	20.1	16.8	17.9	19.4	19	22.4	17.01	22.4

Hourly PM2.5 values on November 2nd ranged in the teens and twenties, with a 24-hour average of 17.01 µg/m^3, thanks in part to smoke from prescribed fires affecting the PM2.5 monitor.

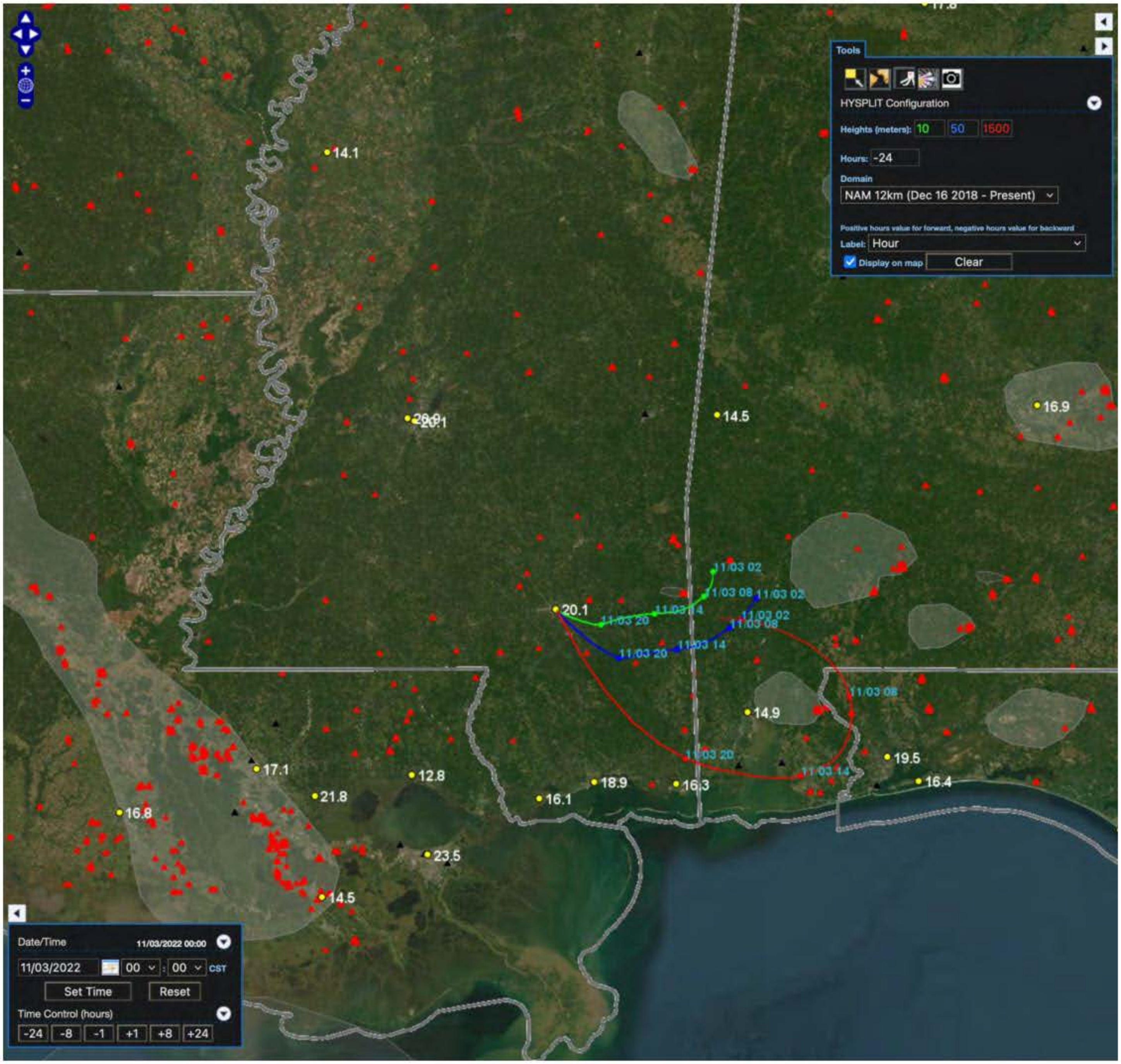
November 3rd, prescribed fires to the east, east-northeast of the Hattiesburg monitor continued to burn, as easterly winds carried smoke from the fires towards the Hattiesburg monitor.



Morning sounding on November 3rd, 2022, shows very strong low level nocturnal inversion that set up overnight trapping smoke from previous days prescribed fires, keeping PM2.5 elevated overnight into the 20's.



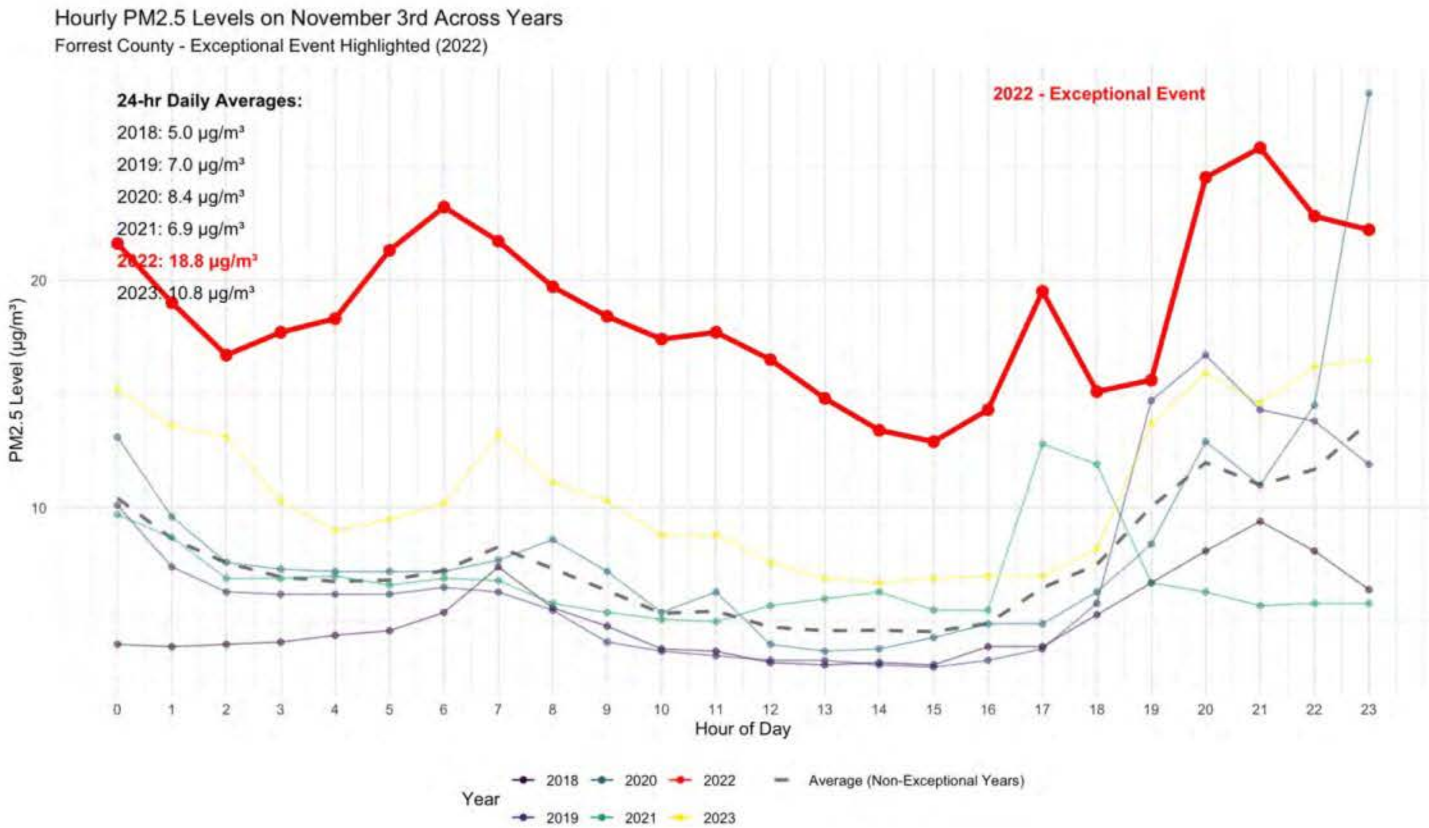
GOES East True Color image taken on November 3rd, 2022, at 1901UTC, showing, prescribed fires burning to the east of the Hattiesburg monitor, as easterly winds, are blowing smoke towards the Hattiesburg monitor.



24-Hour back trajectory for November 3rd, showing lowest 10m and 50m parcels moving from east to west, carrying smoke to the Hattiesburg monitor, from prescribed burning directly to the east.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	11/03/22	23.5	20.9	18.6	19.6	20.2	23.2	25.1	23.6	20.6	19.3	18.3	18.6	17.4	15.7	14.3	13.8	15.2	20.4	16	17.5	26.4	27.7	24.7	24.1	20.2	27.7

Hourly PM2.5 values on November 3rd ranged in the teens and twenties, with a 24-hour average of 20.2 μg/m^3. These elevated levels were due to smoke from prescribed fires located east of the monitor blowing westward toward the Hattiesburg site

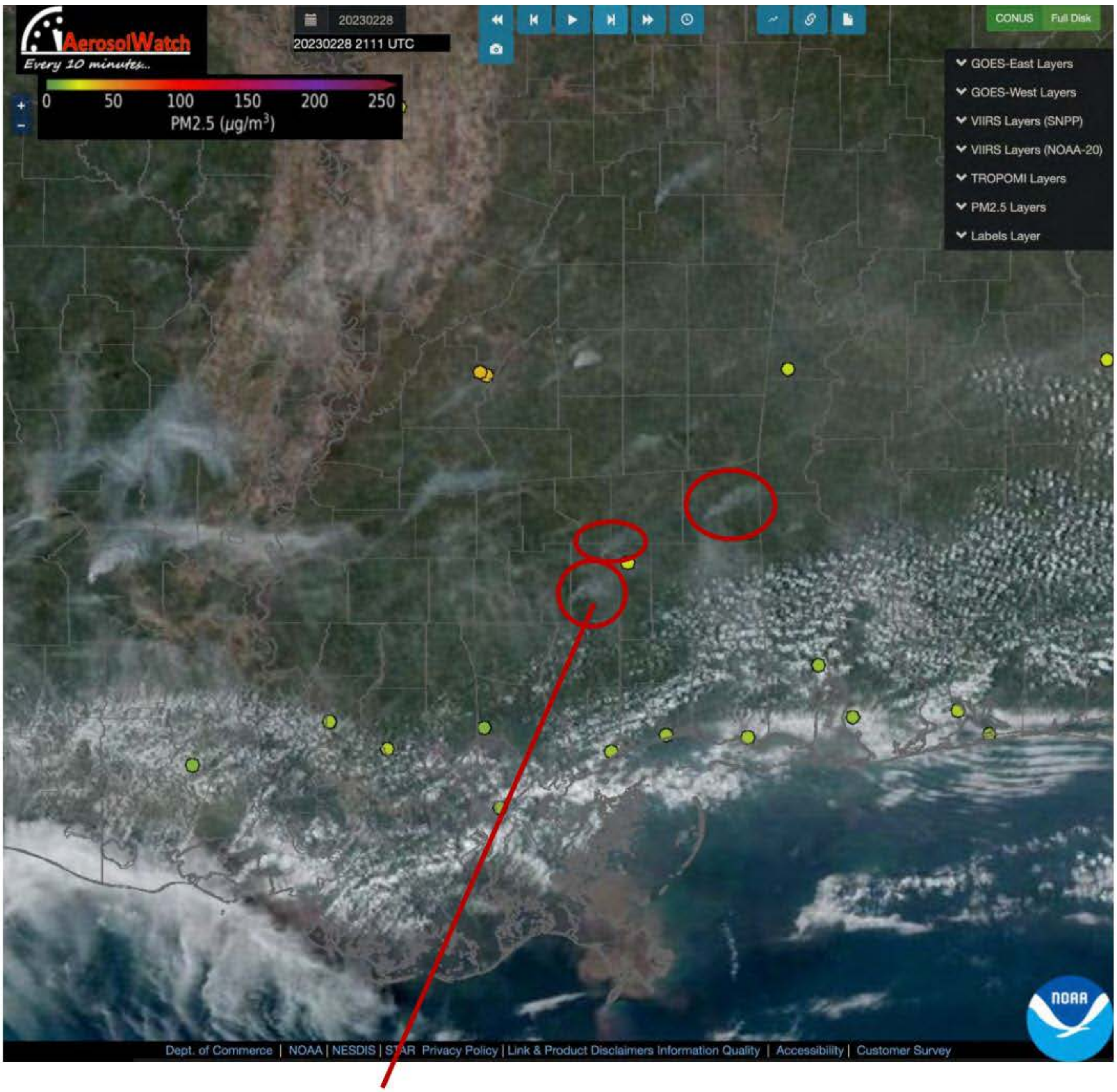


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past six years, highlighting higher values in 2022 compared to the average of non-exceptional years. The elevated levels were particularly notable during the early morning and late evening hours on November 3rd, when prescribed fire smoke from both previous and current days became trapped beneath a strong nocturnal surface inversion. Easterly winds during the day further contributed to the impact by directing smoke from the prescribed fires located to the east of the Hattiesburg monitor, toward the Hattiesburg monitor.

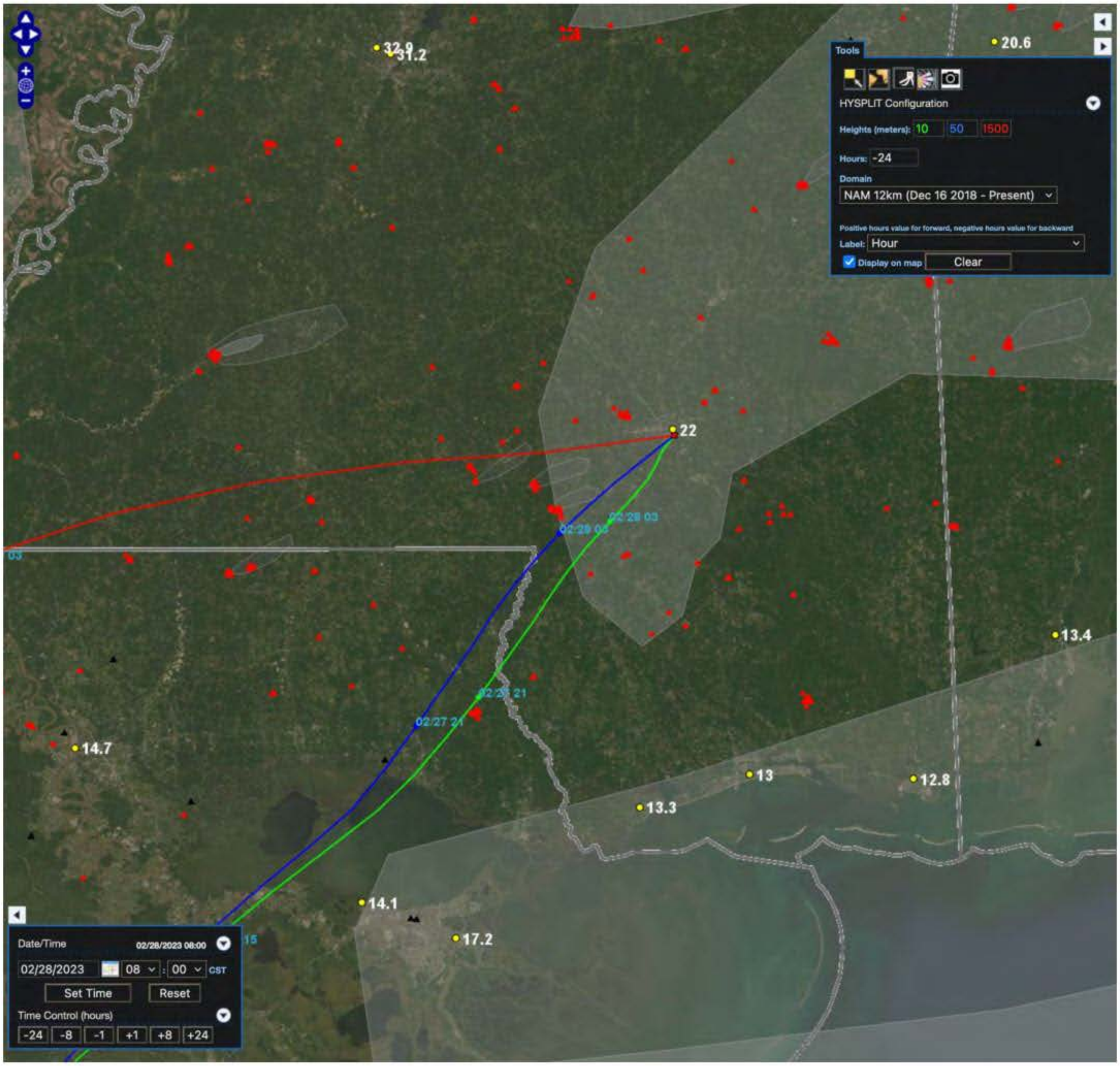
2023 Exceptional Events

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m³)	Tier(s)	Notes (e.g. event name, links to other events)
February 28, 2023	Prescribed Fire	RM	28-035-0004	Hattiesburg	20.0	2	Prescribed Fire an Exceptional Event Demonstration: February 28, 2023

Synopsis: PM2.5 was elevated on this particular day due to ongoing prescribed fires surrounding the Hattiesburg monitor. Fires were located to the southwest, north/northwest, and northeast of the site. Southwest surface winds transported smoke from the southwestern fires toward the monitor, increasing PM2.5 values from mid-morning through the evening hours.



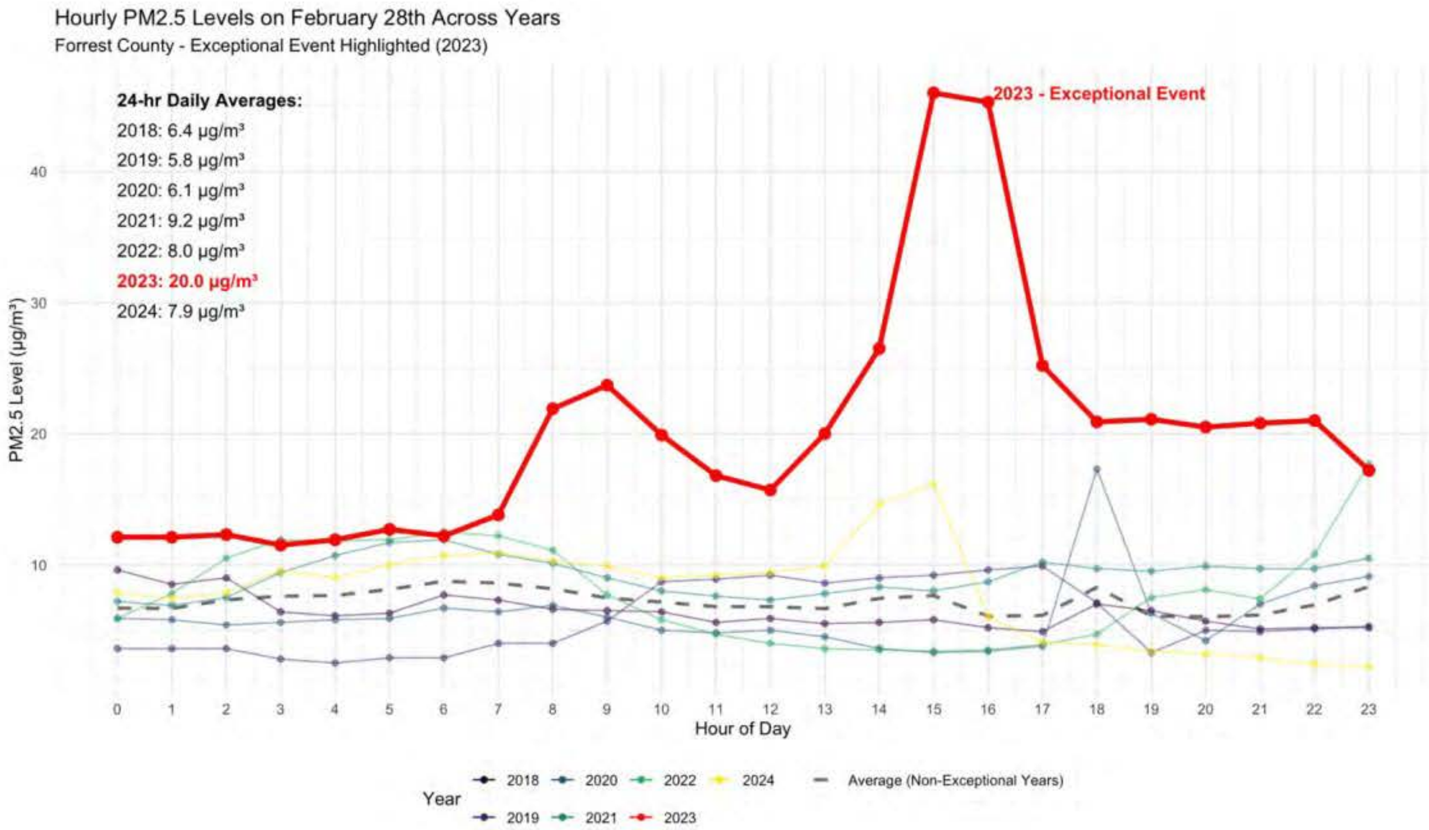
GOES East True Color image taken on February 28th, 2023, at 2111UTC, showing smoke plumes dotting the landscape from prescribed fires in and around the Hattiesburg monitor. Note how smoke plumes are moving southwest to northeast, as the plume is caught up in southwesterly winds at the surface.



24-Hour back trajectory for February 28th, showing lowest 10m and 50m parcels moving from southwest to northeast, carrying smoke to the Hattiesburg monitor, from prescribed burning directly to the southwest.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	02/28/23	13	13	13.2	13.4	13.8	14.6	14.1	14.7	22.8	24.6	20.8	17.7	16.6	20.9	27.4	46.9	46.2	26.1	21.8	22	21.4	21.7	21.9	18.1	21.11	46.9

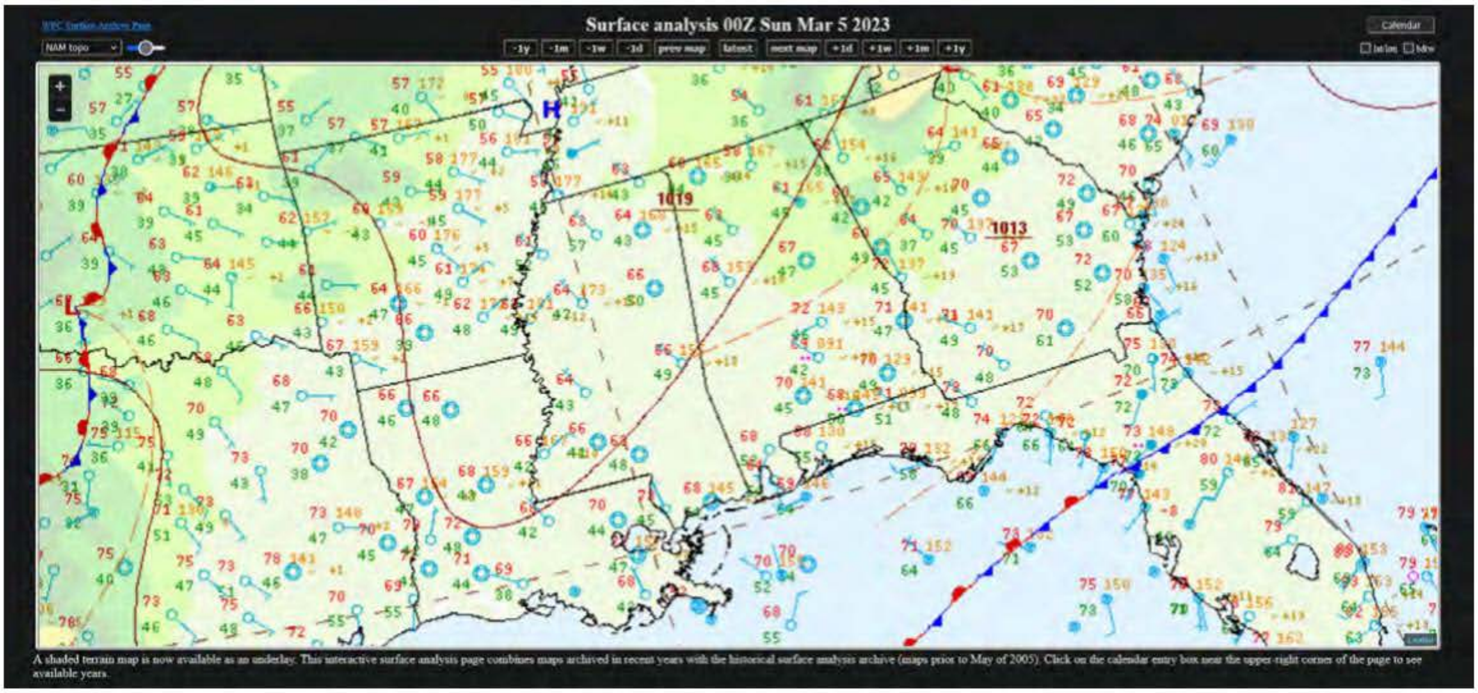
Hourly PM2.5 Values on February 28th, shown in the table above, shows hourly PM2.5 values in the teens and twenties, in the morning going into the early afternoon, than PM2.5 values spike up into the 40's ug/^3m range when impacted by smoke plumes from the fires to the monitor southwest, with a 24-HR average of 21.11ug/m^3.



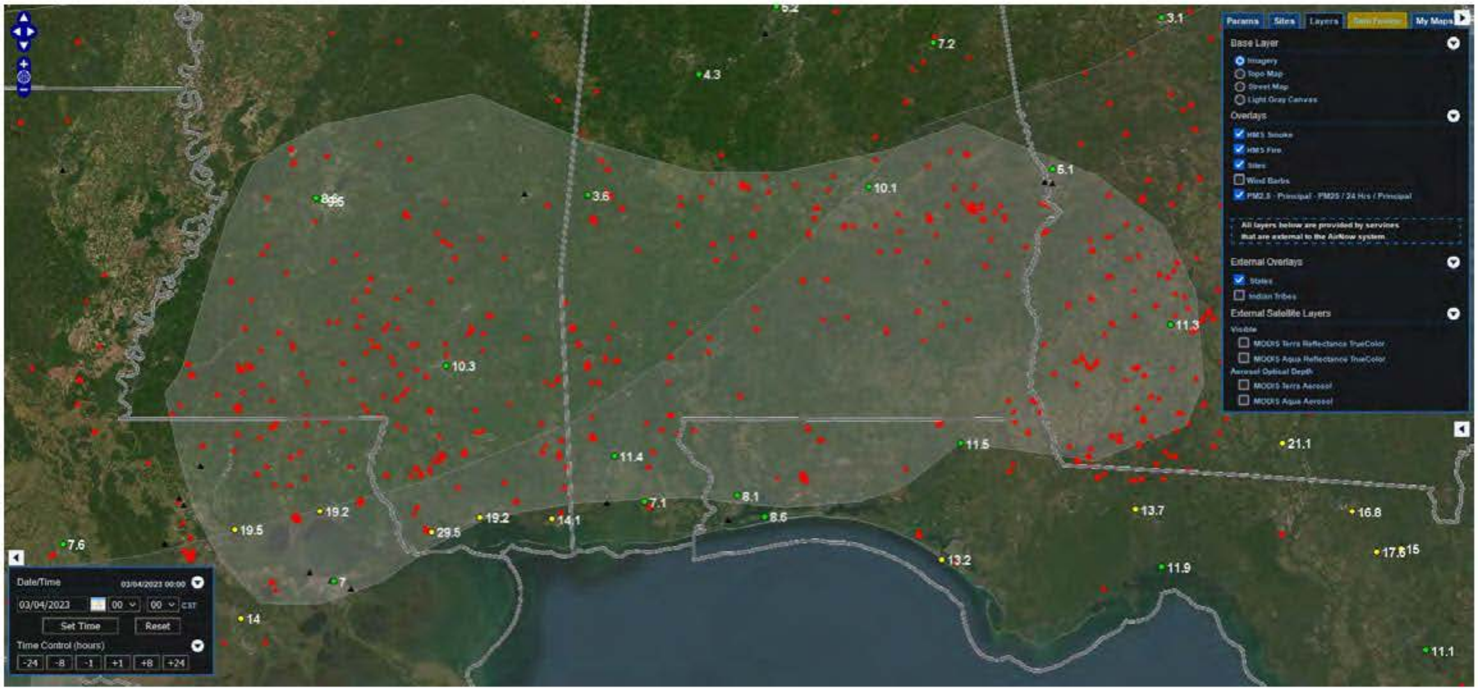
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. Notice the elevated hourly spike of PM2.5 values in the late afternoon going into the evening hours as smoke from the fires located to the southwest were directly affecting the Hattiesburg monitor.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
March 5, 2023	Prescribed Fire	RM	28-035-0004	Hattiesburg	20.2	2	Prescribed Fire an Exceptional Event Demonstration: March 5, 2023

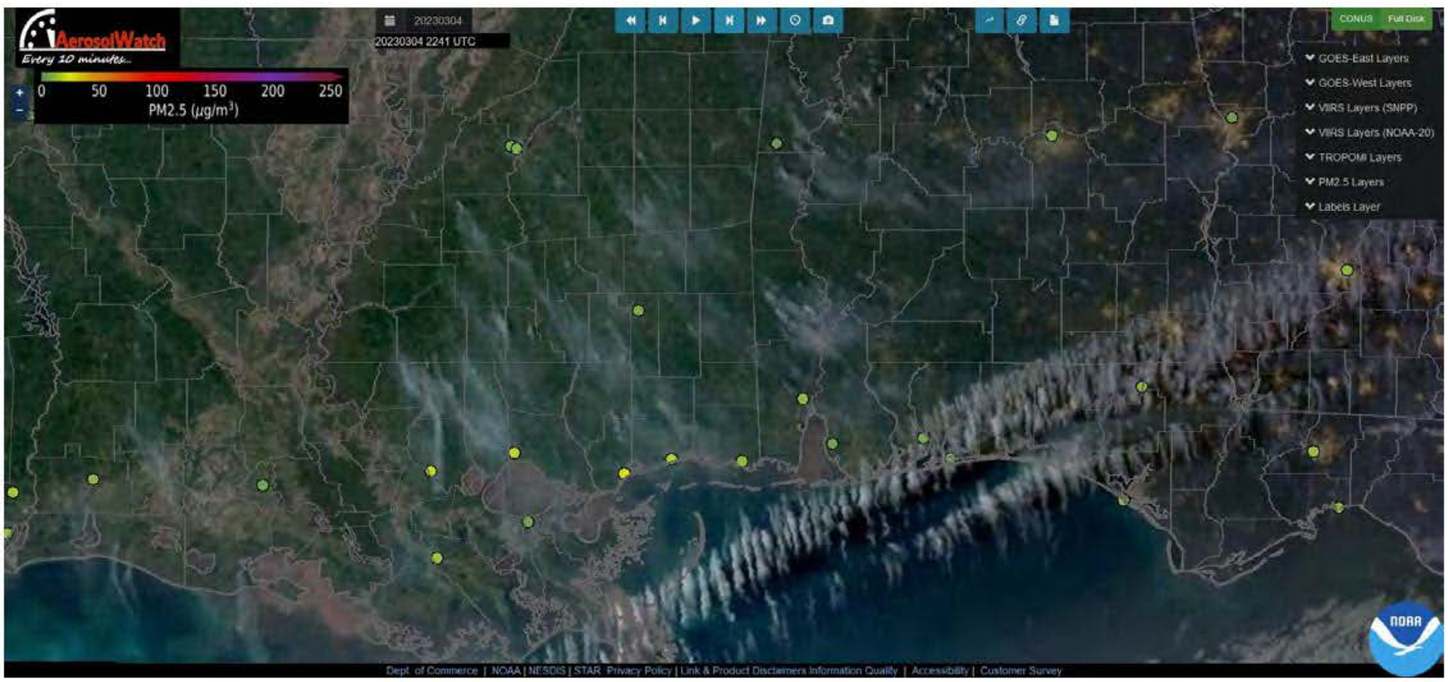
Synopsis: Numerous prescribed fires were burning across the Gulf States both on the 4th and the 5th of March 2023. Surface high pressure was dominating the southeast in wake of a cold front that passed through early on March the 3rd, leading to light winds with very stable conditions at the surface for both the 4th and the 5th.



Surface analysis on 00z, Sunday, March 5th, 2023 (7PM on March 4th, CDT), showing calm winds at the surface at many of the ASOS stations, leading to stagnant conditions while prescribed fires burned during the day on March 4th.



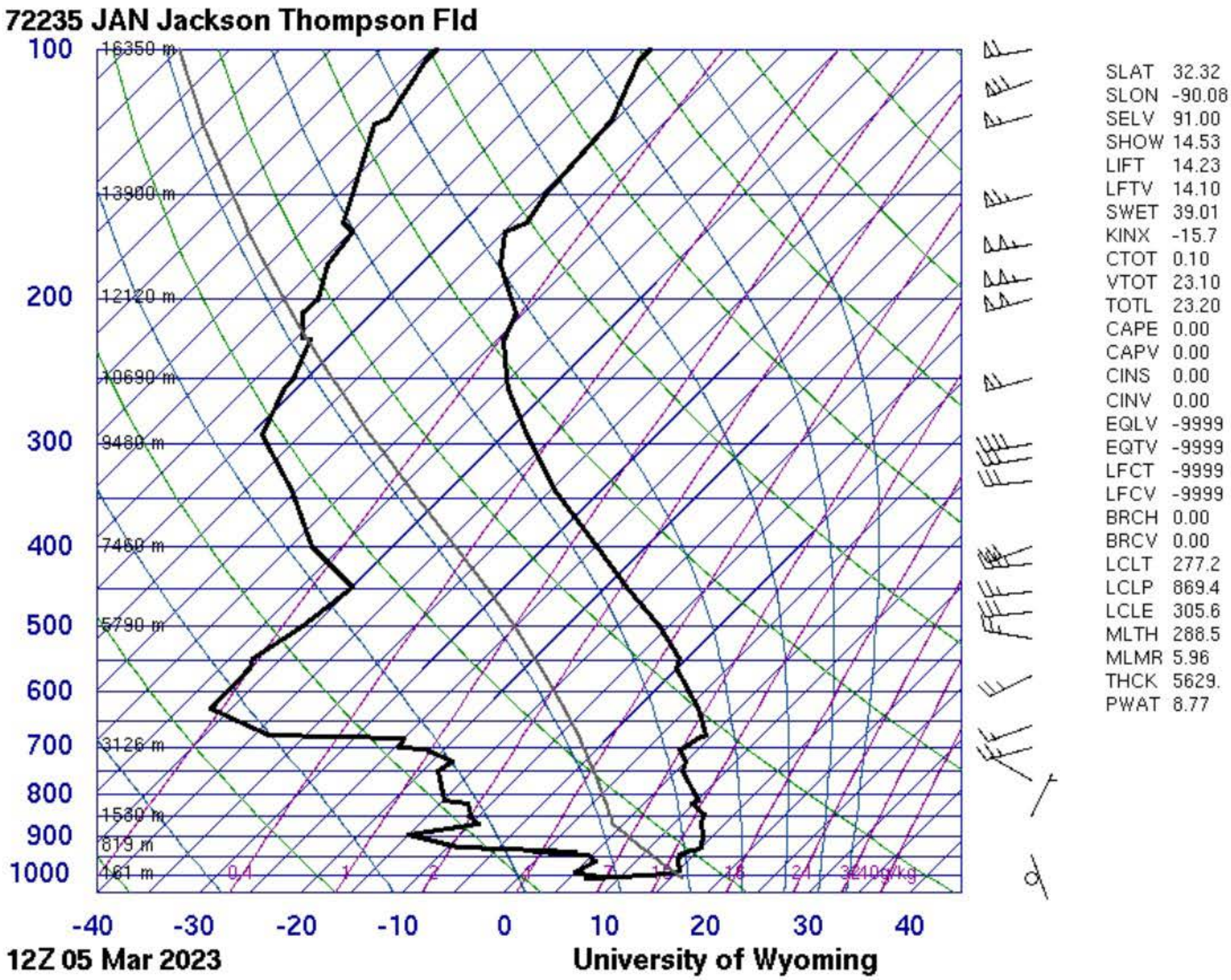
AirNowTech Navigator image above, showing the numerous ongoing prescribed fires in the southeast on March 4, 2023.



GOES East True Color image taken on March 4th, 2023, at 2241UTC, showing smoke plumes dotting the landscape from prescribed fires in and around the Hattiesburg monitor. Smoke plumes are moving northwest to southeast, as the plume(s) are caught up in light northwesterly winds at the surface.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/04/23	5.8	6.1	6.4	6.6	7	7.2	10.2	9	8.6	6.8	6.2	6.4	6.2	6	8.2	7.9	10.6	8.1	1[illegible]2	14.8	17.7	25.7	21.2	25.3	10.38	2[illegible].7

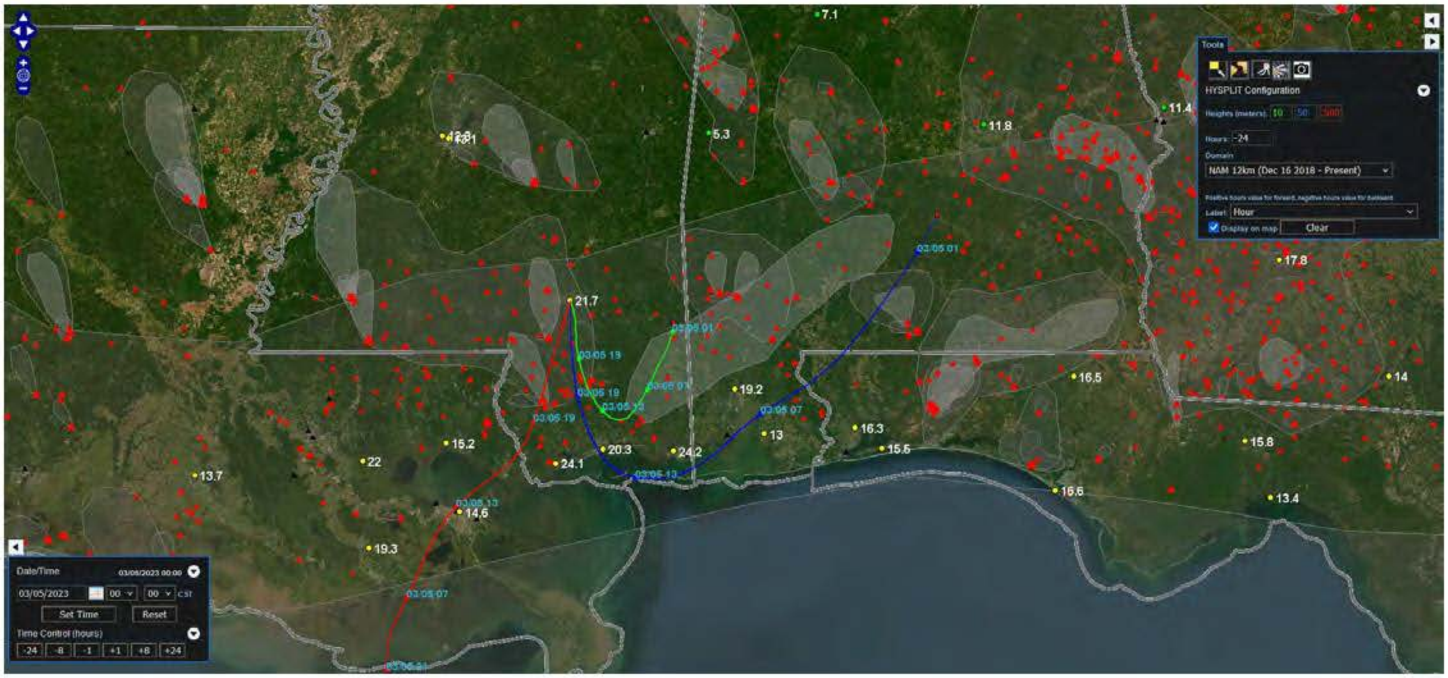
Although the PM2.5 values for the daily average at the Hattiesburg monitor were good for March 4th, hourly PM2.5 values during the late evening, into the overnight hours increased thanks to winds going calm, diminishing mixing heights, and the development of low-level nocturnal inversion just after sunset, trapping smoke near the surface.



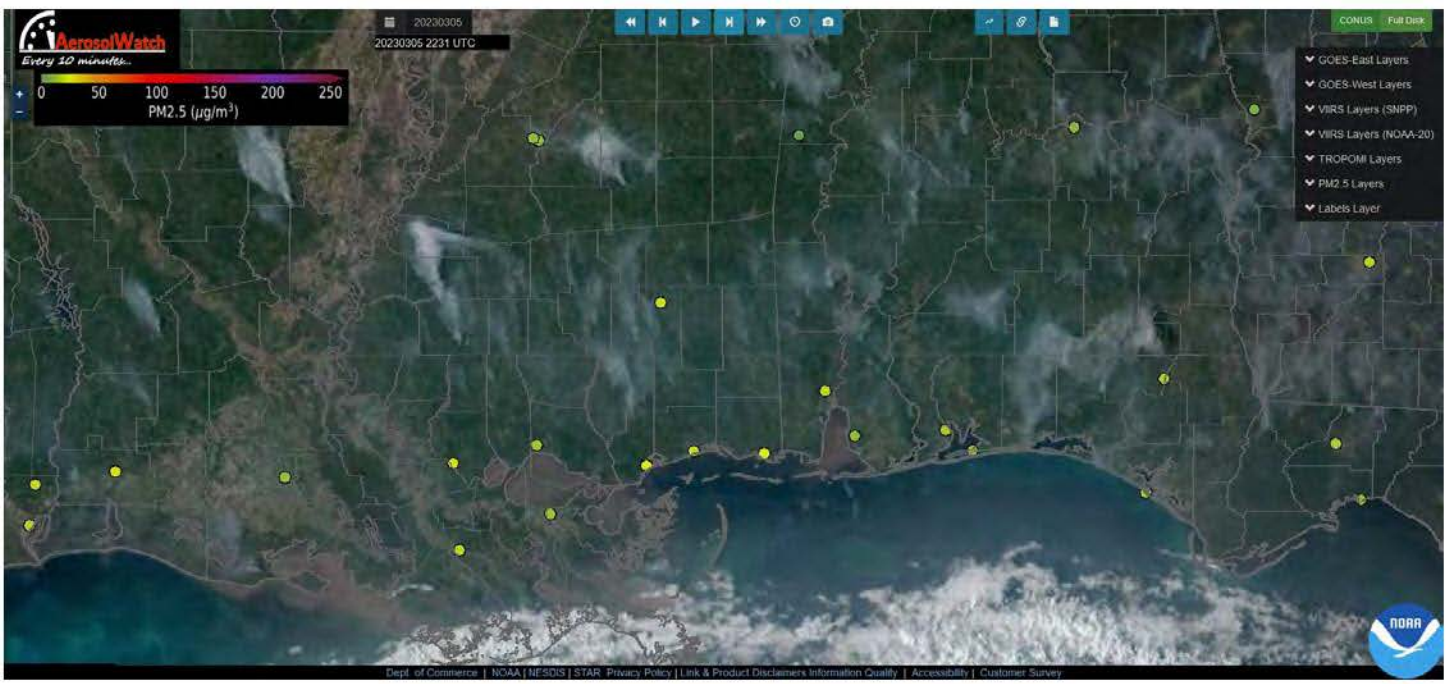
Morning sounding on March 5th, 2023, shows very strong low level nocturnal inversion that set up overnight trapping smoke from previous days prescribed fires, keeping PM2.5 elevated overnight into the 20's with a few hours right at 30ug/m^3.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/05/23	29.6	24.3	28	24.6	30.3	30.8	30	25.8	15.9	8.9	6.7	7.5	10.8	10.7	10.9	10.9	11.6	15.9	28.5	36.3	26	33.5	33.2	30.4	21.71	36.3

Starting on March 5th (an exceptional event day), multiple prescribed fires continued in and around the Hattiesburg monitor area, keeping PM2.5 levels elevated, particularly during the evening and overnight hours. These elevated levels were driven by stable and stagnant conditions due to strong continental high pressure over the area. As shown in the hourly table above, PM2.5 concentrations decreased during the daytime hours due to increased mixing heights, which allowed for better dispersion. However, PM2.5 levels rose again in the late afternoon and overnight as a low-level nocturnal inversion developed, trapping smoke and causing an increase in PM2.5 concentrations for a daily average of 21.71ug/m^3.



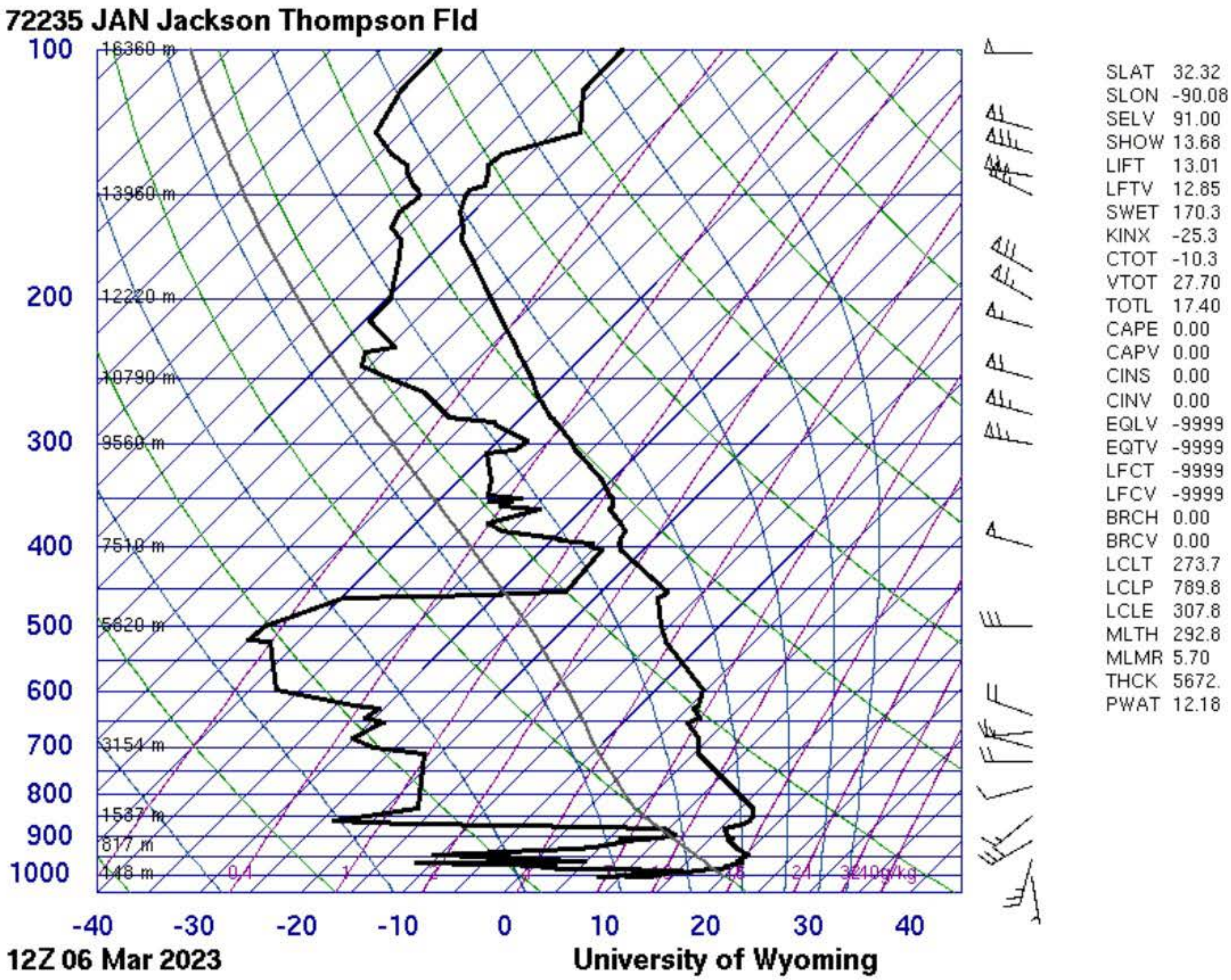
The AirNowTech Navigator image above shows numerous ongoing prescribed fires across the southeast, including those in and around the Hattiesburg monitor on March 5, 2023. Back trajectories at the 10m and 50m levels indicate light southerly winds on March 5th, carrying smoke plumes from prescribed fires south of the Hattiesburg monitor toward the monitor location



GOES East True Color image taken on March 5th, 2023, at 2231UTC, showing smoke plumes dotting the landscape from prescribed fires in and around the Hattiesburg monitor. Smoke plumes are moving south-southeast to north-northwest, as the plume(s) are caught up in light south-southeasterly winds at the surface.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m³)	Tier(s)	Notes (e.g. event name, links to other events)
March 6 – 9, 2023	Mexico/Central American Wildfire and Prescribed Fire	RG/ RM	28-035-0004	Hattiesburg	24.7, 19.7, 30.8, & 22.8	1, 2	Mexico/Central American Wildfire C Exceptional Event Demonstration: March 6 – 9, 2023

Synopsis: March 6-9th experienced a hybrid PM2.5 exceptional event combining local prescribed fires around the Hattiesburg monitor with smoke from Mexico/Central American wildfires affecting the Gulf Coast states. The morning of March 6th saw high PM2.5 values due to previous days' prescribed fire smoke being trapped near the surface by a strong overnight nocturnal inversion (previous days exceptional event). A one-hour PM2.5 maximum of 55.2 μg/m^3 was recorded during the early morning hours. Ongoing prescribed fires throughout the day around the Hattiesburg monitor kept PM2.5 values elevated, with levels climbing into the mid-30s μg/m^3 range during several afternoon hours.

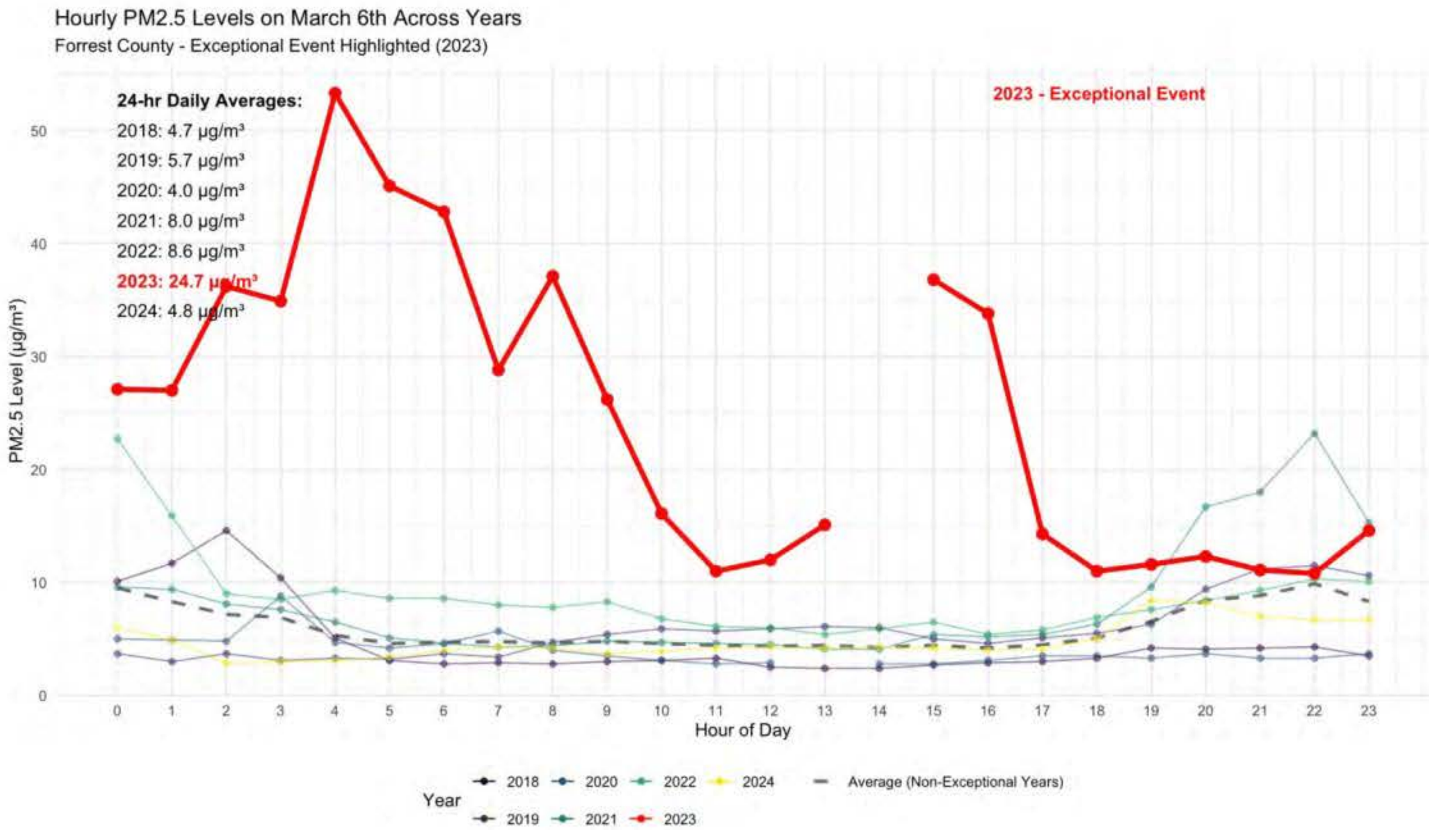


Morning sounding on March 6th, 2022, shows very strong low level nocturnal inversion that set up overnight trapping smoke from previous days prescribed fires, keeping PM2.5 elevated overnight into the 30's 40's and a one-hour max of 55.2 ug/m^3.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/06/23	[illegible]	28.9	38.1	36.8	55.2	47	44.7	30.7	39	27.1	[illegible]	11.9	12.9	[illegible]	192	37.7	34.7	[illegible]	11.9	12.5	13.2	12	11.7	15.5	26.03	55.2

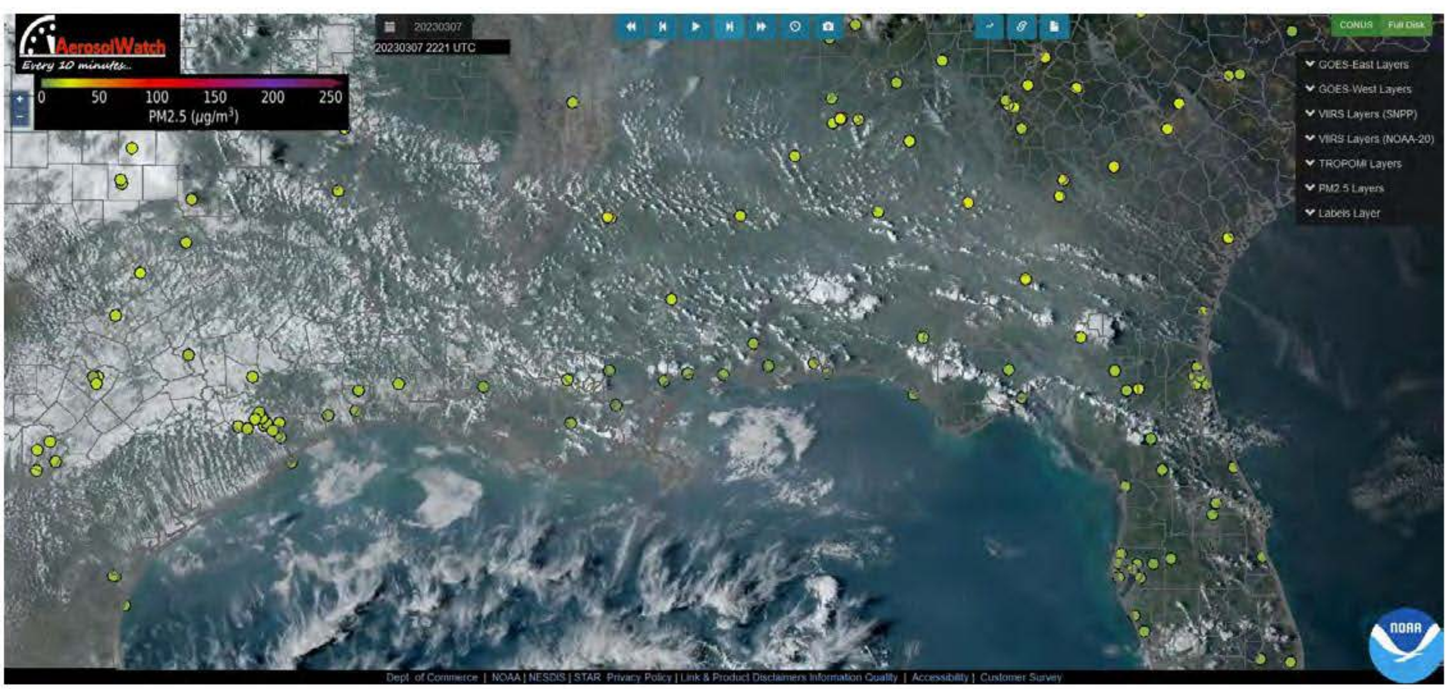
Ongoing prescribed fires throughout the day around the Hattiesburg monitor, kept PM2.5 values elevated with a couple hours in the afternoon climbing into the middle 30's ug/m^3 range, resulting in a daily PM2.5 average of 26.03 for this day.

The AirNowTech Navigator image above shows ongoing prescribed fires across the southeast, including those in and around the Hattiesburg monitor on March 6th, 2023. Back trajectories at the 10m and 50m levels indicate light southerly winds on March 6th, carrying smoke plumes from prescribed fires south of the Hattiesburg monitor toward the monitor location. Also notice the encroachment of smoke from the Mexican fires moving into the Gulf States that is embedded in southerly wind flow indicated by smoke density on the map.

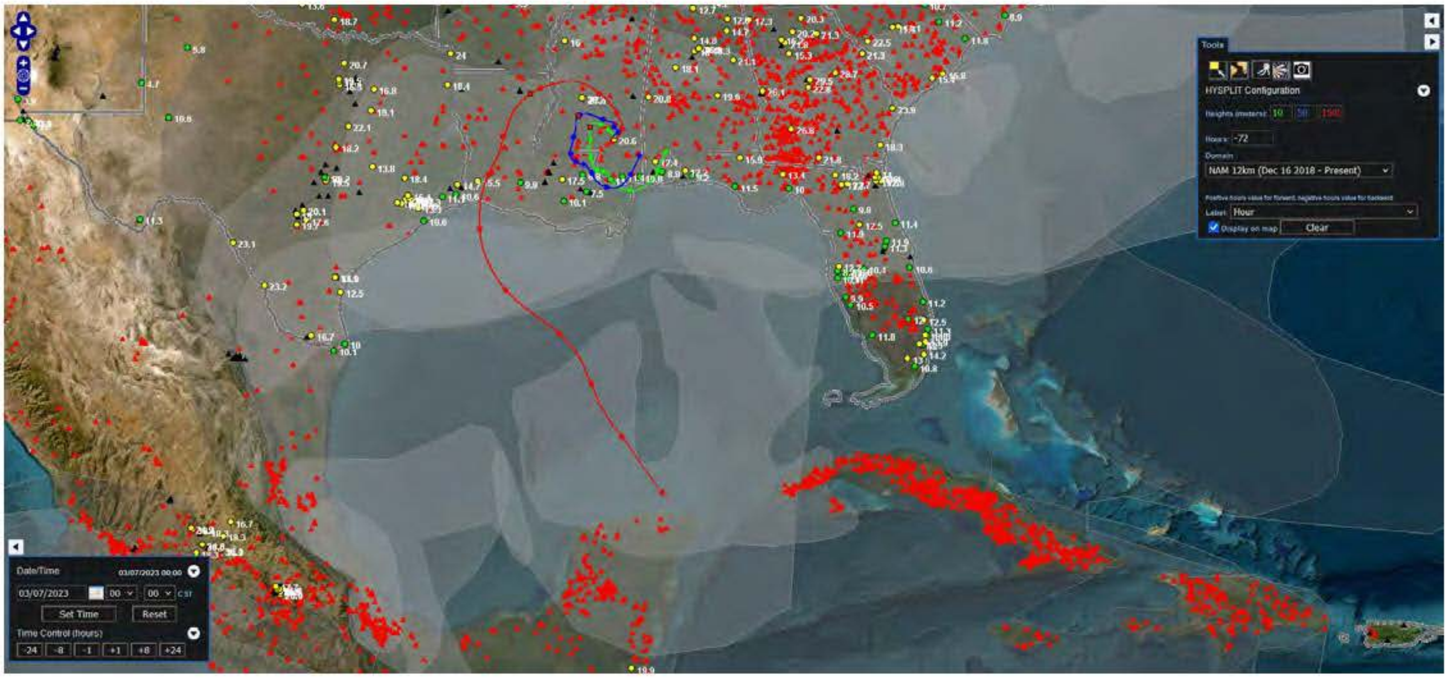


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years.

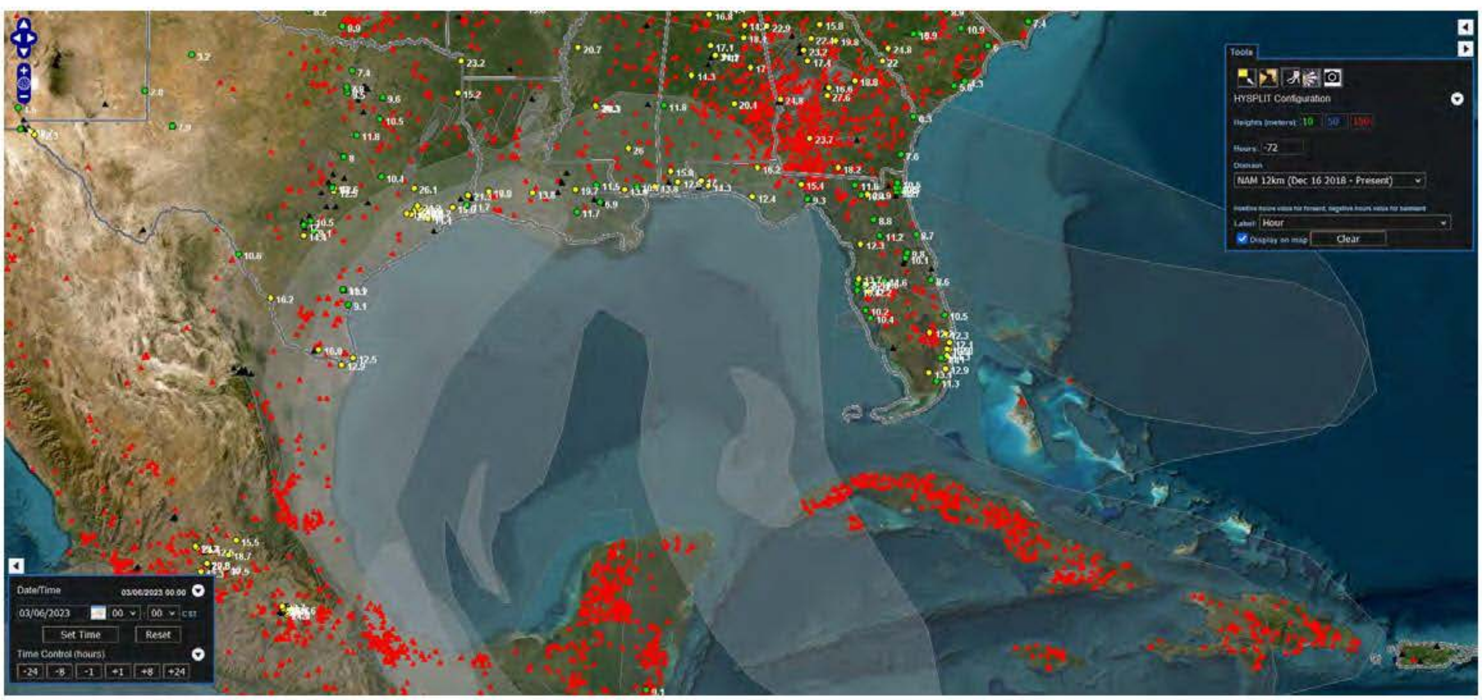
March the 7th, smoke from Mexico/Central American wildfires, has fully engulfed the southeastern United States. This smoke combined with ongoing numerous prescribed fires in the southeast, as elevated numerous PM2.5 monitors well into the moderate category for their daily averages.

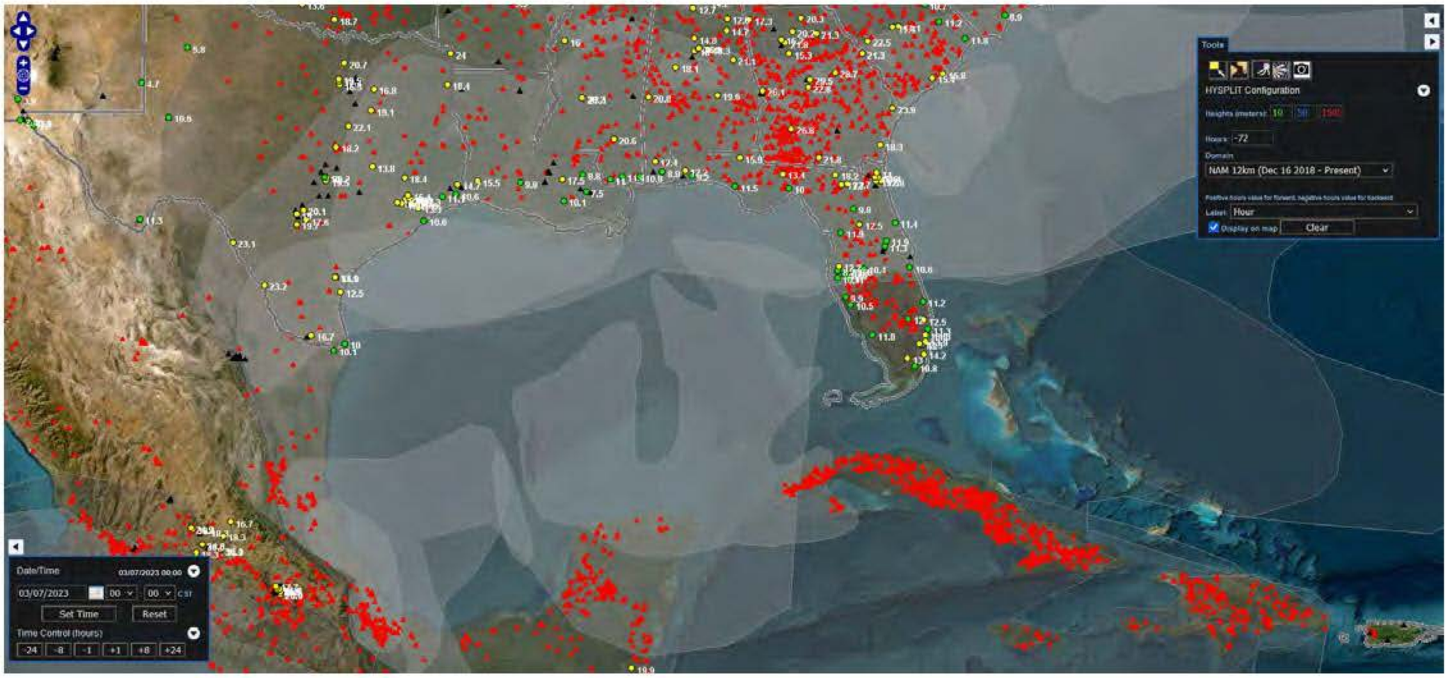


GOES East True Color image taken on March 7th, 2023, at 2221UTC, showing expansive smoke shield across the southeastern United States from both ongoing prescribed fires combined with smoke from the Mexican fires.



The AirNowTech Navigator image above shows the expansive smoke moving northward from wildfires in Mexico and Central America, along with numerous ongoing prescribed fires across the southeast, including those near the Hattiesburg monitor on March 7, 2023. The 72-hour back trajectory in the AirNowTech image indicates limited movement of the air parcel at the 10m and 50m levels, reflecting stagnant surface conditions. However, at 1500m, the parcel is transporting smoke from the Mexican and Central American wildfires into the Gulf States.

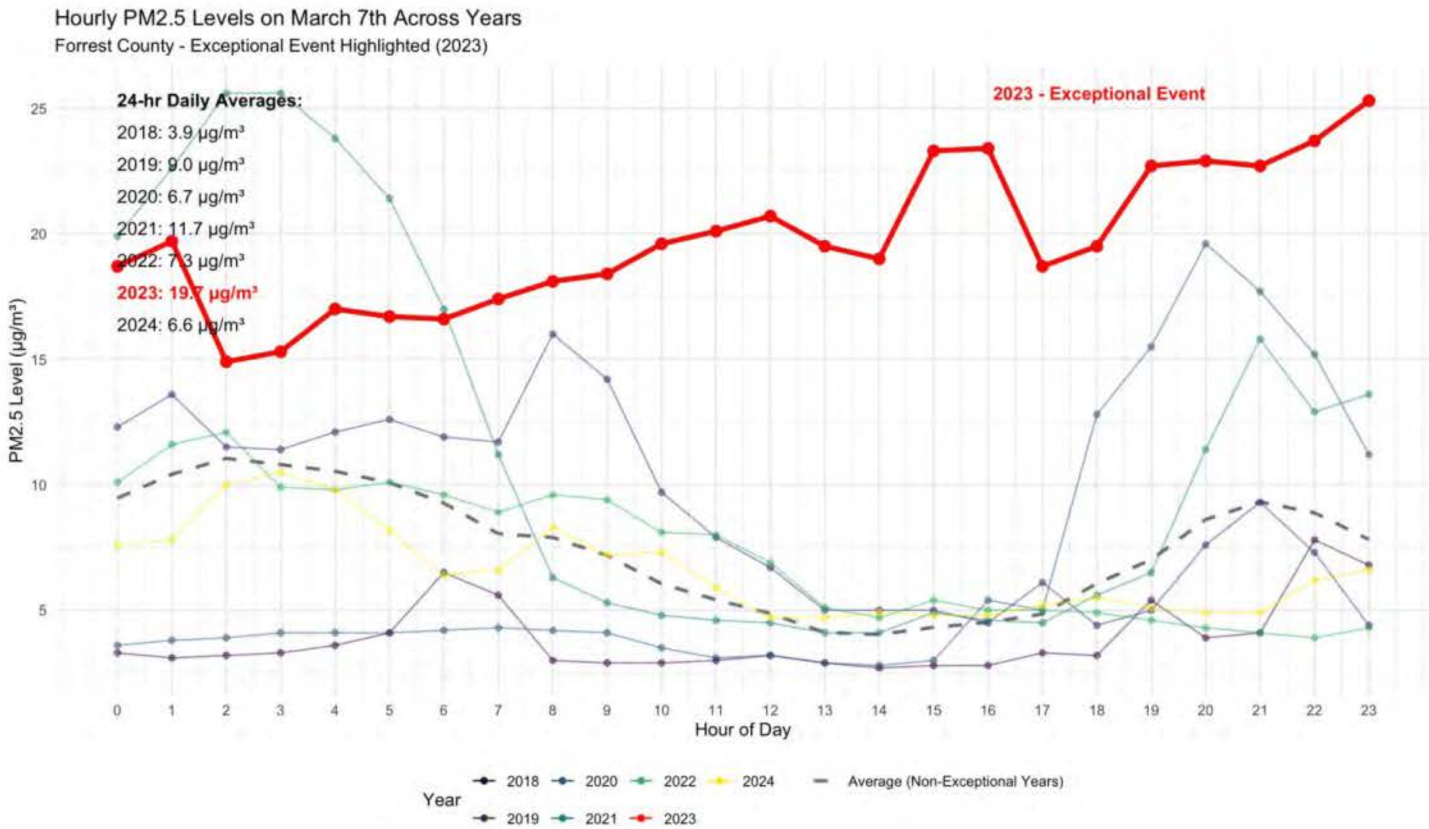




The two AirNowTech images above are from March 6 and March 7th, showing the northward progression of the Mexican and Central American wildfires into the Gulf States.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/07/23	19.6	20.6	15.8	16.2	17.9	17.6	17.5	18.3	19	19.3	20.5	21	21.6	20.4	19.9	24.2	24.3	19.6	20.4	23.6	23.8	23.6	24.6	27.2	20.69	27.2

Hourly values in image above at the Hattiesburg monitor show elevated hourly PM2.5 values throughout the day thanks in part to smoke from Mexican fires as well as local prescribed fires with the monitoring location having a daily average of 20.69ug/m^3.



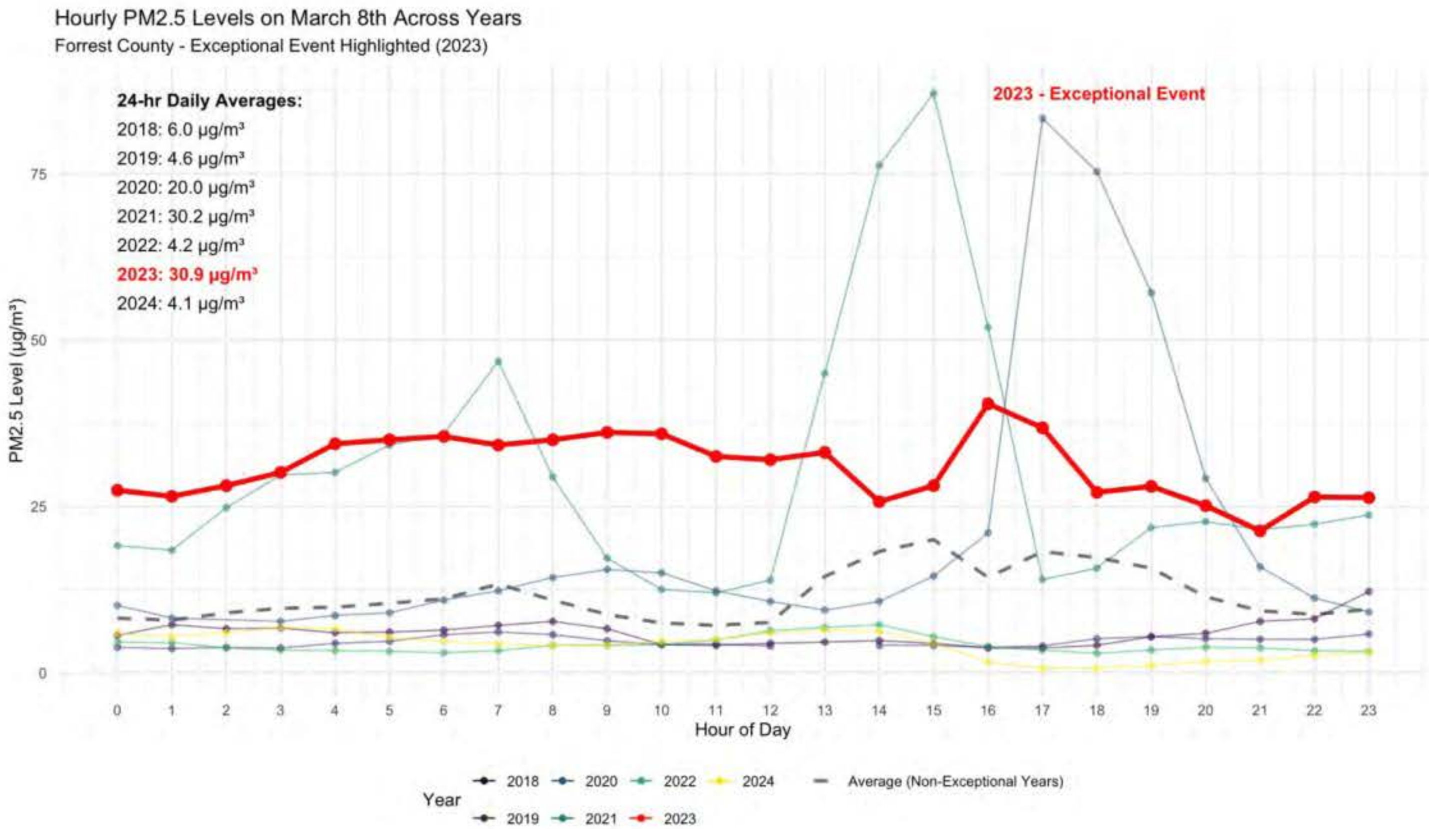
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. Figure shows how both local prescribe fires in addition to Mexico/Central American wildfire smoke that has moved over the area, keeps PM2.5 values elevated.

March 8th: Hattiesburg monitor saw the highest PM2.5 values of the four-day event with a 24-Hour value of 30.8ug/m^3 as PM2.5 values remained elevated throughout the day in the twenties and thirties microgram range, thanks in large part of continuation of smoke from Mexico/Central America wildfires and prescribed fires in and around the Hattiesburg monitor.

The AirNowTech Navigator image above shows smoke across the Gulf States, resulting from both numerous prescribed fires in the southeast and ongoing wildfires in Mexico and Central America, which continue to impact the region. This is illustrated in the 72-hour back trajectory overlay: at 1500m, the parcel originates near the Mexican and Central American wildfires, while at the 10m and 50m levels, the parcel originates in Alabama, where numerous prescribed fires are ongoing. Over the 72-hour period, the limited movement of the 10m and 50m parcels indicates stagnant, low-wind conditions that contribute to smoke stagnation and elevated PM2.5 levels.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/08/23	29.3	28.4	30	32	36.3	36.9	37.4	36.1	35.9	37	36.8	33.4	32.9	34	26.6	29	41.3	37.7	28	28.9	26	23.2	28.3	28.2	32.23	41.3

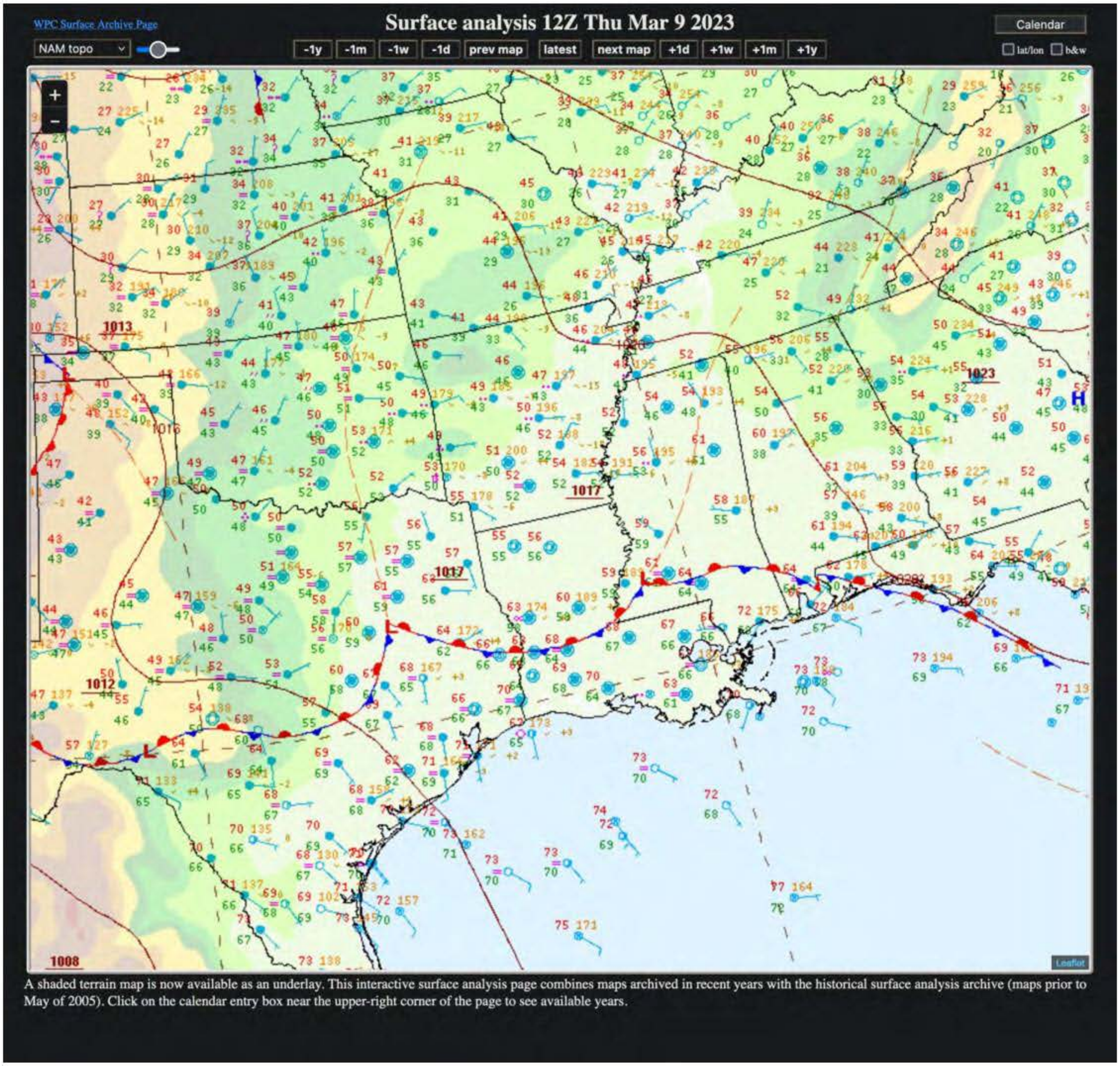
Hourly values in image above at the Hattiesburg monitor show elevated hourly PM2.5 values throughout the day thanks in part to smoke from Mexican fires as well as local prescribed fires with the monitoring location having a daily average of 32.23ug/m^3.



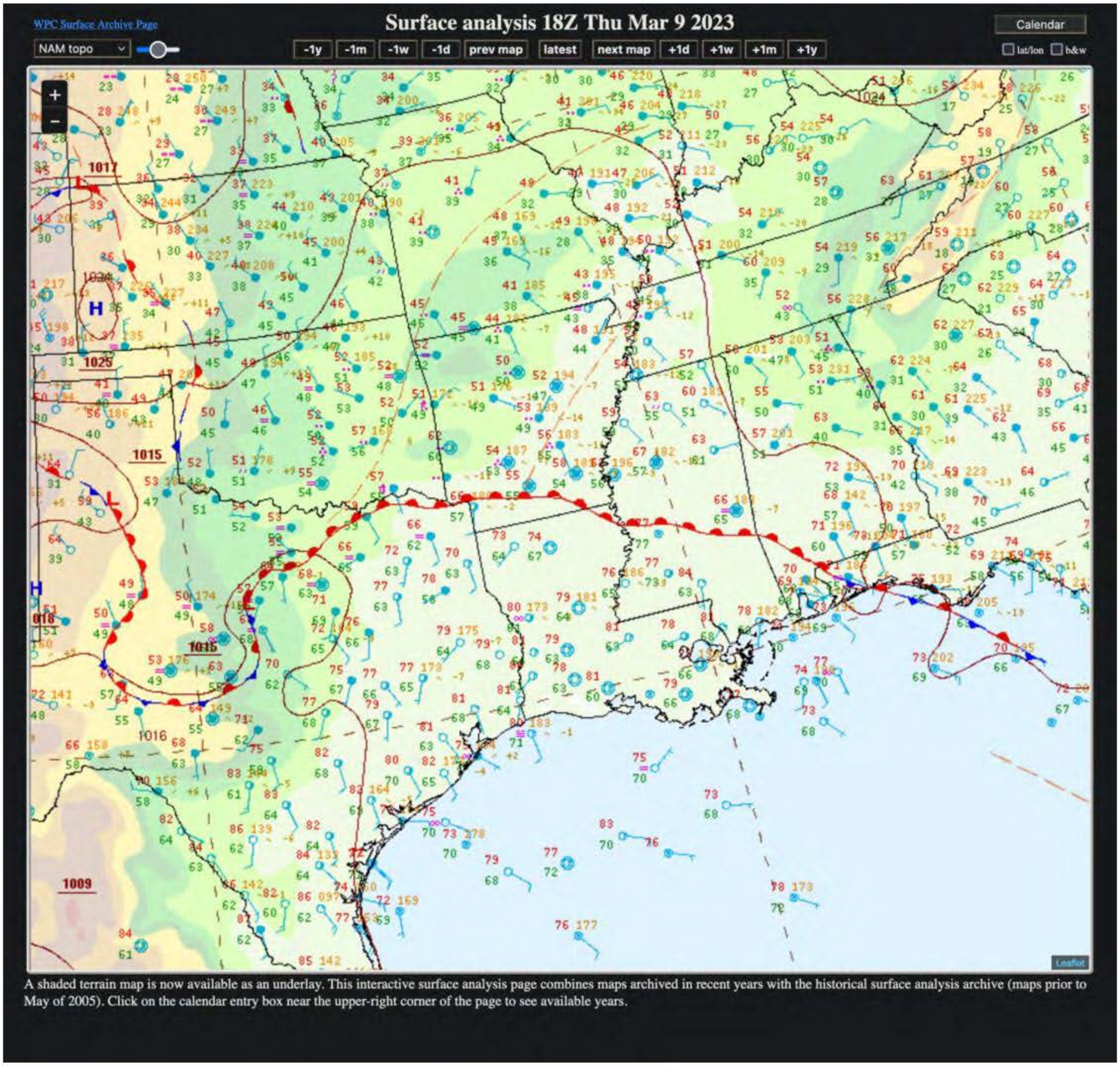
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. Figure shows how both local prescribe fires in addition to Mexico/Central American wildfire smoke that has moved over the area, keeps PM2.5 values elevated.

March 9th: PM2.5 levels remained elevated, with several hours in the upper 20s to 30s µg/m^3 range, partly due to lingering smoke from previous days. This was especially evident in the morning, as calm surface winds and a shallow frontal inversion, caused by a stationary boundary over the area, trapped pollutants near the ground. Overcast skies prevented the rapid diurnal heating that typically occurs in the morning, maintaining shallow mixing heights and preserving the low-level frontal inversion.

PM2.5 values stayed in the twenties until around noon, when the stationary boundary shifted north as a warm front. The overcast skies began to clear, forming a cumulus field that allowed for increased diurnal heating, which raised mixing heights and lowered PM2.5 values into the teens. Prescribed fires continued throughout the afternoon, keeping PM2.5 levels elevated. When the warm front lifted north, it left a warm, stagnant air mass around the Hattiesburg monitor, further inhibiting ventilation. The 24-hour PM2.5 average for this day was 24.13 µg/m^3.



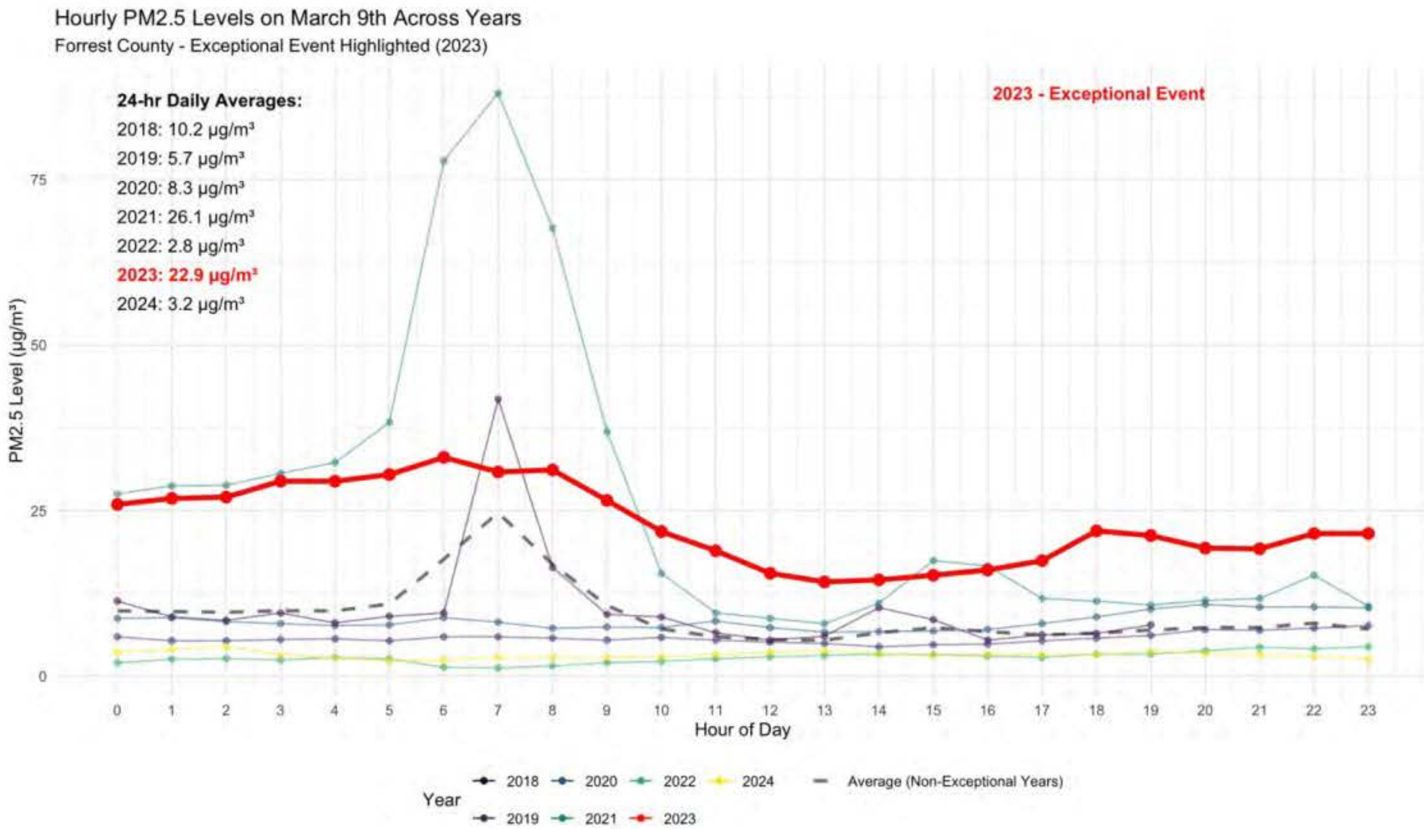
12Z surface analysis from March 9, 2023, showing stationary boundary draped across southern Mississippi, over the Hattiesburg monitor, helping form morning frontal inversion.



18z surface analysis from March 9, 2023, showing stationary boundary began to move northward as a warm front, in its wake, leaving warm, stagnant airmass.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/09/23	27.8	28.7	28.9	31.3	31.3	32.3	34.9	32.7	33	27.4	22.7	19.8	16.4	15.1	15.4	16.1	16.9	18.3	22.8	22.1	20.2	20.1	22.4	22.4	24.13	34.9

Hourly values in the image above showing elevated PM2.5 levels during the early morning hours, lasting until around noon, until values dropped into the teens. Values once again, increased after sunset back into the twenties thanks to winds going calm and development of low-level, nocturnal inversion.

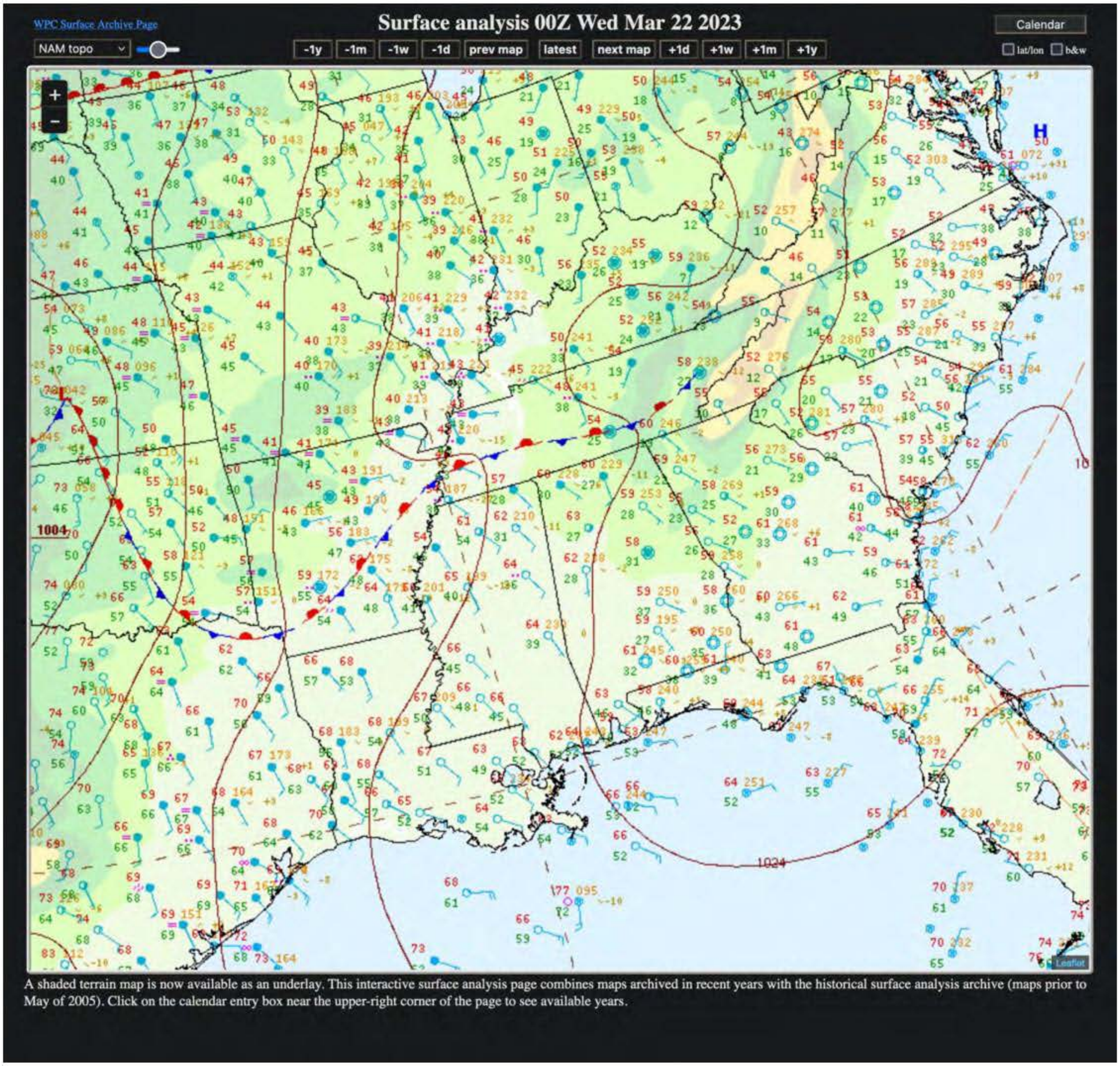


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. Figure shows how both local prescribe fires in addition to Mexico/Central American wildfire smoke that has moved over the area, keeps PM2.5 values elevated.

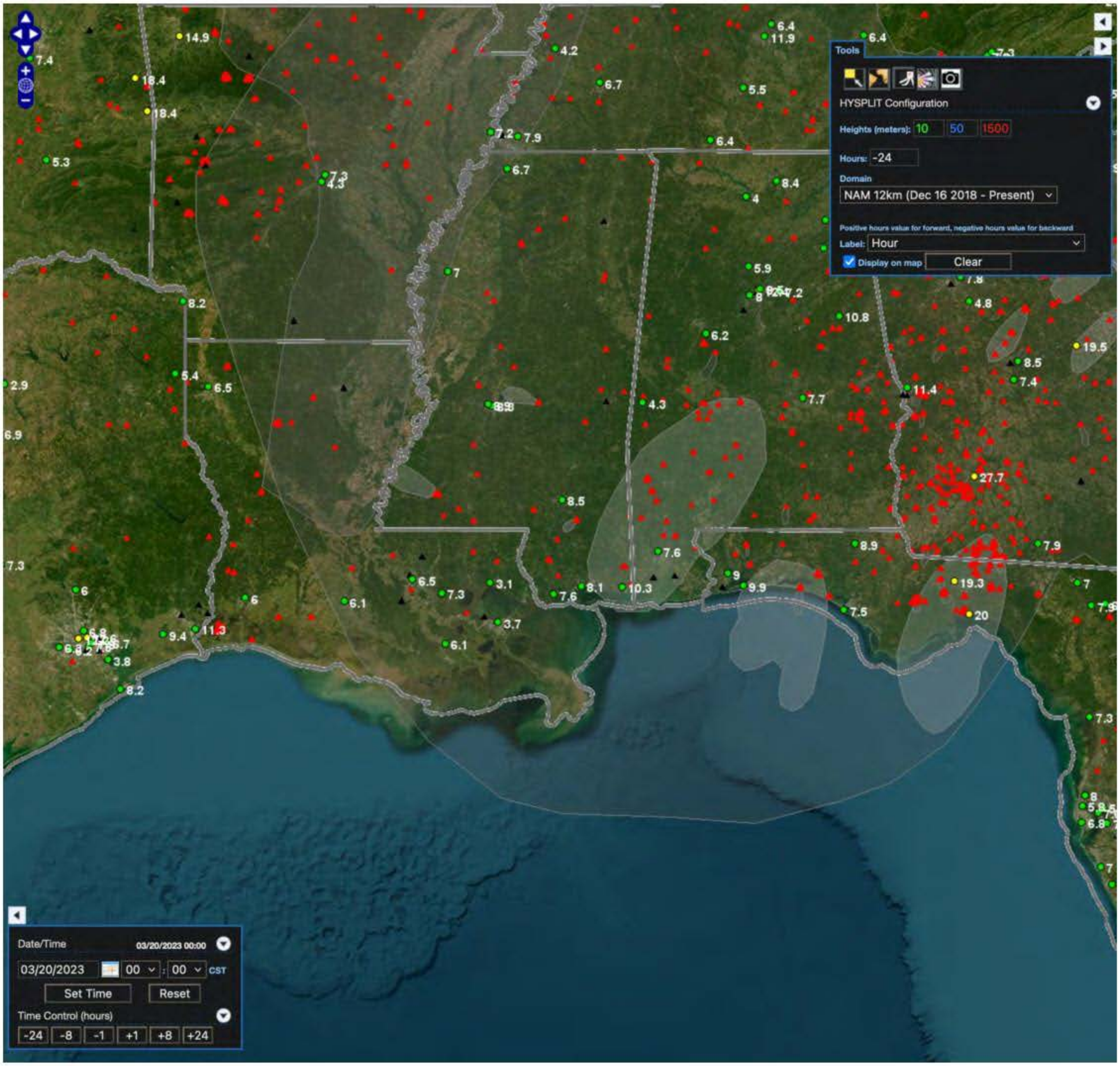
Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
March 21, 2023	Prescribed Fire	RM	28-035-0004	Hattiesburg	25.7	2	Prescribed Fire an Exceptional Event Demonstration: March 21, 2023

Synopsis: Numerous prescribed fires were ongoing throughout the Gulf States on both March 20th and 21st, with surface high pressure firmly in control over the area in the wake of several recent frontal passages. Smoke from earlier prescribed fires began to collect and stagnate across the region, due largely to a shallow nocturnal inversion that set up overnight. This caused PM2.5 values to reach the upper twenties to lower thirties (µg/m^3) in the early morning hours of March 21st. Pollutants were slow to mix out in the morning due to broken cloud cover, keeping PM2.5 levels elevated in the twenties until noon. As skies cleared and mixing increased, PM2.5 values dropped to the lower teens, bottoming out at 9.6 µg/m^3.

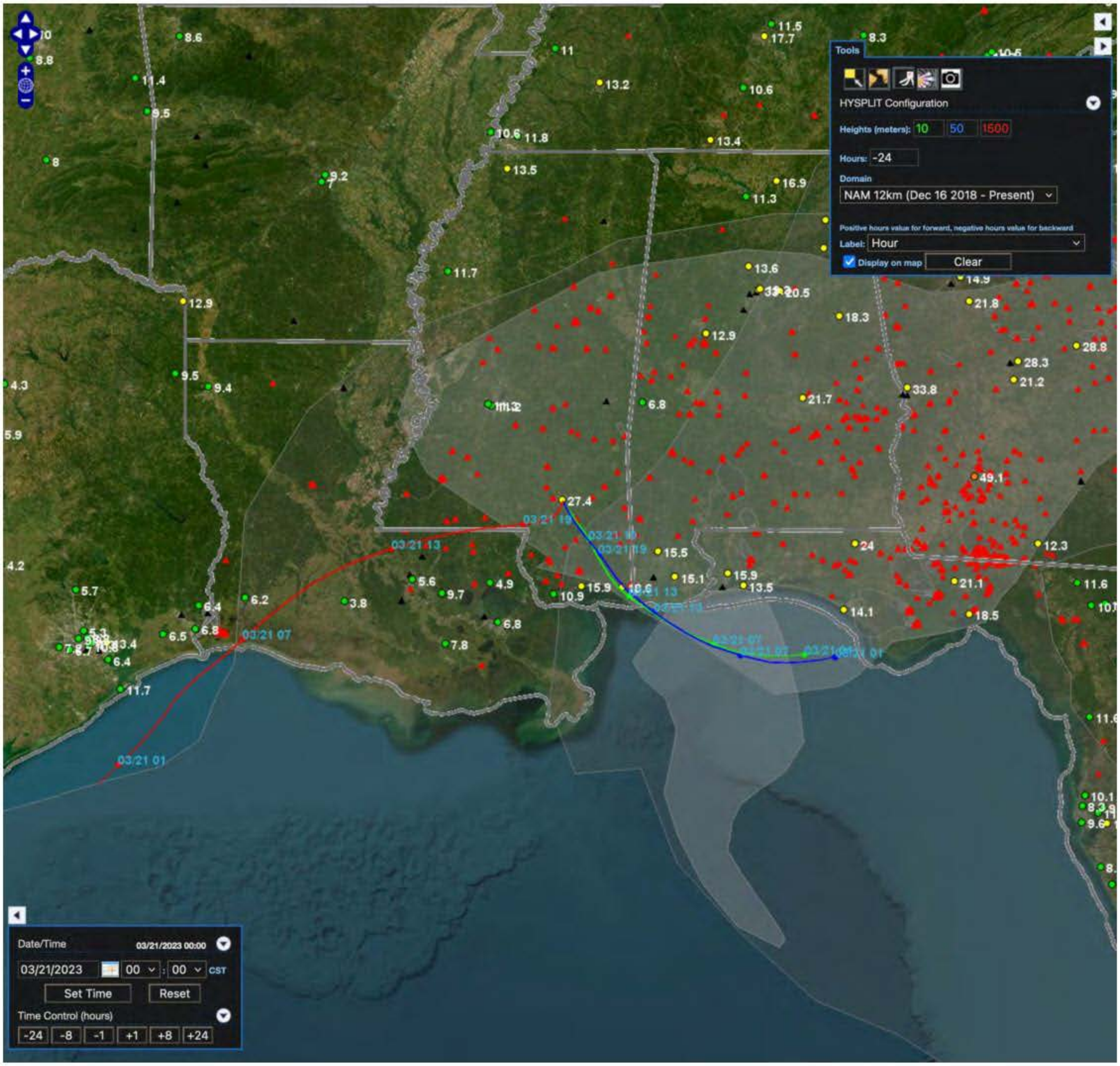
In the afternoon of the 21st, a prescribed fire was ignited south-southeast of the Hattiesburg monitor in Harrison County. The south-southeasterly winds carried the smoke plume directly toward the Hattiesburg monitor, pushing PM2.5 levels up into the 50s (µg/m^3) and raising the daily average for March 21, 2023, to 27.47 µg/m^3.



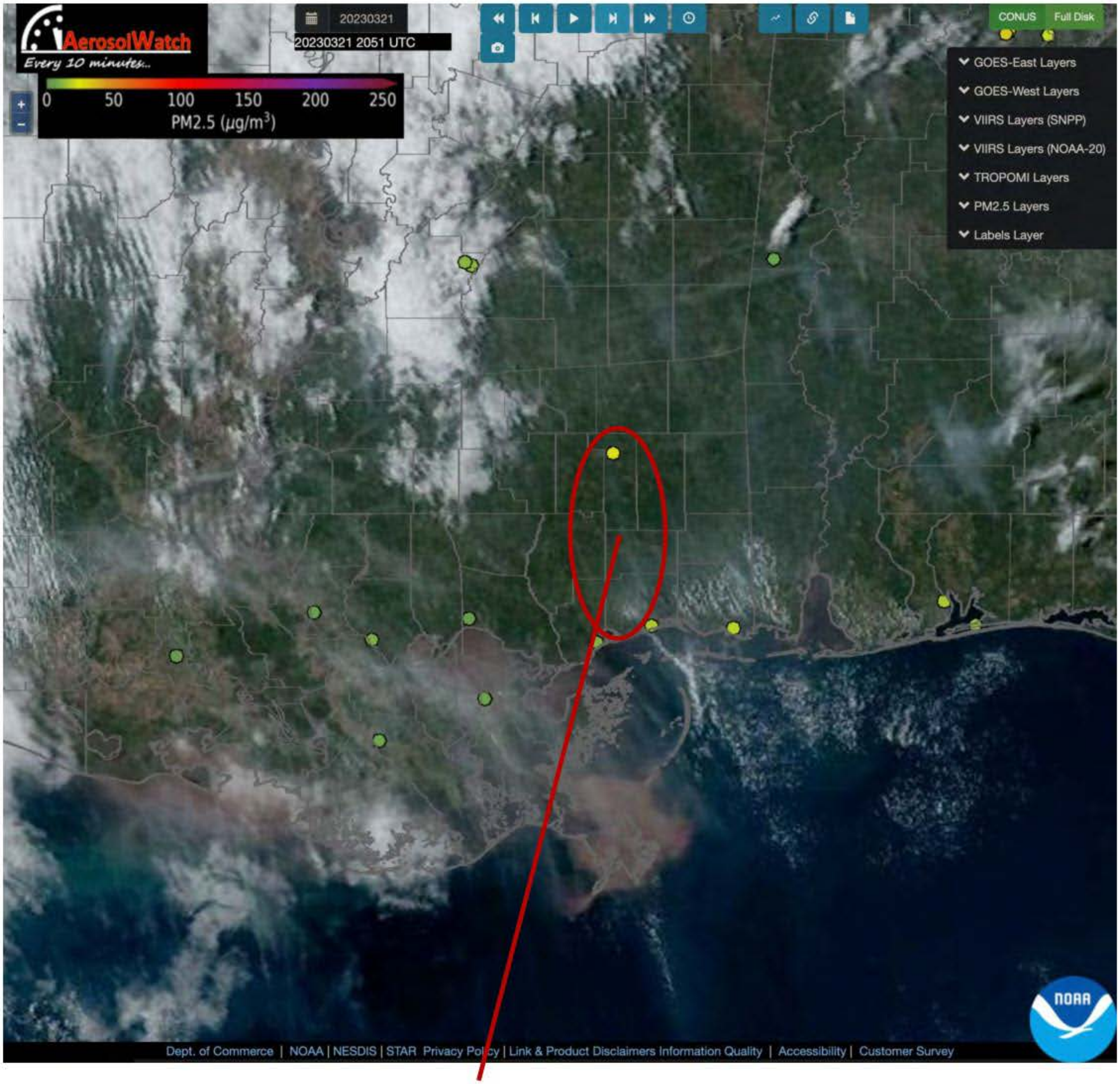
00z surface analysis (March 21st, 2023, at 7PM CDT) showing southeasterly wind flow over Mississippi around back side of High pressure that is centered off the Mid Atlantic Coast.



The AirNowTech Navigator image taken from March 20th above shows smoke across the Gulf States, from prescribed fires on March 20th. This helped enabled PM2.5 values to increase during the early morning hours of March 21st.



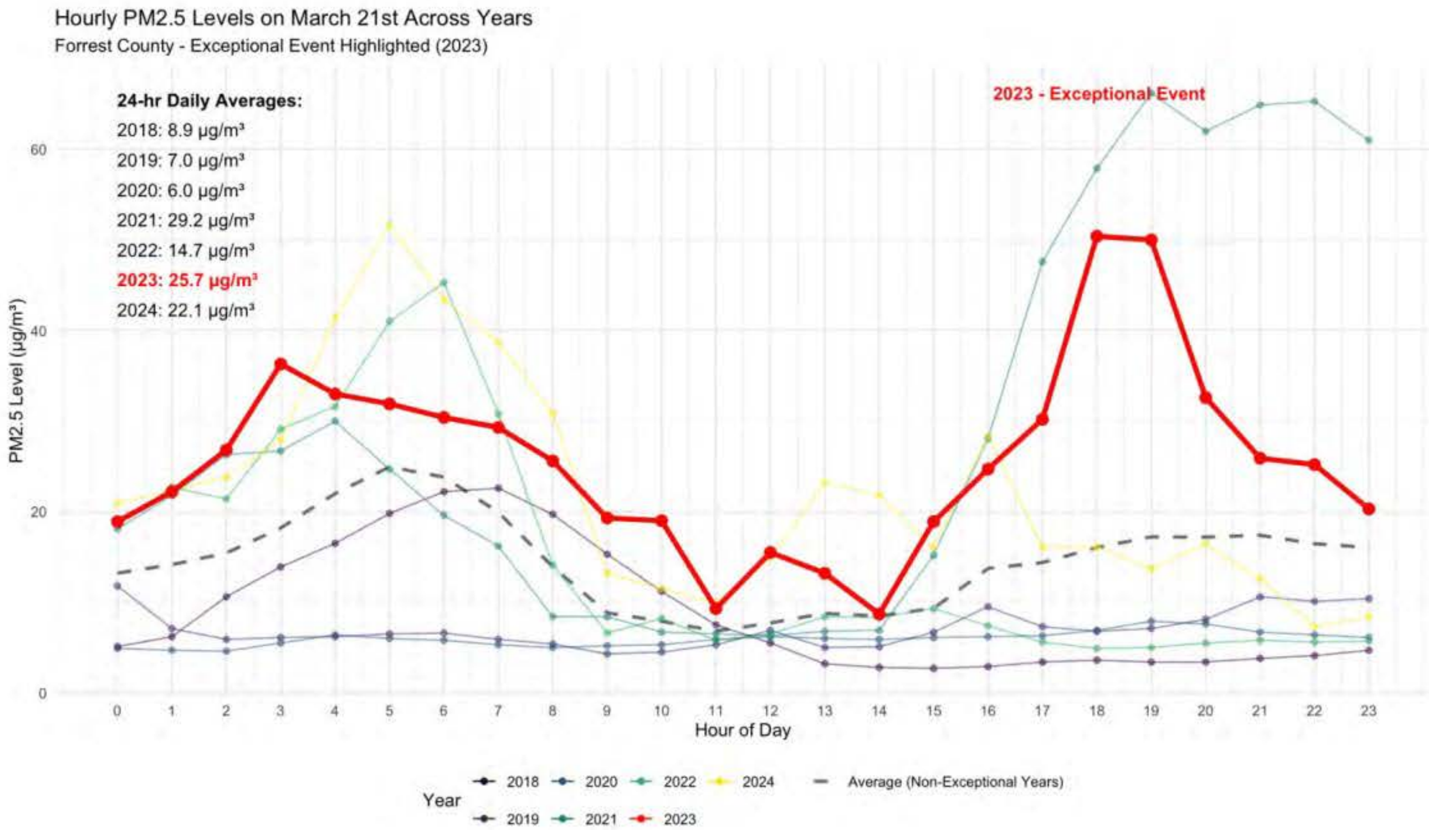
The AirNowTech Navigator image taken from March 21st above, shows ongoing prescribed fires in the southeastern United States overlayed with 24-Hour back trajectory showing southeasterly wind flow at the lowest 10m and 50m levels.



GOES East True Color image taken on March 21st, 2023, at 2051UTC, showing smoke plume from prescribed fire in Harrison County, located to the south-southeast of the Hattiesburg monitor, the smoke plume is trajectory directly towards the Hattiesburg monitor.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	03/21/23	20.8	24.1	28.7	38.2	34.9	33.8	32.3	31.2	27.5	21.2	20.9	11.2	17.4	14.1	9.6	19.8	25.6	32.1	52.3	51.9	34.5	27.8	27.1	22.2	27.47	52.3

The hourly values in the image above show elevated PM2.5 levels during the early morning hours, lasting until around 1 PM, when values dropped into the teens due to increased mixing. Later, PM2.5 levels rose again in the late afternoon into the evening, as smoke from prescribed fires located to the south-southeast of the monitor was carried by south-southeasterly winds directly toward the Hattiesburg monitor.

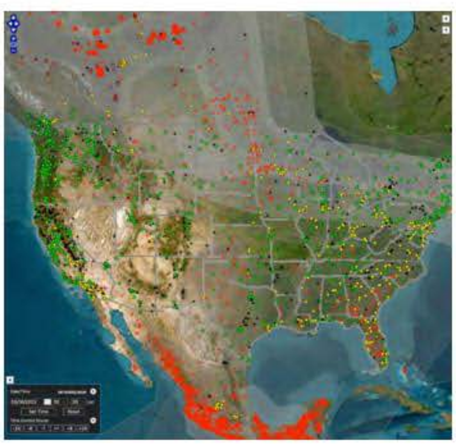


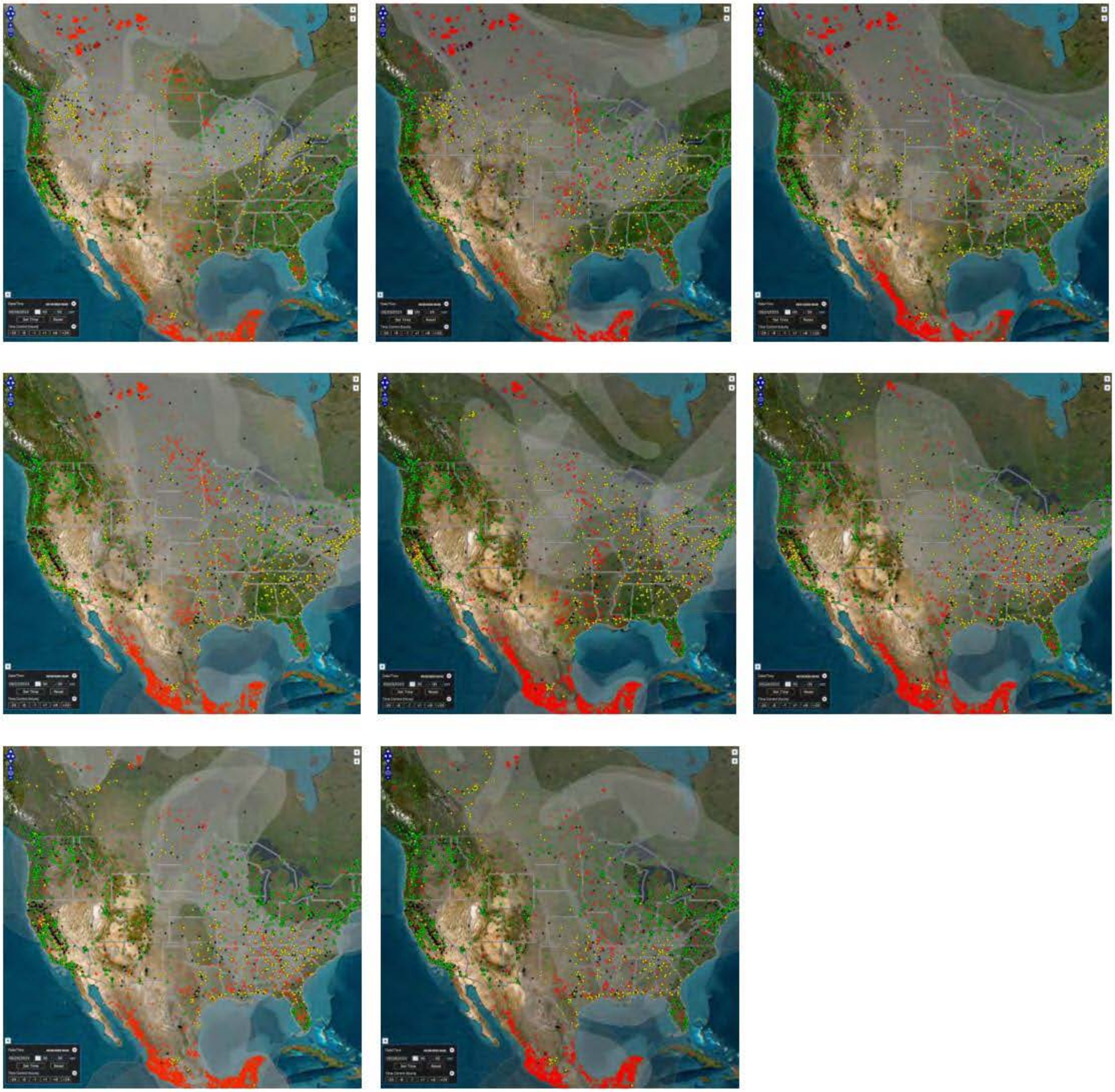
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. Figure shows how local prescribe fires kept PM2.5 values elevated to reach a 24-Hour daily average of 25.7ug/m^3.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
May 21, 22, 25, 26, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	19.1, 23.9, 19.8, 16.9	2, 3	Canadian Wildfire C Exceptional Event Demonstration: May 21, 22, 25, 26, 2023

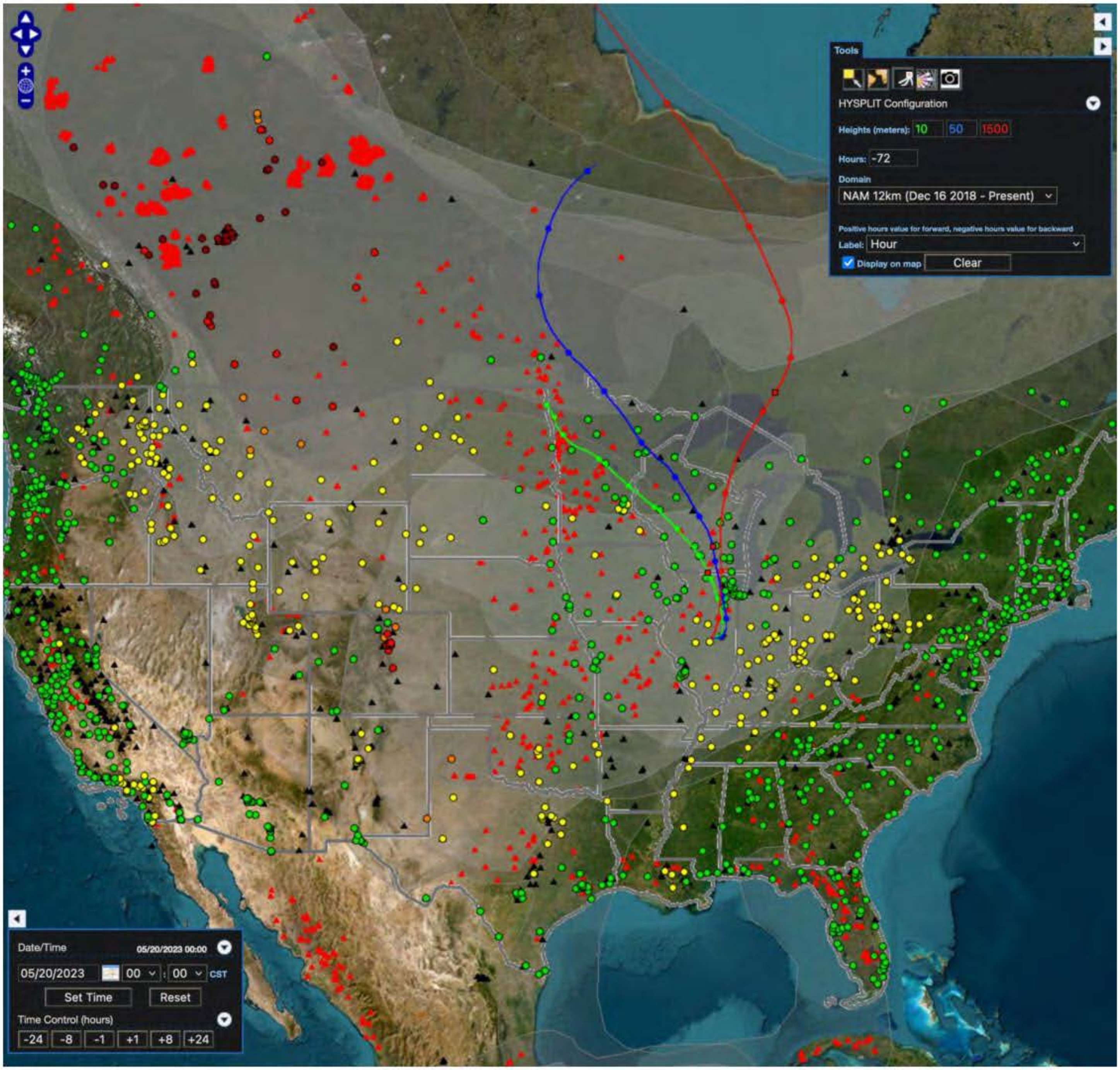
Synopsis: May 21st through the 26th, the Hattiesburg monitor saw elevated PM2.5 values, thanks to transported smoke from Canadian wildfires. At the time, there were numerous ongoing wildfires in the northwestern portions of Canada that had been ongoing for much of the first half of May 2023. The fires were creating an expansive shield of smoke that would eventually encompass much of the United States, specifically the eastern 2/3rds of the United States. A major player in transporting the smoke from Canada, down to the United States was a series of cold fronts that were moving across the central, eastern, and southern United States, thanks to persistent upper level troughing, allowing smoke laden Canadian air-mass(es) to move deep into the United States behind these fronts.



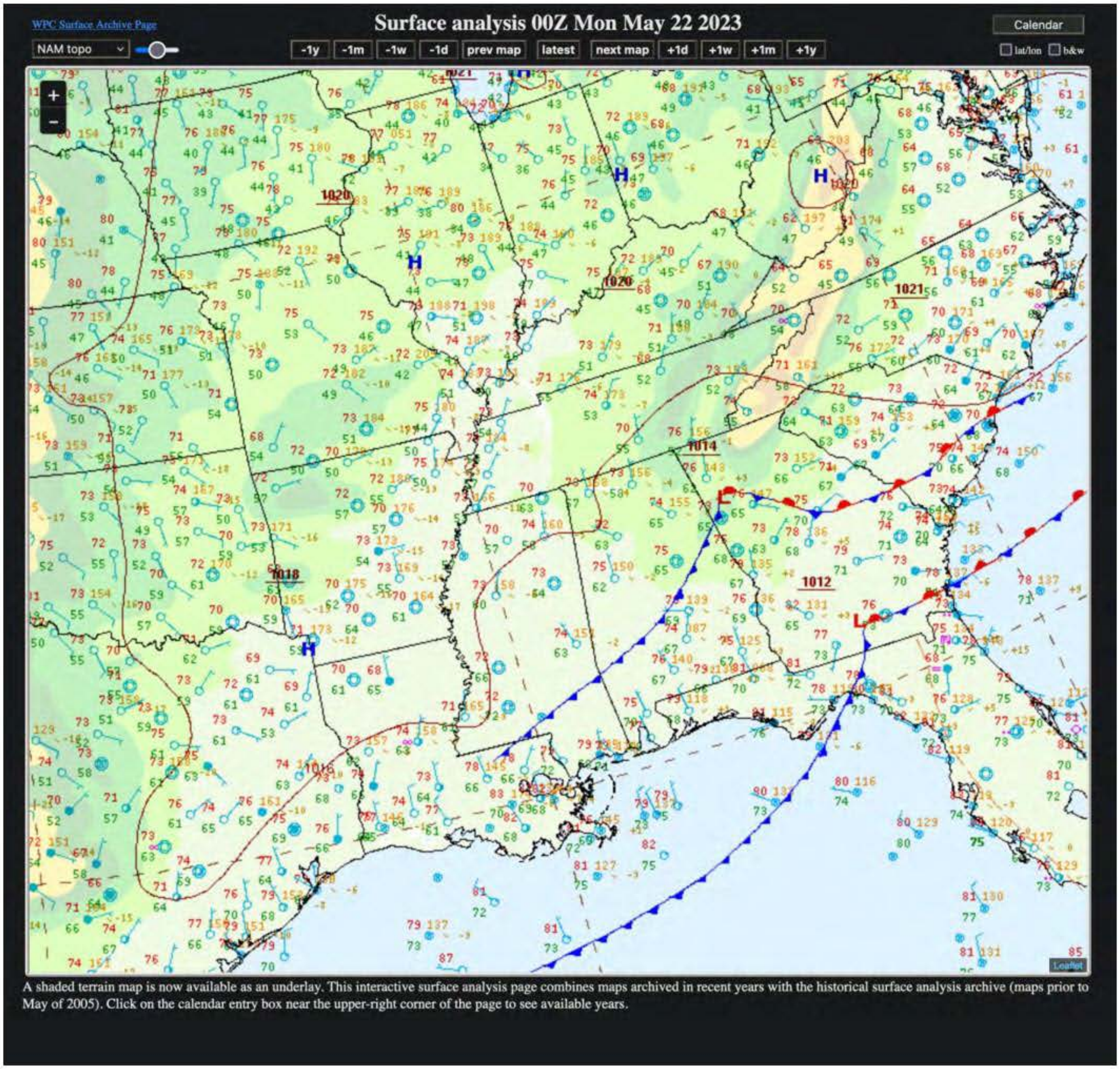





Series of AirNowTech Navigator image taken from May 13th, 2023, through May 26th, 2023, show the progression of smoke from the Canadian wildfires, into the eastern 2/3rds of the United States. Transport of the smoke into the United States was aided by persistent upper level troughing, helping push a series of cold fronts to the right of the Rockies, helping transport smoke from the Canadian wildfires, deep into the United States, increasing PM2.5 values.



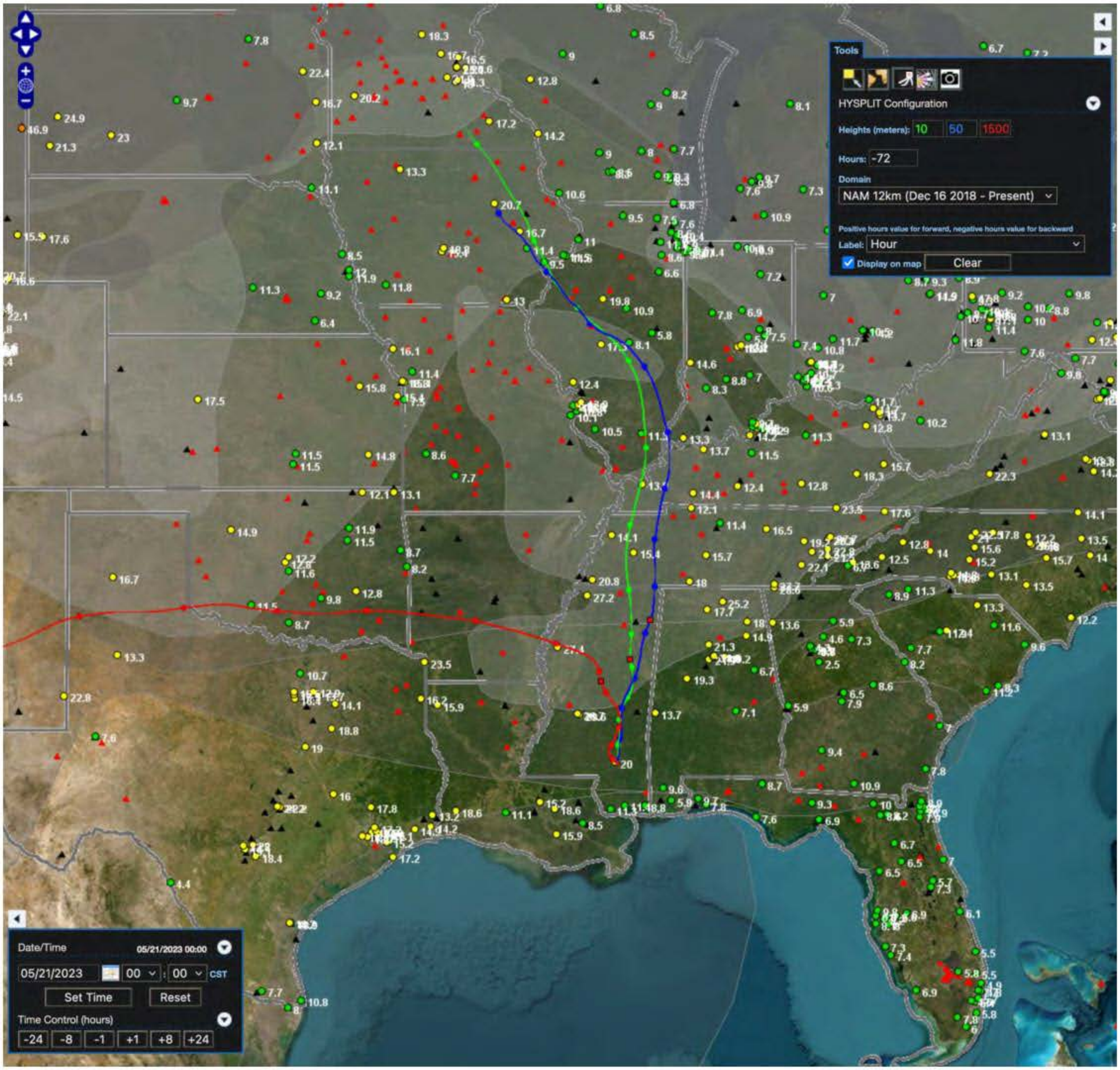
The AirNowTech Navigator image taken from May 20th, 2023, above, shows ongoing wildfires in northwestern Canada with numerous PM2.5 sites showing purple, indicative of high surface smoke concentrations across the area where fires originated. 72 Hour Back trajectories show how the southern leading edge of Canadian wildfire smoke has made its way into the Ohio River Valley from Canada, behind surface front that had moved through the previous day, transporting smoke south.



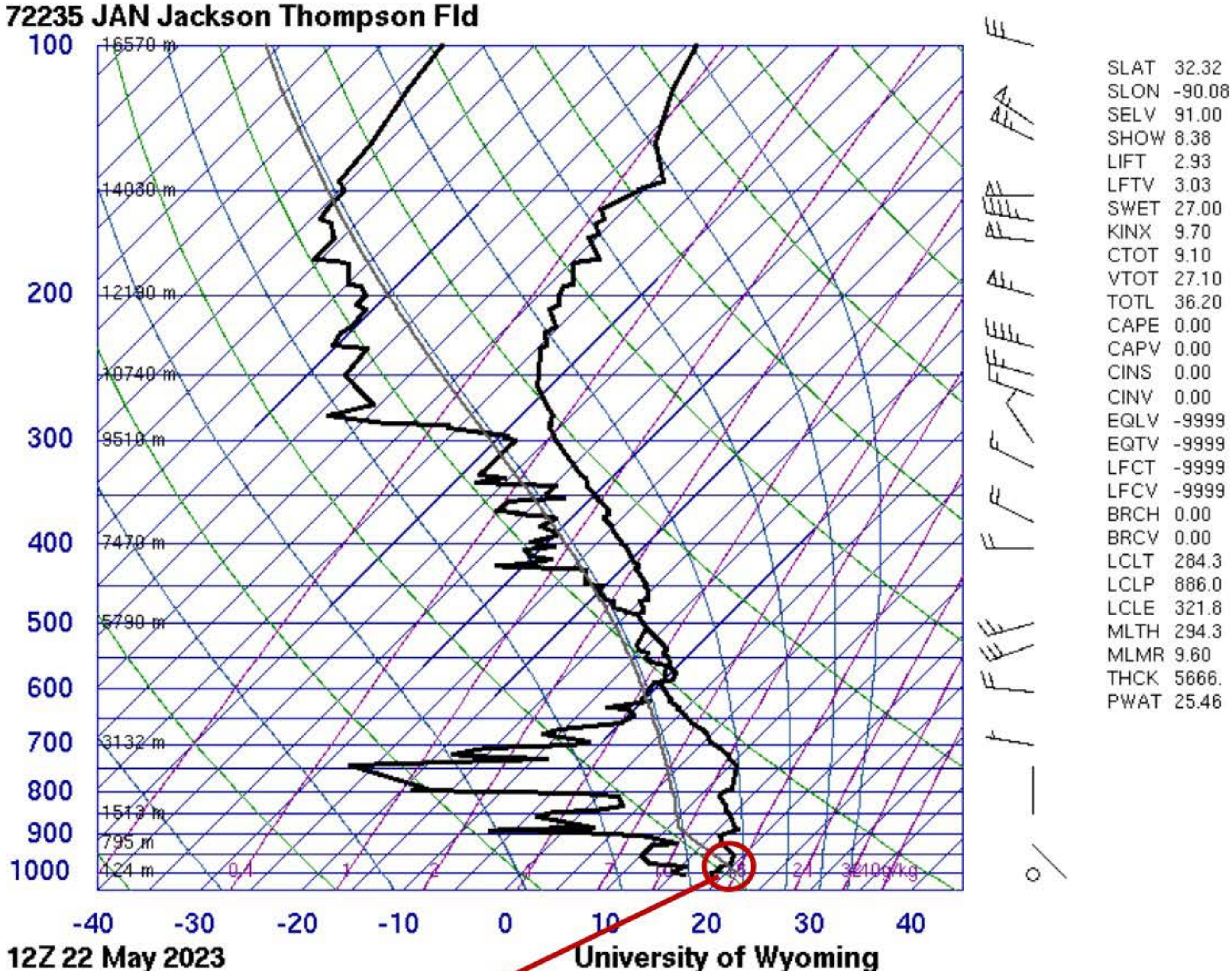
00z surface analysis (May 21st, 2023, at 7PM CDT), the start date for the exceptional event period for the Hattiesburg monitor, showing frontal passages, where northerly flow behind these frontal passages would transport Canadian wildfire smoke over the area.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	05/21/23	12.7	12.4	10	11.5	13.9	15.9	17.7	19.8	19.3	19.2	18.4	17.9	17.9	18.3	17.1	17.4	18	17.4	23.8	30.1	31.7	33	34.2	33.9	20.06	34.2

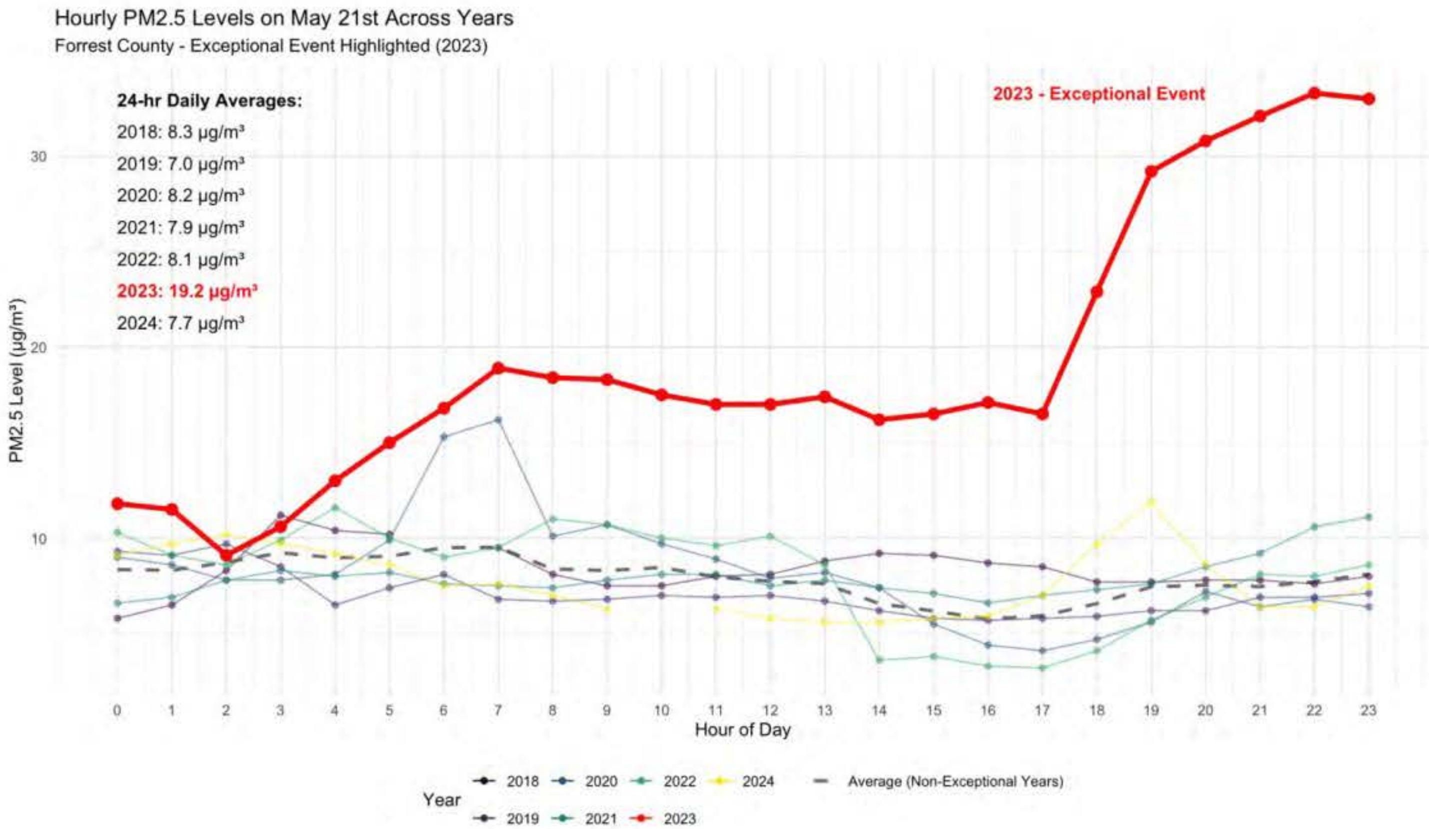
The hourly values in the image above show elevated PM2.5 levels during the day in the teens, as the numbers increased after the initial frontal boundary moved through during the previous day on May the 20th. After the secondary front moved through during the afternoon hours on May 21st, reinforcing, smoke laden Canadian, airmass, PM2.5 values spiked during the evening and overnight hours into the 30's. Transport in addition, to developing low level overnight nocturnal inversion, help trapped smoke near the surface, raising PM2.5 concentrations at the Hattiesburg monitor.



The AirNowTech Navigator image taken on, May 21st, 2023, above, the first day of the exceptional event, shows after the series of frontal passages, smoke began to transport, towards, and over the Hattiesburg monitor. 72-hour back trajectory overlay shows parcels at the lowest 10m and 50m level, the origin of the parcels from smoke laden airmass to the north, moving south, towards the Hattiesburg monitor.

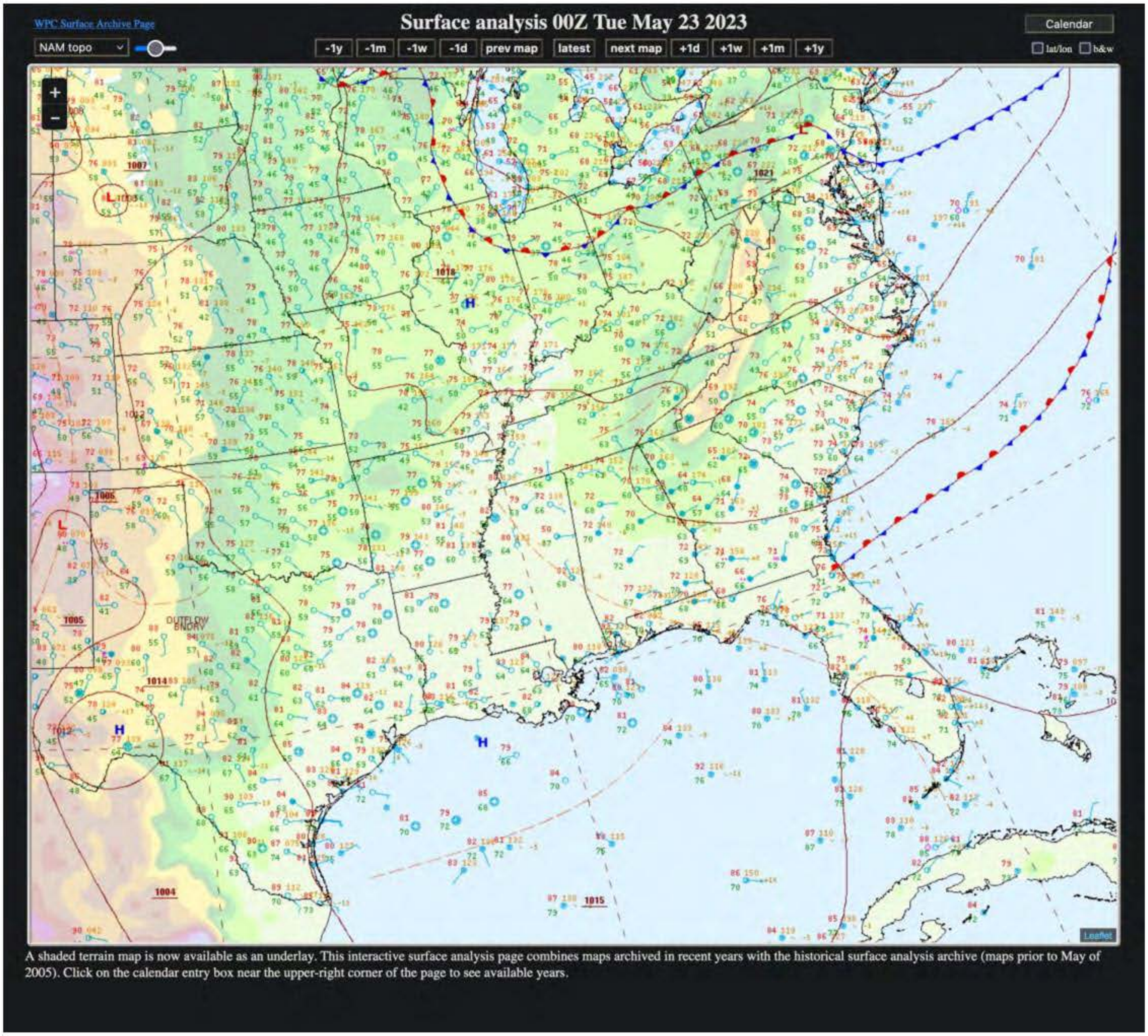


Morning sounding on May 22nd, 2022, shows low level nocturnal inversion that set up overnight trapping smoke near the surface, increasing PM2.5 concentrations at the Hattiesburg monitor.

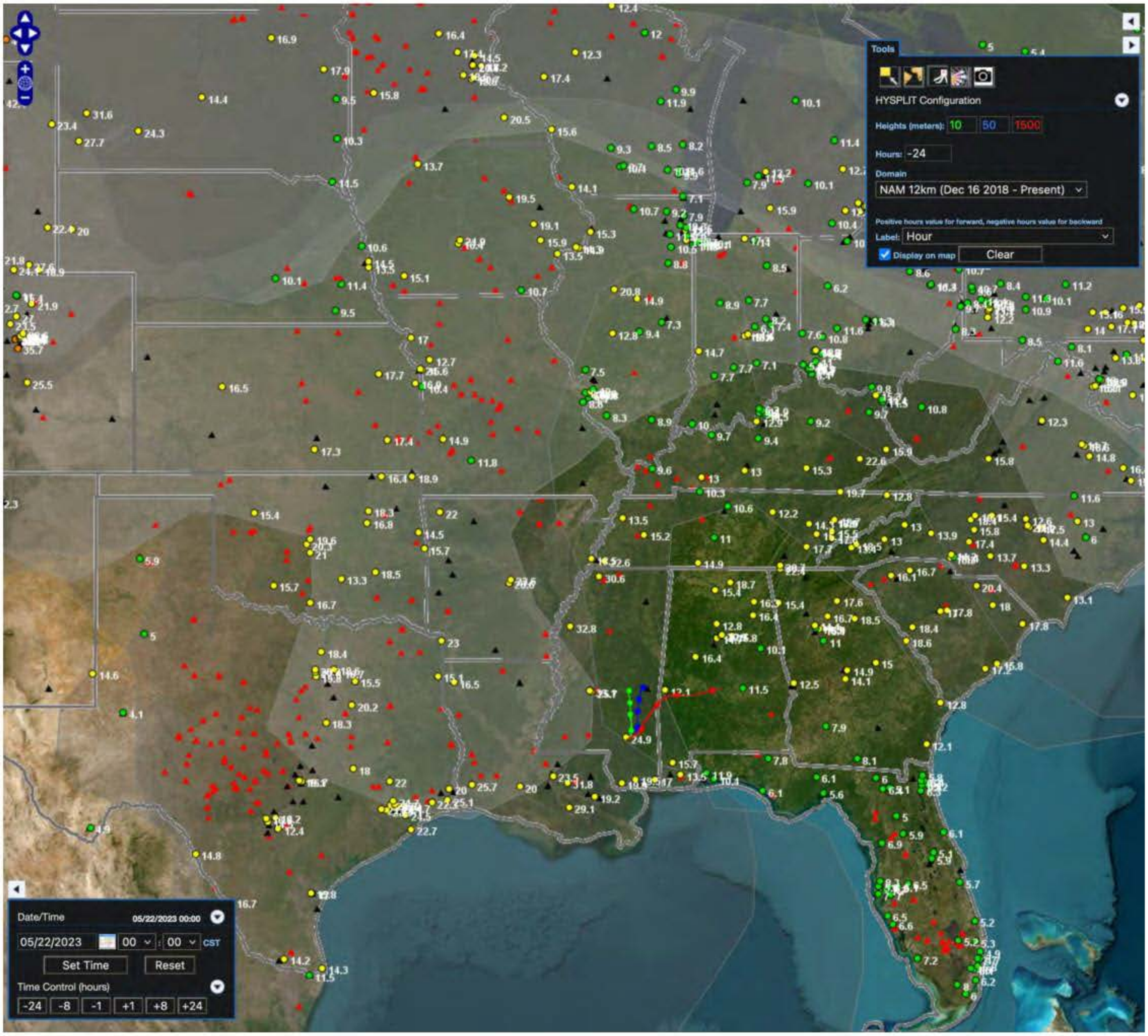


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot explicitly shows, increasing PM2.5 concentrations for this day in 2023, especially during the evening hours as smoke laden Canadian air-mass behind passage of surface front, increased PM2.5 values at the Hattiesburg monitor.

May 22nd: Expansive Surface High pressure continued to dominate the southeastern United States leading to very light and variable winds during the day accompanied with stagnant conditions, keeping much of the area entrenched in smoke laden Canadian airmass.



00z surface analysis (May 22nd, 2023, at 7PM CDT), showing High pressure leading to stagnant conditions across Mississippi and around the Hattiesburg monitor.

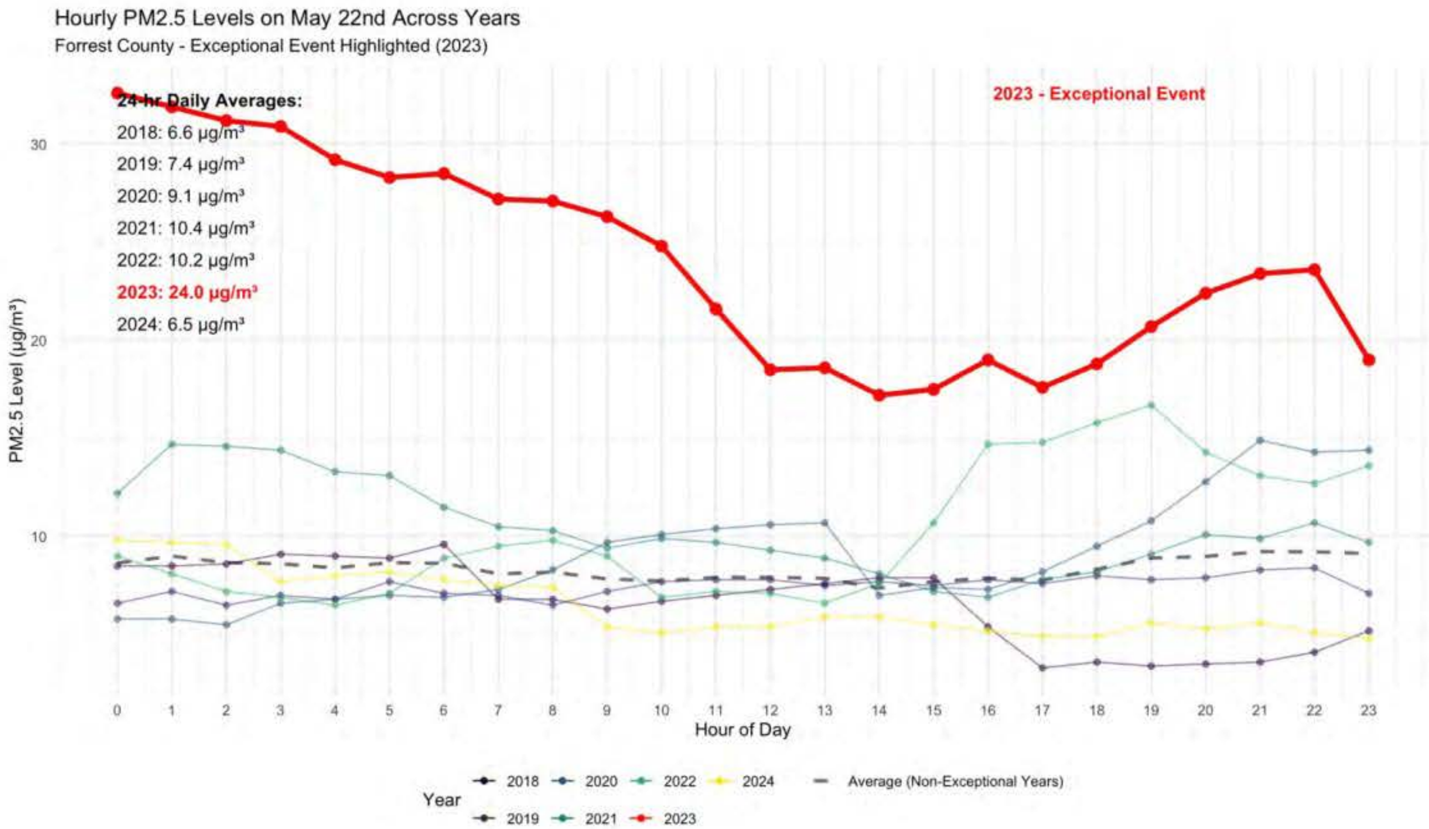


The AirNowTech Navigator image taken on, May 22nd, 2023, above shows elevated 24-hour PM2.5 values at the Hattiesburg monitor thanks to stagnant conditions as depicted by the 24-hour back trajectory, showing very little movement of the air parcels at 10m, 50m, and 1500m keeping the area entrenched in smoky air-mass transported southward from Canadian wildfires.

GOES East True Color image taken on May 22nd, 2023, at 2311UTC, showing expansive smoke shield covering the Gulf States that was transported southward from Canadian wildfires.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	05/22/23	33.5	32.8	32.1	31.8	31.1	30.2	29.4	28.1	28	27.2	25.7	22.5	19.4	19.5	18.1	18.4	19.9	18.5	19.7	21.6	23.3	24.3	24.5	19.9	24.98	33.5

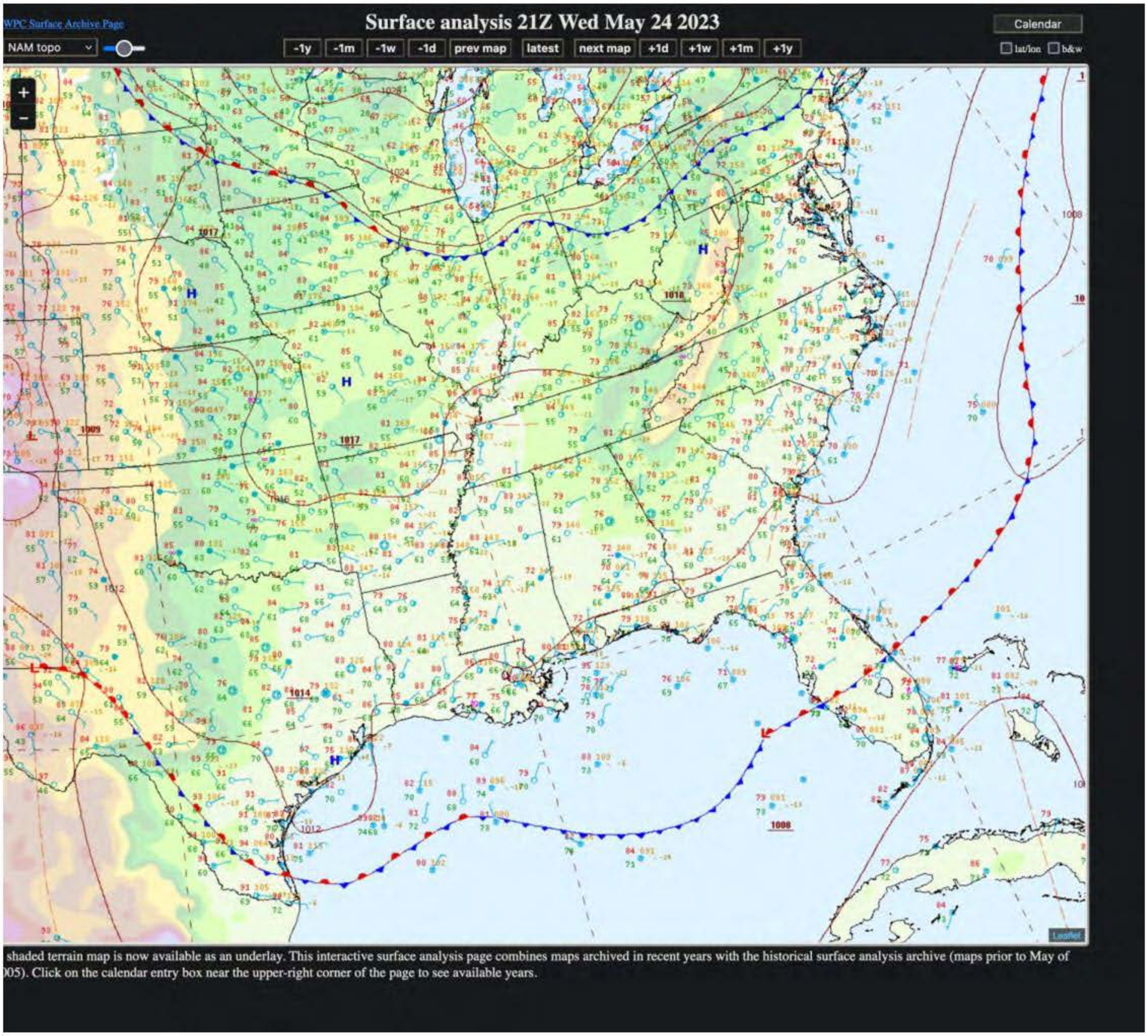
The hourly values at the Hattiesburg monitor in the image above show elevated PM2.5 levels throughout the day in response to thick Canadian smoke shield encompassing the southeastern United States, resulting in a 24-hour daily average of 24.98 at the Hattiesburg monitor.



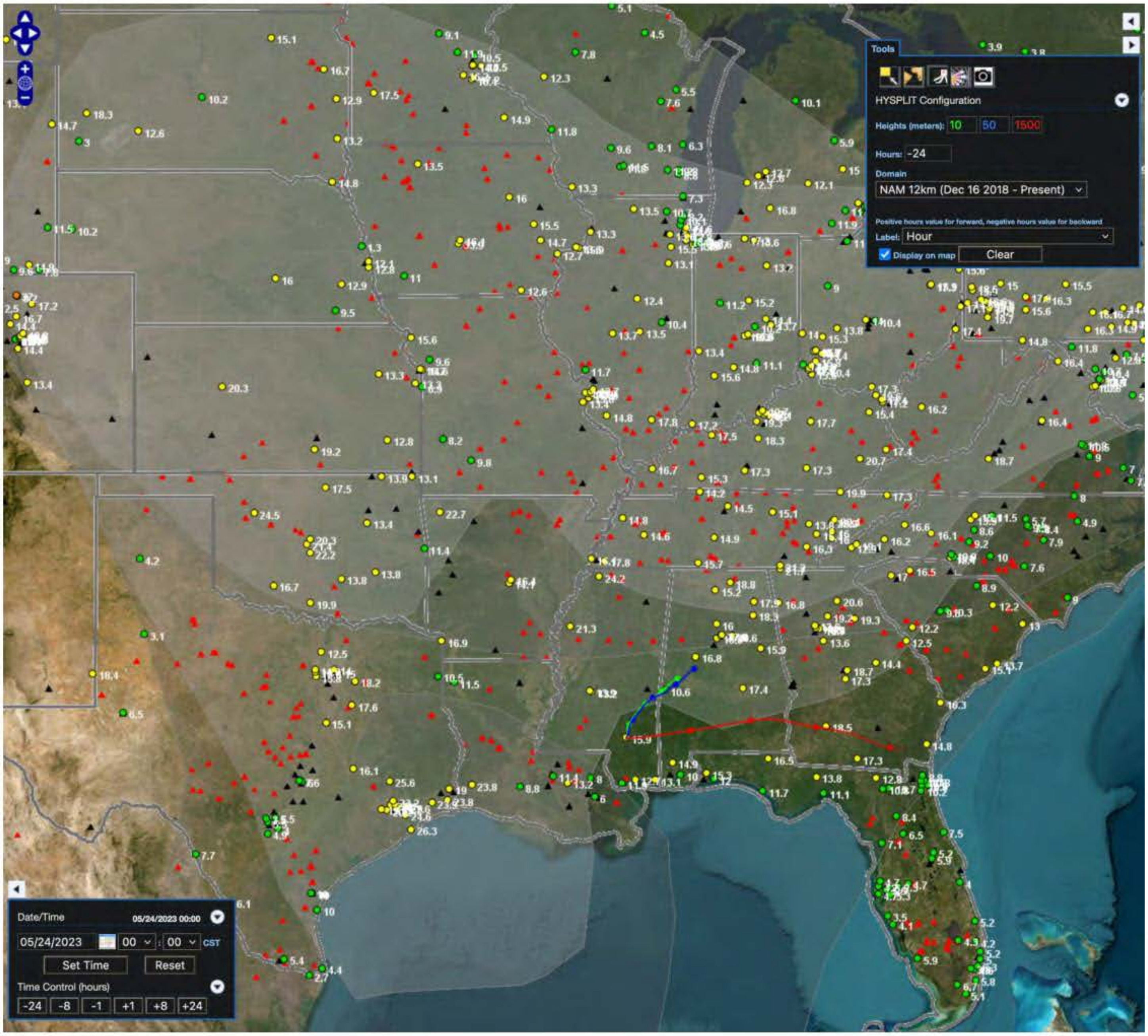
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass increased PM2.5 values at the Hattiesburg monitor.

May 25th: On May 23rd, PM2.5 values were reduced at the Hattiesburg monitor due to a stationary boundary along the Gulf Coast, accompanied by a low-pressure system centered over the Mississippi Coast, which aided in pollutant dispersion. By May 24th, a surface high-pressure system located in the upper Midwest began moving southward into the Mid-Mississippi Valley, nudging the stationary boundary southward into the Gulf of Mexico. This high-pressure system, moving southeastward, transported a new wave of Canadian wildfire smoke across the Midwest and Ohio River Valley into the southeastern United States, raising PM2.5 levels at the Hattiesburg monitor.

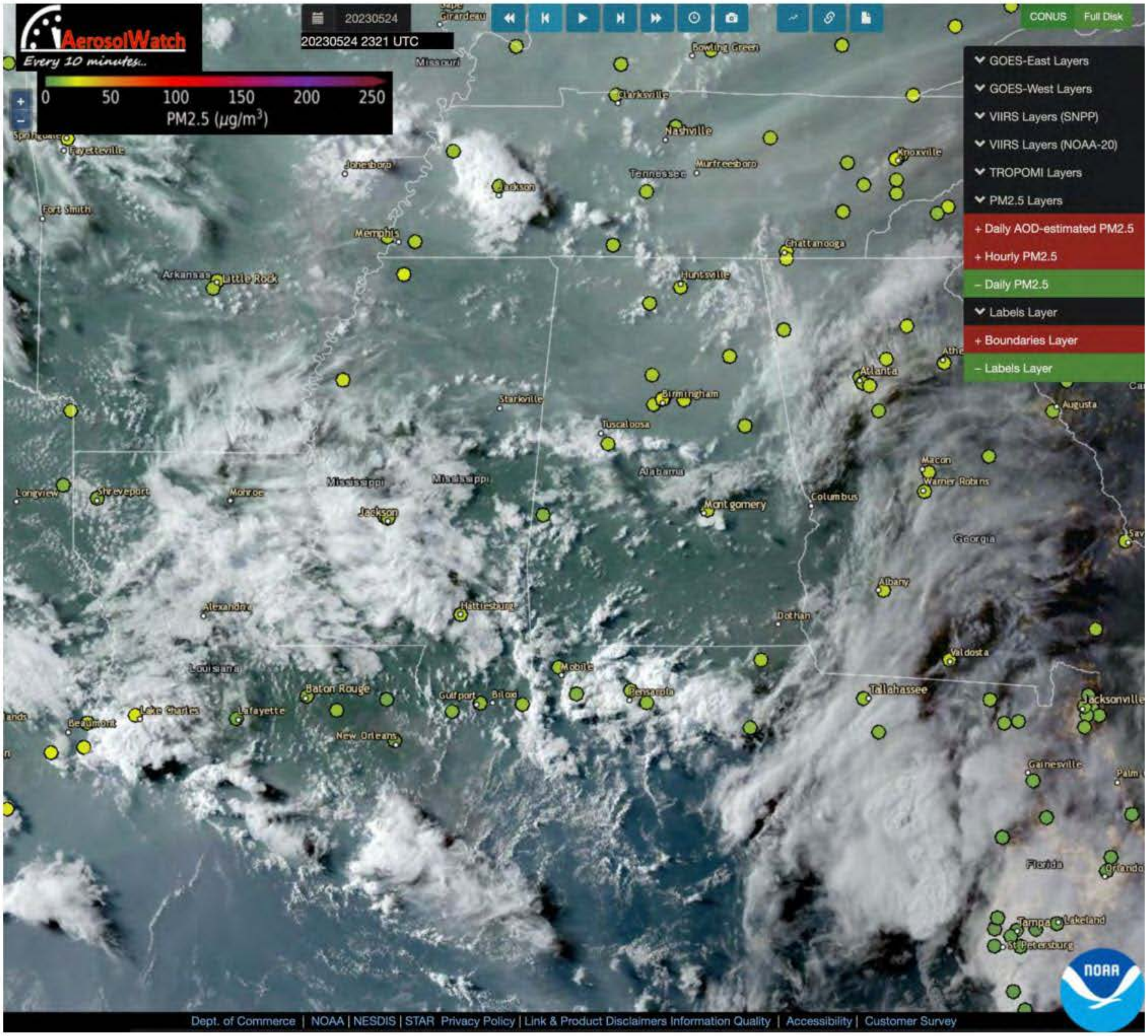
On May 25th, an upper-level trough across the Eastern United States helped push a frontal boundary southward into the southeast. Behind this front was a substantial amount of Canadian wildfire smoke, which further elevated PM2.5 levels across the southeast, including at the Hattiesburg monitor.



21z surface analysis (May 24th, 2023, at 4PM CDT), showing High pressure located over Missouri, moving, southward, pushing previous stationary boundary that was hung up along the MS Coast, southward, as northerly flow around the High pressure began issuing in new batch of Canadian wildfire smoke into the Midwest, Ohio River Valley, and southeastern United States.



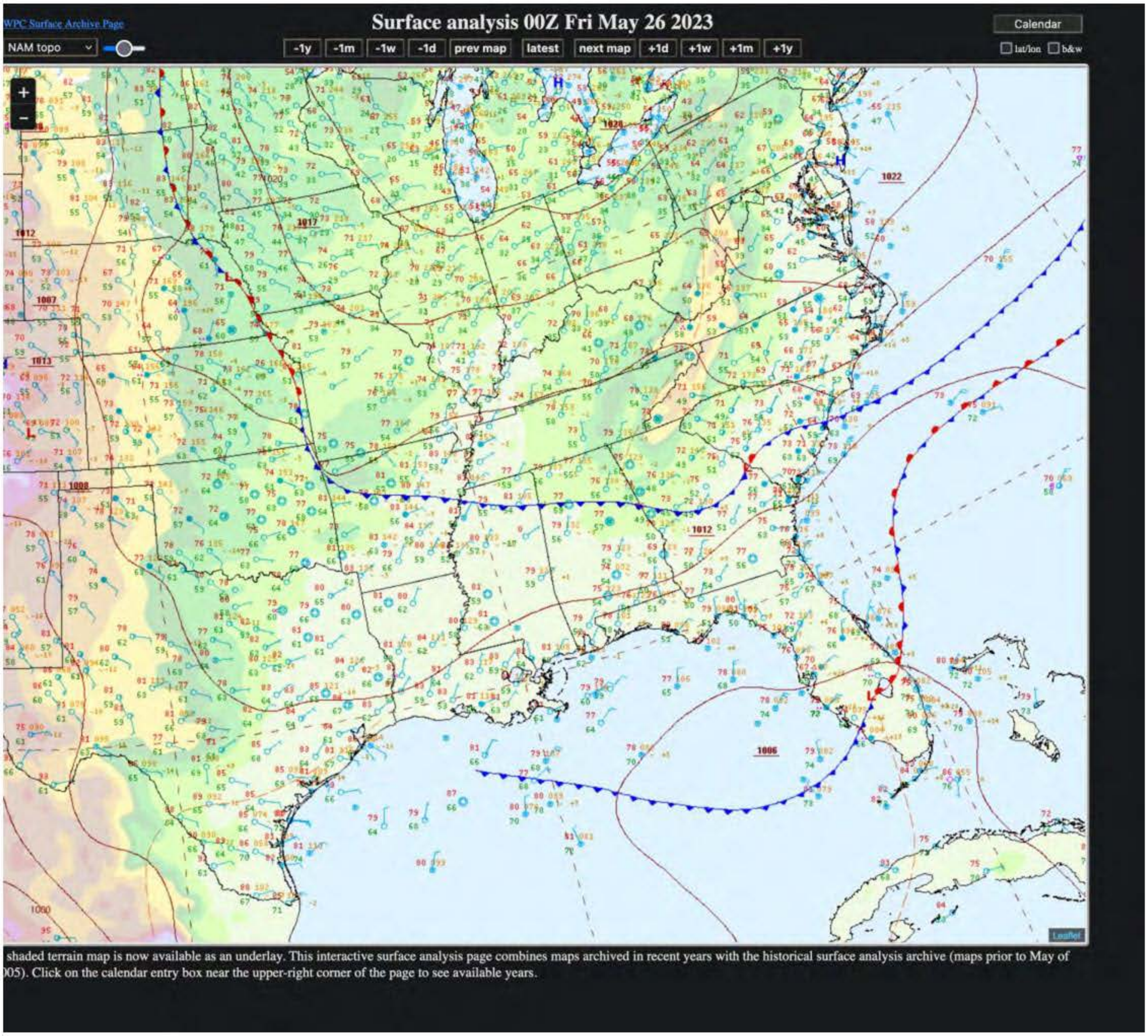
The AirNowTech Navigator image taken on, May 24th, 2023, above shows large batch of Canadian wildfire smoke over the Upper Midwest, Midwest, Ohio River Valley, Mid-Mississippi Valley, entering into the southeastern United States, elevating PM2.5 values into the moderate category.



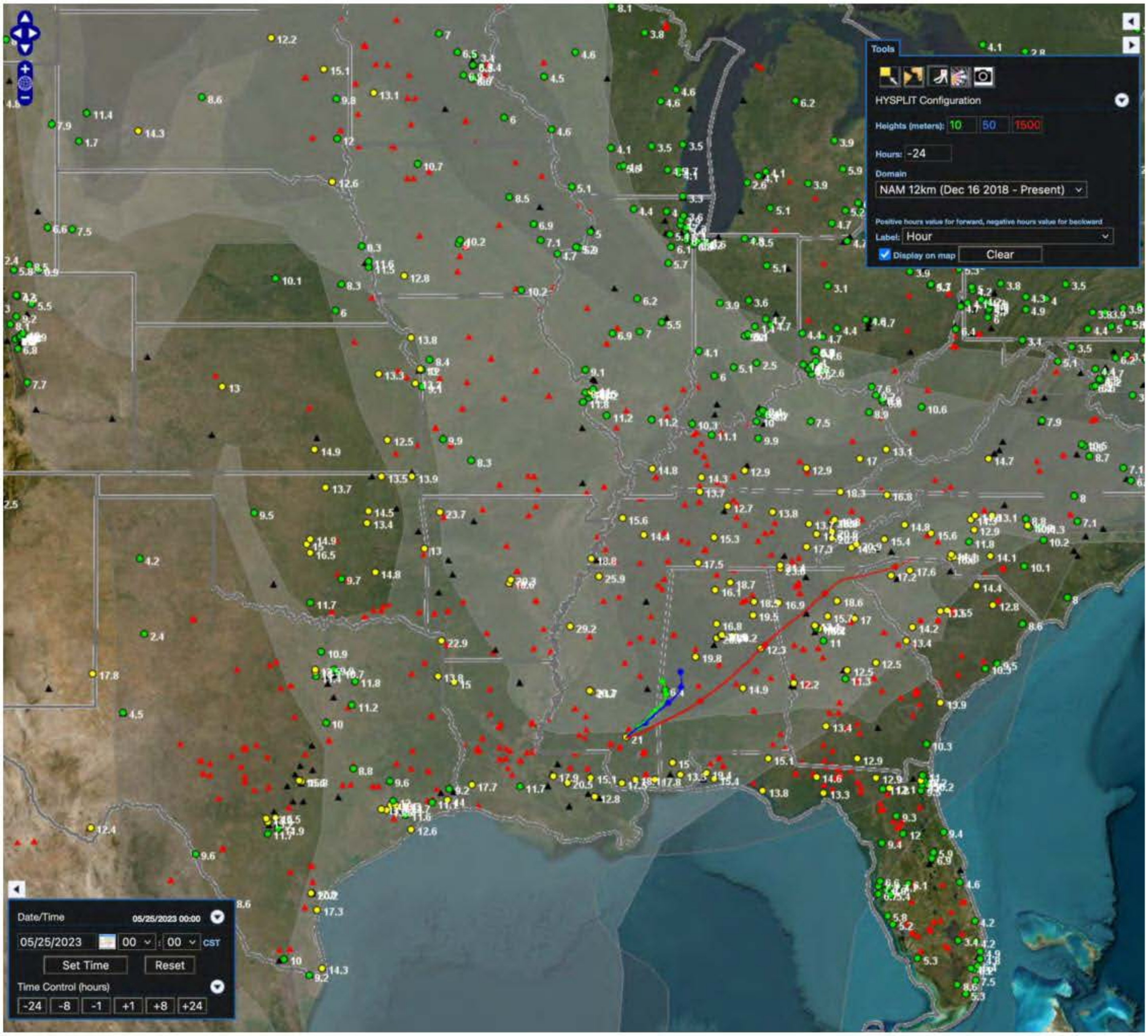
GOES East True Color image taken on May 24th, 2023, at 2321UTC, showing expansive smoke shield from Canadian wildfires over Tennessee, Arkansas, northern Mississippi, Alabama, and Georgia as it was making its way southward into the southeastern United States.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	05/24/23	14.7	17.1	19.2	19.7	18.1	17.9	18.4	18.7	18.1	17.7	16.2	15	12.9	14.3	13.9	12	10.9	11.4	13	14.4	15.5	17.6	19.2	17.7	15.98	19.7

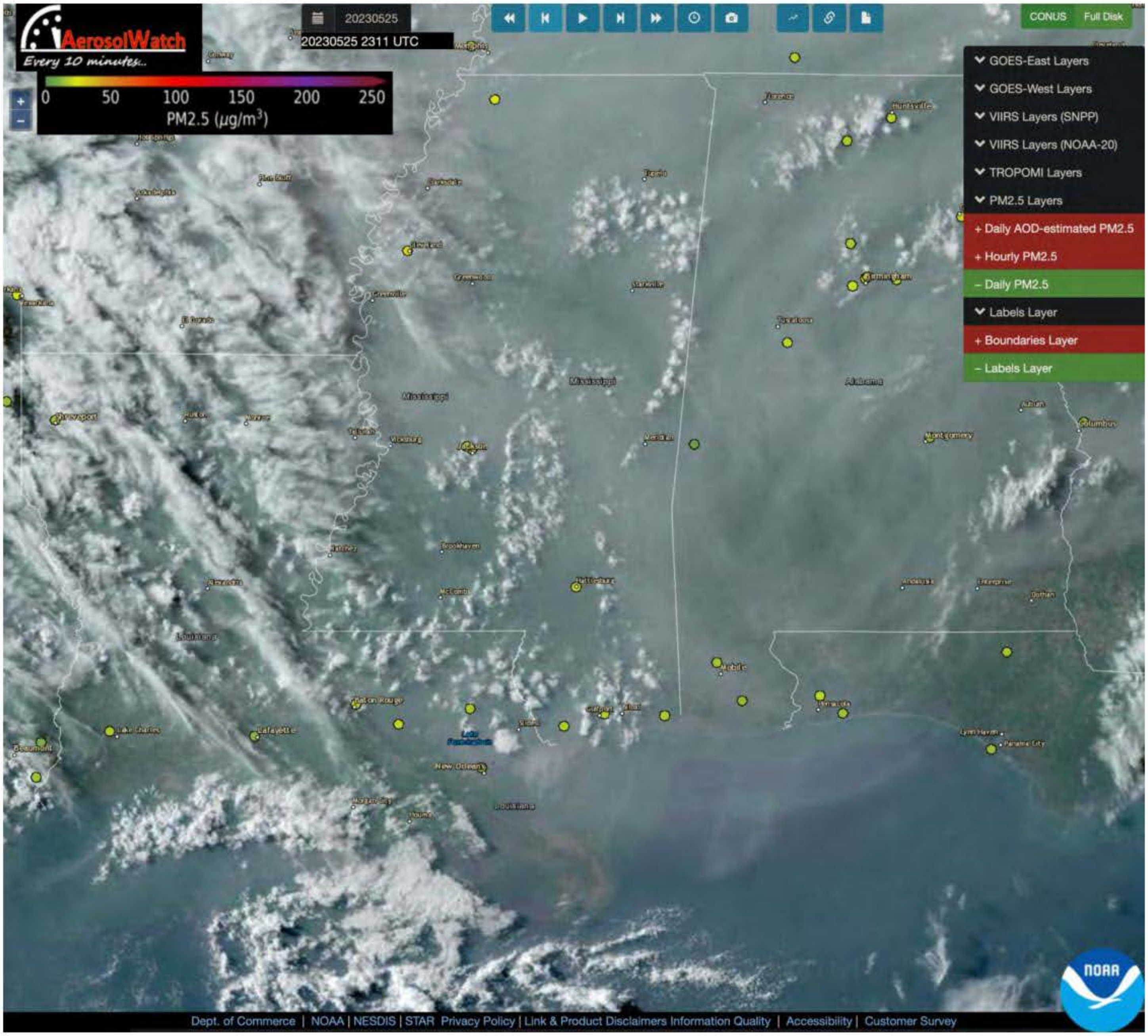
The hourly values at the Hattiesburg monitor in the image above show elevated PM2.5 values as transport from Canadian wildfires are entering into the southeastern United States.



00Z surface analysis (May 25th, 2023, at 7 PM CDT) shows a cold front moving through the Tennessee Valley and entering the southeastern United States, followed by a large area of Canadian wildfire smoke.



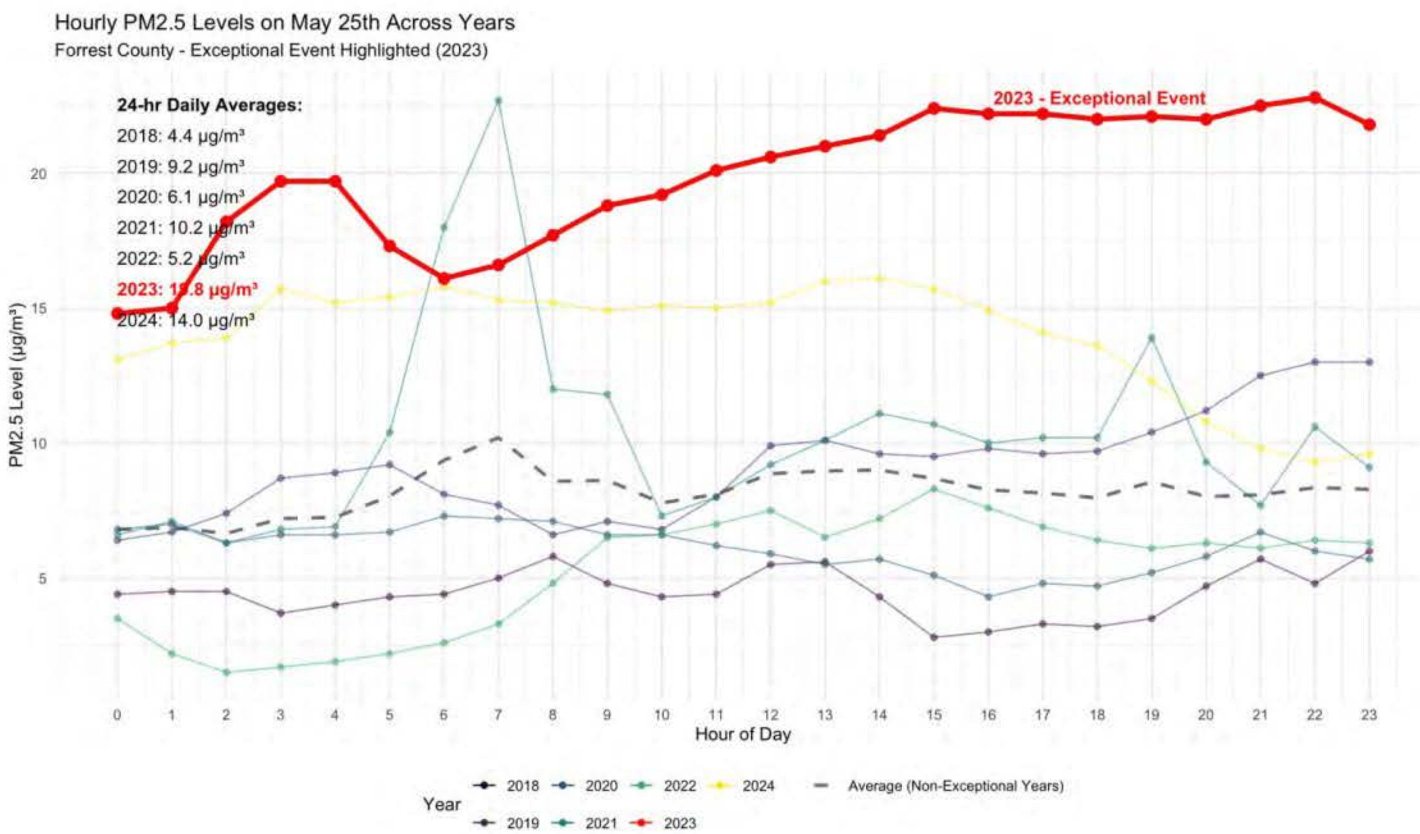
The AirNowTech Navigator image taken on, May 25th, 2023, above shows large batch of moderate to heavy Canadian wildfire smoke moving into the southeastern United States, just ahead and behind surface frontal boundary that is moving through the southeast, elevating PM2.5 values. 24-Hour back trajectories showing parcels at the lowest 10m and 50m coming from the north, indicating Canadian wildfire smoke moving towards the Hattiesburg monitor, resulting in a PM2.5 daily average of 21ug/m^3.



GOES East True Color image taken on May 25th, 2023, at 2311UTC, showing expansive smoke shield from Canadian wildfires encompassing most of Mississippi and Alabama, increasing PM2.5 values.

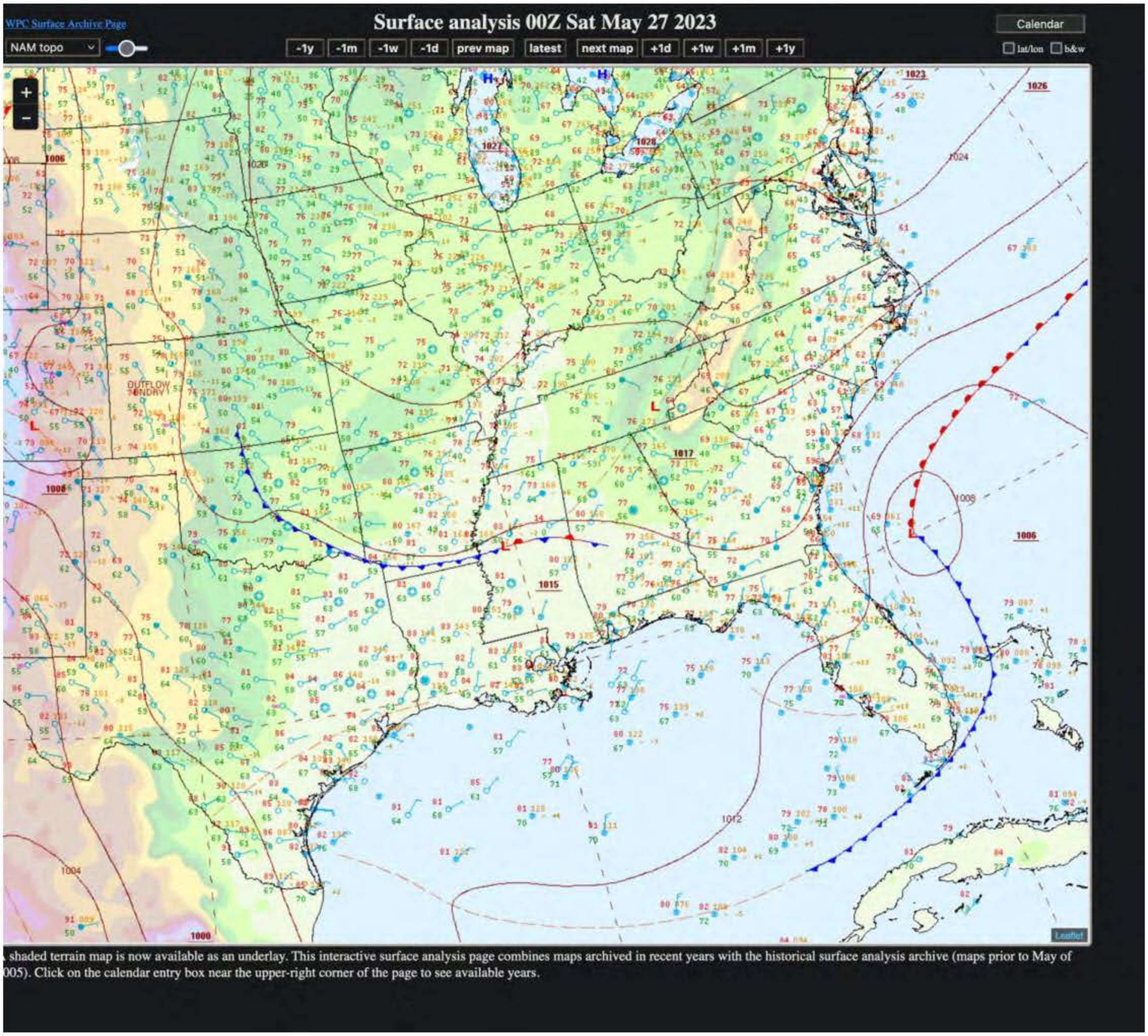
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	05/25/23	16.7	16.9	20.1	21.6	21.6	19.2	18	17.5	18.6	19.7	20.1	21	21.5	21.9	22.3	23.3	23.1	23.1	22.9	23	22.9	23.4	23.7	23.7	21.08	23.7

The hourly values at the Hattiesburg monitor in the image above show PM2.5 values in the upper teens and twenties as transport from Canadian wildfires encompass the southeastern United States.

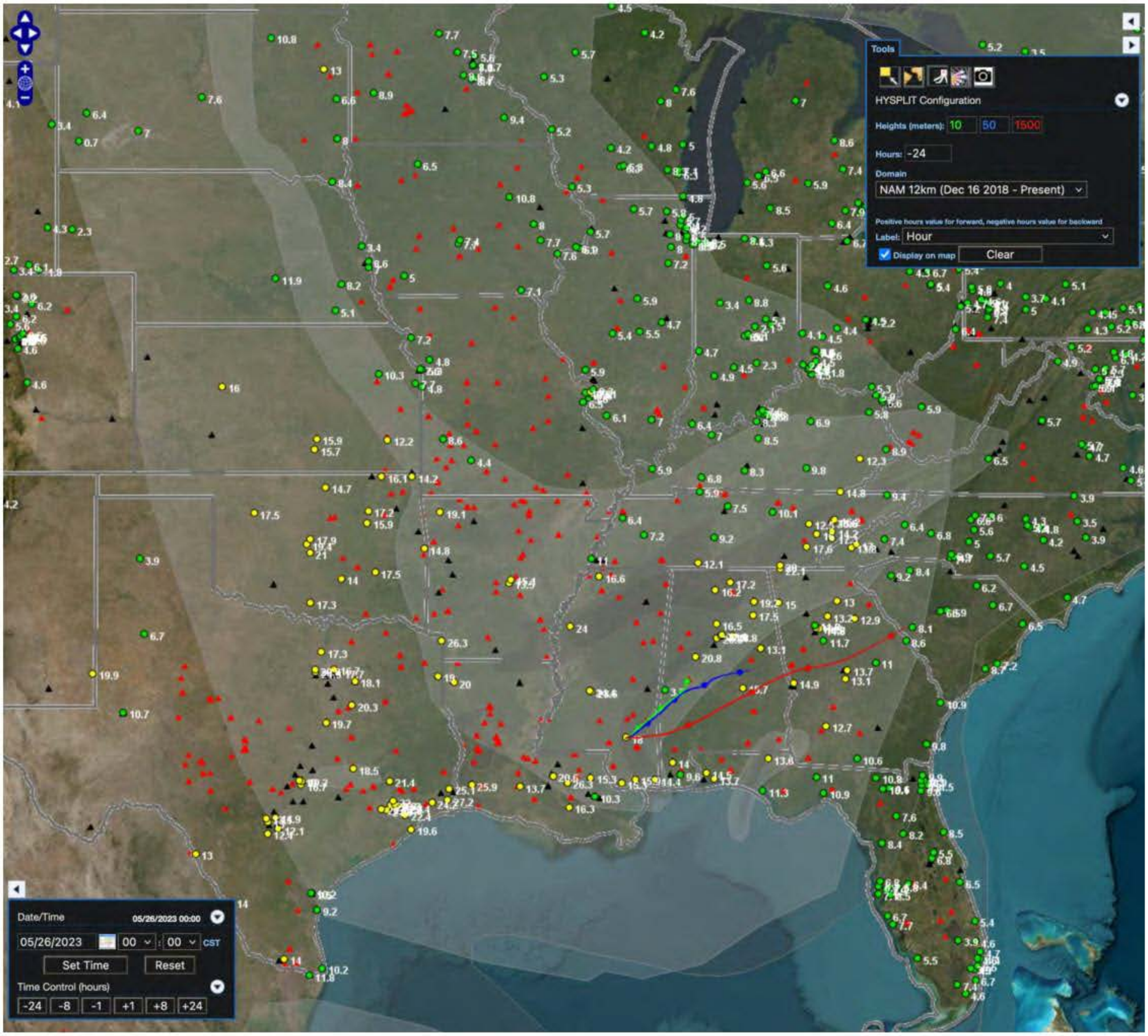


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor.

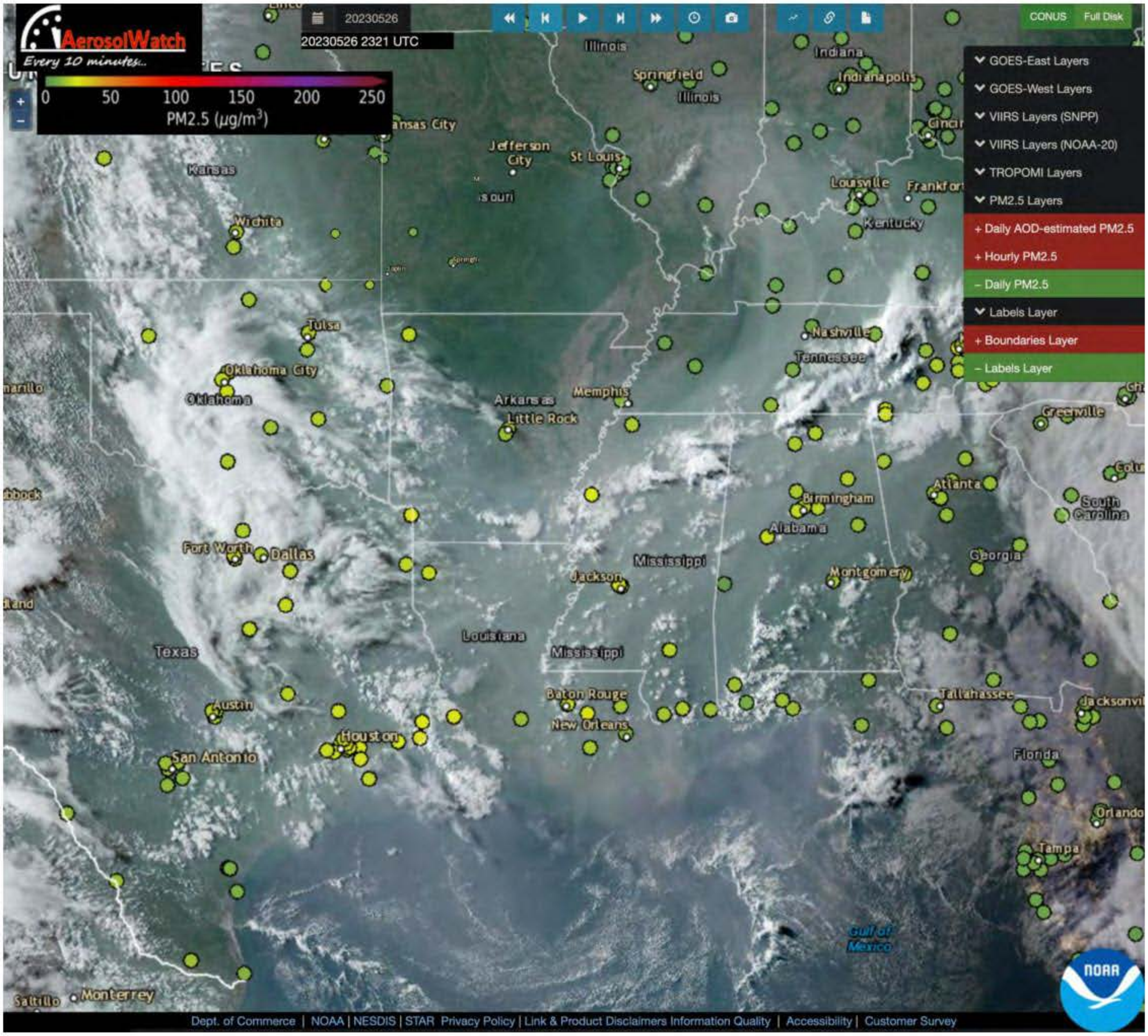
May 26th: Two weather systems kept smoke from Canadian wildfires in place over the southeastern United States. The first was a large surface high-pressure system located over the Great Lakes region, and the second was a low-pressure system just off the Florida, Georgia, and South Carolina coastlines. The anticyclonic flow of the high-pressure system and the cyclonic flow associated with the low-pressure system directed the majority of the Canadian smoke-filled air mass over the Lower Mississippi Valley.



00z surface analysis (May 26th, 2023, at 7PM CDT) showing expansive High-pressure system over the Great Lakes Region and Low-pressure system of the Florida, Georgia coastline, that would help steer the Canadian wildfire smoke into the Lower Mississippi River Valley.



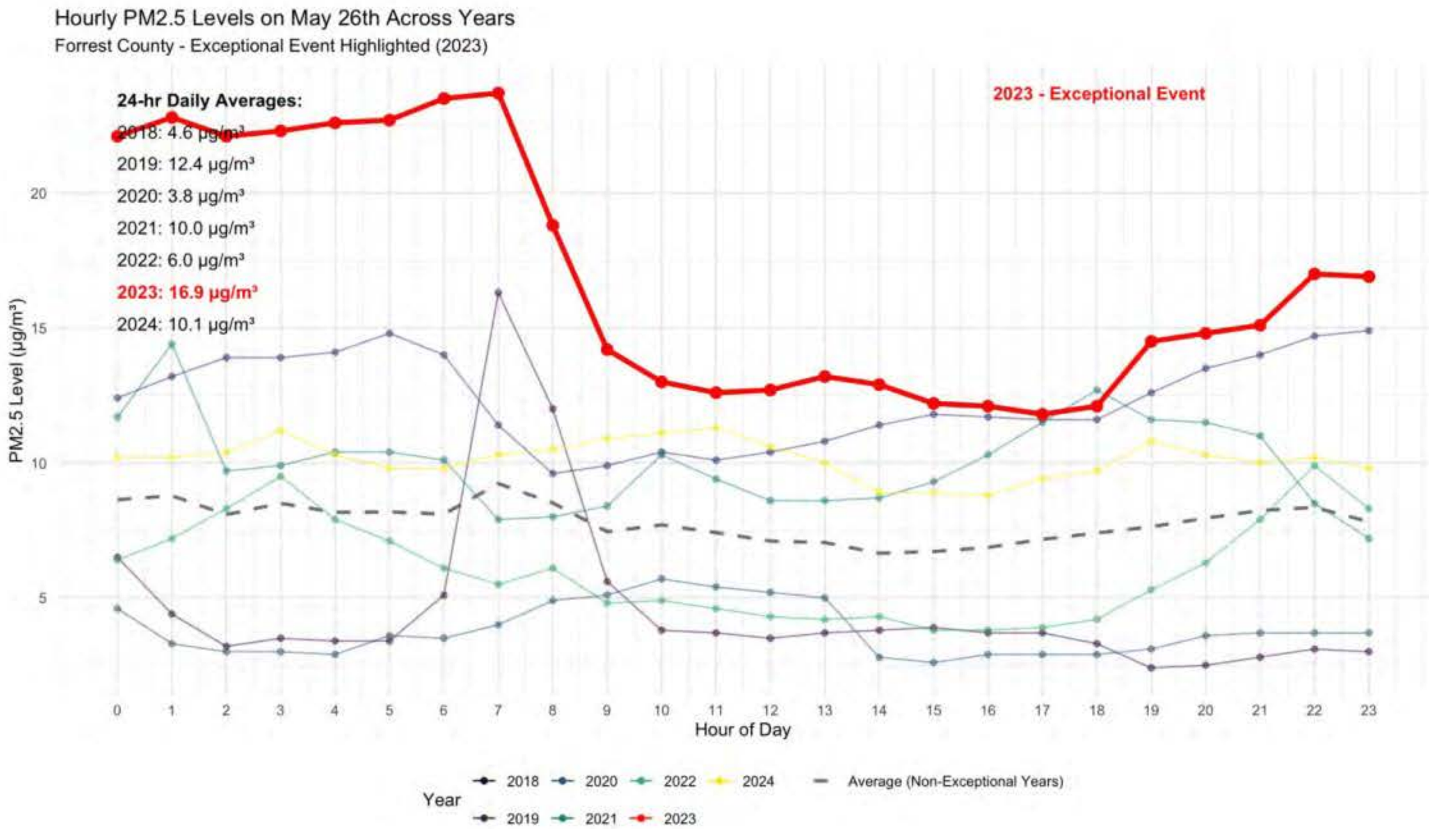
The AirNowTech Navigator image taken on, May 26th, 2023, above shows the large batch of moderate to heavy Canadian wildfire smoke over the Gulf States, increasing daily PM2.5 values well into the moderate category. 24-hour back trajectories showing parcels at the lowest 10m and 50m coming from the northeast, indicating Canadian wildfire smoke continuing to move towards the Hattiesburg monitor, resulting in a PM2.5 daily average of 18ug/m^3.



GOES East True Color image taken on May 26th, 2023, at 2321UTC, showing expansive smoke shield from Canadian wildfires encompassing most of Lower Mississippi River Valley, increasing PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	05/26/23	24	24.7	24	24.2	24.5	24.6	25.4	24.6	19.7	15.1	13.9	13.5	13.6	14.1	13.8	13.1	13	12.7	13	15.4	15.7	16	17.9	17.8	18.1	25.4

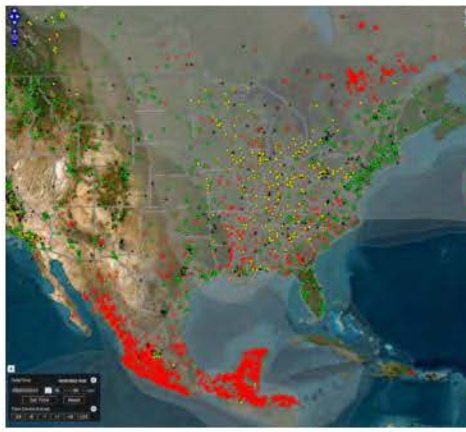
The hourly values at the Hattiesburg monitor in the image above show PM2.5 values in the teens and twenties as transport from Canadian wildfires encompass the Lower Mississippi River Valley.



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor.

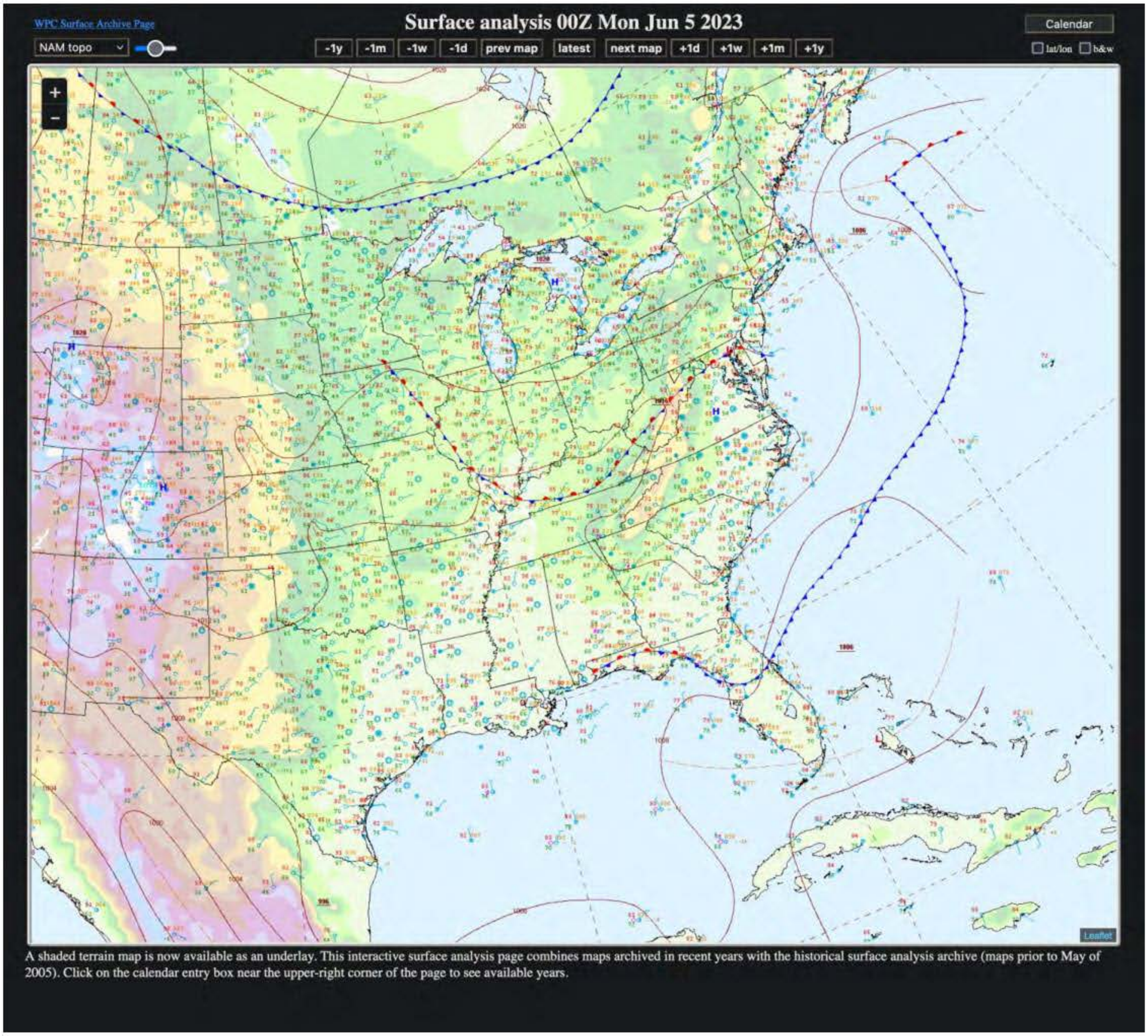
Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
June 9 – 10, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	18.5, 17.2	2, 3	Canadian Wildfire C Exceptional Event Demonstration: June 9 - 10, 2023

Synopsis: Days leading up to June 9th and 10th Canadian wildfire exceptional event for the Hattiesburg monitor, there were numerous fires in the province of Quebec Canada to the north of New York State. These fires put out a great deal of smoke that eventually filtered down into the United States over the 1st half of June aided by a serious of surface fronts that moved through the eastern half of the United States transporting the smoke deep into the southern United States.

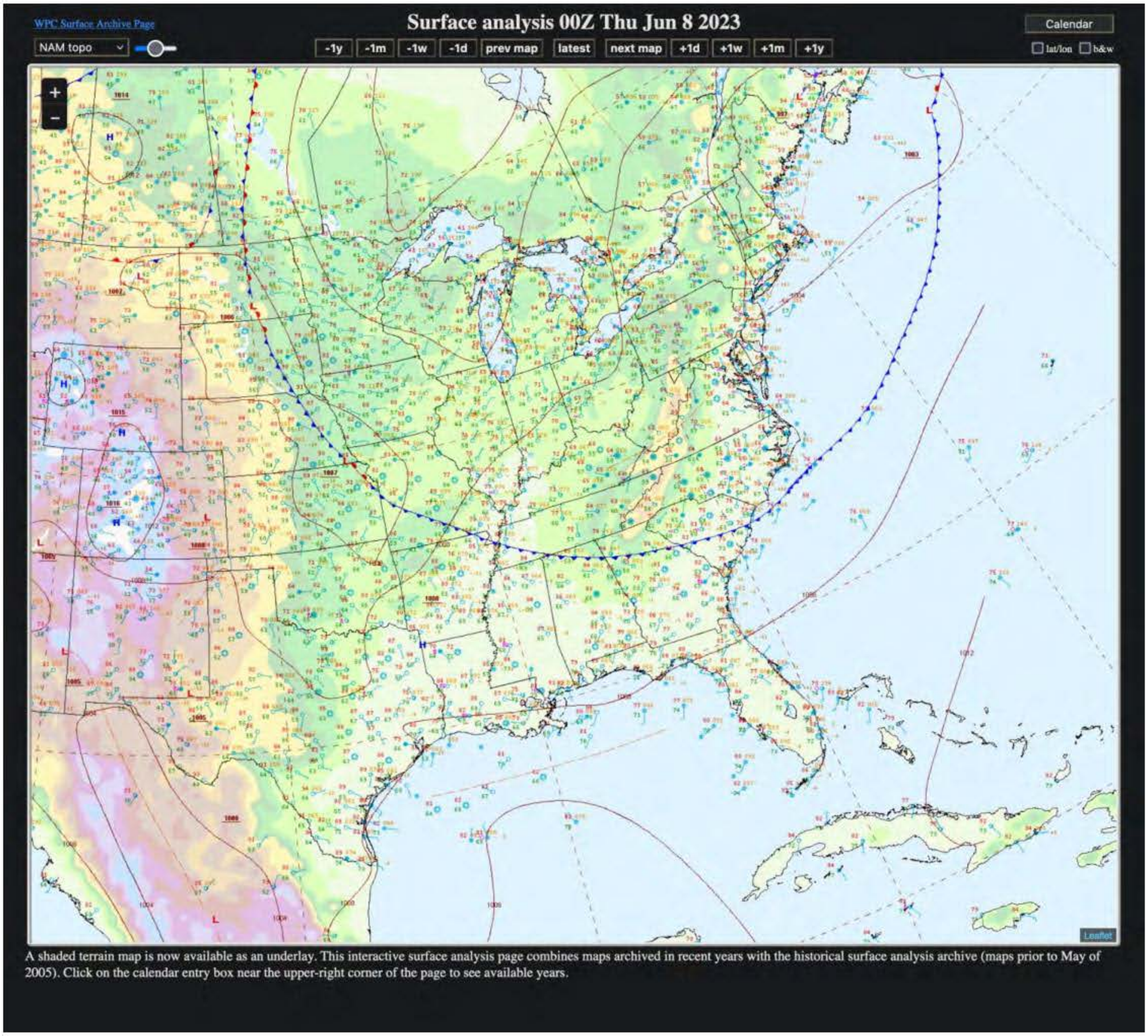





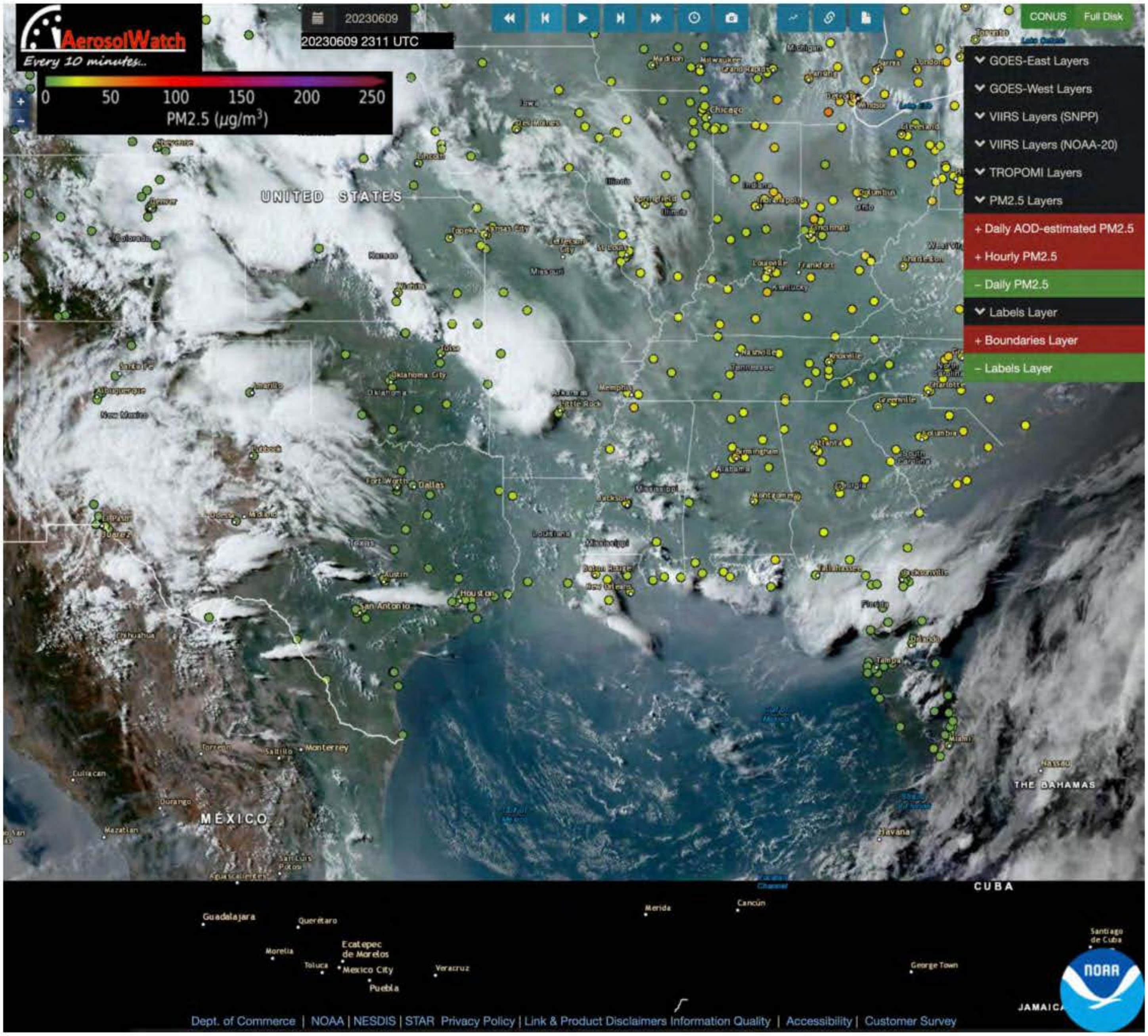
Series of AirNowTech Navigator image taken from June 2nd, 2023, through June 10th, 2023, show the progression of smoke from the Canadian wildfires in Quebec, transporting into the northeastern United States, the Ohio River Valley, and eventually into the Eastern and southeastern portions of the United States. Transport of the smoke into the United States was aided by frontal boundaries dropping down from Canada, helping transport smoke from the Canadian wildfires, deep into the Eastern United States, increasing PM2.5 values.



00z surface analysis (June 4th, 2023, at 7PM CDT) showing a series of cold fronts moving from north to south across the eastern half of the United States, helping transport wildfires smoke from the Canadian fires in Quebec down into the United States.



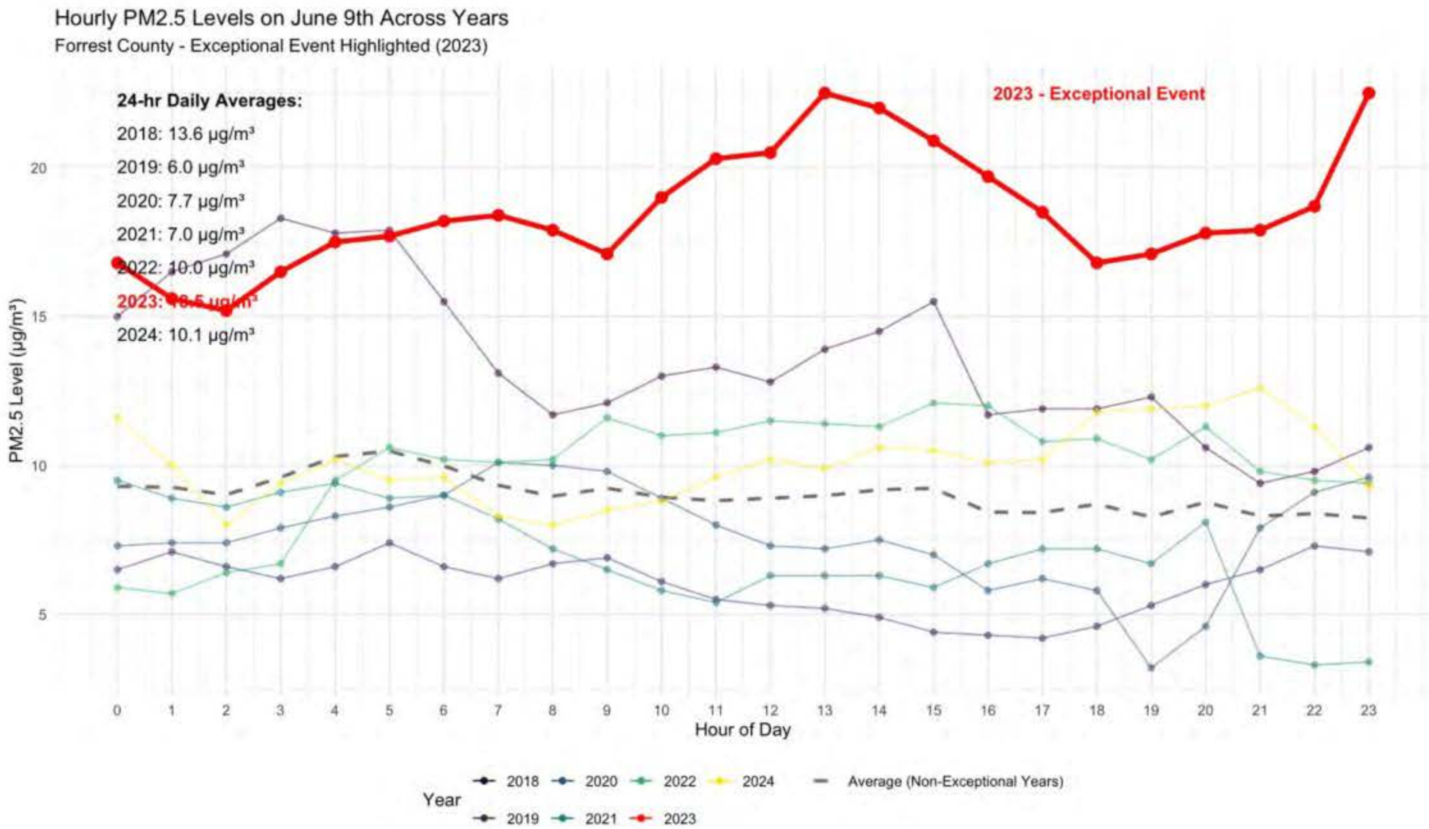
00z surface analysis (June 7th, 2023, at 7PM CDT) showing a cold front moving through the Tennessee River Valley, where this front will be the one to transport smoke from the Canadian Wildfires in Quebec, deep into the southeast, elevating PM2.5 values.



GOES East True Color image taken on June 9th, 2023, at 2311UTC, showing expansive smoke shield from Canadian wildfires in Quebec encompassing the eastern half of the United States, increasing PM2.5 values.

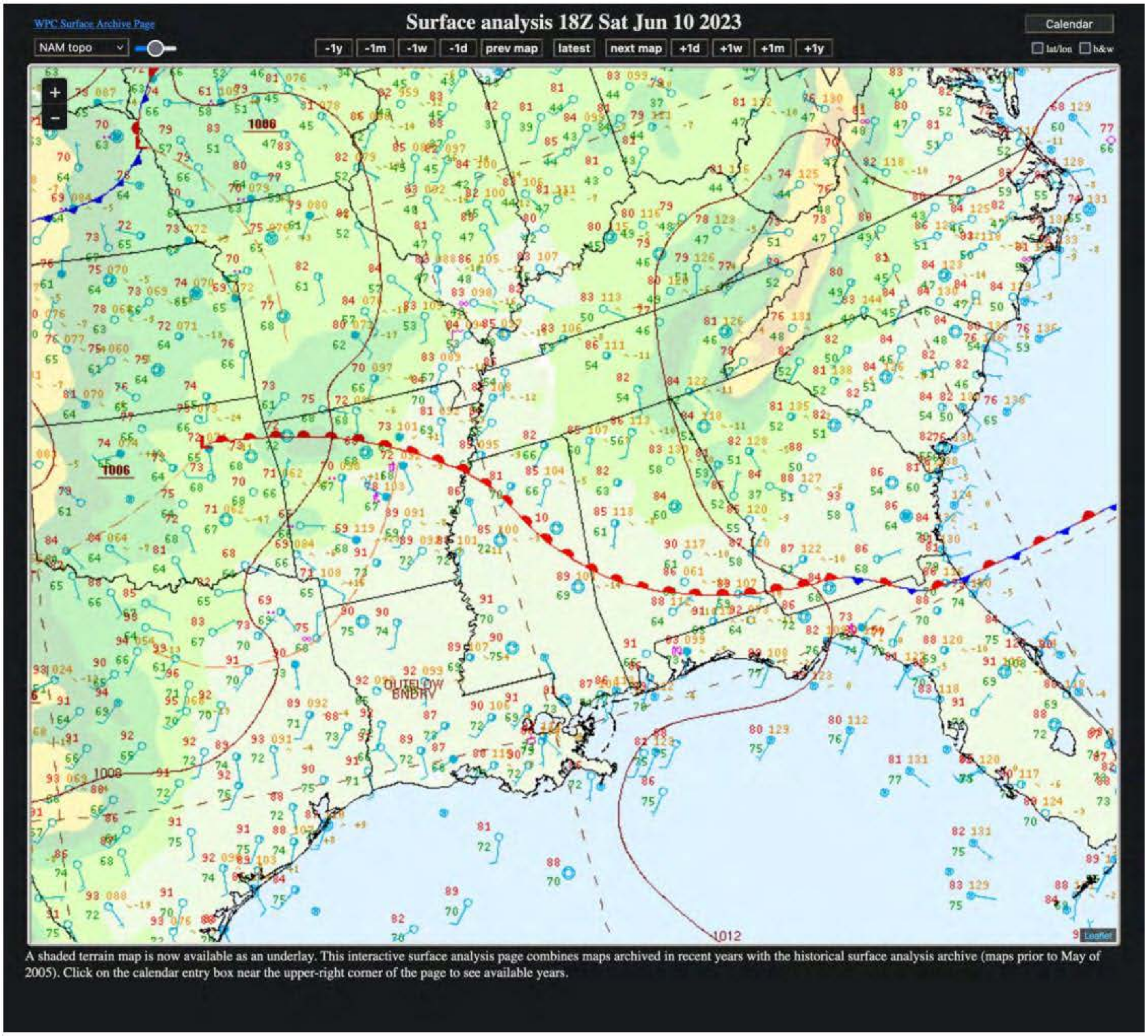
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	06/09/23	17.7	16.5	16.1	17.4	18.4	18.6	19.1	19.3	18.8	18	19.9	21.2	21.4	23.4	22.9	21.8	20.6	19.4	17.7	18	18.7	18.8	19.6	23.4	19.45	23.4

The hourly values at the Hattiesburg monitor in the image above show PM2.5 values in the teens and twenties as transport from Canadian wildfires affect the Hattiesburg PM2.5 monitor.

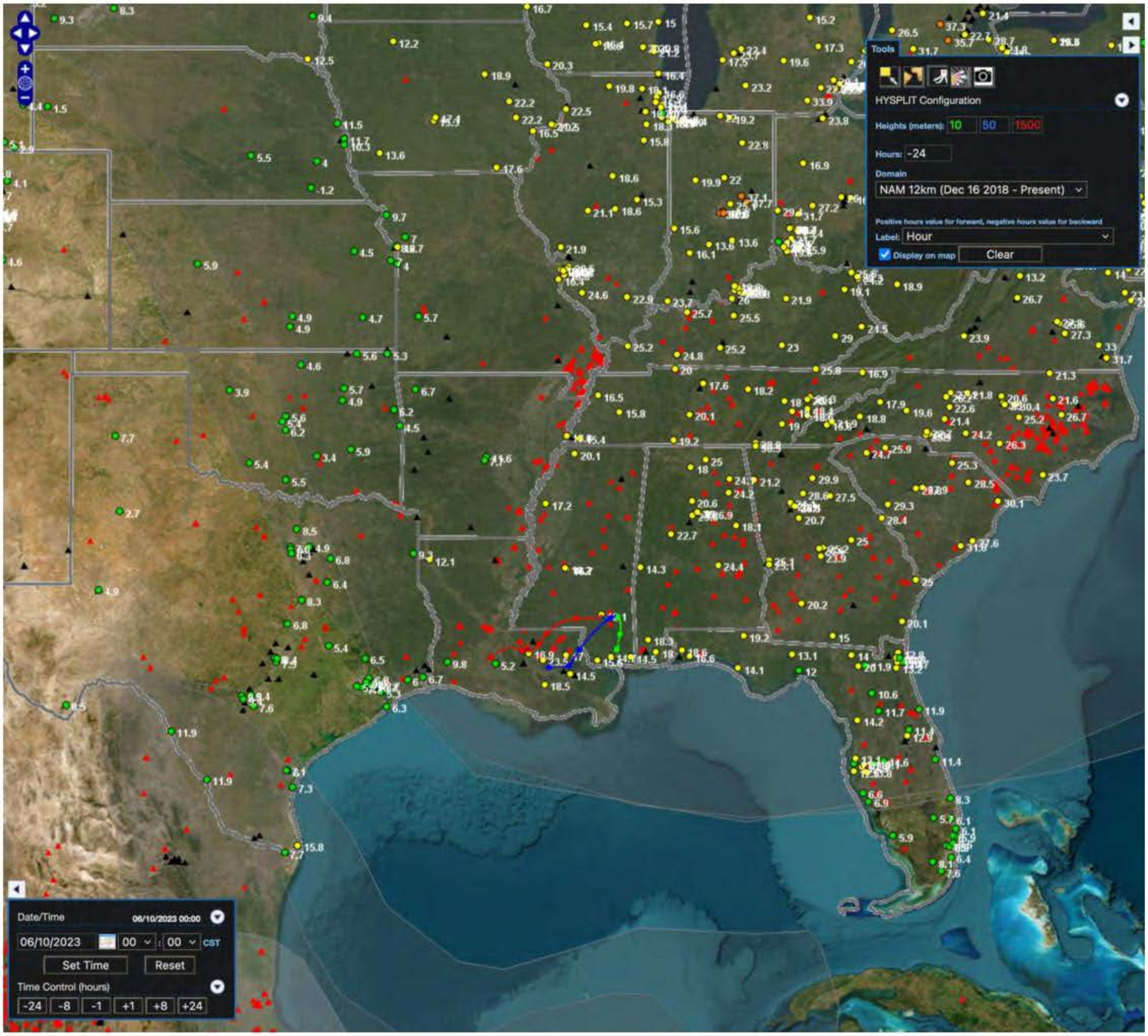


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor, allowing the 24-hour average to be 18.5ug/m^3.

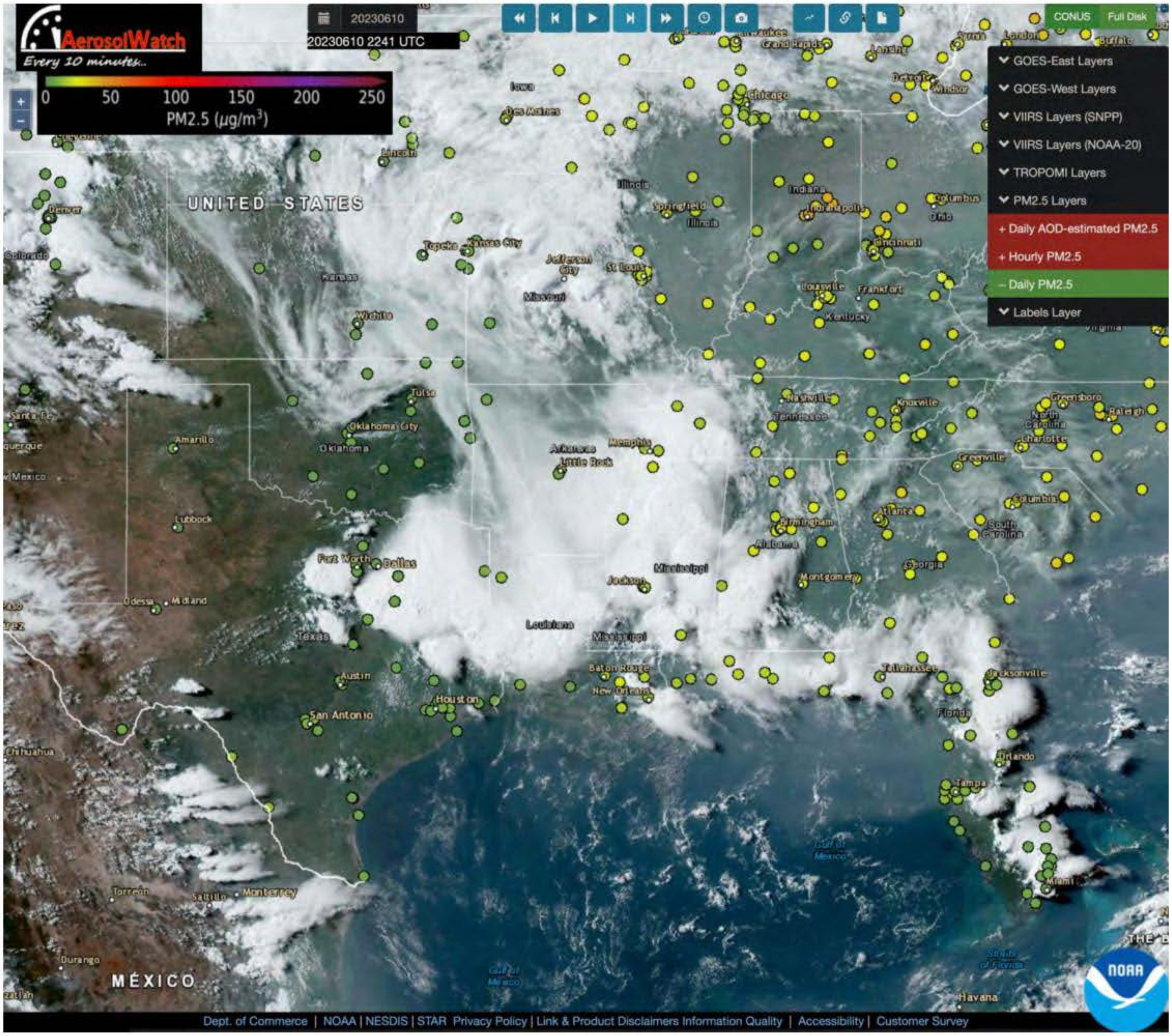
June 10th: Canadian smoke continued to affect the Hattiesburg monitor especially during the morning, throughout the day, into the evening hours. The pre-existing cold front that moved through days before, transitioned to a stationary front draped over central MS, eventually moving northward as a warm front, creating surface instability, combined with daily sea-breeze moving inland from the Gulf of Mexico, allowing for diurnal showers and thunderstorms during the afternoon and evening hours over the area. Although there were showers and thunderstorms during the afternoon and evening hours, precipitation did not help lower PM2.5 values till late in the evening close to midnight due to such an expansive shield of Canadian smoke in and around the area.



18z surface analysis (June 10th, 2023, at 1PM CDT) showing warm frontal boundary draped across Mississippi and Alabama.



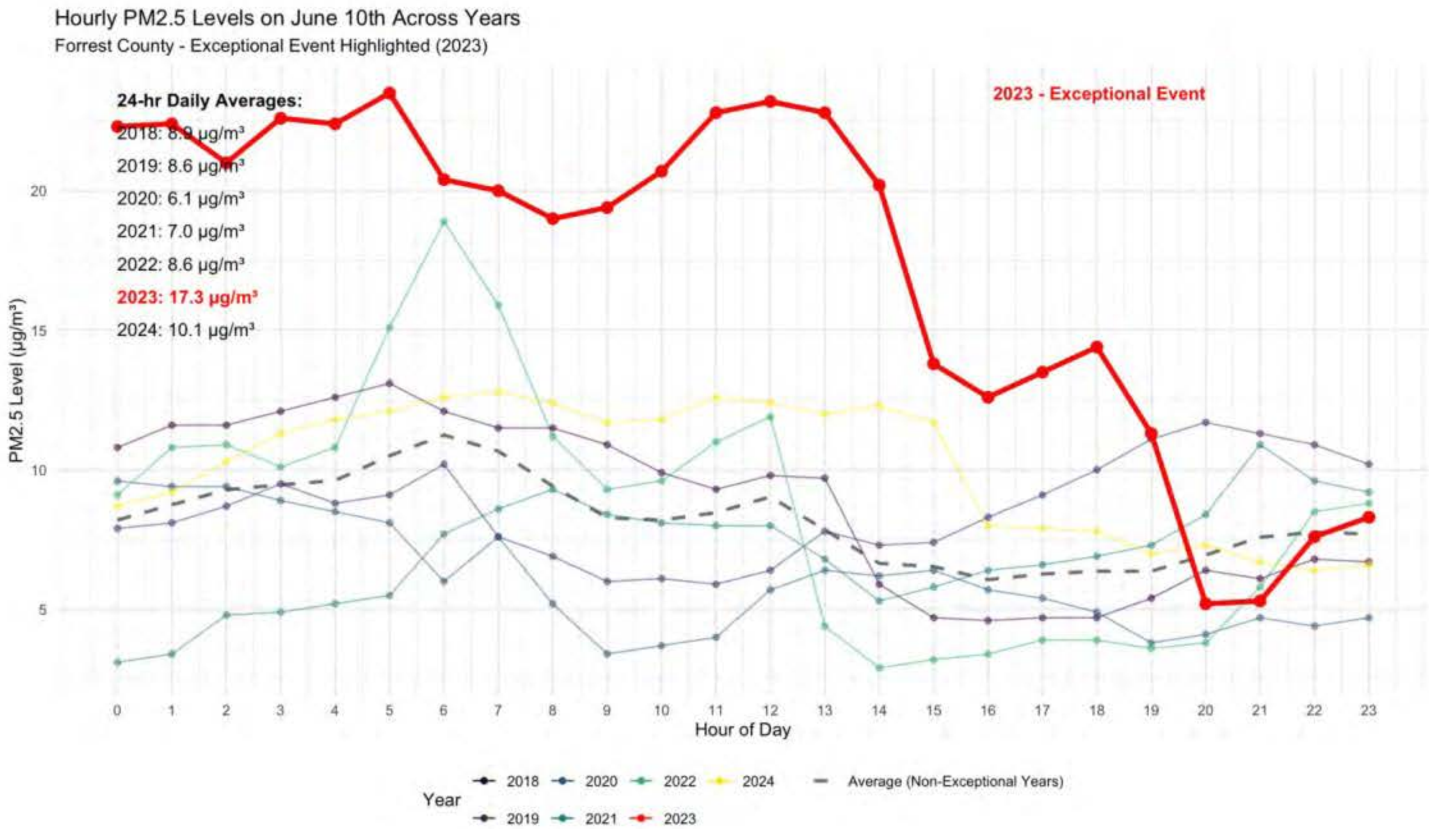
The AirNowTech Navigator image taken on, June 10th, 2023, above shows the large batch of residual Canadian wildfire smoke over the southeastern United States, keeping PM2.5 values elevated. 24-hour back trajectory showing parcel moving from southwest to northeast in response to stationary boundary moving northeastward as a warm front. Parcels at all three levels 10m, 50m, and 1500m, had not much movement during those 24-hours due to stagnant conditions, allowing for Canadian smoke to remain in place.



GOES East True Color image taken on June 10th, 2023, at 2241UTC, showing expansive smoke shield from Canadian wildfires remaining in place over the eastern and southeastern half of the United States. Also shown are convective thunderstorm formation along the frontal boundary that is draped over Mississippi and Alabama.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	06/10/23	23.2	23.3	21.9	23.5	23.3	24.4	21.3	20.9	19.9	20.3	21.6	23.7	24.1	23.7	21.1	14.7	13.5	14.4	15.3	12.2	6.1	6.2	8.5	9.2	18.18	24.4

The hourly values at the Hattiesburg monitor in the image above show PM2.5 levels in the twenties as smoke from Canadian wildfires continues to affect the area. It wasn't until late in the afternoon and evening hours that PM2.5 values began to decrease in response to precipitation, which helped disperse pollutants. Despite the precipitation, the 24-hour average for the day, due to the thick Canadian smoke, ended up being 18 μg/m^3.



The hourly time series in the figure above illustrates PM2.5 levels over the past seven years, highlighting elevated values in 2023 compared to the average of non-exceptional years. The plot shows increased PM2.5 concentrations before precipitation arrived in the late afternoon and evening, due to a dense smoke plume from Canadian wildfires. Once the precipitation began, PM2.5 levels started to decrease, helping disperse the smoke and lowering the hourly PM2.5 values. Despite the precipitation, the 24-hour average for the day, impacted by the thick Canadian smoke, still reached 17.3 µg/m^3.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
June 30 – July 1, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	17.1, 18.4	2, 3	Canadian Wildfire C Exceptional Event Demonstration: June 30 – July 1, 2023

Synopsis: The Quebec Wildfires in Canada has been ongoing for much of the month of June 2023. Majority of the smoke from the wildfires has been affecting the Upper Midwest, Ohio River Valley, Northeast, and Mid Atlantic States for much of the month. The period from June 30th to July 1st, 2023, smoke from the Canadian wildfires in Quebec was transported deep down in the southeastern United States, thanks to a surface frontal boundary that moved through on June 28th, and 29th, elevating PM2.5 values across the southeastern United States.

Friday, June 30, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1635Z June 30, 2023

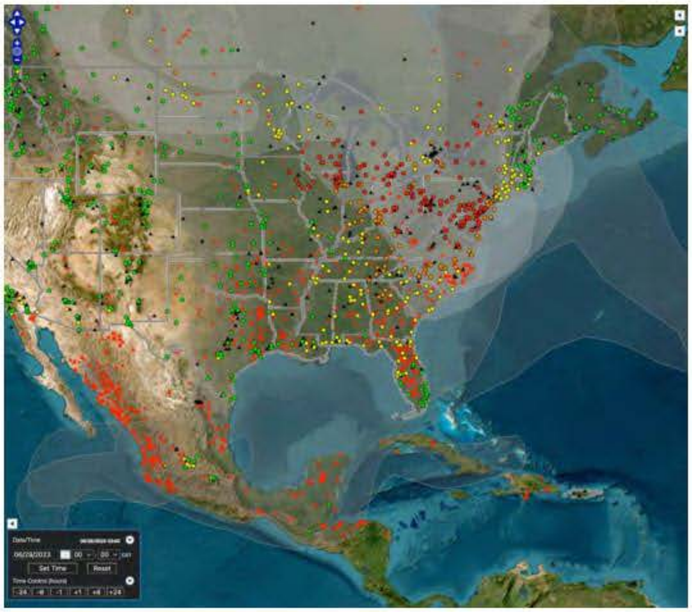
```
SMOKE:
Canada, Eastern and Central United States, Atlantic Ocean…
The major wildfires across portions of Canada continue with a large
area of smoke over much of Canada and extending to the south over the
Central and Southeastern United States. The smoke also extended well off
the east coasts of Canada and the United States as well as the Atlantic
ocean along the eastern U.S coast and north-central region. To the west,
some of the thinner density smoke had spread to the west and south
over parts of the southwestern United States. Within this area, the
thickest smoke was located mostly over Western Canada, northern Quebec,
and parts of Hudson Bay while moderate density smoke engulfed most of
Canada, Northeast U.S, and parts of northern U.S within Montana and the
Dakotas. Cloud cover over eastern Canada made it difficult to determine
to the full extent of the thick density smoke from the Quebec fires.

SMOKE/AEROSOL:
Southern United States, Mexico, Gulf of Mexico, Pacific Ocean south and
southwest of Mexico...
Seasonal fires continue to burn mainly in Mexico resulting in a large
area of thin smoke extending from the southern United States through
much of the Gulf of Mexico, northern Mexico, and the Pacific Ocean
extending well to the southwest of Mexico.  It is likely that the smoke
from Mexico merges with smoke from the Canadian fires somewhere over
the south central and southeastern United States.  Some aerosols from
industrial activities in Mexico and Central America may also be present
within the smoke in this region.

Dust:
Northeastern Caribbean Islands….
An area of light to moderate Saharan Dust continues to move across the
Tropical Atlantic Ocean and was seen extending into the far eastern
Caribbean Sea.

Nguyen


THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF
SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED
FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE,
TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS.  AREAS OF BLOWING DUST ARE
ALSO DESCRIBED.  USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE
AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE
FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

JPEG map:      https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov
```

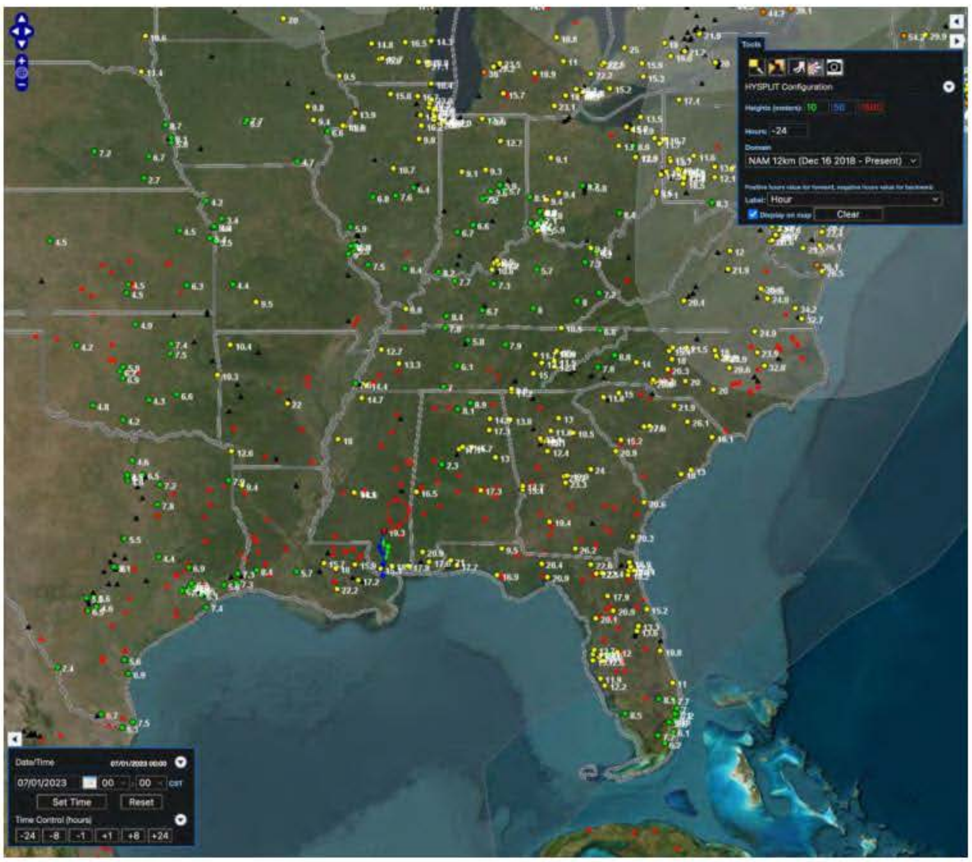
Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

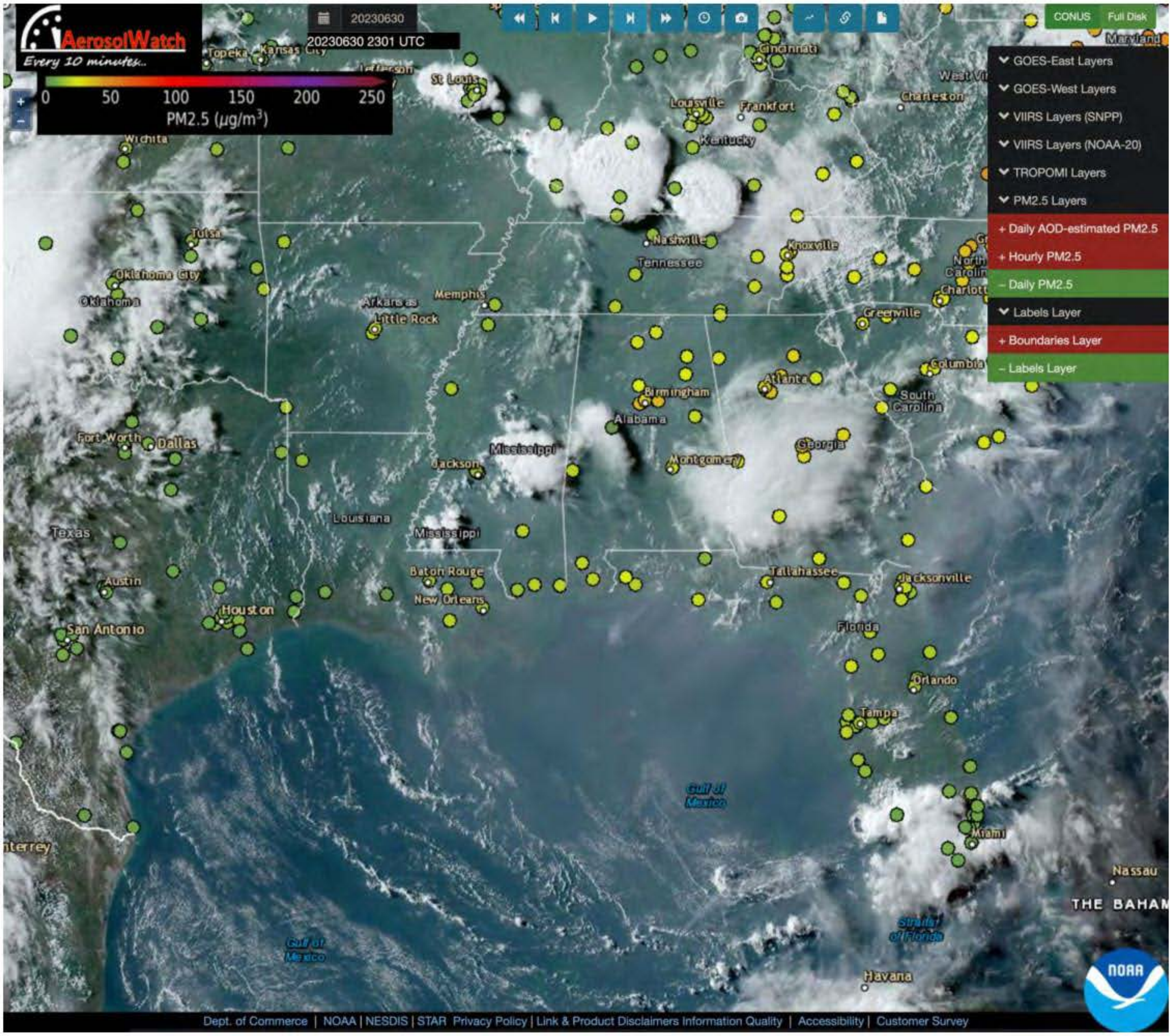
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023F301636.html) narrative from June 30th, 2023 at 1635Z (June 30th, 2023 at 11:35AM CDT), describing the smoke situation and how Canadian transport smoke has been transported down to the southeastern United States.

00z surface analysis (June 29th, 2023, at 7PM CDT) showing weak stationary boundary draped across Alabama with High pressure parked over Tennessee River Valley. This High pressure helped transport Canadian wildfire smoke down into the southeastern United States.





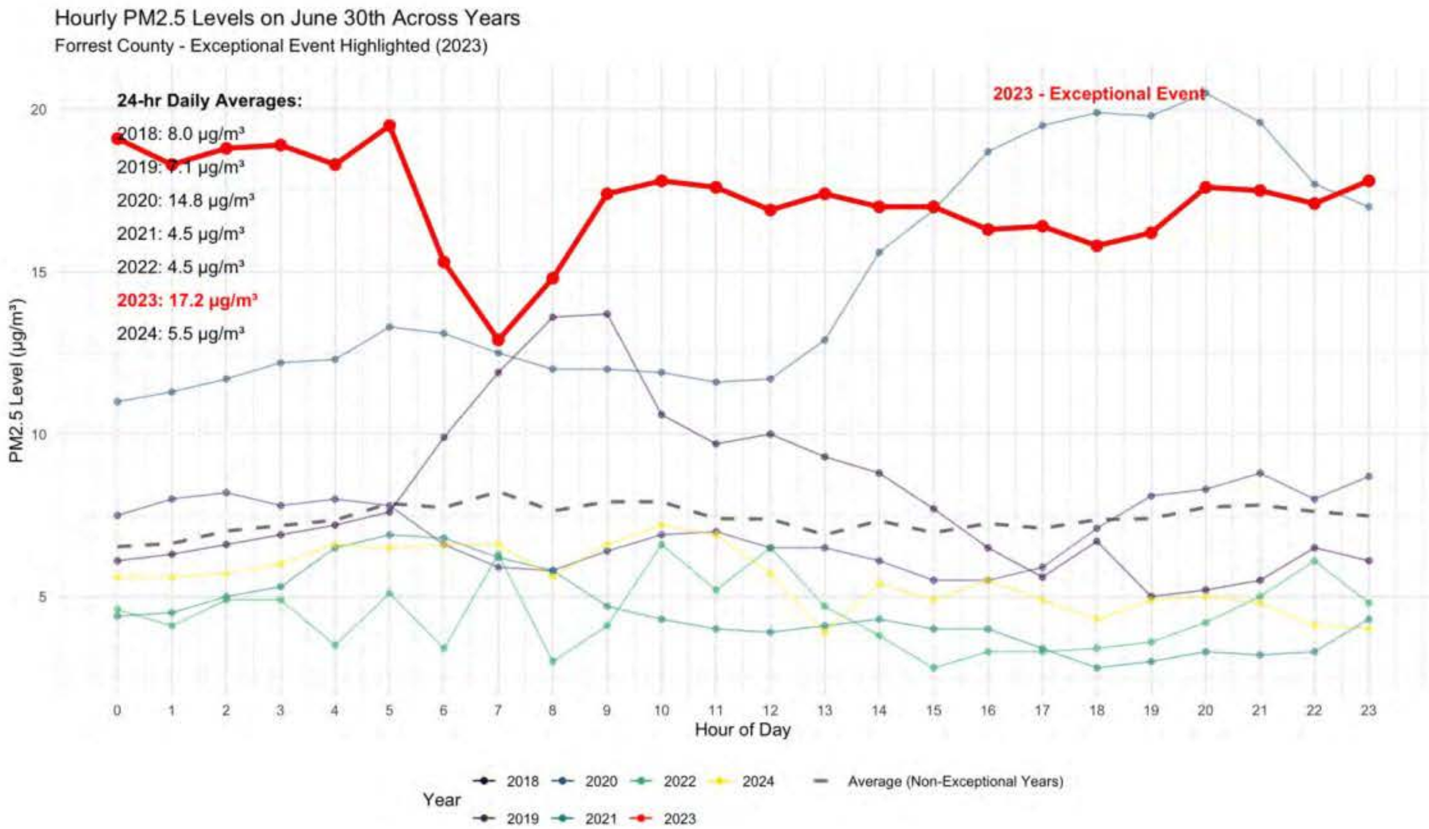
A series of AirNowTech Navigator images from June 29, 2023, through July 1, 2023, shows the progression of smoke from the Canadian wildfires in Quebec as it moved into the northeastern United States, the Ohio River Valley, and eventually the Eastern and southeastern United States The transport of smoke into the southeastern United States was aided by a surface frontal boundary descending from Canada, which carried smoke deep into the southern United States and raised PM2.5 levels. A 24-hour back trajectory on July 1st indicates that once the Canadian smoke reached the Hattiesburg monitor in the previous days, stagnant conditions formed, preventing dispersion and ventilation, which allowed the smoke to persist and kept PM2.5 concentrations elevated at the Hattiesburg monitor.



GOES East True Color image taken on June 30th, 2023, at 2301UTC, showing expansive smoke shield from Canadian wildfires over the eastern and southeastern half of the United States, extending well into the Gulf of Mexico.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	06/30/23	20	19.2	19.7	19.8	19.2	20.4	16.2	13.8	15.7	18.3	18.7	18.5	17.8	18.3	17.9	17.9	17.2	17.3	16.7	17.1	18.5	18.4	18	18.7	18.05	20.4

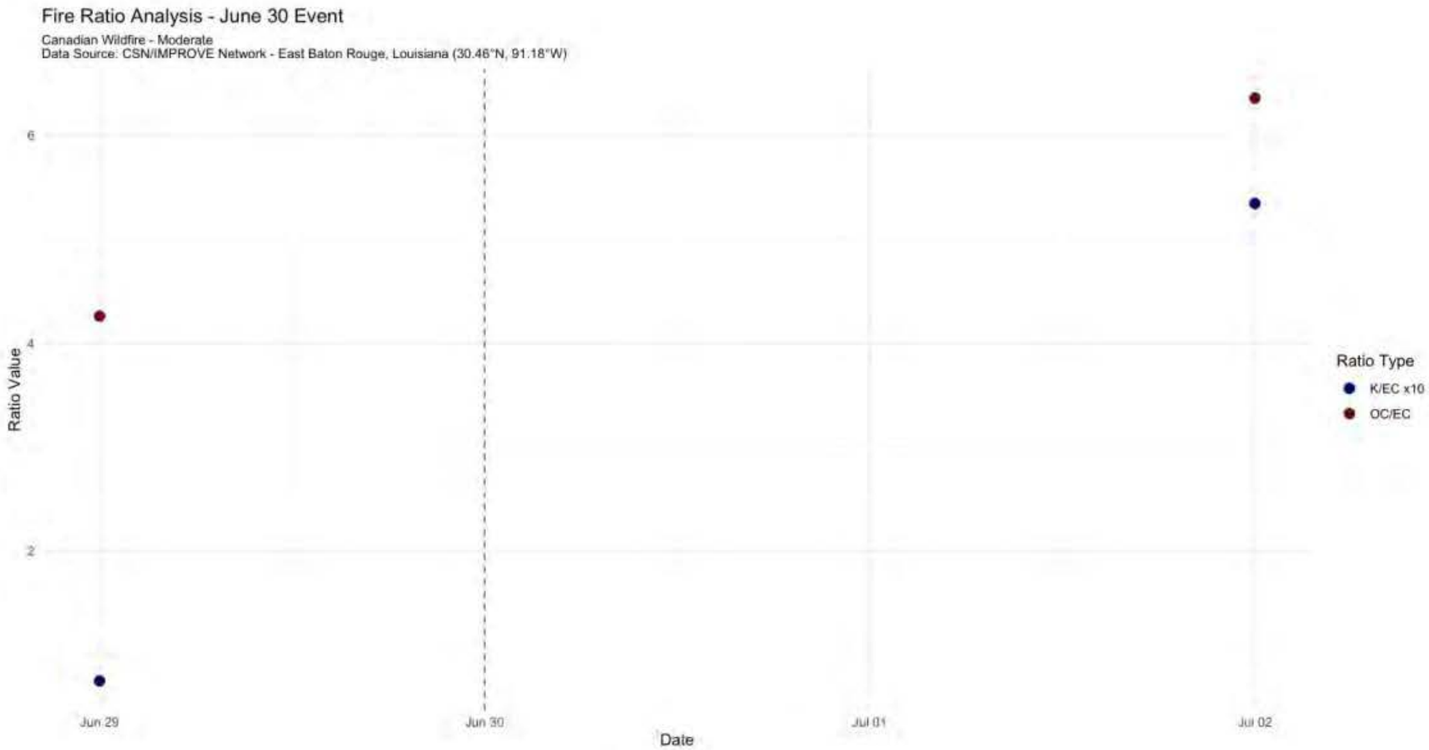
The hourly values at the Hattiesburg monitor on June 30th in the image above show PM2.5 values in the teens as smoke transport from Canadian wildfires affect the Hattiesburg PM2.5 monitor.

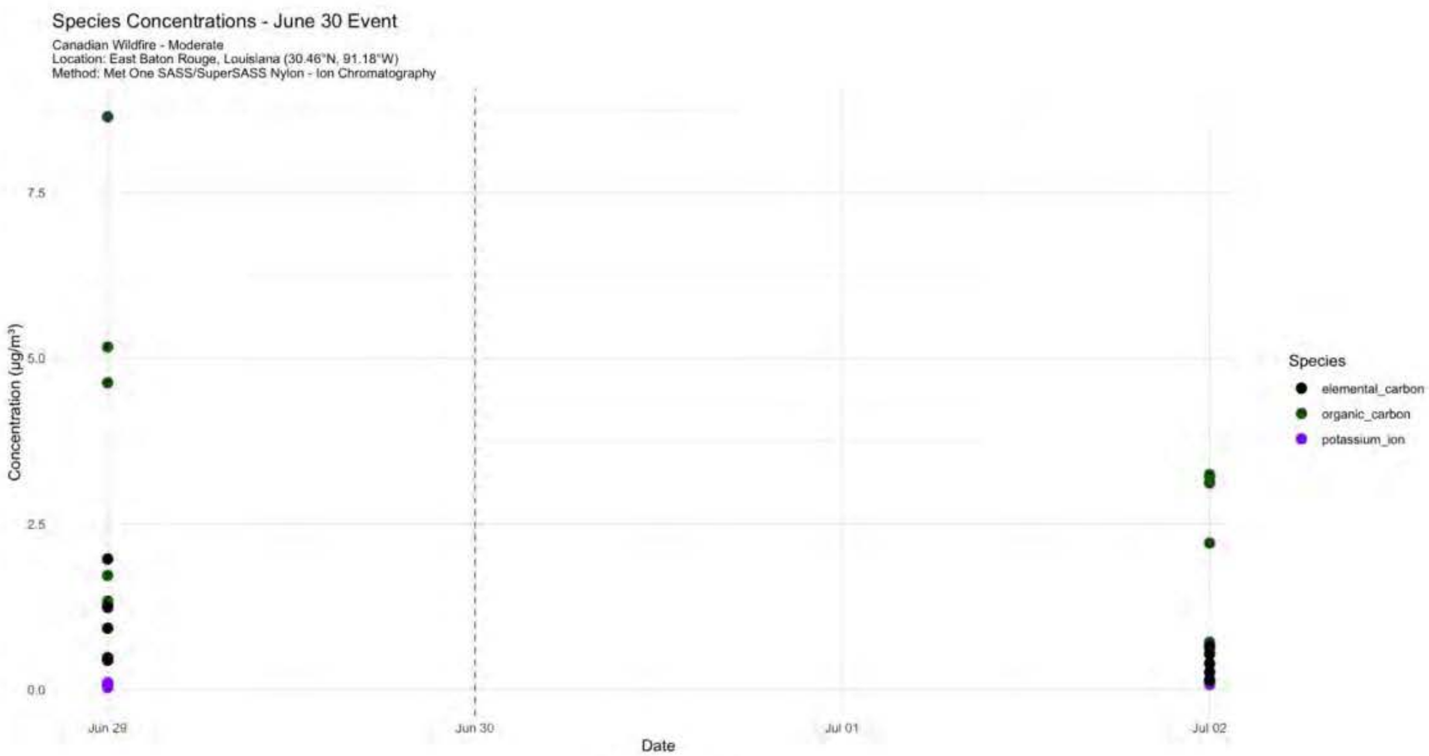


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor, allowing the 24-hour average to be 17.2ug/m^3

Tier 3 Speciation Analysis:
The June 30th event shows moderately supportive speciation characteristics:
- OC/EC ratios around 5-6, consistent with aged smoke
- Low but detectable potassium ion concentrations
- Meteorological conditions showing the High-pressure influence described in the synoptic analysis
- Chemical composition patterns align with the transport timeline from Quebec wildfires

The speciation data supports the exceptional event narrative, particularly when viewed alongside the detailed synoptic analysis and trajectory documentation.


Fire Ratio Analysis - June 30 Event
Canadian Wildfire - Moderate
Data Source: CSN/IMPROVE Network - East Baton Rouge, Louisiana (30.46°N, 91.18°W)
Ratio Value
Date
Jun 29
Jun 30
Jul 01
Jul 02
Ratio Type
K/EC x10
OC/EC


Species Concentrations - June 30 Event
Canadian Wildfire - Moderate
Location: East Baton Rouge, Louisiana (30.46°N, 91.18°W)
Method: Met One SASS/SuperSASS Nylon - Ion Chromatography
Concentration (µg/m³)
Date
Jun 29
Jun 30
Jul 01
Jul 02
Species
elemental_carbon
organic_carbon
potassium_ion

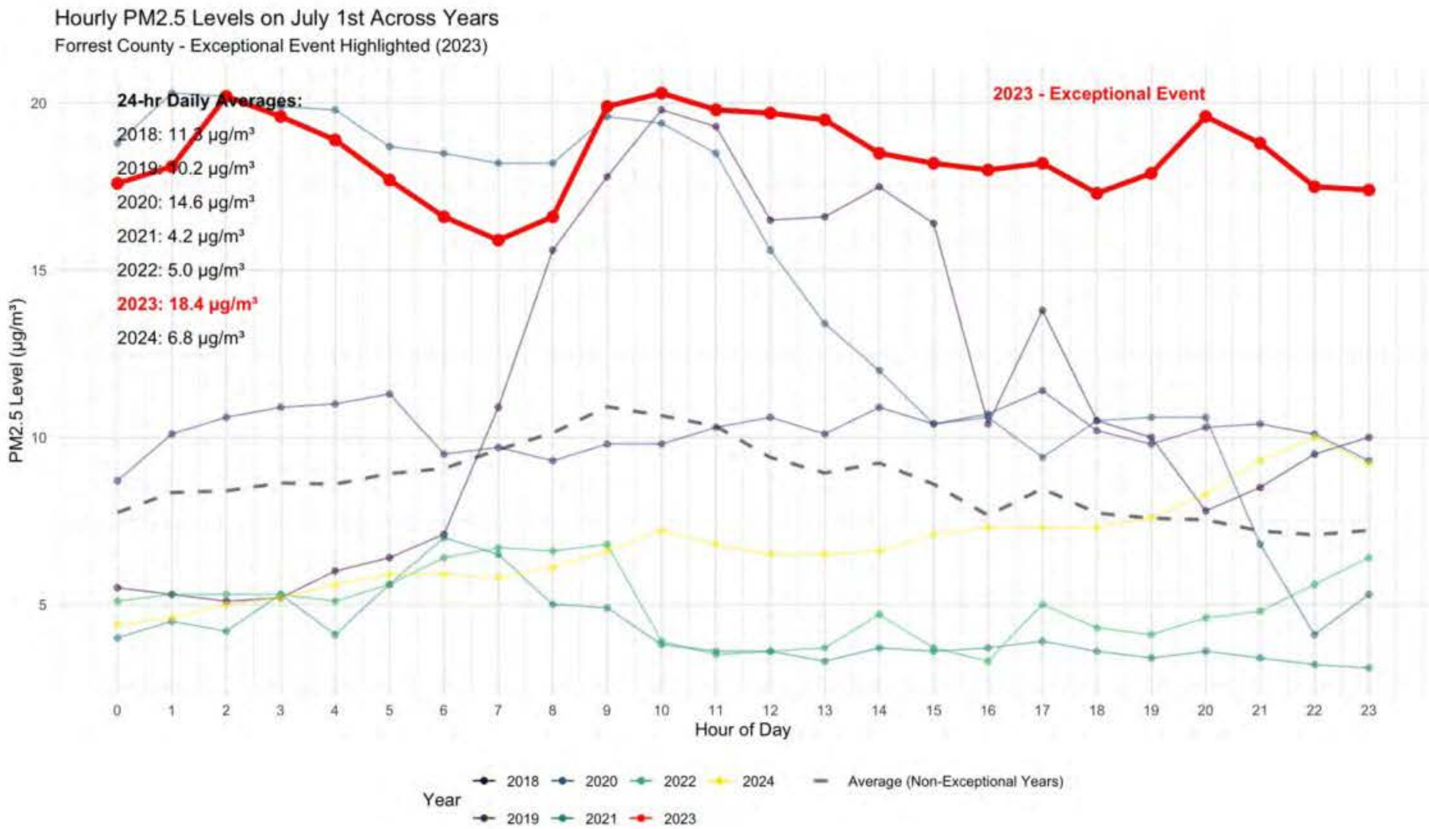
July 1st: The Hattiesburg monitor continued to show elevated PM2.5 levels due to stagnant conditions, which trapped residual Canadian wildfire smoke that had moved in during previous days. This was caused by high pressure parked over the southeastern United States coupled with high pressure aloft, preventing ventilation of pollutants.

The 00z surface analysis (July 1st, 2023, at 7 PM CDT) shows high pressure across the southeast, creating stable and stagnant conditions that allowed Canadian wildfire smoke, transported in previous days, to linger across the southeastern United States.

GOES East True Color image taken on July 1st, 2023, at 2221UTC, showing expansive smoke shield from Canadian wildfires over the eastern and southeastern half of the United States, extending well into the Gulf of Mexico.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	07/01/23	18.5	19	21.1	20.5	19.8	18.6	17.5	16.8	17.5	20.8	21.2	20.7	20.6	20.4	19.4	19.1	18.9	19.1	18.2	18.8	20.5	19.7	18.4	18.3	19.31	21.2

The hourly values at the Hattiesburg monitor on July 1st in the image above show PM2.5 values in the teens and twenties as transport from Canadian wildfires affect the Hattiesburg PM2.5 monitor.



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor, allowing the 24-hour average to be 18.4ug/m^3

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
July 25 – 29, 2023	Canadian Wildfire	RF	28-035-0004	Hattiesburg	16.1, 19.3, 19.3, 16.3, 14.4	2, 3	Canadian Wildfire C Exceptional Event Demonstration: July 25 - 29, 2023

Synopsis: In July, numerous Canadian wildfires continued in both Western and Eastern Canada, particularly in Quebec. Throughout the month, smoke from these wildfires spread across much of the north-central and central United States, the Ohio River Valley, the Great Lakes region, and the northeastern United States, with some periods affecting the Mid-South and southeastern United States The exceptional event dates for the Hattiesburg monitor were July 25–29, 2023.

Smoke from the Canadian wildfires was transported to the southern United States as a cold front moved southward through the central United States on July 20–21. By July 22–23, the front had pushed down to southern Louisiana, Mississippi, and central Alabama and Georgia, with high pressure building in behind it. This high pressure helped transport smoke from the Canadian wildfires into the Gulf States. High pressure remained over the southeast through the remainder of the month, creating stagnant and stable conditions that allowed the Canadian wildfire smoke to persist, elevating PM2.5 values across the southeast, including at the Hattiesburg monitor.

Friday, July 28, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 1700Z July 28, 2023

SMOKE:
Canada/United States/Atlantic Ocean/Northern Mexico/Pacific Ocean off the U.S. West Coast/Northern Gulf of Mexico…
Heavy, dense smoke from fires in northwestern Canada was observed across northern Alberta and British Columbia, as well as much of Northwest Territory and the Yukon. Moderate smoke extended from eastern Alaska to northern Nunavut. Additional moderate smoke, presumed to be mostly from the same fires, was observed across the northwestern U.S. and border regions of Canada, as well as over southeastern U.S. The area of light smoke extended from Eastern Alaska across the whole of Canada and much of the U.S. except California, Nevada, and smaller portions of the mountain west. This area also extended down across the coastal regions of northern Mexico, where it mixed with smoke from various sources and probable remnant Saharan dust that were adding to the amount of total aerosol over the Gulf of Mexico.

Pacific Northwest…
Several fires in the region, notably in western Oregon, central Idaho, and western Montana, were observed to be producing smoke plumes of up to heavy density, although the smoke was remaining localized to the region.

Nguyen

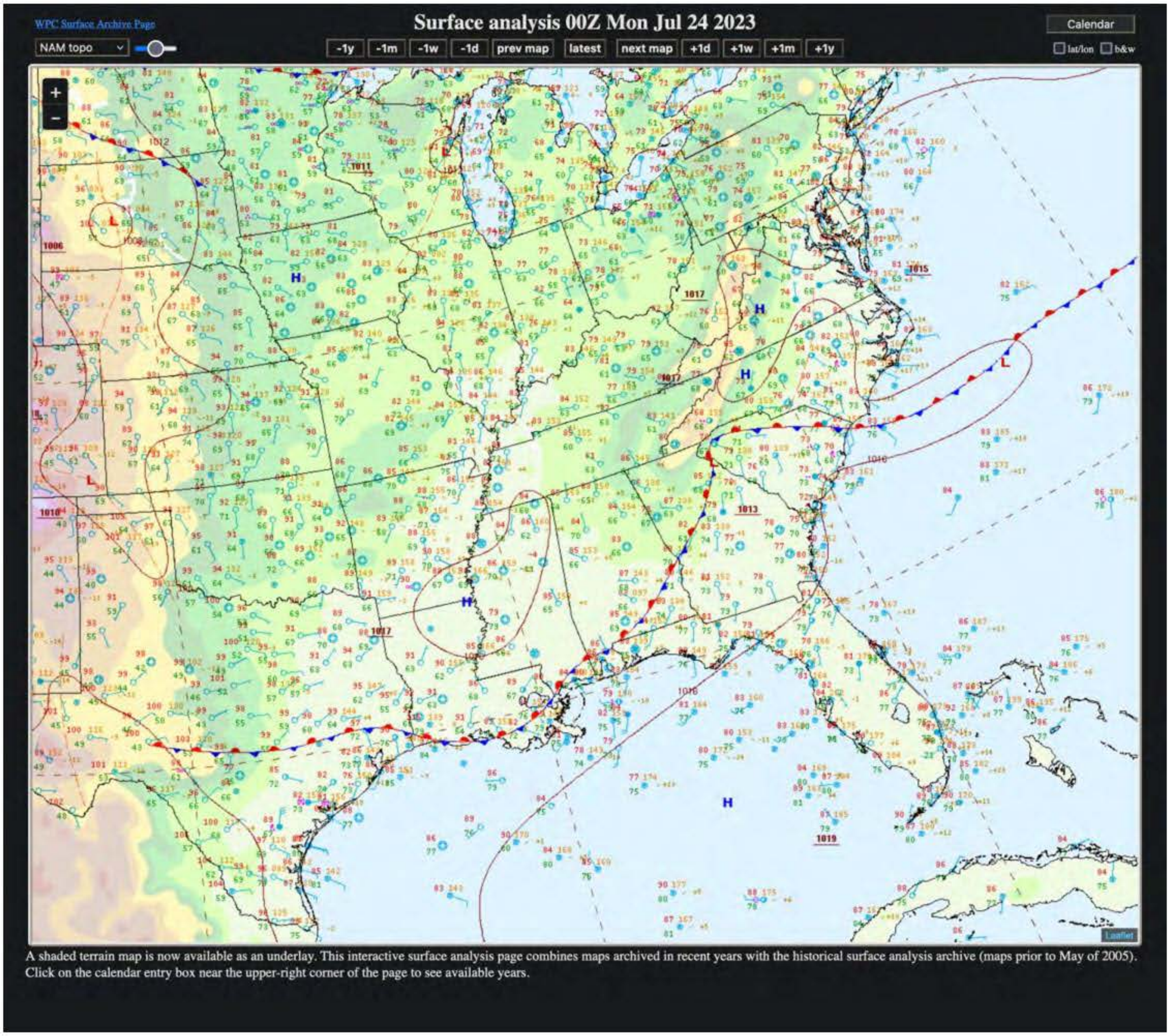
THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

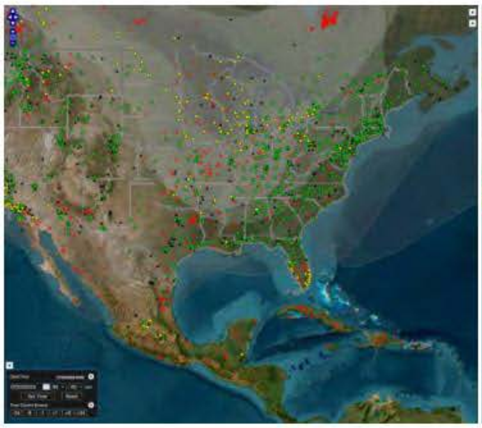
Unless otherwise indicated:
- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

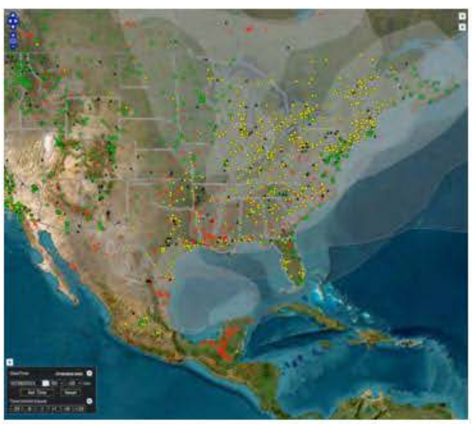
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023G281710.html) narrative June 28th, 2023 at 1700Z (June 28th, 2023 at 12:00PM CDT), describing the smoke situation and how Canadian transport smoke has been transported down to the southeastern United States.

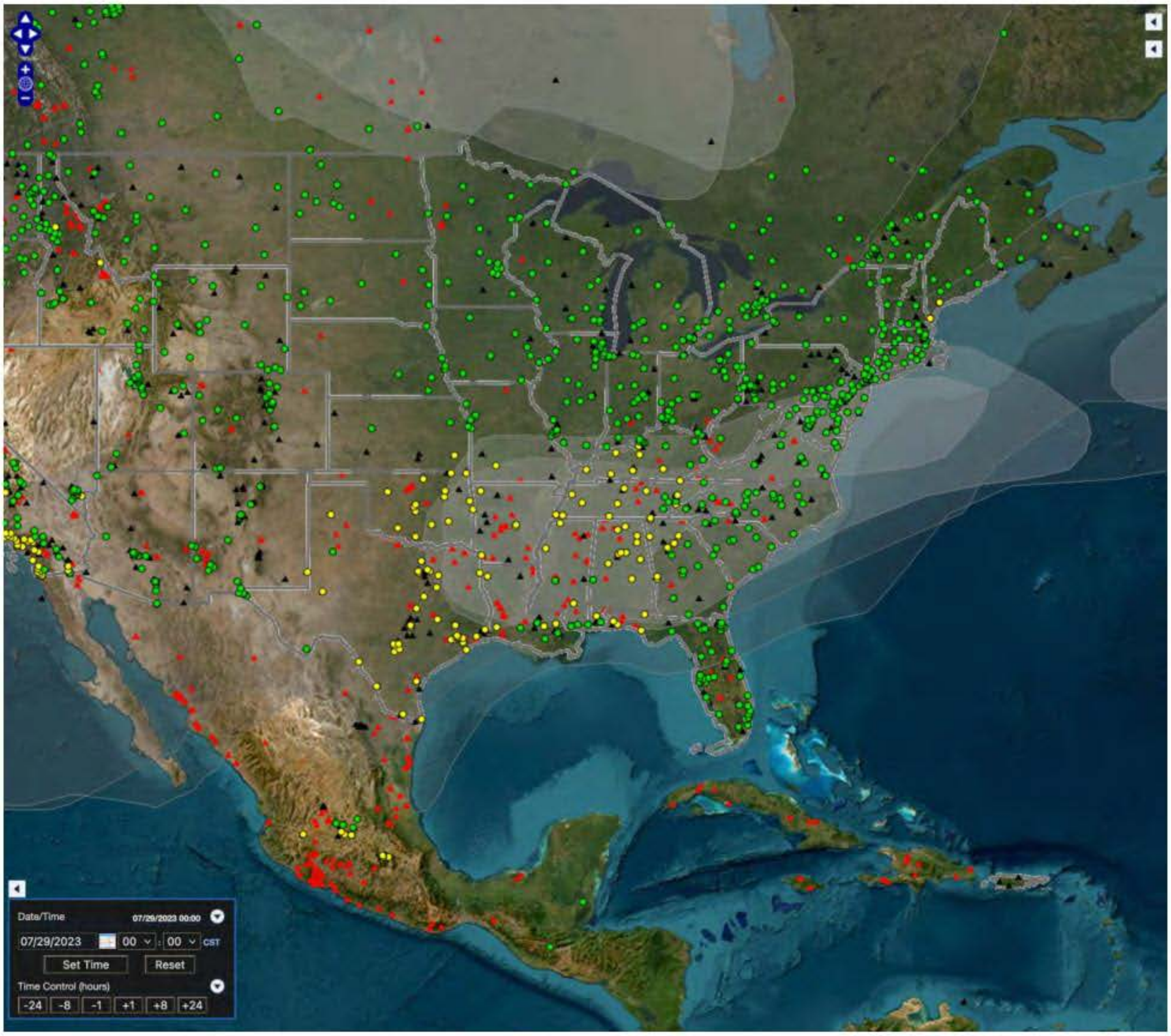


The 00z surface analysis (July 24th, 2023, at 7 PM CDT) shows frontal boundary that has made it deep down into the Gulf States and became stationary with surface High pressure building in behind it that helped transport smoke from the Canadian wildfires, deep down into the southeastern United States.

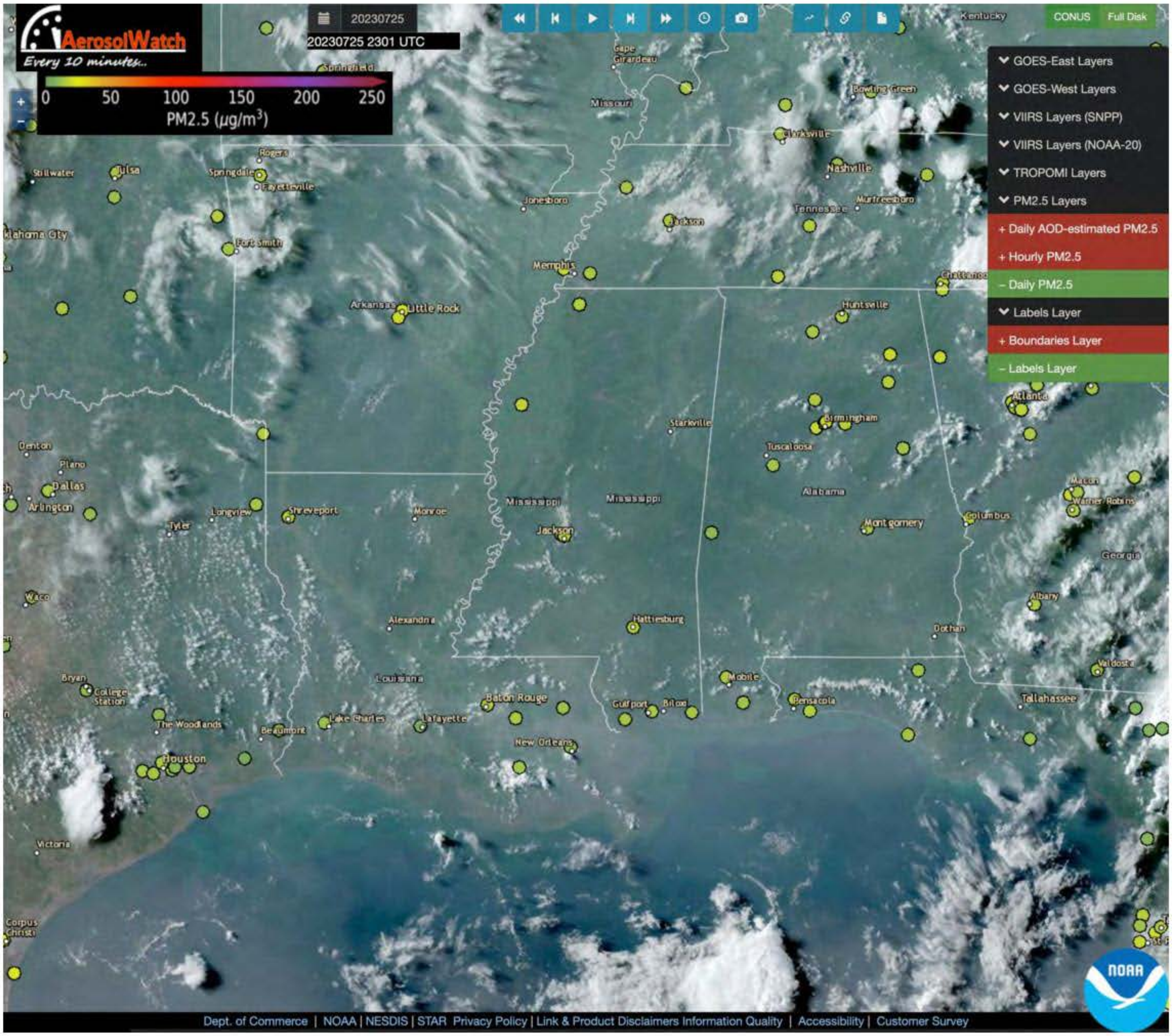




Series of AirNowTech Navigator image taken from July 20th, 2023, through July 29th, 2023, show the progression of smoke from the Canadian wildfires, transporting into the northeastern United States, Midwest, the Ohio River Valley, and eventually into the Mid-South, and southeastern portions of the United States. Transport of the smoke into the United States was aided by frontal boundaries dropping down from Canada, helping transport smoke from the Canadian wildfires, deep into the southeastern United States, increasing PM2.5 values.

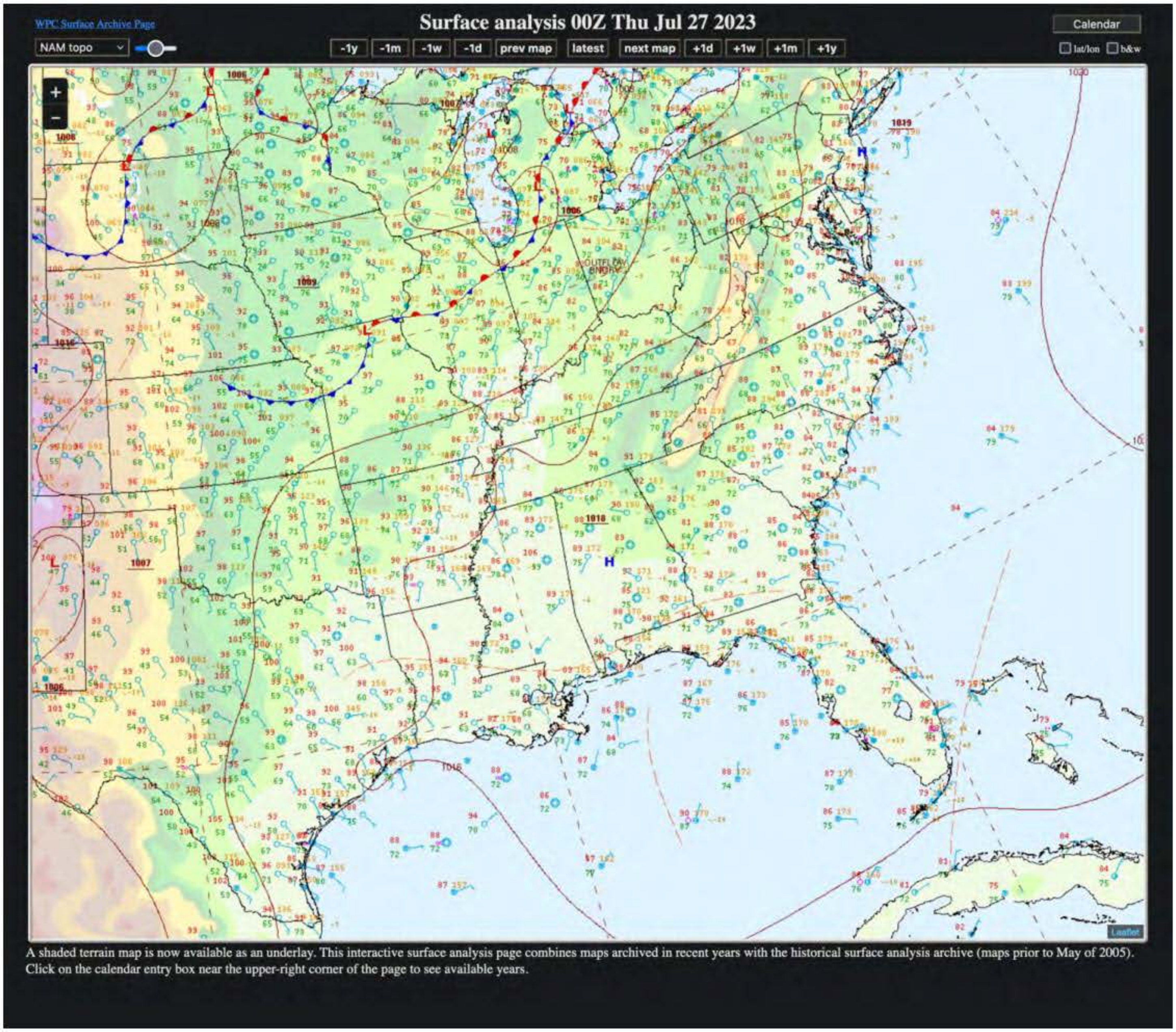


GOES East True Color image taken on July 25th, 2023, at 2301UTC, showing expansive smoke shield from Canadian wildfires over the southeastern United States, extending well into the Gulf of Mexico.

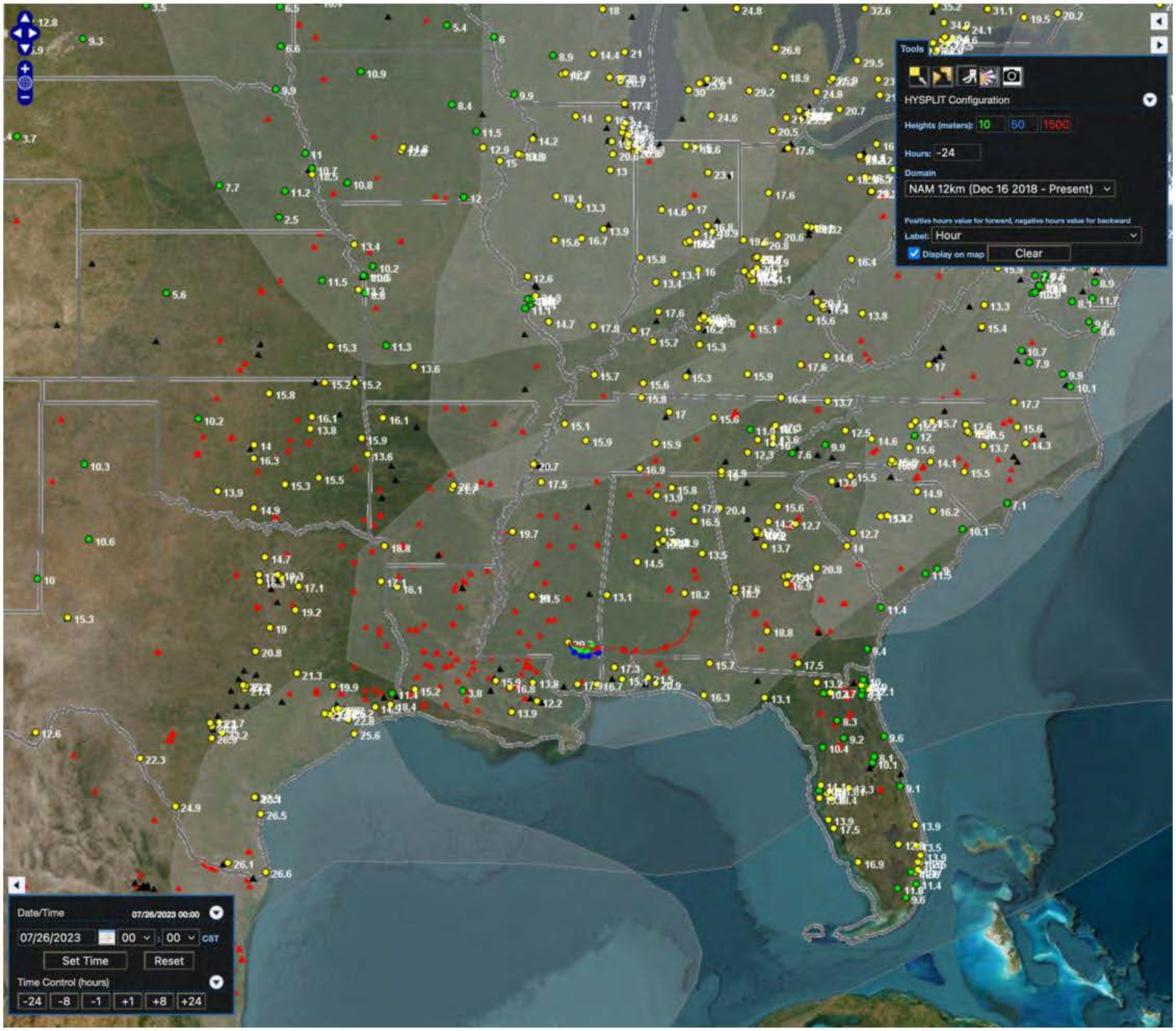
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	07/25/23	14.7	14.8	15.3	16.1	17	17	18.4	17.3	15	14.1	15.3	16.5	16.4	16.9	17.7	17.6	17.9	17.3	18.5	18	17.9	17.4	19.9	21.6	17.02	21.6

The hourly values at the Hattiesburg monitor on July 25th in the image above show PM2.5 values in the teens as transport from Canadian wildfires elevated PM2.5 concentrations at the Hattiesburg PM2.5 monitor.

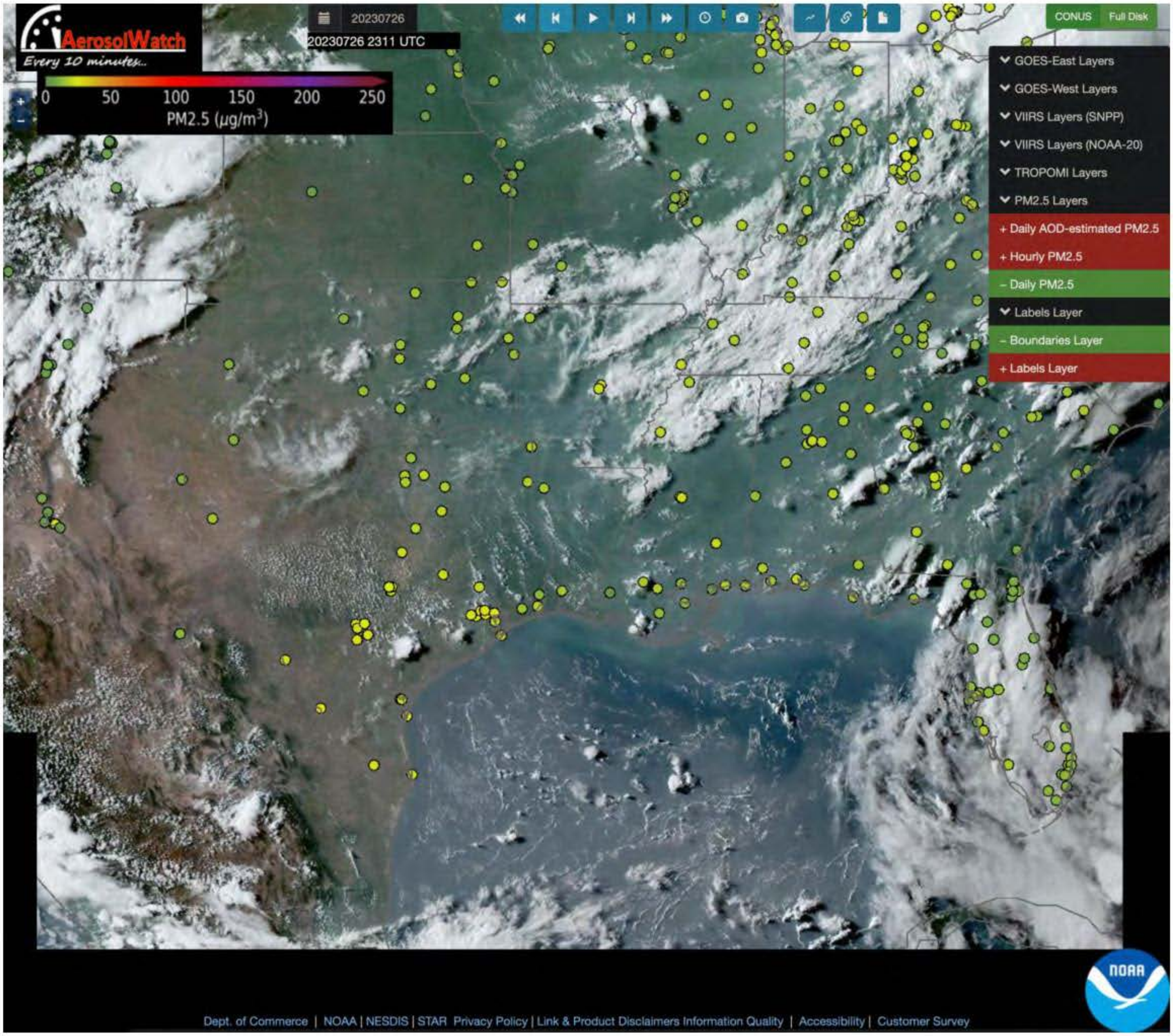
July 26th: High pressure continued to dominate over the southeast bringing stable/stagnant conditions, allowing smoke that was transported from previous days to linger over the area, keeping PM2.5 values elevated at the Hattiesburg monitor.



The 00z surface analysis (July 26th, 2023, at 7 PM CDT) shows surface High pressure over the southeastern United States, helping lead to stable/stagnant conditions, allowing PM2.5 values to remain elevated from wildfire smoke from Canada that was transported over the area from previous days frontal boundary.



The AirNowTech Navigator image taken on, June 26th, 2023, above shows the large batch of residual Canadian wildfire smoke over the southeastern United States, keeping PM2.5 values elevated. 24-hour back trajectories at the lowest 10m and 50m levels, show very little movement of the parcels, indicating stagnant, stable conditions at the surface.

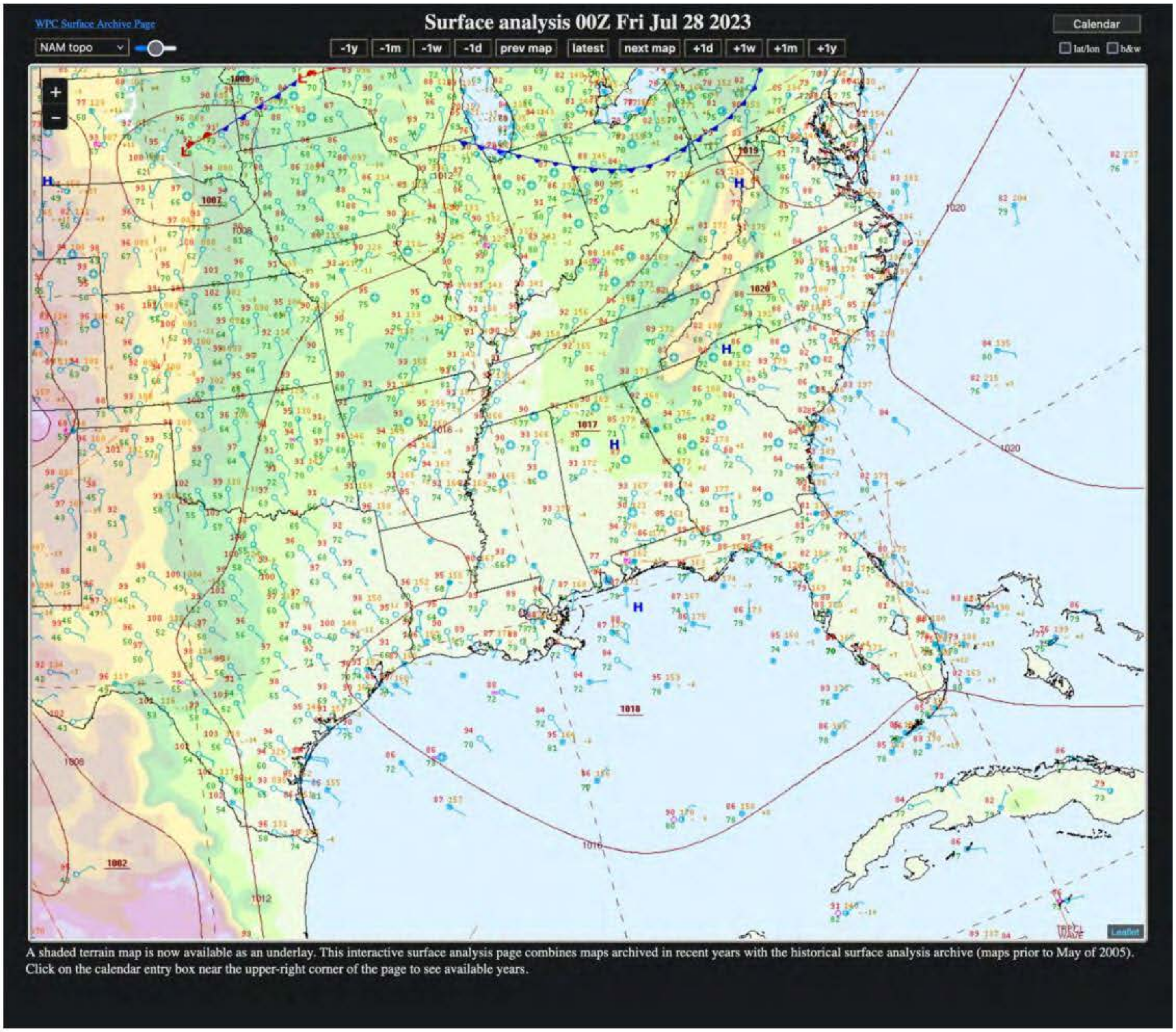


GOES East True Color image taken on July 26th, 2023, at 2311UTC, showing expansive smoke shield from Canadian wildfires over the southeastern United States, extending well into the Gulf of Mexico.

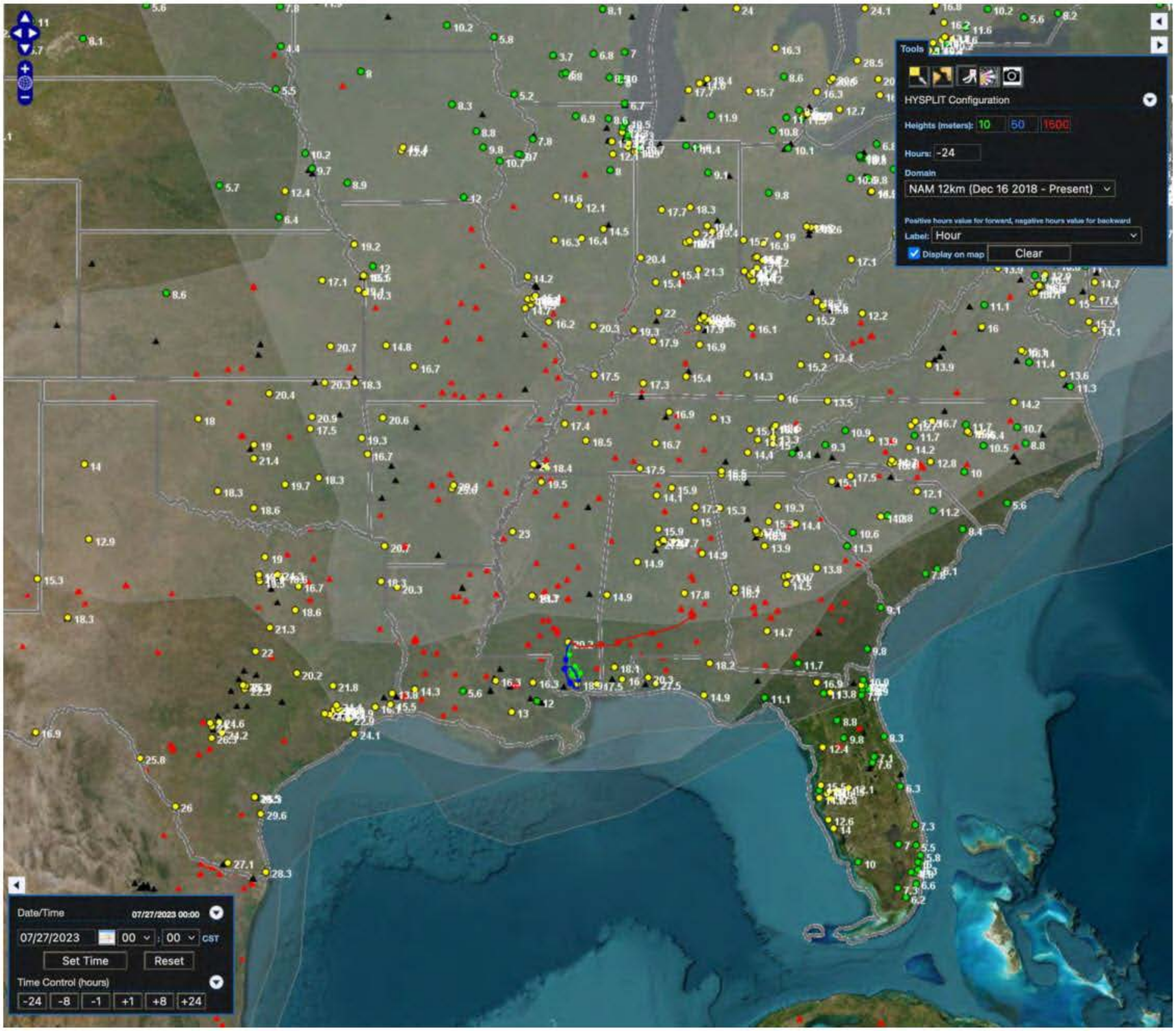
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	07/26/23	21.3	21.6	21.7	21.8	23.3	22.8	21.7	20.5	16.7	16.5	18	19.7	20.4	20.4	20.3	19.4	19.1	18.9	18	18.5	19.3	21.8	21.8	21.4	20.2	23.3

The hourly values at the Hattiesburg monitor on July 26th in the image above show PM2.5 values in the teens and twenties as stagnated smoke from Canadian wildfires elevated PM2.5 concentrations at the Hattiesburg PM2.5 monitor.

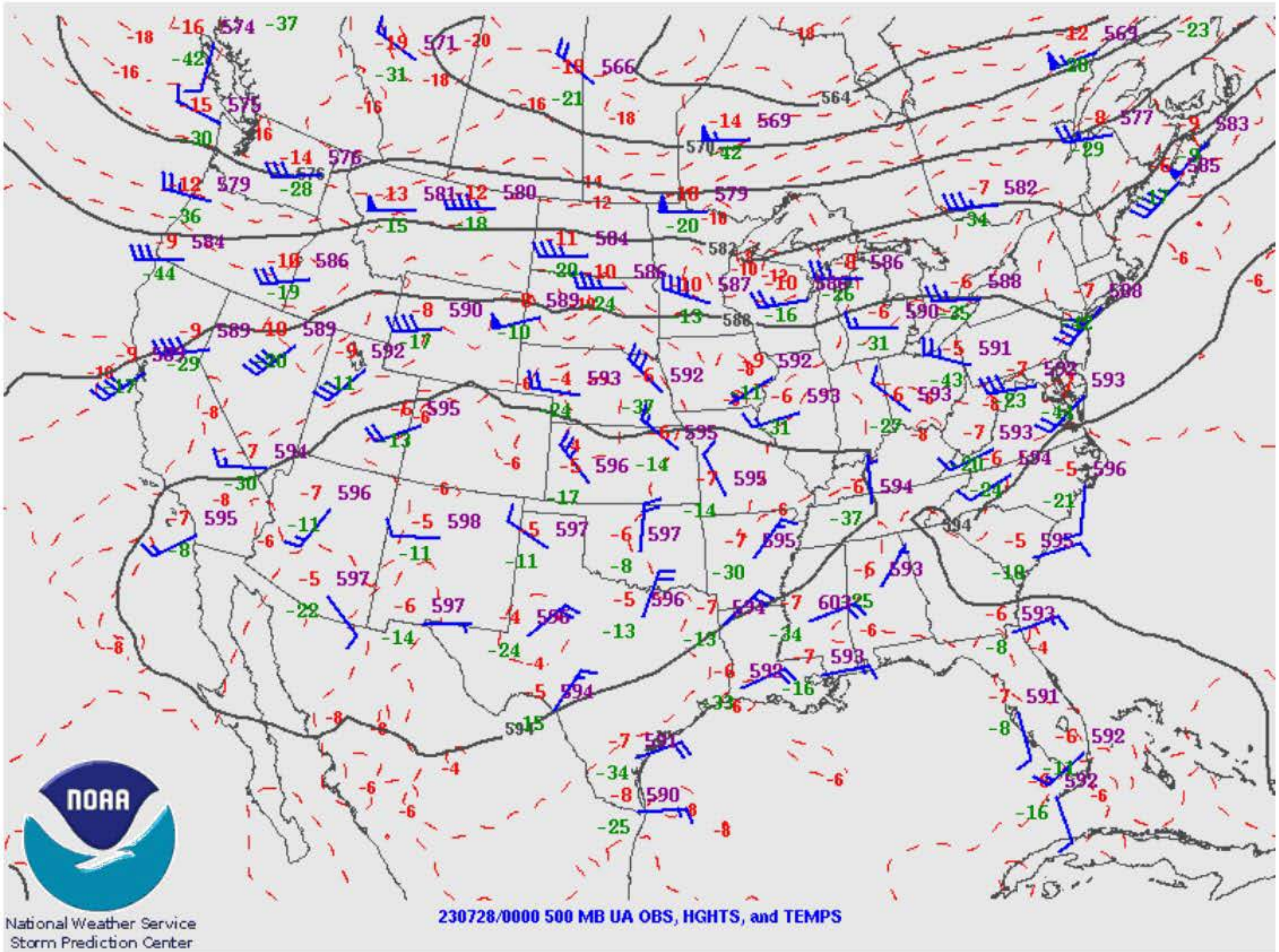
July 27th: June the 27th was a carbon copy day of June 26th, as High pressure remained in firm control over the southeastern United States, holding the Canadian smoke in place, continuing to elevate PM2.5 values across the southeast. The position of the High pressure and the upper-level pattern, issued in a re-enforcing shot of Canadian smoke into the southeastern United States on the 27th.



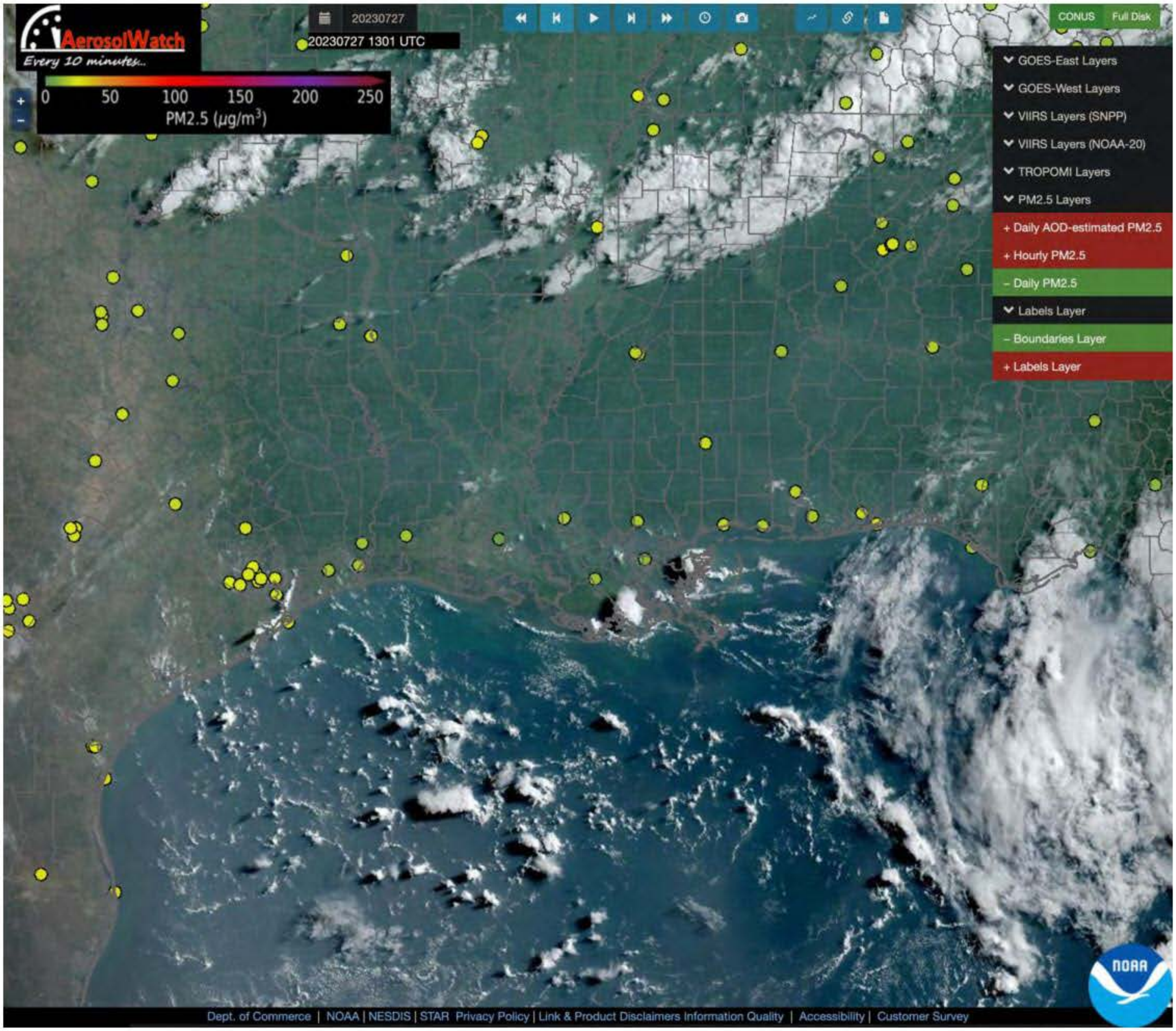
The 00z surface analysis (July 27th, 2023, at 7 PM CDT) shows surface High pressure over the southeastern United States, helping lead to stable/stagnant conditions, allowing PM2.5 values to remain elevated from wildfire smoke from Canada that was transported over the area from previous days frontal boundary.



The AirNowTech Navigator image taken on, June 27th, 2023, above shows the large reinforcing batch of Canadian wildfire smoke over the southeastern United States that is moving in from the north, keeping PM2.5 values elevated. 24-hour back trajectories at the lowest 10m and 50m levels, show very little movement of the parcels, indicating stagnant, stable conditions at the surface.



The 00z upper-level analysis at 500 mb (July 27, 2023, at 7 PM CDT) shows an expansive ridge centered over the western United States. On the eastern flank of the ridge, anticyclonic flow is transporting smoke from Canadian wildfires down into the eastern and southeastern United States.

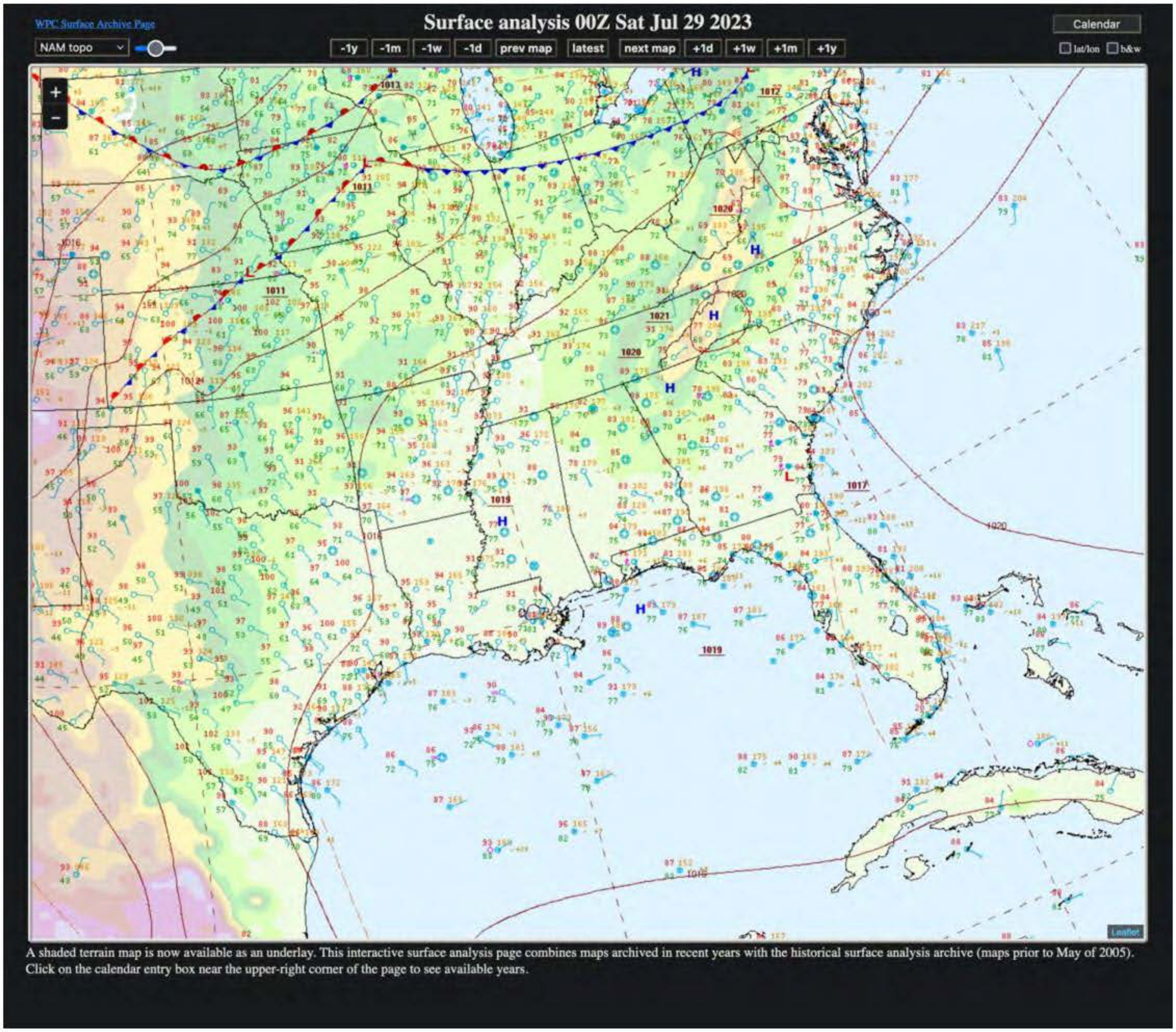


GOES East True Color image taken on July 27th, 2023, at 1301UTC, showing expansive smoke shield from Canadian wildfires over the southeastern United States.

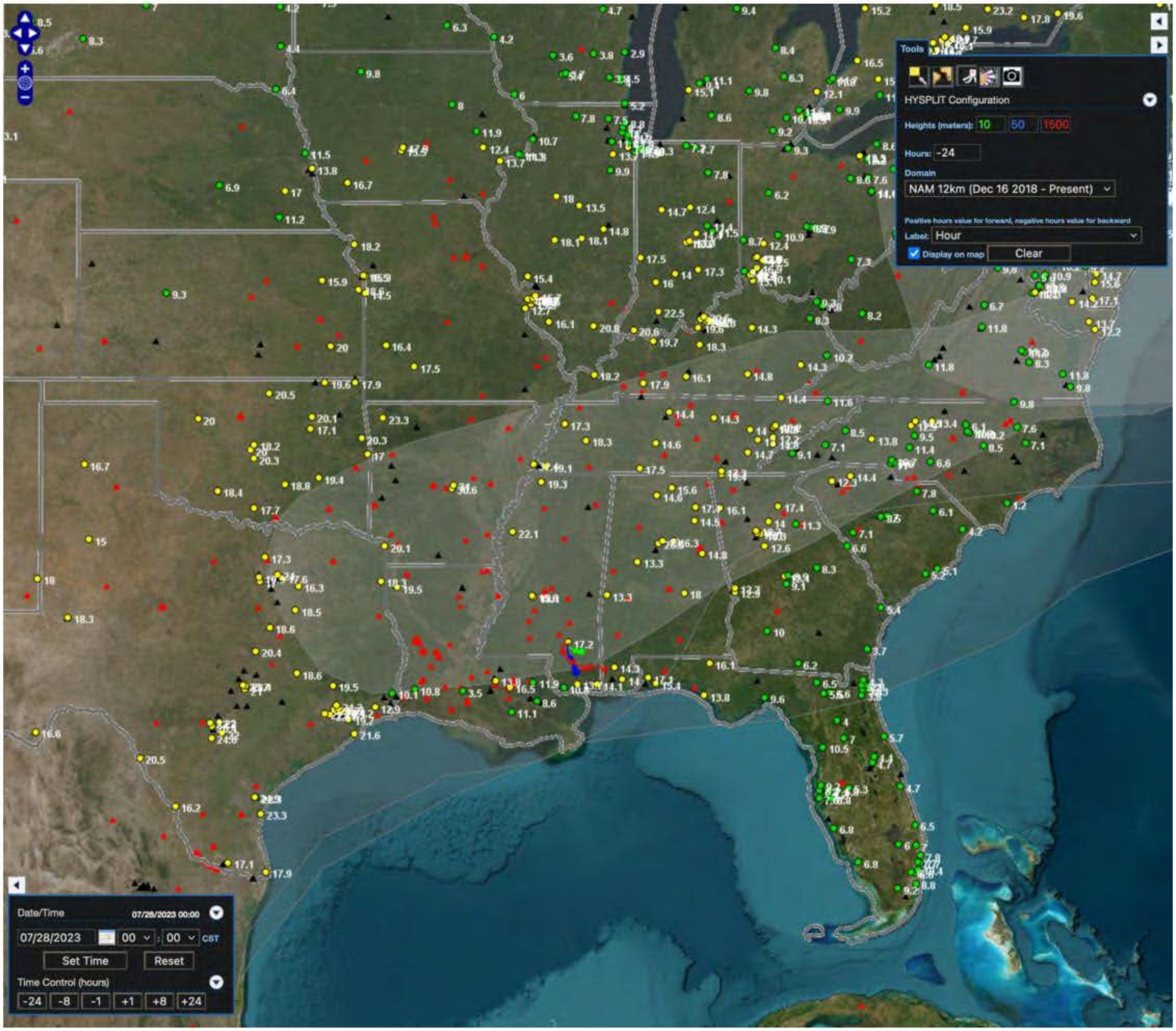
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	07/27/23	21.8	23	22.2	25.7	30.1	26.1	25.1	22.2	18.6	18	19	18.7	17.6	17.4	18	18.3	18.1	18.1	17.4	18.6	17.8	17.6	19	18.3	20.28	30.1

As shown in the image above, hourly PM2.5 concentrations at the Hattiesburg monitor on July 27th ranged from the teens to twenties (μg/m^3), as stagnant smoke from Canadian wildfires elevated particulate matter levels.

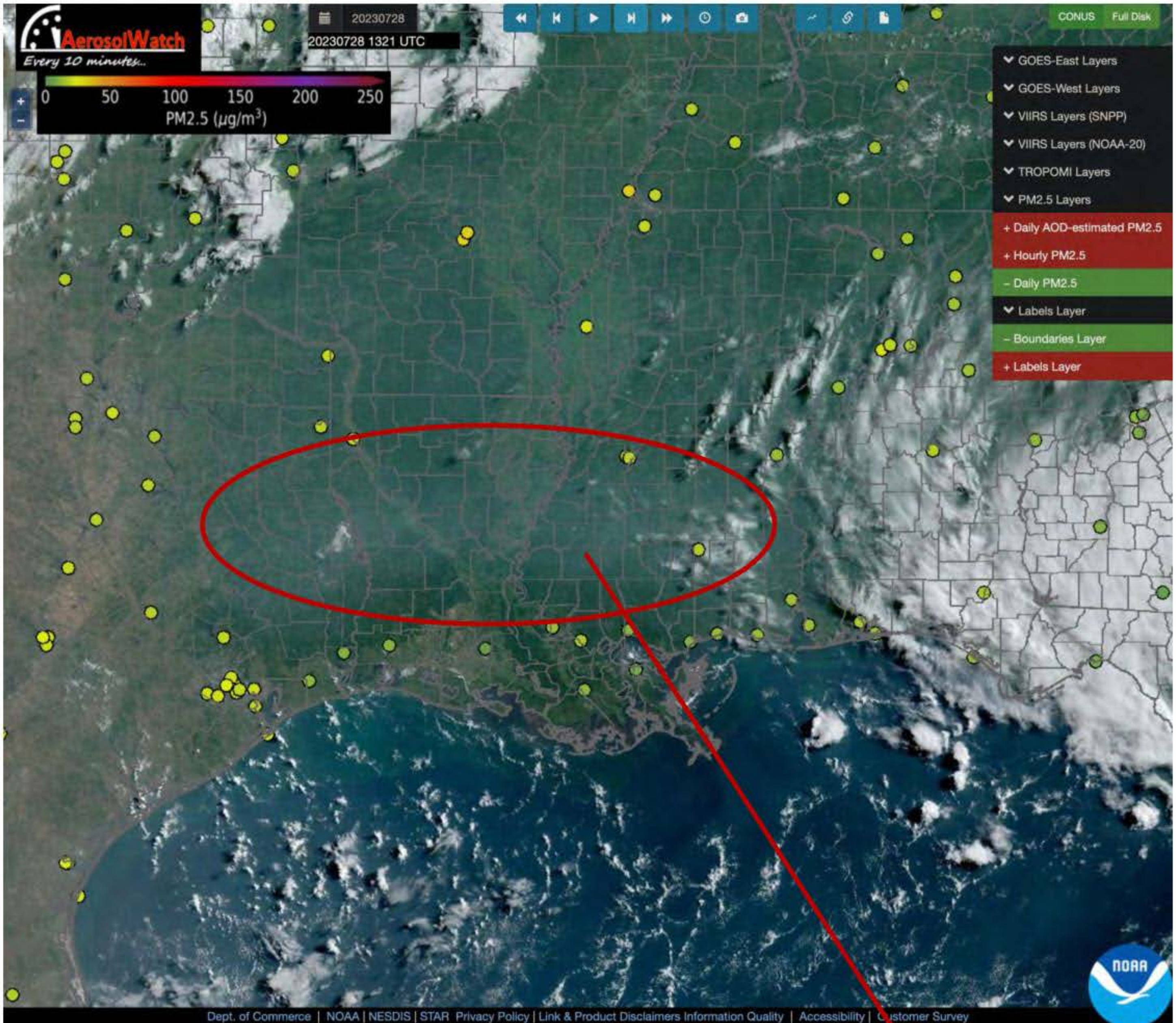
July 28th: Surface High pressure continued to dominate over the southeast bringing stable/stagnant conditions, allowing smoke that was transported from previous days to linger over the area, keeping PM2.5 values elevated at the Hattiesburg monitor.



The 00z surface analysis (July 28th, 2023, at 7 PM CDT) shows expansive surface High pressure over the southeastern United States, helping lead to stable/stagnant conditions, allowing PM2.5 values to remain elevated from wildfire smoke from Canada that was transported over the area from previous days.



The AirNowTech Navigator image taken on, June 28th, 2023, above shows batch of Canadian wildfire smoke that was transported in from previous days, remaining over the southeastern United States, keeping PM2.5 values elevated. 24-hour back trajectories at the10m, 50m, and 1500m levels, show very little movement of the parcels, indicating stagnant, stable conditions at the surface.

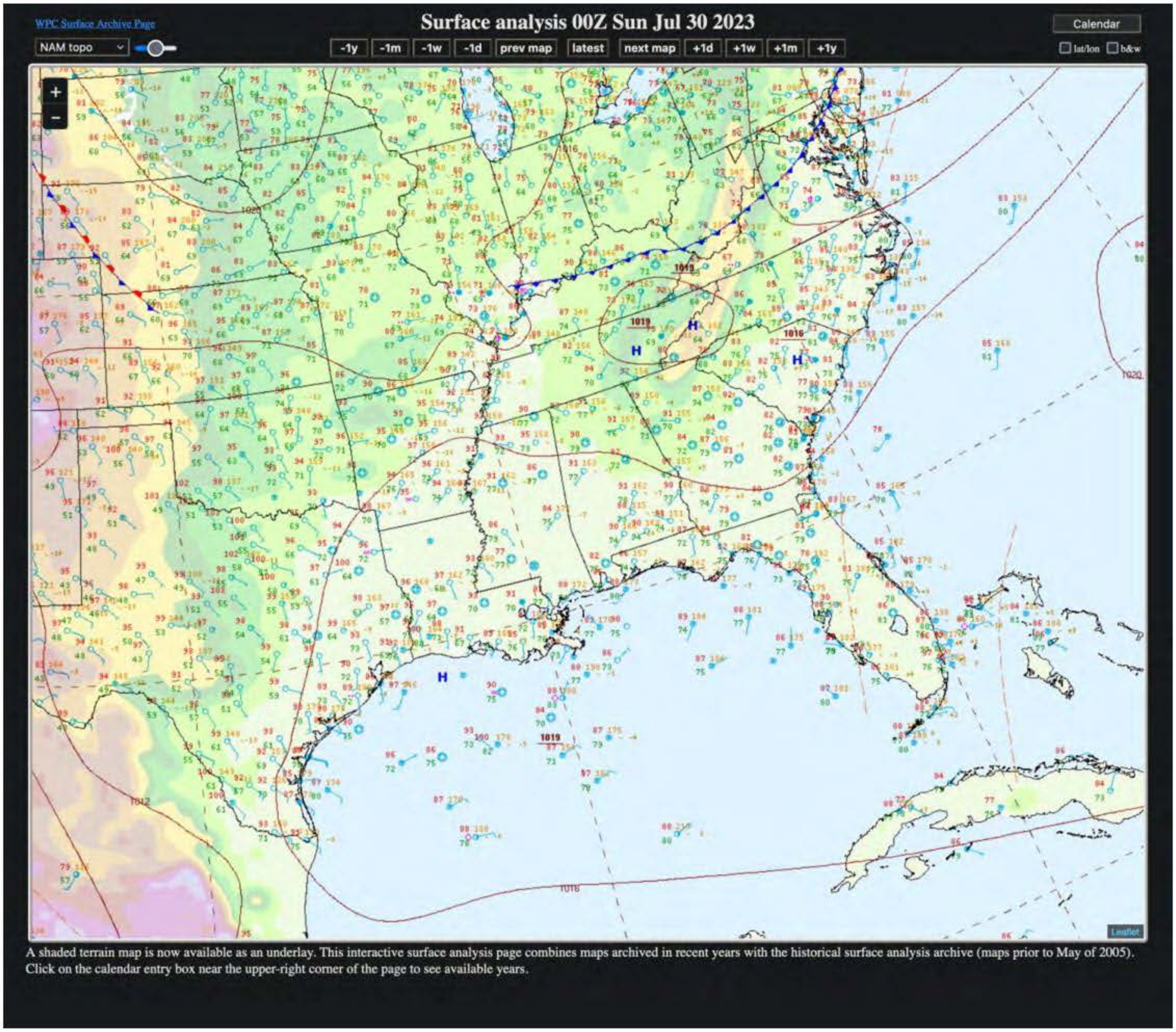


GOES East True Color image taken on July 28th, 2023, at 1321UTC, showing smoke shield from Canadian wildfires over the southeastern United States with a band of thicker smoke across central Louisiana and south-central Mississippi.

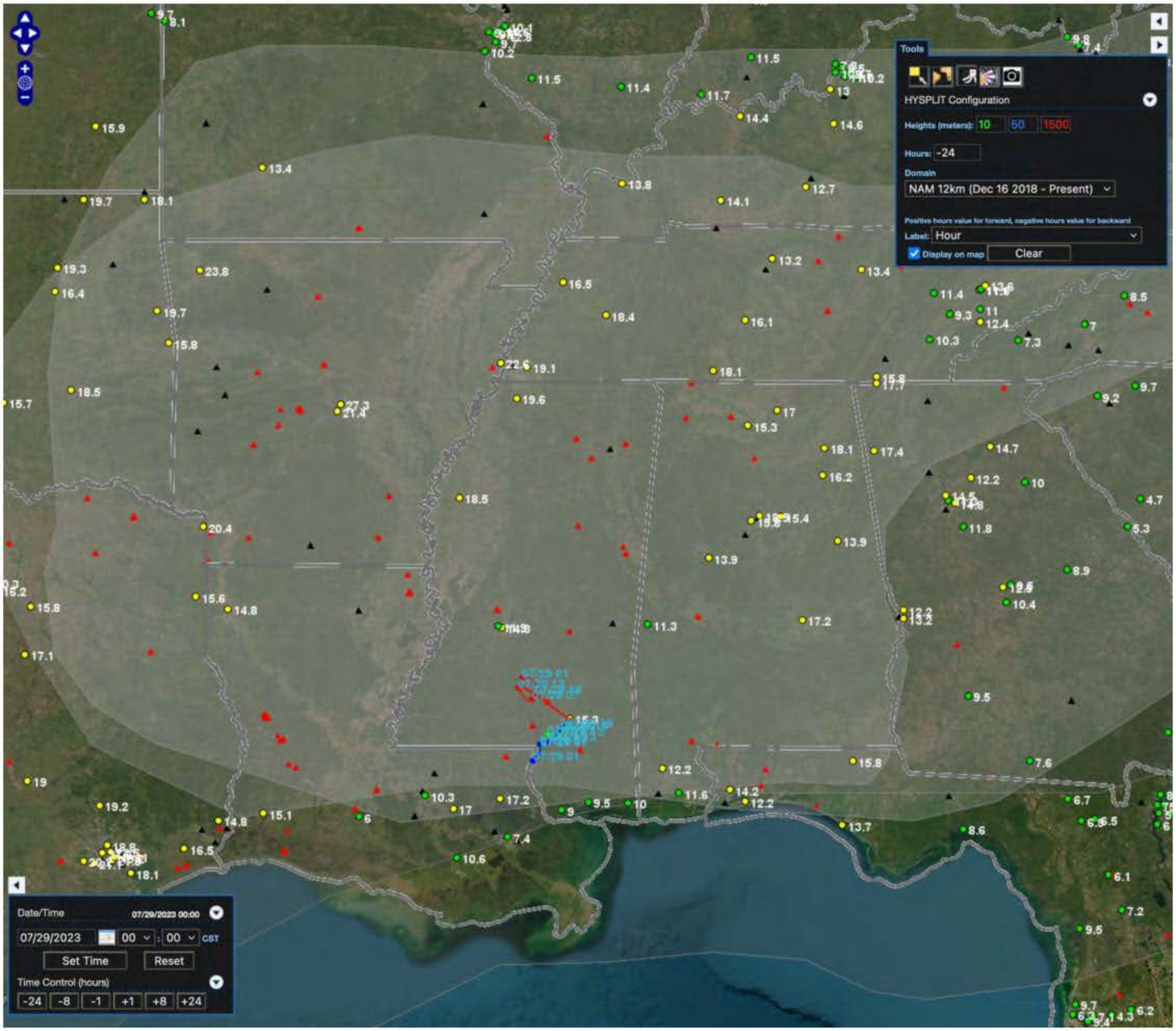
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	07/28/23	18.3	18.2	18.4	18.7	17.6	19	19.9	17.5	17	16.9	16.3	16.9	17.3	18.1	18.5	17.5	15.4	15.9	13.3	13.8	16	17.8	16.9	18.2	17.22	19.9

The hourly values at the Hattiesburg monitor on July 28th, shown in the image above, indicate PM2.5 levels in the teens. Stagnant smoke from Canadian wildfires elevated PM2.5 concentrations at the Hattiesburg monitor.

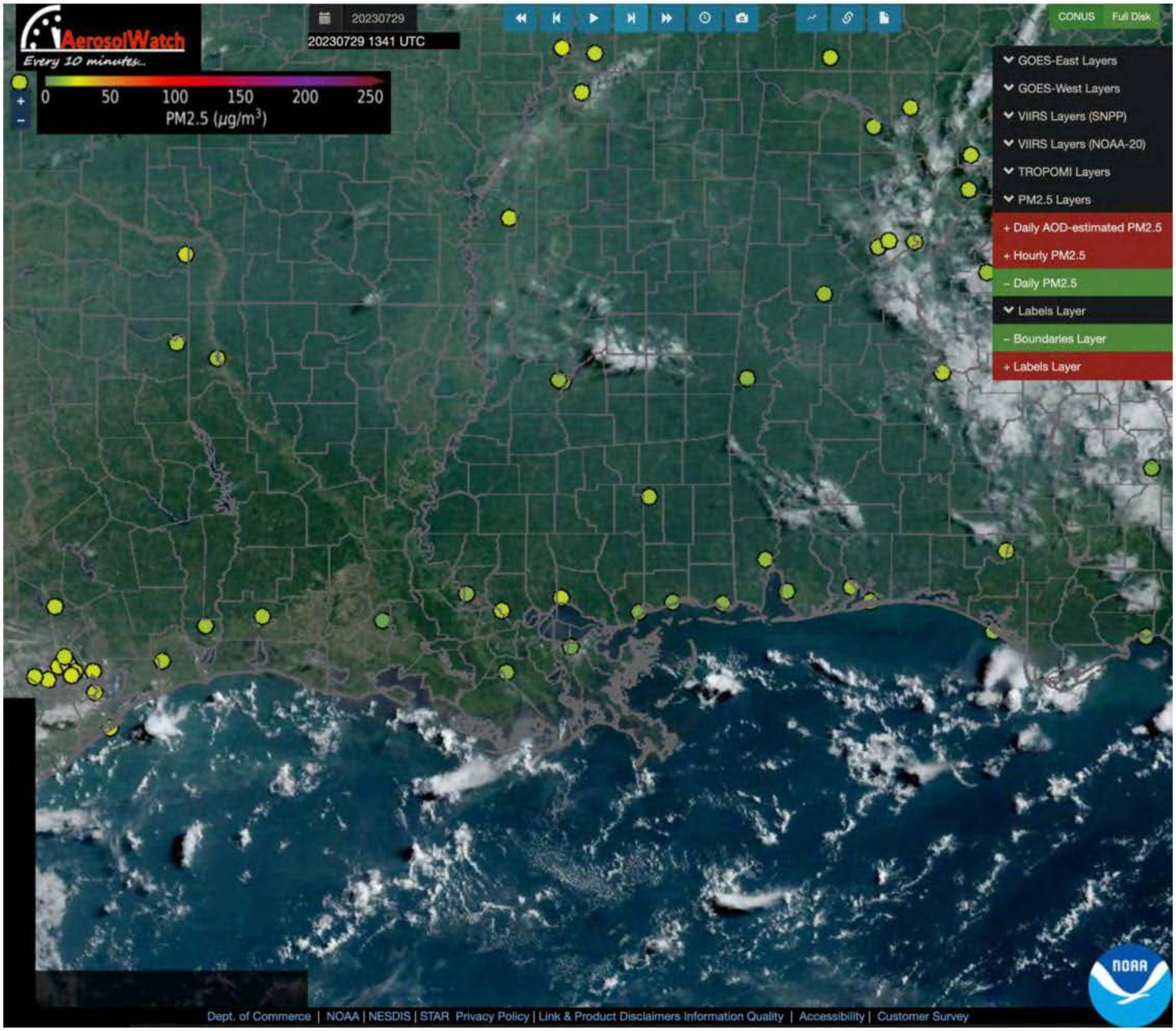
July 29th: Surface High pressure continued to dominate over the southeast bringing stable/stagnant conditions, allowing smoke that was transported from previous days to linger over the area, keeping PM2.5 values elevated at the Hattiesburg monitor.



The 00z surface analysis (July 29th, 2023, at 7 PM CDT) shows persistent surface High pressure over the southeastern United States, helping lead to stable/stagnant conditions, allowing PM2.5 values to remain elevated from wildfire smoke from Canada that was transported over the area from previous days.



The AirNowTech Navigator image taken on, July 29th, 2023, above shows batch of Canadian wildfire smoke that was transported in from previous days, remaining over the southeastern United States, keeping PM2.5 values elevated. 24-hour back trajectories at the10m, 50m, and 1500m levels, show very little movement of the parcels, indicating stagnant, stable conditions both at the surface and aloft.



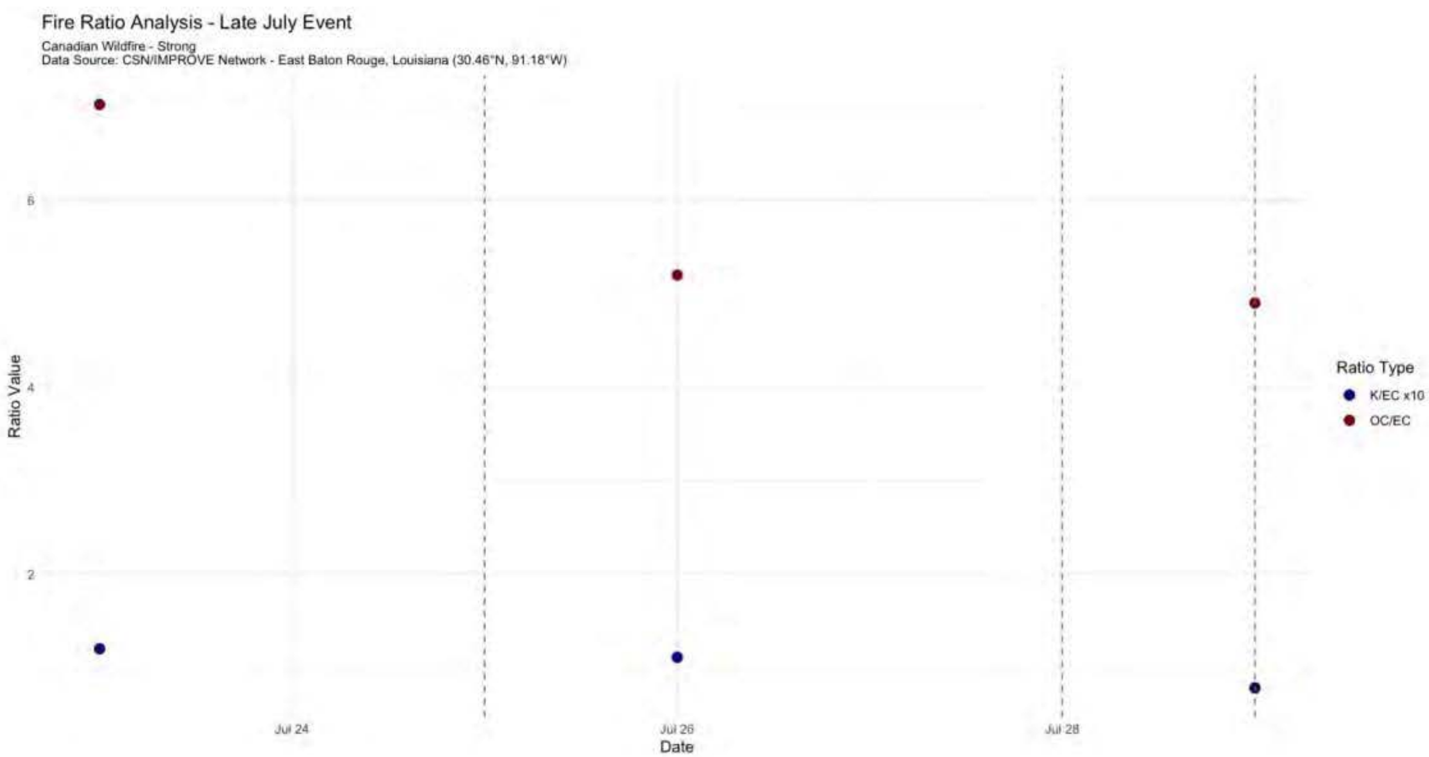
GOES East True Color image taken on July 29th, 2023, at 1341UTC, showing smoke shield from Canadian wildfires over the southeastern United States.

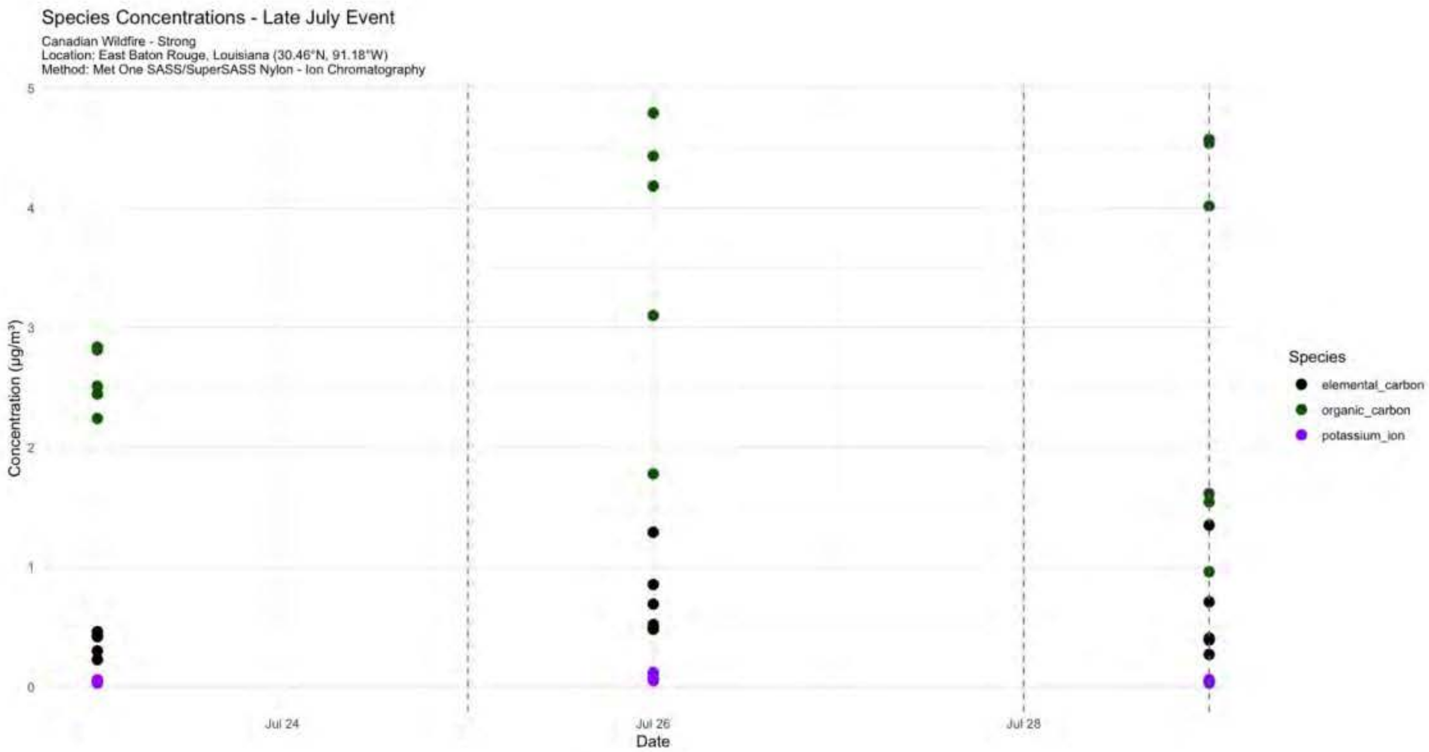
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	07/29/23	19.5	20.2	20.1	20.5	18.5	18.1	17.1	12.2	11.5	11.6	12.1	13.2	14.1	14.4	14.5	14.8	14.1	13.3	13.8	14.2	14.3	15.1	15.7	14.9	15.33	20.5

The hourly values at the Hattiesburg monitor on July 29th, shown in the image above, indicate PM2.5 levels in the teens. Stagnant smoke from Canadian wildfires elevated PM2.5 concentrations at the Hattiesburg monitor.

Tier 3 Speciation Analysis:
The speciation data during this period shows characteristic patterns consistent with aged wildfire smoke:
- OC/EC ratios between 4-7, typical of long-range transport of biomass burning
- Elevated organic carbon concentrations (~5-7 μg/m^3) during the event window
- Enhanced potassium ion levels relative to baseline
- Stable meteorological conditions (evidenced by both met data and trajectories)

These chemical markers, combined with the comprehensive trajectory analysis and satellite imagery already provided, strongly support the Canadian wildfire impact during this period.



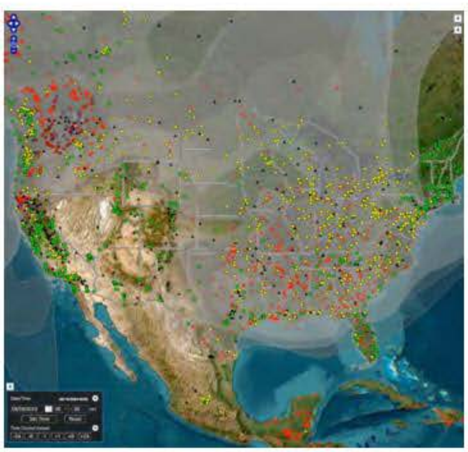


Species Concentrations - Late July Event
Canadian Wildfire - Strong
Location: East Baton Rouge, Louisiana (30.46°N, 91.18°W)
Method: Met One SASS/SuperSASS Nylon - Ion Chromatography
Concentration (µg/m³)
Date
Jul 24
Jul 26
Jul 28
Species
elemental_carbon
organic_carbon
potassium_ion

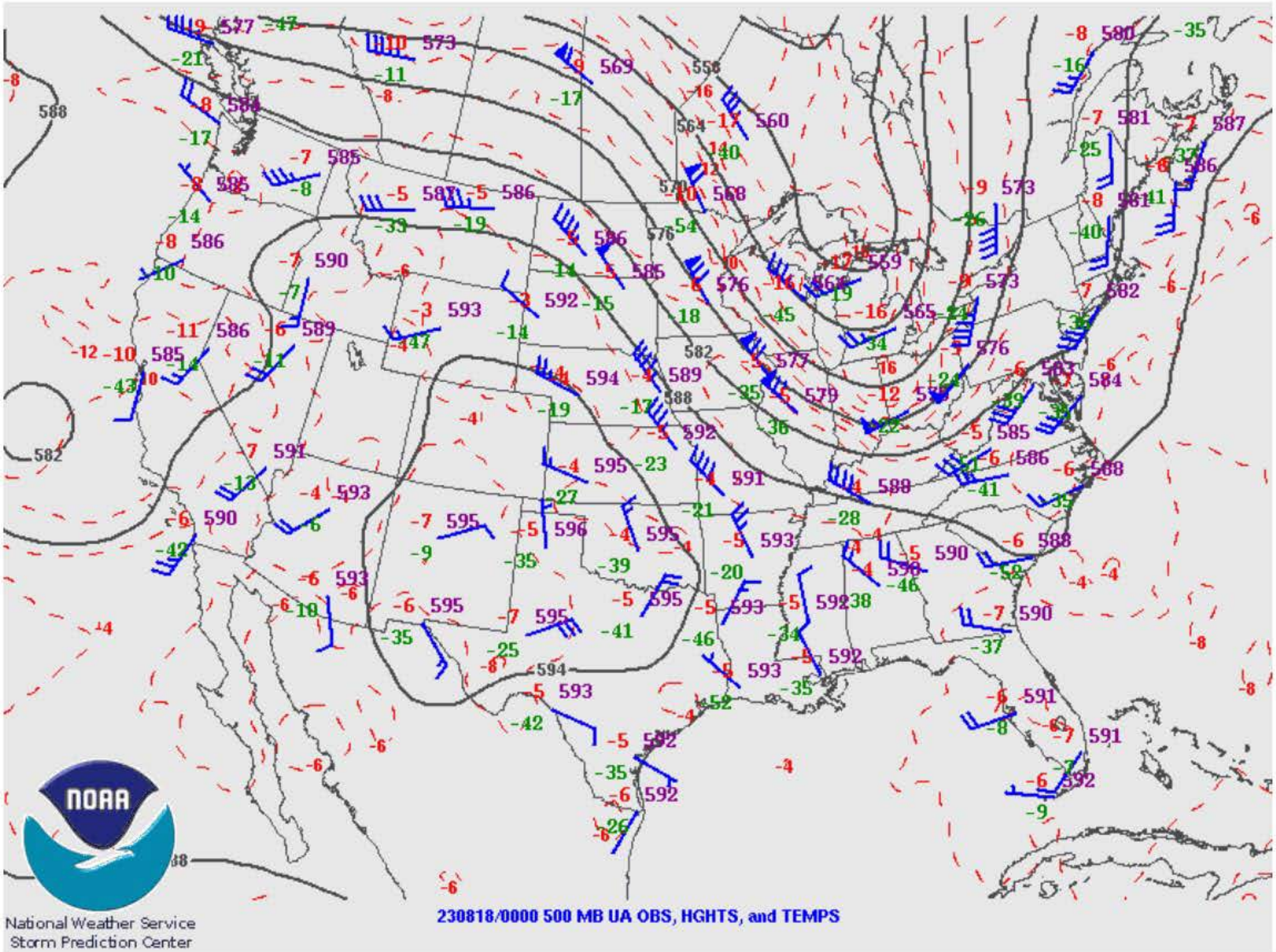
Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
Aug 18 – Aug 23, 2023	Canadian WF	RF	28-035-0004	Hattiesburg	14.9, 19.0, 17.5, 17.6, 17.9, 18.3	2, 3	Canadian Wildfire C Exceptional Event Demonstration: August 18 - 23, 2023

Synopsis: Numerous wildfires were ongoing in western and northwestern Canada, as well as in the province of Quebec, north of the Great Lakes, in the days leading up to the exceptional event demonstration. These fires generated a substantial shield of moderate to heavy smoke that spread across the northern tier of the United States, eventually reaching the Midwestern states. Due to upper level troughing over the eastern half of the United States, surface fronts extended down to the Gulf States, transporting smoke from the fires across the southeastern United States and Gulf States over several days.

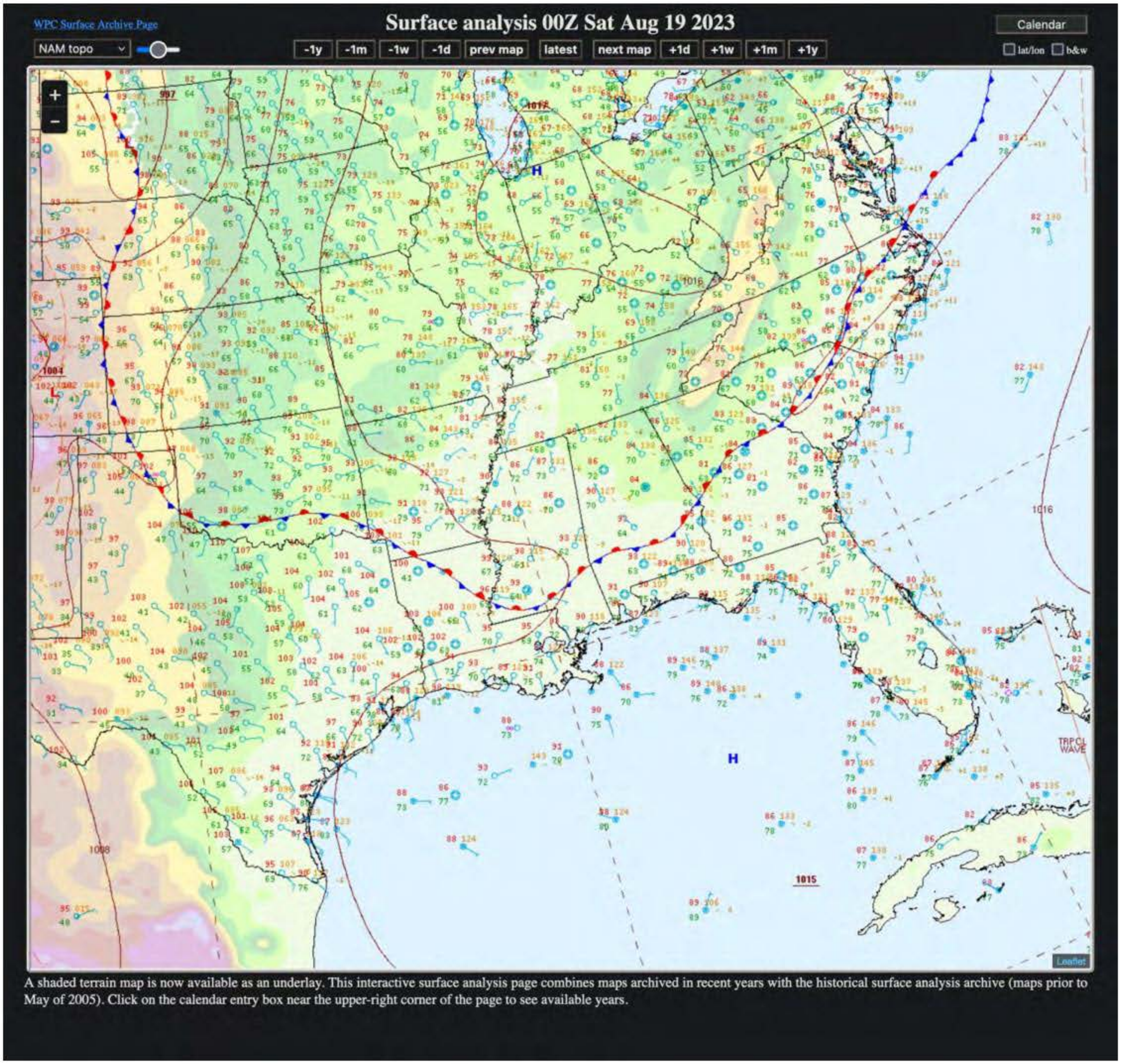


Series of AirNowTech Navigator image taken from August 16th, 2023, through August 23rd, 2023, show the progression of smoke from the Canadian wildfires, transporting into the northeastern United States, Midwest, the Ohio River Valley, and eventually into the Mid-South, and southeastern portions of the United States. Transport of the smoke into the United States was aided by frontal boundaries dropping down from Canada, helping transport smoke from the Canadian wildfires, deep into the southeastern United States, increasing PM2.5 values.



The 00Z upper-level analysis at 500 mb (August 17th, 2023, at 7 PM CDT) shows developing upper-level troughing over the eastern United States, which was amplified by a building ridge over the Four Corners region, further strengthening the pattern. This upper level troughing helped distribute smoke from the Canadian fires down to the Gulf States.



The 00z surface analysis (August 18th, 2023, at 7 PM CDT) shows stationary boundary, which was previously a cold front, that made its way all the way down deep into the Gulf States. Behind this frontal boundary was smoke filled air-mass from the Canadian wildfires.

The AirNowTech Navigator image from August 18th, 2023, shows a batch of smoke from Canadian wildfires that was transported down to the Gulf States. This movement was facilitated by a deep trough over the eastern United States, which helped surface frontal boundaries carry the smoke deep into the southeastern United States, elevating PM2.5 levels. Notice how the smoke follows the trough pattern seen in previous upper-level maps. An overlay of 48-hour back trajectories show air parcels moving from north to south behind the surface frontal boundary, providing further evidence of smoke transport from Canadian wildfires.

Friday, August 18, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 0145Z August 19, 2023

SMOKE:
United States/Canada/Northern Mexico/Atlantic Ocean/Far Eastern Pacific Ocean...
Rather widespread cloud cover was noted across portions of Alaska and northwestern Canada which also limited information on some of the recent wildfires and smoke impacting those regions. A large area of smoke attributed primarily to the numerous wildfires in western and northwestern Canada was seen this afternoon and evening covering much of Canada and the U.S. including far eastern Alaska, a portion of the Atlantic just off the U.S. east coast, the Labrador Sea, some of the north Atlantic, the northern Gulf of Mexico, northern Mexico, and a small part of the east Pacific off the Baja coast. Areas of moderate to high density smoke was seen across parts of northwestern and far north central Canada through breaks in the clouds. Higher density smoke was present over southwestern Canada along with the far northern parts of northeastern Washington, northern Idaho, and northwestern Montana, and extending to the east from there to south central Canada. Patches of thicker smoke had also spread to the south and southeast over some of the central U.S. A relatively narrow band of moderately dense smoke was visible across the Mississippi Valley, southeastern U.S. and along/off the the Mid-Atlantic coast and along the northeast US coast.

Northwestern California/Central and Southern Oregon/Central and Southern Idaho/Western Montana/Northern Central Washington…
Wildfires seen across northern California and west central Oregon were responsible for areas of moderate to thick density smoke which extended from off the southwest Oregon, northern California coast, west-central Oregon, southern Oregon, and northern California and into central/southern Idaho and west central Montana. Thinner density smoke extended a bit farther off the Oregon and California coast linked mainly to these fires. In Washington State, wildfires in the north central part of the state and east central parts can be seen producing moderate density to some high density smoke moving east.

DUST:
Southern Gulf of Mexico/Central America/Yucatan Peninsula/Southern Florida/Bahamas/Caribbean Region/Atlantic Ocean…
A sprawling area of generally thin density Saharan dust was visible this afternoon and early evening extending from the Bay of Campeche, the Yucatan Peninsula, and some of Central America to the east and northeast over virtually all of the Caribbean region, the southern Gulf of Mexico, southern Florida, and the Bahamas. A thicker area was seen over the open Atlantic.

JK

THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

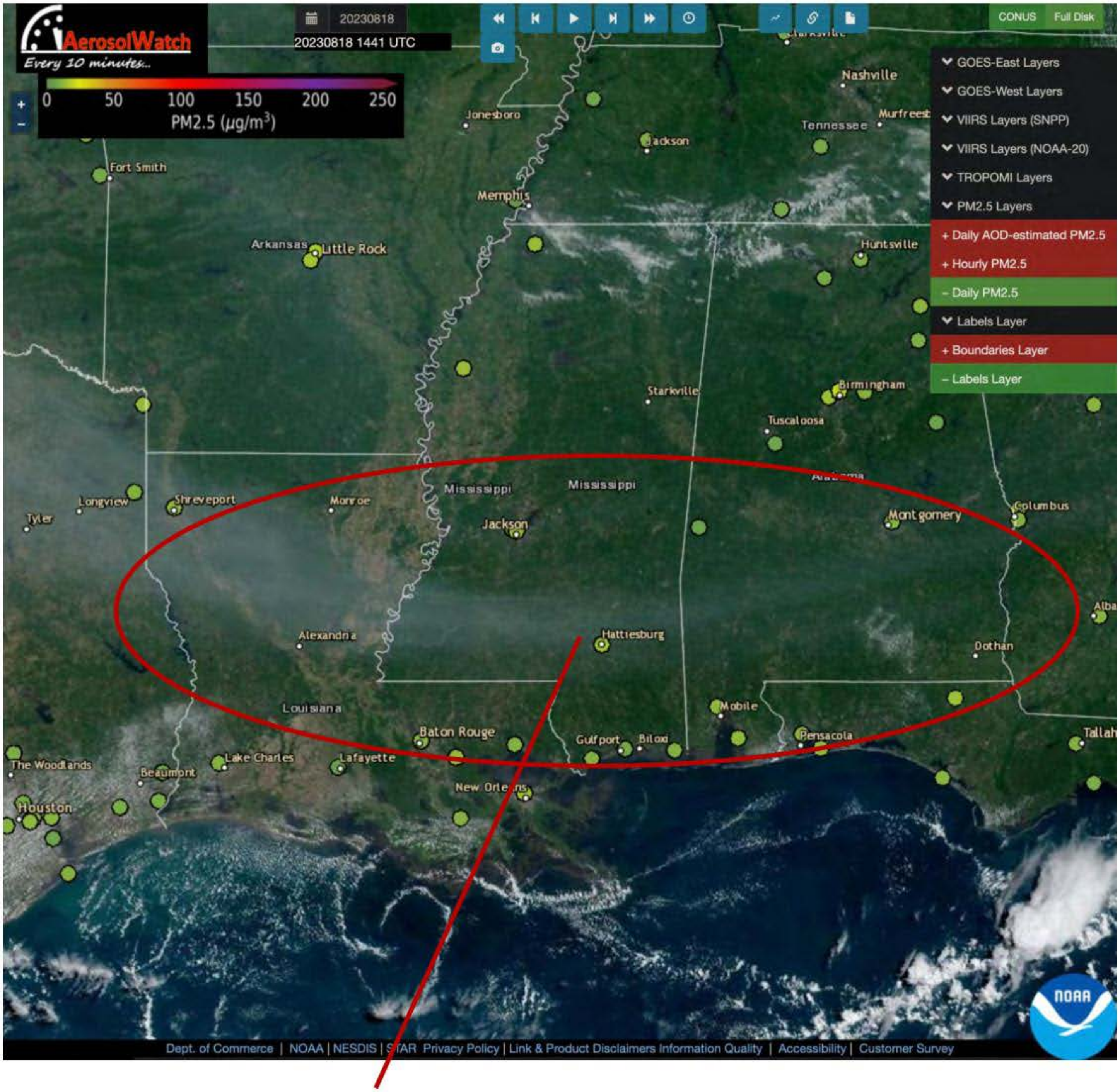
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

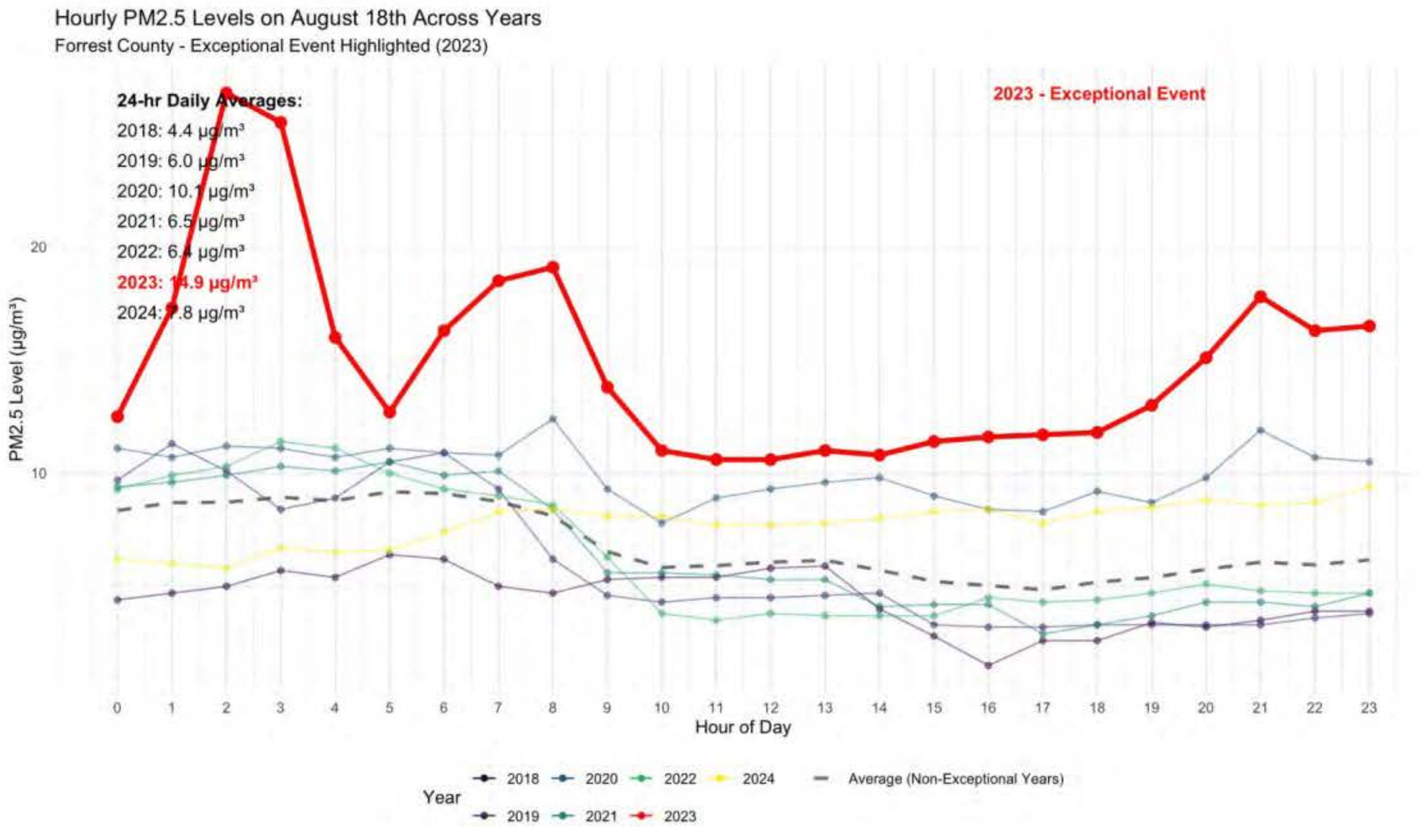
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023H190215.html) narrative August 19th, 2023 at 0145Z (August 18th, 2023 at 08:45PM CDT), describing the smoke situation and how Canadian transport smoke has been transported down to the southeastern United States.



GOES East True Color image taken on August 18th, 2023, at 1441UTC, showing leading edge of smoke shield from Canadian wildfires beginning to move over the Hattiesburg monitor, elevating PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/18/23	13.4	18.2	27.7	26.4	16.9	13.6	17.2	19.4	20	14.7	11.9	11.5	11.5	11.9	11.7	12.3	12.5	12.6	12.7	13.9	16	18.7	17.2	17.4	15.8	27.7

The hourly values at the Hattiesburg monitor on August 18th, shown in the image above, indicate elevated PM2.5 levels in the morning hours as the leading edge of smoke from Canadian wildfires moved into the area. Diurnal heating allowed for mixing during the day, which helped disperse pollutants. However, PM2.5 levels spiked again overnight due to the development of a nocturnal inversion and stagnant conditions.



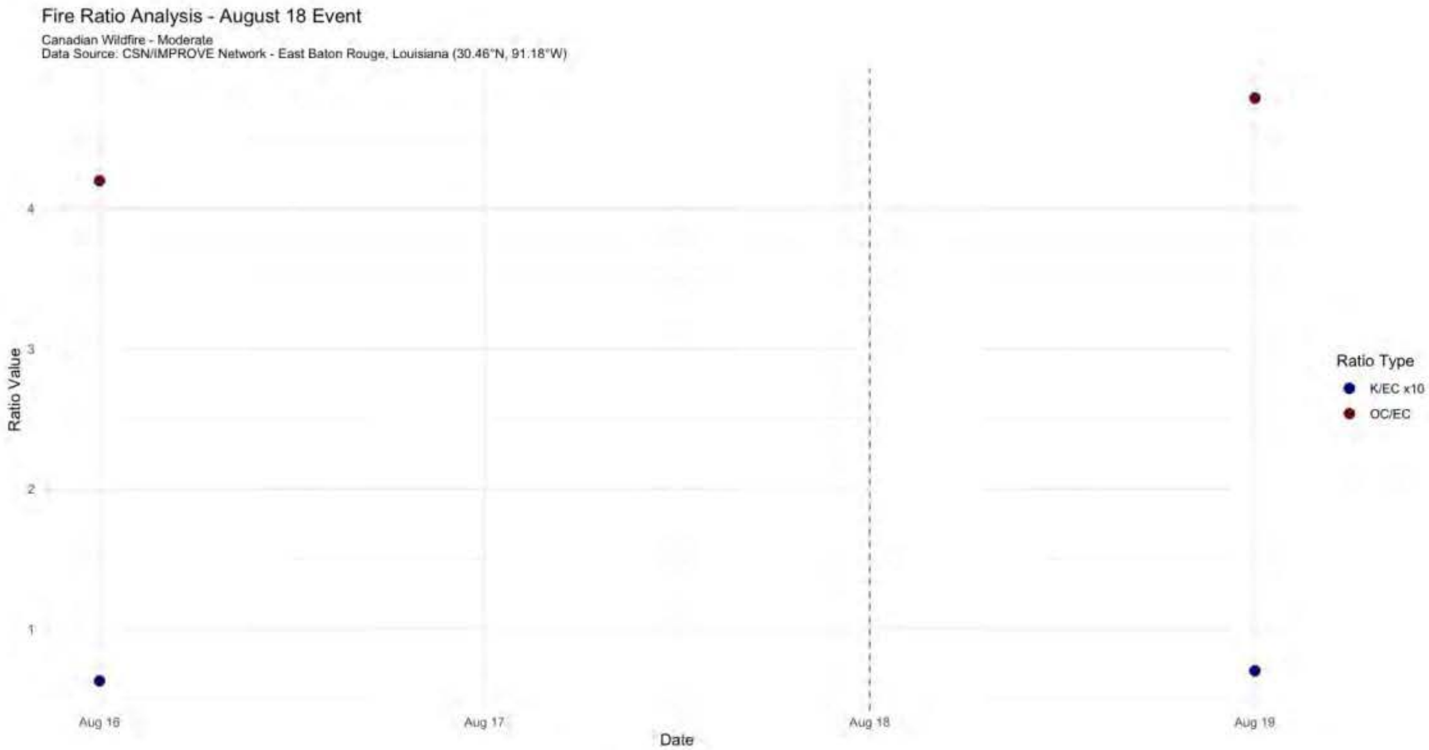
The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor, allowing the 24-hour average to be 14.9ug/m^3.

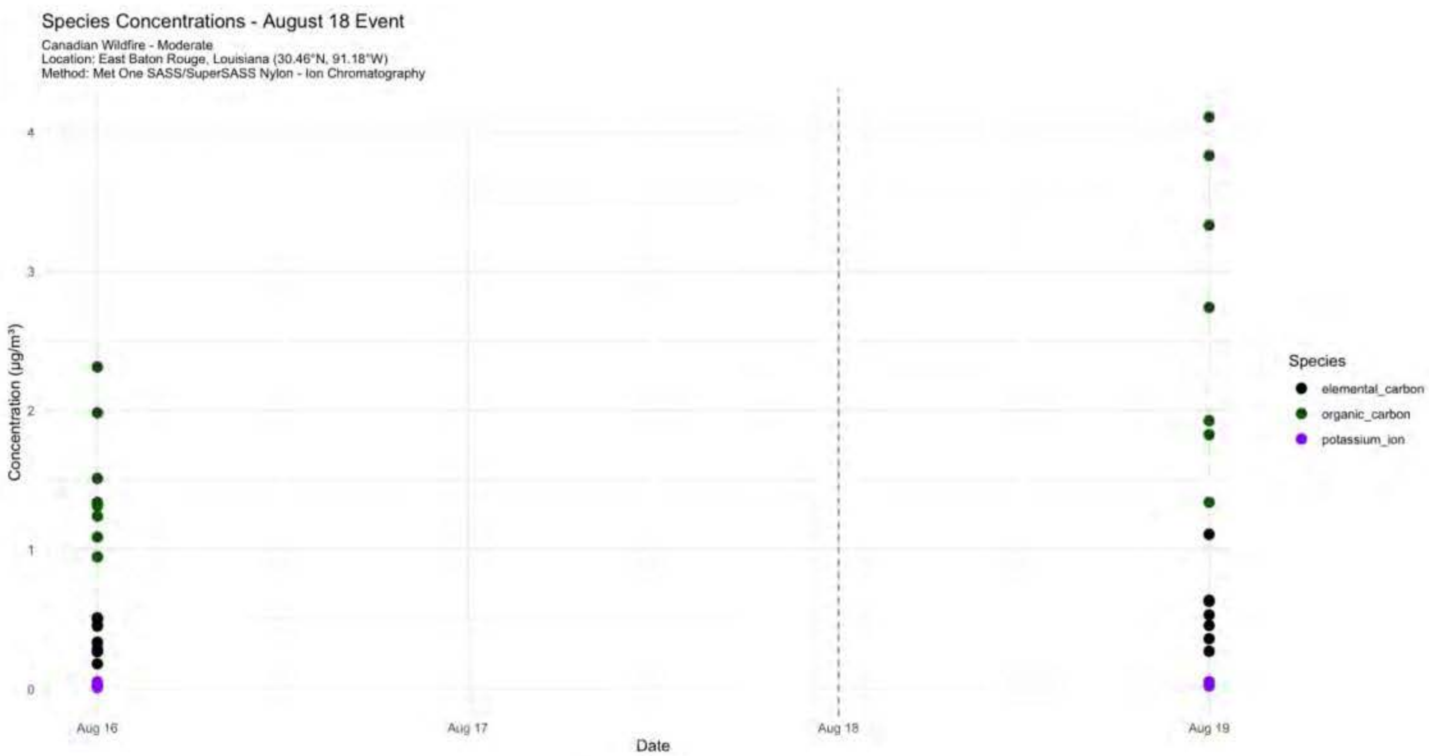
Tier 3 Speciation Analysis:

The August 18th event demonstrates supporting speciation patterns:

- OC/EC ratios in the 4-6 range, indicating aged biomass burning
- Temporal progression of organic carbon showing the smoke's arrival
- Chemical marker patterns consistent with the documented frontal passage
- Supporting meteorological conditions showing the trough pattern's influence

The speciation data supports the exceptional event narrative, particularly when viewed alongside the detailed synoptic analysis and trajectory documentation.


Fire Ratio Analysis - August 18 Event
Canadian Wildfire - Moderate
Data Source: CSN/IMPROVE Network - East Baton Rouge, Louisiana (30.46°N, 91.18°W)
Ratio Value
Date
Aug 16
Aug 17
Aug 18
Aug 19
Ratio Type
K/EC x10
OC/EC


Species Concentrations - August 18 Event
Canadian Wildfire - Moderate
Location: East Baton Rouge, Louisiana (30.46°N, 91.18°W)
Method: Met One SASS/SuperSASS Nylon - Ion Chromatography
Concentration (µg/m³)
Date
Aug 16
Aug 17
Aug 18
Aug 19
Species
elemental_carbon
organic_carbon
potassium_ion

August 19th: Continental high pressure following the previous days' frontal passage continued to dominate the eastern two-thirds of the United States, steadily ushering in smoke from Canadian wildfires across the Mid-South and southeastern United States. Once the Canadian smoke spread across the southeast, the upper-level trough that had facilitated the smoke transport was replaced by strong upper-level ridging. This upper-level ridging, combined with high pressure at the surface, created a very stagnant air mass with little to no ventilation or mixing, trapping the smoke over the area.

Saturday, August 19, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0130Z August 20, 2023

SMOKE:
United States/Canada/Northern Mexico/Atlantic Ocean/Eastern Pacific Ocean...
Widespread cloud cover continued across portions of Alaska and northwestern Canada which also limited on some of the recent wildfires and smoke impacting those regions. Numerous wildfires were still seen over a portion of the Northwest Territories, northern Alberta, and scattered across British Columbia in Canada. Also wildfires continued to burn in parts of Washington, Idaho, western Montana, western Oregon, and northwestern California. For the smoke, western Canadian wildfires and northwestern U.S. wildfires were responsible for a very large area of moderate to thick density smoke which was seem from off the west coast of California/Oregon/Washington through the Pacific Northwest across the northern US and into the Great Lakes region then south through the Ohio Valley, Mississippi Valley, southeast, Mid Atlantic US and back into the Southern and Central Plains. In Canada the smoke extended from off the Pacific coast through most of western and central Canada and into parts of eastern Canada. The larger surrounding area of thinner density smoke was seen over much of Canada and the U.S., northern Mexico, the northern Gulf of Mexico, and a relatively small part of the far eastern Pacific off the U.S. west coast and portions of the western and northern Atlantic.

From Earlier Today:

DUST:
Southern Gulf of Mexico/Central America/Yucatan Peninsula/Southern Florida/Bahamas/Caribbean Region/Atlantic Ocean…
A sprawling area of generally thin density Saharan dust was visible this morning extending from the Bay of Campeche, the Yucatan Peninsula, and some of Central America to the east and northeast over virtually all of the Caribbean region, the southern Gulf of Mexico, southern Florida, and the Bahamas. A thicker area was seen to the north of the Caribbean region and east of the Bahamas along and ahead of a frontal boundary over the western Atlantic.

JK

THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

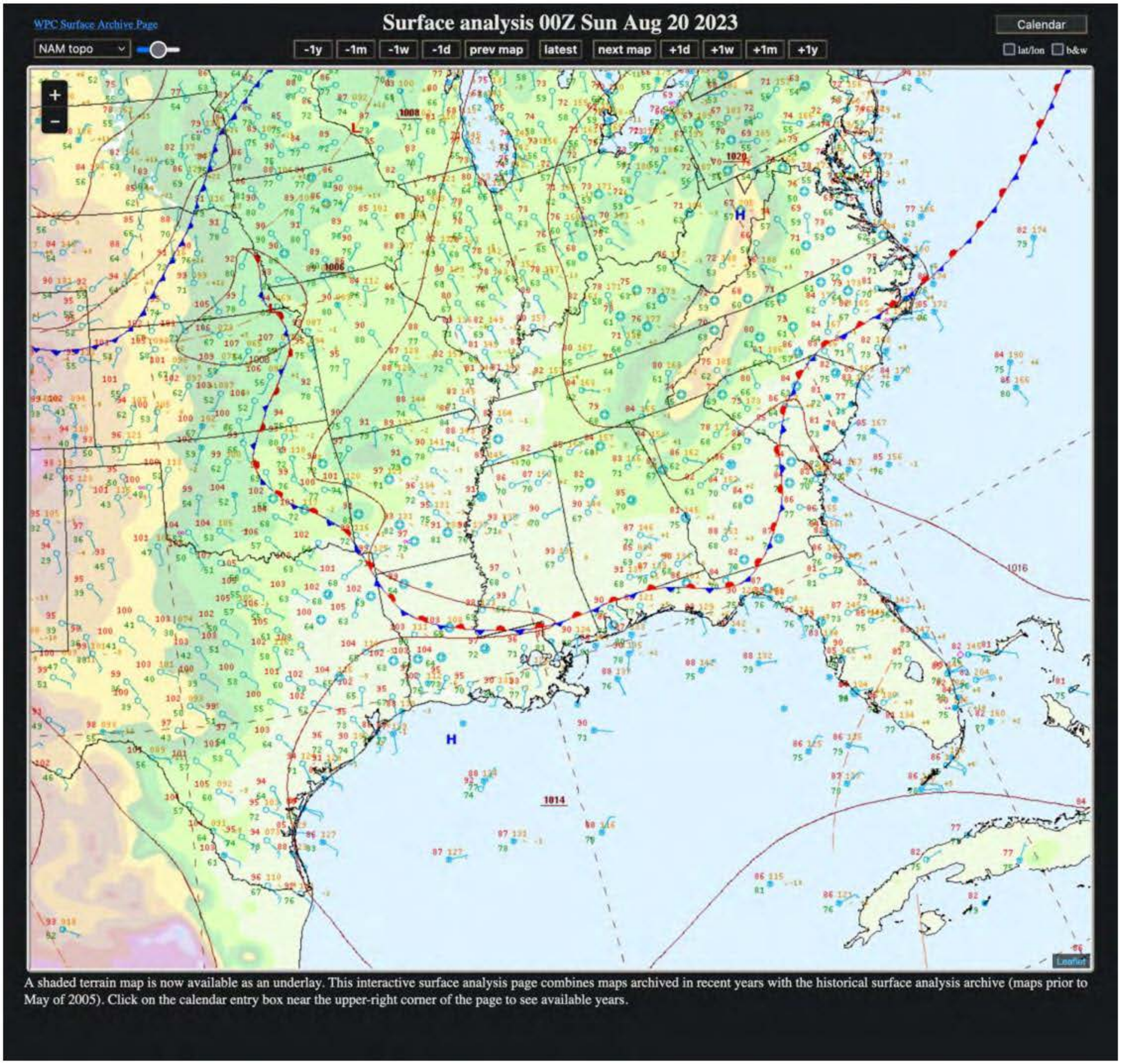
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

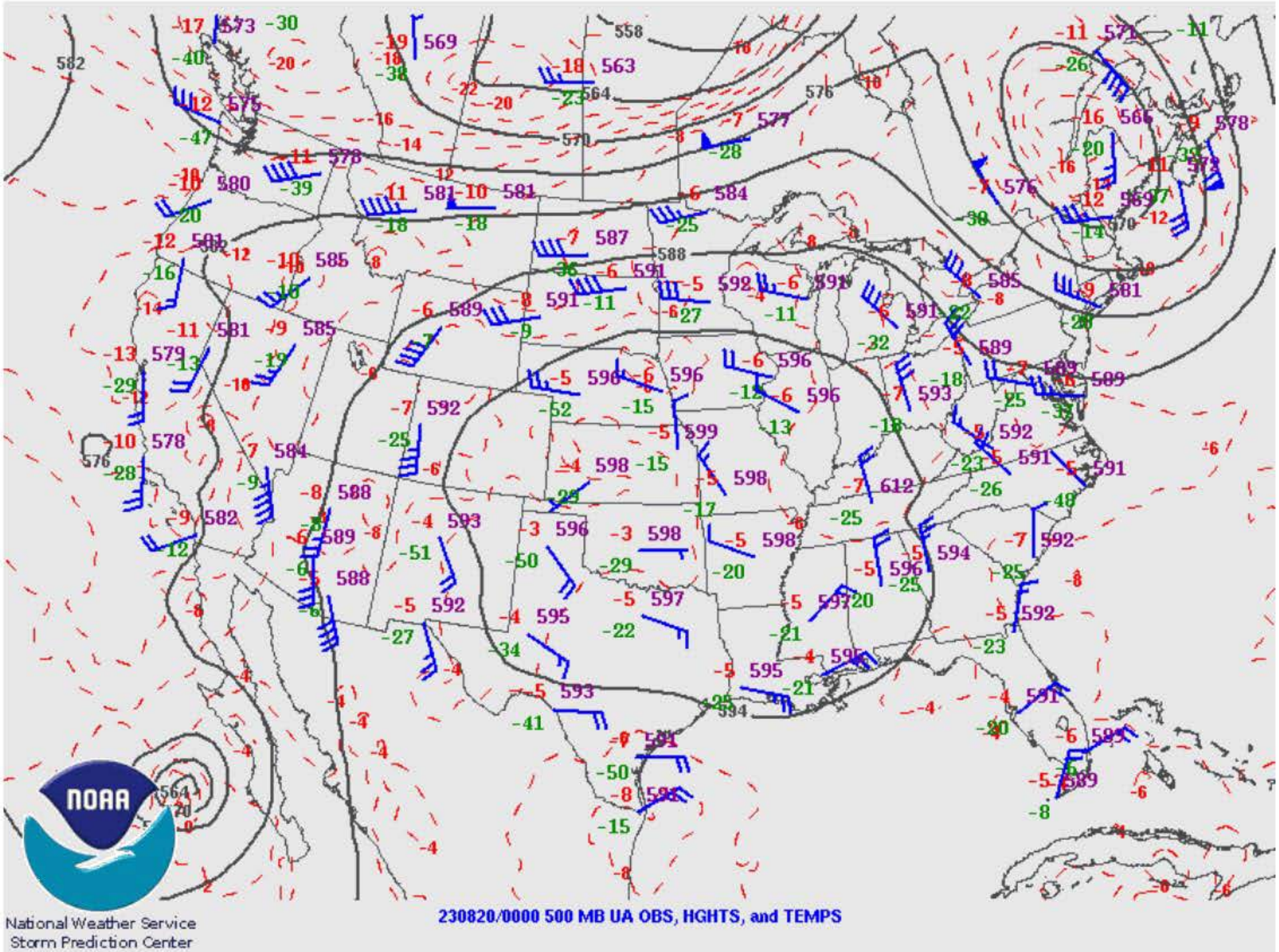
Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

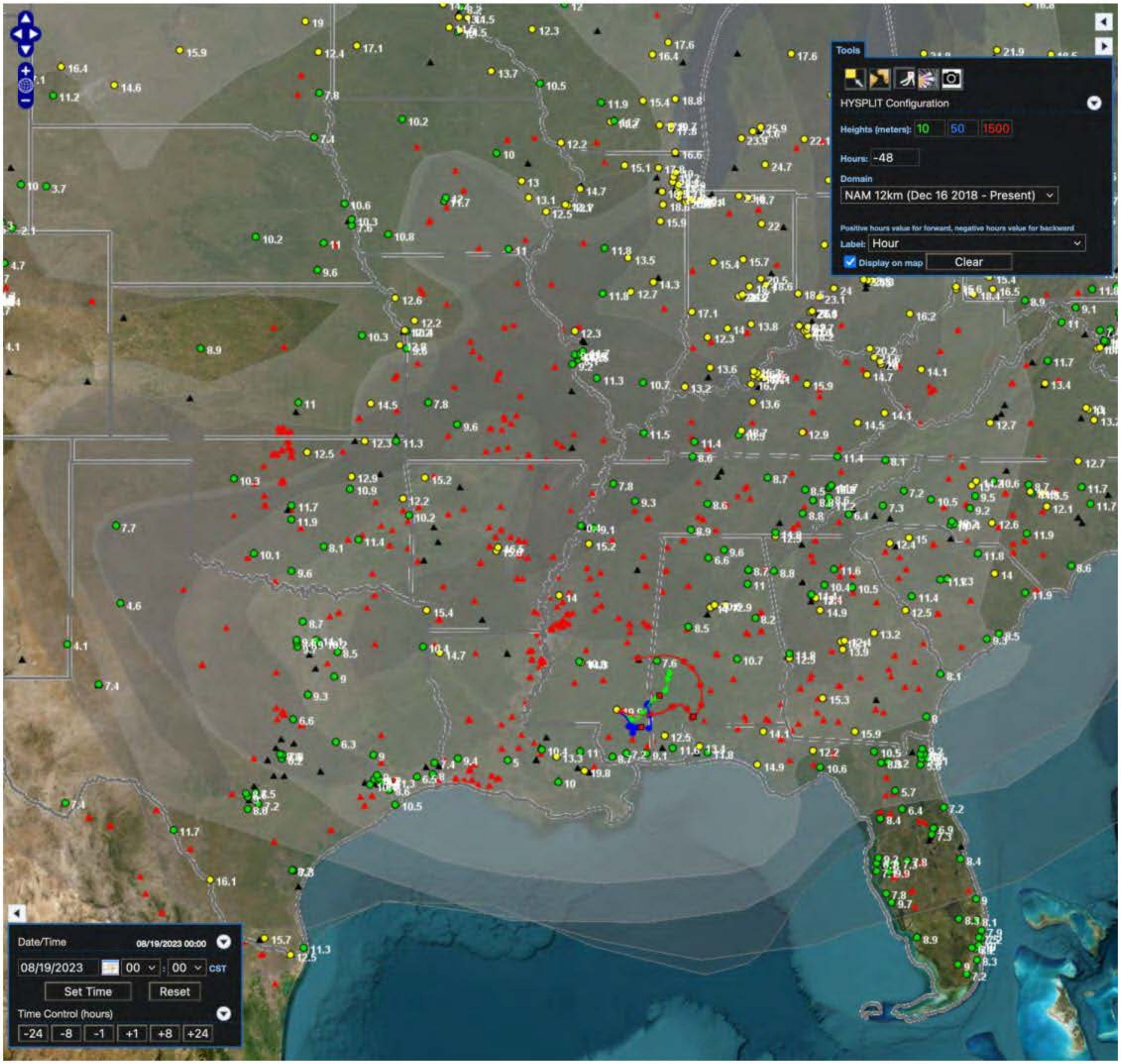
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023H200150.html) narrative from August 20th, 0130Z (August 19th, 2023 at 8:30PM CDT), describing the smoke situation and how Canadian transport smoke has been transported and made its way down to the southeastern United States.



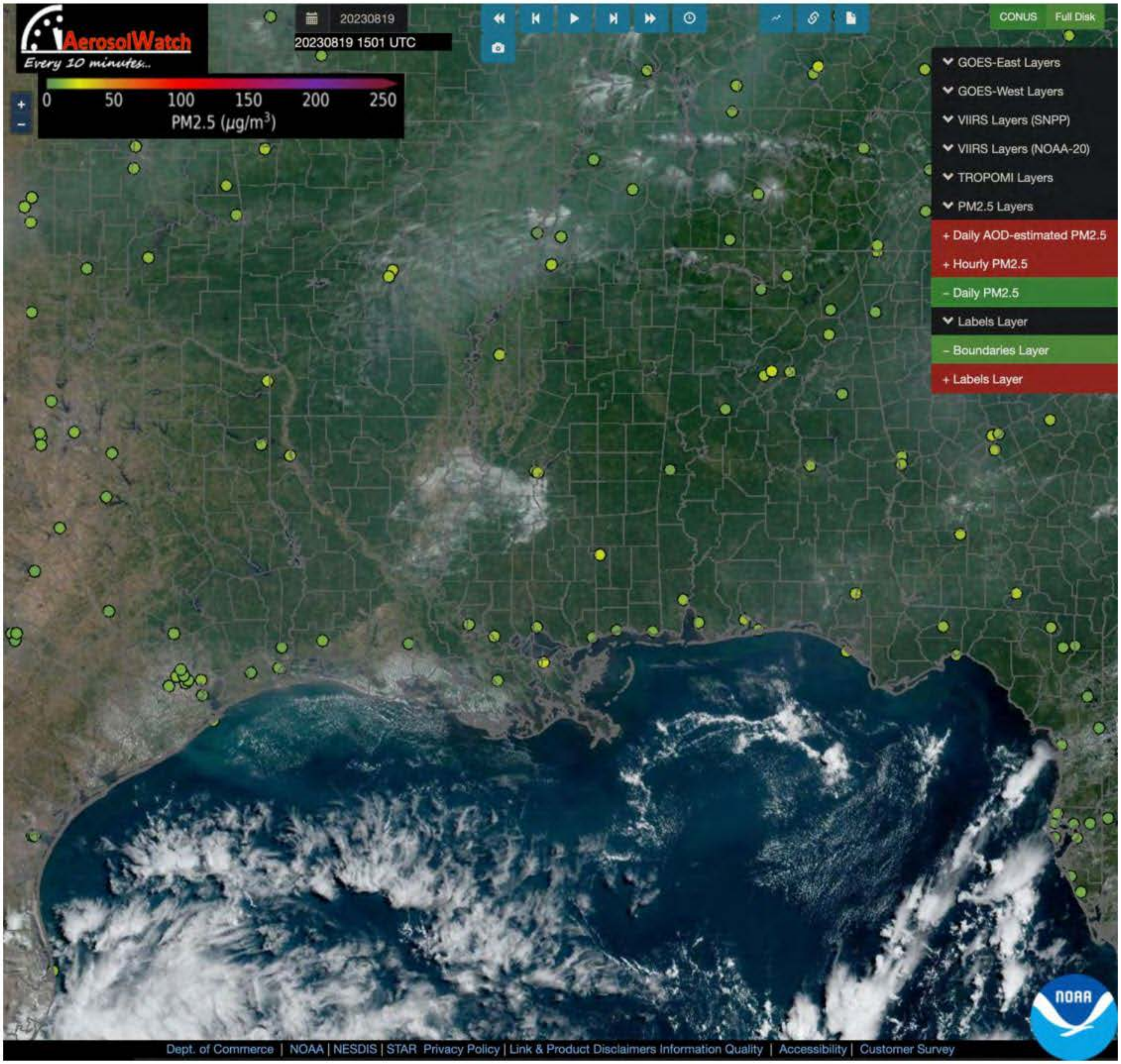
The 00z surface analysis (August 19th, 2023, at 7 PM CDT) shows previous days stationary boundary, which was previously a cold front, remains hung up across the lower Gulf South. Behind this frontal boundary surface High pressure is in firm control across the eastern 2/3rds of the United States, bringing with it very stable conditions, preventing mixing/ventilation of surface smoke in place.



The 00Z upper-level analysis at 500 mb (August 19th, 2023, at 7 PM CDT) shows expansive strong 594dm upper-level ridging in place across the Midwest, extending into the southeastern United States, creating healthy subsidence, trapping the surface smoke from the Canadian fires near the surface that was transported in from previous days surface frontal boundary.



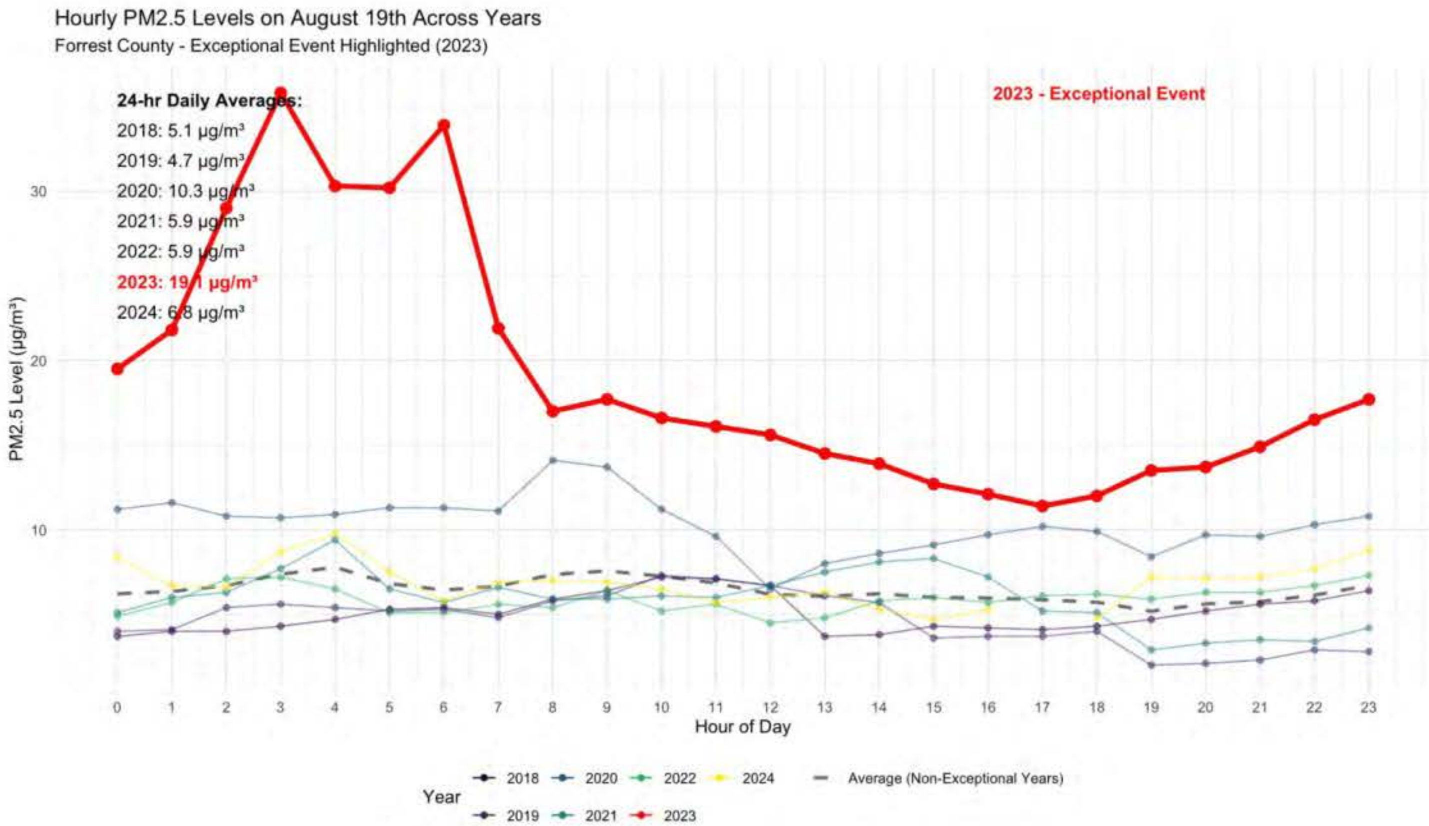
The AirNowTech Navigator image from August 19th, 2023, shows a batch of smoke from Canadian wildfires that was transported down encompasses all the Mid-South and southeastern United States. Overlaid are 48-hour back trajectories, showing very little movement at 10m, 50m, and 1500m, indicating very stagnant conditions.



GOES East True Color image taken on August 19th, 2023, at 1501UTC, showing smoke shield from Canadian wildfires encompassing most of the southeastern United States, elevating PM2.5 values.

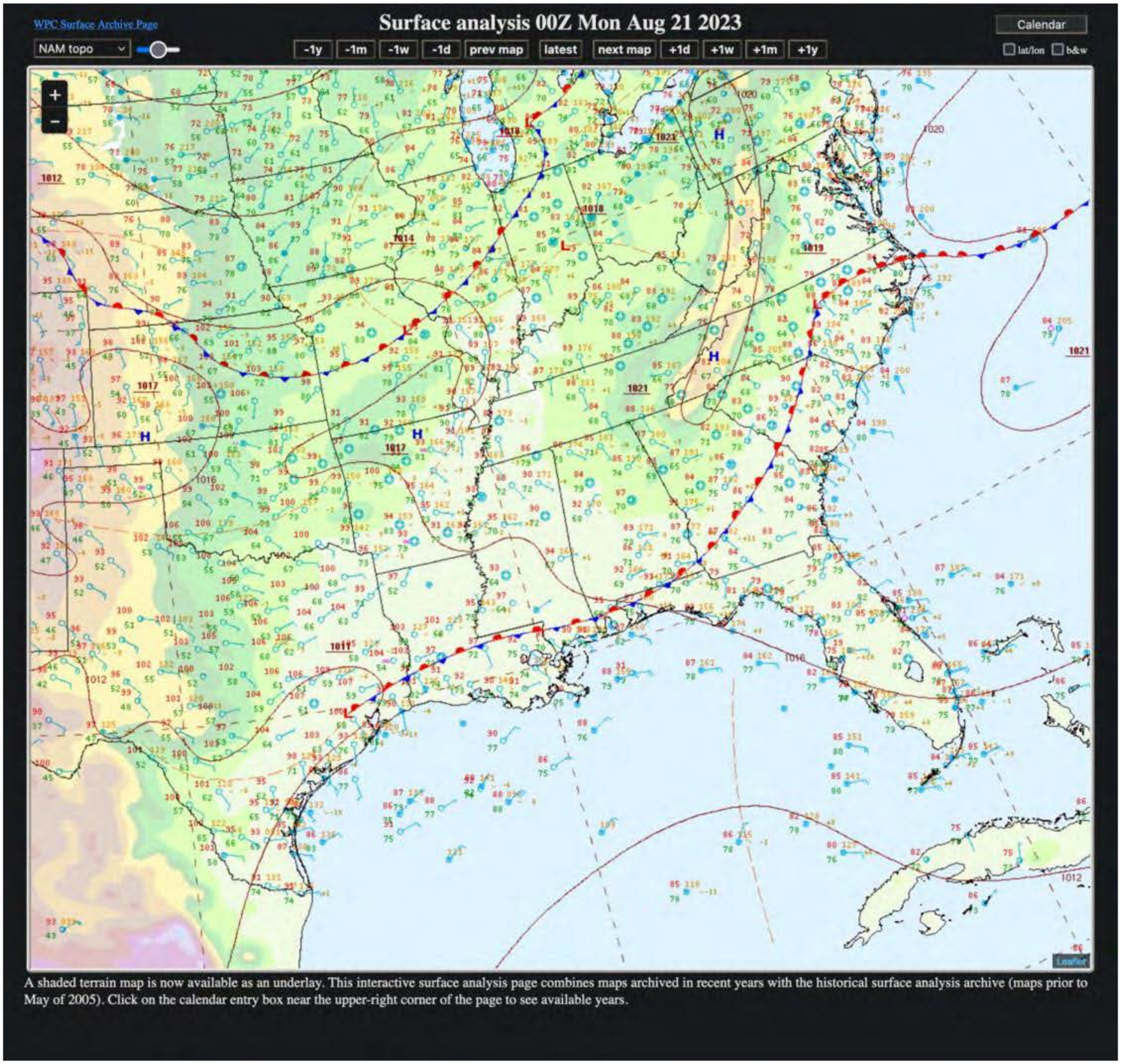
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/19/23	20.4	22.7	29.9	36.7	31.2	31.1	34.8	22.8	17.9	18.6	17.5	17	16.5	15.4	14.8	13.6	13	12.3	12.9	14.4	14.6	15.8	17.4	18.6	20	36.7

The hourly values at the Hattiesburg monitor on August 19th, shown in the image above, indicate elevated PM2.5 levels in the morning due to a strong nocturnal inversion, which trapped pollutants near the surface with PM2.5 values reaching into the thirties. Diurnal heating allowed for mixing during the day, helping to disperse pollutants. However, even with limited mixing, PM2.5 levels remained elevated in the teens due to strong ridging aloft and high pressure at the surface. As a nocturnal inversion developed again during the evening of the 19th, PM2.5 values began to increase once more, continuing overnight into the 20th.

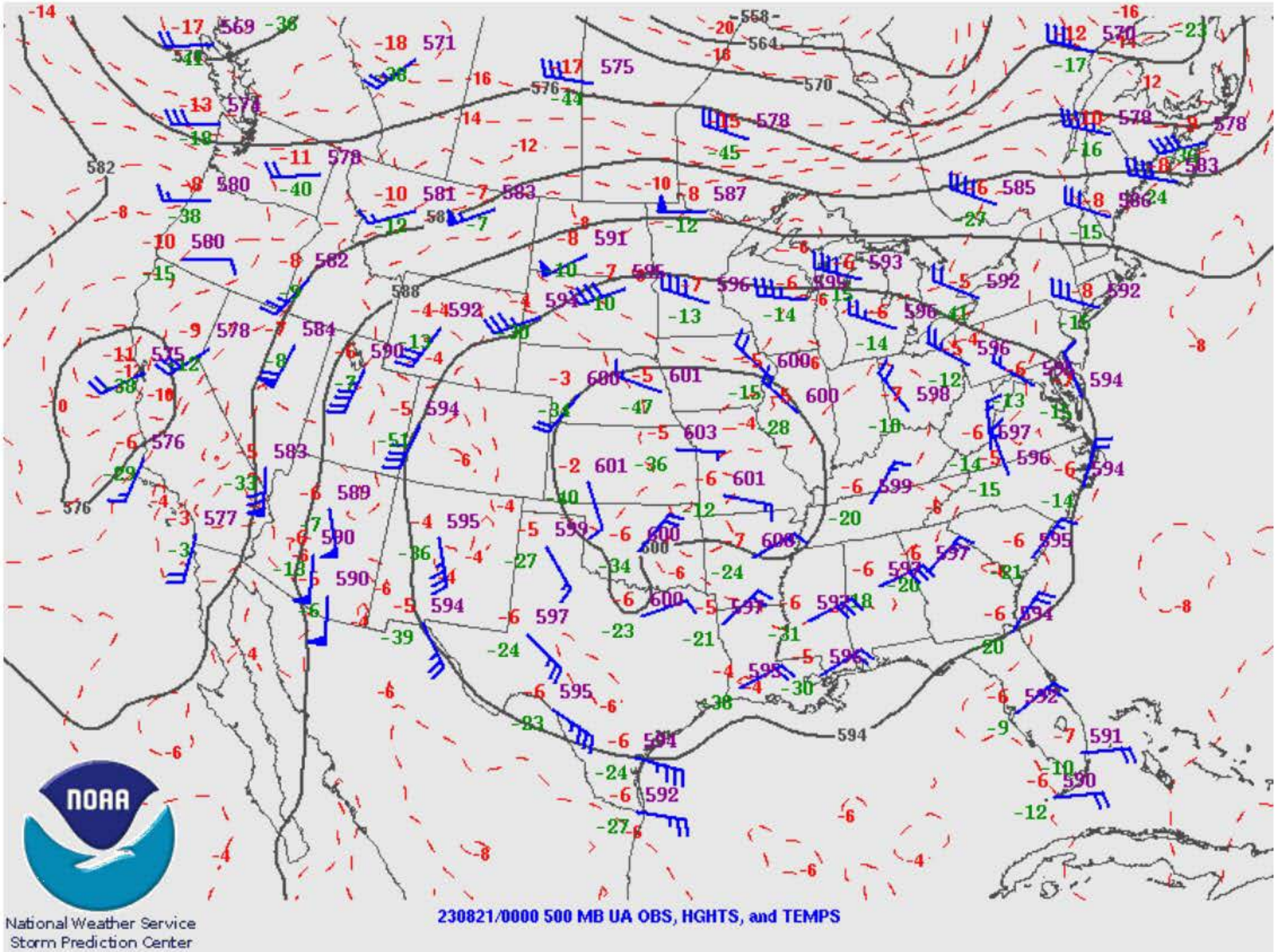


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor, allowing the 24-hour average to be 19.1ug/m^3.

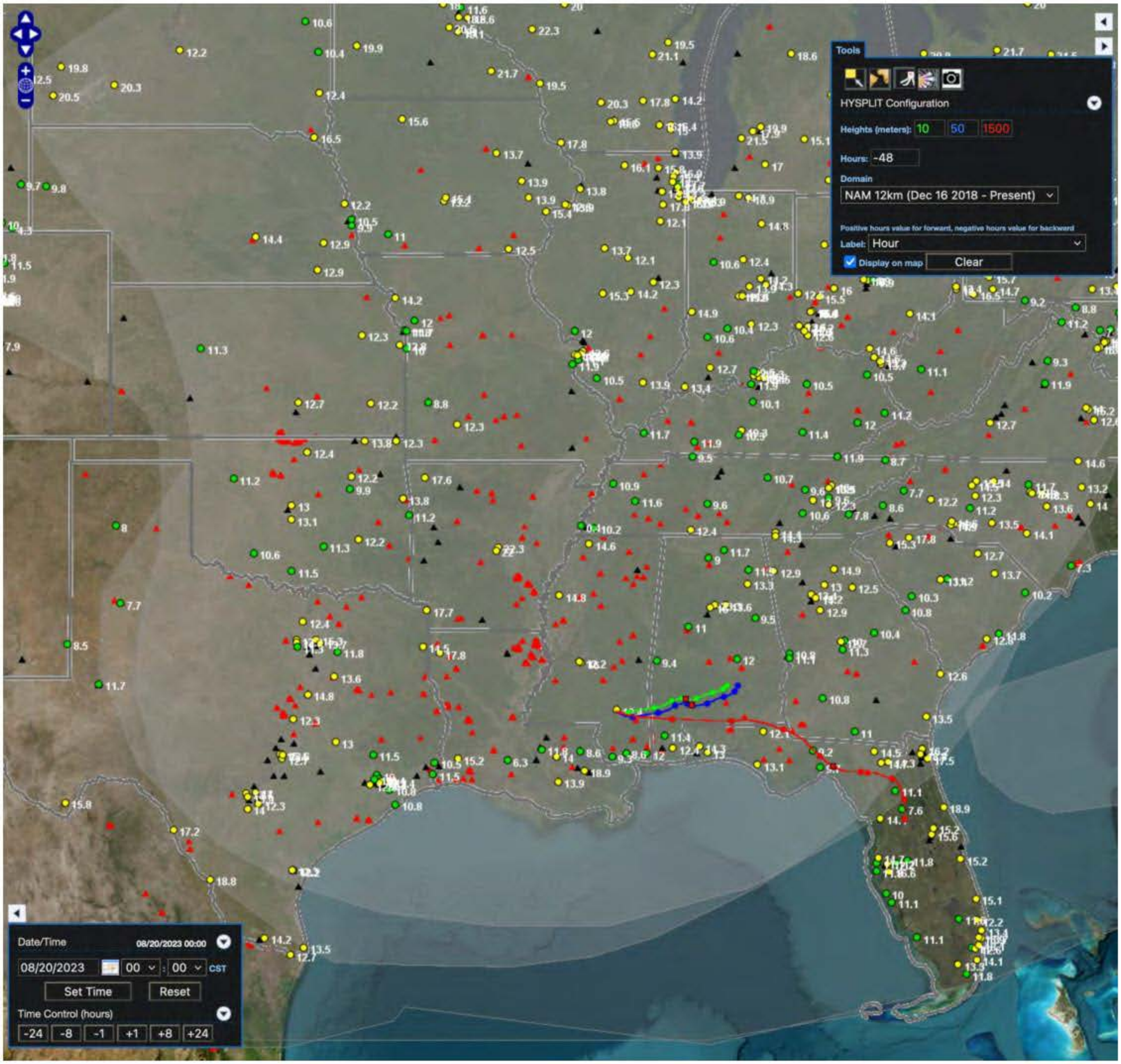
August 20th: August 20th was nearly a carbon copy of August 19th, with high pressure at the surface firmly controlling the southeastern United States. This was coupled with a large 594 dm upper-level ridge covering most of the country, creating stable and stagnant conditions with strong subsidence. These conditions trapped the smoke transported into the southeast in previous days, keeping PM2.5 values elevated.



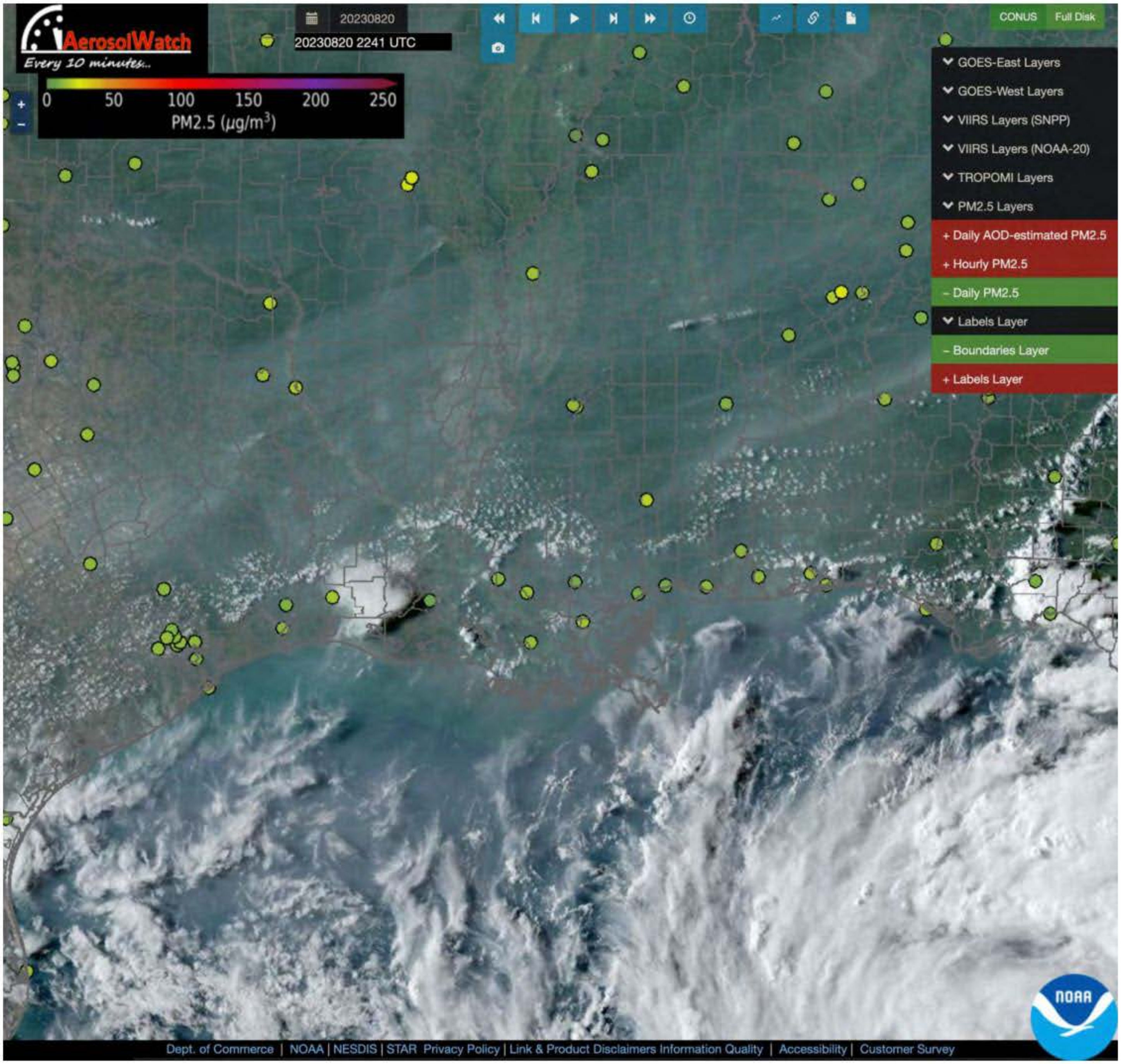
The 00z surface analysis (August 20th, 2023, at 7 PM CDT) shows previous days stationary boundary, which was previously a cold front, remains hung up across the lower Gulf South. Behind this frontal boundary surface High pressure is in firm control over the southeast, bringing with it very stable conditions, preventing mixing/ventilation of surface smoke in place.



The 00Z upper-level analysis at 500 mb (August 20th, 2023, at 7 PM CDT) shows a whopping 600dm upper-level ridging in place across the Midwest, extending into the southeastern United States, creating healthy subsidence, trapping the surface smoke from the Canadian fires near the surface that was transported in from previous days surface frontal boundary.



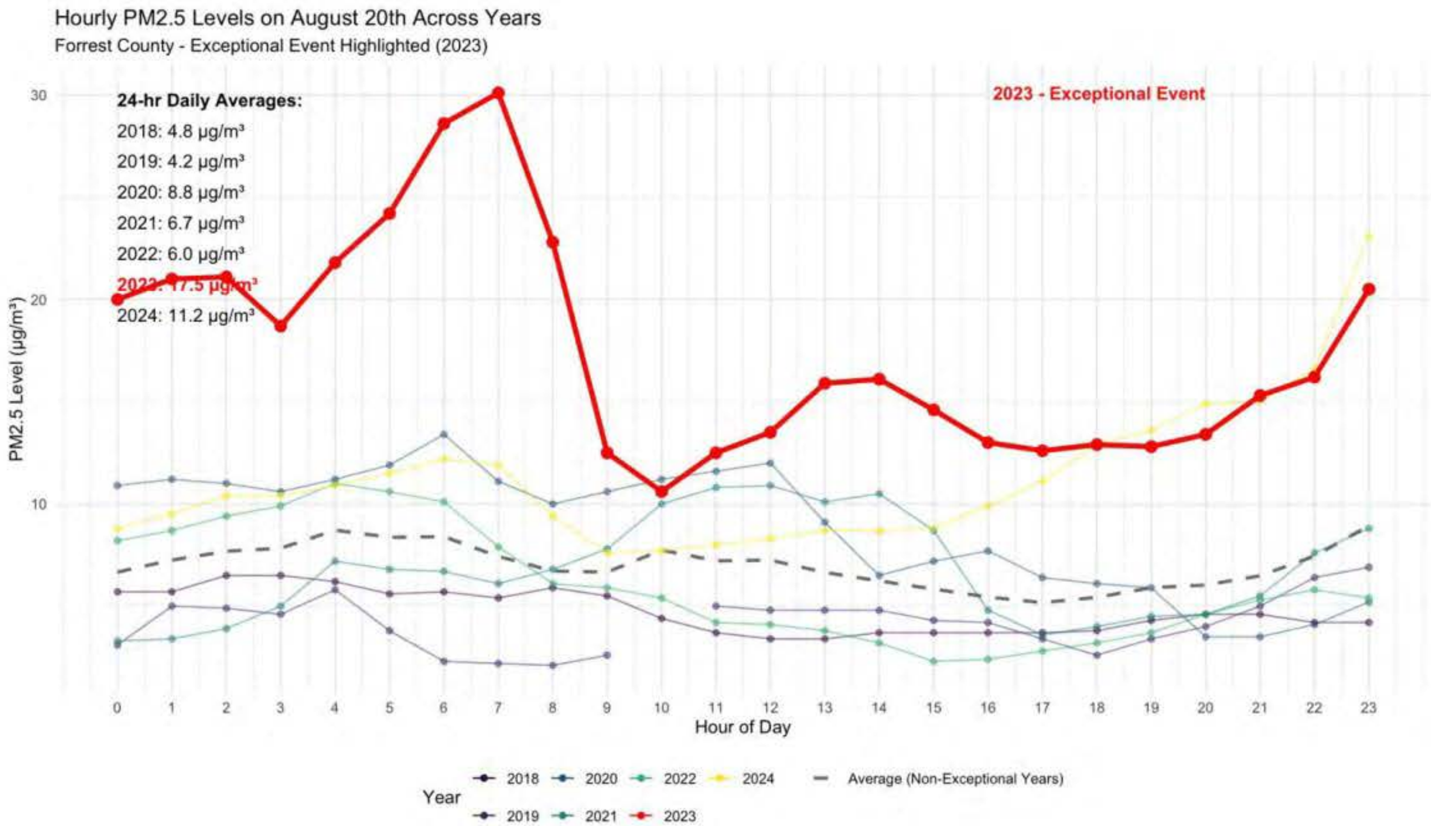
The AirNowTech Navigator image from August 20th, 2023, shows a large batch of smoke from Canadian wildfires that was transported down encompasses much of the eastern 2/3rds of the United States. Overlaid are 48-hour back trajectories, showing very little movement at 10m, 50m, indicating very stagnant conditions across the area.



GOES East True Color image taken on August 20th, 2023, at 2241UTC, showing smoke shield from Canadian wildfires encompassing most of the southeastern United States, elevating PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/20/23	20.9	21.9	22	19.6	22.7	25.1	29.5	31	23.7	13.4	11.5	13.4	14.4	16.8	17	15.5	13.9	13.5	13.8	13.7	14.3	16.2	17.1	21.4	18.43	31

The hourly values at the Hattiesburg monitor on August 20th, shown in the image above, indicate elevated PM2.5 levels in the morning due to a strong nocturnal inversion, which trapped pollutants near the surface with PM2.5 values reaching into the thirties. Diurnal heating allowed for subtle mixing during the day, helping to disperse pollutants ever so slightly. However, even with limited mixing, PM2.5 levels remained elevated in the teens due to strong ridging aloft and high pressure at the surface. As a nocturnal inversion developed again during the evening of the 20th, PM2.5 values began to increase once more, continuing overnight, into the 21st.



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting the higher values in 2023 compared to the average of non-exceptional years. The hourly time plot shows, elevated PM2.5 concentrations for this day in 2023, as smoke laden Canadian air-mass kept PM2.5 values elevated at the Hattiesburg monitor, allowing the 24-hour average to be 17.5ug/m^3.

August 21st: Carbon copy of previous days weather set up with not much day-to-day change as 1020mb surface High pressure remains in firm control of the southeastern United States coupled with large 600+ dm ridge at 500mb centered across the Midwest, leading to very stable/stagnant conditions, continuing to lock in the residual smoke from the Canadian wildfires in the south and southeastern United States, keeping PM2.5 values elevated.

Monday, August 21, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0143Z August 22, 2023

SMOKE:
United States/Canada/Northern Mexico/Atlantic Ocean/Eastern Pacific Ocean...
Widespread cloud cover continued to cover regions of Alaska, northern Canad, and western/northern U.S , which limits the visibility on some of the recent wildfires and smoke impacting those regions. Numerous wildfires were still seen over a portion of the Northwest Territories, northern Alberta, and scattered across British Columbia in Canada. Wildfires in the U.S continued to burn in parts of Washington, Idaho, western Montana, western Oregon, and northwestern California, however heavy cloud cover from the recent Hurricane Hilary has it made it difficult to analyze over in the western U.S. For the smoke, western Canadian wildfires and northwestern U.S. wildfires were responsible for a very large area of moderate density smoke which was seen extending into Pacific Ocean off the coast southwestern Oregon and northwestern California. From here, the moderate density smoke extended northeast through Canada and extended off the Pacific coast through most of western, central Canada and eastern parts of Canada. In addition, moderate remnant density smoke was seen over most of southern U.S,parts of the eastern U.S, and the Atlantic ocean off of southeastern Canada. Thick density smoke from both the wildfires in California and western Canada was seen engulfing parts of the northwestern U.S, British Columbia, Alberta and a portion of Saskatchewan. The larger surrounding area of thinner density smoke was seen over much of Canada and the U.S. with the exception of parts of western U.S due to cloud cover, northern Mexico, the northern Gulf of Mexico, and a relatively small part of the far eastern Pacific off the U.S. west coast and portions of the western and northern Atlantic over Greenland reaching as far as western Europe.

Honolulu, Hawaii…
The west Oahu brush fire in Keawaula Park could be seen producing a burst of light to moderate density smoke that was quickly moving west over the Keawaula bay and Pacific Ocean this evening.

DUST:
Southern Gulf of Mexico/Central America/Yucatan Peninsula/Southern Florida/Bahamas/Caribbean Region/Atlantic Ocean…

A sprawling area of generally thin density Saharan dust continued to be partially visible throughout, extending from the Bay of Campeche, the Yucatan Peninsula, and some of Central America to the east and northeast over virtually all of the Caribbean region, the southern Gulf of Mexico, southern Florida, and the Bahamas. A thicker area was seen just off the coat of western Africa and central Atlantic.

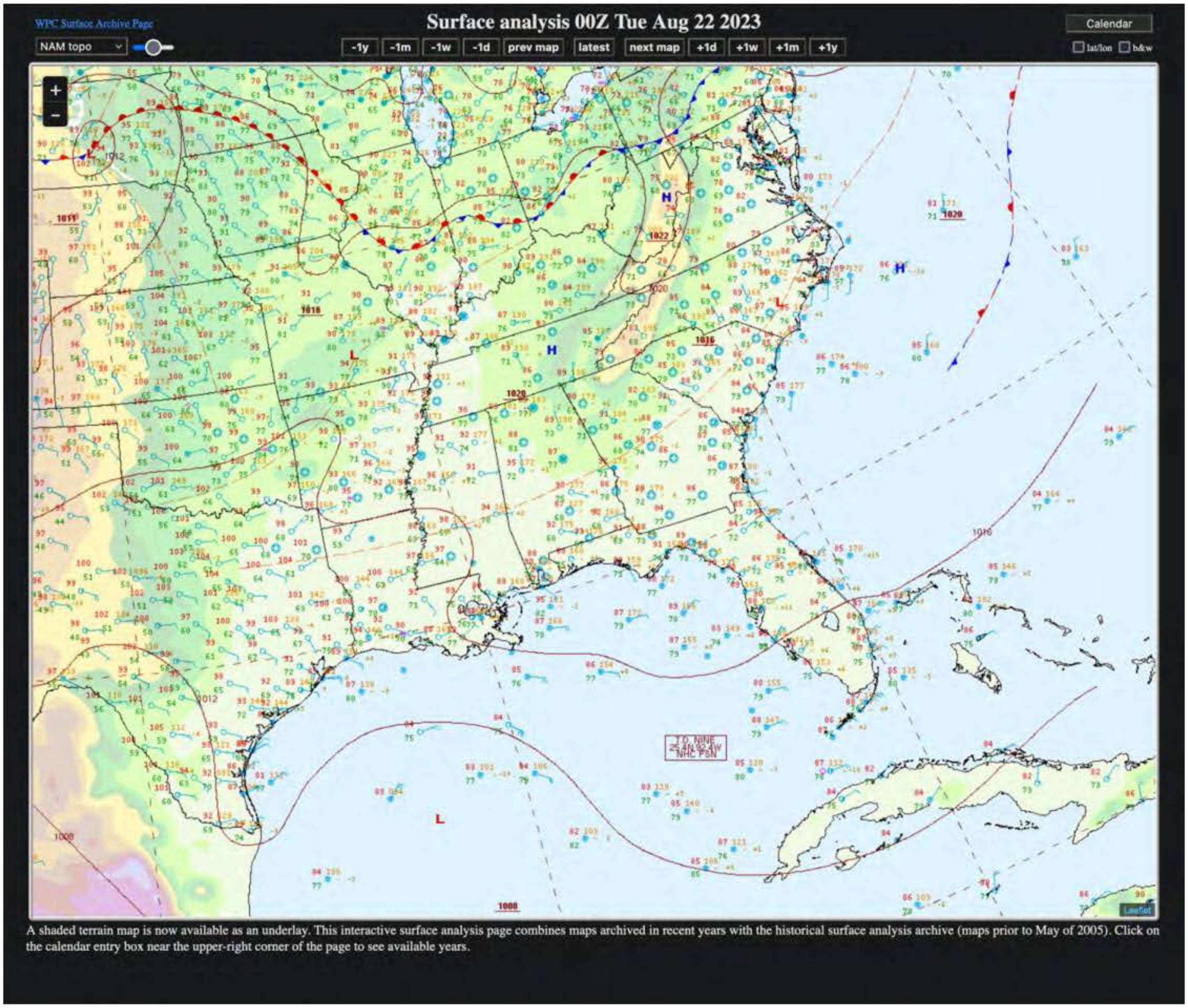
Eglin

THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

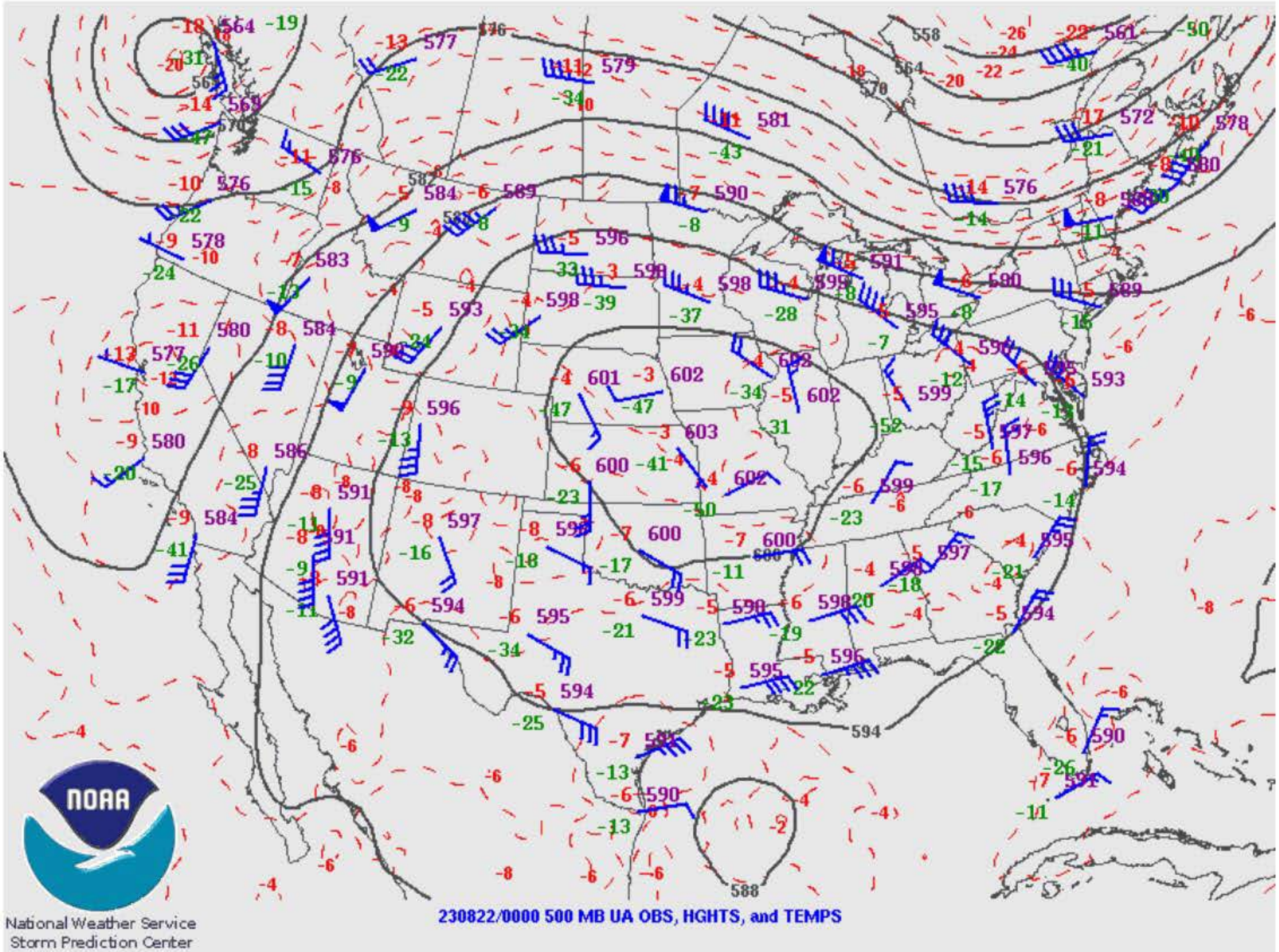
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

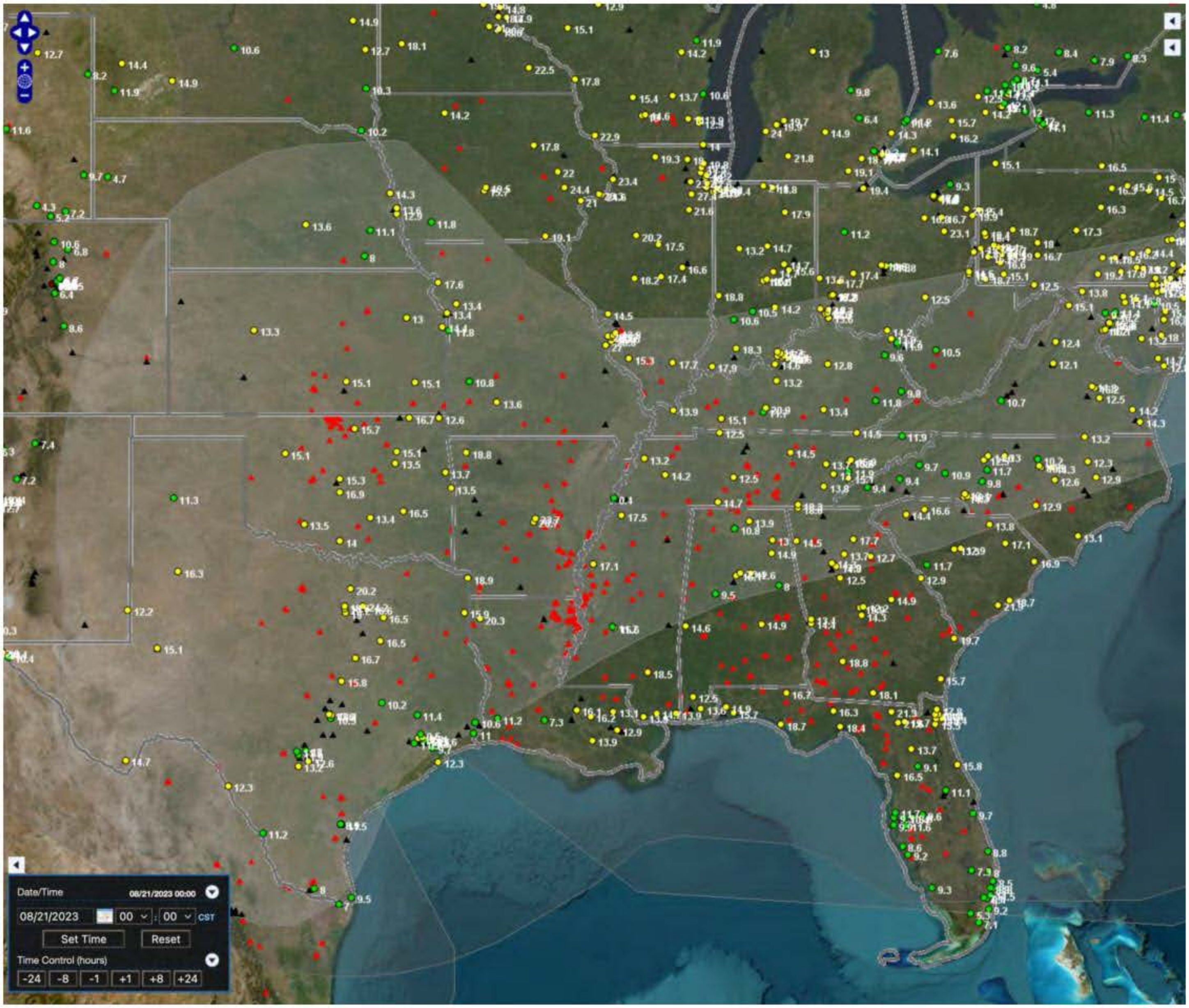
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023H220143.html) narrative dated August 22, 2023, at 0140Z (corresponding to August 21, 2023, at 8:43 PM CDT). The narrative describes the smoke situation, highlighting how moderate remnant smoke transported from Canadian wildfires has moved into the southeastern United States and is currently stagnating over the region.



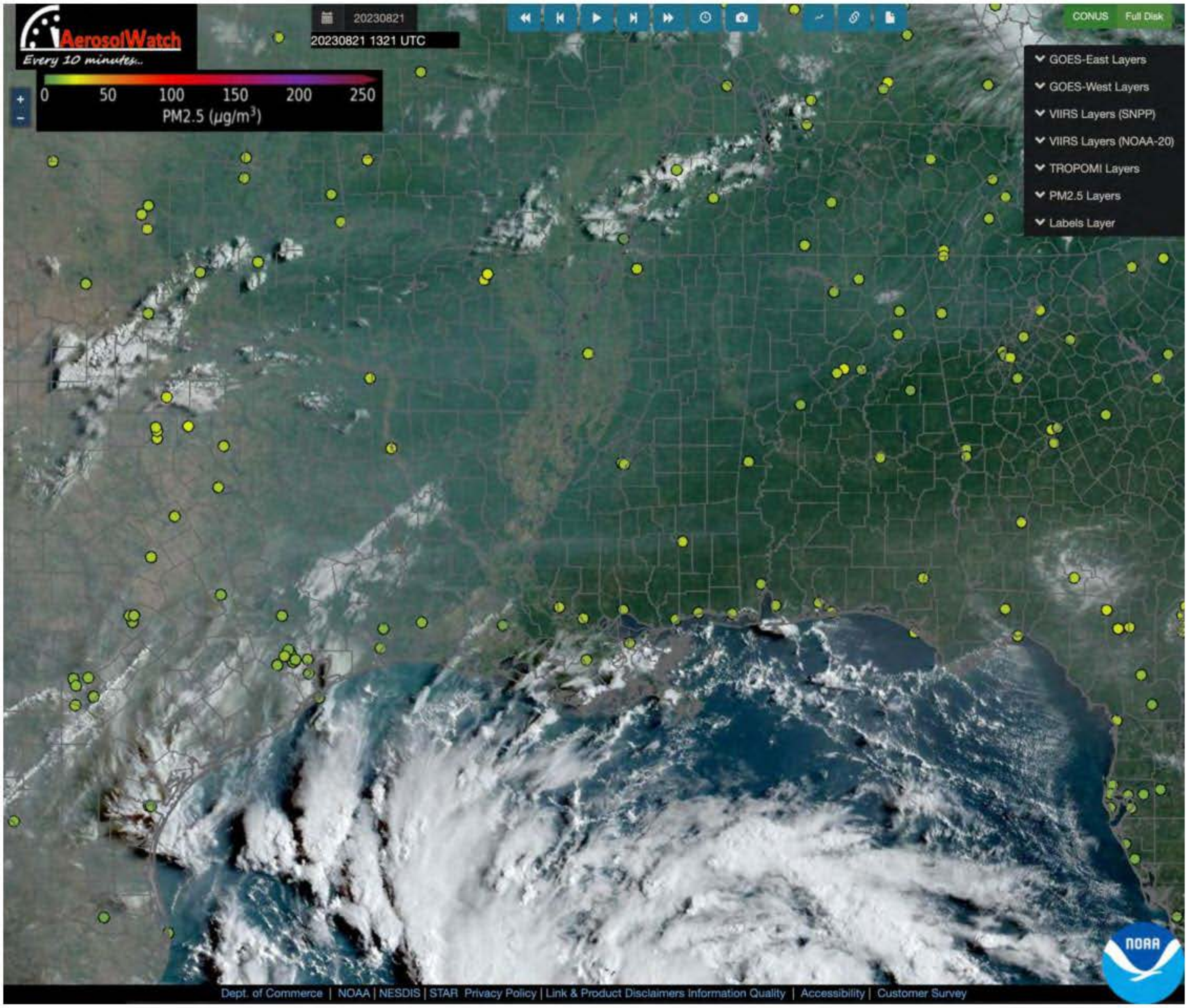
The 00z surface analysis (August 21st, 2023, at 7 PM CDT) shows surface High pressure is in firm control over the southeast, bringing with it very stable conditions, preventing mixing/ventilation of surface smoke in place from the Canadian wildfires that was transported down in previous days with aid of surface frontal boundary.



The 00Z upper-level analysis at 500 mb (August 21st, 2023, at 7 PM CDT) shows a 600+ dm upper-level ridging in place across the Midwest, extending into the southeastern United States, creating healthy subsidence, trapping the surface smoke from the Canadian fires near the surface that was transported in from previous days surface frontal boundary.



The AirNowTech Navigator image from August 21st, 2023, shows a large batch of smoke from Canadian wildfires that was transported down encompassing the Mid-Atlantic states, southeast, and midwestern states.



GOES East True Color image taken on August 21st, 2023, at 1321UTC, showing smoke shield from Canadian wildfires encompassing the southeastern and southern United States, elevating PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/21/23	23.5	21.8	22.6	23.4	22.1	19.9	20.3	17.8	11.7	10.8	10.9	12.6	15.1	15.4	15.4	16.3	17.1	19.2	20.9	23	21.8	20.9	20.7	22.2	18.56	23.5

The hourly values at the Hattiesburg monitor on August 21st, shown in the image above, indicate elevated PM2.5 levels in the morning due to a strong nocturnal inversion, which trapped pollutants near the surface with PM2.5 values reaching into the twenties. Diurnal heating allowed for mixing during the day, helping to disperse pollutants. However, even with limited mixing, PM2.5 levels remained elevated in the teens for the majority of peak heating during the day due to strong ridging aloft and high pressure at the surface. As a nocturnal inversion developed again during the evening of the 21st, PM2.5 values began to increase once more, continuing overnight, into the 22nd.

Augst 22nd: Pattern from previous days is locked in place as both High pressure at the surface coupled with expansive upper-level ridge that is centered over the Midwest, continue to provide stagnant/stable conditions, allowing remnant smoke from Canadian fires to hang around the Mid-South and southeastern, United States, keeping PM2.5 values elevated. Also contributing to elevated PM2.5 levels are local wildfires around the region adding to the smoke that is already in the area.

Tuesday, August 22, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

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SMOKE:
United States/Canada/Mexico/Northwestern Atlantic Ocean/Northeastern
Pacific Ocean...
Dense smoke from numerous wildfires across western Canada extended
eastward over northern Alberta, Saskatchewan, and Manitoba, as well
as southern Northwest Territories. Dense smoke also covered much of
central and southwestern British Columbia, extending out over the
adjacent Pacific Ocean and curling around a low-pressure system near
Vancouver Island. Additional dense smoke extended north-northeastward
from a fire near Eureka, California, along a frontal boundary reaching
up into British Columbia. Moderate smoke also covered much of northern
British Columbia and extended southwestward from the fire near Eureka over
the Pacific Ocean there. Additional streaks of moderate smoke extended
eastward over northern Canada and southeastward over portions of Quebec
and Ontario. Yet another mass of moderate remnant smoke with the help of
seasonal fires and small embedded wildfires, was observed over portions
of the and southeastern U.S. Light smoke covered much of North America
except for most of Alaska and the Intermountain West region of the U.S.,
extending over the western Atlantic Ocean.

DUST:
Eastern Atlantic Ocean…
Saharan dust was observed over the far eastern Atlantic Ocean, near Africa
and the Iberian Peninsula, with an additional streak of dust extending
westward to about 40W. Additional dust is still visible through cloud
cover around the Southern Gulf of Mexico, Central America, Yucatan
Peninsula, Southern Florida, Bahama, and the Caribbean Region.


Eglin


THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF
SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED
FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE,
TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS.  AREAS OF BLOWING DUST ARE
ALSO DESCRIBED.  USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE
AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE
FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

JPEG map:       https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov
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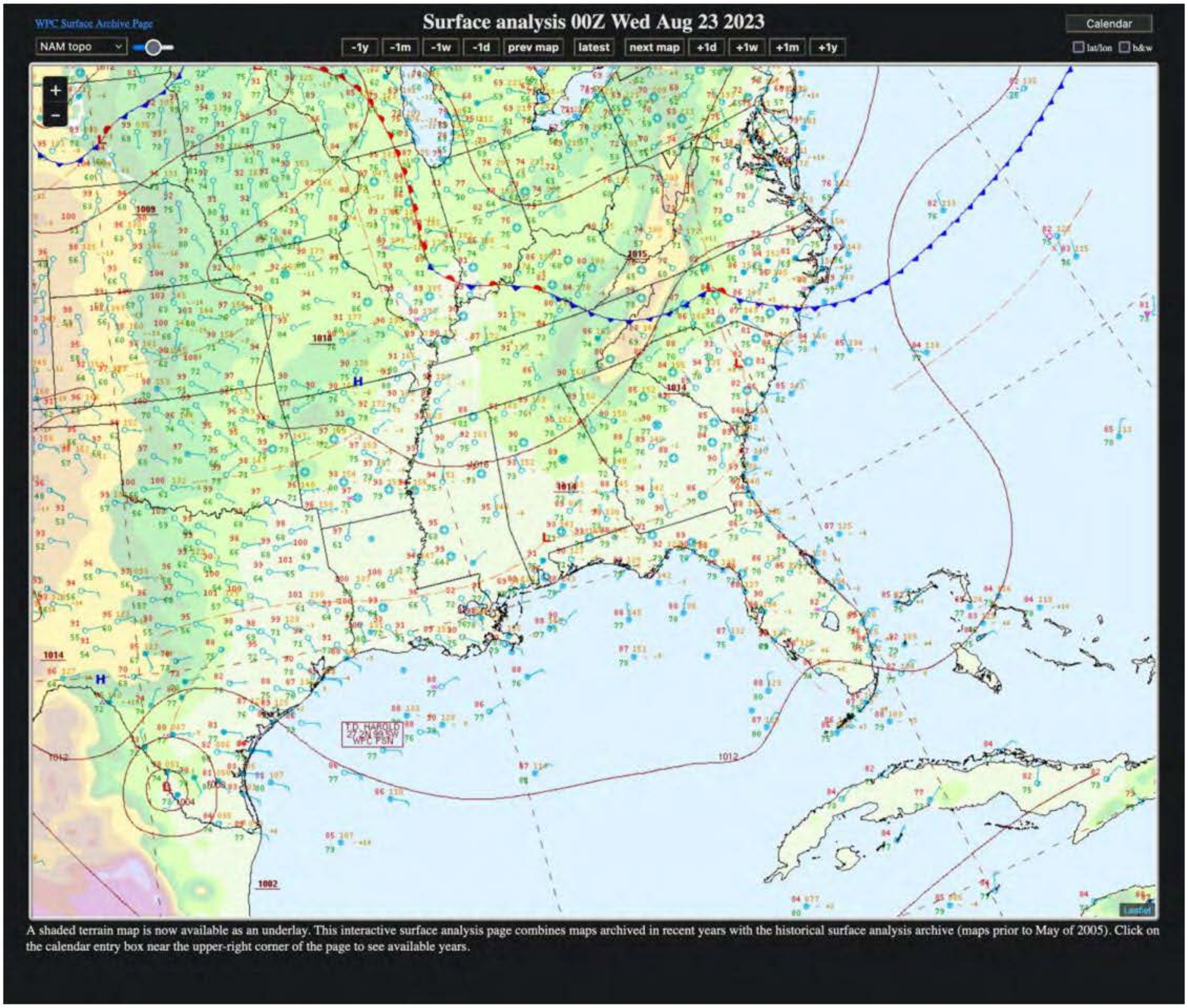
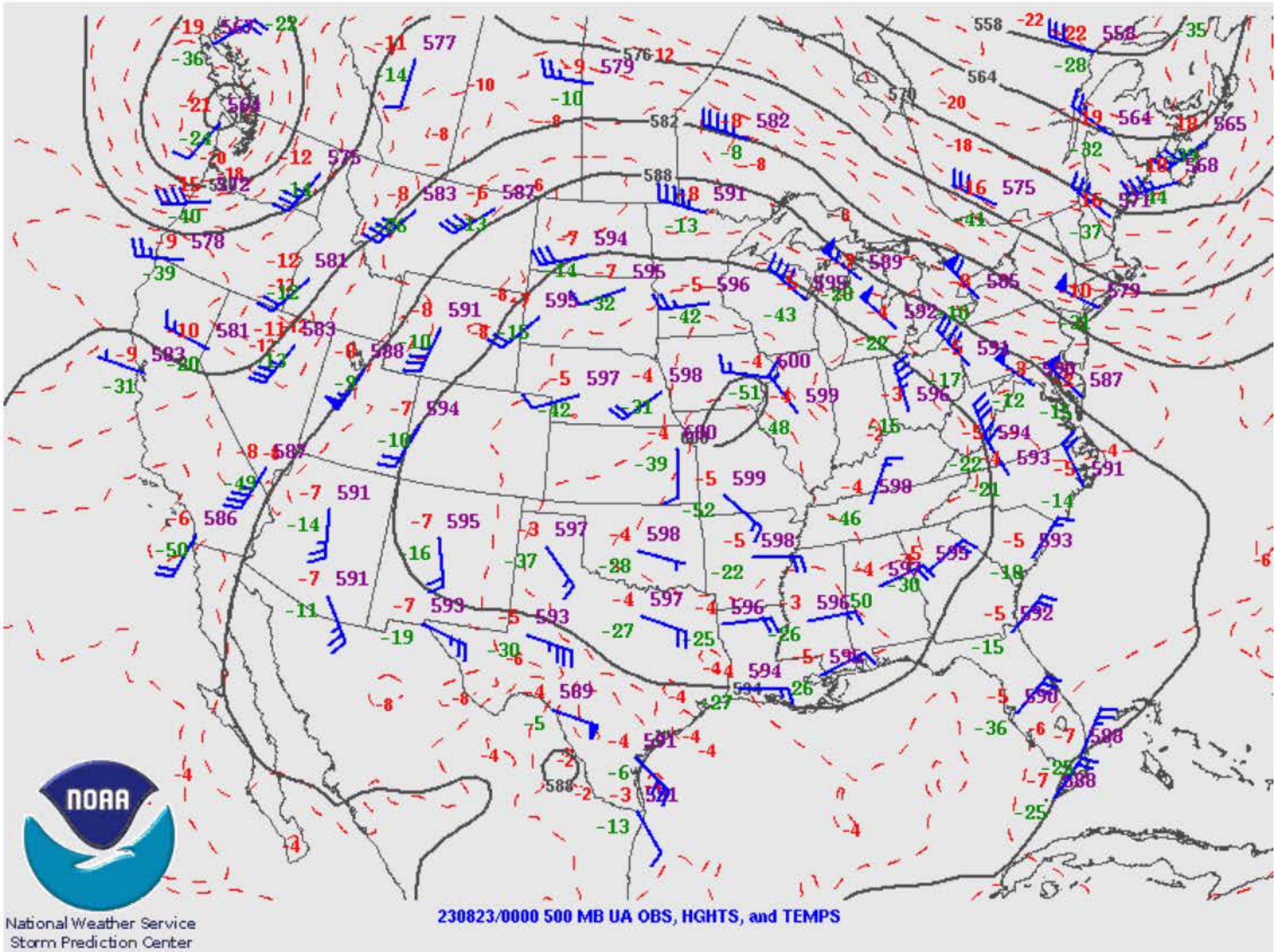
Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

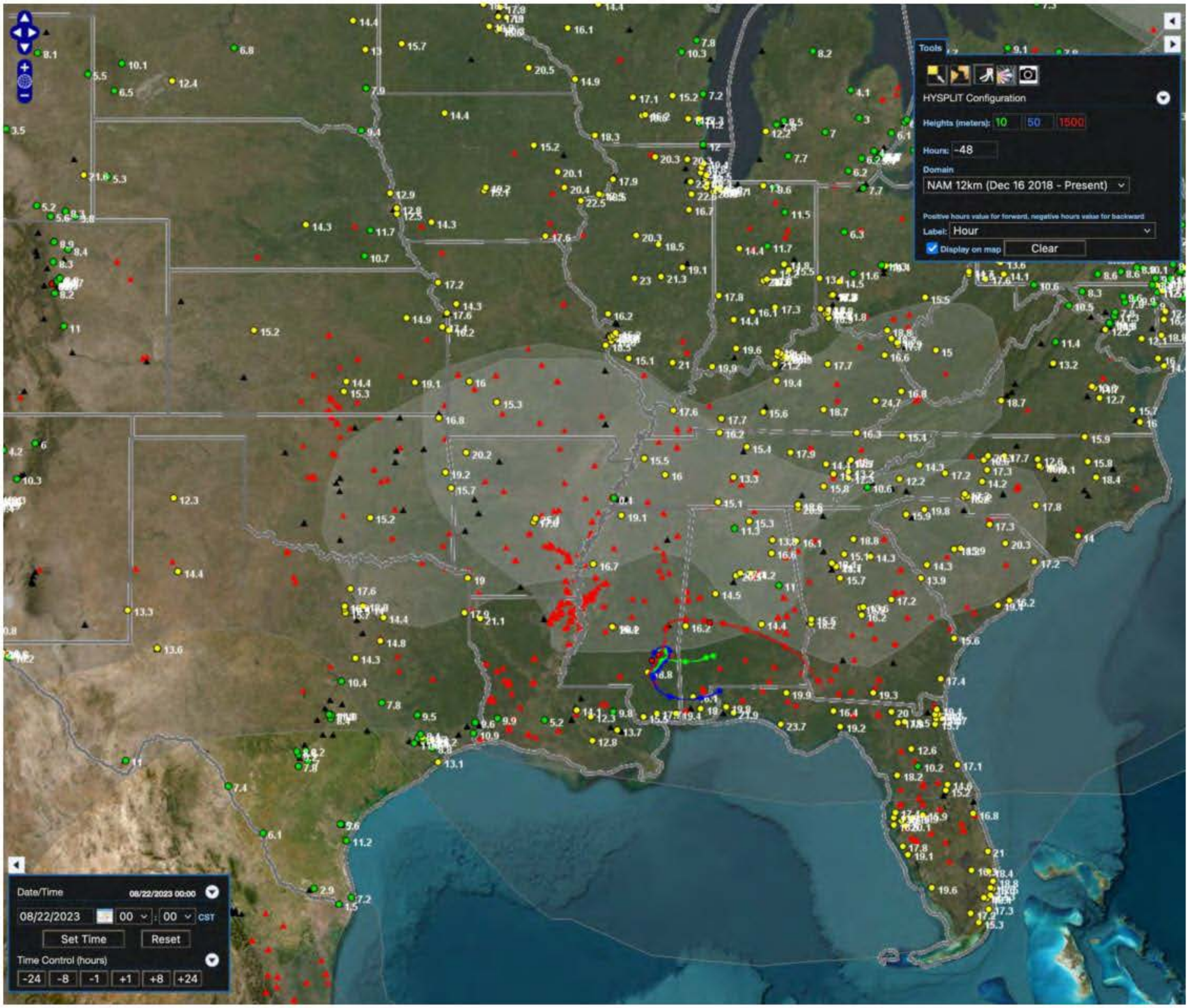
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023H230202.html) narrative dated August 23rd, 2023, at 0202Z (corresponding to August 22nd, 2023, at 9:02 PM CDT). The narrative describes the smoke situation, highlighting how moderate remnant smoke transported from Canadian wildfires has moved into the southeastern United States and is currently stagnating over the region, accompanied from smoke by small, embedded wildfires observed in portions of the southeastern U.S, elevating PM2.5 values.



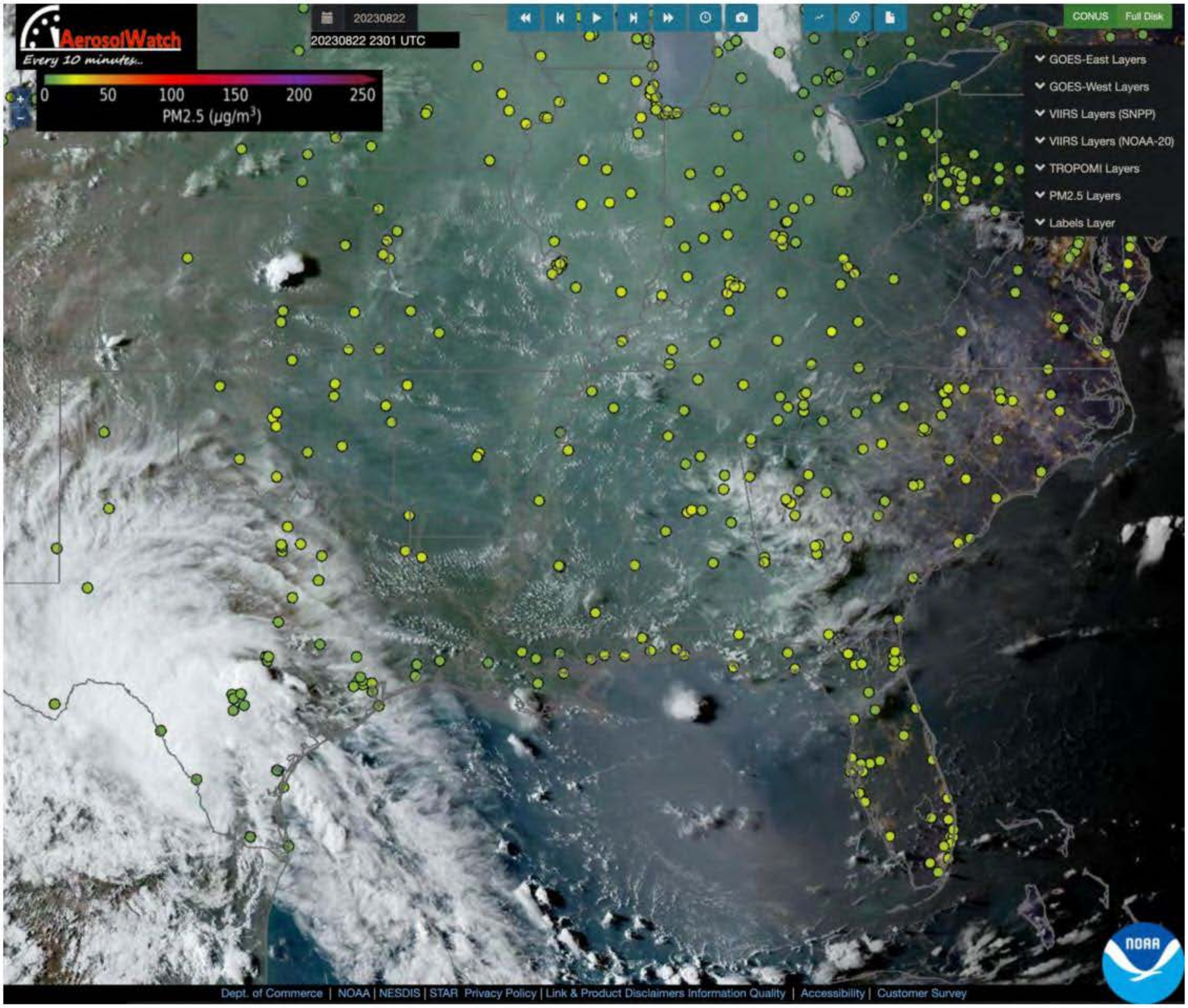
The 00z surface analysis (August 22nd, 2023, at 7 PM CDT) shows surface High pressure is in firm control over the southeast, bringing with it very stable conditions, preventing mixing/ventilation of surface smoke in place from the Canadian wildfires that was transported down in previous days with aid of surface frontal boundary coupled with smoke from small, embedded wildfires, that was occurring over the southeastern United States.



The 00Z upper-level analysis at 500 mb (August 22nd, 2023, at 7 PM CDT) shows a 600 dm upper-level ridging in place across the Midwest, extending into the southeastern United States, creating healthy subsidence, trapping the surface smoke from the Canadian fires near the surface that was transported in from previous days surface frontal boundary coupled with smoke from small, embedded wildfires, that was occurring over the southeastern United States



The AirNowTech Navigator image from August 22nd, 2023, shows a large batch of smoke from Canadian wildfires transported into the region, combined with smoke from small, embedded wildfires occurring over the Mid-South and southeastern United States, which elevated PM2.5 values. Overlaid on the image is a 48-hour back trajectory analysis, showing minimal movement of the lowest 10m and 50m parcels, indicating a very stagnant air mass in place.



GOES East True Color image taken on August 22nd, 2023, at 2301UTC, showing smoke shield from Canadian wildfires encompassing the Mid-South and southeastern United States, elevating PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/22/23	20.1	20	21.1	20.1	19.6	19.7	20.1	20.7	17.9	18.5	20.6	20.4	19.6	19.5	18.3	17.5	18.8	18.8	17.3	16.5	16.6	18	16.8	15.5	18.83	21.1

The hourly PM2.5 values at the Hattiesburg monitor on August 22nd, as shown in the image above, indicate elevated levels in the teens and twenties throughout the day, largely due to remnant smoke from Canadian wildfires trapped beneath a broad area of surface high pressure and upper-level ridging, along with smoke from small, embedded wildfires over the southeastern United States This strong ridging and surface high pressure limited ventilation and prevented the dispersion of smoke in the area.

August 23rd: Pattern from previous days is continues to be locked in place as both High pressure at the surface coupled with expansive upper-level ridge that is centered over the Midwest, continue to provide stagnant/stable conditions, allowing remnant smoke from Canadian fires to hang around the southeastern, United States, coupled with additive smoke from wildfires in and around the area, keeping PM2.5 values elevated well into the moderate category for a daily average.

Wednesday, August 23, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0100Z August 24, 2023

SMOKE:
United States/Canada/Mexico/Northwestern Atlantic Ocean/Northeastern Pacific Ocean...
Smoke from the numerous wildfires burning across western Canada continued to produce a large area of dense to very dense smoke that extended over southern sections of the Northwest Territories, central/northeastern sections of British Columbia, most of western Canada, and northern regions of eastern Canada such as Ontario, Manitoba, and Hudson Bay. This thick smoke also engulfed much of the northwestern U.S and extended through this region into the Pacific Ocean. Additional thick smoke from several large wildfires in Oregon and California also contributed to large area of thick smoke, with the large wildfire near Eureka, California producing a large area of thick smoke plume that extended along the western coast and into the Pacific. Moderate smoke encompassed the same regions while extending a bit further east within Canada. The overall large area of light density smoke from the wildfires in western Canada, Northwest US, northern California extended across Canada, most of the US, northern/central Gulf of Mexico, and northern Mexico. In addition, a large patch of remnant moderate dense smoke was seen over southeastern U.S and northern Gulf of Mexico, likely due to the same large wildfires mentioned in the prior.

DUST:
Africa/Atlantic Ocean…
Saharan dust was observed over the eastern Atlantic Ocean, near Africa and the Iberian Peninsula and stretching and getting lighter around 42W. The heaviest of the dust was near the African coast. An additional east to west elongated area of dust extends westward along the northern South America coast into the southern/eastern Caribbean Sea and upward to in/around 18N in certain areas.

Nguyen

THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

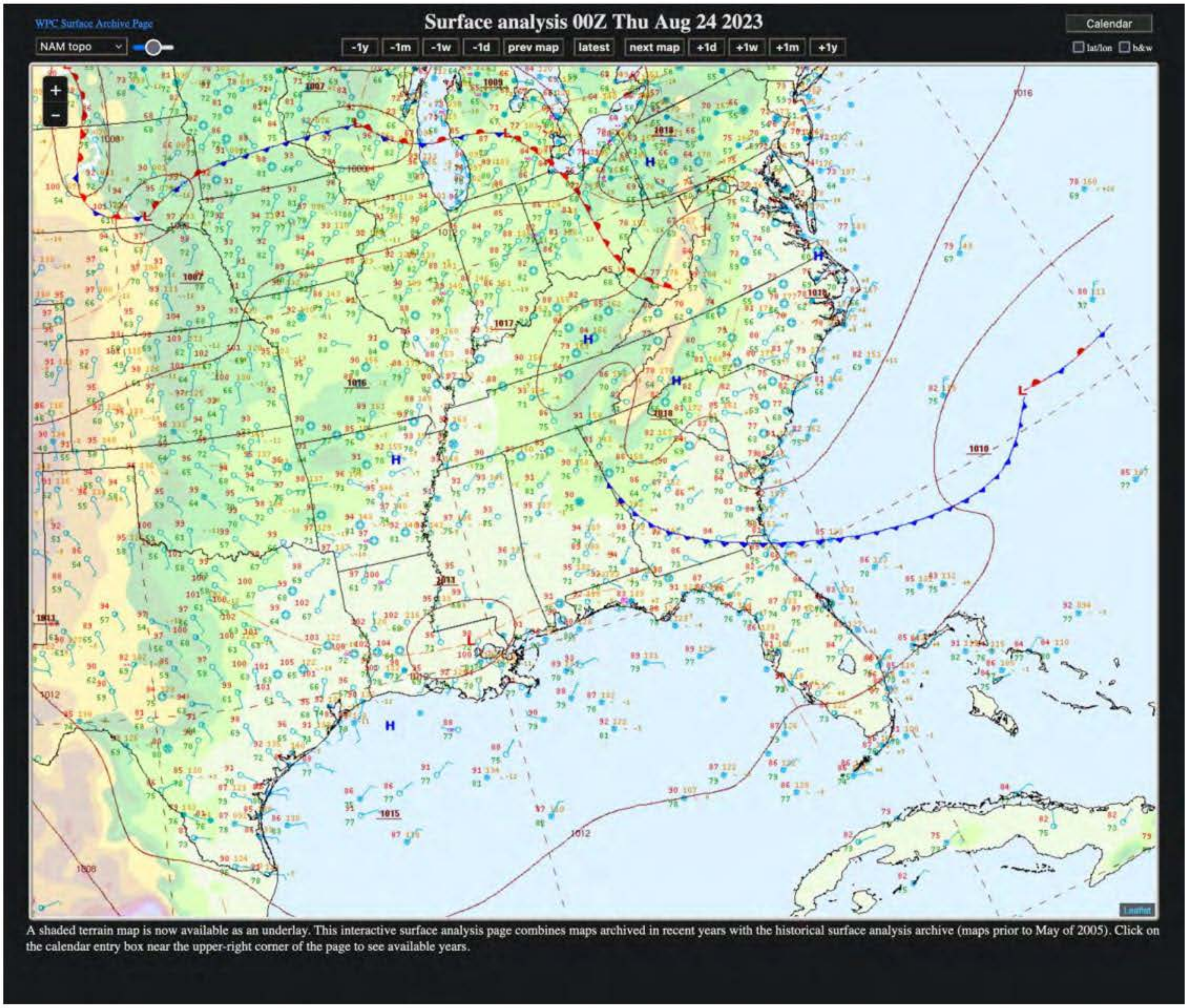
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

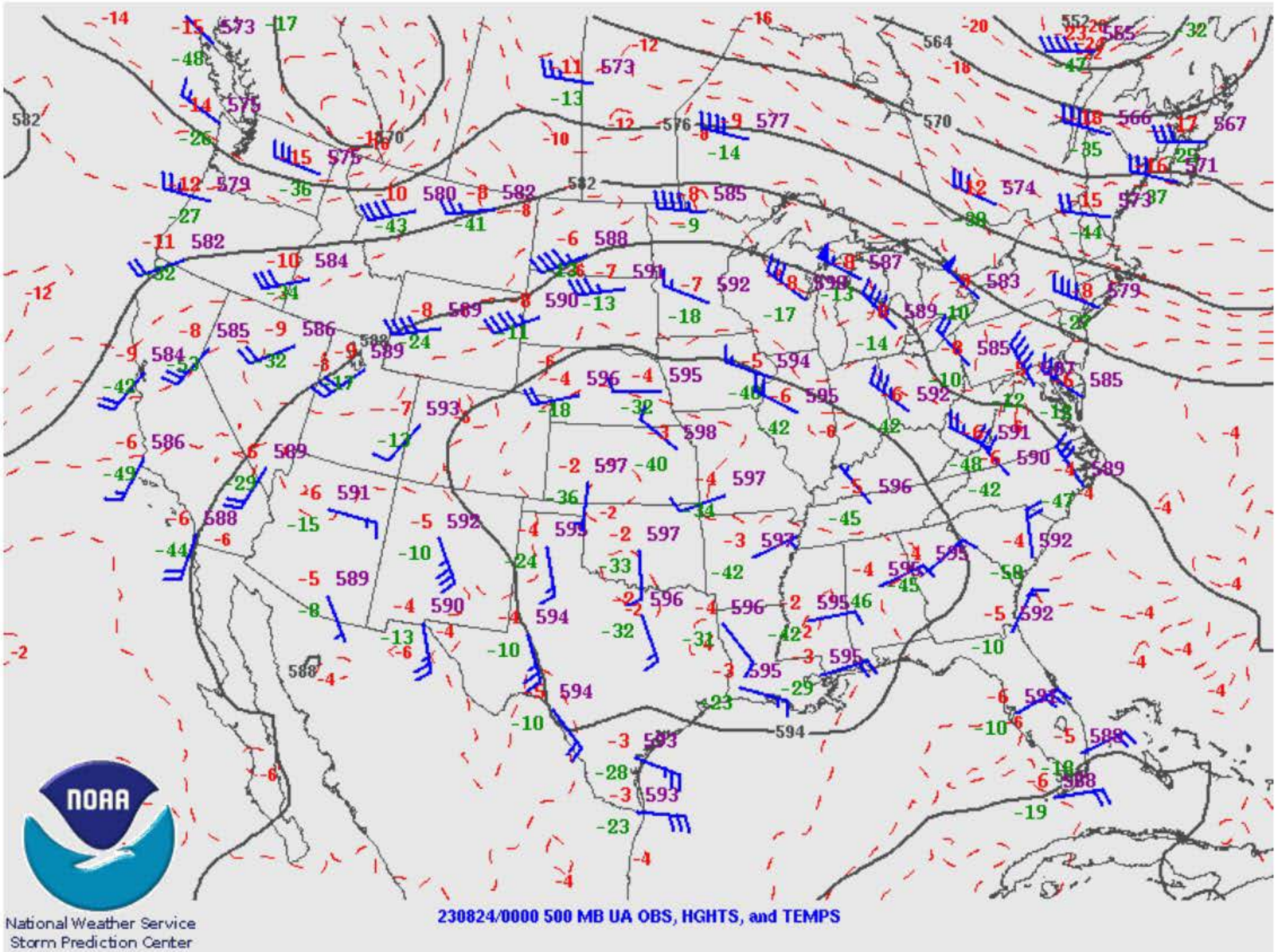
Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

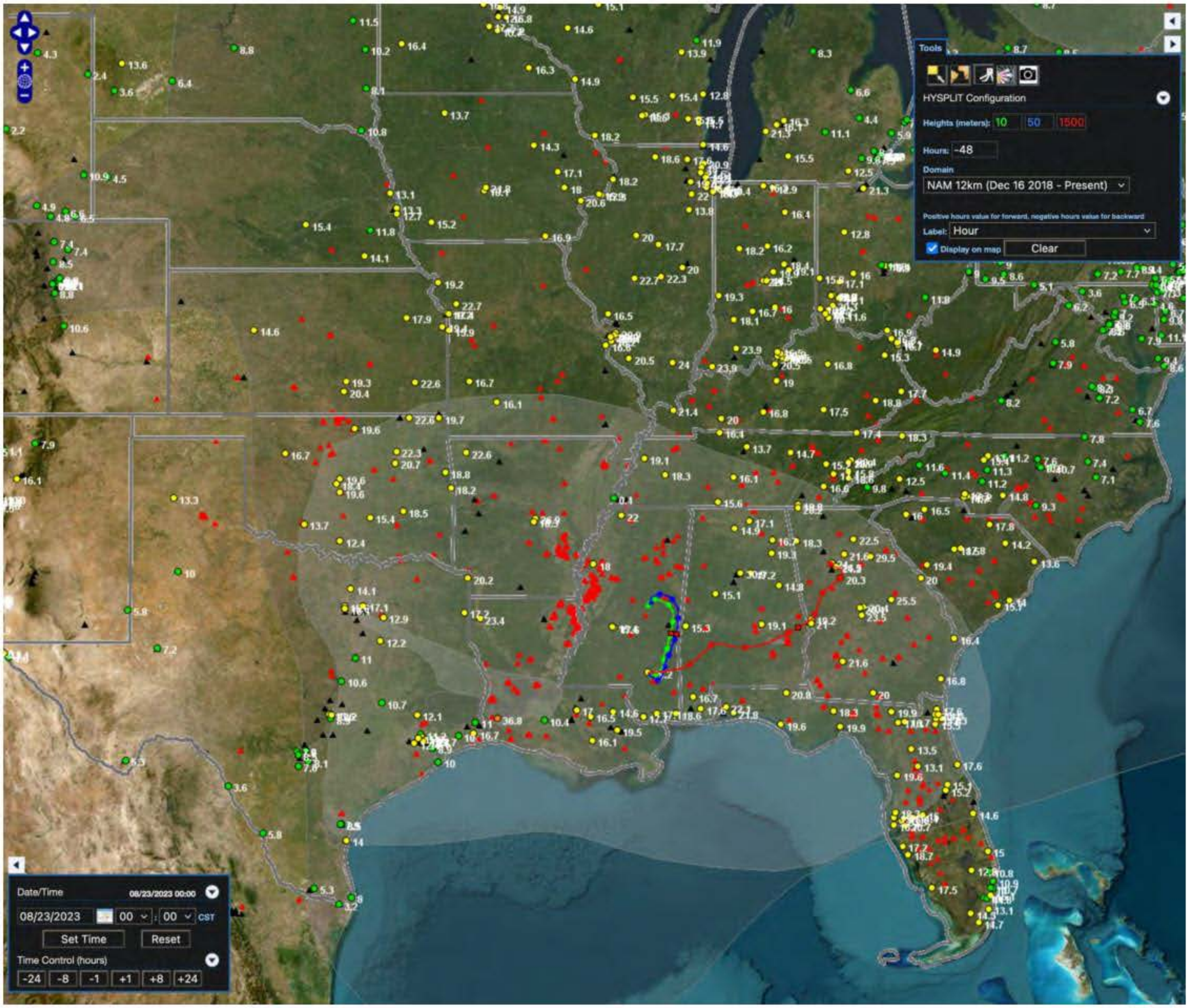
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023H240059.html) narrative dated August 24th, 2023, at 0100Z (corresponding to August 23rd, 2023, at 8:00 PM CDT). The narrative describes moderate remnant smoke from Canadian wildfires stagnating over the southeastern U.S resulting in elevated PM2.5 values. This large patch of smoke, also extending over the northern Gulf of Mexico, likely originated from the extensive wildfires across western Canada, contributing to widespread smoke across North America.



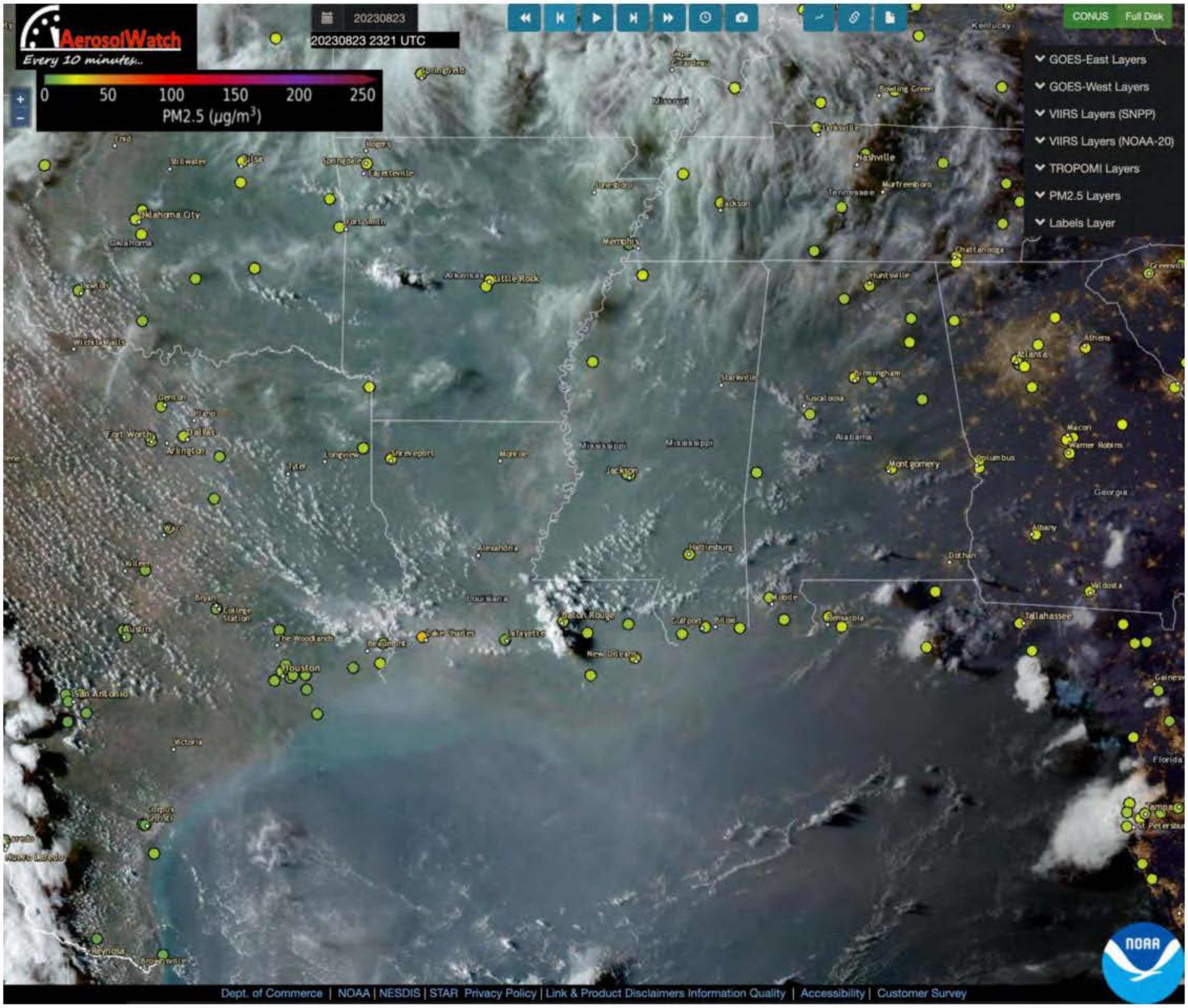
The 00z surface analysis (August 23rd, 2023, at 7 PM CDT) shows surface High pressure is in firm control over the southeast, bringing with it very stable conditions, preventing mixing/ventilation of surface smoke in place from the Canadian wildfires that was transported down in previous days with aid of surface frontal boundary coupled with smoke from small, embedded wildfires, that was occurring over the southeastern United States



The 00Z upper-level analysis at 500 mb (August 23rd, 2023, at 7 PM CDT) shows a 594+ dm upper-level ridging in place across the Midwest, extending into the southeastern United States, creating healthy subsidence, trapping the surface smoke from the Canadian fires near the surface that was transported in from previous days surface frontal boundary coupled with smoke from small, embedded wildfires, that was occurring over the southeastern United States



The AirNowTech Navigator image from August 23rd, 2023, shows a large batch of smoke from Canadian wildfires transported into the region, combined with smoke from small, embedded wildfires occurring over the Mid-South and southeastern United States, which elevated PM2.5 values. Overlaid on the image is a 48-hour back trajectory analysis, showing minimal movement of the lowest 10m and 50m parcels, indicating a very stagnant air mass in place.



GOES East True Color image taken on August 23rd, 2023, at 2321UTC, showing smoke shield from Canadian wildfires encompassing the Mid-South and southeastern United States, elevating PM2.5 values.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/23/23	14.8	14.9	15.1	15.8	16.7	17.7	19.1	19.9	19.4	18.9	19.4	19.6	20.2	20.1	19.5	20	20.6	20.7	20.5	20.4	20.7	21.7	22.6	23	19.22	23

The hourly PM2.5 values at the Hattiesburg monitor on August 23rd, as shown in the image above, indicate elevated levels in the teens and twenties throughout the day, largely due to remnant smoke from Canadian wildfires trapped beneath a broad area of surface high pressure and upper-level ridging, along with smoke from small, embedded wildfires over the southeastern United States This strong ridging and surface high pressure limited ventilation and prevented the dispersion of smoke in the area.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
Aug 24 – Aug 27, 2023	Wildfire	RT	28-035-0004	Hattiesburg	21.8, 18.1, 22.8, 23.2	2, 3	Wildfire C Exceptional Event Demonstration: August 24 - 27, 2023

Synopsis: Leading up to the exceptional event for August 24–27, the meteorological setup featured a persistent surface high-pressure system over the southeastern United States, combined with an expansive upper-level ridge, at times exceeding 600 dm, centered over the Midwest. Note, the period between August 17th and August 27th, surface High pressure and upper-level ridging was so strong, many ASOS stations across the southeastern United States saw a string of days where daytime highs exceeded 100F. This created very stagnant and stable conditions across the southeastern United States Under this ridge and surface high, smoke from Canadian wildfires was transported to the southeast by surface frontal boundaries and upper level troughing. After the front's passage, abundant smoke from Canadian wildfires remained in place, and strong surface high pressure along with upper-level ridging developed, locking the Canadian smoke over the southeast from August 18–23.

Although the Hattiesburg monitor recorded smoke from August 18–27, local wildfires in the southeast began to contribute additional smoke around August 22–24. As the days progressed, there was a transition, with local wildfire smoke gradually replacing the Canadian smoke at the surface. This transition culminated around August 24, leading to the separation of the smoke impact period into two exceptional events: August 18–23 for the Canadian wildfire smoke, and August 24–27 for local wildfire smoke.

Further evidence of local wildfire smoke becoming the dominant influence on air quality can be seen in the steadily increasing PM2.5 values, which correlate with the growing number of wildfires across the southeast. The Hattiesburg monitor recorded daily PM2.5 averages of 17.9 µg/m^3 on August 22nd, 18.3 µg/m^3 on August 23rd, and 21.8 µg/m^3 on August 24th. This upward trend in PM2.5 values, coupled with the increasing wildfire activity in the southeastern United States, indicates a stronger influence from local wildfires compared to the previously dominant Canadian wildfire smoke.

Thursday, August 24, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0100Z August 25, 2023

SMOKE:
United States/Canada/Mexico/Northwestern Atlantic Ocean/Northeastern Pacific Ocean...
Smoke from the numerous wildfires burning across western Canada continued to produce a large area of moderate to very thick smoke that extended over southern sections of the Northwest Territories, British Columbia, Alberta, Saskatchewan, and Manitoba. The smoke likely extended over into eastern Canada but heavy cloud cover covered the region. The thick density smoke also extending out over the adjacent Pacific Ocean, along southwestern Canada and further south along the western U.S coast. Additional thick smoke extended along the California, Oregon, Washington coast and into the Pacific and north/northeast across northwestern Oregon, Washington into northern Idaho, northwestern Montana, southeastern Alberta, and southern Saskatchewan/Manitoba. This smoke was from wildfire near Eureka, California. Moderate density smoke encompassed the same regions while extending further east within Canada. The overall large area of light density smoke from the wildfires in western Canada, Northwest US, northern California extended across Canada, most of the US, and northern/central Gulf of Mexico. In addition, moderate smoke over much of central-eastern U.S, with contributions coming the wildfires in Canada and western U.S as well as the wildfires in the southeastern U.S.

DUST:
Africa/Atlantic Ocean…
Saharan dust was observed over the eastern Atlantic Ocean, near Africa and the Iberian Peninsula and stretching and getting lighter around 42W. The heaviest of the dust was near the African coast. An additional east to west elongated area of dust extends westward along the northern South America coast into the southern/eastern Caribbean Sea and upward to in/around 18N in certain areas.

NGUYEN

THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE, TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS. AREAS OF BLOWING DUST ARE ALSO DESCRIBED. USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

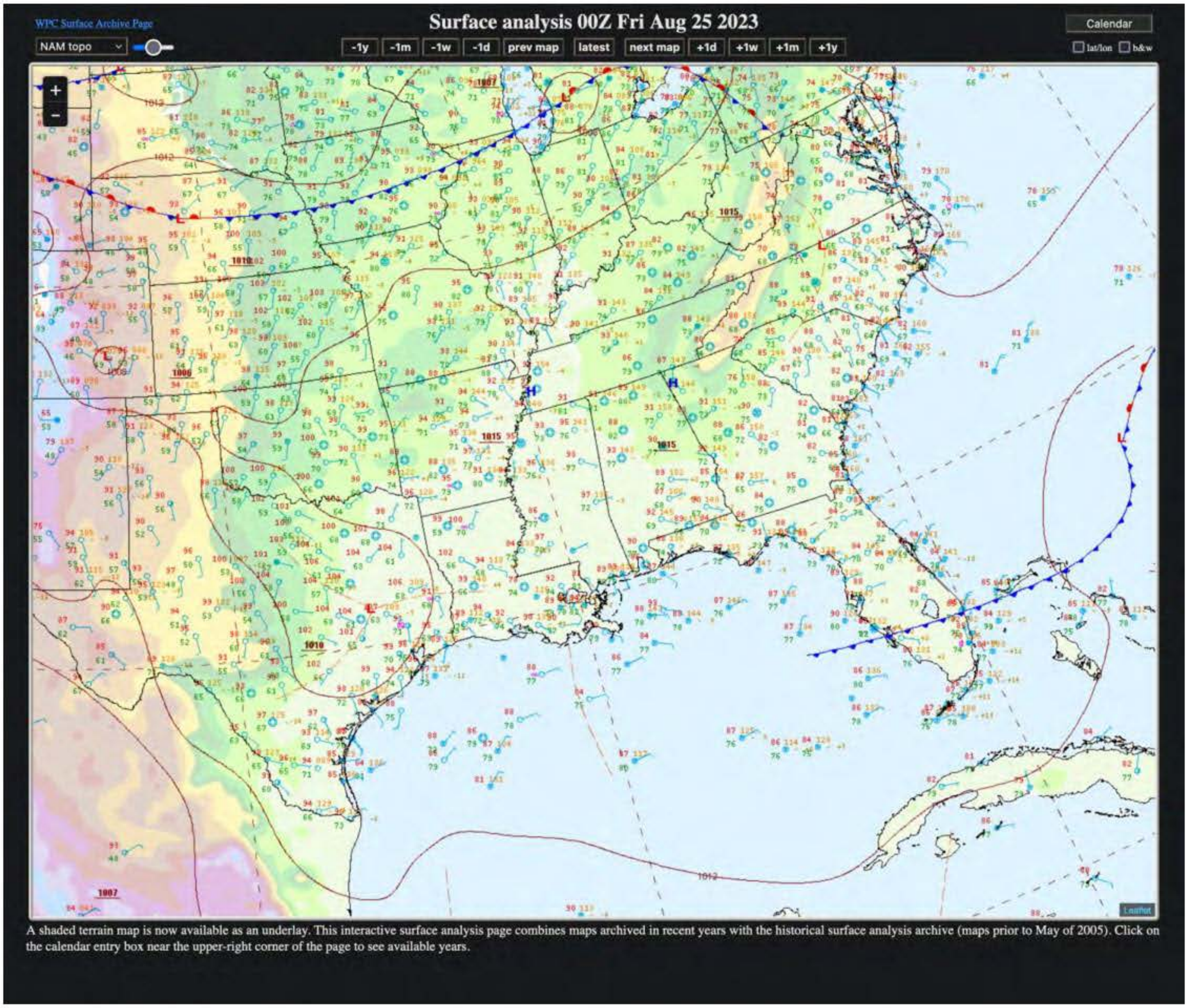
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov

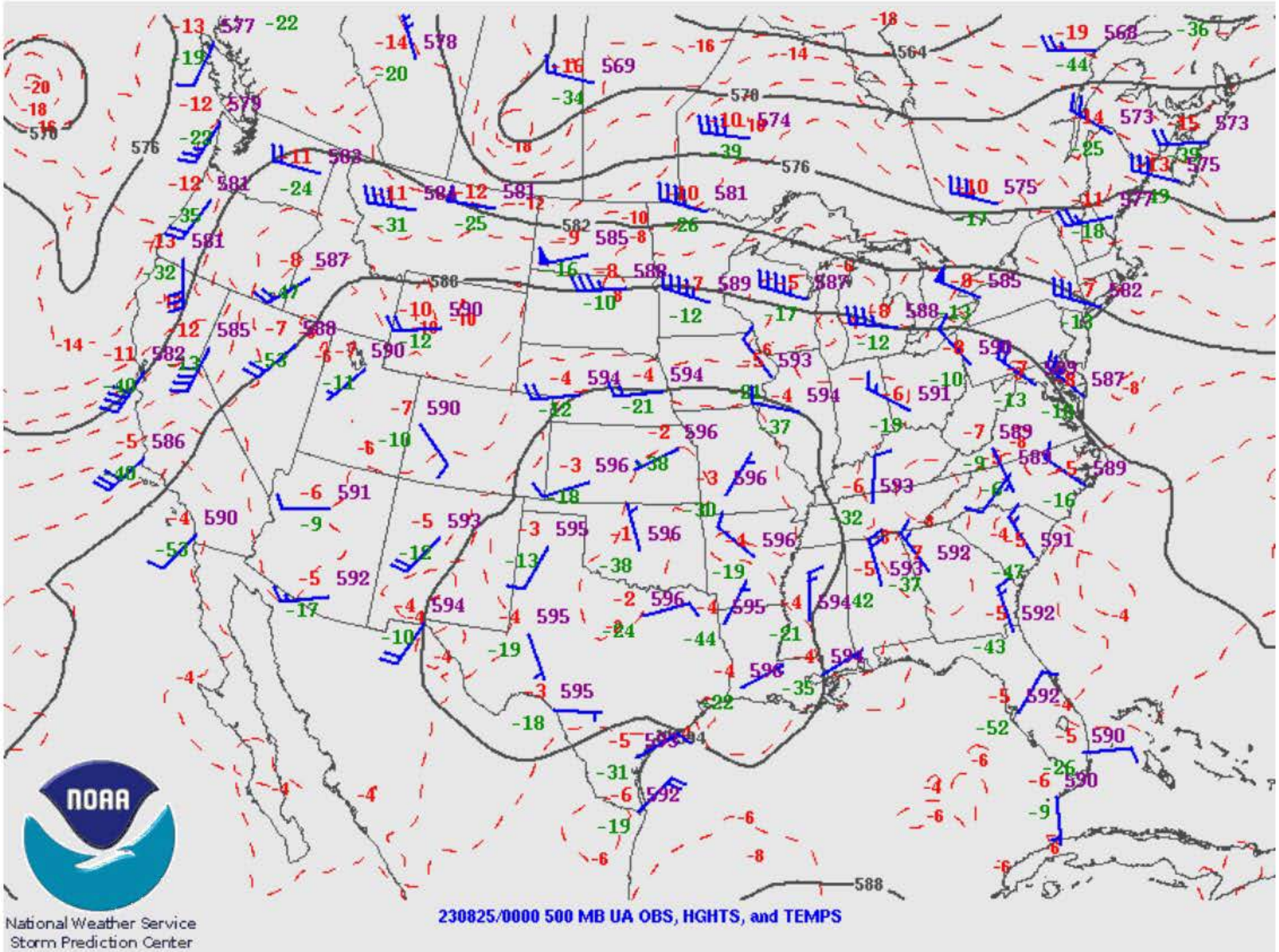
Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

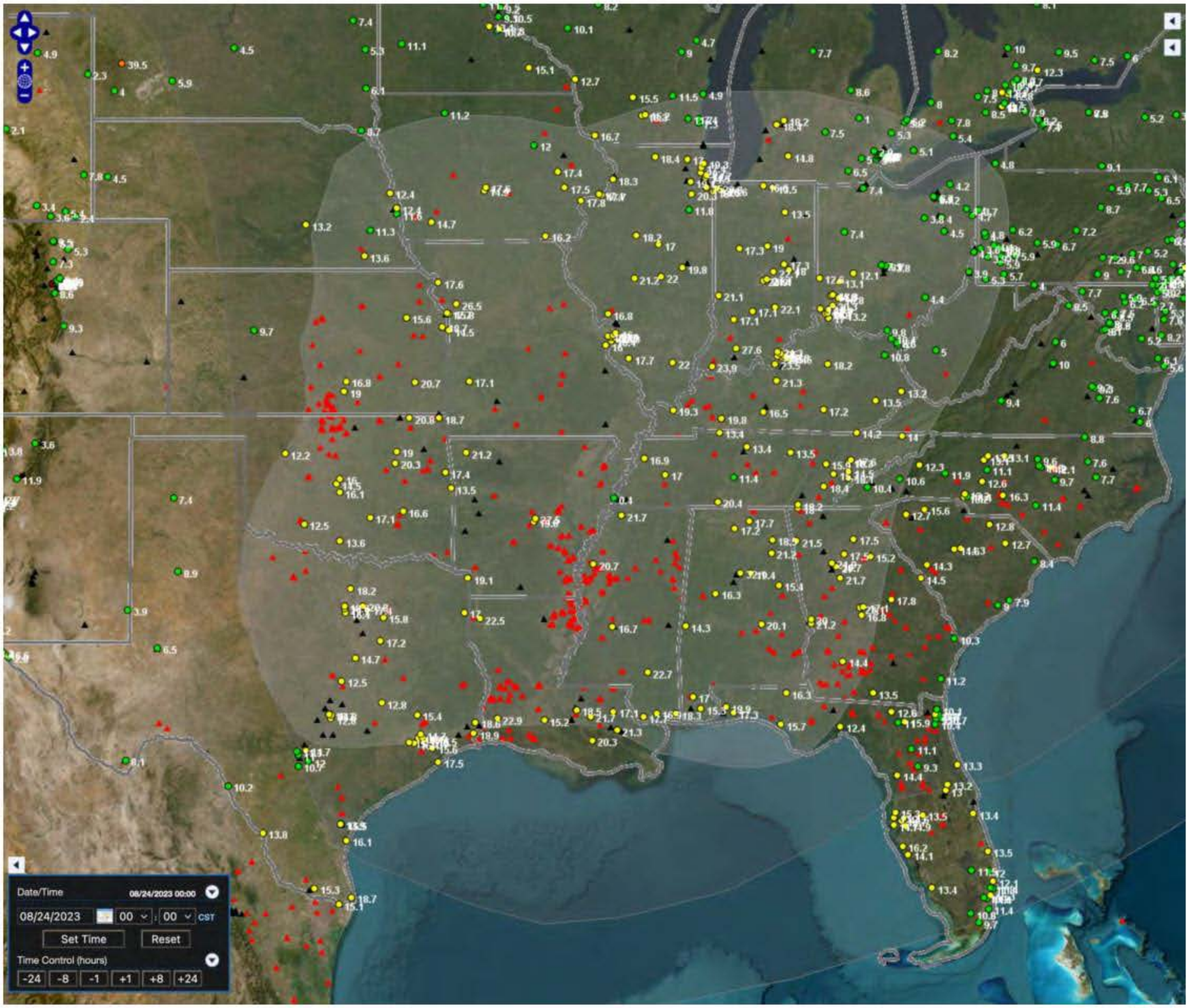
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023H250126.html) narrative dated August 25th, 2023, at 0100Z (corresponding to August 24th, 2023, at 8:00 PM CDT). The narrative describes how there is still residual Canadian smoke across much of the southeast and Gulf of Mexico yet wildfires in the southeastern United States is contributing to additional smoke in the area, keeping PM2.5 values elevated.



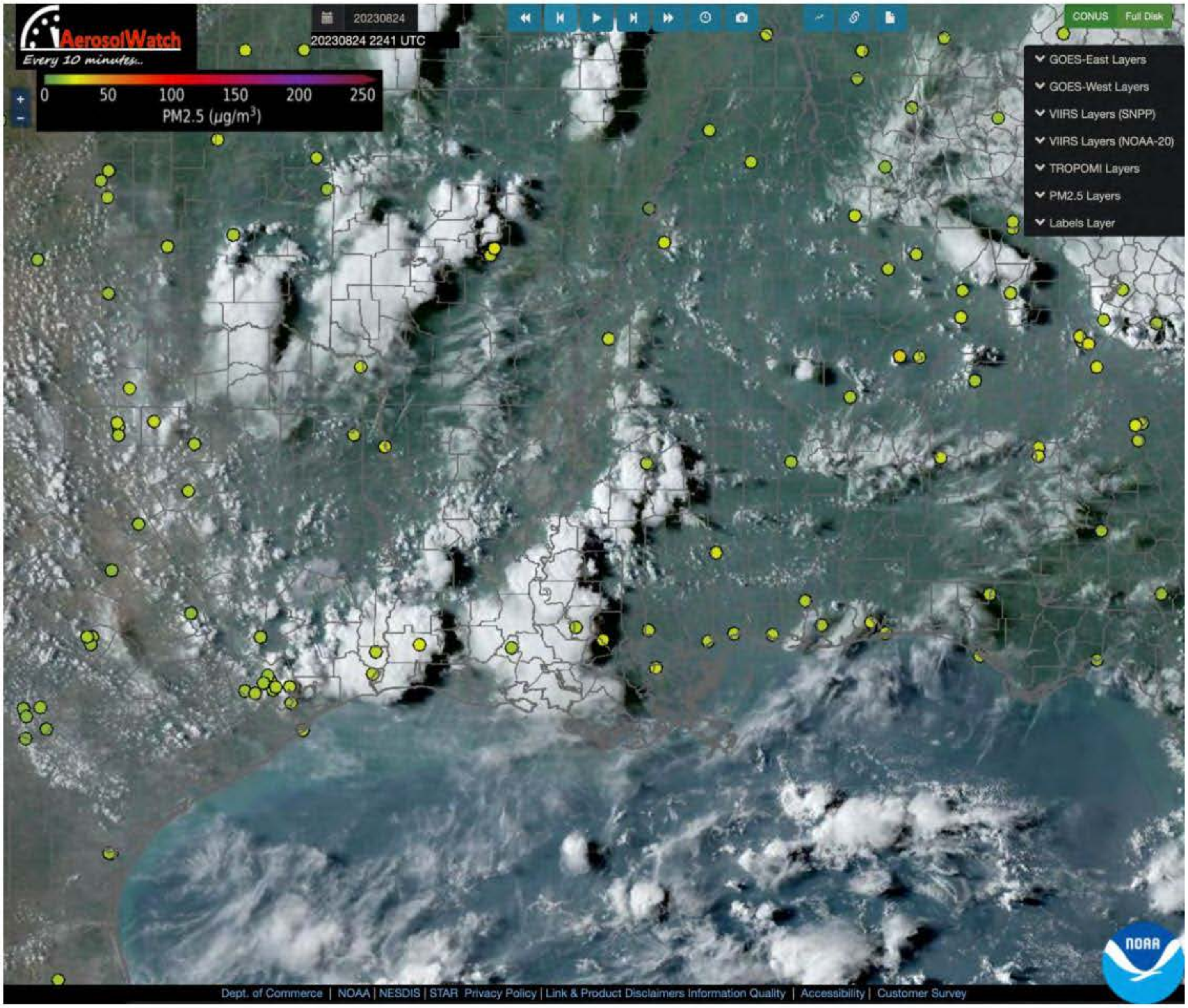
The 00z surface analysis (August 24th, 2023, at 7 PM CDT) shows surface High pressure is in firm control over the southeast, bringing with it very stable conditions, preventing mixing/ventilation of residual surface smoke in place from the Canadian wildfires coupled with newly acquired smoke from wildfires, that was occurring over the southeastern United States.



The 00Z upper-level analysis at 500 mb (August 24th, 2023, at 7 PM CDT) shows a 594+ dm upper-level ridging in place across the Midwest, extending into the southeastern United States, creating healthy subsidence, trapping the residual surface smoke from the Canadian fires coupled with smoke from wildfires, that was occurring over the southeastern United States.



The AirNowTech Navigator image from August 24th, 2023, shows a large batch of residual smoke from Canadian wildfires transported into the region, combined with smoke from wildfires occurring over the Mid-South and southeastern United States, elevating PM2.5 values.

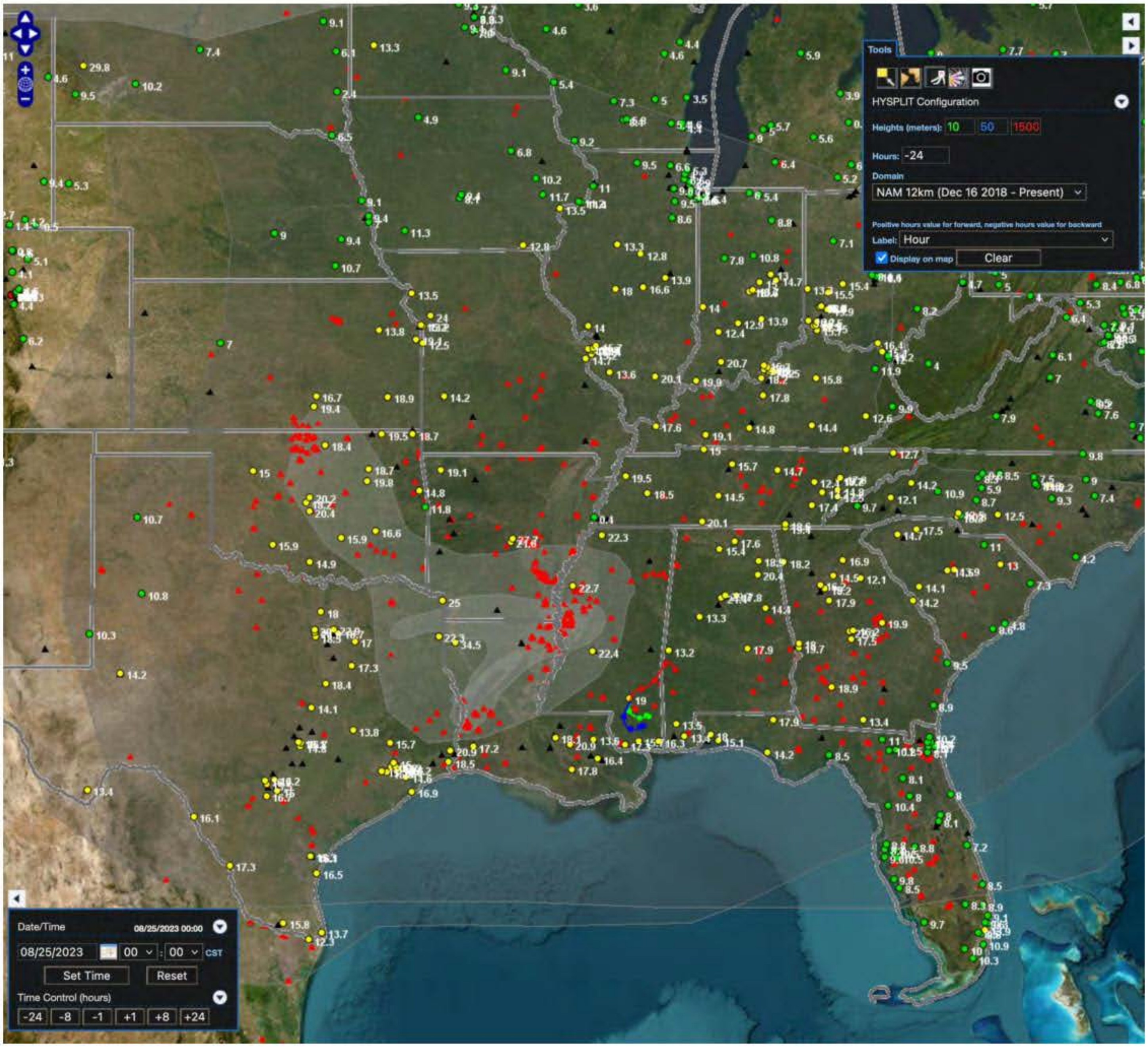


GOES East True Color image taken on August 24th, 2023, at 2241UTC, showing smoke shield encompassing southeastern United States, from both residual smoke from Canadian wildfires, coupled with smoke from local wildfires, elevating PM2.5 values.

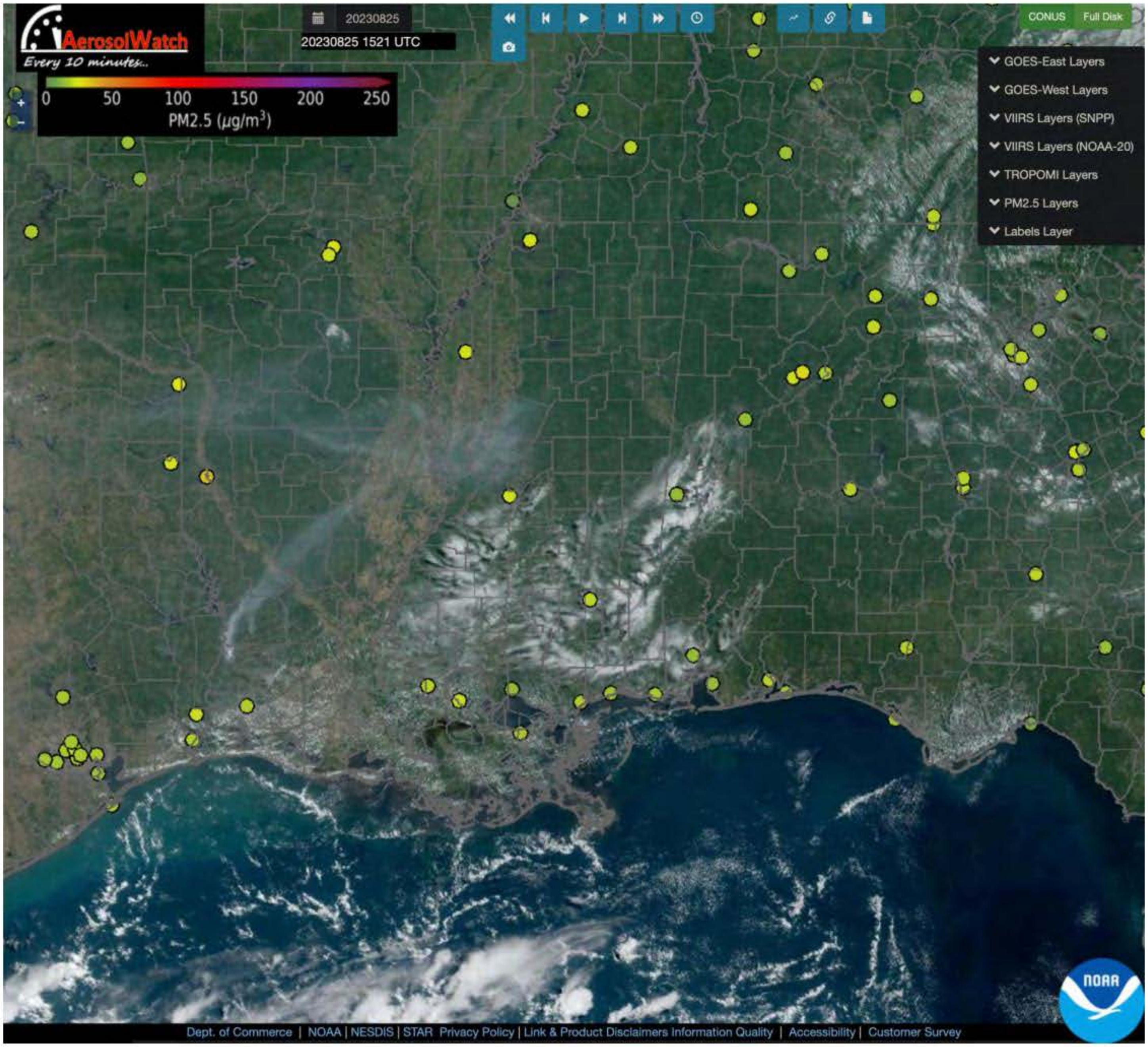
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/24/23	27.4	24.6	24	24.8	25.7	27.8	30	28.3	23.9	22.2	21.4	21.6	21.1	19.6	19.9	20.3	20.4	20.6	21.4	22.6	21.3	19	18.9	18.7	22.73	30

The hourly PM2.5 values at the Hattiesburg monitor on August 24th, as shown in the image above, remained elevated in the teens and twenties throughout the day. These elevated levels were attributable to two sources: remnant Canadian wildfire smoke trapped beneath a broad area of surface high pressure and upper-level ridging, and smoke from wildfires in the southeastern United States The combination of strong ridging and surface high pressure limited ventilation and prevented smoke dispersion in the area.

August 25th: Surface high pressure continued to create a stagnant air mass, allowing both residual smoke from Canadian wildfires and fresh smoke from ongoing wildfires in the southeastern United States to keep PM2.5 values elevated. On August 25th, large wildfires in southwest Louisiana prompted evacuations in Beauregard Parish, including the significant Tiger Island fire (source: https://www.cbsnews.com/news/louisiana-wildfires-tiger-island-fire-merryville/). Smoke from these Louisiana wildfires drifted eastward into Mississippi, further impacting PM2.5 monitors and contributing to elevated particulate levels across the state



The AirNowTech Navigator image from August 25th, 2023, shows a large batch of residual light smoke from Canadian wildfires transported into the region, combined with medium to heavy smoke from wildfires occurring primarily over eastern Texas, large wildfires previously mentioned in southwest Louisiana, southern half of Arkansas, and western half of Mississippi, elevating PM2.5 values in the region. Overlaid are 24-hour back trajectories at the Hattiesburg monitor showing very little movement of the parcel at 10m, 50m, and 1500m, indicating very stagnant air-mass in place.

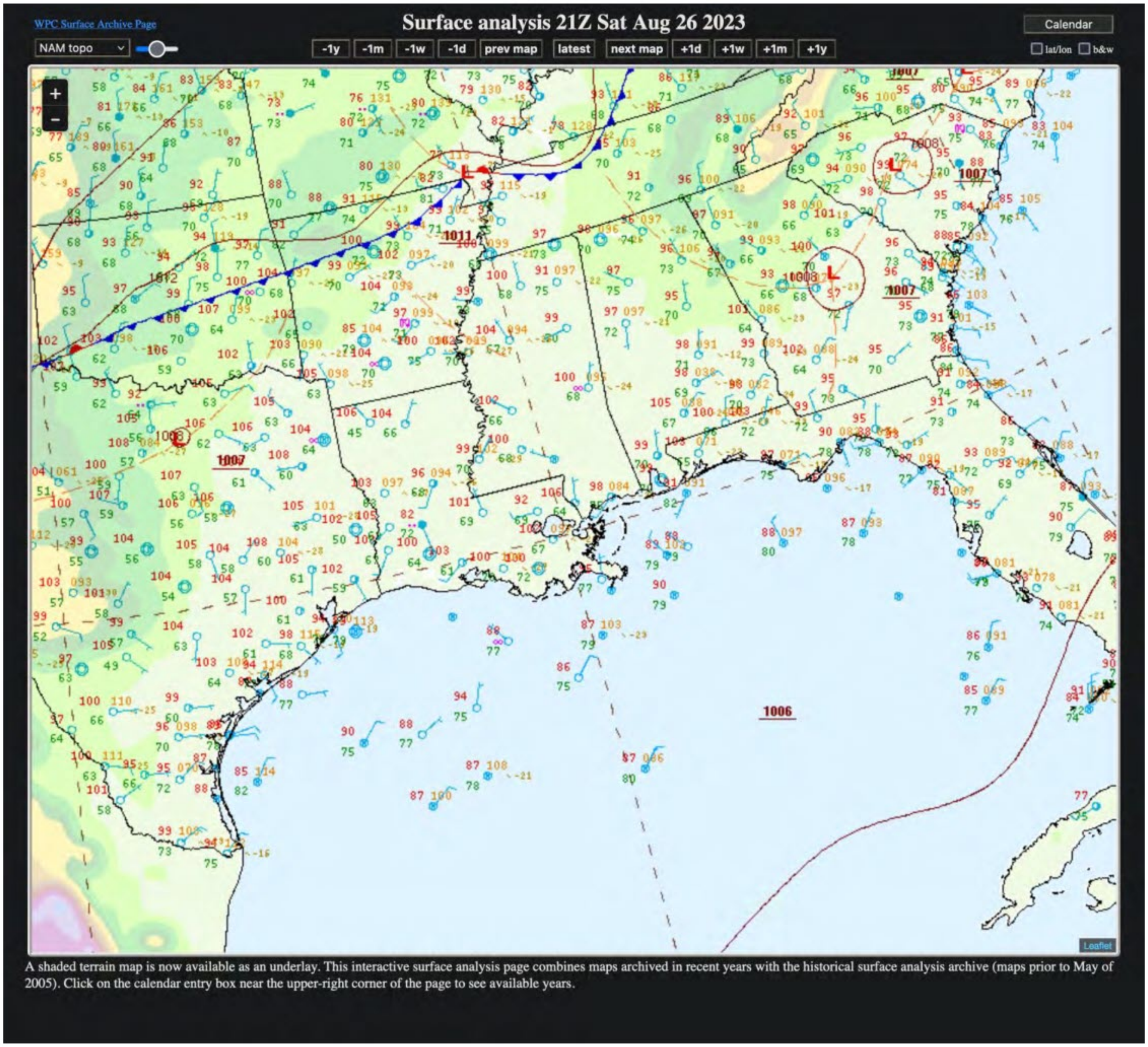


GOES East True Color image taken on August 25th, 2023, at 1521UTC, showing smoke shield encompassing southeastern United States, from both residual smoke from Canadian wildfires, coupled with smoke from local wildfires, elevating PM2.5 values. Image also shows large smoke plume from the large wildfire in southwest Louisiana, drifting north and then eastward crossing into Mississippi.

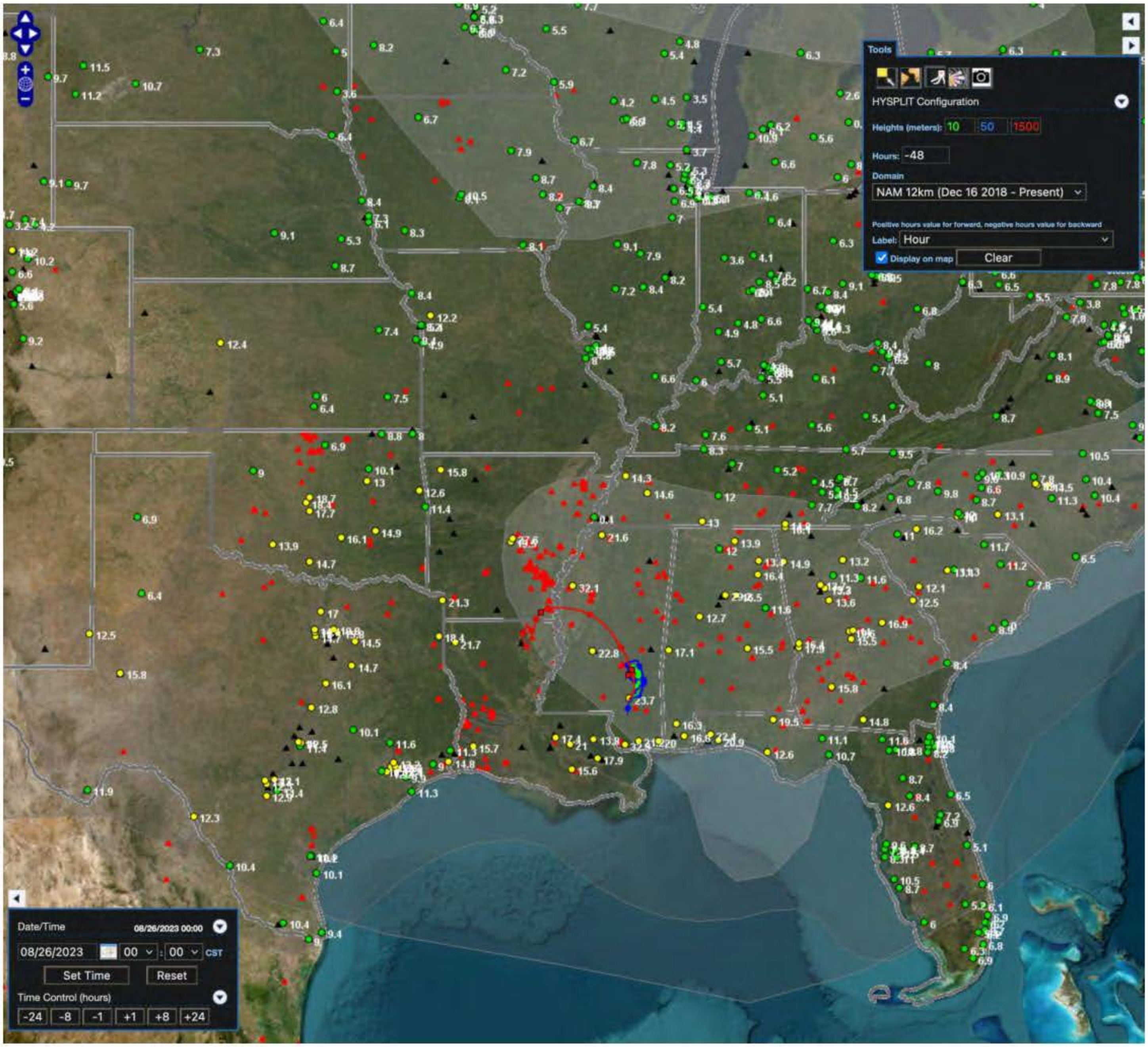
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/25/23	18.7	18.8	19.5	20	19.8	20.9	22.5	22.4	19.5	19	19.6	19.3	18.1	18	17.8	17.4	14.2	14	14.4	16.4	21.4	25.4	20.6	19	19.03	25.4

The hourly PM2.5 values at the Hattiesburg monitor on August 25th, as shown in the image above, remained elevated in the teens and twenties throughout the day. These elevated levels were attributable to two sources: remnant Canadian wildfire smoke trapped beneath a broad area of surface high pressure and upper-level ridging, and smoke from wildfires in the southeastern United States The combination of strong ridging and surface high pressure limited ventilation and prevented smoke dispersion in the area.

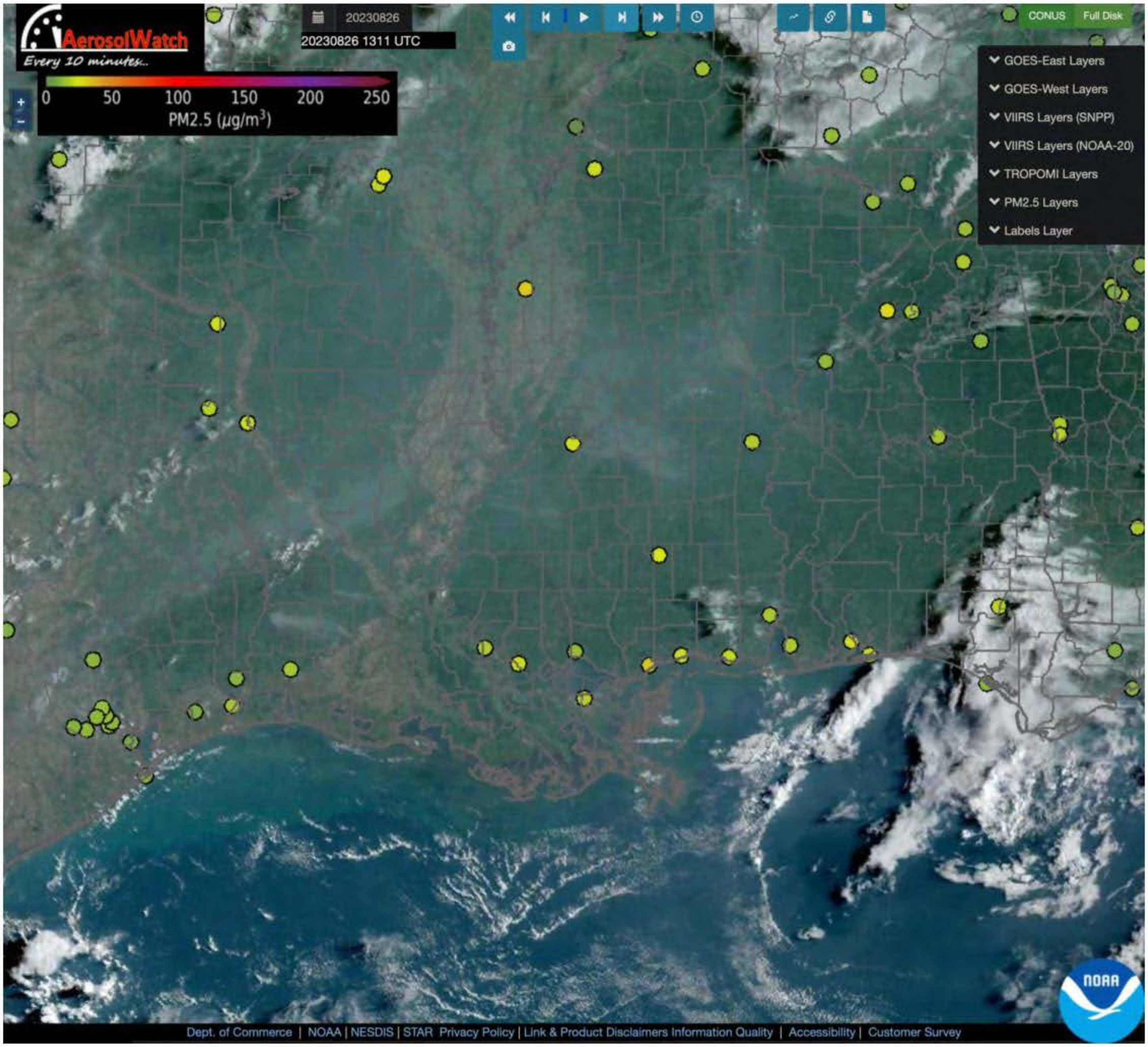
August 26th: Surface analysis showed persistent high pressure dominating the area, maintaining stagnant conditions. During this period, many locations across the southeastern United States experienced daytime highs exceeding 100°F. Strong subsidence contributed to the extreme heating, further indicating stagnant conditions and preventing ventilation of smoke from the ongoing wildfires across the area.



The 21z surface analysis (August 26th, 2023, at 4 PM CDT) shows surface High pressure is in firm control over the southeast, bringing with it very stable conditions, preventing mixing/ventilation of residual surface smoke in place from the Canadian wildfires coupled with newly acquired smoke from wildfires, that was occurring over the southeastern United States Surface analysis also showing daytime highs at many ASOS stations exceeding 100F across the area which is also a strong indicator of stagnant conditions coupled with very light winds.



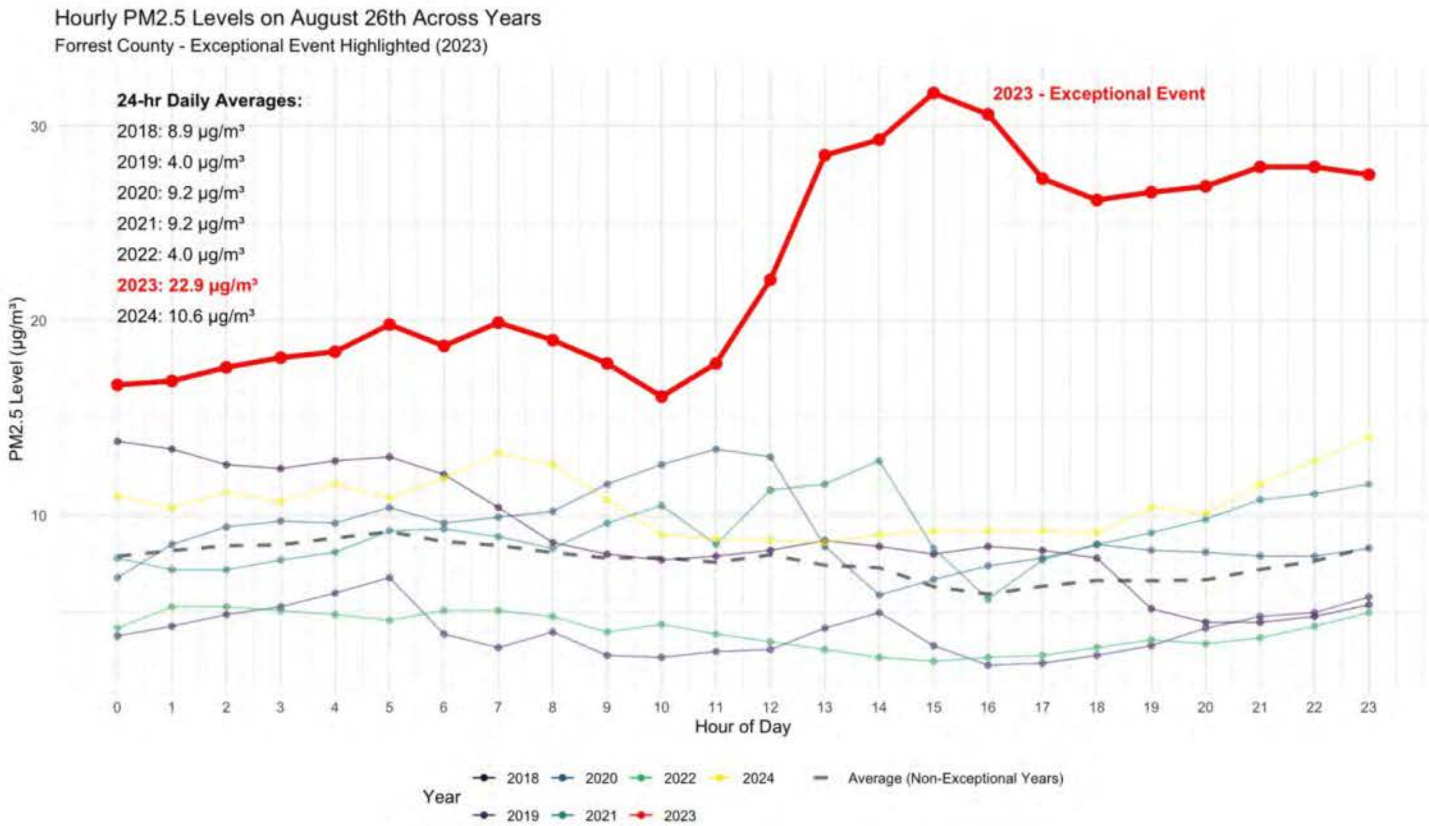
The AirNowTech Navigator image from August 26th, 2023, shows a large area of residual light smoke from Canadian wildfires transported into the region, combined with smoke from wildfires across the southeastern United States, elevating PM2.5 values throughout the area. Overlaid 48-hour back trajectories at the Hattiesburg monitor show minimal movement of air parcels at 10m, 50m, and 1500m, indicating a highly stagnant air mass. The 1500m trajectory originates from Louisiana, where large wildfires days prior had produced smoke-laden air that subsequently drifted eastward and southward, ultimately affecting the Hattiesburg monitor.



GOES East True Color image taken on August 26th, 2023, at 1311UTC, showing smoke shield encompassing much of Louisiana and Mississippi, primarily from smoke that originated from the large Louisiana wildfires, drifting eastward into Mississippi, coupled with local wildfires, elevating PM2.5 values.

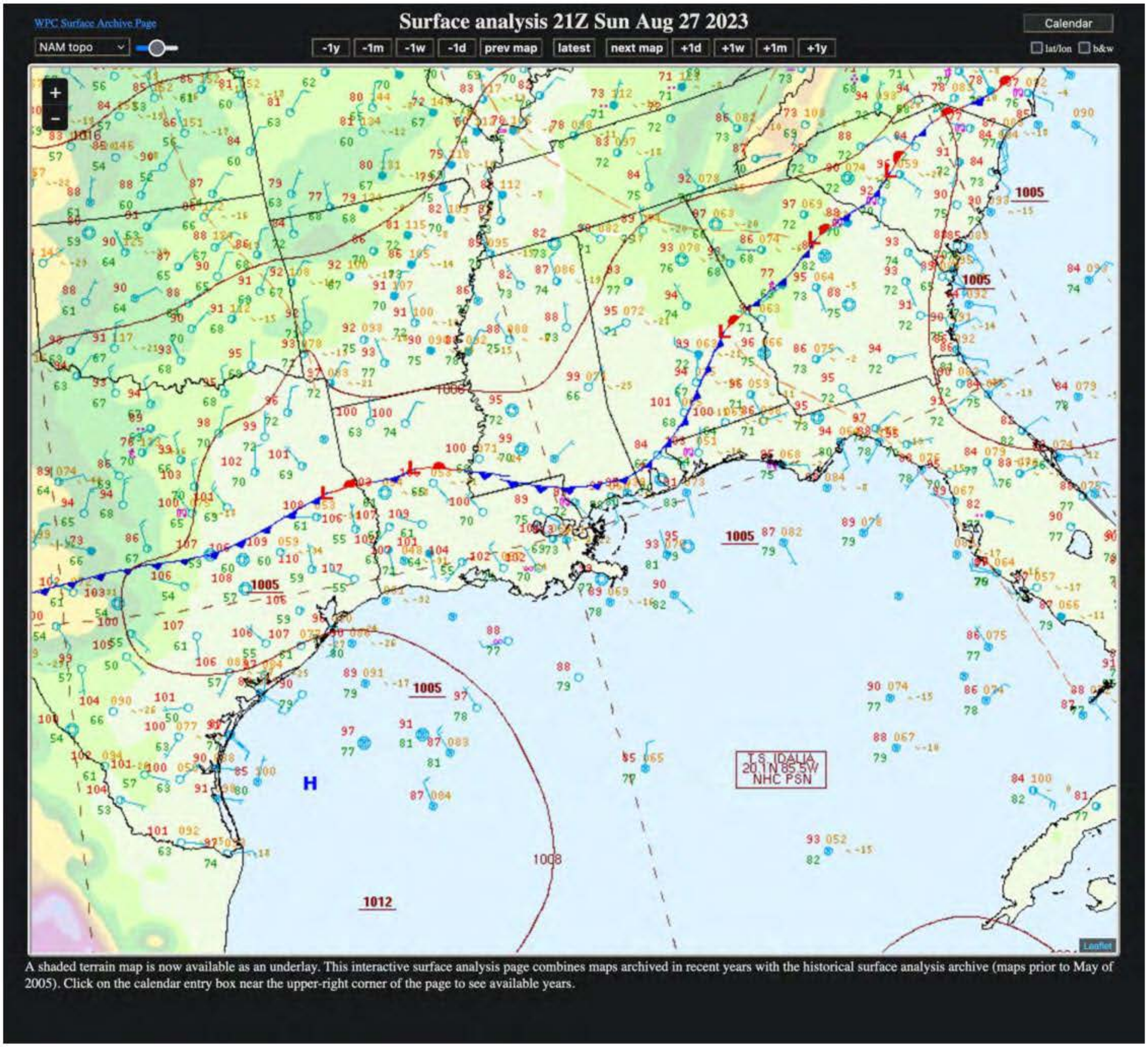
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/26/23	17.6	17.8	18.5	19	19.3	20.7	19.6	20.8	19.9	18.7	17	18.7	23	29.4	30.2	32.6	31.5	28.2	27.1	27.5	27.8	28.8	28.8	28.4	23.79	32.6

The hourly PM2.5 values at the Hattiesburg monitor on August 26th, as shown in the image above, remained in the teens during the morning and early afternoon hours before increasing into the twenties and thirties during the late afternoon and evening. This increase coincided with the southward drift of the smoke shield over the Hattiesburg monitor, as captured by GOES East True Color imagery.

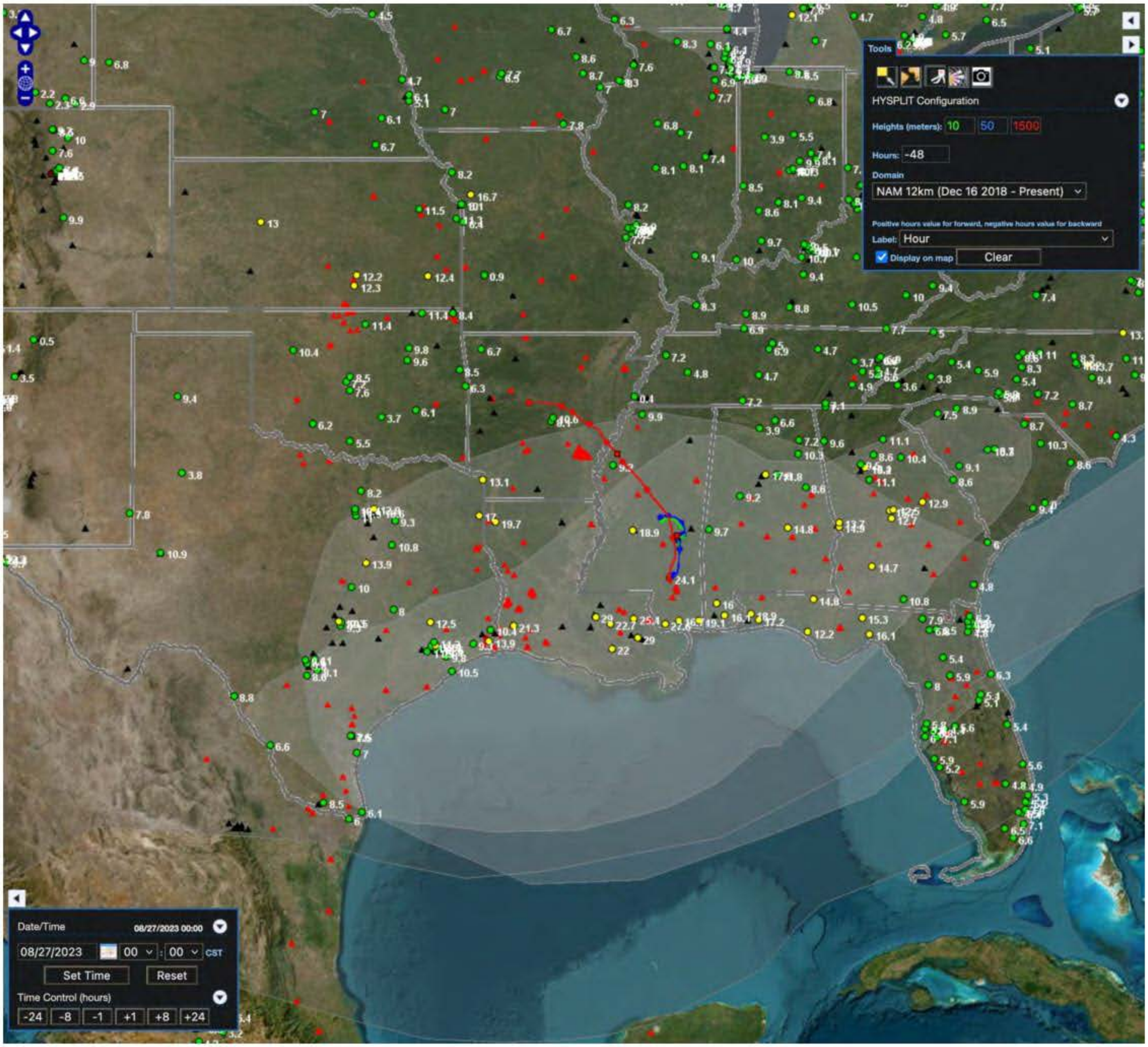


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting significantly higher values in 2023 compared to the average of non-exceptional years. The hourly plot shows elevated PM2.5 concentrations throughout August 26th, 2023, with particularly high values during the late afternoon and evening hours as smoke-laden air from Louisiana wildfires impacted the Hattiesburg monitor. These elevated concentrations resulted in a 24-hour average of 22.9 µg/m^3.

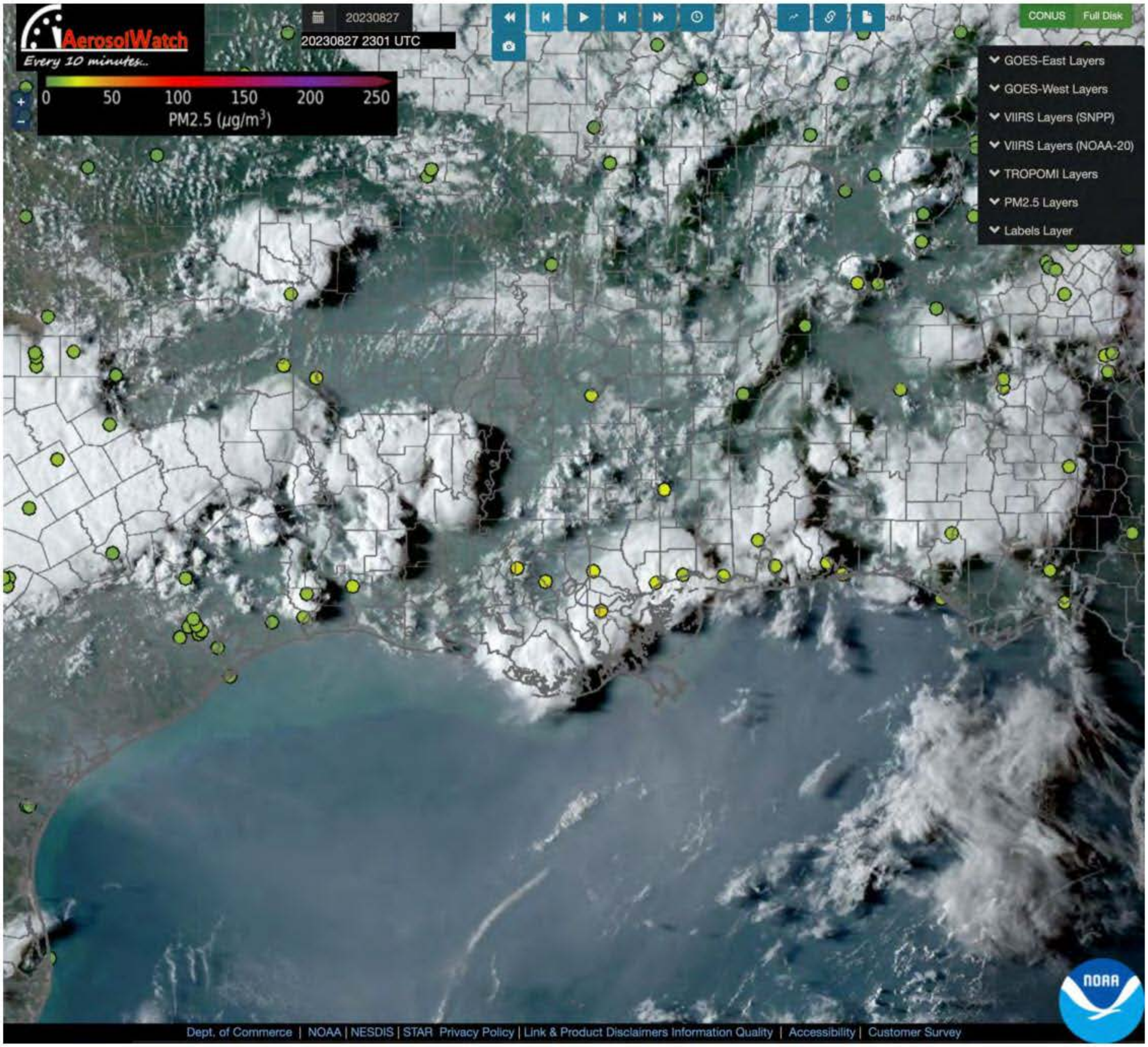
August 27th: August 27th saw a surface frontal boundary drop from north to south across Mississippi during the day helping spark off shower and thunderstorms especially during the late afternoon into the evening hours. Prior to the shower and thunderstorm development, PM2.5 values remained high during the overnight hours of the 26th going into the 27th, persisting until the late evening hours on the 27th thanks to residual smoke left over from wildfire activity across the area that occurred in previous days.



The 21z surface analysis (August 27th, 2023, at 4 PM CDT) shows cold front that is making its way through southern Mississippi and Alabama which would help suppress wildfire smoke from previous days wildfires to central and southern portions of the gulf states.



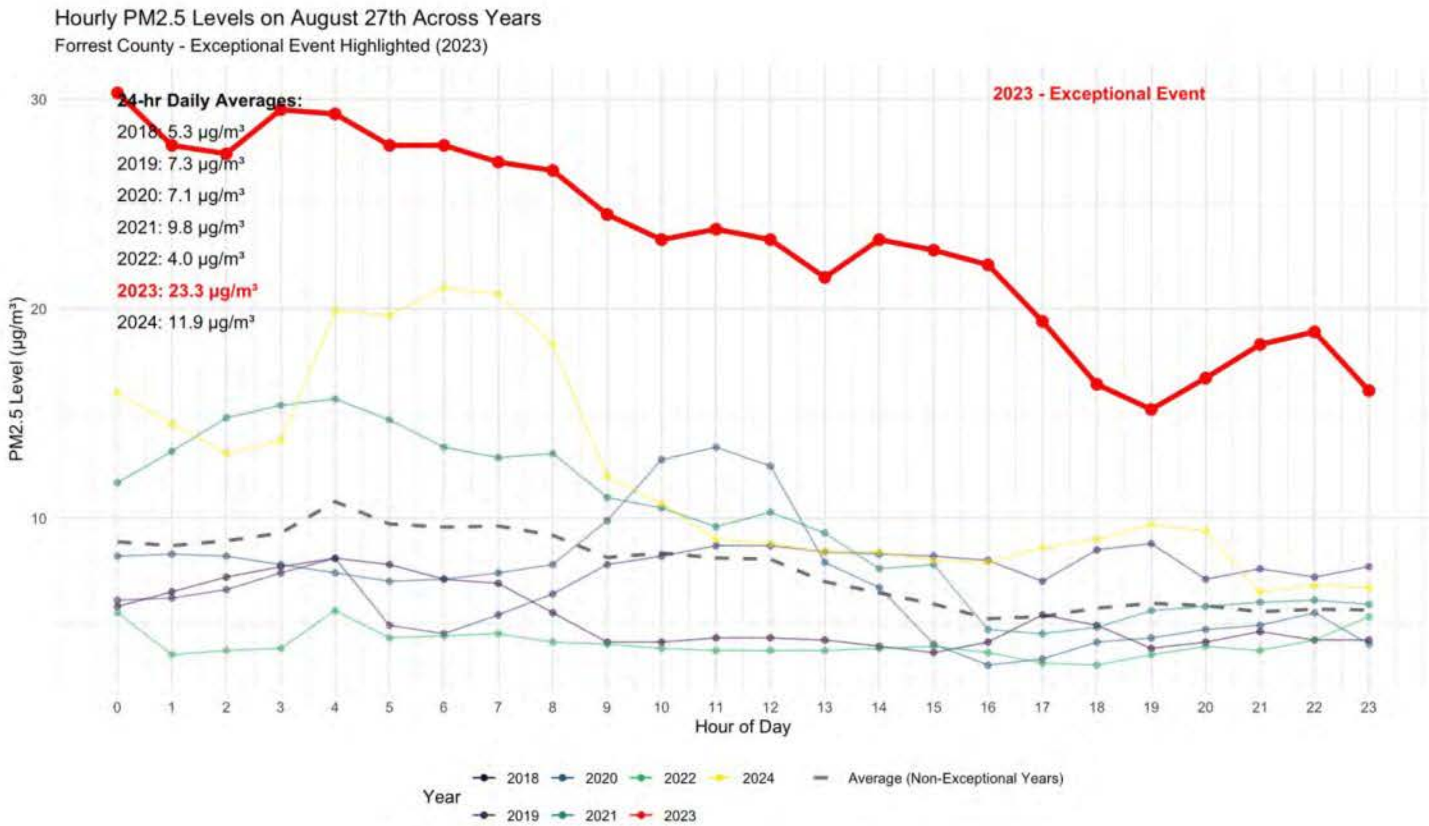
The AirNowTech Navigator image from August 27th, 2023, shows a large area of residual wildfire smoke across the southeastern United States. A surface frontal boundary is suppressing this smoke southward near the Gulf Coast, resulting in lower 24-hour PM2.5 values across Arkansas, Tennessee, northern Mississippi, Alabama, and Georgia as cleaner post-frontal air moves into these areas. Higher PM2.5 24-hour values in the mid-moderate category are concentrated in central and southern Mississippi, where the surface boundary has pushed and confined the smoke. This is also shown in the overlaid 48-hour back trajectory as the parcel is moving from north to south.



GOES East True Color imagery from August 27th, 2023, at 2301 UTC clearly shows a delineation of smoke density. A dense smoke shield extends from central Mississippi southward into the Gulf of Mexico, maintaining PM2.5 values in the moderate category. In contrast, northern Mississippi experiences cleaner post-frontal air, with PM2.5 values remaining in the good range.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	08/27/23	31.2	28.7	28.3	30.4	30.2	28.7	28.7	27.9	27.5	25.4	24.2	24.7	24.2	22.4	24.2	23.7	23	20.3	17.3	16.1	17.6	19.2	19.8	17	24.2	31.2

The hourly PM2.5 values at the Hattiesburg monitor on August 27th, as shown in the image above, remained in the twenties and thirties during most of the day before decreasing into the teens during the late evening hours. This decrease in values coincided with evening convection associated with surface frontal boundary yet the 24-hour PM2.5 value for the day was well into the twenties.



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past seven years, highlighting significantly higher values in 2023 compared to the average of non-exceptional years. The hourly plot shows elevated PM2.5 concentrations throughout August 27th, 2023, with particularly high values during the morning going into the afternoon hours as smoke-laden air from local wildfires impacted the Hattiesburg monitor.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
Sept 8 – 9, 2023	Canadian WF	RF	28-035-0004	Hattiesburg	16.7 & 17.2	2, 3	Canadian Wildfire C Exceptional Event Demonstration: September 8 - 9, 2023

Synopsis: In the days leading up to this exceptional event, numerous large wildfires continued burning across British Columbia, northern Alberta, and the southern Northwest Territories. These fires produced abundant smoke that blanketed much of western and central Canada, as well as the upper Midwest and central United States. The smoke transport to these United States regions occurred along a surface cold front moving through the central United States, supported by upper level troughing over the eastern half of the country. By September 8th, the surface front had pushed into the Gulf states and the Gulf of Mexico, bringing smoke-laden air from the Canadian wildfires behind the frontal passage and affecting PM2.5 monitors across the southeast.

A series of AirNowTech Navigator images taken from September 5th through September 8th, 2023, shows the progression of Canadian wildfire smoke as it transported across the United States. The smoke initially moved into the northeastern United States and Midwest before advancing into the Mid-South and southeast regions. This transport was facilitated by two key meteorological factors: upper level troughing over the eastern half of the United States and surface frontal boundaries descending from Canada. These conditions helped carry the wildfire smoke deep into the southeastern United States, resulting in elevated PM2.5 values.

Friday, September 8, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0100Z September 9, 2023

```
SMOKE:
Canada/U.S./Atlantic Ocean off the U.S. and Canada East Coast/Pacific
Ocean southwest of Mexico...
The numerous large wildfires continued to burn especially in portions of
British Columbia, northern Alberta, and the southern part of the Northwest
Territories this morning. A large area of smoke mainly attributed to
these fires covers most of western/central and northeast Canada, south
into the Central US reaching east into the Mississippi Valley, and parts
of northwestern U.S and the Pacific Ocean along the coast of western U.S
and Canada. Another area smoke extends along the Mexico coast into western
Mexico and north along the coast and into the southwestern U.S. An area of
moderately dense to dense smoke extends across northern British Columbia,
northern/central Alberta/Saskatchewan, most of Manitoba, south into the
northern/central Plains and Mississippi Valley and as far north as the
Northwest Territories and Nunavut. Within this area, thick density smoke
was seen over mainly northern Canada and extending south across most
of Saskatchewan and Manitoba. The large area of moderate density smoke
likely had contributions from both the large wildfires in Canada and
several wildfires/agricultural burning scattered across the Central U.S.

DUST:
Atlantic Ocean…
Saharan dust continues to be observed over west Africa/off the coast
and east across the Atlantic.


Nguyen

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SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED
FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE,
TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS.  AREAS OF BLOWING DUST ARE
ALSO DESCRIBED.  USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE
AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE
FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

JPEG map:      https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

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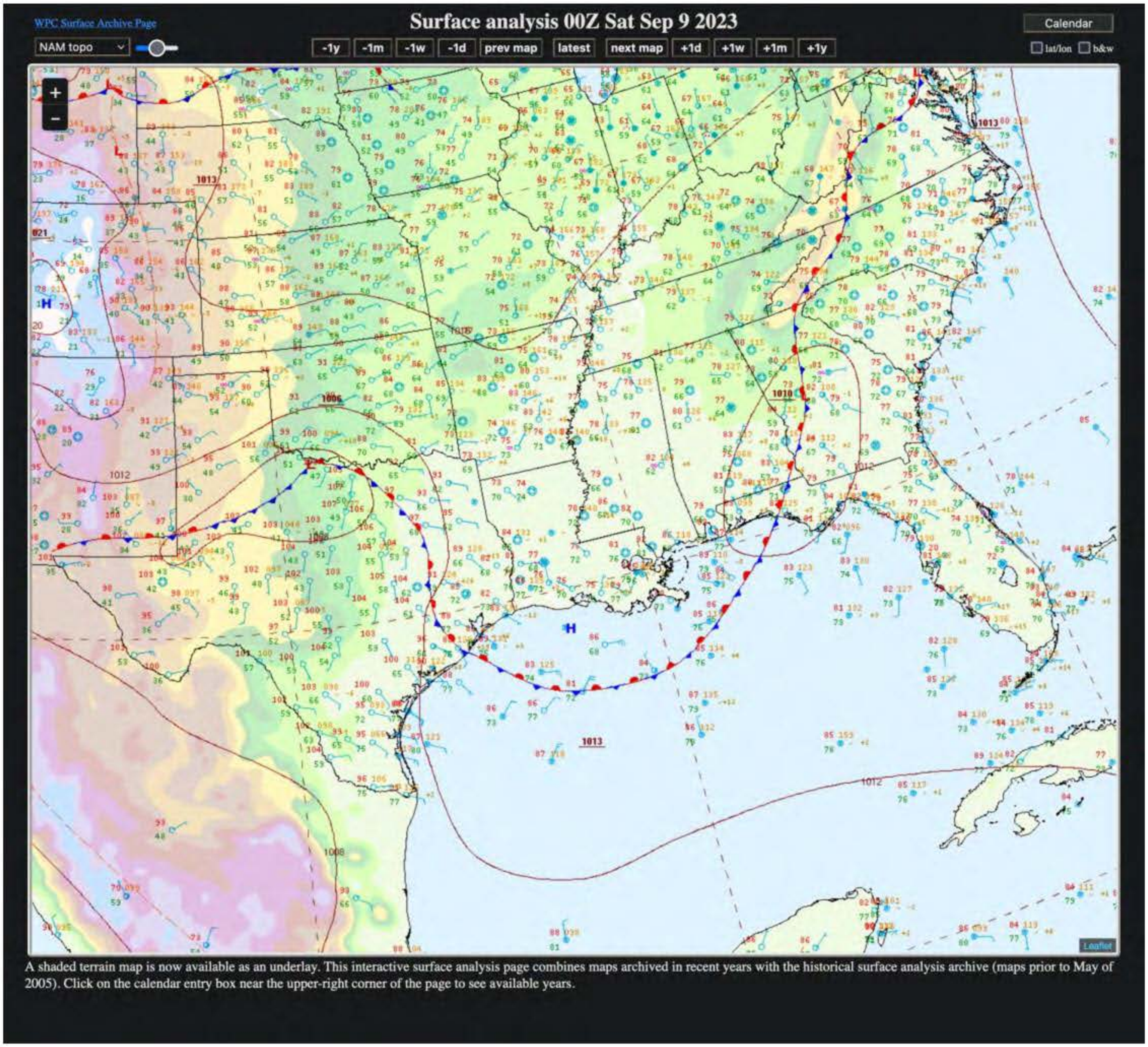
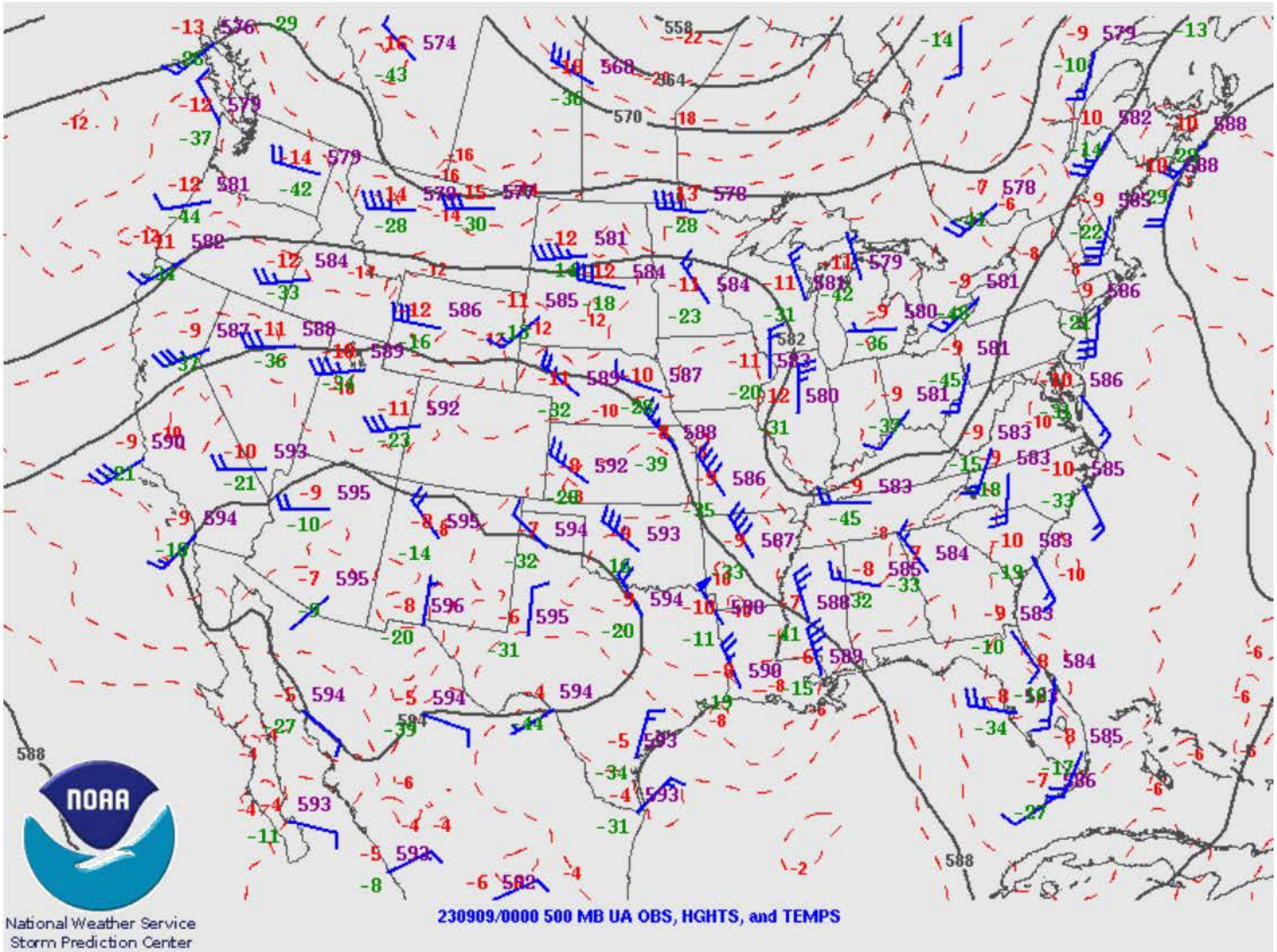
2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023I090156.html) narrative dated September 9th, 2023, at 0100Z (corresponding to September 8th, 2023, at 8:00 PM CDT) describes smoke from Canadian wildfires extending from Canada into the Mississippi Valley. This smoke transport was facilitated by upper level troughing over the eastern half of the United States and surface frontal boundaries descending from Canada, which helped carry the smoke deep into the southern United States.



The 00z surface analysis (September 9th, 2023, at 7 PM CDT) shows cold front that has made its way through the Gulf States and into the Gulf of Mexico, issuing in behind it, smoke laden air-mass from Canadian wildfires.



The 500 mb upper-level analysis from 00Z (September 9th, 2023, at 7 PM CDT) shows developing troughing over the eastern United States, which was amplified by a building ridge over the Four Corners region. This strengthened pattern helped distribute smoke from the Canadian fires southward to the Gulf States.

The AirNowTech Navigator image from September 8th, 2023, shows smoke from Canadian wildfires moving southward behind a surface frontal boundary that had advanced into the northern Gulf of Mexico. Overlaid 48-hour back trajectories at 10m, 50m, and 1500m heights show air parcels moving from north to south, with the 1500m parcel notably tracing directly back to heavily concentrated smoke in the upper Midwest.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	09/08/23	8.2	8.2	8.7	9.6	9.1	8	8.4	13	16.1	18.7	19.7	20	20.8	20.9	20.6	20	19.3	19.9	23.5	24.6	22.7	25.4	29	29.5	17.66	29.5

The hourly PM2.5 values at the Hattiesburg monitor on September 8th, as shown in the image above, demonstrate that PM2.5 concentrations were in the single digits ahead of the frontal boundary. After the frontal passage in the mid-morning hours, PM2.5 values rose into the upper teens and twenties for the remainder of the day as the smoke-laden air mass from the Canadian wildfires moved into the area.

September 9th: Surface High pressure was in firm control over the area after previous days surface frontal passage while aloft there was an upper-level low situated over the Tennessee Valley/backbone of the Application mountains. These two synoptic features were helping to continue to transport smoke from Canadian wildfires deep down into the southeastern United States, elevating PM2.5 values.

Saturday, September 9, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0142Z September 10, 2023

```
SMOKE:
Canada/U.S./Atlantic Ocean off the U.S. and Canada East Coast/Pacific
Ocean/Northern Gulf of Mexico ...
The numerous large wildfires continued to burn especially in portions
of British Columbia, northern Alberta, and the southern part of
the Northwest Territories throughout the day. A large area of smoke
mainly attributed to these fires covered most of western/central and
northeastern Canada, south into the Central US reaching east into the
south-central U.S., eastern U.S., northern Gulf of Mexico and parts
of northwestern U.S and the Pacific Ocean along the coast of western
U.S and southwest Canada. Another couple areas of light smoke extends
over the North and central Atlantic, south of southern Greenland from
residual smoke from wildfires in western Canada. An area of moderately
dense to dense smoke extends across from western British Columbia to
the east covering portions of Alberta, Northwest Territories, Nunavut,
Saskatchewan, Manitoba, Ontario and Quebec. It then extends south into
the northern/central Plains and Mississippi Valley and as far south as
the southeastern United States. Within this area, thick density smoke was
seen over parts of northern/central British Columbia, northern Alberta,
central Saskatchewan and southern Ontario.

DUST:
Atlantic Ocean…
Saharan dust continued to be observed over west Africa/off the coast
and west across the eastern Atlantic. The dust thins out the farther
west it extends.


Eglin

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SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED
FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE,
TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS.  AREAS OF BLOWING DUST ARE
ALSO DESCRIBED.  USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE
AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE
FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

JPEG map:      https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

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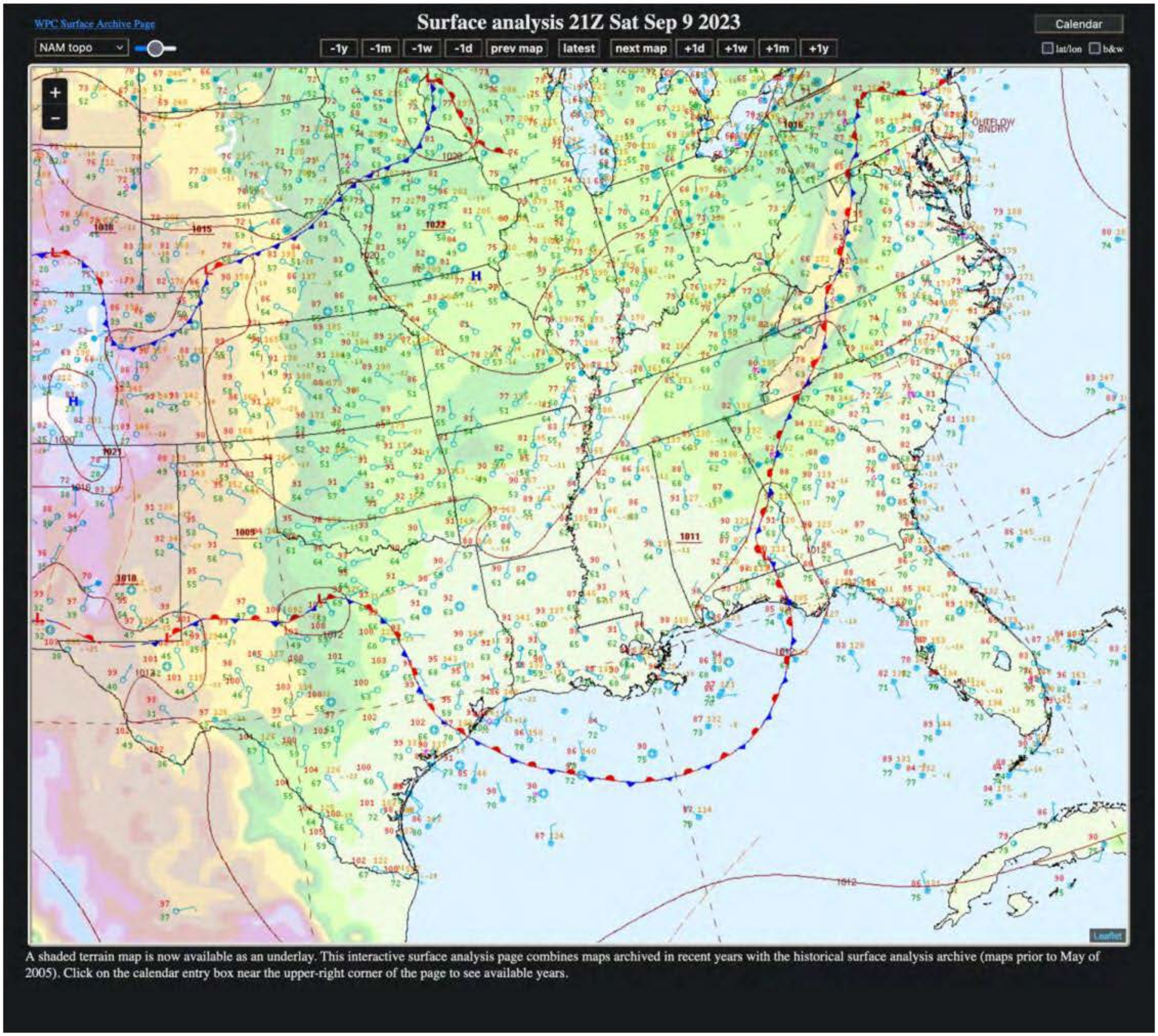
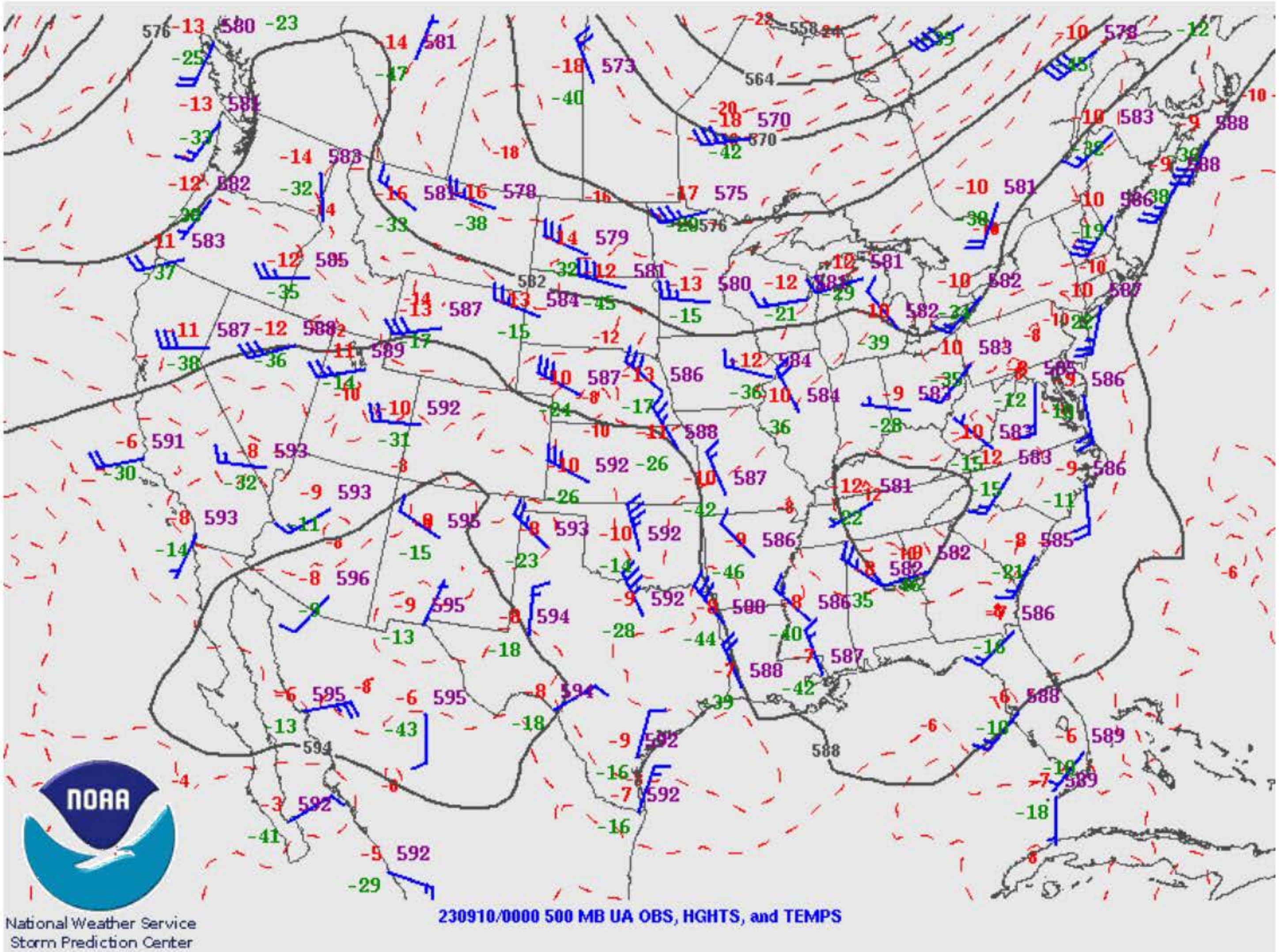
The 2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023I100141.html) narrative dated September 10th, 2023, at 0142Z (corresponding to September 9th, 2023, at 8:42 PM CDT) describes a large area of smoke from Canadian wildfires extending south into the Central United States, reaching east into the south-central and eastern United States, and down to the northern Gulf of Mexico. This smoke transport was facilitated by upper level troughing over the eastern half of the United States and surface frontal boundaries descending from Canada, which helped carry the smoke deep into the southern United States.

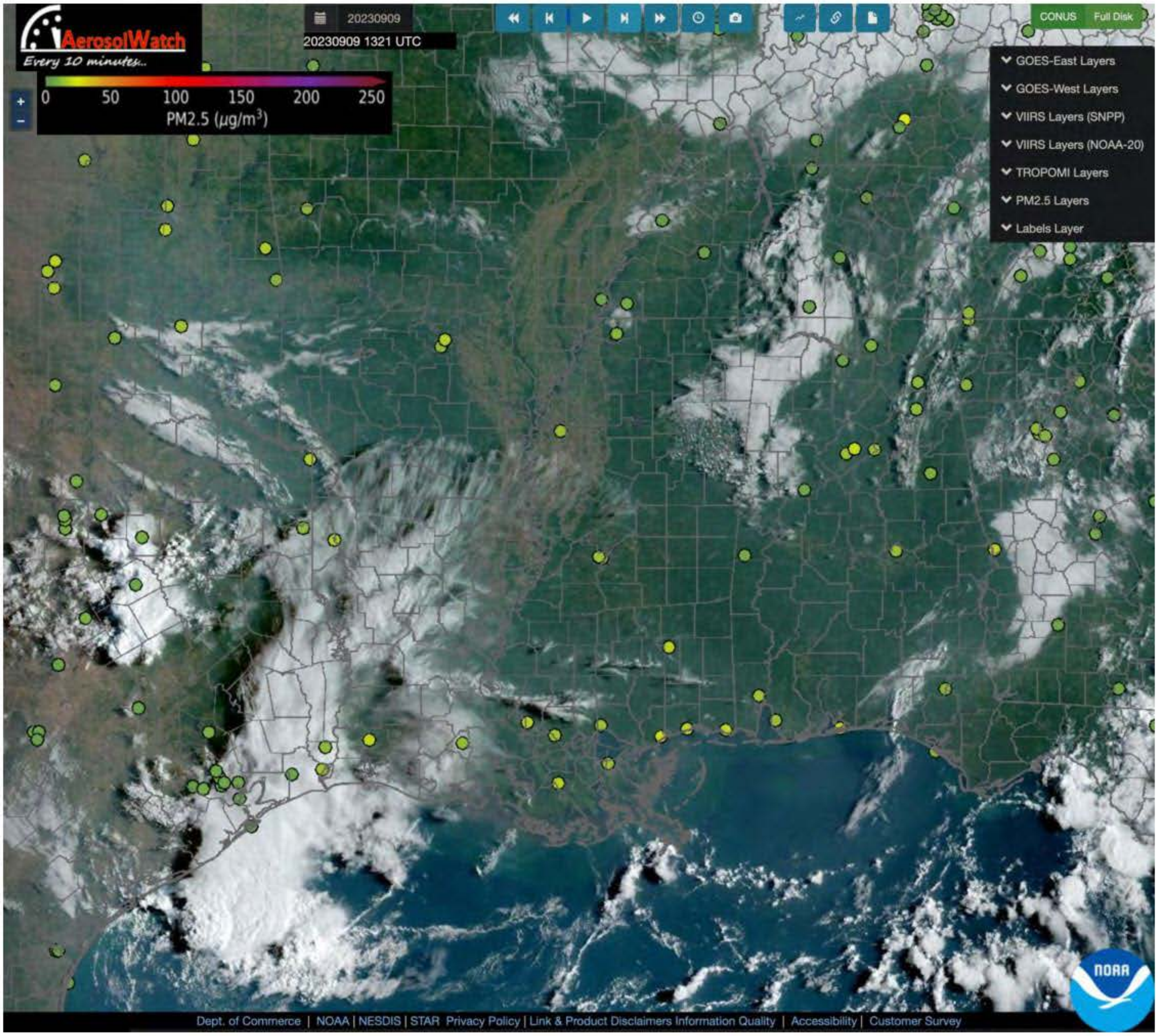


The 21z surface analysis (September 9th, 2023, at 4PM CDT) shows previous days cold has made its way through the Gulf States and into the Gulf of Mexico, coupled with surface High pressure centered over the northern Missouri, southern Iowa, continuing to issue in smoke laden air-mass from Canadian wildfires down into the southeastern United States



The 500 mb upper-level analysis from 00Z (September 10th, 2023, at 7 PM CDT) shows closed upper-level low over the Tennessee River Valley, southern Applications, helping distribute smoke from the Canadian fires southward to the Gulf States.

The AirNowTech Navigator image from September 9th, 2023, shows smoke from Canadian wildfires continuing to move southward following the passage of the previous day's surface frontal boundary. This movement was driven by northerly surface winds created by anticyclonic flow around a high-pressure system over Missouri/Iowa, in conjunction with cyclonic flow from an upper-level low over eastern Tennessee/Kentucky. These conditions helped transport smoke from Canadian wildfires deep into the southeastern United States. Overlaid 48-hour back trajectories at 10m, 50m, and 1500m heights show air parcels moving from north to south, tracing directly back to heavily concentrated smoke located north of the Hattiesburg monitor, resulting in elevated PM2.5 values.



GOES East True Color imagery from September 9th, 2023, at 1321 UTC shows dense smoke shield covering most of the southeast, extening into the Gulf of Mexico, keeping PM2.5 values elevated in the moderate category.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	09/09/23	28.7	29	28.9	28.2	27.2	26.3	24.5	22.8	20.8	15.8	15.2	15	14.1	12.9	12.2	12.3	12.4	12.3	13.5	13.2	12.4	13.1	13.2	12.7	18.2	29

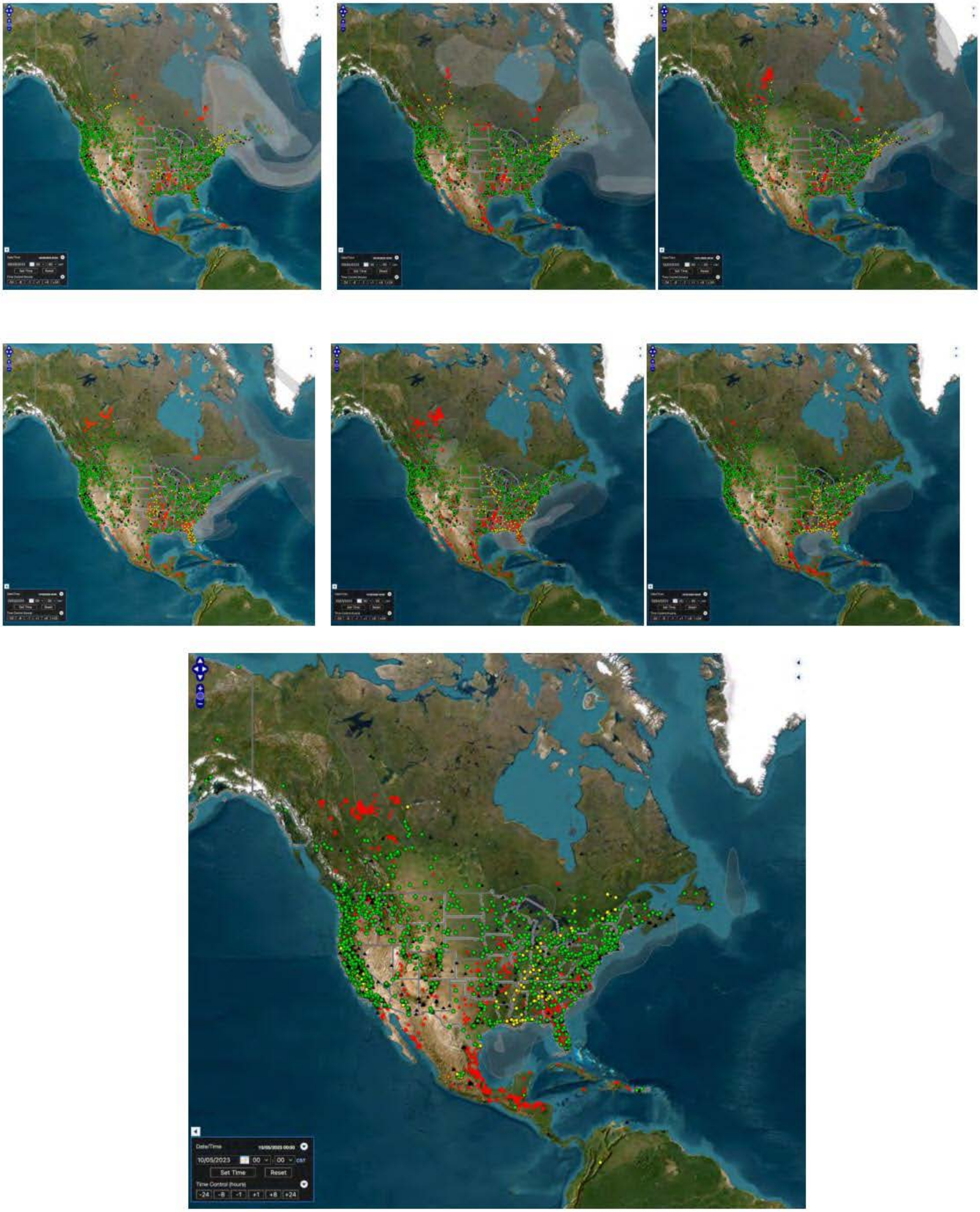
The hourly PM2.5 values at the Hattiesburg monitor on September 9th showed readings well into the twenties throughout the morning hours due to a strong nocturnal inversion that had developed overnight, trapping smoke from the Canadian wildfires close to the surface. As the day progressed, PM2.5 values decreased into the teens in response to increased daytime heating and mixing levels, providing some ventilation of smoke. Although there was partial ventilation, smoke from the Canadian fires continued to impact the monitor throughout the day. This persistent smoke impact, combined with the high morning values caused by trapping under the shallow nocturnal inversion, resulted in a daily 24-hour average of 18.2 µg/m^3.

Date of Event	Type of Event (high wind, volcano, wildfires/prescribed fire, other[2])	AQS Flag	Site AQS ID	Site Name	Exceedance Concentration (units are in ug/m^3)	Tier(s)	Notes (e.g. event name, links to other events)
October 3 – 5, 2023	Canadian WF	RF	28-035-0004	Hattiesburg	14.7, 31, 19.6	1 ,2, 3	Canadian Wildfire C Exceptional Event Demonstration: October 3 - 5, 2023

Synopsis: In the days leading up to the exceptional event at the Hattiesburg monitor, numerous wildfires in both northwestern Canada as well as northeastern and eastern Canada which created a large shield of wildfire smoke that blanketed much of Canada. From late September into early October, these Canadian wildfires produced smoke that was transported across North America, generating widespread news coverage. The smoke moved southward over the northeastern United States and Mid-Atlantic region, then continued south over Florida and westward into the southeastern United States, ultimately impacting the Hattiesburg monitor in Mississippi.





A series of AirNowTech Navigator images from September 23rd through October 5th, 2023, shows the progression of Canadian wildfire smoke. The smoke from fires in western Canada moved eastward and merged with smoke from ongoing wildfires in Quebec. The combined plume then transported southward into the northeastern United States, through the Mid-Atlantic states, reached Florida, and ultimately moved westward into the southeastern United States

This transport was facilitated by two key meteorological factors: upper-level ridging over the Great Lakes and an upper-level low pressure system stationed off the New England coastline. The interaction between these systems—anticyclonic flow from the upper-level high over the Great Lakes and cyclonic flow from the upper-level low off New England—directed the smoke's movement from Canada through the northeastern United States and Mid-Atlantic states into Florida and the southeast.

At the surface, a sprawling 1022mb high pressure system over the Mid-Atlantic region guided the smoke in an anticyclonic pattern over Florida and westward into the Gulf States, resulting in elevated PM2.5 values.

Monday, October 2, 2023

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0146Z October 3, 2023

```
SMOKE:
Canada, United States, Atlantic Ocean and Northern Gulf of Mexico…
A large area of thin density smoke, attributed mainly to the northwestern
Canada wildfires, was seen over southern Ontario and portions of Quebec,
along with the central and eastern United States, the northern Gulf of
Mexico and extending well off the United States East Coast and Canadian
East Coast out over the Atlantic Ocean.  Within the larger area of thin
density smoke, was an area of moderate to high density smoke which
extended from just off southeastern Canada to the southwest off the
United States East Coast and inland over portions of the Southeastern
United States with highest density smoke over portions of the Outer Banks.

Hanna


THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF
SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED
FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE,
TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS.  AREAS OF BLOWING DUST ARE
ALSO DESCRIBED.  USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE
AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE
FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

JPEG map:      https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov
```

Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

The 2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023J030257.html) narrative dated October 3rd, 2023, at 0146Z (corresponding to October 2nd, 2023, at 8:46 PM CDT) describes a large area of moderate to highly dense smoke from Canadian wildfires. The smoke extended from southeastern Canada southwestward, both off the United States east coast and inland over portions of the southeastern United States. This smoke transport was facilitated by the smoke being wedged between the previously mentioned synoptic systems, which helped carry it deep into the southern United States.

Tuesday, October 3, 2023

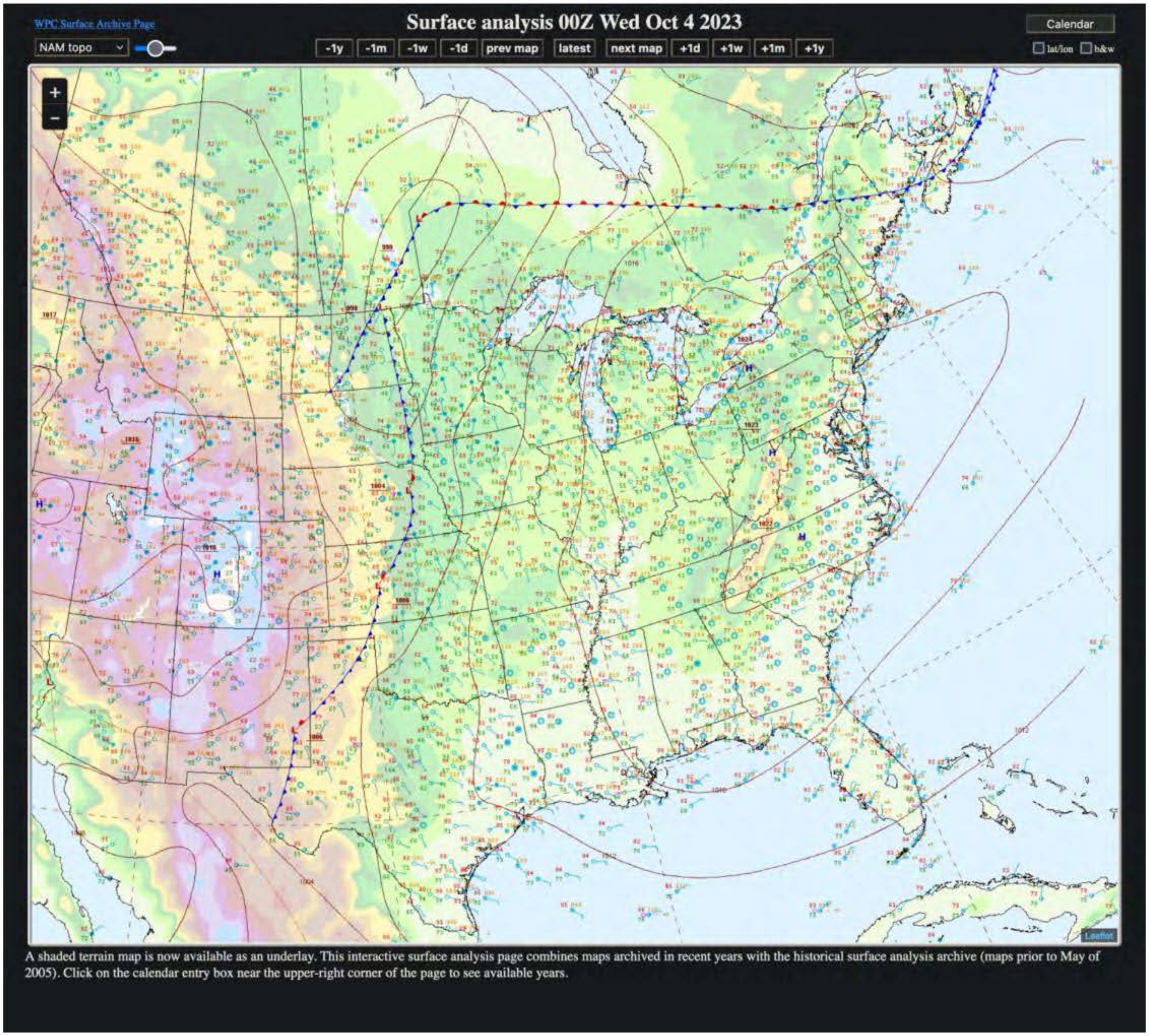
DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY
THROUGH 0030Z October 4, 2023

```
SMOKE:
South Central and Southeastern Canada/Central and Eastern U.S./Central
and Eastern Gulf of Mexico/Atlantic Ocean…
A large area of varying density smoke attributed to a combination of
leftover smoke from the ongoing northwestern Canada wildfires, daily
seasonal burning in the south central and southeastern U.S., and a few
wildfires especially in central and eastern Texas and Louisiana, was seen
this morning over much of the central and eastern U.S., south central and
southeastern Canada, the western Atlantic Ocean off the U.S. east coast,
and the central and eastern Gulf of Mexico. Within this large mass of
smoke were moderate to thick patches of smoke linked to the northwestern
Canada wildfires that were visible moving to the west over a portion of
the Atlantic Ocean off the southeast U.S. coast and inland over some of
Florida, Georgia, South Carolina, Alabama, and Mississippi.

Northwestern Canada…
Large wildfires continue to burn, mostly in the smoldering phase,
in northwestern Canada resulting in some generally thin to moderate
density smoke which was moving to the east across the south central part
of the Northwest Territories, and northern and central Alberta. Some
moderate smoke from the fires was observed over southern Alberta and
Saskatchewan. Cloud cover over northwestern Canada though did interfere
with detection and density information on the smoke in that region
through satellite imagery.

NGUYEN


THIS TEXT PRODUCT IS PRIMARILY INTENDED TO DESCRIBE SIGNIFICANT AREAS OF
SMOKE ASSOCIATED WITH ACTIVE FIRES AND SMOKE WHICH HAS BECOME DETACHED
FROM THE FIRES AND DRIFTED SOME DISTANCE AWAY FROM THE SOURCE FIRE,
TYPICALLY OVER THE COURSE OF ONE OR MORE DAYS.  AREAS OF BLOWING DUST ARE
ALSO DESCRIBED.  USERS ARE ENCOURAGED TO VIEW A GRAPHIC DEPICTION OF THESE
AND OTHER PLUMES WHICH ARE LESS EXTENSIVE AND STILL ATTACHED TO THE SOURCE
FIRE IN VARIOUS GRAPHIC FORMATS ON OUR WEB SITE:

JPEG map:       https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

ANY QUESTIONS OR COMMENTS REGARDING THIS PRODUCT SHOULD BE SENT TO:
SSDFireTeam@noaa.gov
```

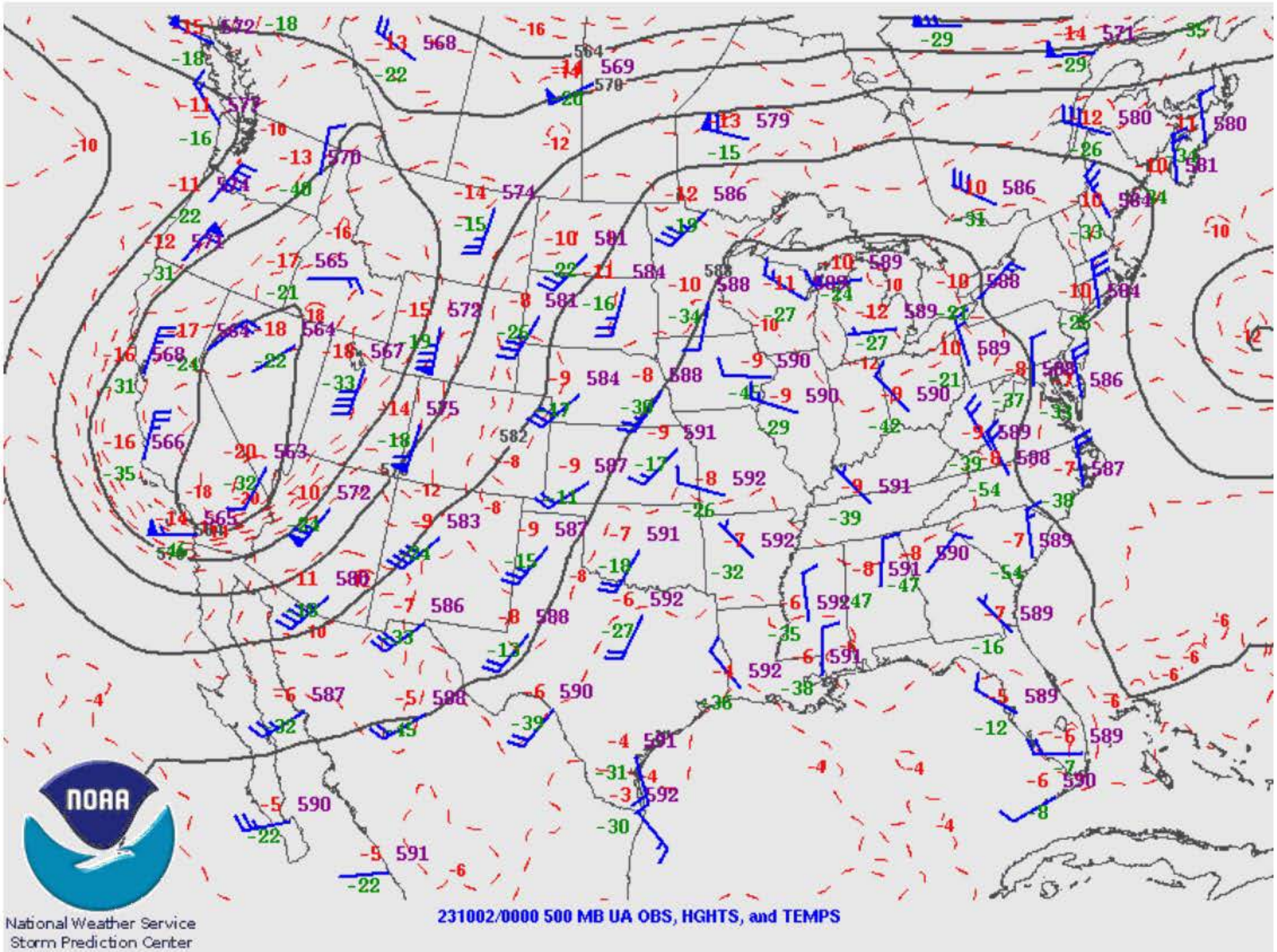
Unless otherwise indicated:

- Areas of smoke are analyzed using GOES-EAST and GOES-WEST Visible satellite imagery.
- Only a general description of areas of smoke or significant smoke plumes will be analyzed.
- A quantitative assessment of the density/amount of particulate or the vertical distribution is not included.
- Widespread cloudiness may prevent the detection of smoke even from significant fires.

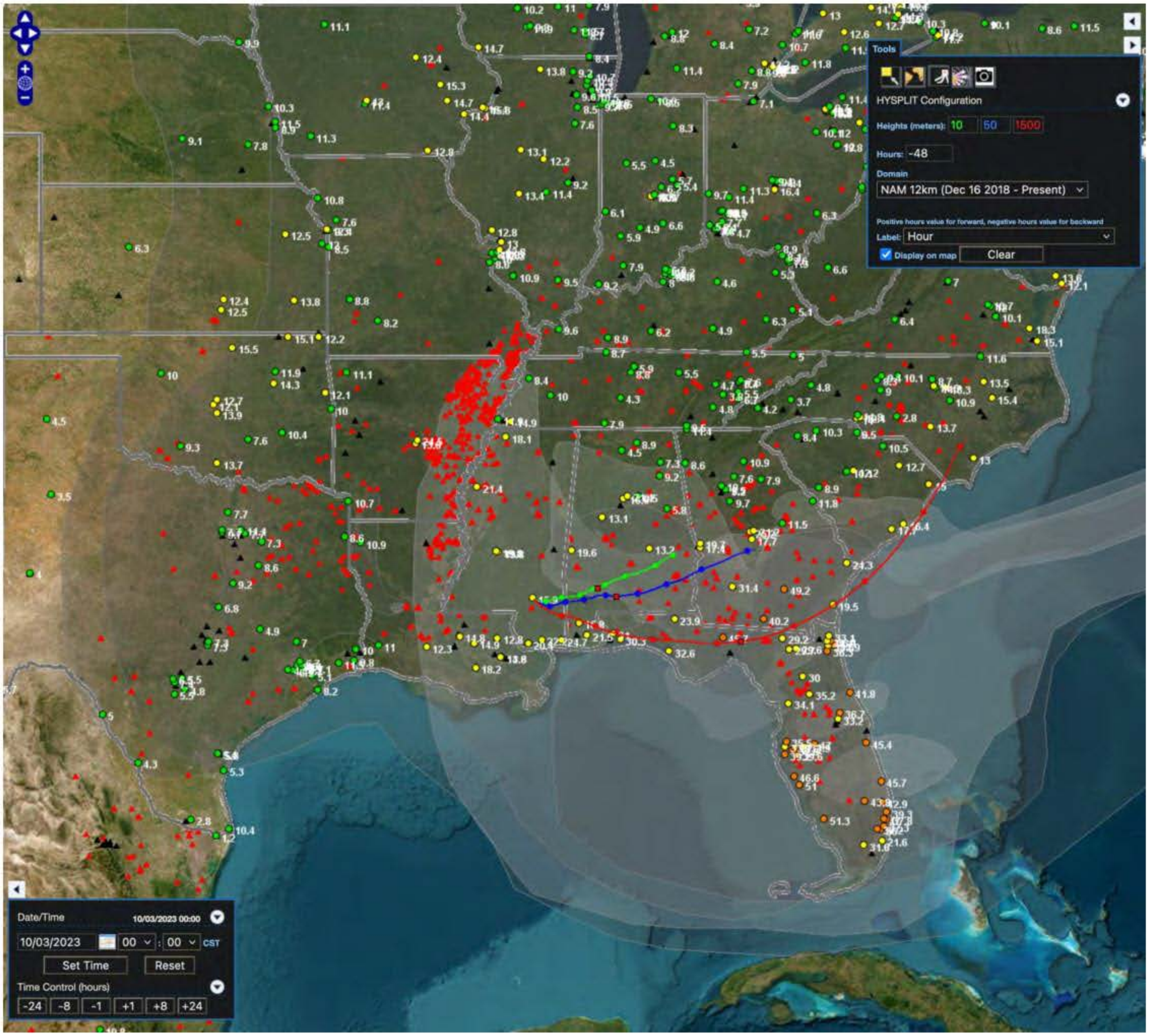
The 2023 Satellite Smoke Text Product (https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023J040054.html) narrative dated October 4th, 2023, at 0030Z (corresponding to October 3rd, 2023, at 7:30 PM CDT) describes smoke linked to Canadian wildfires visible over the Atlantic Ocean off the southeastern United States coast and its movement inland over the Gulf States.



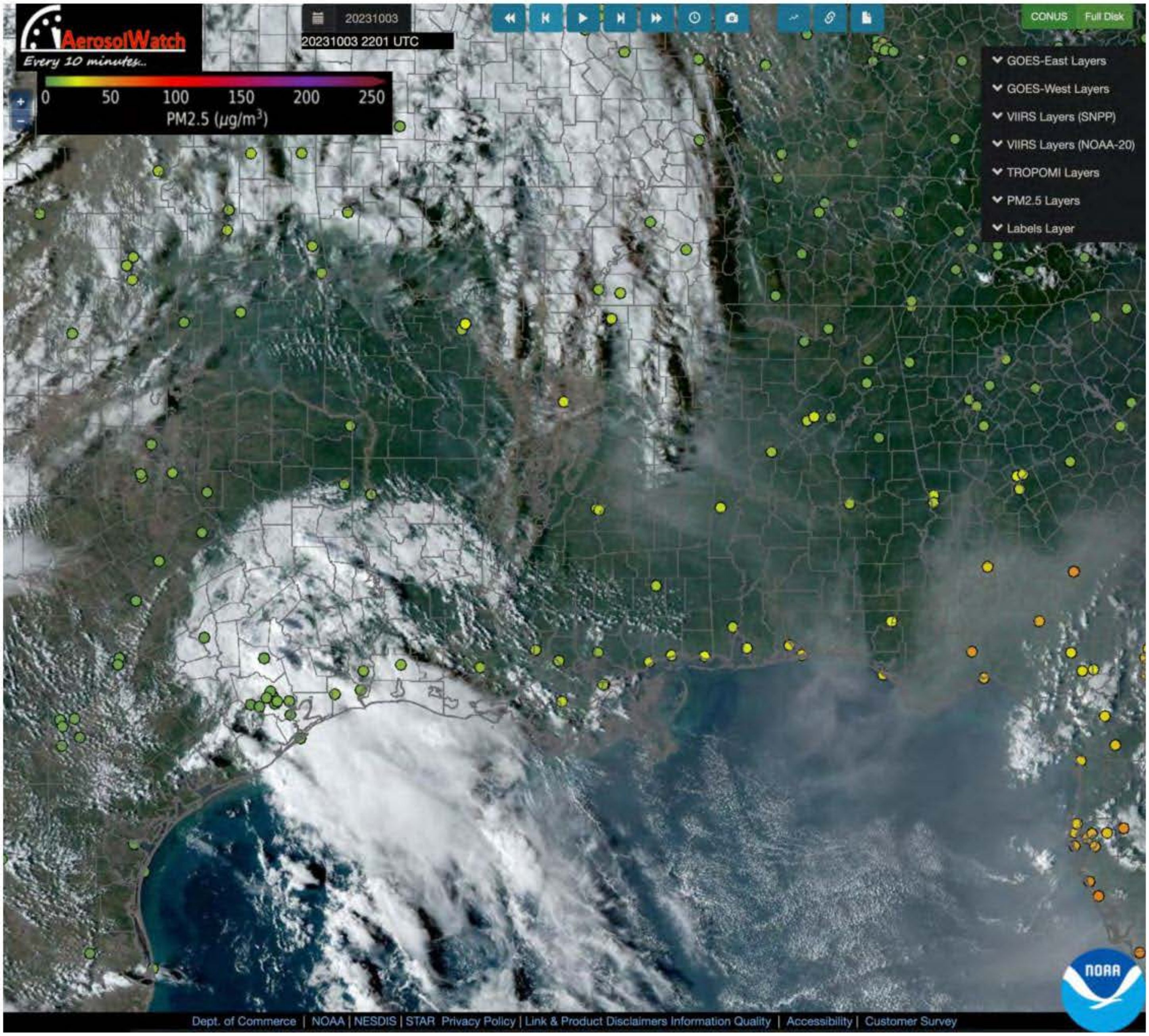
The 00z surface analysis (October 3rd, 2023, at 7PM CDT) shows expansive 1022mb High pressure parked over the Mid-Atlantic states where anticyclonic flow is allowing smoke from Canadian wildfires to funnel into the southeastern United States via northeasterly flow on the south side of the High, elevating PM2.5 values all across the Gulf States.



The 500 mb upper-level analysis from 00Z (October 1st, 2023, at 7 PM CDT) shows upper-level ridging over the Great Lakes with an upper-level low parked off the northeastern United States These two synoptic systems helping drive smoke from Canadian wildfires down into the southeastern U.S elevating PM2.5 for the first few days in October.



The AirNowTech Navigator image from October 3rd, 2023, shows smoke from Canadian wildfires moving over Florida and westward into the Gulf States. Many locations in Florida recorded daily PM2.5 averages in the Unhealthy for Sensitive Groups (USG) range. The smoke's westward transport is demonstrated by 10m, 50m, and 1500m 48-hour back trajectories, which show air movement around the southern periphery of the previously mentioned surface high pressure system stationed over the Mid-Atlantic region elevating PM2.5 values at the Hattiesburg monitor.

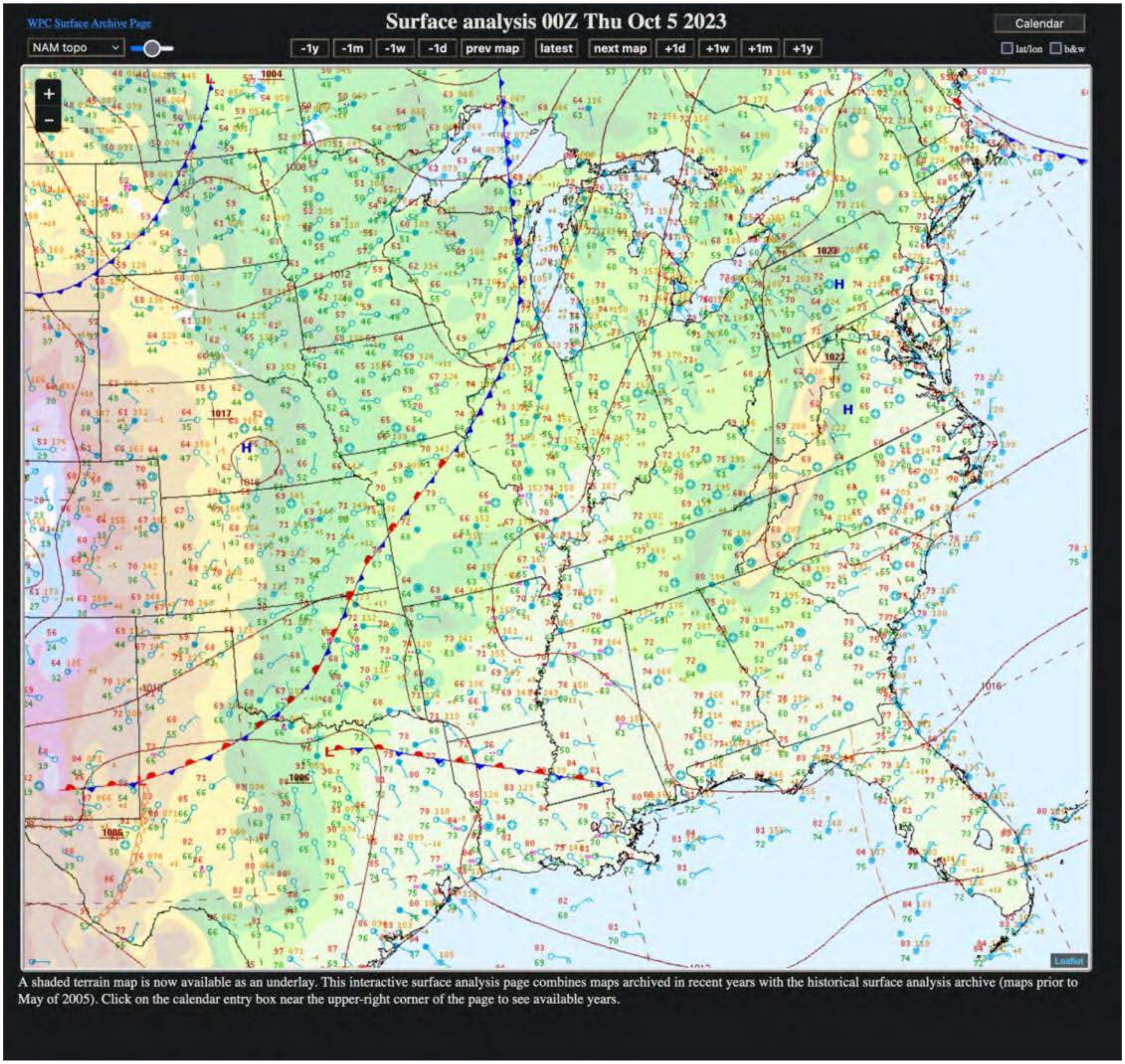


GOES East True Color imagery from October 3rd, 2023, at 2201 UTC shows dense smoke shield over Florida, Georgia, Alabama, moving westward into Mississippi. Smoke was dense at the surface, indicative PM2.5 values in Florida at the time in the USG range.

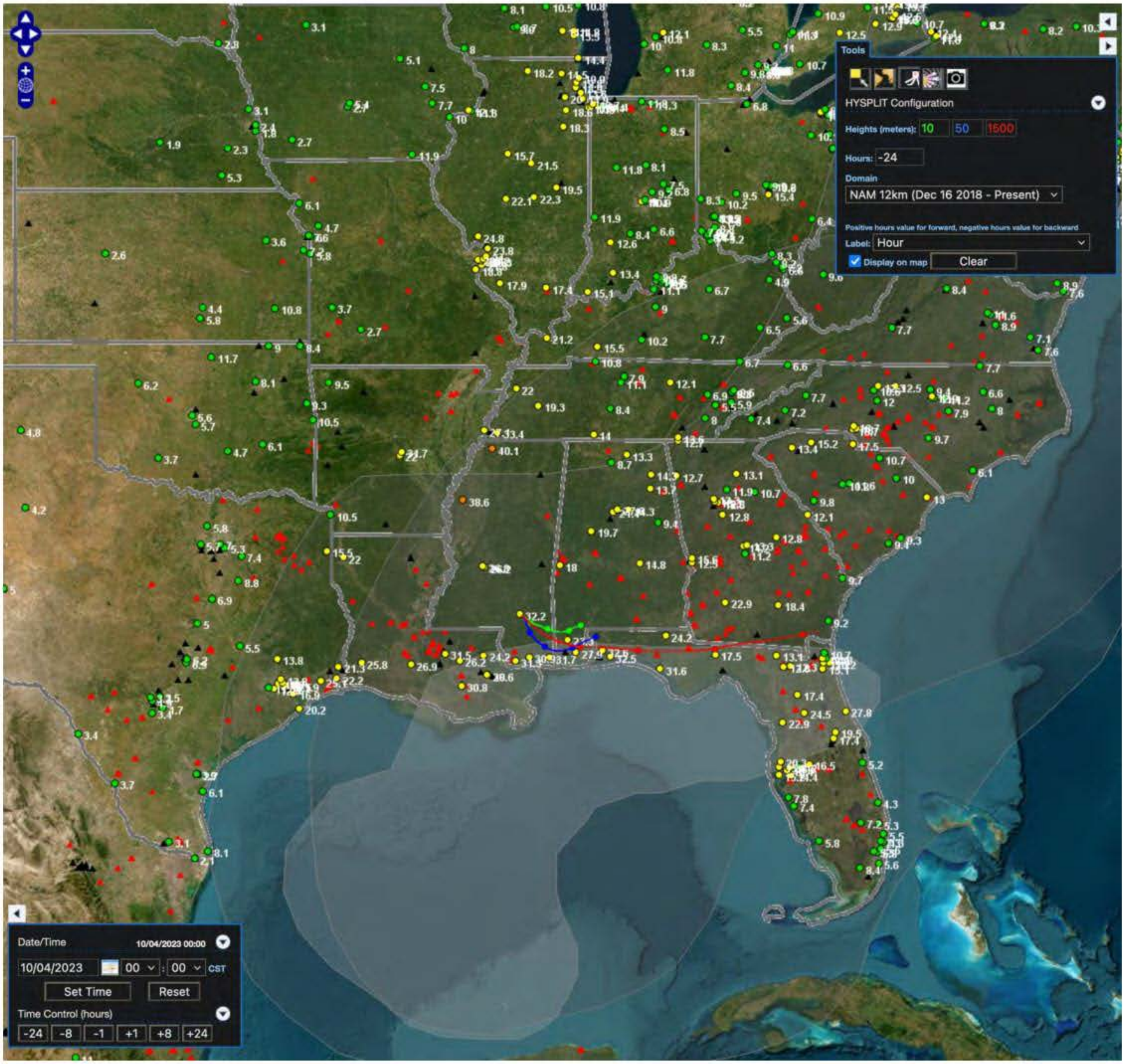
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	10/03/23	8.8	8.8	8.7	9.2	9	9.6	10.6	19.5	24.7	27.1	24.2	19.3	14.6	13.5	14.3	14	14.4	15.1	16.3	18.2	19.4	21	20.6	21.2	15.92	27.1

The Hattiesburg monitor's hourly PM2.5 values on October 3rd began in the single digits during the morning hours. As smoke moved westward from Florida into Mississippi, PM2.5 values increased throughout the afternoon, late evening, and overnight hours, resulting in a 24-hour daily average of 15.92 μg/m^3 for October 3rd.

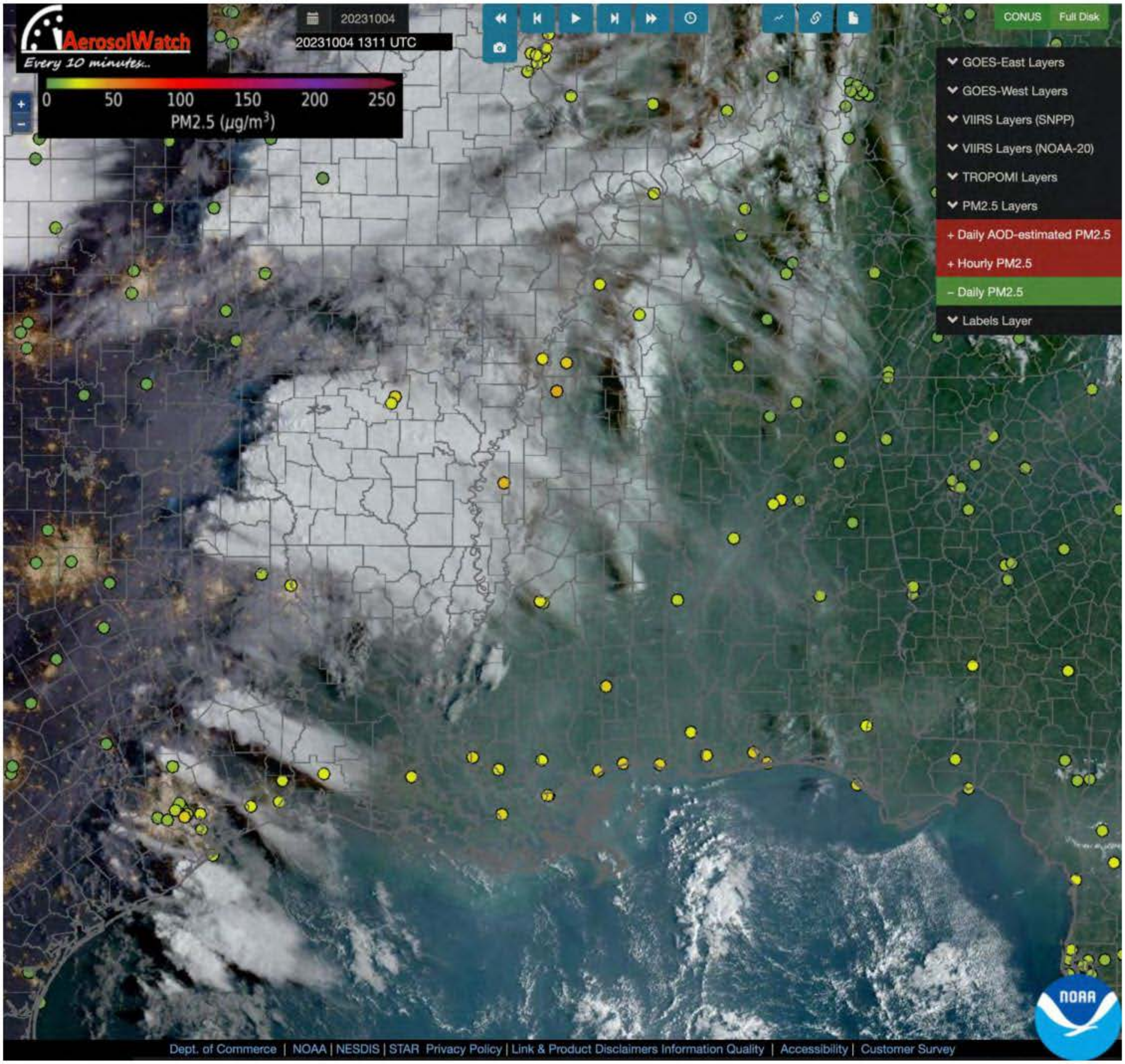
October 4th: October 4th experienced conditions similar to previous days as High pressure stationed across the Mid-Atlantic region continued to steer smoke from Quebec's Canadian wildfires. The smoke moved southward over the northeastern United States and Mid-Atlantic coastline, then across Florida and westward along the Gulf States, keeping PM2.5 values elevated well into the moderate category across several monitoring locations in the deep south.



The 00z surface analysis (October 4th, 2023, at 7PM CDT) shows continued expansive 1022mb High pressure parked over the Mid-Atlantic states where anticyclonic flow is allowing smoke from Canadian wildfires to funnel into the southeastern United States via northeasterly flow on the south side of the High, elevating PM2.5 values all across the Gulf States.



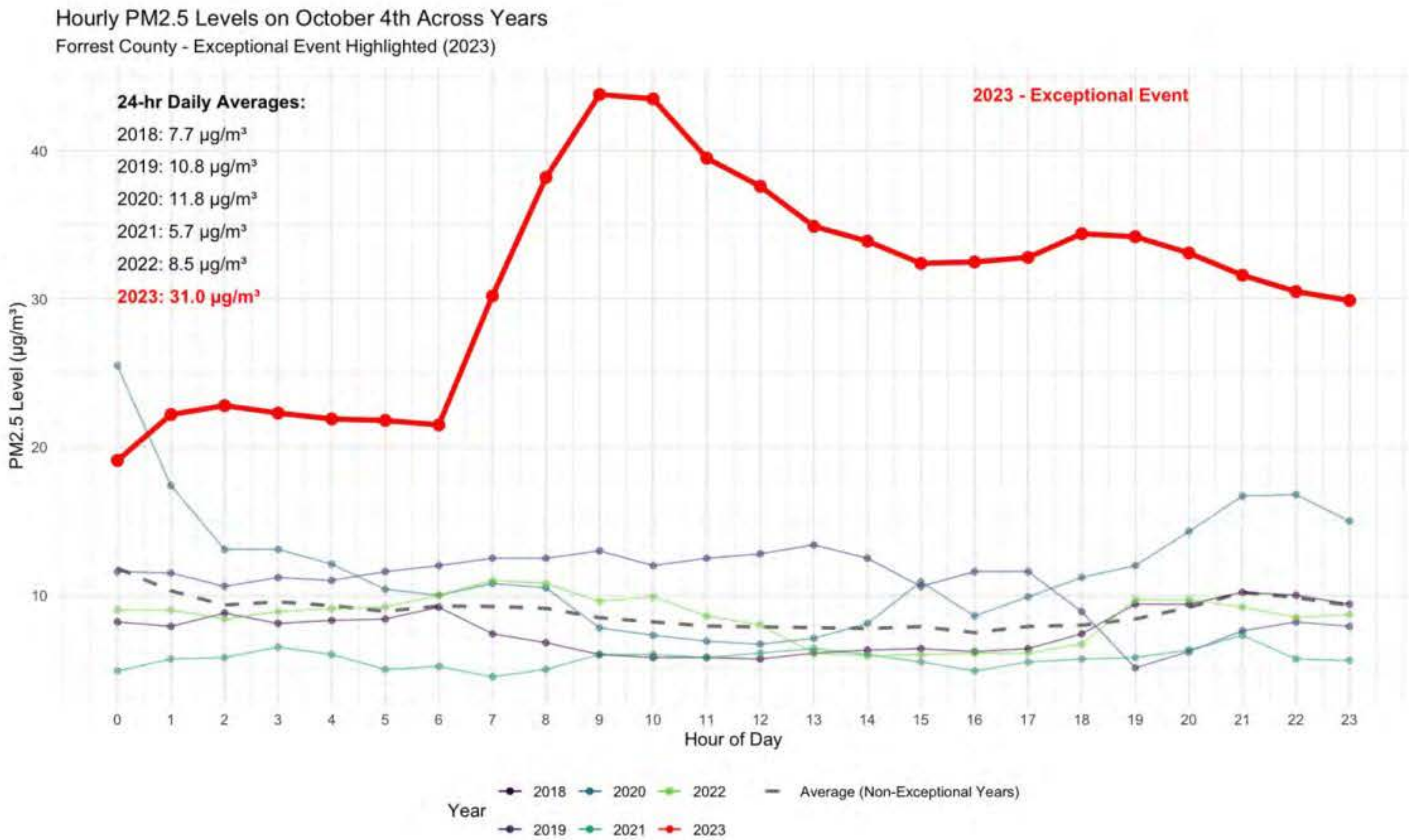
The AirNowTech Navigator image from October 4th, 2023, shows smoke from Canadian wildfires continuing to move over Florida and westward into the Gulf States. The smoke's continued westward transport is demonstrated by 10m, 50m, and 1500m 24-hour back trajectories, which show air movement around the southern periphery of the previously mentioned surface high pressure system stationed over the Mid-Atlantic region elevating PM2.5 values at the Hattiesburg monitor.



GOES East True Color imagery from October 4th, 2023, at 1311 UTC shows dense smoke shield from the Canadian wildfires over the panhandle of Florida, Alabama, moving westward into Mississippi, elevating PM2.5 values.

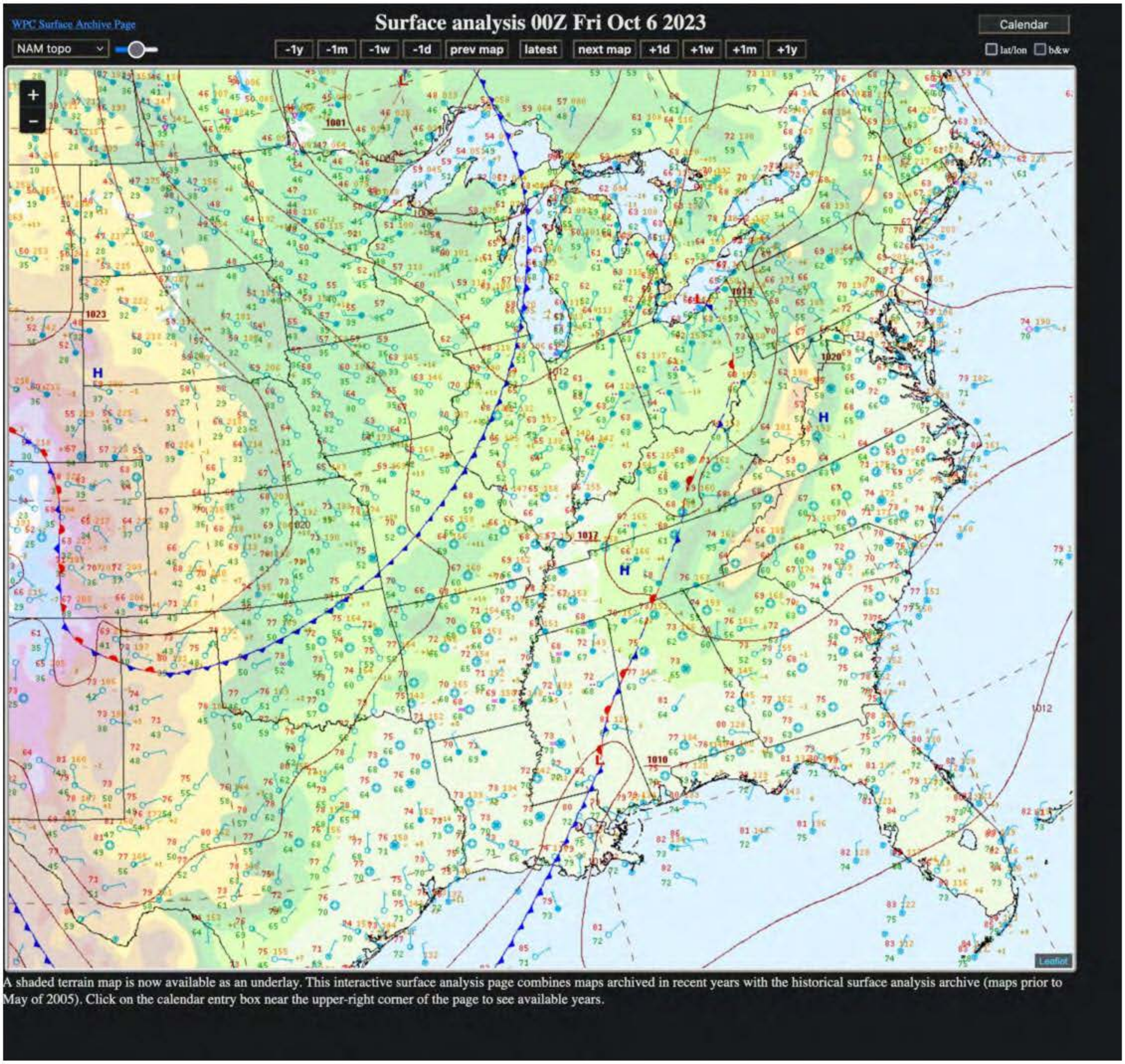
Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	10/04/23	21	24.1	24.7	24.2	23.8	23.7	23.4	31.1	39.1	44.7	44.4	40.4	38.5	35.8	34.8	33.3	33.4	33.7	35.3	35.1	34	32.5	31.4	30.8	32.22	44.7

The Hattiesburg monitor's hourly PM2.5 values on October 4th began in the twenties and increased into the thirties, with a few hours reaching the forties throughout the remainder of the day. This increase occurred as smoke from Canadian wildfires moved into the area from the east, circulating around the periphery of the surface high pressure system stationed over the Mid-Atlantic. As a result, the Hattiesburg monitor recorded a daily average PM2.5 value of 32 µg/m^3.

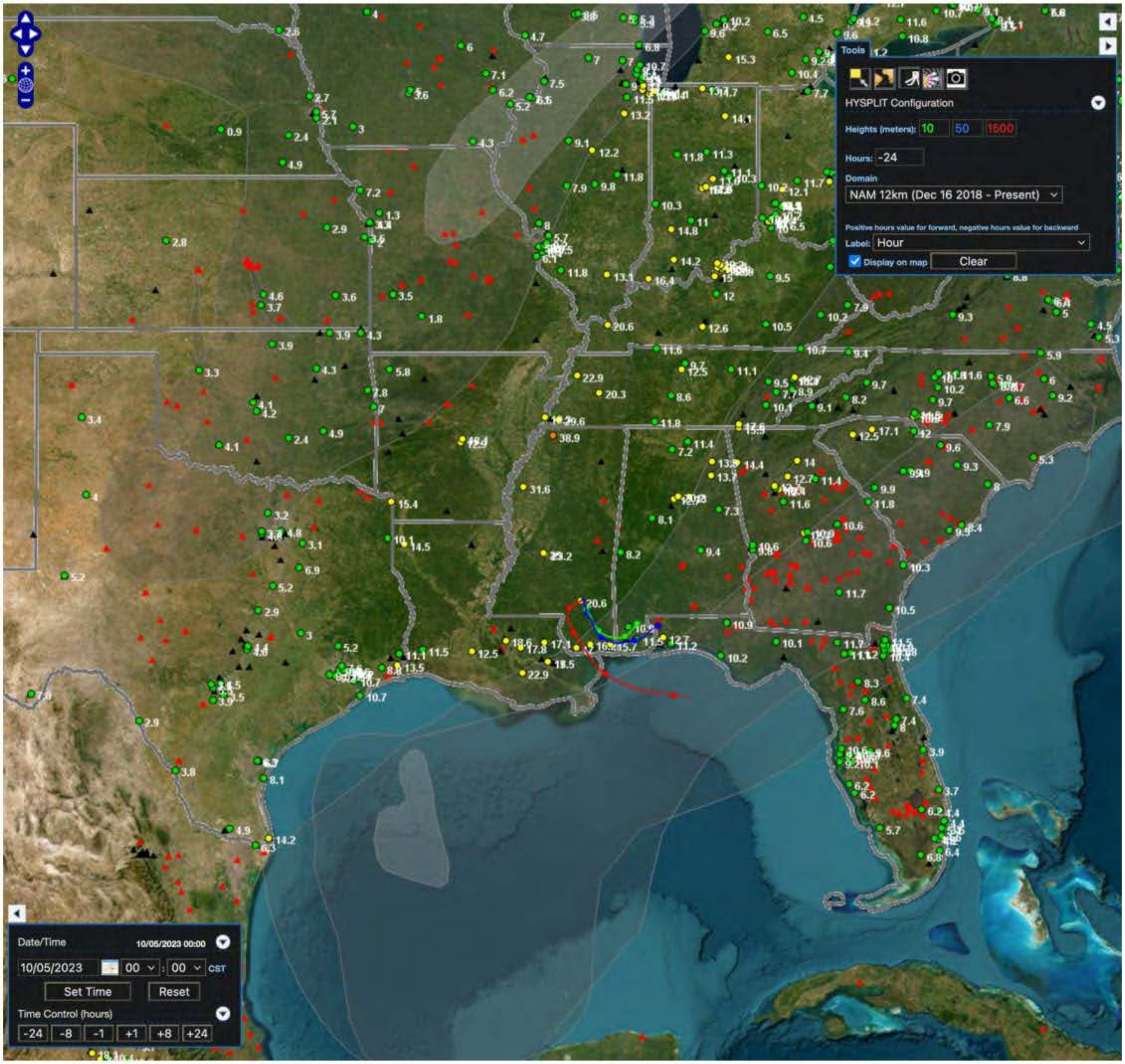


The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past six years, highlighting significantly higher values in 2023 compared to the average of non-exceptional years. The hourly plot shows elevated PM2.5 concentrations throughout October 4th, 2023, as smoke-laden air from Canadian wildfires impacted the Hattiesburg monitor.

October 5th: On October 5th, the Hattiesburg monitor remained under the influence of Canadian wildfire smoke for most of the day, keeping PM2.5 values elevated. During the evening hours, a cold front approached from the west, and its passage helped clean out the air mass, lowering PM2.5 values into the teens. However, since this improvement occurred late in the day, and values had remained in the twenties and thirties before the frontal passage, the daily PM2.5 average still reached 19.6 µg/m^3.



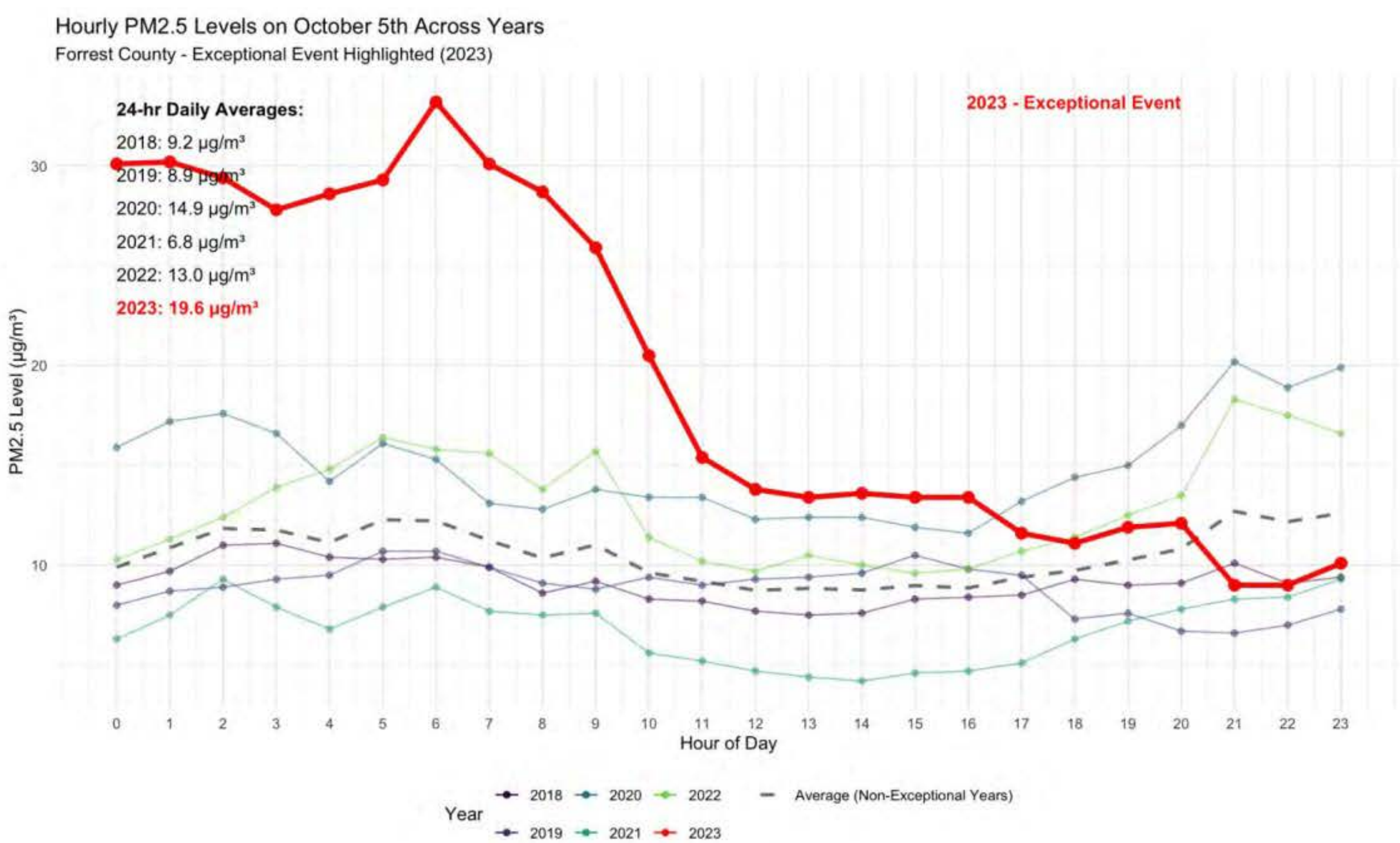
The 00Z surface analysis (October 5th, 2023, at 7 PM CDT) shows a frontal boundary moving through the area that helped clean out the air mass. However, prior to the frontal passage, the Hattiesburg monitor spent most of October 5th in a smoke-laden air mass from Canadian wildfires, which elevated PM2.5 values.



The AirNowTech Navigator image from October 5th, 2023, shows smoke from Canadian wildfires continuing to move over Florida and westward into the Gulf States. The smoke's continued westward transport is demonstrated by 10m, 50m, and 1500m 24-hour back trajectories, which show air movement around the southern periphery of the previously mentioned surface high pressure system stationed over the Mid-Atlantic region elevating PM2.5 values at the Hattiesburg monitor prior to frontal passage that occurred later in the evening on October 5th.

Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max
Hattiesburg/280350004/PM2.5-88101/3	10/05/23	31	31.1	30.3	29.7	30.5	31.2	34.1	31	29.6	26.8	21.4	16.3	14.7	14.3	14.5	14.3	14.3	12.5	12	12.8	13	9.9	9.9	11	20.68	34.1

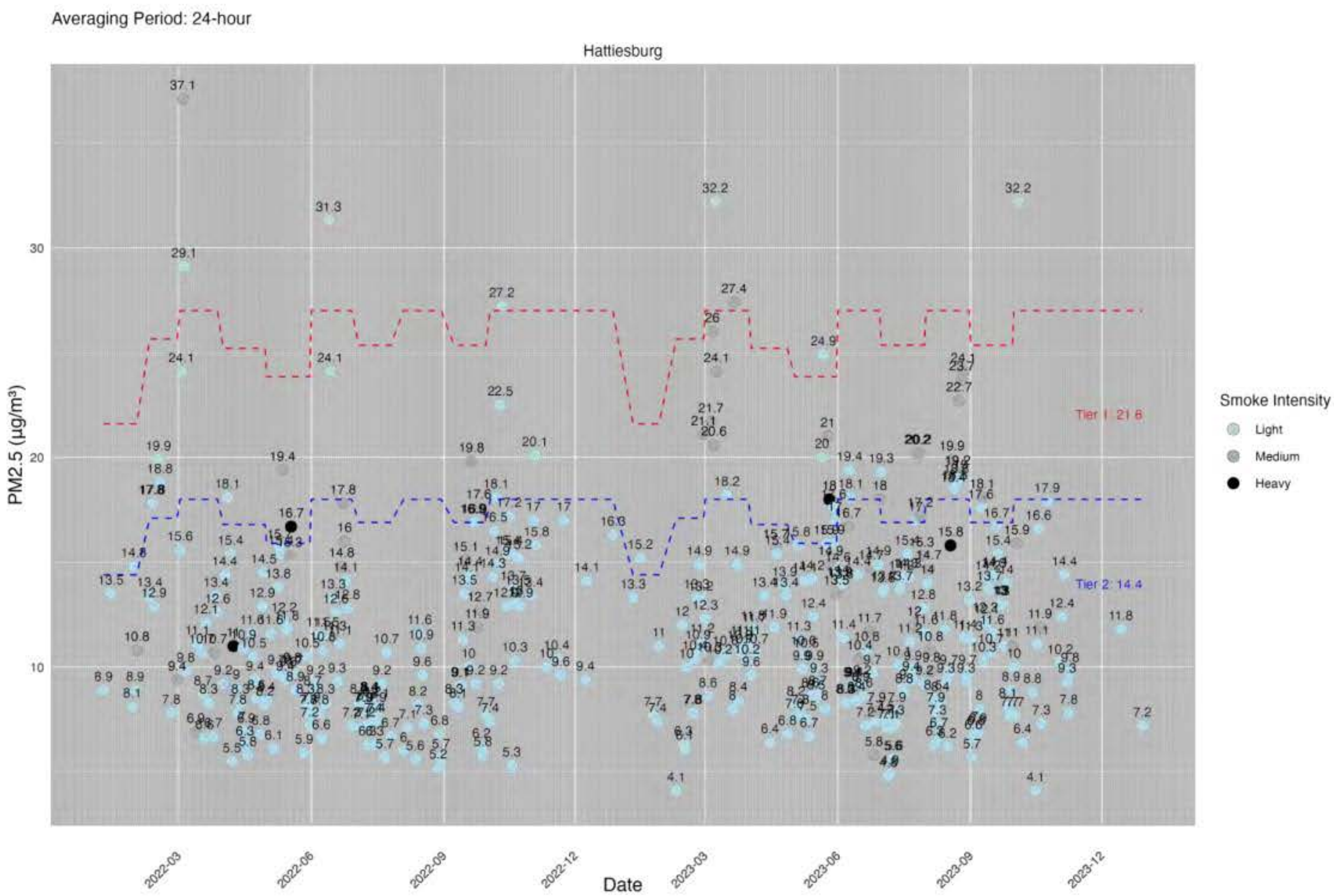
The Hattiesburg monitor's hourly PM2.5 values on October 5th began in the thirties, as the monitor started the day in a smoke-laden air mass from Canadian wildfires. As the morning progressed, PM2.5 values decreased into the twenties, then fell into the teens during the afternoon and evening hours due to the approaching and subsequent passage of a cold front. Despite the lower hourly values during the afternoon and evening, the elevated morning concentrations contributed to a daily average PM2.5 value of 20.68 µg/m^3 at the Hattiesburg monitor.



The hourly time series cross-section in the figure above illustrates PM2.5 levels over the past six years, highlighting significantly higher values in 2023 compared to the average of non-exceptional years. The hourly plot shows elevated PM2.5 concentrations throughout October 5th, 2023, particularly during the morning hours when smoke-laden air from Canadian wildfires impacted the Hattiesburg monitor. Values decreased throughout the day due to the arrival and passage of a surface cold front during the evening hours.

Appendix A

Hattiesburg PM2.5 Monitoring Site: 28-035-0004 Parameter Code 88101, Method Code 736 Tiering Graph for 2022-2023



Appendix B

AQS AMP 350 Reports with I Flags for Hattiesburg PM2.5 Monitoring Site: 28-035-0004 Parameter Code 88101, Method Code 736

User ID: WDAY

RAW DATA REPORT

Report Request ID: 2243103 Report Code: AMP350 Dec. 4, 2024

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	28	035	0004	88101							

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
CRITERIA			

SELECTED OPTIONS

Option Type	Option Value
INCLUDE NULLS	YES
DAILY STATISTICS	MAXIMUM
UNITS	STANDARD
RAW DATA EVENTS	INCLUDE EVENTS
MERGE PDF FILES	YES
AGENCY ROLE	PQAO

SORT ORDER

Order	Column
1	STATE CODE
2	COUNTY_CODE
3	SITE_ID
4	PARAMETER_CODE
5	POC

DATE CRITERIA

Start Date	End Date
2022 01 01	2023 12 31

APPLICABLE STANDARDS

Standard Description
CO 1-hour 1971
Lead 3-Month 2009
Lead 3-Month PM10 Surrogate 2009
NO2 Annual 1971
Ozone 1-hour 1979
PM10 24-hour 2006
PM25 Annual 2024
SO2 1-hour 2010

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

CAS NUMBER:
LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: JANUARY 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	12.4	8.2	6.6	5.7	5.4	5.4	5.1	5.2	5.3	5.7	6.0	5.9	5.5	5.8	6.5	6.7	7.1	7.5	9.8	8.4	8.7	8.8	9.3	9.5	24	12.4
2	10.4	10.0	6.6	8.7	8.1	5.9	5.4	4.7	6.3	6.7	5.4	2.7	1.1	1.6	2.1	1.4	.8	.7	1.4	3.3	3.3	5.2	6.8	6.2	24	10.4
3	4.4	4.0	4.5	5.0	4.5	3.7	3.3	3.3	3.5	3.7	3.3	AZ	AZ	3.1	3.1	2.6	2.4	2.8	3.2	4.1	5.9	6.0	7.3	7.3	22	7.3
4	8.2	9.9	11.0	9.5	9.1	9.2	9.9	9.6	9.9	9.0	11.1	11.6	10.3	8.2	6.2	5.4	5.7	10.3	9.6	8.2	9.5	9.7	11.2	9.4	24	11.6
5	8.8	8.5	9.1	8.7	10.3	17.4	14.7	10.9	11.6	13.8	6.4	AZ	3.8	4.0	4.0	4.3	4.6	24.5	20.1	24.4	17.5	11.4	9.5	9.3	23	24.5
6	7.6	7.7	7.4	7.6	7.9	8.6	9.0	9.1	5.1	4.1	3.8	3.6	4.2	5.4	7.8	6.4	6.5	6.5	5.9	5.4	3.7	2.9	3.6	3.9	24	9.1
7	3.1	2.2	2.4	2.8	3.3	4.4	4.8	5.0	5.7	5.9	5.9	5.5	4.8	4.4	4.1	4.1	4.0	5.9	10.4	8.3	7.9	7.4	6.5	7.7	24	10.4
8	7.5	7.0	6.4	5.4	5.0	5.1	5.4	5.9	6.8	7.4	6.3	5.6	5.3	5.1	5.0	5.8	6.6	7.2	9.6	9.4	10.0	11.0	12.4	15.6	24	15.6
9	13.1	10.9	10.0	11.3	9.9	9.8	12.2	10.4	10.2	10.4	7.5	8.2	9.7	9.0	10.4	11.2	9.5	5.4	5.7	7.4	6.6	4.2	2.3	1.4	24	13.1
10	1.4	1.4	3.5	4.1	3.7	3.7	3.9	4.3	4.1	3.7	3.3	2.8	2.2	1.4	1.5	1.3	1.2	1.3	3.2	3.0	4.1	3.3	5.0	4.8	24	5.0
11	3.4	4.6	4.2	3.2	3.2	3.1	3.5	4.1	4.4	3.1	2.3	1.8	1.5	1.4	1.5	1.8	2.6	2.8	3.5	4.6	7.7	17.1	13.5	15.0	24	17.1
12	8.5	7.3	9.2	6.7	6.7	7.0	7.2	7.5	7.3	6.7	4.8	3.5	3.4	3.3	3.7	4.1	3.6	4.4	16.7	17.1	14.3	14.3	12.5	11.6	24	17.1
13	15.9	16.4	16.8	16.2	16.3	17.2	17.3	17.7	12.7	7.5	7.0	6.3	5.4	5.8	5.8	6.6	5.8	5.2	7.4	9.9	14.9	16.3	17.6	16.3	24	17.7
14	14.7	14.0	20.7	19.8	19.3	19.3	21.1	23.3	18.6	21.5	8.2	3.7	3.0	2.6	2.6	2.5	2.8	4.3	6.7	8.6	11.6	10.4	10.6	10.2	24	23.3
15	12.8	14.2	16.3	18.0	18.9	20.6	22.1	16.4	14.2	10.9	10.5	10.4	10.8	13.9	14.3	12.4	6.7	5.7	5.0	5.1	5.5	4.5	3.8	4.1	24	22.1
16	7.2	8.6	7.5	6.9	6.4	5.5	4.9	4.3	3.3	2.0	1.5	2.0	3.0	4.0	5.0	6.4	7.1	6.7	6.4	6.8	10.7	11.3	14.9	8.9	24	14.9
17	6.8	6.3	6.1	6.3	6.3	5.8	5.8	5.9	6.1	6.2	5.5	4.5	4.0	3.4	3.2	3.0	3.0	3.3	4.5	23.9	25.5	15.0	14.0	18.5	24	25.5
18	15.9	14.3	16.5	12.0	10.6	9.7	10.1	10.4	8.6	7.0	5.4	4.0	2.7	2.7	3.2	4.3	9.5	14.8	11.9	7.6	7.3	5.5	5.4	6.5	24	16.5
19	6.0	6.3	6.0	6.2	5.8	7.2	8.5	10.8	7.7	5.8	4.6	3.9	AZ	5.4	4.0	3.7	3.9	4.5	6.3	5.2	4.8	5.0	5.0	4.6	23	10.8
20	4.6	4.2	2.6	2.6	2.6	2.9	1.5	.8	.6	1.0	2.1	3.4	4.8	5.7	7.2	7.0	6.4	4.9	4.1	4.5	4.4	4.4	4.5	4.5	24	7.2
21	4.7	5.9	6.3	6.7	6.6	7.1	6.8	6.7	7.3	8.1	10.2	10.9	11.3	11.9	8.9	7.9	7.2	6.5	6.7	5.9	6.2	5.2	5.1	5.2	24	11.9
22	5.5	5.4	5.9	6.5	7.2	8.1	8.6	9.8	10.0	8.4	7.7	7.5	6.8	5.9	5.1	4.6	4.6	5.1	6.5	7.0	7.4	10.2	12.4	12.5	24	12.5
23	11.8	11.6	11.0	11.5	11.0	12.3	12.8	14.7	15.5	17.7	12.6	7.2	6.6	6.4	6.4	9.5	7.5	6.3	9.9	14.5	12.9	12.7	15.5	21.9	24	21.9
24	19.8	21.9	20.1	22.7	29.1	25.4	24.6	30.2	217.5	18.7	8.1	9.5	9.6	7.4	7.4	7.3	8.7	10.4	8.6	9.2	12.7	17.5	21.0	19.5	24	217.5
25	24.3	27.2	22.4	24.9	24.3	21.2	22.7	25.3	22.7	18.8	13.2	11.2	9.1	6.0	6.0	6.4	6.7	6.6	8.2	9.8	9.7	10.4	12.0	7.9	24	27.2
26	6.4	6.3	6.2	6.3	6.4	6.1	6.0	5.9	6.3	6.4	5.4	4.6	4.3	4.1	3.6	3.3	3.3	3.6	4.0	4.1	4.4	4.5	5.2	6.0	24	6.4
27	8.2	7.0	6.7	6.9	7.2	6.8	7.2	8.5	9.8	11.2	12.2	11.9	9.7	7.2	7.0	6.8	6.7	9.6	9.8	21.9	29.8	9.7	10.4	11.5	24	29.8
28	8.9	7.3	6.8	6.7	6.6	7.3	8.0	8.5	10.1	11.2	11.7	8.5	7.9	7.1	5.9	4.8	3.9	2.9	2.9	3.7	4.2	4.0	4.5	7.0	24	11.7
29	4.6	4.1	3.2	3.8	4.6	4.5	4.1	4.1	4.7	4.9	4.4	4.6	4.3	4.0	5.5	9.8	38.6	29.4	46.5	37.9	27.7	33.3	22.5	12.2	24	46.5
30	10.3	11.1	10.1	9.1	7.7	6.4	5.5	6.3	6.2	4.8	4.2	3.7	3.6	3.5	3.8	4.2	5.0	5.0	6.6	8.6	9.4	20.3	14.4	8.6	24	20.3
31	8.2	10.7	11.0	11.2	10.1	10.1	10.2	11.8	17.5	16.9	AZ	AZ	9.1	7.9	3.4	3.2	3.0	3.3	5.4	9.4	6.3	5.1	8.0	20.3	22	20.3
NO.:	31	31	31	31	31	31	31	31	31	31	30	28	29	31	31	31	31	31	31	31	31	31	31	31		
MAX:	24.3	27.2	22.4	24.9	29.1	25.4	24.6	30.2	217.5	21.5	13.2	11.9	11.3	13.9	14.3	12.4	38.6	29.4	46.5	37.9	29.8	33.3	22.5	21.9		
AVG:	9.21	9.18	9.13	9.13	9.16	9.25	9.43	9.72	15.47	8.68	6.69	6.04	5.79	5.41	5.30	5.45	6.29	7.01	8.60	9.91	10.15	9.89	9.89	9.93		

MONTHLY OBSERVATIONS: 738 MONTHLY MEAN: 8.55 MONTHLY MAX: 217.5

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: FEBRUARY 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	29.0	29.3	28.6	26.6	22.2	22.6	18.3	10.6	6.4	4.9	4.2	3.9	4.1	4.5	5.0	4.1	4.2	4.7	5.4	5.4	5.4	5.5	5.5	5.4	24	29.3
2	5.5	6.1	5.9	5.4	5.4	5.0	6.3	8.6	7.7	6.2	5.1	3.5	2.6	1.9	2.3	2.9	3.3	4.0	4.8	5.4	5.1	5.0	4.6	6.7	24	8.6
3	6.7	3.9	3.4	3.4	3.2	3.3	3.7	5.0	6.2	6.7	6.2	5.5	2.6	1.8	2.7	2.4	2.3	2.0	2.4	2.4	1.5	1.5	2.8	4.2	24	6.7
4	4.5	3.5	2.6	1.7	7.4	11.0	11.8	11.6	9.5	8.6	8.3	7.9	7.4	7.8	7.9	7.6	7.6	8.2	8.9	8.9	7.6	8.4	8.1	8.2	24	11.8
5	7.2	7.5	8.0	7.7	7.4	7.5	7.8	7.8	6.7	5.0	4.5	4.3	4.1	4.1	4.0	3.8	3.5	3.3	7.6	8.9	7.8	15.1	14.3	10.2	24	15.1
6	10.0	12.6	17.5	12.7	8.4	7.6	7.2	7.3	7.7	7.2	6.3	4.9	4.0	4.1	3.9	3.5	3.4	3.7	10.2	35.8	44.4	22.9	22.8	16.5	24	44.4
7	12.5	11.3	11.1	10.8	9.9	8.9	8.5	7.9	8.0	8.0	8.6	8.1	6.5	5.3	5.2	7.2	6.0	12.4	17.6	14.4	6.0	5.0	5.0	5.3	24	17.6
8	17.6	35.7	13.5	8.2	7.1	7.2	8.3	9.4	10.9	10.2	8.4	4.3	3.3	3.1	2.7	2.6	3.2	4.4	6.0	12.8	14.1	14.4	14.5	12.7	24	35.7
9	9.0	11.3	12.0	8.2	9.6	11.0	11.9	14.6	24.0	27.6	8.0	4.4	4.3	4.2	5.5	5.9	5.4	7.2	15.9	18.2	11.9	15.4	17.6	17.1	24	27.6
10	17.4	16.3	17.8	17.7	15.1	15.3	16.9	22.0	38.0	22.7	12.0	10.0	11.1	11.5	11.9	12.9	11.8	9.4	20.8	18.3	13.9	13.0	14.4	16.7	24	38.0
11	17.0	23.6	23.4	22.0	20.4	20.6	20.2	22.4	22.7	26.8	29.1	10.7	8.4	4.7	5.0	4.9	6.5	6.8	20.8	10.3	12.7	13.7	15.0	18.8	24	29.1
12	12.8	10.3	12.4	11.6	8.1	8.2	11.0	12.9	14.1	14.0	15.1	11.6	10.4	11.8	14.6	16.1	15.4	10.5	9.1	8.9	10.3	8.1	6.2	5.8	24	16.1
13	9.8	9.7	9.4	8.6	8.1	9.1	7.9	6.3	5.3	4.6	4.0	3.7	3.5	3.4	3.2	3.4	3.6	3.9	5.7	8.2	12.9	15.6	18.6	16.2	24	18.6
14	15.2	15.6	14.8	14.3	14.8	15.5	15.8	22.0	17.3	8.7	4.8	5.4	6.0	7.0	8.5	10.1	11.0	10.8	13.6	19.7	18.1	18.5	23.2	20.9	24	23.2
15	20.1IM	19.3IM	19.6IM	22.4IM	21.1IM	21.6IM	29.3IM	27.1IM	27.0IM	25.6IM	22.5IM	11.3IM	AZ	AZ	9.8IM	9.0IM	7.0IM	7.5IM	9.6IM	13.0IM	16.4IM	20.7IM	21.8IM	22.6IM	22	29.3
16	21.9IM	19.8IM	20.3IM	28.9IM	27.9IM	29.6IM	59.5IM	33.9IM	30.2IM	21.3IM	17.2IM	14.5IM	13.7IM	7.2IM	7.1IM	6.6IM	5.9IM	6.3IM	6.5IM	6.2IM	6.6IM	6.5IM	6.6IM	7.4IM	24	59.5
17	8.1	8.2	6.7	4.7	3.0	2.7	4.3	8.2	9.5	8.9	7.8	8.1	8.3	8.7	7.2	5.7	6.9	7.5	6.5	6.4	6.0	7.8	7.0	4.5	24	9.5
18	4.6	3.7	3.3	3.5	3.7	3.9	5.5	7.0	7.2	5.0	3.6	3.8	4.3	5.3	5.9	5.5	5.7	6.0	6.7	7.6	8.6	8.6	9.3	9.0	24	9.3
19	9.3	9.7	10.0	9.7	9.4	8.7	8.1	8.1	7.2	5.9	4.5	3.0	3.0	2.8	2.7	2.8	2.9	3.1	3.7	8.6	10.4	18.5	21.4	19.0	24	21.4
20	22.9	18.4	21.2	28.7	30.9	33.1	33.1	27.6	12.7	9.3	8.8	7.6	5.6	5.7	6.7	6.3	5.9	6.9	7.6	13.6	11.0	9.8	7.6	7.5	24	33.1
21	7.2	6.9	6.9	7.1	8.5	11.1	9.9	9.8	8.5	7.5	8.0	8.0	8.2	8.1	7.0	6.6	6.5	6.8	7.1	6.9	7.0	7.3	7.6	7.1	24	11.1
22	6.7	6.4	6.1	6.0	5.8	5.7	5.0	5.4	5.3	5.5	6.1	5.6	6.8	7.5	8.1	8.4	8.5	8.8	9.2	9.2	9.6	10.1	9.9	9.5	24	10.1
23	7.7	6.7	5.9	5.6	5.0	5.0	5.0	5.6	6.0	5.6	5.8	6.0	6.8	7.7	7.4	7.6	8.6	7.9	8.2	8.4	8.9	8.8	8.3	7.6	24	8.9
24	7.3	7.8	8.7	7.1	7.1	5.4	4.6	5.6	5.9	5.6	5.9	5.5	5.9	6.6	6.9	9.8	9.1	7.0	6.7	7.1	6.9	6.3	5.8	6.0	24	9.8
25	6.2	6.3	2.2	.6	.7	.6	.5	1.1	1.1	1.8	2.3	2.8	2.9	4.6	3.2	3.2	3.4	3.6	4.6	4.1	3.7	3.7	3.7	3.7	24	6.3
26	4.0	4.0	3.9	4.1	4.7	5.8	6.5	6.3	6.3	5.9	5.8	6.1	6.3	6.7	6.3	6.4	7.0	7.4	10.3	10.8	11.2	10.2	9.7	9.5	24	11.2
27	10.0	9.4	9.8	10.6	9.8	9.9	7.6	5.3	5.0	4.2	3.3	2.8	2.4	2.0	2.7	2.7	2.4	1.6	2.6	4.2	4.7	5.9	6.2	4.7	24	10.6
28	5.9	7.7	10.4	11.8	11.8	11.9	12.5	12.2	11.0	7.6	5.8	4.7	4.0	3.5	3.5	3.4	3.4	3.8	4.7	7.4	8.1	7.4	10.7	17.7	24	17.7
29																									0	
30																									0	
31																									0	
NO.:	28	28	28	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28		
MAX:	29.0	35.7	28.6	28.9	30.9	33.1	59.5	33.9	38.0	27.6	29.1	14.5	13.7	11.8	14.6	16.1	15.4	12.4	20.8	35.8	44.4	22.9	23.2	22.6		
AVG:	11.29	11.82	11.26	11.06	10.59	10.99	12.39	11.84	11.69	10.03	8.29	6.36	5.80	5.61	5.96	6.12	6.09	6.27	8.67	10.40	10.39	10.49	11.01	10.73		

MONTHLY OBSERVATIONS: 670 MONTHLY MEAN: 9.39 MONTHLY MAX: 59.5

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23

COUNTY: (035) Forrest

CITY: (31020) Hattiesburg

STATE: (28) Mississippi

AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM
ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:

MONITOR COMMENTS:

LAND USE: COMMERCIAL

LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:

ELEVATION-MSL: 0

PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS

COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: MARCH 2022

DURATION: 1 HOUR

UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	24.8	23.0	21.8	16.8	16.6	12.3	11.5	10.7	8.6	7.8	4.8	4.0	3.4	3.5	3.1	2.8	3.5	4.8	4.8	9.6	14.9	12.2	14.3	9.6	24	24.8
2	12.4	11.9	11.8	13.1	12.8	13.7	14.0	17.3	18.5	13.4	10.3	6.0	6.1	5.8	5.5	5.4	7.6	9.9	21.3	22.1	28.7	23.7	23.3	22.2	24	28.7
3	22.3IM	21.5IM	23.6IM	37.3IM	27.8IM	26.2IM	23.8IM	26.5IM	27.3IM	20.0IM	15.8IM	AZ	AZ	10.8IM	10.1IM	9.6IM	10.1IM	13.8IM	22.3IM	29.5IM	28.1IM	34.8IM	26.9IM	27.2IM	22	37.3
4	29.0IM	31.1IM	47.0IM	58.9IM	92.2IM	84.8IM	75.2IM	39.8IM	46.9IM	52.2IM	38.8IM	30.7IM	21.0IM	19.1IM	17.4IM	12.8IM	12.5IM	14.7IM	17.1IM	20.1IM	22.8IM	17.3IM	22.8IM	28.9IM	24	92.2
5	34.2IM	71.6IM	84.8IM	82.5IM	64.6IM	48.2IM	37.0IM	32.6IM	35.2IM	27.9IM	10.8IM	7.7IM	7.4IM	6.8IM	7.2IM	7.7IM	6.8IM	7.3IM	8.0IM	8.5IM	8.5IM	18.3IM	17.8IM	23.6IM	24	84.8
6	22.6	15.9	8.9	8.4	9.2	8.5	8.5	7.9	7.8	8.3	6.8	6.0	5.9	5.3	5.9	6.4	5.3	5.7	6.8	7.6	8.4	9.2	10.2	10.0	24	22.6
7	10.0	11.6	12.0	9.9	9.7	10.1	9.6	8.9	9.6	9.3	8.0	8.0	6.9	5.1	4.6	5.4	4.9	5.0	4.8	4.6	4.2	4.1	3.8	4.3	24	12.0
8	4.5	4.5	3.6	3.4	3.2	3.1	3.0	3.3	4.0	4.0	4.1	4.8	6.3	6.8	7.2	5.4	3.8	3.3	2.8	3.4	3.7	3.6	3.3	3.1	24	7.2
9	2.0	2.5	2.6	2.4	2.8	2.5	1.2	1.2	1.5	1.9	2.2	2.5	2.9	3.0	3.3	3.1	3.0	2.8	3.3	3.2	3.7	4.3	4.1	4.3	24	4.3
10	3.8	4.2	7.7	7.6	9.4	5.2	6.0	6.0	4.8	4.0	BL	3.9	4.1	4.1	8.4	12.0	6.4	8.2	9.7	14.0	16.1	17.0	18.5	16.8	23	18.5
11	17.3	16.6	13.2	17.2	33.2	13.7	11.8	13.1	12.1	11.6	8.0	4.5	4.1	4.4	4.4	5.9	7.2	7.2	7.8	8.3	7.5	8.6	8.9	6.7	24	33.2
12	5.4	1.4	1.2	1.4	2.7	4.2	4.4	4.0	3.2	2.9	2.8	2.5	2.1	1.9	1.6	1.4	1.5	1.7	2.1	2.0	2.2	2.4	2.6	2.7	24	5.4
13	3.1	3.3	3.7	4.8	4.9	4.1	4.3	4.7	3.0	2.6	2.4	2.0	1.9	1.9	2.4	2.2	4.0	8.4	9.2	26.9	18.3	8.3	7.0	7.2	24	26.9
14	7.4	9.8	11.0	11.7	11.4	16.4	31.6	19.3	8.4	5.9	3.9	3.3	3.3	8.0	5.2	7.5	9.2	5.8	5.3	9.0	10.5	8.5	6.9	10.9	24	31.6
15	9.1	9.3	7.8	7.4	6.7	6.1	4.5	2.7	1.6	2.4	3.0	2.8	3.3	3.7	3.7	3.9	3.7	3.9	3.7	3.9	4.2	4.3	5.0	6.4	24	9.3
16	6.7	6.9	6.4	6.3	6.1	6.1	6.0	5.5	3.9	3.3	3.7	4.0	4.6	5.4	4.7	4.6	4.1	3.7	4.4	8.0	16.3	9.7	11.2	12.9	24	16.3
17	9.2	8.6	11.5	9.4	8.6	10.8	10.7	9.1	14.9	AZ	AZ	AZ	6.7	6.6	7.5	7.4	9.9	10.2	7.9	7.4	6.8	9.6	8.5	10.6	21	14.9
18	10.4	7.5	6.5	6.1	6.2	3.9	3.7	4.4	5.5	8.5	11.2	11.7	12.4	12.3	10.4	9.9	9.2	9.1	8.3	7.1	5.9	5.1	4.0	3.1	24	12.4
19	2.8	2.0	1.3	1.5	1.5	1.5	1.8	1.7	1.6	1.4	1.2	1.1	1.5	1.7	2.2	2.6	2.8	4.6	10.2	14.7	31.5	19.4	14.4	13.1	24	31.5
20	10.8	11.5	10.1	8.0	8.1	9.3	13.4	27.4	12.2	6.3	4.9	3.3	2.8	2.8	2.8	2.8	3.1	3.2	5.4	8.9	24.6	29.4	22.9	21.9	24	29.4
21	18.4	22.6	21.4	29.0	31.6	40.9	45.2	30.7	14.1	6.5	8.1	5.8	6.4	8.3	8.3	9.2	7.4	5.6	4.9	4.9	5.4	5.8	5.5	5.6	24	45.2
22	5.8	6.0	6.2	6.3	6.9	7.9	9.0	7.8	7.5	8.2	7.7	7.9	8.2	8.1	8.1	8.1	9.1	9.7	8.7	6.4	3.8	4.5	5.2	5.6	24	9.7
23	5.7	5.5	5.6	5.9	8.1	10.0	8.6	6.2	4.7	5.0	5.1	4.8	3.7	2.9	2.8	2.7	2.5	2.4	2.4	3.2	4.2	4.6	4.6	5.0	24	10.0
24	6.4	5.9	7.7	6.6	5.1	10.8	10.4	10.2	4.0	2.8	2.4	2.3	2.8	3.0	3.3	3.4	3.1	3.5	4.6	4.1	4.2	4.8	4.3	4.6	24	10.8
25	5.2	5.4	6.3	7.6	7.9	11.2	15.7	9.1	3.8	3.8	3.7	3.2	3.3	3.1	3.0	3.3	2.8	2.9	4.6	3.8	3.6	6.3	6.4	5.9	24	15.7
26	5.0	5.2	7.2	9.8	10.5	9.4	7.5	7.0	5.7	5.7	6.3	6.4	5.3	5.2	5.9	5.4	5.7	5.7	6.5	12.7	20.3	27.5	20.2	17.6	24	27.5
27	12.4	13.5	16.5	15.8	14.1	14.4	14.5	14.8	17.3	13.1	11.8	10.2	9.3	9.1	11.1	8.9	8.6	10.6	11.4	11.6	11.3	9.4	11.1	10.4	24	17.3
28	7.6	10.8	12.1	12.5	13.1	13.2	13.9	11.5	8.0	7.0	5.7	8.2	8.1	14.3	29.1	21.6	14.9	10.6	10.3	15.7	7.3	6.3	5.3	4.9	24	29.1
29	6.1	5.9	5.7	6.3	5.4	6.2	7.4	6.6	5.8	5.8	6.3	7.5	6.8	6.5	7.0	6.6	7.2	7.5	7.2	7.0	6.2	5.4	4.9	5.2	24	7.5
30	5.5	6.5	7.8	7.8	8.0	8.1	8.0	8.3	9.0	9.5	9.8	11.1	11.9	12.2	12.8	12.2	11.8	11.3	11.3	3.9	3.5	3.8	4.3	4.7	24	12.8
31	5.8	7.6	9.0	9.2	9.5	9.8	9.0	8.8	7.8	6.7	5.7	5.5	4.9	4.9	5.4	3.7	3.6	3.7	3.8	4.5	5.9	4.9	4.9	5.6	24	9.8
NO.:	31	31	31	31	31	31	31	31	31	30	29	29	30	31	31	31	31	31	31	31	31	31	31	31		
MAX:	34.2	71.6	84.8	82.5	92.2	84.8	75.2	39.8	46.9	52.2	38.8	30.7	21.0	19.1	29.1	21.6	14.9	14.7	22.3	29.5	31.5	34.8	26.9	28.9		
AVG:	10.70	11.92	12.97	13.90	14.77	13.95	13.91	11.84	10.27	8.93	7.42	6.27	5.91	6.34	6.92	6.58	6.30	6.67	7.77	9.57	11.05	10.75	10.10	10.34		

MONTHLY OBSERVATIONS: 738 MONTHLY MEAN: 9.82 MONTHLY MAX: 92.2

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23

COUNTY: (035) Forrest

CITY: (31020) Hattiesburg

STATE: (28) Mississippi

AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM
ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:

MONITOR COMMENTS:

LAND USE: COMMERCIAL

LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:

ELEVATION-MSL: 0

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

PROBE HEIGHT: 5

MONITOR TYPE: SLAMS

COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: APRIL 2022

DURATION: 1 HOUR

UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	5.9	8.7	7.4	6.3	6.3	6.5	6.7	6.3	4.8	4.8	4.3	4.2	3.9	3.9	3.4	3.3	3.3	4.2	4.6	6.7	21.7	14.8	13.9	32.9	24	32.9
2	22.9	14.4	11.4	10.2	20.7	11.9	8.7	8.0	7.6	6.9	5.6	5.7	4.6	4.2	9.8	6.4	4.9	5.2	7.1	47.1	22.8	19.0	20.3	24.1	24	47.1
3	16.1	13.3	12.0	12.7	11.4	12.3	15.7	15.1	11.2	7.7	5.9	5.6	5.2	5.0	4.5	4.1	4.1	4.6	5.3	23.8	30.2	24.5	20.8	16.7	24	30.2
4	16.6IM	17.4IM	18.3IM	19.2IM	20.2IM	14.9IM	18.4IM	16.0IM	12.7IM	9.7IM	8.4IM	7.1IM	7.9IM	7.6IM	10.5IM	12.0IM	16.8IM	41.0IM	49.5IM	28.0IM	23.5IM	13.2IM	6.8IM	6.8IM	24	49.5
5	6.6	6.7	6.9	6.4	4.8	3.1	5.6	3.7	2.8	2.8	3.3	3.5	3.7	4.2	4.6	4.4	4.5	5.1	5.5	5.6	7.0	11.7	14.0	13.6	24	14.0
6	13.3	13.3	13.1	12.8	12.8	13.3	13.6	14.2	14.7	16.1	17.5	17.5	17.8	18.3	18.2	19.1	20.5	22.0	21.8	12.8	12.1	6.3	4.0	3.1	24	22.0
7	3.0	2.9	2.8	2.7	3.1	3.0	3.1	3.3	4.6	6.2	10.8	10.5	6.9	5.1	4.0	3.9	4.0	3.8	3.4	3.6	4.1	6.0	5.2	3.9	24	10.8
8	3.3	3.5	3.4	3.5	3.6	3.5	3.5	4.1	7.6	26.3	69.7	46.0	13.1	4.0	4.0	3.6	3.3	3.3	3.4	3.8	4.8	5.5	5.3	4.4	24	69.7
9	4.0	3.9	4.9	5.4	6.4	7.2	6.3	5.4	4.0	5.8	5.6	5.1	4.5	4.1	4.0	4.1	4.3	4.3	5.0	17.0	15.2	13.7	12.4	12.1	24	17.0
10	14.5	12.6	12.3	12.5	15.1	14.2	10.2	8.7	6.6	6.9	6.6	6.0	5.3	5.1	5.0	4.6	4.4	3.7	3.8	4.0	4.6	5.5	5.5	5.9	24	15.1
11	7.2	8.1	7.1	5.9	6.5	7.6	6.4	6.2	7.2	7.5	6.7	5.4	5.3	5.0	5.1	8.0	5.5	5.3	6.5	4.9	5.1	6.2	7.2	9.3	24	9.3
12	6.9	7.1	7.0	7.3	10.2	10.2	10.4	11.0	11.7	AZ	10.5	10.3	10.0	10.7	9.7	8.6	8.5	8.7	8.3	8.2	8.2	8.7	7.5	8.5	23	11.7
13	8.4	8.1	8.3	9.1	9.3	8.4	7.9	8.7	9.8	9.6	7.8	7.3	7.4	7.3	7.6	7.8	8.2	8.5	9.4	9.8	4.8	2.2	1.8	2.0	24	9.8
14	1.8	2.4	4.0	4.3	7.0	6.2	5.5	5.5	5.7	6.0	6.3	6.4	6.9	6.2	6.1	5.8	5.9	5.5	5.9	6.9	6.7	7.6	7.5	8.1	24	8.1
15	7.9	7.8	7.2	6.3	5.8	6.3	6.3	5.4	5.6	5.4	5.3	5.6	5.8	5.6	6.1	15.2	37.9	23.9	8.0	13.5	11.3	16.0	9.2	7.2	24	37.9
16	6.0	6.2	6.8	6.6	7.2	7.5	7.8	8.1	8.2	7.7	7.7	7.6	7.0	6.7	7.0	5.3	1.2	.9	1.7	2.6	2.8	2.8	3.3	3.4	24	8.2
17	3.5	3.9	5.4	4.4	4.6	4.0	4.6	4.5	4.6	5.8	8.0	8.4	9.5	10.2	10.3	9.8	9.5	9.0	8.2	3.7	2.4	2.8	3.0	3.4	24	10.3
18	4.1	4.6	4.9	5.0	4.8	4.6	2.9	2.8	2.9	3.3	3.8	4.0	4.1	4.1	4.3	5.1	5.3	5.2	5.4	5.6	5.9	6.4	6.9	6.4	24	6.9
19	6.8	6.8	7.2	7.2	7.5	7.7	7.2	6.2	4.4	3.7	3.7	3.7	4.1	3.6	3.5	3.5	3.7	3.7	3.9	4.9	7.8	10.8	10.1	8.3	24	10.8
20	7.0	6.8	8.0	9.2	7.5	6.2	6.5	5.4	5.3	5.8	7.8	8.2	9.0	11.4	11.1	9.9	9.2	8.7	7.8	7.6	6.5	6.8	7.0	6.9	24	11.4
21	7.2	7.9	7.9	8.2	8.2	8.1	9.1	8.1	8.2	8.2	8.4	8.6	10.6	21.0	20.3	14.8	10.9	13.6	14.0	8.9	8.6	8.4	8.2	9.2	24	21.0
22	11.4	10.6	9.9	9.1	10.5	12.8	10.7	8.0	8.5	8.4	8.0	9.7	10.2	10.2	10.6	9.6	8.6	8.0	7.6	9.3	8.3	6.7	6.9	7.2	24	12.8
23	7.0	7.2	7.4	7.8	9.1	10.4	10.9	7.1	8.1	8.0	7.5	7.3	8.0	7.8	7.5	8.5	8.7	8.1	8.0	8.3	9.2	8.0	7.4	7.3	24	10.9
24	7.2	7.2	7.3	8.1	9.4	10.0	9.3	8.6	8.4	7.4	7.1	7.2	6.4	5.9	5.9	5.7	5.9	6.0	6.5	6.5	7.0	7.9	8.0	7.3	24	10.0
25	6.6	6.6	6.0	5.9	6.6	6.4	8.7	13.3	9.8	6.9	6.9	11.0	8.4	9.4	8.2	8.2	7.2	4.2	4.2	4.6	4.9	5.7	5.5	5.2	24	13.3
26	5.0	4.0	3.7	4.1	4.6	4.9	4.6	5.2	4.5	BA	BA	BA	BA	BA	5.6	5.6	4.8	4.0	3.7	4.1	4.6	4.5	4.9	4.5	19	5.6
27	4.8	4.9	4.6	6.0	6.2	5.0	4.8	4.4	4.2	AZ	4.0	4.1	3.9	4.1	4.3	7.1	5.5	4.4	4.3	5.0	6.6	10.1	10.8	10.7	23	10.8
28	11.5	9.9	10.3	7.9	8.5	9.6	13.1	16.9	19.8	14.5	10.9	8.5	7.1	7.8	8.2	8.0	8.6	9.2	10.3	12.9	14.9	15.2	15.8	15.4	24	19.8
29	20.5	24.8	26.8	26.2	24.9	22.7	20.2	14.6	15.2	14.0	10.6	7.8	8.6	9.4	9.2	9.0	8.2	8.4	8.4	7.6	6.1	5.0	5.1	4.8	24	26.8
30	4.8	5.3	5.2	5.3	5.6	5.9	6.3	5.8	4.9	4.9	5.3	6.2	8.2	9.1	9.1	9.5	9.8	9.3	10.7	9.9	7.7	7.3	8.7	10.0	24	10.7
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	27	29	29	29	29	30	30	30	30	30	30	30	30	30	30		
MAX:	22.9	24.8	26.8	26.2	24.9	22.7	20.2	16.9	19.8	26.3	69.7	46.0	17.8	21.0	20.3	19.1	37.9	41.0	49.5	47.1	30.2	24.5	20.8	32.9		
AVG:	8.39	8.23	8.25	8.19	8.95	8.48	8.50	8.02	7.79	8.16	9.45	8.57	7.36	7.48	7.59	7.68	8.11	8.39	8.41	9.91	9.51	8.98	8.43	8.95		

MONTHLY OBSERVATIONS: 713 MONTHLY MEAN: 8.41 MONTHLY MAX: 69.7

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM
ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: MAY 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	9.3	9.5	11.2	10.4	11.1	11.9	11.5	13.5	11.0	8.6	5.9	6.4	4.7	4.7	4.4	4.1	3.8	3.8	4.6	5.2	5.9	6.3	6.5	7.0	24	13.5
2	7.7	7.7	7.9	9.7	10.7	9.6	9.6	9.5	8.1	7.8	6.8	6.7	6.6	6.2	5.6	6.1	7.0	6.9	6.0	5.7	5.4	6.1	7.2	6.3	24	10.7
3	5.8	5.7	5.5	5.9	5.6	6.5	6.8	6.8	5.7	5.4	5.7	5.9	6.5	6.4	10.0	5.9	5.2	6.2	19.1	16.9	13.0	11.3	11.3	12.2	24	19.1
4	15.8	18.5	18.4	18.9	15.8	11.9	8.6	11.1	12.6	10.5	8.6	6.8	7.1	10.3	7.2	6.5	10.4	7.8	6.9	8.3	9.2	7.7	7.9	9.7	24	18.9
5	10.7	9.6	9.8	10.1	10.3	9.6	7.3	6.5	6.0	6.9	6.6	6.2	5.8	5.7	5.5	5.6	6.1	6.6	6.9	7.2	7.1	7.5	7.1	4.5	24	10.7
6	3.7	3.8	3.8	3.7	4.1	4.2	4.1	4.4	4.8	5.1	5.5	5.7	5.5	5.1	4.9	4.7	5.1	5.8	5.5	5.8	6.2	6.9	6.8	8.3	24	8.3
7	6.7	6.7	6.8	6.6	6.3	6.1	5.9	6.1	5.1	4.3	4.8	4.4	4.3	4.4	4.5	4.7	4.7	4.9	5.0	6.3	6.5	6.3	6.7	6.6	24	6.8
8	6.1	5.5	5.7	5.7	5.9	5.9	6.0	5.3	5.6	5.9	6.1	6.5	7.4	8.6	10.1	11.5	11.7	11.7	12.1	12.6	13.9	14.3	12.4	12.1	24	14.3
9	12.5	11.2	10.8	11.3	11.6	10.5	8.3	7.3	AZ	7.3	10.3	12.0	13.0	13.1	13.2	15.1	20.7	18.8	23.4	20.6	12.8	10.7	10.2	10.9	23	23.4
10	10.1	10.4	11.1	12.2	38.5	33.5	16.2	8.5	9.2	10.0	11.8	12.8	14.1	13.1	12.3	12.3	12.1	11.9	13.4	14.6	15.7	17.7	17.0	16.2	24	38.5
11	16.3	15.4	15.1	14.6	14.7	15.0	17.4	17.1	17.3	13.8	10.9	9.6	9.8	11.0	12.1	11.8	12.1	12.9	13.4	13.8	16.3	16.5	17.3	18.5	24	18.5
12	21.6IT	18.9IT	20.2IT	26.9IT	22.5IT	22.4IT	25.9IT	22.6IT	22.0IT	19.1IT	17.0IT	17.6IT	18.3IT	20.8IT	18.4IT	17.9IT	18.3IT	16.2IT	15.1IT	14.4IT	11.4IT	10.9IT	11.9IT	13.5IT	24	26.9
13	13.7	13.6	11.2	9.3	9.5	10.2	11.3	12.2	13.6	16.5	17.3	16.7	13.3	11.5	12.1	10.1	10.3	11.6	12.4	7.6	4.9	5.3	6.4	7.4	24	17.3
14	8.3	6.7	8.9	9.8	7.9	9.0	9.7	8.9	7.9	7.0	7.1	7.3	6.9	6.9	7.1	6.9	7.6	7.2	7.4	9.0	9.6	10.8	9.8	10.4	24	10.8
15	10.7	10.8	11.0	12.7	12.9	13.0	12.7	12.5	10.8	9.9	9.7	10.2	10.1	9.0	8.8	9.1	9.6	10.4	11.1	11.2	12.9	13.8	10.5	7.5	24	13.8
16	7.1	7.1	7.6	7.9	8.5	8.7	8.4	7.0	6.7	7.2	6.4	6.1	6.7	7.4	10.6	8.3	7.0	7.1	8.8	18.6	9.5	10.1	10.8	11.5	24	18.6
17	11.6	11.2	12.1	12.5	13.6	13.9	13.0	11.6	11.9	13.1	13.2	13.4	13.3	13.1	12.5	13.4	14.2	14.2	17.2	17.3	18.9	18.7	18.6	21.8	24	21.8
18	19.3	17.5	16.3	18.2	18.2	20.0	19.7	21.4	16.8	13.9	15.0	16.4	14.8	16.1	14.9	14.1	15.4	15.8	14.1	13.7	13.1	12.4	11.6	9.9	24	21.4
19	9.5	9.1	8.8	8.9	8.6	10.9	10.8	7.5	6.7	6.6	7.6	9.1	9.9	9.5	10.2	9.9	8.6	9.7	8.8	9.3	8.3	9.1	7.2	8.3	24	10.9
20	11.1	11.5	10.2	9.0	10.9	10.2	9.4	5.9	6.5	4.7	4.7	5.7	6.3	6.9	7.7	9.3	10.5	11.7	12.6	12.6	9.8	8.0	7.9	8.7	24	12.6
21	10.2	9.0	8.6	9.8	11.6	10.0	9.0	9.5	11.0	10.7	10.0	9.6	10.1	8.5	3.6	3.8	3.3	3.1	4.0	5.6	6.9	8.0	7.9	8.6	24	11.6
22	8.9	8.1	7.1	6.9	6.5	7.1	8.9	9.4	9.8	8.9	6.9	7.2	7.1	6.5	7.5	10.6	14.6	14.8	15.7	16.6	14.2	13.0	12.6	13.5	24	16.6
23	13.5	12.3	12.0	12.4	12.9	11.0	9.3	10.7	10.3	9.2	8.0	7.7	8.7	10.7	7.9	9.8	9.8	9.5	9.5	10.0	10.2	10.2	11.3	12.5	24	13.5
24	11.3	12.6	13.2	12.6	9.0	5.7	5.0	5.7	9.3	12.3	14.7	16.4	17.2	16.8	14.4	11.5	10.0	8.7	8.3	8.0	6.9	5.5	4.8	3.8	24	17.2
25	3.5	2.2	1.5	1.7	1.8	2.1	2.5	3.3	4.7	6.4	6.5	7.0	7.4	6.5	7.1	8.3	7.6	6.8	6.3	6.0	6.2	6.0	6.4	6.3	24	8.3
26	6.3	7.2	8.2	9.4	7.9	7.0	6.1	5.5	6.0	4.8	4.9	4.5	4.3	4.2	4.2	3.7	3.8	3.8	4.1	5.2	6.2	7.8	9.8	8.3	24	9.8
27	7.8	8.1	7.6	7.2	6.8	6.5	6.8	6.8	4.7	4.6	4.1	3.8	2.9	3.1	2.8	3.0	3.1	3.0	2.8	3.1	4.0	4.6	5.6	5.9	24	8.1
28	6.3	7.2	7.1	8.5	8.1	7.7	7.0	6.6	6.4	5.5	6.0	6.2	6.0	5.8	5.3	5.5	5.4	5.6	5.7	6.3	8.7	11.9	13.1	9.6	24	13.1
29	9.4	9.6	10.0	10.6	11.4	12.4	16.1	12.3	7.8	6.9	7.9	7.0	6.9	7.3	7.6	8.0	7.5	7.4	8.2	9.6	7.8	8.9	8.9	15.5	24	16.1
30	11.3	10.9	9.5	8.9	8.5	7.5	8.1	8.3	6.7	5.5	5.5	5.6	5.6	6.0	6.2	6.1	6.3	5.4	4.8	4.7	4.8	5.8	6.7	7.4	24	11.3
31	6.6	8.1	5.8	6.0	7.9	7.6	6.8	6.1	6.8	AZ	7.5	7.6	7.3	6.8	6.9	7.2	5.9	4.8	4.4	3.9	3.9	5.4	4.7	7.0	23	8.1
NO.:	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	21.6	18.9	20.2	26.9	38.5	33.5	25.9	22.6	22.0	19.1	17.3	17.6	18.3	20.8	18.4	17.9	20.7	18.8	23.4	20.6	18.9	18.7	18.6	21.8		
AVG:	10.09	9.86	9.77	10.27	10.95	10.57	9.94	9.35	9.06	8.61	8.48	8.65	8.64	8.77	8.57	8.54	8.96	8.84	9.60	9.99	9.36	9.60	9.58	9.99		

MONTHLY OBSERVATIONS: 742 MONTHLY MEAN: 9.42 MONTHLY MAX: 38.5

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: JUNE 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	9.0	5.5	5.5	8.2	9.5	6.6	6.0	6.8	6.7	7.1	7.7	7.5	7.3	6.8	6.0	5.2	6.1	6.2	6.3	6.2	7.3	7.6	8.6	8.6	24	9.5
2	8.5	8.6	7.8	8.0	8.6	9.0	7.7	7.0	7.0	6.7	7.0	7.0	7.5	7.8	8.1	8.5	8.2	5.8	6.0	5.7	5.7	7.7	11.0	11.9	24	11.9
3	8.4	7.8	7.4	7.1	7.3	8.1	7.8	7.6	7.3	6.4	6.4	6.1	5.6	5.4	7.3	6.8	6.6	6.2	6.5	6.4	6.2	6.5	6.4	6.1	24	8.4
4	7.2	9.0	7.7	7.4	6.8	8.3	9.2	7.5	6.2	6.4	6.3	6.2	6.3	6.3	6.1	6.1	6.5	6.4	9.3	9.0	13.2	12.6	16.9	12.6	24	16.9
5	13.2	13.0	12.3	15.7	21.8	23.5	21.0	17.0	12.9	9.8	9.4	9.8	10.5	10.4	10.8	10.5	10.6	10.7	10.4	13.4	15.2	14.1	15.0	14.5	24	23.5
6	15.5	15.2	14.0	13.7	14.2	13.9	13.8	12.5	8.7	8.2	8.2	8.8	8.8	9.3	10.0	10.0	9.9	9.8	9.1	8.9	7.9	7.9	7.7	7.6	24	15.5
7	7.8	8.0	8.1	9.1	9.9	11.3	6.3	4.8	4.3	4.8	5.1	5.6	7.8	7.7	7.9	7.8	7.3	7.9	8.2	7.1	5.8	4.5	4.6	4.9	24	11.3
8	4.4	4.4	4.4	4.5	4.7	5.0	5.6	4.8	4.4	3.7	4.1	4.9	5.4	5.1	5.8	5.7	5.6	5.9	7.9	9.6	10.5	8.4	6.6	6.2	24	10.5
9	5.8	5.6	6.3	6.7	9.5	10.6	10.1	10.0	10.2	11.6	10.9	11.0	11.5	11.3	11.3	12.0	11.9	10.8	10.8	10.1	11.3	9.7	9.5	9.3	24	12.0
10	9.1	10.7	10.9	10.0	10.7	15.0	18.8	15.9	11.2	9.3	9.5	11.0	11.9	4.3	2.9	3.1	3.3	3.8	3.9	3.6	3.8	5.7	8.5	8.8	24	18.8
11	7.3	7.3	7.2	7.7	7.0	6.7	5.3	4.4	4.3	4.6	5.2	6.5	6.8	7.6	7.8	7.3	6.4	6.4	6.7	15.0	8.2	8.7	13.7	9.7	24	15.0
12	10.9	11.3	9.5	9.7	10.1	9.4	9.3	9.8	9.4	9.2	9.7	9.6	9.5	9.9	10.2	10.1	10.2	10.9	11.4	11.9	12.2	13.1	13.9	14.6	24	14.6
13	14.9IA	16.5IA	19.9IA	24.5IA	26.6IA	27.9IA	31.3IA	36.5IA	38.1IA	36.2IA	34.3IA	32.3IA	32.4IA	32.8IA	32.8IA	32.0IA	33.7IA	33.2IA	31.4IA	32.0IA	34.3IA	33.7IA	32.0IA	30.1IA	24	38.1
14	27.9IA	27.7IA	28.1IA	29.2IA	29.8IA	29.5IA	29.4IA	31.0IA	31.7IA	30.9IA	29.5IA	28.1IA	26.9IA	26.2IA	24.6IA	24.0IA	24.5IA	22.0IA	15.1IA	12.9IA	10.9IA	5.2IA	5.6IA	6.5IA	24	31.7
15	10.1IA	11.0IA	10.7IA	11.7IA	13.8IA	14.4IA	15.4IA	23.1IA	28.9IA	30.4IA	30.9IA	28.9IA	26.7IA	24.9IA	22.6IA	20.7IA	19.0IA	18.9IA	19.1IA	20.1IA	21.1IA	20.5IA	20.1IA	20.1IA	24	30.9
16	19.5	17.4	16.2	13.9	14.8	17.3	16.6	15.0	13.3	12.9	13.5	14.6	13.8	16.2	14.5	14.0	12.8	4.6	4.4	5.3	5.9	6.1	6.7	7.6	24	19.5
17	8.8	7.6	8.2	9.4	9.2	15.6	10.2	14.8	10.9	10.0	10.1	10.1	10.0	9.2	9.9	10.2	9.3	10.4	10.1	9.9	10.2	10.6	11.2	12.7	24	15.6
18	11.9	11.2	12.3	12.0	12.1	12.5	13.5	14.2	15.0	15.4	14.6	14.3	14.8	15.1	13.1	12.6	14.1	12.7	6.9	5.4	5.7	6.7	7.3	8.3	24	15.4
19	9.2	10.7	11.5	12.0	11.6	10.9	9.1	8.4	7.6	7.6	7.1	7.4	7.3	7.2	7.0	6.0	5.4	6.2	6.4	7.2	7.5	8.2	9.3	9.8	24	12.0
20	10.8	11.1	11.9	12.4	13.1	11.7	11.5	11.0	11.4	AZ	12.7	13.7	14.3	13.8	13.7	10.5	9.7	9.6	9.5	10.7	11.2	10.9	11.1	10.6	23	14.3
21	10.1	10.1	10.2	10.1	11.0	14.2	11.3	10.3	9.4	8.9	10.0	9.3	9.0	9.4	9.2	9.8	11.6	10.2	9.8	9.4	9.5	10.7	11.5	10.9	24	14.2
22	10.6	10.2	13.3	16.9	14.6	14.3	13.6	13.2	13.1	13.5	13.1	14.3	14.5	15.1	15.7	15.8	14.2	13.2	11.8	12.8	14.6	15.0	14.4	15.0	24	16.9
23	13.3	13.4	13.7	13.8	13.5	14.2	14.5	15.8	17.2	17.8	18.3	17.7	18.1	17.5	17.4	16.5	15.4	16.6	17.5	18.6	19.8	22.2	21.1	22.0	24	22.2
24	26.6	22.5	22.0	21.6	22.1	21.7	21.0	19.7	16.2	13.5	13.5	13.0	12.2	13.0	12.7	11.3	9.4	9.0	8.9	8.7	9.7	10.8	10.8	11.7	24	26.6
25	12.3	13.2	12.8	13.4	13.8	13.6	14.4	15.2	16.7	15.7	13.2	13.8	13.5	11.3	8.9	7.9	9.0	10.6	15.2	13.9	14.0	14.3	14.2	15.7	24	16.7
26	15.2	13.6	13.6	14.2	13.2	12.4	12.8	11.9	13.8	15.0	15.2	16.2	16.2	16.9	16.8	16.0	8.2	6.8	6.7	5.1	5.0	6.5	7.4	8.0	24	16.9
27	8.0	9.1	11.0	10.6	11.4	10.0	8.4	9.1	9.3	8.9	8.8	9.0	8.5	9.3	8.9	9.1	6.4	6.9	7.6	9.0	8.1	6.0	5.3	5.3	24	11.4
28	5.6	6.1	6.3	7.2	7.4	7.3	7.3	6.8	6.8	7.2	7.7	8.8	9.7	10.6	11.4	11.5	11.4	10.4	10.1	10.0	8.8	7.7	7.9	7.4	24	11.5
29	7.0	6.8	7.2	7.9	8.4	8.5	7.6	8.8	9.4	6.9	5.5	5.0	6.5	5.7	5.6	4.0	3.8	4.1	4.7	5.0	4.5	5.6	5.5	6.0	24	9.4
30	4.6	4.1	4.8	4.9	3.5	5.1	3.3	6.3	3.0	4.0	6.6	5.1	6.5	4.6	3.7	2.8	3.3	3.3	3.3	3.6	4.1	4.9	6.1	4.8	24	6.6
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
MAX:	27.9	27.7	28.1	29.2	29.8	29.5	31.3	36.5	38.1	36.2	34.3	32.3	32.4	32.8	32.8	32.0	33.7	33.2	31.4	32.0	34.3	33.7	32.0	30.1		
AVG:	11.12	10.96	11.16	11.78	12.33	12.95	12.40	12.64	12.15	11.81	11.80	11.85	11.99	11.69	11.42	10.93	10.46	9.98	9.83	10.22	10.41	10.40	11.00	10.91		

MONTHLY OBSERVATIONS: 719 MONTHLY MEAN: 11.34 MONTHLY MAX: 38.1

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23

COUNTY: (035) Forrest

CITY: (31020) Hattiesburg

STATE: (28) Mississippi

AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389

LONGITUDE: -89.2922

:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:

MONITOR COMMENTS:

LAND USE: COMMERCIAL

LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:

ELEVATION-MSL: 0

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

PROBE HEIGHT: 5

MONITOR TYPE: SLAMS

COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: JULY 2022

DURATION: 1 HOUR

UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	5.0	5.2	5.3	5.2	5.1	5.5	6.4	6.7	6.5	6.7	3.8	3.5	3.5	3.6	4.6	3.6	3.3	5.0	4.2	4.1	4.5	4.8	5.6	6.3	24	6.7
2	6.1	5.2	6.0	5.8	5.7	6.3	6.6	6.4	4.6	4.5	4.9	4.5	4.5	3.5	3.4	3.4	3.7	4.1	4.6	4.9	5.6	5.6	6.0	6.0	24	6.6
3	6.6	5.4	4.6	4.5	5.3	5.3	5.8	6.0	4.5	4.0	3.7	3.7	3.7	4.1	4.8	4.6	4.4	3.5	3.0	3.3	2.5	3.0	5.0	5.4	24	6.6
4	5.5	6.1	6.8	6.9	7.2	6.2	6.8	6.7	5.3	5.4	5.6	6.0	6.1	6.1	4.2	3.3	3.3	5.0	4.3	6.3	9.9	11.5	18.8	23.5	24	23.5
5	16.1	12.3	11.9	12.4	13.0	9.8	10.3	8.8	7.9	8.5	8.0	8.8	3.7	2.2	2.3	2.6	3.1	2.6	2.8	3.4	5.3	5.4	5.5	4.9	24	16.1
6	4.1	4.6	5.8	6.1	6.6	6.6	7.5	7.4	7.0	6.3	5.9	6.1	6.1	6.5	7.1	6.6	6.8	6.2	5.8	7.5	5.8	5.5	5.5	6.5	24	7.5
7	6.3	7.0	7.6	7.7	7.7	8.9	9.0	6.4	4.6	4.7	5.0	5.5	6.0	6.3	7.0	8.6	8.7	8.7	9.1	9.7	8.3	5.5	5.2	5.4	24	9.7
8	6.0	6.5	6.5	6.6	6.8	7.4	7.3	6.5	6.5	AZ	AZ	AZ	7.3	7.3	7.2	7.5	7.1	7.3	7.6	9.4	7.3	6.7	6.2	6.3	21	9.4
9	5.9	5.9	5.4	5.1	5.2	5.5	6.1	6.9	6.2	6.2	6.6	6.7	6.4	6.8	6.7	7.1	7.0	6.9	7.1	7.5	8.3	6.9	3.7	4.0	24	8.3
10	3.9	4.2	4.4	4.3	4.6	5.0	5.6	4.7	4.2	4.7	5.5	5.5	5.5	6.3	6.8	7.4	7.6	6.7	5.0	6.5	6.1	5.1	5.0	6.0	24	7.6
11	7.3	7.5	7.4	8.2	8.1	7.1	7.4	7.8	7.9	8.6	8.8	9.0	9.2	9.2	8.7	8.1	7.8	7.5	6.8	5.5	5.4	5.8	5.6	5.8	24	9.2
12	6.1	7.2	9.9	9.2	8.0	8.1	9.4	9.5	6.7	5.7	6.2	6.1	6.4	7.0	7.5	7.9	8.2	6.8	7.6	6.5	7.4	7.3	8.1	8.1	24	9.9
13	8.0	7.2	7.8	7.7	7.4	7.1	8.5	8.9	9.5	9.5	9.7	8.3	7.6	7.5	7.7	8.1	8.9	8.8	4.4	4.3	4.3	4.5	4.5	5.1	24	9.7
14	6.6	7.6	9.1	10.9	10.5	7.7	6.4	6.5	6.8	6.3	6.6	7.1	7.0	6.8	6.1	6.7	6.0	5.1	3.3	5.3	5.4	3.9	4.0	3.7	24	10.9
15	3.8	4.7	4.6	5.0	5.8	5.9	5.7	4.5	4.1	4.2	4.1	4.3	4.7	5.9	6.2	6.6	7.0	7.6	6.7	3.7	4.9	5.1	6.4	8.0	24	8.0
16	7.4	7.6	7.8	8.1	8.1	9.0	7.5	6.3	5.5	5.3	5.5	5.9	5.8	4.9	3.6	4.0	4.6	5.9	6.9	5.9	6.2	6.9	7.7	8.9	24	9.0
17	9.7	9.1	9.4	9.6	8.8	8.8	7.9	6.6	6.6	6.5	6.8	7.3	6.9	7.2	7.4	7.6	7.9	5.4	4.7	5.4	4.3	4.1	4.5	4.5	24	9.7
18	4.6	5.0	5.6	6.6	7.0	7.7	7.1	8.4	11.6	12.6	BA	BA	3.9	7.2	16.5	13.6	11.7	12.4	13.7	13.3	13.3	14.4	14.3	13.6	22	16.5
19	13.5	12.8	12.0	11.7	10.5	9.8	9.3	7.1	5.6	5.1	5.1	5.5	6.1	5.6	5.4	5.9	6.0	5.6	5.2	5.3	5.1	4.7	4.9	5.0	24	13.5
20	5.2	5.6	6.2	6.6	6.5	7.2	7.4	7.9	8.8	9.0	9.1	9.2	8.6	8.3	8.5	8.6	8.3	13.6	13.5	10.9	8.9	6.7	6.5	6.9	24	13.6
21	8.5	8.8	9.1	9.4	9.8	10.1	10.4	10.6	10.5	11.3	11.1	10.2	10.4	10.2	10.4	10.3	10.9	11.3	12.1	13.8	15.8	13.5	11.6	6.0	24	15.8
22	3.1	4.1	4.7	4.0	4.2	3.9	3.8	4.4	4.1	4.1	4.8	5.2	5.4	5.6	5.3	5.3	5.2	5.0	4.4	5.1	5.1	5.3	5.6	6.4	24	6.4
23	6.6	6.4	6.7	7.9	7.9	7.9	7.8	7.9	8.8	11.1	12.7	12.7	13.1	13.7	13.8	12.7	12.0	10.8	9.8	8.0	8.5	8.8	9.0	10.1	24	13.8
24	11.3	12.6	11.8	9.7	10.0	10.1	9.6	8.1	6.7	5.1	4.5	4.6	4.6	4.5	4.3	3.7	3.7	4.2	4.6	4.8	5.9	6.5	6.1	5.8	24	12.6
25	6.6	6.7	7.1	7.4	7.0	6.4	5.0	5.3	5.1	5.4	5.0	4.9	4.6	3.9	3.9	4.4	4.0	4.1	4.4	5.1	6.1	5.6	5.9	6.1	24	7.4
26	7.1	8.2	8.8	8.4	8.2	7.7	8.6	6.4	4.2	4.1	4.7	4.4	4.4	4.6	4.9	5.0	4.7	4.3	4.5	4.8	4.6	5.1	5.0	5.5	24	8.8
27	5.6	6.1	6.9	7.7	8.4	6.9	6.9	6.6	5.7	4.7	4.2	4.2	4.1	4.4	5.0	4.7	4.3	3.3	3.4	3.7	3.9	3.9	4.4	5.0	24	8.4
28	5.5	5.7	7.5	8.4	9.4	9.4	8.9	6.0	4.5	3.7	4.4	4.6	4.7	4.2	4.2	3.7	3.6	3.7	4.2	3.7	3.7	4.0	3.6	3.7	24	9.4
29	4.2	4.5	4.7	4.6	5.8	5.3	5.4	4.7	3.7	3.7	3.6	3.5	3.9	3.6	3.7	2.6	3.1	3.0	3.3	3.8	4.7	4.7	5.6	5.6	24	5.8
30	5.5	6.3	6.2	6.4	7.5	8.2	7.5	6.2	4.7	4.3	4.5	4.7	4.5	3.3	1.9	2.4	2.7	1.3	2.5	3.3	3.8	4.2	4.5	5.1	24	8.2
31	5.7	4.9	5.4	5.4	6.0	6.7	5.8	5.6	7.4	11.5	13.3	13.3	14.0	14.1	13.1	8.6	8.8	7.7	7.0	6.9	9.3	8.0	6.2	5.5	24	14.1
NO.:	31	31	31	31	31	31	31	31	31	30	29	29	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	16.1	12.8	12.0	12.4	13.0	10.1	10.4	10.6	11.6	12.6	13.3	13.3	14.0	14.1	16.5	13.6	12.0	13.6	13.7	13.8	15.8	14.4	18.8	23.5		
AVG:	6.69	6.81	7.19	7.34	7.49	7.34	7.35	6.83	6.32	6.43	6.33	6.39	6.22	6.27	6.52	6.30	6.27	6.24	6.02	6.18	6.46	6.23	6.47	6.73		

MONTHLY OBSERVATIONS: 739 MONTHLY MEAN: 6.60 MONTHLY MAX: 23.5

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: AUGUST 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	6.0	6.3	7.2	9.0	8.8	8.5	8.5	6.8	4.8	AZ	3.9	3.9	4.2	2.4	2.8	3.0	2.8	2.9	2.9	3.5	4.1	5.1	4.6	4.9	23	9.0
2	4.6	5.6	6.3	6.3	6.0	5.5	5.7	5.1	6.5	4.7	4.0	2.8	3.4	3.3	2.8	2.8	3.1	3.5	3.4	3.9	4.3	5.0	5.8	3.7	24	6.5
3	3.4	4.2	4.4	5.5	6.8	8.2	9.0	10.0	9.2	9.6	8.5	7.3	6.1	6.0	5.7	3.6	3.4	3.7	3.9	3.6	3.6	3.5	3.7	4.7	24	10.0
4	4.9	5.0	5.3	5.5	5.9	6.3	8.5	10.0	7.7	7.6	6.2	5.1	5.0	4.6	3.3	3.3	3.2	2.6	2.8	5.1	4.2	3.7	3.5	3.7	24	10.0
5	3.9	4.2	4.6	5.1	5.4	7.2	5.9	6.1	5.9	4.9	4.3	3.9	3.6	3.8	3.2	3.7	3.3	3.5	3.7	4.0	4.3	5.7	7.8	7.4	24	7.8
6	7.9	7.4	7.3	7.6	8.4	9.7	9.3	6.6	5.7	4.9	5.5	4.7	3.3	3.6	3.7	4.0	4.8	4.7	3.8	3.9	3.8	4.4	5.0	6.7	24	9.7
7	7.7	8.0	6.7	6.9	7.0	8.1	7.8	6.7	6.4	6.9	6.2	6.1	6.2	6.0	4.8	5.0	4.3	4.2	4.2	4.6	5.1	6.3	7.1	7.2	24	8.1
8	7.3	7.5	8.2	7.6	7.7	8.1	8.1	9.2	7.4	7.1	8.3	6.0	4.2	5.4	5.8	5.0	4.4	4.7	3.9	3.8	4.1	4.4	5.1	5.2	24	9.2
9	5.4	4.7	5.7	5.9	5.9	5.6	6.0	6.1	5.1	4.7	4.8	4.4	4.9	5.4	4.6	4.0	3.4	3.7	3.4	3.3	3.1	3.0	3.5	3.7	24	6.1
10	3.7	3.7	4.1	4.3	4.3	4.1	5.2	5.4	4.6	3.3	2.9	2.8	2.8	3.0	3.7	3.7	2.8	2.7	2.1	2.2	2.7	3.3	3.5	3.2	24	5.4
11	3.7	4.9	5.1	6.5	6.3	6.7	6.5	7.0	7.3	7.3	8.5	8.4	6.1	5.5	5.7	4.1	3.3	3.3	3.5	3.8	4.2	4.7	5.6	8.2	24	8.5
12	7.5	8.5	7.8	3.9	3.4	4.0	3.7	3.8	4.4	4.7	5.0	5.3	5.5	5.3	5.7	5.7	4.6	3.5	3.1	3.7	2.9	3.5	4.1	4.8	24	8.5
13	5.4	5.8	5.5	5.6	5.9	7.0	7.3	6.9	5.3	4.5	4.8	4.3	4.2	3.9	3.4	3.4	3.7	4.5	4.7	5.2	5.6	5.6	6.0	6.4	24	7.3
14	6.5	7.1	7.2	7.2	7.2	7.0	6.0	5.7	7.2	8.3	7.0	6.3	6.1	5.9	5.9	6.3	6.9	7.2	7.7	8.3	10.2	10.1	9.4	9.6	24	10.2
15	10.9	11.2	11.4	11.1	10.9	11.3	11.1	10.3	9.9	9.6	9.6	9.4	9.5	9.4	9.5	10.2	10.2	10.3	10.8	10.9	12.3	11.9	11.9	12.4	24	12.4
16	11.9	12.4	12.4	13.3	13.8	12.7	12.2	12.8	11.6	11.3	11.4	10.8	10.5	10.6	10.9	10.7	10.4	9.5	6.1	4.6	4.2	4.7	4.9	6.4	24	13.8
17	6.6	7.5	8.0	8.5	8.2	9.3	11.0	9.3	8.6	9.6	8.9	8.8	10.1	11.7	10.7	10.0	9.4	8.0	5.9	6.3	7.5	8.5	8.7	8.9	24	11.7
18	9.2	9.8	10.2	11.4	11.1	9.9	9.2	9.0	8.6	6.2	3.8	3.5	3.7	3.7	3.7	3.7	4.5	4.2	4.3	4.7	5.0	4.8	4.6	4.6	24	11.4
19	4.9	5.6	7.0	7.2	6.4	5.0	5.1	5.5	5.3	6.4	5.1	5.6	4.4	4.7	5.7	6.0	5.7	6.0	6.2	5.9	6.2	6.2	6.7	7.2	24	7.2
20	8.2	8.7	9.3	9.9	11.0	10.6	10.0	7.9	6.0	5.9	5.3	4.2	4.1	3.8	3.1	2.3	2.4	2.8	3.1	3.7	4.5	5.3	5.8	5.3	24	11.0
21	6.0	6.0	5.9	6.1	5.9	5.5	5.8	5.6	5.3	4.6	5.1	5.3	5.8	5.8	3.7	3.1	3.2	3.2	3.4	3.9	4.0	5.1	5.8	6.6	24	6.6
22	7.5	6.6	6.4	6.9	6.9	6.5	5.8	4.7	4.6	6.7	7.5	5.8	5.4	4.6	3.0	3.8	2.8	3.2	1.8	2.3	2.8	3.3	3.6	5.0	24	7.5
23	4.7	4.4	4.1	4.3	5.2	4.4	5.8	7.0	6.4	5.7	5.5	4.4	3.2	2.8	2.9	2.9	3.2	3.4	1.5	2.4	2.1	2.0	2.2	3.0	24	7.0
24	3.1	3.5	4.1	4.7	5.1	5.1	5.2	5.3	5.5	5.6	4.7	4.4	2.1	.5	.6	.7	.9	2.7	2.1	2.3	2.9	3.4	3.9	5.0	24	5.6
25	4.9	5.4	5.0	4.9	4.3	5.0	4.4	4.3	4.2	6.0	6.3	5.6	4.4	.9	.9	1.1	1.2	1.4	2.8	2.8	2.7	2.8	3.1	3.3	24	6.3
26	4.1	5.2	5.3	5.0	4.9	4.5	5.0	5.1	4.8	4.0	4.3	3.9	3.5	3.1	2.7	2.5	2.6	2.8	3.1	3.5	3.4	3.7	4.3	4.9	24	5.3
27	5.4	3.5	3.7	3.7	5.6	4.2	4.4	4.4	4.1	3.9	3.8	3.7	3.7	3.7	3.7	3.9	3.6	3.0	3.0	3.5	3.8	3.6	4.2	5.2	24	5.6
28	5.0	5.4	7.4	5.9	6.1	5.7	5.4	6.5	3.3	2.8	2.4	2.8	2.5	2.7	2.8	3.0	3.7	3.7	3.4	4.1	4.8	5.0	5.6	5.7	24	7.4
29	12.3	10.1	7.3	7.0	6.6	6.4	7.0	7.4	4.8	BL	AZ	5.4	5.0	4.5	4.8	5.0	5.0	4.7	5.8	5.0	4.4	4.2	4.6	4.6	22	12.3
30	4.9	5.7	5.6	5.5	5.4	5.1	5.4	6.2	7.4	6.9	7.1	6.7	6.7	3.1	3.1	3.3	2.7	2.8	2.8	2.9	3.6	4.5	5.2	5.3	24	7.4
31	4.8	4.1	3.4	3.3	5.2	7.5	3.5	3.8	4.4	5.1	4.7	4.8	5.1	4.8	5.3	5.3	5.6	6.3	5.6	6.9	7.9	7.7	7.8	8.0	24	8.0
NO.:	31	31	31	31	31	31	31	31	31	29	30	31	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	12.3	12.4	12.4	13.3	13.8	12.7	12.2	12.8	11.6	11.3	11.4	10.8	10.5	11.7	10.9	10.7	10.4	10.3	10.8	10.9	12.3	11.9	11.9	12.4		
AVG:	6.20	6.39	6.51	6.63	6.83	6.93	6.90	6.79	6.20	6.17	5.85	5.37	5.01	4.66	4.46	4.36	4.23	4.28	4.03	4.34	4.65	5.00	5.41	5.83		

MONTHLY OBSERVATIONS: 741 MONTHLY MEAN: 5.54 MONTHLY MAX: 13.8

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: SEPTEMBER 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	8.2	8.2	8.6	8.6	9.5	10.1	8.8	10.2	9.8	8.4	7.5	7.5	7.9	8.3	8.2	8.4	8.6	9.3	8.9	9.5	11.8	12.0	11.4	10.7	24	12.0
2	10.3	10.3	10.6	10.7	11.4	11.6	11.7	12.7	11.0	12.2	11.3	9.1	10.3	10.6	10.4	10.9	12.2	11.1	11.5	14.5	13.1	13.0	14.2	14.3	24	14.5
3	14.5	15.3	14.9	14.3	14.4	15.0	14.9	13.7	10.6	9.2	9.2	10.6	12.0	12.5	9.7	5.4	5.7	5.6	6.2	6.6	6.9	6.9	7.8	8.2	24	15.3
4	7.6	7.4	7.8	8.3	7.7	8.1	7.3	7.7	9.2	8.8	6.6	5.7	4.8	4.3	4.0	5.0	6.4	6.8	7.5	8.1	8.3	8.8	8.7	8.4	24	9.2
5	7.9	8.0	8.2	7.9	8.4	9.1	8.8	8.1	7.1	6.1	5.8	5.1	3.8	3.4	3.4	3.6	3.7	5.0	5.3	5.3	5.1	5.4	5.6	7.4	24	9.1
6	7.4	7.1	7.4	8.4	8.7	10.3	10.3	10.0	9.6	7.4	8.7	9.1	10.6	10.5	9.5	9.0	9.5	9.4	10.0	14.0	11.2	11.0	13.3	14.5	24	14.5
7	15.3	14.1	14.1	14.3	14.0	13.4	11.6	9.5	8.1	7.6	7.7	7.9	7.2	7.5	7.3	7.4	7.4	4.9	4.0	4.4	5.5	4.2	5.0	6.0	24	15.3
8	5.6	7.3	7.9	8.1	9.0	9.2	9.3	9.3	8.4	8.1	7.6	6.2	6.0	5.8	6.1	6.1	6.0	7.1	7.2	7.5	7.2	7.9	7.7	7.7	24	9.3
9	8.4	8.2	8.6	8.7	9.3	10.2	9.7	10.0	9.4	7.9	7.4	7.0	7.7	7.6	5.9	5.3	5.6	3.1	3.8	5.2	3.8	3.5	4.4	6.1	24	10.2
10	7.0	6.4	6.6	7.3	8.9	9.4	9.5	8.6	7.7	6.4	5.9	6.1	6.0	5.7	5.5	5.4	5.2	5.9	7.4	9.5	9.9	9.2	9.8	7.9	24	9.9
11	7.9	8.1	8.5	8.1	9.3	9.2	8.5	7.7	6.5	5.2	6.1	7.2	7.3	8.4	9.3	9.0	6.3	6.9	3.9	5.2	4.4	5.5	6.4	6.8	24	9.3
12	7.6	8.2	7.7	7.6	7.5	7.7	7.3	6.9	6.4	5.9	5.7	6.9	8.7	8.0	8.8	9.9	9.6	9.5	9.8	9.9	9.6	9.2	9.3	9.8	24	9.9
13	9.9	8.7	8.7	9.5	9.3	9.4	10.2	9.0	8.5	7.0	6.2	6.1	6.0	6.2	6.1	6.1	6.5	6.1	6.4	7.1	7.1	7.8	8.8	9.9	24	10.2
14	9.4	8.7	9.9	11.3	12.7	16.7	13.3	11.7	9.9	8.6	7.8	7.9	8.0	8.1	8.4	8.1	8.2	8.6	9.6	10.0	10.2	10.8	12.1	13.2	24	16.7
15	12.5	14.9	15.4	17.3	18.1	16.1	15.9	15.5	13.5	AZ	AZ	8.9	8.2	8.0	8.0	8.3	8.5	9.0	9.8	11.1	12.2	12.2	14.0	14.5	22	18.1
16	14.0	13.3	14.5	15.3	16.0	15.7	17.6	17.1	14.4	13.7	13.4	13.5	12.5	12.3	12.1	12.0	11.2	11.3	11.6	13.2	14.2	15.2	16.1	14.7	24	17.6
17	15.0	16.0	16.7	20.3	18.3	22.0	21.8	21.3	13.3	12.3	11.9	12.4	12.3	12.2	11.8	11.5	11.7	12.3	5.4	5.1	5.8	6.3	7.6	8.0	24	22.0
18	8.5	8.7	8.7	10.2	10.9	11.8	14.2	12.8	10.2	7.1	6.3	6.2	7.0	7.1	7.0	6.8	6.7	8.0	7.8	8.1	10.3	10.7	12.2	11.0	24	14.2
19	10.4	10.1	10.0	11.7	13.3	12.6	12.4	11.1	8.6	9.8	11.3	12.2	12.6	12.8	13.1	13.2	13.3	14.4	15.5	18.2	17.5	19.2	20.7	20.4	24	20.7
20	19.7IT	19.4IT	17.9IT	17.3IT	15.7IT	16.3IT	18.1IT	22.3IT	20.7IT	20.2IT	18.6IT	17.5IT	17.6IT	17.8IT	17.7IT	17.1IT	16.9IT	17.3IT	20.0IT	20.7IT	19.6IT	20.8IT	21.0IT	21.3IT	24	22.3
21	22.5	23.7	23.0	22.1	21.4	20.3	19.4	19.7	20.3	15.4	13.9	14.0	14.3	12.9	12.1	11.3	11.4	11.0	11.2	12.1	12.6	13.2	13.4	13.7	24	23.7
22	13.8	13.9	14.2	15.8	15.3	16.7	17.1	17.8	17.4	16.3	15.7	16.2	14.2	13.7	13.5	14.5	14.5	14.4	16.8	18.5	19.3	19.3	17.9	16.4	24	19.3
23	12.7	11.4	9.9	8.7	8.3	8.7	8.6	7.5	7.7	8.0	7.8	8.4	7.3	7.1	6.9	6.8	6.4	6.3	6.7	8.8	8.5	10.6	7.6	8.1	24	12.7
24	7.9	7.2	7.6	9.3	7.3	7.4	7.4	8.3	8.7	9.8	9.2	8.5	10.7	15.7	12.0	10.7	9.6	10.6	16.7	14.1	14.5	14.2	15.0	17.8	24	17.8
25	18.1	20.2	18.1	18.5	16.4	15.8	15.9	18.0	17.0	13.3	13.5	13.5	14.0	14.1	14.6	15.8	15.4	15.4	17.5	18.9	17.6	17.6	18.6	19.2	24	20.2
26	17.8	16.6	17.1	18.7	18.6	17.5	15.1	14.9	13.4	11.0	11.6	12.5	11.9	10.4	9.7	8.4	7.8	7.1	7.4	7.9	8.2	7.3	5.9	6.3	24	18.7
27	6.3	5.7	5.4	5.4	5.5	6.0	5.9	6.3	5.7	4.5	5.0	AZ	3.7	3.7	3.7	3.5	3.7	3.7	4.1	5.2	6.1	6.1	6.0	6.0	23	6.3
28	5.6	5.9	4.9	4.9	5.0	5.5	6.3	6.3	4.4	4.4	4.4	4.6	5.1	5.0	5.0	4.3	3.8	3.7	4.8	4.4	5.0	3.6	3.7	3.6	24	6.3
29	3.6	3.5	3.8	4.5	4.1	3.9	3.7	4.0	3.6	3.7	3.6	3.3	3.4	3.3	3.4	3.6	3.7	3.8	5.0	5.3	4.8	4.9	5.6	6.0	24	6.0
30	6.0	6.3	6.6	6.4	26.2	9.8	6.7	7.3	5.9	4.5	4.5	3.7	3.6	3.5	3.7	3.6	3.6	3.8	4.5	6.3	7.1	7.8	7.1	6.5	24	26.2
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30		
MAX:	22.5	23.7	23.0	22.1	26.2	22.0	21.8	22.3	20.7	20.2	18.6	17.5	17.6	17.8	17.7	17.1	16.9	17.3	20.0	20.7	19.6	20.8	21.0	21.3		
AVG:	10.71	10.76	10.78	11.32	12.02	11.85	11.58	11.51	10.23	9.06	8.77	8.89	8.82	8.88	8.56	8.37	8.30	8.38	8.88	9.82	9.91	10.14	10.56	10.81		

MONTHLY OBSERVATIONS: 717 MONTHLY MEAN: 9.96 MONTHLY MAX: 26.2

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: OCTOBER 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	6.6	6.7	7.2	7.5	7.8	7.6	9.7	7.7	6.1	5.8	4.7	3.7	3.8	4.0	4.6	4.2	3.8	4.4	7.6	9.5	8.4	9.2	8.1	9.6	24	9.7
2	12.1	10.4	9.6	8.7	8.3	8.5	8.2	8.0	8.0	6.8	5.2	4.7	3.3	2.9	3.2	3.3	3.7	3.7	4.4	4.5	6.1	7.5	7.5	7.4	24	12.1
3	6.4	6.1	6.1	6.2	5.7	5.9	5.9	6.3	6.5	4.5	5.4	4.8	4.8	5.1	5.8	5.7	5.3	5.8	6.1	6.0	7.2	8.2	9.8	9.1	24	9.8
4	8.9	8.9	8.4	8.9	9.0	9.2	10.0	10.9	10.8	9.5	9.9	8.5	8.0	6.1	5.8	6.0	6.1	6.1	6.6	9.6	9.6	9.1	8.5	8.7	24	10.9
5	10.2	11.3	12.4	13.8	14.8	16.4	15.7	15.5	13.8	15.6	11.3	10.2	9.6	10.5	9.9	9.5	9.8	10.7	11.4	12.5	13.4	18.2	17.4	16.6	24	18.2
6	15.7	16.0	17.0	16.8	17.3	17.4	18.3	18.8	21.6	20.8	13.2	11.5	10.8	10.7	10.6	9.4	9.5	9.6	11.5	16.2	16.7	16.6	19.0	17.6	24	21.6
7	16.4	16.1	14.6	14.5	15.5	16.5	17.4	22.1	24.1	21.7	20.9	19.6	18.1	17.5	15.7	14.6	12.9	11.2	12.5	13.0	14.3	16.0	19.5	20.7	24	24.1
8	20.7	19.2	17.7	16.8	15.1	15.1	14.3	14.7	14.6	14.2	13.9	13.1	12.9	12.2	10.2	11.0	11.4	10.4	11.0	10.4	10.0	14.1	12.6	11.3	24	20.7
9	11.5	10.6	9.5	8.0	7.4	7.2	6.9	6.5	4.6	3.9	3.9	4.3	4.0	4.2	4.3	4.4	9.2	8.5	9.5	9.8	12.5	13.5	11.6	11.6	24	13.5
10	12.2IM	13.1IM	13.9IM	14.1IM	16.3IM	14.3IM	12.9IM	12.5IM	11.4IM	7.8IM	7.3IM	9.3IM	10.2IM	10.5IM	15.8IM	24.7IM	29.9IM	31.7IM	37.6IM	29.3IM	30.2IM	39.4IM	50.9IM	48.8IM	24	50.9
11	43.6IM	42.8IM	45.7IM	53.8IM	40.3IM	37.7IM	33.4IM	26.0IM	16.8IM	14.5IM	15.9IM	AZ	15.4IM	14.7IM	13.8IM	17.4IM	19.4IM	22.4IM	22.0IM	16.9IM	19.9IM	21.0IM	21.1IM	21.6IM	23	53.8
12	26.8	21.6	24.0	22.6	15.9	17.7	19.0	10.5	6.7	6.3	4.9	5.5	6.0	5.3	4.9	5.5	5.4	4.8	4.7	5.0	5.0	4.7	4.5	4.9	24	26.8
13	6.5	6.3	7.2	5.1	4.5	4.7	5.1	5.5	7.2	7.7	10.0	11.6	11.8	9.8	7.7	7.3	6.8	8.0	10.0	9.9	12.2	13.8	13.4	13.4	24	13.8
14	13.9	14.8	13.5	13.7	15.1	15.4	14.2	15.6	15.0	13.7	10.8	9.1	7.2	6.6	6.2	6.0	6.6	7.9	11.2	11.5	12.0	12.7	11.1	10.3	24	15.6
15	10.2	14.9	13.4	15.5	25.0	25.7	20.3	16.8	19.2	13.9	8.7	7.6	7.7	7.6	8.0	7.9	8.0	13.6	13.8	16.7	15.2	17.9	16.4	13.7	24	25.7
16	13.6	15.3	18.3	16.9	17.2	20.5	25.8	24.8	23.5	16.3	12.5	12.6	8.9	9.5	10.0	9.9	10.7	11.7	14.8	18.4	18.7	17.6	17.4	18.2	24	25.8
17	19.1	18.9	17.7	19.9	19.9	20.1	22.7	21.0	18.0	13.1	11.9	12.0	14.0	14.8	13.1	9.6	9.0	8.2	7.9	9.2	10.0	9.5	7.6	6.7	24	22.7
18	6.3	6.0	5.9	5.6	5.0	5.1	5.6	5.0	4.1	3.6	3.6	3.2	3.2	3.3	3.0	3.1	3.0	3.4	3.9	4.5	4.6	4.1	4.2	4.4	24	6.3
19	4.3	5.3	7.2	7.6	6.1	5.7	6.3	6.7	8.3	7.6	4.4	4.0	3.4	3.4	20.2	21.3	23.0	17.8	20.8	23.0	25.4	24.3	22.5	12.0	24	25.4
20	10.3	8.2	8.7	8.5	9.2	13.9	10.5	13.5	11.0	8.2	5.4	4.6	4.0	4.2	4.9	5.3	5.6	6.5	9.5	17.0	9.6	10.2	9.7	10.6	24	17.0
21	11.1	13.1	13.6	13.6	16.9	17.7	17.3	25.8	11.4	7.6	6.9	6.2	6.5	7.0	7.4	7.3	7.6	8.7	9.0	9.2	12.2	13.7	12.8	12.4	24	25.8
22	12.9	14.6	14.6	14.0	14.0	17.0	18.4	20.4	19.6	12.3	8.3	8.7	9.3	9.0	8.3	8.4	8.9	10.5	10.9	8.8	7.6	9.4	11.5	11.7	24	20.4
23	16.2	14.3	14.1	14.4	15.7	21.6	21.0	15.5	10.1	9.4	7.9	8.0	7.1	6.7	6.5	6.6	13.8	19.1	11.4	13.9	14.4	17.6	21.9	23.5	24	23.5
24	21.7	21.0	20.2	22.5	29.4	29.2	21.9	19.0	13.5	9.6	6.2	5.6	4.8	5.0	4.8	4.0	4.3	5.0	5.2	5.5	5.9	4.9	5.2	5.7	24	29.4
25	6.0	6.2	6.5	6.1	6.5	6.4	6.1	5.9	6.0	5.7	5.5	5.1	4.1	4.4	3.7	3.3	3.0	3.0	2.8	3.7	2.9	3.1	3.3	3.6	24	6.5
26	3.8	3.7	3.3	3.2	3.7	4.1	4.1	4.1	3.9	4.1	3.9	4.0	4.2	4.6	4.1	4.3	3.9	5.4	18.3	7.9	7.3	6.5	6.6	8.1	24	18.3
27	6.4	5.5	5.4	5.8	6.3	6.7	7.2	8.1	7.2	6.8	6.9	AZ	6.9	6.7	6.7	5.9	6.4	10.2	10.6	14.2	14.2	11.7	10.3	9.3	23	14.2
28	10.7	13.8	11.1	11.7	11.3	10.9	11.4	12.4	13.8	15.3	16.9	17.7	17.9	17.7	16.5	20.1	23.6	19.1	18.9	18.7	17.3	15.9	16.1	16.7	24	23.6
29	15.4	15.2	14.1	13.6	13.5	12.8	12.5	11.0	11.2	11.1	11.0	10.8	10.3	8.7	4.7	3.7	3.1	3.9	4.6	4.6	6.3	6.8	7.3	8.2	24	15.4
30	8.1	8.3	10.6	13.0	14.2	15.0	15.4	16.2	14.5	10.2	9.1	8.6	8.2	8.8	9.2	9.4	10.6	10.5	11.8	14.3	13.5	12.9	12.7	13.0	24	16.2
31	13.4	14.9	15.2	15.1	17.6	17.7	18.2	17.5	14.6	11.0	9.4	7.6	7.4	6.4	6.3	6.1	6.6	7.2	8.1	13.1	10.7	11.7	14.1	15.2	24	18.2
NO.:	31	31	31	31	31	31	31	31	31	31	31	29	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	43.6	42.8	45.7	53.8	40.3	37.7	33.4	26.0	24.1	21.7	20.9	19.6	18.1	17.7	20.2	24.7	29.9	31.7	37.6	29.3	30.2	39.4	50.9	48.8		
AVG:	12.94	13.00	13.12	13.47	13.69	14.31	14.05	13.69	12.16	10.28	8.90	8.35	8.19	8.00	8.25	8.55	9.38	9.97	11.24	11.83	12.04	12.96	13.37	13.05		

MONTHLY OBSERVATIONS: 742 MONTHLY MEAN: 11.46 MONTHLY MAX: 53.8

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: NOVEMBER 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	15.4	16.7	16.1	15.5	14.7	12.5	14.6	15.0	34.2	13.5	12.1	11.1	11.8	12.1	12.2	12.9	13.5	13.1	14.2	13.0	13.1	13.7	15.1	17.3	24	34.2
2	16.8IM	16.6IM	16.2IM	16.9IM	16.6IM	17.6IM	18.6IM	18.0IM	17.7IM	15.6IM	12.8IM	12.5IM	12.2IM	11.3IM	10.8IM	11.1IM	11.4IM	14.7IM	18.2IM	14.9IM	16.0IM	17.4IM	17.1IM	20.5IM	24	20.5
3	21.5IM	18.9IM	16.7IM	17.6IM	18.3IM	21.3IM	23.1IM	21.7IM	19.7IM	18.3IM	17.4IM	17.6IM	16.5IM	14.8IM	13.4IM	12.9IM	14.3IM	19.4IM	15.1IM	15.6IM	24.4IM	25.8IM	22.8IM	22.1IM	24	25.8
4	22.9	26.9	25.5	22.2	19.5	21.8	17.5	15.9	15.7	15.3	13.5	11.8	14.0	12.8	10.7	9.4	8.5	9.1	10.1	10.2	9.9	9.4	9.0	8.9	24	26.9
5	8.4	8.3	8.3	7.4	7.1	6.9	6.9	6.7	2.3	1.9	2.0	2.0	2.7	2.5	2.2	2.5	2.9	3.2	3.5	3.7	3.3	3.2	3.3	3.3	24	8.4
6	3.7	4.4	4.3	4.7	4.1	4.3	6.1	4.4	2.8	3.8	5.2	5.3	5.3	5.0	4.7	4.5	4.3	7.0	8.2	7.9	18.6	17.6	12.6	19.5	24	19.5
7	15.2	10.8	10.1	10.7	10.3	10.1	9.7	10.7	12.0	10.8	AZ	8.7	6.3	6.1	6.0	5.9	6.3	7.1	9.2	10.3	10.2	10.9	13.8	21.7	23	21.7
8	22.4	23.4	20.9	17.8	20.8	20.1	18.0	18.6	13.7	9.9	9.8	8.4	7.7	9.1	8.7	9.9	10.4	10.7	11.6	13.1	20.6	18.5	15.8	15.9	24	23.4
9	15.6	16.0	14.8	12.3	11.5	10.1	9.4	9.4	8.5	7.7	8.4	8.2	7.5	7.7	7.2	6.5	7.0	14.9	42.2	47.9	37.2	30.1	26.8	26.7	24	47.9
10	30.1	26.0	24.2	17.4	15.6	17.0	15.0	11.8	10.9	7.5	7.4	7.7	7.6	6.7	5.3	5.8	5.9	5.8	7.3	7.6	8.3	9.7	11.7	10.4	24	30.1
11	8.4	8.0	7.9	7.6	7.6	7.8	7.7	7.5	7.3	6.8	5.6	4.4	4.9	4.9	5.1	5.3	6.3	13.0	11.3	10.4	12.4	17.3	15.3	11.6	24	17.3
12	12.2	13.0	16.7	12.5	10.8	8.8	8.4	4.9	3.3	2.8	2.1	2.6	3.6	3.7	3.8	4.1	3.8	3.7	3.7	4.1	4.1	4.0	4.1	4.4	24	16.7
13	5.6	5.4	5.7	6.3	6.7	7.1	8.1	7.6	7.7	8.1	9.1	9.1	8.6	8.1	7.9	8.1	8.3	9.5	11.7	13.9	14.0	13.4	11.4	12.2	24	14.0
14	12.9	12.1	12.6	12.2	11.4	10.6	9.8	10.2	8.3	10.0	AZ	AZ	7.6	6.5	5.9	6.3	6.5	5.7	7.0	7.1	6.5	5.5	5.6	5.2	22	12.9
15	5.4	4.6	3.1	2.7	2.4	6.2	5.1	4.6	3.9	3.3	3.0	3.3	4.0	4.7	5.4	7.0	6.0	5.3	6.1	6.3	5.4	6.1	6.6	7.0	24	7.0
16	6.7	6.9	6.5	7.2	6.4	6.3	6.7	6.9	6.7	6.0	5.5	5.7	6.3	5.1	5.1	5.2	6.4	6.2	8.8	8.6	6.6	6.8	7.5	7.5	24	8.8
17	8.1	9.1	10.1	11.6	13.5	9.9	10.1	9.7	10.0	7.5	6.8	5.8	5.4	5.9	6.3	5.5	5.5	6.8	8.5	18.0	9.5	12.9	12.3	9.6	24	18.0
18	9.9	11.1	8.9	8.2	8.5	10.4	9.8	10.2	8.8	7.4	6.8	6.2	5.3	4.5	3.7	3.9	3.7	4.6	8.4	12.9	13.5	13.3	14.3	15.5	24	15.5
19	13.4	14.5	16.5	18.4	19.6	17.1	13.1	11.1	9.7	8.8	8.2	8.3	8.4	10.1	10.1	10.0	10.9	10.8	12.4	12.3	11.2	11.6	12.3	17.7	24	19.6
20	14.9	15.6	14.2	10.1	8.1	6.3	6.4	8.3	5.8	5.0	5.0	5.0	4.9	4.8	4.5	4.5	4.6	5.9	8.3	8.5	14.3	14.5	16.8	13.0	24	16.8
21	12.9	8.9	8.6	8.8	9.0	8.8	8.1	8.9	8.9	8.3	7.0	5.9	5.4	5.1	6.0	5.1	5.2	6.1	9.5	9.6	8.5	8.2	9.0	8.4	24	12.9
22	8.6	8.8	8.4	9.6	11.1	12.3	11.9	11.0	10.8	10.8	11.9	11.6	10.2	9.3	11.4	14.0	14.0	14.7	21.8	26.7	25.0	25.5	21.5	21.2	24	26.7
23	20.2	18.8	17.8	18.7	19.1	19.1	20.2	19.3	18.6	14.8	13.6	11.1	9.0	7.9	7.8	7.5	8.1	8.7	10.6	14.4	16.5	18.2	23.0	27.0	24	27.0
24	26.1	23.0	22.2	23.0	27.1	28.0	24.3	26.1	21.4	16.1	11.8	8.1	7.1	7.1	7.0	6.8	7.6	8.1	8.1	6.8	7.2	5.6	3.1	2.3	24	28.0
25	2.0	2.2	2.2	2.3	2.6	3.3	3.1	3.1	3.4	3.7	3.2	3.7	4.3	4.2	4.7	4.7	4.9	5.5	5.9	5.7	6.0	6.5	6.7	7.0	24	7.0
26	7.6	8.3	9.4	8.5	8.3	8.3	8.6	7.2	7.0	7.7	8.5	8.4	8.4	8.8	5.9	3.3	1.9	1.2	2.0	2.5	2.4	3.3	4.7	4.1	24	9.4
27	3.5	3.4	3.3	3.3	3.0	3.0	3.3	3.2	2.8	2.4	2.4	2.4	2.6	2.7	2.8	3.0	3.0	3.3	4.0	4.3	5.8	5.7	5.3	4.8	24	5.8
28	5.0	5.9	7.2	7.7	7.1	6.6	6.8	7.6	11.1	6.7	5.9	5.2	6.5	6.2	5.4	5.5	5.6	5.6	10.2	22.9	23.6	27.8	33.3	25.0	24	33.3
29	12.6	14.3	10.5	9.7	11.7	13.8	14.2	11.9	8.4	6.5	6.5	6.6	5.5	4.2	4.1	4.3	4.7	4.8	4.5	4.5	4.6	4.9	4.9	5.2	24	14.3
30	5.6	4.0	2.6	1.5	1.7	4.2	6.9	8.6	5.9	4.2	4.1	3.7	3.4	3.1	3.2	2.8	2.4	3.1	2.7	3.6	7.1	4.1	3.3	3.2	24	8.6
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	30	28	29	30	30	30	30	30	30	30	30	30	30	30	30		
MAX:	30.1	26.9	25.5	23.0	27.1	28.0	24.3	26.1	34.2	18.3	17.4	17.6	16.5	14.8	13.4	14.0	14.3	19.4	42.2	47.9	37.2	30.1	33.3	27.0		
AVG:	12.45	12.20	11.72	11.08	11.14	11.32	11.05	10.67	10.24	8.37	7.70	7.26	7.10	6.83	6.58	6.61	6.80	7.92	10.17	11.58	12.19	12.38	12.30	12.61		

MONTHLY OBSERVATIONS: 717 MONTHLY MEAN: 9.94 MONTHLY MAX: 47.9

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: DECEMBER 2022

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	3.3	3.3	3.4	3.9	4.8	3.7	3.6	3.6	3.5	3.1	2.9	2.8	2.7	2.7	2.7	2.8	3.2	5.9	8.9	14.8	13.3	15.2	13.5	14.6	24	15.2
2	18.8	18.2	14.9	15.7	14.1	13.8	13.1	9.0	6.3	6.2	6.2	5.9	6.0	6.3	7.0	8.4	8.8	9.9	10.3	10.5	9.8	10.4	9.0	8.0	24	18.8
3	7.8	8.1	7.7	8.0	7.3	7.7	7.8	8.4	8.0	6.2	8.7	6.4	4.2	5.1	6.0	6.7	7.2	8.2	8.1	8.8	10.8	9.4	10.3	10.4	24	10.8
4	10.0	11.4	10.9	10.2	20.5	10.0	10.5	11.2	9.7	9.5	9.5	9.1	9.4	8.8	9.1	10.6	12.1	12.8	14.8	19.3	16.7	14.0	14.3	15.8	24	20.5
5	13.9	12.0	14.0	16.6	16.8	14.1	11.3	8.4	7.0	8.1	9.4	9.3	10.3	10.2	9.8	9.1	12.7	9.6	10.0	8.7	6.7	5.6	5.5	5.0	24	16.8
6	4.8	4.7	4.5	4.4	5.0	5.7	6.0	5.6	5.2	5.2	5.9	6.1	5.6	5.2	5.2	5.2	6.2	6.2	6.0	5.7	6.1	5.9	5.7	5.4	24	6.2
7	5.5	6.6	6.9	7.6	9.5	11.4	13.9	12.7	7.0	7.0	7.6	7.8	7.3	7.2	7.0	7.3	8.6	9.3	11.2	13.1	7.5	6.6	5.9	5.4	24	13.9
8	5.3	5.9	5.3	5.1	4.8	4.7	4.7	6.2	5.5	4.8	4.9	5.1	5.8	6.3	7.2	7.1	7.6	10.0	13.4	12.8	16.1	16.9	16.5	15.3	24	16.9
9	14.5	13.9	9.6	7.5	6.3	5.4	5.3	5.0	6.1	8.4	9.7	10.4	11.6	11.7	12.4	13.0	14.3	16.6	20.8	18.7	19.0	20.7	19.8	22.0	24	22.0
10	24.9	32.8	29.0	26.0	21.8	21.2	10.2	10.9	12.7	13.3	13.7	15.7	17.1	16.0	15.0	16.5	16.8	19.2	22.4	22.7	18.4	18.1	15.6	13.5	24	32.8
11	12.9	14.0	14.8	15.6	12.6	11.6	13.2	13.7	11.9	9.3	7.5	5.9	5.2	6.3	6.6	6.3	6.3	7.4	9.1	9.7	11.3	12.2	9.8	9.2	24	15.6
12	8.1	8.0	7.9	7.9	9.8	8.9	8.2	8.5	9.1	7.9	6.3	AZ	5.5	4.5	4.6	4.8	4.6	4.7	5.4	6.6	6.7	7.2	7.3	8.1	23	9.8
13	8.5	9.1	10.0	11.7	12.3	12.2	11.5	12.1	12.8	14.3	11.3	10.7	12.3	13.3	14.4	13.8	13.4	12.6	10.6	10.2	9.3	9.6	9.8	10.2	24	14.4
14	10.1	10.1	8.6	10.4	8.1	7.9	9.2	11.8	13.1	13.3	13.6	15.2	15.7	13.3	10.7	3.3	3.2	2.7	3.0	3.0	1.5	2.0	2.5	2.7	24	15.7
15	2.9	3.1	3.7	3.7	3.4	3.4	3.7	3.6	3.6	3.4	3.8	3.8	4.0	3.9	3.7	4.0	4.1	4.7	5.4	7.1	7.9	16.1	12.8	13.2	24	16.1
16	13.4	15.7	11.3	8.2	7.0	6.5	6.3	6.2	5.7	4.6	3.7	3.6	3.6	3.2	3.0	3.3	3.3	4.7	7.8	16.3	13.0	12.3	15.9	7.4	24	16.3
17	5.6	4.4	4.3	4.4	4.4	4.5	3.9	4.2	4.8	5.2	4.6	4.3	4.6	4.9	4.1	3.8	4.2	5.6	10.1	11.7	6.4	7.5	6.7	8.5	24	11.7
18	8.1	8.6	8.1	8.4	7.1	7.2	6.8	8.6	5.5	3.7	3.1	2.8	2.5	2.4	2.4	2.6	2.4	3.3	4.7	9.6	10.8	11.0	12.4	7.0	24	12.4
19	5.1	4.7	4.9	4.9	4.9	4.5	4.1	4.5	4.7	4.8	4.9	5.0	5.7	6.7	5.0	4.9	4.9	4.9	4.6	3.7	4.4	3.0	3.2	5.2	24	6.7
20	6.3	6.2	6.5	7.7	7.8	8.1	6.9	4.5	4.8	6.3	6.7	6.5	5.7	5.1	4.7	4.4	4.0	3.7	4.7	5.8	5.4	4.8	4.5	4.5	24	8.1
21	5.0	5.5	5.8	4.9	5.9	6.6	5.9	5.1	4.6	5.0	5.0	4.7	4.3	4.1	3.5	3.7	3.9	4.0	5.0	4.9	5.2	5.5	5.5	6.4	24	6.6
22	5.4	6.1	5.5	5.1	4.5	4.5	3.7	3.0	3.3	3.5	4.7	4.6	3.4	3.9	4.0	4.2	5.7	5.7	5.9	5.5	3.8	4.6	4.0	3.2	24	6.1
23	4.9	5.4	5.0	4.8	4.5	3.9	3.0	3.4	3.3	2.8	2.7	2.8	3.1	3.3	3.2	3.1	3.6	3.8	3.3	2.9	3.0	3.0	3.2	3.3	24	5.4
24	3.3	3.3	3.1	3.2	3.4	3.2	3.1	3.4	3.3	3.0	2.8	2.8	2.8	2.6	2.6	2.6	2.9	4.6	5.0	4.8	6.1	4.9	4.2	3.6	24	6.1
25	3.9	3.6	3.8	3.2	3.1	3.3	3.5	4.0	3.3	3.3	2.8	2.8	2.0	2.0	2.2	2.4	2.8	4.7	13.2	13.5	17.7	22.4	26.0	8.5	24	26.0
26	8.9	11.0	18.1	16.2	13.3	13.5	11.7	11.9	13.6	7.0	4.9	4.4	3.9	3.9	3.9	3.6	3.9	7.9	6.9	6.1	6.6	8.6	9.1	12.1	24	18.1
27	12.4	12.1	11.9	11.7	12.6	11.8	15.2	16.6	19.9	25.3	30.8	19.4	8.7	6.7	5.6	5.7	5.5	7.8	11.8	16.0	19.5	22.7	19.1	18.2	24	30.8
28	19.5	20.5	19.3	17.2	16.9	33.1	33.7	34.8	21.4	11.1	AZ	AZ	3.8	3.2	3.1	3.4	4.2	7.0	9.9	7.5	7.3	7.6	7.2	7.5	22	34.8
29	7.4	7.1	7.2	7.2	6.8	6.6	5.4	5.2	5.3	4.3	4.3	4.4	4.7	5.4	6.7	3.6	8.3	10.8	5.1	5.1	5.2	5.5	5.3	5.2	24	10.8
30	5.0	4.9	4.8	4.9	4.6	4.6	4.6	4.4	5.0	3.7	1.5	3.9	2.0	2.4	2.1	2.6	2.8	3.7	4.9	7.0	6.9	6.3	7.6	10.8	24	10.8
31	16.6	11.4	9.8	10.2	10.3	9.9	9.0	8.8	8.4	8.2	7.4	7.6	6.7	7.2	6.9	7.9	9.1	9.3	14.9	20.0	17.6	10.4	10.9	10.6	24	20.0
NO.:	31	31	31	31	31	31	31	31	31	31	30	29	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	24.9	32.8	29.0	26.0	21.8	33.1	33.7	34.8	21.4	25.3	30.8	19.4	17.1	16.0	15.0	16.5	16.8	19.2	22.4	22.7	19.5	22.7	26.0	22.0		
AVG:	9.10	9.41	9.05	8.92	8.85	8.82	8.35	8.36	7.69	7.15	7.03	6.68	6.14	6.06	5.95	5.83	6.47	7.46	8.94	10.07	9.68	10.00	9.78	9.06		

MONTHLY OBSERVATIONS: 741 MONTHLY MEAN: 8.12 MONTHLY MAX: 34.8

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

CAS NUMBER:
LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: JANUARY 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	18.5	10.8	9.3	10.7	10.9	11.0	13.3	12.5	9.3	8.7	8.7	8.1	6.5	6.1	8.7	10.7	10.6	9.1	8.6	9.0	8.9	7.8	7.1	6.3	24	18.5
2	6.3	5.2	5.4	4.8	4.6	5.8	5.2	5.6	4.2	4.3	3.9	4.3	4.1	4.1	4.5	5.3	6.3	7.0	7.2	7.4	8.3	8.8	8.2	7.1	24	8.8
3	6.0	5.4	5.7	5.9	6.4	8.1	8.4	8.5	7.7	3.4	6.8	7.3	6.3	5.5	7.5	7.5	7.6	8.2	9.1	9.3	8.9	9.3	9.2	3.7	24	9.3
4	2.8	3.3	4.3	4.5	5.8	5.8	6.5	6.9	7.3	7.2	5.4	4.3	3.4	3.1	2.9	3.3	3.2	3.9	4.3	7.6	7.1	6.0	6.9	7.2	24	7.6
5	7.6	8.3	7.1	5.4	5.4	5.1	5.0	5.7	4.8	3.6	2.9	2.7	2.3	2.6	2.3	2.3	2.1	2.7	4.0	7.6	13.3	7.6	10.4	8.0	24	13.3
6	11.8	15.6	8.1	5.9	6.3	6.4	7.0	7.1	7.2	7.2	5.2	3.6	3.1	2.9	3.5	3.3	3.7	9.8	9.0	15.4	19.0	17.2	13.6	11.6	24	19.0
7	11.4	13.6	14.4	10.4	7.4	7.9	7.7	7.8	9.7	9.5	6.8	3.3	3.3	3.3	3.2	3.4	3.4	5.6	5.1	4.5	5.2	5.0	4.4	4.7	24	14.4
8	4.2	5.5	5.4	4.6	3.4	3.3	3.2	3.7	5.0	5.1	3.7	2.4	2.3	2.8	2.5	2.4	2.7	2.9	4.1	3.7	6.2	6.4	6.4	7.1	24	7.1
9	8.2	8.1	8.5	9.1	9.5	9.8	9.8	10.6	11.0	10.1	6.4	4.9	AZ	3.3	3.8	3.5	3.4	3.9	6.0	8.7	9.6	12.1	13.3	17.6	23	17.6
10	17.3	16.9	16.6	14.2	40.1	18.6	18.0	12.1	10.6	15.9	9.1	5.3	4.8	5.4	5.9	6.5	7.5	7.7	7.6	9.1	8.5	7.8	7.3	6.3	24	40.1
11	6.1	6.3	6.7	8.1	8.6	7.6	7.3	7.5	7.5	8.1	8.2	8.3	7.9	8.0	7.4	6.6	6.3	6.3	7.2	6.9	6.1	6.5	6.8	5.7	24	8.6
12	4.7	4.1	3.8	3.7	4.4	5.0	4.1	4.4	5.3	4.9	4.2	4.9	7.7	7.7	5.4	7.6	10.9	10.9	8.3	8.1	8.6	7.1	3.7	3.7	24	10.9
13	3.7	4.6	6.9	10.1	9.4	8.5	8.1	7.6	6.8	5.9	4.9	4.1	3.7	4.1	4.6	4.1	4.1	5.5	6.7	6.0	5.2	4.6	4.6	5.0	24	10.1
14	5.4	5.4	5.4	4.8	4.8	4.7	4.7	5.0	5.6	5.4	5.3	5.0	4.6	4.2	4.1	3.8	4.0	4.5	8.7	30.4	35.0	41.8	42.4	47.8	24	47.8
15	37.3	30.8	29.7	26.7	15.2	13.2	13.4	14.9	14.9	11.4	9.3	8.6	6.2	8.1	8.1	7.6	6.3	8.1	9.1	11.2	8.3	7.8	8.6	8.3	24	37.3
16	5.9	5.6	5.7	6.9	6.7	5.9	7.1	6.8	6.4	5.6	6.6	4.6	4.1	3.4	4.0	4.5	4.9	4.3	3.9	5.1	5.0	4.6	4.2	3.9	24	7.1
17	3.8	3.8	3.7	3.7	4.0	4.1	3.9	4.2	4.6	5.0	5.1	6.9	8.1	8.1	8.6	9.0	9.8	10.9	11.1	12.5	12.1	11.5	9.8	9.5	24	12.5
18	7.4	5.4	5.3	5.5	4.8	4.7	4.7	5.6	6.0	6.5	6.8	6.5	5.4	5.3	6.1	5.0	4.8	5.2	5.2	5.6	5.7	6.1	6.3	5.9	24	7.4
19	5.7	5.3	4.4	3.9	4.4	4.4	4.6	5.0	4.6	4.7	7.0	11.6	11.1	9.0	5.2	4.1	4.0	4.7	5.4	6.6	8.2	9.3	7.7	5.9	24	11.6
20	5.1	4.9	4.8	4.0	3.7	3.7	4.1	7.1	5.1	3.6	3.2	3.3	3.1	3.0	3.5	3.9	3.7	3.9	4.1	5.4	4.8	5.2	4.2	3.9	24	7.1
21	3.8	4.4	5.0	5.1	5.3	4.9	5.3	4.6	4.0	4.0	3.8	3.7	5.0	5.6	4.8	3.5	3.3	2.6	2.8	2.2	2.8	3.6	4.6	3.3	24	5.6
22	3.0	2.8	3.2	3.3	3.4	4.2	4.4	4.3	4.1	2.2	1.5	1.7	2.2	2.5	3.5	3.8	3.8	4.1	6.1	6.3	9.0	10.7	5.9	5.7	24	10.7
23	5.4	5.4	5.3	5.0	6.3	4.9	5.0	5.1	5.9	5.8	5.0	4.7	4.4	4.1	4.0	4.0	4.0	4.5	5.4	7.7	11.3	8.8	9.8	16.0	24	16.0
24	16.2	13.5	11.6	7.2	6.9	7.2	6.7	6.0	5.2	4.9	5.1	4.7	4.6	4.6	4.8	5.3	5.6	6.4	6.7	6.3	5.0	3.2	3.4	3.8	24	16.2
25	2.9	2.9	2.8	2.8	2.9	2.2	2.1	2.4	2.8	3.2	2.7	2.8	2.8	2.6	2.3	1.9	1.7	1.5	1.7	2.0	2.3	2.7	2.7	2.9	24	3.2
26	3.0	3.4	4.0	4.7	5.1	5.4	6.1	6.7	7.9	8.3	8.2	6.5	5.0	4.0	3.1	2.8	2.8	3.0	2.9	3.6	4.1	3.7	3.7	3.7	24	8.3
27	3.9	4.2	4.3	5.0	5.9	6.4	6.7	9.6	15.5	10.9	5.7	4.0	2.8	2.4	2.3	2.4	1.8	2.8	15.1	7.6	6.3	7.2	6.7	8.4	24	15.5
28	9.7	10.4	12.0	19.7	16.2	12.3	12.3	11.8	10.9	5.5	2.9	2.0	2.4	2.8	4.1	5.5	8.0	8.6	32.9	10.0	7.7	7.2	6.2	7.2	24	32.9
29	9.0	7.3	8.0	8.1	7.2	7.5	7.2	6.7	6.3	6.4	6.6	7.1	6.4	6.1	7.0	5.9	5.0	3.5	2.9	2.8	3.0	2.7	2.5	2.0	24	9.0
30	1.8	1.6	1.4	2.3	2.8	2.8	3.6	4.9	4.6	5.4	5.9	4.8	3.6	3.9	4.1	4.2	5.0	5.1	5.9	9.4	13.0	14.2	13.8	13.9	24	14.2
31	12.0	11.6	10.5	9.5	8.9	9.5	8.3	9.4	10.5	8.0	4.4	3.4	4.4	4.6	5.8	5.9	6.8	6.6	5.7	9.1	11.0	7.1	2.8	1.9	24	12.0
NO.:	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31		
MAX:	37.3	30.8	29.7	26.7	40.1	18.6	18.0	14.9	15.5	15.9	9.3	11.6	11.1	9.0	8.7	10.7	10.9	10.9	32.9	30.4	35.0	41.8	42.4	47.8		
AVG:	8.06	7.63	7.40	7.28	7.64	6.80	6.90	7.10	7.14	6.47	5.53	5.01	4.72	4.62	4.76	4.83	5.07	5.61	7.19	7.97	8.69	8.50	7.97	8.00		

MONTHLY OBSERVATIONS: 743 MONTHLY MEAN: 6.71 MONTHLY MAX: 47.8

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004   POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: FEBRUARY 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	1.6	2.0	2.1	3.5	3.3	3.5	3.1	3.0	2.9	AZ	3.8	3.7	3.5	3.0	2.9	3.3	3.4	3.7	3.8	5.1	6.2	5.2	5.9	4.6	23	6.2
2	4.2	4.9	5.7	5.0	3.4	4.0	4.4	3.7	3.2	3.3	4.1	4.6	4.9	2.2	1.1	.7	.9	1.6	1.1	1.2	2.0	1.4	1.1	1.2	24	5.7
3	1.2	1.5	1.5	2.1	2.6	2.7	3.6	4.4	5.7	7.2	7.6	6.5	6.3	5.0	4.7	4.5	3.8	3.3	3.1	3.2	3.7	4.6	3.7	3.5	24	7.6
4	3.9	4.9	4.6	4.9	4.8	5.3	7.7	5.9	6.2	5.9	4.7	3.9	3.4	3.3	2.9	2.6	2.7	2.6	7.9	22.8	8.0	6.0	7.3	8.0	24	22.8
5	10.5	11.9	15.7	17.1	14.4	18.0	20.1	34.8	18.2	7.2	5.8	3.8	3.3	2.7	2.8	3.3	4.3	5.6	7.3	12.7	17.8	18.6	22.5	20.4	24	34.8
6	21.3	19.6	19.6	20.6	19.4	17.0	14.1	15.9	16.8	13.0	10.9	9.0	8.1	8.0	10.5	10.1	5.8	7.1	8.4	8.1	15.6	13.3	17.2	17.0	24	21.3
7	20.6	19.3	20.1	19.5	22.9	22.4	20.8	20.7	14.6	8.5	6.9	7.0	8.9	7.3	8.2	8.0	4.8	5.1	6.5	6.2	7.0	8.4	10.4	11.9	24	22.9
8	10.4	6.9	5.4	6.9	7.1	5.9	5.9	7.9	9.5	7.7	7.7	8.2	7.3	6.7	7.6	7.9	8.5	9.0	9.3	8.3	8.3	8.3	7.6	5.6	24	10.4
9	1.9	2.0	2.0	2.4	3.0	3.7	3.5	3.7	3.5	3.1	2.9	2.9	2.8	2.6	2.6	3.3	3.4	3.5	3.8	4.1	4.9	5.3	5.7	5.0	24	5.7
10	4.5	3.7	3.4	3.6	3.0	3.0	3.0	3.0	2.7	2.3	2.3	2.0	2.0	2.5	2.8	2.9	2.8	3.7	3.9	3.7	3.8	5.1	4.5	5.7	24	5.7
11	5.1	4.9	4.6	4.6	7.4	4.5	4.7	5.0	6.1	7.3	7.6	8.5	8.7	8.5	8.3	5.7	4.4	2.9	2.4	2.6	1.3	2.4	3.3	4.9	24	8.7
12	5.7	6.8	6.2	5.0	4.4	3.6	3.3	3.2	3.0	2.8	2.4	1.7	1.4	1.3	1.3	1.4	1.5	2.1	2.7	5.3	8.9	13.2	13.5	11.6	24	13.5
13	11.2	9.4	9.7	7.9	6.5	5.8	6.2	8.1	23.6	12.3	4.5	BL	AZ	3.1	3.9	4.4	5.3	8.0	9.1	21.7	37.2	11.3	10.5	10.7	22	37.2
14	10.3	8.7	8.1	8.5	8.5	8.1	6.3	7.0	5.4	4.0	3.1	2.8	2.5	3.2	2.9	3.3	3.4	3.5	3.6	3.9	4.1	4.3	4.5	4.2	24	10.3
15	4.1	3.7	4.0	4.1	4.3	4.6	4.9	4.6	4.6	4.3	4.2	4.2	4.1	4.2	4.4	5.0	6.0	6.5	7.0	6.9	6.8	7.1	7.5	7.3	24	7.5
16	7.7	8.2	8.8	9.4	10.2	11.7	13.7	13.5	9.8	8.5	7.6	10.8	12.1	11.4	9.9	8.7	6.5	9.9	10.4	10.2	8.2	3.7	3.7	3.1	24	13.7
17	2.2	1.8	2.2	2.8	3.3	4.6	4.9	4.6	4.1	3.3	3.1	3.0	2.9	2.9	2.8	2.7	2.5	2.4	2.9	3.3	3.8	4.1	4.3	3.7	24	4.9
18	3.3	3.7	3.6	3.4	3.6	3.7	3.3	3.4	3.8	3.3	2.7	2.4	2.3	2.3	2.3	2.5	2.5	2.9	4.6	6.1	6.8	6.7	9.9	9.1	24	9.9
19	5.4	4.5	4.6	4.8	5.0	6.1	6.4	8.8	6.0	6.3	5.4	4.1	3.6	3.5	3.3	3.3	3.6	4.6	7.3	9.9	10.2	7.8	11.2	9.6	24	11.2
20	9.8	10.7	7.8	6.2	6.3	5.9	5.7	5.4	5.7	5.3	5.9	8.4	5.8	6.5	6.8	4.1	5.5	4.4	5.0	6.6	7.0	8.8	8.3	7.8	24	10.7
21	7.5	7.6	7.4	7.6	7.9	7.6	7.3	7.2	7.0	6.6	6.9	AZ	6.8	6.0	5.7	6.3	6.1	6.4	7.1	7.3	7.4	7.0	7.2	6.4	23	7.9
22	6.0	5.6	5.4	5.9	7.3	7.6	7.5	7.3	7.6	8.8	9.3	10.3	9.7	9.3	9.8	8.2	8.1	8.3	8.5	11.4	16.5	15.6	17.0	17.9	24	17.9
23	23.5	22.3	12.8	9.6	9.7	9.8	10.2	9.4	8.1	7.3	8.2	9.2	9.9	11.1	12.0	12.4	12.6	12.2	13.3	12.6	14.0	21.3	14.9	11.5	24	23.5
24	11.9	11.6	11.4	10.8	10.3	12.2	11.3	10.4	6.6	5.6	5.2	5.0	5.9	7.3	8.2	7.8	9.3	11.1	13.2	17.3	14.6	11.7	11.6	11.2	24	17.3
25	11.7	12.1	12.2	12.9	12.4	15.7	16.2	14.4	13.8	14.2	12.2	10.7	10.6	11.0	11.2	13.1	13.5	16.6	16.6	17.3	17.6	18.4	15.8	13.3	24	18.4
26	15.3	17.9	15.1	11.9	11.8	12.8	13.2	13.2	12.7	14.0	14.6	13.1	11.8	13.1	12.7	11.2	11.0	11.5	11.6	9.8	7.5	6.3	6.3	6.8	24	17.9
27	7.1	7.4	7.7	8.3	9.4	10.2	11.5	11.1	10.8	10.0	9.8	9.8	9.6	10.2	10.3	11.0	11.9	11.9	11.3	11.8	13.3	12.2	10.9	11.6	24	13.3
28	12.1IM	12.1IM	12.3IM	11.5IM	11.9IM	12.7IM	12.2IM	13.8IM	21.9IM	23.7IM	19.9IM	16.8IM	15.7IM	20.0IM	26.5IM	46.0IM	45.3IM	25.2IM	20.9IM	21.1IM	20.5IM	20.8IM	21.0IM	17.2IM	24	46.0
29																									0	
30																									0	
31																									0	
NO.:	28	28	28	28	28	28	28	28	28	27	28	26	27	28	28	28	28	28	28	28	28	28	28	28		
MAX:	23.5	22.3	20.1	20.6	22.9	22.4	20.8	34.8	23.6	23.7	19.9	16.8	15.7	20.0	26.5	46.0	45.3	25.2	20.9	22.8	37.2	21.3	22.5	20.4		
AVG:	8.57	8.42	8.00	7.89	8.00	8.31	8.39	9.05	8.71	7.62	6.76	6.63	6.44	6.36	6.73	7.28	7.12	6.99	7.59	9.30	10.11	9.25	9.55	8.96		

MONTHLY OBSERVATIONS: 668   MONTHLY MEAN: 8.01   MONTHLY MAX: 46.0

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: MARCH 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	19.2	22.3	18.0	14.2	13.0	13.9	12.4	12.8	12.7	10.8	9.3	8.9	8.9	9.7	10.8	8.7	7.9	7.4	7.9	9.0	8.4	9.3	9.2	9.6	24	22.3
2	9.7	9.7	9.8	11.7	11.8	10.4	10.3	10.7	10.3	9.3	8.8	8.2	7.6	7.5	7.5	7.4	7.8	9.2	10.3	10.1	10.5	10.8	10.6	11.0	24	11.8
3	10.5	10.4	9.6	9.7	10.3	10.1	10.4	10.7	11.5	13.5	14.2	9.0	6.5	5.8	5.2	4.3	4.1	3.3	4.2	4.2	4.2	4.8	4.7	4.7	24	14.2
4	4.7	5.0	5.2	5.4	5.7	5.9	8.3	7.3	7.0	5.5	5.0	5.5	5.3	5.1	7.3	7.0	9.7	7.2	10.3	12.9	15.8	23.8	19.3	23.4	24	23.8
5	27.7IM	22.4IM	26.1IM	22.7IM	28.4IM	28.9IM	28.1IM	23.9IM	14.0IM	8.0IM	5.8IM	6.6IM	9.9IM	9.8IM	10.0IM	10.0IM	10.7IM	15.0IM	27.6IM	34.4IM	24.1IM	31.6IM	31.3IM	28.5IM	24	34.4
6	27.1IG	27.0IG	36.2IG	34.9IG	53.3IG	45.1IG	42.8IG	28.8IG	37.1IG	26.2IG	16.1IG	11.0IG	12.0IG	15.1IG	AZ	36.8IG	33.8IG	14.3IG	11.0IG	11.6IG	12.3IG	11.1IG	10.8IG	14.6IG	23	53.3
7	18.7IG	19.7IG	14.9IG	15.3IG	17.0IG	16.7IG	16.6IG	17.4IG	18.1IG	18.4IG	19.6IG	20.1IG	20.7IG	19.5IG	19.0IG	23.3IG	23.4IG	18.7IG	19.5IG	22.7IG	22.9IG	22.7IG	23.7IG	25.3IG	24	25.3
8	27.4IG	26.5IG	28.1IG	30.1IG	34.4IG	35.0IG	35.5IG	34.2IG	35.0IG	36.1IG	35.9IG	32.5IG	32.0IG	33.1IG	25.7IG	28.1IG	40.4IG	36.8IG	27.1IG	28.0IG	25.1IG	21.3IG	26.4IG	26.3IG	24	40.4
9	25.9IG	26.8IG	27.0IG	29.4IG	29.4IG	30.4IG	33.0IG	30.8IG	31.1IG	26.5IG	21.8IG	18.9IG	15.5IG	14.2IG	14.5IG	15.2IG	16.0IG	17.4IG	21.9IG	21.2IG	19.3IG	19.2IG	21.5IG	21.5IG	24	33.0
10	19.5	17.0	17.3	18.3	19.7	20.6	20.5	20.8	16.2	11.1	5.9	3.5	2.9	3.8	3.8	3.9	5.3	3.8	4.9	5.6	6.4	7.4	8.2	8.1	24	20.8
11	8.2	7.1	6.5	6.5	8.3	9.3	7.3	6.0	5.4	5.9	6.7	8.2	9.5	10.8	11.2	10.7	11.9	10.6	10.7	10.4	12.9	10.3	11.2	11.7	24	12.9
12	10.7	10.7	11.7	11.6	11.7	11.8	12.4	11.8	3.5	4.2	4.2	4.1	4.3	4.6	3.7	3.7	4.5	3.2	3.3	3.3	5.4	5.9	5.4	5.8	24	12.4
13	5.6	5.2	4.7	4.4	4.6	5.0	5.4	5.4	4.9	4.9	4.6	4.7	4.1	4.4	4.7	4.1	3.7	3.7	3.3	3.4	3.4	3.1	3.3	3.3	24	5.6
14	3.6	4.1	4.7	5.2	5.7	6.6	7.3	7.9	7.4	6.4	5.8	6.3	6.0	5.1	5.0	4.7	4.9	4.8	5.1	6.0	6.8	10.8	12.9	12.6	24	12.9
15	11.7	10.8	8.7	8.2	7.9	7.5	8.4	10.9	9.1	7.2	6.4	6.1	5.8	5.4	5.8	5.2	5.1	5.1	8.8	21.4	14.0	11.2	16.0	14.9	24	21.4
16	28.3	35.9	30.6	26.4	26.8	36.0	52.2	44.7	27.2	18.7	7.5	5.0	4.1	4.8	5.5	5.3	11.5	5.0	4.6	4.6	5.0	5.9	4.9	4.5	24	52.2
17	4.6	4.6	4.6	4.2	4.5	4.0	3.9	5.7	5.0	4.1	4.9	1.8	1.1	1.9	2.0	2.4	2.6	3.2	3.1	3.0	3.4	3.7	4.1	4.1	24	5.7
18	4.0	3.9	3.8	3.7	3.8	3.8	4.0	4.0	4.1	5.7	3.7	3.3	3.2	3.3	3.2	3.2	3.6	3.4	4.1	4.4	4.5	4.1	4.2	4.5	24	5.7
19	6.7	5.0	4.0	4.1	4.1	4.2	4.5	4.1	4.1	3.8	3.7	3.6	3.4	3.5	3.7	3.5	3.7	3.6	3.7	4.1	4.3	4.6	4.8	5.2	24	6.7
20	4.9	5.1	4.9	5.6	7.3	5.4	5.9	7.6	7.8	6.7	6.0	6.0	6.5	6.0	5.0	4.3	4.3	4.2	4.6	5.5	15.3	17.9	11.8	12.7	24	17.9
21	18.9IM	22.2IM	26.8IM	36.3IM	33.0IM	31.9IM	30.4IM	29.3IM	25.6IM	19.3IM	19.0IM	9.3IM	15.5IM	13.2IM	8.7IM	18.9IM	24.7IM	30.2IM	50.4IM	50.0IM	32.6IM	25.9IM	25.2IM	20.3IM	24	50.4
22	15.4	14.9	15.3	15.0	15.3	16.6	18.6	13.3	11.7	7.5	8.1	7.4	10.4	8.8	10.7	12.4	8.9	6.7	6.2	6.3	6.4	6.3	6.3	13.3	24	18.6
23	40.3	35.7	27.7	21.0	18.3	20.5	20.9	21.0	15.4	AZ	5.8	5.6	5.7	6.5	5.8	6.7	6.7	6.7	7.8	6.8	6.8	6.9	7.4	7.4	23	40.3
24	7.0	6.6	6.4	6.4	6.6	6.7	6.8	7.5	7.5	8.1	8.5	8.0	7.6	7.7	7.3	7.8	9.0	7.8	7.3	8.4	8.1	8.0	7.7	8.2	24	9.0
25	7.9	8.2	8.7	9.8	10.3	10.4	11.4	12.0	12.3	12.6	12.3	11.8	11.2	10.5	10.1	9.5	9.4	9.4	10.9	11.2	9.2	7.4	7.5	8.1	24	12.6
26	9.1	10.2	11.3	11.6	11.7	11.9	11.7	11.3	9.5	8.6	8.7	9.7	8.8	9.2	9.0	10.7	7.1	8.7	9.5	9.5	9.5	9.1	9.8	10.8	24	11.9
27	11.0	11.2	11.6	12.3	12.3	12.2	12.8	10.1	6.1	6.3	6.7	6.8	7.7	8.4	8.8	9.6	9.7	10.4	11.7	11.9	12.6	13.1	11.7	11.3	24	13.1
28	10.6	9.8	8.9	8.9	8.6	9.4	10.3	9.2	8.5	7.8	7.4	7.5	9.2	10.7	9.1	9.1	9.0	8.8	7.8	8.1	8.7	7.9	7.9	10.2	24	10.7
29	9.2	8.1	7.6	7.4	6.5	6.3	6.4	6.6	6.2	5.4	5.1	5.1	4.8	5.2	5.4	5.2	5.5	5.0	5.4	6.2	7.4	8.4	8.6	10.2	24	10.2
30	12.2	11.1	9.4	8.1	8.5	9.4	11.2	8.3	7.4	8.0	9.5	7.7	6.5	6.6	6.7	6.8	9.3	6.9	8.4	10.3	8.4	9.5	10.2	11.1	24	12.2
31	10.8	11.1	11.6	12.2	11.6	12.4	12.8	11.9	11.5	10.3	9.0	8.7	8.0	7.7	7.7	7.9	8.3	8.6	9.0	9.6	9.6	9.5	9.4	9.3	24	12.8
NO.:	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31	31	31	31	31	31	31	31	31		
MAX:	40.3	35.9	36.2	36.3	53.3	45.1	52.2	44.7	37.1	36.1	35.9	32.5	32.0	33.1	25.7	36.8	40.4	36.8	50.4	50.0	32.6	31.6	31.3	28.5		
AVG:	13.91	13.82	13.60	13.57	14.53	14.78	15.56	14.39	12.68	10.90	9.55	8.42	8.54	8.64	8.10	9.56	10.40	9.33	10.66	11.75	11.07	11.34	11.48	12.02		

MONTHLY OBSERVATIONS: 742 MONTHLY MEAN: 11.61 MONTHLY MAX: 53.3

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: APRIL 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	9.4	9.6	10.0	11.3	11.5	12.4	12.2	10.0	12.6	13.7	16.9	15.8	13.6	12.5	13.7	13.7	11.3	8.9	7.6	7.2	7.6	7.6	8.9	10.2	24	16.9
2	10.5	10.3	10.3	10.5	10.2	9.9	10.1	8.6	5.8	5.0	4.9	4.5	4.5	4.8	9.4	5.5	6.1	5.7	7.4	10.2	13.5	13.0	9.6	7.8	24	13.5
3	7.7	8.7	11.1	10.3	10.0	10.5	11.2	12.4	12.7	12.0	11.3	10.6	10.4	9.9	9.8	9.7	9.3	9.8	11.4	12.4	12.4	11.6	11.8	12.1	24	12.7
4	12.5	12.3	11.9	11.7	12.1	12.9	14.0	11.1	9.6	8.5	9.2	9.9	9.9	9.6	9.3	9.4	10.0	10.3	10.3	11.0	11.2	11.1	11.6	11.3	24	14.0
5	11.4	10.0	10.1	9.9	9.9	10.8	15.4	13.1	9.9	9.4	8.9	9.0	8.9	8.4	8.3	8.8	9.0	9.1	9.5	8.8	8.2	10.8	9.7	9.6	24	15.4
6	9.0	8.5	8.8	8.6	8.9	9.7	10.4	10.6	10.9	10.1	10.2	9.3	5.9	11.1	8.7	9.4	7.0	7.2	6.1	5.5	5.2	5.6	7.2	8.5	24	11.1
7	8.3	5.7	7.1	7.6	8.3	6.0	4.5	4.3	4.1	4.0	4.3	4.8	5.8	5.9	5.0	12.4	5.9	6.5	4.3	3.3	3.9	3.7	3.5	4.1	24	12.4
8	4.6	5.4	3.9	2.8	2.0	1.3	1.3	2.9	3.3	3.2	4.6	4.6	4.1	5.0	5.1	5.1	4.6	4.1	4.1	6.2	5.0	3.4	2.9	1.9	24	6.2
9	1.5	1.4	1.2	1.5	2.4	2.5	1.4	.8	2.4	3.3	4.1	4.5	4.3	4.6	4.3	4.3	4.4	4.8	4.4	4.2	4.6	4.6	6.3	7.0	24	7.0
10	7.8	7.2	10.1	8.0	6.7	4.9	4.6	4.6	4.7	5.0	5.3	4.1	3.3	3.6	3.8	3.8	3.9	4.3	4.2	3.5	3.7	12.5	5.7	5.1	24	12.5
11	5.9	4.6	5.8	7.6	8.5	8.4	9.1	11.0	8.7	7.0	6.1	5.8	5.3	6.6	7.0	4.9	29.6	32.9	25.2	19.3	13.4	17.6	21.5	16.9	24	32.9
12	12.6	7.8	7.7	7.4	7.9	8.1	9.0	9.3	11.4	7.5	6.4	5.9	8.0	17.1	10.7	7.8	7.0	6.4	7.2	7.2	7.8	7.8	8.1	8.2	24	17.1
13	8.1	8.6	8.1	7.6	7.4	8.1	7.9	6.0	5.3	4.6	3.7	3.2	3.7	4.8	5.3	5.2	6.3	7.0	6.9	7.5	7.7	9.2	8.0	7.3	24	9.2
14	7.1	7.0	7.5	8.5	10.0	9.5	9.4	8.3	9.1	8.7	8.4	9.1	9.2	9.4	9.4	8.7	8.5	8.6	9.5	9.8	6.2	5.4	5.2	5.1	24	10.0
15	5.9	6.9	9.5	11.1	9.9	8.4	8.1	11.5	7.1	4.4	3.8	4.7	3.6	2.5	2.8	2.6	1.8	2.4	3.7	4.4	3.7	3.0	3.2	3.7	24	11.5
16	4.5	5.9	3.5	3.3	3.3	3.6	4.6	6.3	6.0	7.4	4.5	4.1	3.3	3.3	3.2	3.3	3.3	3.3	3.5	5.5	4.1	4.1	4.7	6.5	24	7.4
17	6.7	5.7	5.6	5.4	5.9	5.4	6.3	6.1	5.6	5.0	AZ	3.8	3.9	3.7	3.7	3.7	4.2	4.2	4.7	5.8	7.3	11.0	11.5	13.3	23	13.3
18	14.7	12.9	9.7	9.3	10.4	8.8	11.5	12.4	17.8	10.0	8.4	8.1	7.3	6.8	8.9	13.5	8.6	7.8	13.2	13.3	18.1	19.1	17.7	17.9	24	19.1
19	18.1	15.5	14.6	17.8	33.5	29.0	22.8	19.5	13.7	10.4	9.6	9.8	9.9	9.3	8.9	9.3	10.6	10.6	9.4	9.0	16.8	12.8	10.5	13.0	24	33.5
20	16.5	27.0	22.3	25.9	36.6	26.2	18.7	14.5	18.7	14.9	8.9	8.0	7.8	7.1	7.0	6.6	7.0	7.6	7.8	9.5	10.1	9.6	9.6	10.4	24	36.6
21	10.6	7.8	6.3	6.3	7.8	7.3	6.8	8.7	6.8	7.1	6.6	7.0	7.6	36.6	29.9	6.5	6.5	6.7	7.1	9.5	6.9	7.3	3.3	2.1	24	36.6
22	2.4	2.1	3.1	3.6	3.5	3.7	3.7	3.8	3.9	3.6	3.6	3.7	3.7	4.0	4.4	4.6	4.4	4.7	6.9	6.8	9.3	8.5	11.2	15.9	24	15.9
23	17.5	12.2	9.3	9.3	8.8	8.5	8.8	6.3	5.4	5.6	5.2	5.4	5.4	5.6	6.7	6.1	6.4	6.4	5.0	5.0	5.3	5.0	4.7	5.0	24	17.5
24	5.5	5.8	6.4	6.1	6.5	6.7	6.0	6.4	5.9	5.3	5.0	6.9	11.7	5.6	5.9	5.8	6.1	6.1	5.6	6.4	7.6	8.7	8.2	7.9	24	11.7
25	9.6	10.4	11.7	10.8	11.5	11.3	10.9	10.8	10.2	11.1	12.8	14.4	12.5	12.0	11.0	10.9	10.7	11.8	12.6	14.3	15.7	18.2	18.5	17.8	24	18.5
26	15.0	13.6	13.0	13.0	13.4	15.0	16.6	15.3	16.0	16.4	15.5	13.1	12.8	11.6	11.1	11.3	9.9	7.4	7.1	7.5	8.0	8.6	10.4	10.6	24	16.6
27	10.2	10.1	12.0	12.4	13.0	4.6	3.2	4.0	4.7	4.8	5.4	5.0	4.2	3.3	3.7	3.9	5.5	4.8	4.9	4.6	4.0	4.1	4.5	4.6	24	13.0
28	4.8	4.8	5.2	5.3	6.0	6.4	7.5	7.8	6.8	6.4	6.7	6.3	6.2	5.8	5.5	5.8	5.8	5.7	6.2	7.6	9.5	11.3	10.4	10.6	24	11.3
29	11.0	12.3	11.2	11.9	9.2	9.3	10.4	10.6	10.5	12.9	11.6	10.3	10.0	9.4	7.5	7.4	5.1	5.0	5.3	5.7	5.1	3.1	3.2	3.8	24	12.9
30	3.2	3.9	4.6	5.9	8.9	9.0	7.4	6.8	6.0	5.7	5.4	5.3	5.1	4.5	4.0	4.0	3.8	3.9	4.3	4.9	19.8	35.8	29.8	9.7	24	35.8
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30		
MAX:	18.1	27.0	22.3	25.9	36.6	29.0	22.8	19.5	18.7	16.4	16.9	15.8	13.6	36.6	29.9	13.7	29.6	32.9	25.2	19.3	19.8	35.8	29.8	17.9		
AVG:	9.09	8.80	8.72	9.02	10.13	9.27	9.13	8.79	8.52	7.77	7.49	7.23	7.06	8.15	7.80	7.13	7.42	7.47	7.51	7.86	8.72	9.80	9.38	8.93		

MONTHLY OBSERVATIONS: 719 MONTHLY MEAN: 8.39 MONTHLY MAX: 36.6

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: MAY 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	6.2	5.9	5.9	6.3	8.1	15.6	6.7	5.7	4.3	3.7	3.7	3.7	3.5	3.5	3.9	4.5	3.9	3.6	3.6	4.1	3.8	3.9	4.6	5.0	24	15.6
2	6.0	5.7	6.1	6.8	7.7	8.3	6.3	5.8	5.5	4.5	4.8	4.1	4.7	4.6	4.7	4.5	4.5	5.0	5.4	6.0	8.2	12.4	11.4	9.6	24	12.4
3	7.8	7.4	7.6	7.4	8.2	8.6	9.7	9.9	9.8	6.8	5.3	5.3	5.1	4.6	4.5	4.3	4.2	4.1	4.8	9.6	7.4	7.2	8.3	8.3	24	9.9
4	10.6	11.2	10.6	10.7	12.4	48.2	52.0	20.3	8.5	7.4	6.6	5.9	6.1	6.5	6.6	12.0	16.2	16.2	12.1	13.3	15.3	13.6	14.3	11.9	24	52.0
5	14.9	19.8	29.4	25.2	18.0	17.5	17.0	15.6	13.5	9.7	10.8	6.4	5.4	5.6	4.0	4.2	3.3	2.9	2.8	2.9	3.0	3.1	3.3	4.3	24	29.4
6	4.8	5.8	7.4	7.5	8.6	10.5	11.0	11.9	12.1	11.2	10.7	9.3	5.4	3.4	2.8	2.6	2.8	2.8	3.2	4.0	5.2	6.4	7.6	8.1	24	12.1
7	7.6	8.1	8.6	7.9	8.1	7.6	7.6	8.6	8.5	8.7	9.2	9.7	9.8	10.0	9.0	9.2	8.5	8.5	8.7	9.1	9.6	9.5	10.0	9.5	24	10.0
8	8.8	9.1	8.6	8.6	8.9	9.0	8.7	8.8	8.9	8.9	9.3	8.8	8.4	9.1	8.9	9.8	11.0	11.8	11.7	11.9	11.2	11.7	10.8	11.4	24	11.9
9	11.6	10.0	10.2	13.2	18.0	21.6	22.6	15.7	14.6	13.2	14.1	12.0	12.4	11.3	11.4	10.8	10.0	10.5	12.3	12.7	12.6	13.0	12.4	11.4	24	22.6
10	11.0	11.4	13.2	15.3	13.8	11.4	11.1	9.1	7.3	7.3	AZ	AZ	7.9	9.0	9.3	7.5	7.1	8.1	8.6	9.1	9.5	7.9	8.6	9.0	22	15.3
11	7.8	8.4	9.1	9.9	9.8	8.7	7.9	7.6	6.5	5.8	6.0	5.5	5.7	6.1	6.7	7.1	6.6	4.1	4.1	4.1	6.2	4.6	4.3	5.0	24	9.9
12	4.9	4.7	6.1	4.6	4.6	4.8	5.8	6.0	5.8	5.7	7.0	7.1	8.3	8.9	9.3	7.5	4.6	5.8	6.7	4.6	3.7	3.7	4.0	3.4	24	9.3
13	3.5	3.7	4.4	4.9	5.2	5.0	4.3	4.2	4.9	6.6	7.1	7.0	7.9	8.1	8.3	8.5	8.8	9.6	9.1	10.5	12.1	12.0	13.3	16.4	24	16.4
14	18.3	14.7	14.5	14.5	14.1	14.5	13.9	12.6	11.5	12.4	12.2	12.1	12.4	12.5	12.2	12.4	12.0	11.9	11.7	12.8	13.5	14.5	15.1	15.2	24	18.3
15	16.2	16.3	16.6	16.5	16.9	15.5	14.6	13.7	12.9	11.6	10.9	10.5	10.6	10.3	10.6	11.1	8.6	6.1	5.9	8.1	8.6	8.4	8.6	8.8	24	16.9
16	8.9	9.1	10.5	11.4	11.3	11.0	10.3	10.4	9.4	10.1	10.9	11.5	11.5	10.4	10.6	10.8	9.9	6.8	5.6	3.7	4.8	4.7	6.1	6.5	24	11.5
17	6.0	6.2	6.3	6.7	7.1	8.1	8.0	12.7	11.2	10.1	10.5	10.4	9.7	8.1	8.4	4.9	6.5	7.5	6.0	4.3	4.9	5.5	6.0	7.0	24	12.7
18	6.6	7.0	7.5	7.6	7.0	4.6	4.4	7.1	10.3	10.9	9.3	8.7	8.1	8.2	7.8	8.0	8.2	8.1	7.9	7.7	7.0	6.9	7.2	8.1	24	10.9
19	7.3	8.3	8.6	8.6	8.3	7.2	6.7	7.4	8.6	8.5	8.3	8.4	9.2	9.5	10.1	10.9	8.8	5.8	6.1	7.7	9.3	9.2	9.3	11.0	24	11.0
20	8.9	8.8	9.4	9.2	9.8	8.5	9.0	9.3	12.1	12.4	11.5	10.2	10.5	9.5	8.1	8.3	9.6	7.6	7.2	7.2	7.3	8.8	9.7	13.2	24	13.2
21	11.8IF	11.5IF	9.1IF	10.6IF	13.0IF	15.0IF	16.8IF	18.9IF	18.4IF	18.3IF	17.5IF	17.0IF	17.0IF	17.4IF	16.2IF	16.5IF	17.1IF	16.5IF	22.9IF	29.2IF	30.8IF	32.1IF	33.3IF	33.0IF	24	33.3
22	32.6IF	31.9IF	31.2IF	30.9IF	29.2IF	28.3IF	28.5IF	27.2IF	27.1IF	26.3IF	24.8IF	21.6IF	18.5IF	18.6IF	17.2IF	17.5IF	19.0IF	17.6IF	18.8IF	20.7IF	22.4IF	23.4IF	23.6IF	19.0IF	24	32.6
23	11.0IF	7.9IF	7.1IF	6.7IF	6.1IF	4.5IF	4.5IF	3.8IF	4.7IF	6.0IF	5.3IF	6.0IF	6.5IF	6.8IF	6.8IF	6.1IF	5.6IF	6.4IF	11.1IF	11.1IF	10.8IF	9.0IF	8.4IF	8.5IF	24	11.1
24	13.8IF	16.2IF	17.3IF	17.8IF	16.2IF	16.0IF	16.5IF	16.8IF	17.2IF	16.8IF	15.3IF	14.1IF	12.0IF	13.4IF	13.0IF	11.1IF	10.0IF	10.5IF	12.1IF	13.5IF	14.6IF	15.7IF	17.3IF	15.8IF	24	17.8
25	14.8IF	15.0IF	18.2IF	19.7IF	19.7IF	17.3IF	16.1IF	16.6IF	17.7IF	18.8IF	19.2IF	20.1IF	20.6IF	21.0IF	21.4IF	22.4IF	22.2IF	22.2IF	22.0IF	22.1IF	22.0IF	22.5IF	22.8IF	21.8IF	24	22.8
26	22.1IF	22.8IF	22.1IF	22.3IF	22.6IF	22.7IF	23.5IF	23.7IF	18.8IF	14.2IF	13.0IF	12.6IF	12.7IF	13.2IF	12.9IF	12.2IF	12.1IF	11.8IF	12.1IF	14.5IF	14.8IF	15.1IF	17.0IF	16.9IF	24	23.7
27	18.4	18.8	17.3	15.5	15.2	16.0	14.6	13.3	12.6	12.5	11.8	11.5	11.9	12.0	11.8	12.7	11.9	11.4	11.9	12.7	14.9	16.0	15.1	14.1	24	18.8
28	15.4	15.4	14.4	15.6	15.8	16.3	19.7	15.1	13.3	12.6	12.6	12.7	12.7	12.9	13.4	13.7	13.8	14.1	14.6	15.7	16.4	17.2	16.6	16.3	24	19.7
29	15.0	12.7	13.3	13.7	14.0	14.9	13.9	15.1	16.3	17.2	18.5	17.7	16.8	16.0	15.3	15.1	14.7	14.8	15.9	18.1	18.8	26.3	23.1	23.9	24	26.3
30	23.9	23.0	20.2	18.2	21.8	22.1	23.6	22.9	17.3	13.4	11.7	11.4	10.7	10.8	9.9	9.8	10.0	10.4	10.4	11.2	13.1	13.8	19.0	25.0	24	25.0
31	20.2	17.8	18.1	16.9	18.6	19.8	18.6	13.6	11.2	9.9	7.8	7.7	7.9	8.4	8.2	7.9	7.9	9.1	9.2	9.1	9.8	14.0	14.7	13.8	24	20.2
NO.:	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	32.6	31.9	31.2	30.9	29.2	48.2	52.0	27.2	27.1	26.3	24.8	21.6	20.6	21.0	21.4	22.4	22.2	22.2	22.9	29.2	30.8	32.1	33.3	33.0		
AVG:	12.15	12.08	12.55	12.60	12.84	14.16	14.00	12.56	11.64	11.02	10.86	10.30	10.00	9.99	9.78	9.80	9.66	9.41	9.82	10.69	11.34	12.00	12.45	12.62		

MONTHLY OBSERVATIONS: 742 MONTHLY MEAN: 11.43 MONTHLY MAX: 52.0

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:
LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM
ZONE:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: JUNE 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	16.6	16.0	13.5	14.1	14.2	15.3	18.7	13.1	11.4	11.3	10.9	10.8	10.3	9.5	8.6	8.1	8.6	8.5	9.4	10.1	10.2	24.3	32.9	24.1	24	32.9
2	18.4	18.2	16.3	17.1	19.0	17.0	17.0	14.8	11.7	10.0	9.7	9.4	8.9	8.9	8.7	8.5	8.6	8.6	9.2	10.7	13.3	15.4	14.7	16.0	24	19.0
3	15.6	15.7	15.4	16.4	16.1	16.5	15.5	14.4	13.2	11.3	10.9	10.6	10.5	10.6	12.2	11.3	11.0	10.5	11.0	11.7	12.8	13.2	13.6	11.8	24	16.5
4	9.8	13.5	15.1	15.1	15.0	14.8	14.3	13.5	13.4	14.3	14.7	14.0	14.1	14.8	15.2	15.3	14.9	9.4	8.9	10.0	10.9	11.3	11.2	12.7	24	15.3
5	12.4	11.7	11.7	11.6	13.9	15.2	13.9	15.4	15.1	11.2	9.9	8.5	9.9	11.8	12.4	7.2	7.5	7.3	7.5	7.4	7.9	7.7	8.1	8.2	24	15.4
6	8.6	8.5	9.3	8.9	8.7	9.6	10.0	9.0	8.1	AZ	6.4	6.2	5.9	5.6	5.0	5.1	5.6	5.7	5.6	6.2	6.5	6.8	7.0	7.0	23	10.0
7	7.8	9.5	9.4	8.6	8.8	9.7	7.8	5.8	4.8	4.8	5.6	7.4	7.0	7.8	8.1	7.4	7.7	7.8	7.8	6.1	7.0	6.7	6.7	7.7	24	9.7
8	7.6	8.0	8.2	8.9	9.7	9.9	9.8	11.6	14.5	17.6	22.6	22.0	22.7	24.0	22.8	21.0	21.1	20.7	19.1	14.2	16.1	15.1	16.4	16.8	24	24.0
9	16.8IF	15.6IF	15.2IF	16.5IF	17.5IF	17.7IF	18.2IF	18.4IF	17.9IF	17.1IF	19.0IF	20.3IF	20.5IF	22.5IF	22.0IF	20.9IF	19.7IF	18.5IF	16.8IF	17.1IF	17.8IF	17.9IF	18.7IF	22.5IF	24	22.5
10	22.3IF	22.4IF	21.0IF	22.6IF	22.4IF	23.5IF	20.4IF	20.0IF	19.0IF	19.4IF	20.7IF	22.8IF	23.2IF	22.8IF	20.2IF	13.8IF	12.6IF	13.5IF	14.4IF	11.3IF	5.2IF	5.3IF	7.6IF	8.3IF	24	23.5
11	8.3	7.9	7.3	7.8	8.2	8.5	8.8	8.7	9.0	8.6	9.0	9.6	8.4	7.8	7.3	7.2	7.1	7.3	7.4	8.3	9.0	8.8	8.5	9.0	24	9.6
12	9.6	9.7	9.7	9.8	9.7	9.7	9.3	8.8	8.5	8.7	9.2	9.2	9.1	10.0	11.4	11.7	5.4	4.9	4.5	4.5	5.7	5.8	5.9	6.2	24	11.7
13	7.1	6.1	6.7	7.2	6.6	6.6	6.6	7.0	7.5	7.7	7.2	7.8	7.5	8.7	9.1	9.1	9.8	10.0	10.1	9.6	10.0	10.7	10.4	9.1	24	10.7
14	8.5	8.2	7.9	7.4	6.8	6.7	7.3	8.0	8.9	8.9	8.6	8.9	8.7	8.6	8.6	8.8	8.9	9.7	5.6	4.1	4.5	5.7	6.2	5.5	24	9.7
15	5.9	7.3	8.2	7.7	7.9	8.1	9.3	14.0	14.9	16.4	17.4	18.6	20.4	19.6	15.5	12.1	14.1	14.1	13.8	14.1	15.3	15.5	16.7	17.1	24	20.4
16	16.4	16.6	17.0	16.2	14.8	9.8	5.1	5.4	6.0	5.7	5.6	7.5	8.9	10.4	11.4	12.5	11.4	9.4	9.6	7.8	7.1	7.1	6.4	2.1	24	17.0
17	2.8	3.3	4.9	5.0	6.2	7.0	6.0	5.5	7.7	9.6	10.8	12.4	13.1	13.0	13.3	11.4	6.1	6.9	7.5	8.2	8.5	8.1	8.1	9.1	24	13.3
18	10.5	11.8	11.8	12.1	13.8	11.2	8.8	8.0	7.6	8.1	6.9	6.4	6.5	5.0	6.9	7.9	7.0	7.0	6.7	6.0	7.0	8.1	8.2	6.7	24	13.8
19	6.2	6.4	6.6	6.6	7.0	7.7	7.3	8.2	9.1	7.7	10.3	9.9	10.2	10.4	10.8	11.0	11.1	11.8	6.4	3.5	3.6	4.2	5.1	6.1	24	11.8
20	5.8	6.1	6.5	6.9	7.3	7.5	8.3	7.7	7.2	6.7	7.0	7.2	7.2	7.0	4.4	3.9	4.5	4.9	4.8	5.2	5.8	6.8	7.3	7.6	24	8.3
21	8.5	9.0	9.2	10.0	11.8	12.1	12.1	12.3	12.2	11.4	12.1	12.1	12.8	12.1	11.3	10.6	7.8	6.3	5.9	6.1	7.2	8.2	8.1	8.5	24	12.8
22	9.8	9.5	9.4	9.9	10.1	10.5	8.8	8.0	6.8	6.4	6.4	6.3	5.9	6.0	6.8	5.6	4.2	4.1	4.7	6.0	6.7	7.0	6.7	7.2	24	10.5
23	7.5	8.4	8.5	8.7	8.9	9.2	7.5	6.5	6.8	7.7	9.1	9.7	10.2	11.6	12.1	12.4	12.1	12.6	12.4	14.0	17.5	16.8	15.6	15.2	24	17.5
24	16.2	16.6	16.1	16.6	17.2	17.1	17.5	17.7	13.7	13.3	13.5	13.6	13.7	12.6	12.9	13.3	13.3	11.6	10.8	10.7	11.1	11.9	12.1	10.3	24	17.7
25	10.5	10.6	10.4	9.7	9.2	8.7	8.2	7.0	7.0	6.8	7.0	6.9	7.4	8.5	8.7	8.4	8.3	8.2	8.8	9.4	10.8	10.9	10.9	9.1	24	10.9
26	3.3	3.9	4.1	4.2	4.6	5.0	5.2	4.8	5.6	AZ	6.6	5.9	5.8	6.0	5.9	4.8	4.3	4.2	4.2	4.2	4.5	5.3	5.9	5.9	23	6.6
27	4.5	4.6	4.8	5.4	5.9	5.7	5.5	5.7	5.4	5.3	5.4	5.5	6.9	7.8	8.3	8.0	8.8	9.6	9.5	8.7	6.5	6.5	6.1	5.9	24	9.6
28	5.4	5.9	5.7	5.6	5.8	6.0	5.7	6.2	6.0	6.0	6.4	7.2	7.2	7.5	7.5	7.3	6.6	6.6	7.0	8.3	9.5	9.6	10.2	10.2	24	10.2
29	10.1	11.4	11.1	11.5	12.7	12.2	13.1	14.5	16.2	15.3	13.4	12.9	13.1	13.6	14.0	14.3	13.9	13.7	14.3	15.5	16.7	17.4	17.9	18.5	24	18.5
30	19.1IF	18.3IF	18.8IF	18.9IF	18.3IF	19.5IF	15.3IF	12.9IF	14.8IF	17.4IF	17.8IF	17.6IF	16.9IF	17.4IF	17.0IF	17.0IF	16.3IF	16.4IF	15.8IF	16.2IF	17.6IF	17.5IF	17.1IF	17.8IF	24	19.5
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	28	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
MAX:	22.3	22.4	21.0	22.6	22.4	23.5	20.4	20.0	19.0	19.4	22.6	22.8	23.2	24.0	22.8	21.0	21.1	20.7	19.1	17.1	17.8	24.3	32.9	24.1		
AVG:	10.40	10.69	10.66	10.90	11.27	11.27	10.71	10.43	10.33	10.53	10.67	10.91	11.10	11.40	11.28	10.53	9.94	9.66	9.32	9.17	9.74	10.52	11.01	10.74		

MONTHLY OBSERVATIONS: 718 MONTHLY MEAN: 10.55 MONTHLY MAX: 32.9

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

PROBE HEIGHT: 5

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: JULY 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	17.6IF	18.1IF	20.2IF	19.6IF	18.9IF	17.7IF	16.6IF	15.9IF	16.6IF	19.9IF	20.3IF	19.8IF	19.7IF	19.5IF	18.5IF	18.2IF	18.0IF	18.2IF	17.3IF	17.9IF	19.6IF	18.8IF	17.5IF	17.4IF	24	20.3
2	17.0	16.5	16.2	16.2	15.9	16.5	16.0	14.8	14.7	14.6	14.8	15.2	15.3	15.4	15.3	12.9	10.7	3.5	5.6	5.9	6.6	7.9	9.0	9.6	24	17.0
3	10.8	11.5	11.9	12.5	13.3	13.8	14.3	14.3	15.0	14.5	15.6	15.2	14.9	14.7	14.0	13.9	13.6	12.6	11.4	11.6	10.8	9.8	9.8	9.5	24	15.6
4	11.7	8.9	7.2	5.4	5.1	4.9	4.9	6.2	7.5	7.7	7.9	8.3	5.7	5.7	6.9	6.3	6.7	6.8	5.9	6.7	6.1	5.3	5.4	5.7	24	11.7
5	6.1	6.6	7.4	8.3	9.5	9.3	9.4	8.6	7.8	7.4	5.5	6.2	9.5	6.7	7.0	6.4	5.5	3.0	3.5	3.4	3.2	3.5	3.6	4.1	24	9.5
6	6.4	5.9	5.0	4.8	4.5	4.6	4.5	4.1	4.2	4.0	3.4	3.5	3.7	3.9	4.2	3.7	3.6	3.0	3.8	3.7	4.4	2.8	2.7	2.9	24	6.4
7	2.9	3.4	3.1	3.3	3.6	3.7	3.8	3.9	4.3	4.3	4.4	4.5	4.0	4.1	4.5	4.0	3.7	3.7	3.7	4.0	4.2	4.8	6.2	6.8	24	6.8
8	8.1	9.0	7.7	8.4	9.7	9.1	9.2	7.9	7.3	7.6	8.0	9.8	5.2	5.9	5.8	4.1	3.5	3.2	3.4	3.5	3.8	3.3	3.4	3.9	24	9.8
9	4.5	4.4	4.8	5.1	6.0	6.5	6.3	5.7	5.7	5.8	6.0	6.7	5.2	3.8	4.1	3.3	2.8	3.0	3.3	3.5	4.1	4.7	5.0	5.1	24	6.7
10	6.6	6.8	3.3	3.2	3.3	3.6	4.5	7.4	8.4	BA	BA	5.7	5.0	4.7	4.2	3.6	3.3	3.3	3.4	3.6	4.9	5.3	5.8	6.6	22	8.4
11	6.7	6.6	7.1	7.8	9.2	11.5	8.8	6.9	6.4	5.6	5.2	7.3	8.8	10.0	12.8	10.0	4.1	2.8	2.8	2.4	2.8	3.1	3.4	3.7	24	12.8
12	4.3	5.0	6.8	6.7	6.6	7.5	8.9	6.5	8.9	11.0	10.3	10.7	11.1	10.4	9.8	8.1	7.0	3.7	2.8	3.3	3.7	4.6	5.6	6.3	24	11.1
13	6.8	7.3	7.6	8.2	8.6	9.0	10.0	11.2	12.4	12.8	12.8	12.0	11.3	11.5	9.9	9.3	9.8	7.9	6.5	6.7	7.6	7.2	7.4	7.9	24	12.8
14	7.2	10.0	12.3	13.0	13.4	13.8	15.0	15.9	15.9	16.6	17.1	16.8	16.3	15.8	15.3	16.1	16.5	16.9	16.8	9.4	3.3	4.1	5.0	5.9	24	17.1
15	6.9	6.5	8.0	11.1	12.9	14.0	13.1	9.8	8.9	11.9	14.6	14.5	13.3	16.5	17.5	16.8	14.6	14.9	15.1	15.9	17.7	17.4	16.6	11.9	24	17.7
16	10.4	9.3	7.5	7.0	6.5	5.9	7.2	5.5	5.3	6.6	7.4	8.2	7.9	8.8	11.4	13.6	13.2	8.8	7.1	6.3	7.8	7.3	8.1	7.9	24	13.6
17	7.4	7.0	6.9	6.9	7.1	7.0	7.1	7.0	6.7	7.4	7.6	7.4	7.5	7.4	7.8	8.7	8.6	8.4	8.9	8.9	9.5	9.6	10.0	10.4	24	10.4
18	10.4	11.1	11.9	11.8	12.1	12.9	11.3	14.3	15.7	14.8	13.8	12.3	12.3	12.5	13.2	13.8	14.6	13.9	13.8	14.6	15.1	15.9	14.8	14.8	24	15.9
19	14.7	15.1	15.3	15.3	15.2	15.2	14.8	14.4	15.4	13.8	12.7	12.0	12.5	13.7	14.7	15.4	15.4	15.0	15.3	16.2	16.0	14.2	13.9	13.8	24	16.2
20	13.6	13.2	12.8	11.9	11.7	11.5	11.5	11.3	11.3	10.6	AZ	13.4	13.2	13.9	14.5	14.7	14.7	14.7	15.1	17.0	17.4	15.7	13.8	12.9	23	17.4
21	12.1	12.6	11.5	10.1	8.8	8.9	8.8	8.6	8.1	8.1	8.5	9.0	9.9	10.2	10.0	10.0	9.7	9.9	10.0	12.7	13.3	12.9	12.8	13.0	24	13.3
22	12.3	18.4	16.2	10.0	9.1	8.2	7.9	7.4	7.4	7.1	7.6	7.8	8.0	5.4	5.7	6.5	7.1	7.5	6.8	7.0	7.1	8.0	8.9	8.2	24	18.4
23	8.2	7.5	7.2	7.9	8.2	8.7	9.1	9.1	9.2	9.3	9.1	8.5	8.7	8.8	9.0	8.8	8.8	8.8	8.7	9.3	9.8	11.3	11.4	12.4	24	12.4
24	12.9	12.2	12.0	12.0	12.0	12.2	12.1	12.5	10.8	9.6	8.5	8.9	9.3	9.6	9.7	9.9	10.2	10.2	10.5	11.3	12.0	12.1	13.9	13.4	24	13.9
25	13.8IF	13.9IF	14.4IF	15.2IF	16.1IF	16.1IF	17.5IF	16.4IF	14.1IF	13.2IF	14.4IF	15.6IF	15.5IF	16.0IF	16.8IF	16.7IF	17.0IF	16.4IF	17.6IF	17.1IF	17.0IF	16.5IF	19.0IF	20.7IF	24	20.7
26	20.4IF	20.7IF	20.8IF	20.9IF	22.4IF	21.9IF	20.8IF	19.6IF	15.8IF	15.6IF	17.1IF	18.8IF	19.5IF	19.5IF	19.4IF	18.5IF	18.2IF	18.0IF	17.1IF	17.6IF	18.4IF	20.9IF	20.9IF	20.5IF	24	22.4
27	20.9IF	22.1IF	21.3IF	24.8IF	29.2IF	25.2IF	24.2IF	21.3IF	17.7IF	17.1IF	18.1IF	17.8IF	16.7IF	16.5IF	17.1IF	17.4IF	17.2IF	17.2IF	16.5IF	17.7IF	16.9IF	16.7IF	18.1IF	17.4IF	24	29.2
28	17.4IF	17.3IF	17.5IF	17.8IF	16.7IF	18.1IF	19.0IF	16.6IF	16.1IF	16.0IF	15.4IF	16.0IF	16.4IF	17.2IF	17.6IF	16.6IF	14.5IF	15.0IF	12.4IF	12.9IF	15.1IF	16.9IF	16.0IF	17.3IF	24	19.0
29	18.6IF	19.3IF	19.2IF	19.6IF	17.6IF	17.2IF	16.2IF	11.3IF	10.6IF	10.7IF	11.2IF	12.3IF	13.2IF	13.5IF	13.6IF	13.9IF	13.2IF	12.4IF	12.9IF	13.3IF	13.4IF	14.2IF	14.8IF	14.0IF	24	19.6
30	15.4	15.0	16.4	15.9	14.9	14.4	13.6	12.5	12.7	12.0	13.2	14.7	14.5	14.5	14.4	14.9	14.4	11.2	6.2	4.6	4.7	5.3	5.2	5.9	24	16.4
31	6.4	6.7	7.3	8.0	8.2	8.2	8.5	8.2	9.0	9.6	10.0	9.4	9.9	9.9	9.3	8.7	7.9	7.5	7.3	7.8	8.3	8.0	8.2	9.0	24	10.0
NO.:	31	31	31	31	31	31	31	31	31	30	29	31	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	20.9	22.1	21.3	24.8	29.2	25.2	24.2	21.3	17.7	19.9	20.3	19.8	19.7	19.5	19.4	18.5	18.2	18.2	17.6	17.9	19.6	20.9	20.9	20.7		
AVG:	10.92	11.22	11.19	11.25	11.49	11.52	11.45	10.81	10.64	10.84	11.05	11.24	11.10	11.16	11.42	11.12	10.58	9.72	9.40	9.54	9.83	9.94	10.20	10.29		

MONTHLY OBSERVATIONS: 741 MONTHLY MEAN: 10.75 MONTHLY MAX: 29.2

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23

COUNTY: (035) Forrest

CITY: (31020) Hattiesburg

STATE: (28) Mississippi

AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM
ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:

MONITOR COMMENTS:

LAND USE: COMMERCIAL

LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:

ELEVATION-MSL: 0

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

PROBE HEIGHT: 5

MONITOR TYPE: SLAMS

COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: AUGUST 2023

DURATION: 1 HOUR

UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	9.8	9.3	9.4	9.8	10.1	10.1	10.8	10.7	10.5	11.2	9.2	10.4	9.6	9.7	11.5	10.4	10.1	10.0	10.1	11.3	14.3	15.8	12.3	11.0	24	15.8
2	11.8	12.0	12.2	13.1	16.3	14.2	13.6	14.6	13.5	13.9	15.5	13.2	12.9	13.8	13.3	11.8	12.4	10.7	11.8	11.9	12.6	13.2	13.3	13.9	24	16.3
3	13.8	14.3	14.7	16.4	15.3	16.0	16.4	13.5	12.1	11.5	11.7	12.3	12.6	12.9	13.3	13.7	14.0	13.7	13.7	18.6	13.9	12.5	12.4	12.4	24	18.6
4	12.4	12.7	11.4	10.0	9.4	9.7	9.1	7.0	6.4	7.4	7.5	8.9	9.7	9.3	10.7	13.0	10.8	10.6	10.3	9.5	9.9	10.5	10.8	11.9	24	13.0
5	12.8	12.5	10.5	8.8	7.7	7.4	7.0	6.3	5.8	6.2	7.6	9.1	9.6	9.6	9.2	9.2	8.9	8.9	11.8	14.7	8.4	7.4	7.5	8.1	24	14.7
6	7.9	7.8	8.4	9.0	9.1	8.6	8.1	7.5	6.9	6.4	6.1	6.2	6.3	6.7	6.5	6.4	6.5	6.8	7.3	8.7	9.6	8.8	8.7	8.7	24	9.6
7	8.3	7.2	6.5	5.5	5.1	4.9	4.8	4.5	3.9	4.1	4.2	4.6	5.0	4.9	4.9	4.9	4.6	4.6	4.9	6.7	7.3	6.7	6.3	6.4	24	8.3
8	8.7	10.3	13.2	11.8	7.4	6.7	6.7	5.9	5.4	4.3	4.8	5.1	5.2	5.1	6.5	6.1	5.7	6.1	6.7	6.6	6.7	7.4	7.7	8.1	24	13.2
9	9.2	9.6	9.4	10.1	10.4	11.0	10.3	8.1	5.4	4.4	4.5	5.0	5.1	5.0	4.5	4.5	4.8	5.4	5.4	4.9	4.2	4.0	4.2	4.5	24	11.0
10	4.6	4.4	4.4	4.8	4.7	4.8	5.1	5.0	4.5	AZ	4.9	4.7	4.9	4.8	5.4	5.7	6.0	6.6	7.0	7.4	7.9	8.8	9.1	9.5	23	9.5
11	9.2	8.8	8.1	7.9	8.6	8.9	8.7	8.1	7.4	7.2	6.8	6.2	6.3	6.5	6.3	6.4	6.3	6.5	6.3	6.6	8.1	8.3	8.9	9.1	24	9.2
12	9.3	9.2	9.3	9.3	9.4	9.5	9.6	9.6	9.3	8.9	8.1	8.0	7.9	7.5	7.6	8.7	9.5	7.1	6.5	8.1	10.4	11.1	11.9	11.7	24	11.9
13	10.9	10.6	10.7	10.9	10.8	11.0	11.2	11.1	10.7	10.5	10.5	10.5	10.7	11.3	11.8	11.3	11.2	11.4	10.3	12.7	13.6	13.0	12.9	11.7	24	13.6
14	11.7	11.2	12.8	13.5	13.2	12.7	12.5	11.7	10.7	AZ	11.0	10.5	9.9	10.1	10.4	9.3	9.0	9.5	9.6	11.6	10.5	9.9	10.3	10.5	23	13.5
15	9.6	8.8	8.7	8.8	8.9	8.8	9.4	11.5	13.3	11.9	12.6	11.2	10.6	10.3	9.6	7.5	7.7	7.5	6.6	4.8	4.0	3.5	3.6	3.8	24	13.3
16	4.3	4.8	5.1	5.7	5.8	5.9	6.5	6.7	5.8	5.2	4.9	5.0	4.8	4.6	4.4	4.5	4.2	4.2	5.2	5.4	5.5	6.0	6.8	7.6	24	7.6
17	7.3	8.3	8.4	8.3	9.8	10.4	10.6	10.2	11.1	10.6	7.9	7.1	6.6	6.7	6.8	7.1	7.9	7.5	8.0	8.0	9.6	11.9	11.1	11.3	24	11.9
18	12.5IF	17.3IF	26.8IF	25.5IF	16.0IF	12.7IF	16.3IF	18.5IF	19.1IF	13.8IF	11.0IF	10.6IF	10.6IF	11.0IF	10.8IF	11.4IF	11.6IF	11.7IF	11.8IF	13.0IF	15.1IF	17.8IF	16.3IF	16.5IF	24	26.8
19	19.5IF	21.8IF	29.0IF	35.8IF	30.3IF	30.2IF	33.9IF	21.9IF	17.0IF	17.7IF	16.6IF	16.1IF	15.6IF	14.5IF	13.9IF	12.7IF	12.1IF	11.4IF	12.0IF	13.5IF	13.7IF	14.9IF	16.5IF	17.7IF	24	35.8
20	20.0IF	21.0IF	21.1IF	18.7IF	21.8IF	24.2IF	28.6IF	30.1IF	22.8IF	12.5IF	10.6IF	12.5IF	13.5IF	15.9IF	16.1IF	14.6IF	13.0IF	12.6IF	12.9IF	12.8IF	13.4IF	15.3IF	16.2IF	20.5IF	24	30.1
21	22.6IF	20.9IF	21.7IF	22.5IF	21.2IF	19.0IF	19.4IF	16.9IF	10.8IF	9.9IF	10.0IF	11.7IF	14.2IF	14.5IF	14.5IF	15.4IF	16.2IF	18.3IF	20.0IF	22.1IF	20.9IF	20.0IF	19.8IF	21.3IF	24	22.6
22	19.2IF	19.1IF	20.2IF	19.2IF	18.7IF	18.8IF	19.2IF	19.8IF	17.0IF	17.6IF	19.7IF	19.5IF	18.7IF	18.6IF	17.4IF	16.6IF	17.9IF	17.9IF	16.4IF	15.6IF	15.7IF	17.1IF	15.9IF	14.6IF	24	20.2
23	13.9IF	14.0IF	14.2IF	14.9IF	15.8IF	16.8IF	18.2IF	19.0IF	18.5IF	18.0IF	18.5IF	18.7IF	19.3IF	19.2IF	18.6IF	19.1IF	19.7IF	19.8IF	19.6IF	19.5IF	19.8IF	20.8IF	21.7IF	22.1IF	24	22.1
24	26.5IT	23.7IT	23.1IT	23.9IT	24.8IT	26.9IT	29.1IT	27.4IT	23.0IT	21.3IT	20.5IT	20.7IT	20.2IT	18.7IT	19.0IT	19.4IT	19.5IT	19.7IT	20.5IT	21.7IT	20.4IT	18.1IT	18.0IT	17.8IT	24	29.1
25	17.8IT	17.9IT	18.6IT	19.1IT	18.9IT	20.0IT	21.6IT	21.5IT	18.6IT	18.1IT	18.7IT	18.4IT	17.2IT	17.1IT	16.9IT	16.5IT	13.3IT	13.1IT	13.5IT	15.5IT	20.5IT	24.5IT	19.7IT	18.1IT	24	24.5
26	16.7IT	16.9IT	17.6IT	18.1IT	18.4IT	19.8IT	18.7IT	19.9IT	19.0IT	17.8IT	16.1IT	17.8IT	22.1IT	28.5IT	29.3IT	31.7IT	30.6IT	27.3IT	26.2IT	26.6IT	26.9IT	27.9IT	27.9IT	27.5IT	24	31.7
27	30.3IT	27.8IT	27.4IT	29.5IT	29.3IT	27.8IT	27.8IT	27.0IT	26.6IT	24.5IT	23.3IT	23.8IT	23.3IT	21.5IT	23.3IT	22.8IT	22.1IT	19.4IT	16.4IT	15.2IT	16.7IT	18.3IT	18.9IT	16.1IT	24	30.3
28	12.1	12.7	11.6	11.6	11.7	13.7	12.8	11.6	10.9	10.2	10.5	10.7	12.0	13.4	14.3	12.4	8.0	8.1	8.2	6.8	6.8	6.9	7.3	7.8	24	14.3
29	8.5	9.1	9.3	9.4	10.2	12.0	11.7	11.4	10.5	9.9	10.1	10.1	9.3	9.1	9.6	8.8	8.3	7.4	6.3	4.9	3.4	4.5	4.9	5.0	24	12.0
30	5.7	6.2	7.2	9.1	10.5	11.1	11.5	11.3	10.7	8.7	8.9	9.4	9.9	9.3	9.3	8.8	8.8	7.4	7.4	7.6	7.9	8.1	8.8	9.6	24	11.5
31	11.9	13.1	16.9	14.0	13.5	14.5	13.7	13.8	13.4	13.3	12.0	10.3	11.0	11.0	10.5	10.3	10.9	10.9	11.0	12.1	12.4	12.6	12.0	11.8	24	16.9
NO.:	31	31	31	31	31	31	31	31	31	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	30.3	27.8	29.0	35.8	30.3	30.2	33.9	30.1	26.6	24.5	23.3	23.8	23.3	28.5	29.3	31.7	30.6	27.3	26.2	26.6	26.9	27.9	27.9	27.5		
AVG:	12.86	13.01	13.80	14.03	13.65	13.81	14.29	13.62	12.28	11.62	11.11	11.24	11.44	11.65	11.81	11.65	11.34	11.04	11.09	11.75	11.94	12.44	12.31	12.47		

MONTHLY OBSERVATIONS: 742 MONTHLY MEAN: 12.35 MONTHLY MAX: 35.8

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM
ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

PROBE HEIGHT: 5

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: SEPTEMBER 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	12.3	11.9	11.2	11.3	11.2	11.8	12.6	12.2	12.3	13.0	13.7	14.1	11.6	11.3	11.4	12.1	10.4	8.7	8.6	7.8	6.2	5.0	4.7	4.6	24	14.1
2	5.4	5.6	5.9	5.8	6.1	6.7	6.6	6.9	6.1	5.6	5.4	5.1	4.6	4.5	4.4	4.3	3.7	3.4	3.2	3.3	3.3	3.4	3.9	4.9	24	6.9
3	5.9	6.1	6.1	6.8	8.1	7.6	7.4	7.4	6.6	5.3	5.3	5.1	5.0	5.2	5.3	5.4	5.6	5.4	6.0	4.8	3.7	4.2	4.4	4.6	24	8.1
4	5.2	5.3	5.4	5.6	5.8	6.1	6.2	6.5	5.6	5.5	5.6	5.9	6.0	6.3	6.2	6.2	6.0	6.0	6.5	7.1	7.1	7.0	7.1	7.0	24	7.1
5	7.1	7.3	7.4	7.5	7.4	7.3	7.4	7.0	6.2	5.8	5.9	5.7	5.7	5.4	5.1	5.1	5.0	4.9	5.0	4.5	4.4	4.8	5.2	5.1	24	7.5
6	6.1	6.6	6.3	6.2	6.2	6.5	7.1	5.9	6.5	5.2	4.9	5.4	5.6	5.5	5.2	5.3	5.3	5.5	5.9	6.4	6.0	6.6	7.1	7.2	24	7.2
7	7.3	7.3	6.8	6.8	6.0	6.2	6.3	6.0	8.0	10.8	8.1	7.4	9.1	9.2	8.0	8.1	7.0	5.9	6.4	6.7	6.8	6.6	5.8	6.1	24	10.8
8	7.3IF	7.3IF	7.8IF	8.7IF	8.2IF	7.1IF	7.5IF	12.1IF	15.2IF	17.8IF	18.8IF	19.1IF	19.9IF	20.0IF	19.7IF	19.1IF	18.4IF	19.0IF	22.6IF	23.7IF	21.8IF	24.5IF	28.1IF	28.6IF	24	28.6
9	27.8IF	28.1IF	28.0IF	27.3IF	26.3IF	24.4IF	23.6IF	21.9IF	19.9IF	14.9IF	14.3IF	14.1IF	13.2IF	12.0IF	11.3IF	11.4IF	11.5IF	11.4IF	12.6IF	12.3IF	11.5IF	12.2IF	12.3IF	11.8IF	24	28.1
10	12.0	11.4	10.8	10.5	10.2	9.1	9.7	9.0	8.9	8.7	7.8	7.6	8.5	8.5	8.3	7.9	7.8	8.3	9.4	11.5	11.1	9.9	10.0	9.8	24	12.0
11	9.7	9.7	9.5	10.3	10.6	10.6	11.4	12.3	13.5	AZ	AZ	12.3	11.8	11.7	11.6	11.5	11.7	12.1	12.5	12.2	11.3	11.3	11.1	11.7	22	13.5
12	11.6	12.1	12.4	13.3	15.3	19.2	18.5	13.7	11.0	10.7	10.2	9.7	9.7	9.9	10.3	11.2	11.2	11.5	9.0	8.2	7.6	7.7	7.6	7.5	24	19.2
13	10.3	13.4	14.4	15.8	16.6	17.0	18.7	20.0	16.7	15.0	13.4	11.5	11.7	12.4	12.3	11.0	11.5	11.7	10.5	10.4	10.9	11.2	11.6	12.0	24	20.0
14	12.2	12.7	13.2	13.4	13.6	13.2	13.7	14.2	13.9	14.1	14.4	14.3	13.3	13.2	13.4	12.8	12.3	11.5	11.3	11.3	11.3	11.2	11.5	12.0	24	14.4
15	11.2	10.0	9.4	9.1	9.6	10.5	10.9	11.2	11.3	11.1	11.1	10.3	9.4	8.6	8.6	8.1	8.3	8.5	8.7	9.3	10.0	10.4	10.4	10.9	24	11.3
16	11.6	12.3	12.6	14.0	14.1	13.1	14.3	14.7	15.4	13.4	10.6	9.4	7.9	7.1	7.0	7.0	7.2	7.5	7.6	8.5	9.2	10.2	11.4	12.0	24	15.4
17	14.3	15.7	17.2	18.3	17.8	17.7	16.0	14.5	12.0	11.4	16.1	13.3	10.6	10.4	9.9	10.2	9.4	9.2	9.8	10.3	11.4	13.5	16.5	16.7	24	18.3
18	14.3	13.4	13.6	13.8	13.5	13.8	15.3	15.1	15.1	13.5	12.4	11.0	11.0	10.8	11.8	12.3	11.5	10.7	11.8	12.8	13.0	15.2	17.5	17.0	24	17.5
19	16.7	16.9	17.6	17.8	18.5	18.8	20.1	19.0	20.9	24.2	13.2	13.1	12.5	12.7	13.0	13.3	13.3	13.3	14.0	12.8	12.8	13.2	14.7	15.4	24	24.2
20	15.4	16.8	19.7	20.3	17.5	16.9	16.9	16.0	14.9	13.1	12.1	10.4	10.4	10.7	11.2	11.5	12.5	12.1	13.6	13.8	14.9	14.7	14.7	14.6	24	20.3
21	14.0	14.0	14.0	14.6	16.3	15.5	15.7	14.4	13.6	12.8	9.4	8.3	7.7	7.5	8.6	10.1	11.6	11.0	11.1	11.3	11.3	11.8	12.9	14.7	24	16.3
22	14.9	13.8	13.7	14.1	13.9	14.6	15.2	13.2	12.0	10.2	9.8	10.2	10.1	10.2	10.5	9.8	10.5	10.2	10.1	10.2	10.7	11.8	15.2	16.7	24	16.7
23	15.4	14.6	14.1	14.4	14.7	15.6	14.6	13.6	12.8	10.1	9.6	10.5	10.8	10.6	10.5	10.5	10.2	10.6	10.7	11.3	11.0	10.9	11.2	12.9	24	15.6
24	13.1	13.5	13.7	14.1	14.4	13.9	15.6	11.9	9.0	7.5	8.0	8.9	10.1	9.2	7.7	8.1	7.9	8.5	8.3	8.4	8.2	7.7	7.8	8.8	24	15.6
25	10.0	10.1	9.9	10.5	10.4	10.9	11.5	11.4	10.1	10.1	10.3	11.5	11.1	5.1	5.2	4.9	5.1	5.2	5.6	6.1	7.6	7.8	8.3	8.5	24	11.5
26	8.7	14.4	9.2	9.4	9.7	9.2	9.8	10.3	10.4	11.8	11.5	12.3	13.5	14.7	15.1	15.7	15.8	15.7	15.4	15.7	17.3	17.4	17.4	14.4	24	17.4
27	13.0	12.5	11.7	10.0	9.4	8.4	7.7	6.9	5.1	4.5	5.1	5.0	5.2	6.7	7.5	6.5	6.2	5.5	5.9	5.8	6.2	6.1	6.3	6.8	24	13.0
28	6.6	6.4	6.6	5.9	6.1	6.2	6.3	5.1	4.0	4.2	4.7	5.5	5.1	6.0	7.2	7.4	7.7	7.9	9.2	9.3	9.1	9.5	9.6	9.6	24	9.6
29	8.5	8.2	8.3	8.2	8.3	8.5	9.1	9.4	8.0	7.5	7.8	6.8	5.7	4.4	5.0	5.2	5.8	6.6	6.7	7.6	9.6	11.0	11.0	8.6	24	11.0
30	7.8	7.6	7.4	8.1	8.7	9.0	9.4	10.3	9.1	7.4	8.1	8.8	9.4	9.8	10.0	10.2	10.6	10.4	10.8	12.3	13.1	12.2	12.8	13.0	24	13.1
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30		
MAX:	27.8	28.1	28.0	27.3	26.3	24.4	23.6	21.9	20.9	24.2	18.8	19.1	19.9	20.0	19.7	19.1	18.4	19.0	22.6	23.7	21.8	24.5	28.1	28.6		
AVG:	11.19	11.50	11.46	11.73	11.82	11.85	12.17	11.74	11.14	10.52	9.92	9.75	9.54	9.32	9.38	9.41	9.37	9.27	9.63	9.86	9.95	10.30	10.94	11.12		

MONTHLY OBSERVATIONS: 718 MONTHLY MEAN: 10.54 MONTHLY MAX: 28.6

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23

COUNTY: (035) Forrest

CITY: (31020) Hattiesburg

STATE: (28) Mississippi

AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:

MONITOR COMMENTS:

LAND USE: COMMERCIAL

LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:

ELEVATION-MSL: 0

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

PROBE HEIGHT: 5

MONITOR TYPE: SLAMS

COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: OCTOBER 2023

DURATION: 1 HOUR

UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	13.5	13.3	13.6	12.8	13.2	12.9	12.5	11.5	9.3	7.8	6.8	5.7	5.2	5.7	5.8	5.7	5.7	6.0	6.3	7.1	7.2	8.0	8.9	9.9	24	13.6
2	9.1	8.8	9.1	8.8	8.9	8.8	8.7	8.4	6.1	4.8	4.4	4.2	4.4	4.4	4.8	4.5	4.6	4.8	5.6	5.5	6.2	7.1	8.3	7.2	24	9.1
3	7.2IF	7.2IF	7.1IF	7.5IF	7.3IF	7.8IF	8.7IF	18.6IF	23.8IF	26.2IF	23.3IF	18.4IF	13.7IF	12.6IF	13.4IF	13.1IF	13.5IF	14.2IF	15.4IF	17.3IF	18.5IF	20.1IF	19.7IF	20.3IF	24	26.2
4	19.1IF	22.2IF	22.8IF	22.3IF	21.9IF	21.8IF	21.5IF	30.2IF	38.2IF	43.8IF	43.5IF	39.5IF	37.6IF	34.9IF	33.9IF	32.4IF	32.5IF	32.8IF	34.4IF	34.2IF	33.1IF	31.6IF	30.5IF	29.9IF	24	43.8
5	30.1IF	30.2IF	29.4IF	27.8IF	28.6IF	29.3IF	33.2IF	30.1IF	28.7IF	25.9IF	20.5IF	15.4IF	13.8IF	13.4IF	13.6IF	13.4IF	13.4IF	11.6IF	11.1IF	11.9IF	12.1IF	9.0IF	9.0IF	10.1IF	24	33.2
6	9.2	9.8	11.5	13.2	17.4	17.9	16.3	10.2	9.8	11.4	13.2	10.0	8.7	9.2	10.1	8.7	6.1	7.0	13.9	7.5	7.5	15.6	10.6	9.4	24	17.9
7	9.3	9.1	8.9	7.6	10.1	7.4	6.6	4.9	4.4	4.3	4.3	4.0	4.3	4.3	3.7	3.3	2.9	3.1	4.3	4.0	4.6	3.9	3.9	3.8	24	10.1
8	4.3	4.4	3.8	3.8	4.1	4.1	4.2	4.5	4.1	3.0	2.8	2.6	2.8	2.8	2.7	2.7	2.6	3.3	4.2	6.7	7.3	8.3	10.2	10.4	24	10.4
9	9.6	9.7	6.3	6.4	8.7	8.9	9.1	8.4	10.8	6.0	4.3	4.0	3.7	3.7	3.5	3.9	4.3	4.5	5.2	5.9	6.8	6.7	6.9	6.7	24	10.8
10	6.7	7.5	7.0	7.4	9.5	11.6	12.5	14.2	AZ	AZ	10.0	10.0	10.4	14.7	11.3	10.1	10.2	10.6	12.0	12.9	15.4	16.1	12.4	11.8	22	16.1
11	13.8	13.8	12.3	11.7	11.5	12.5	12.7	12.5	9.7	8.1	5.8	4.3	2.7	1.8	2.1	2.4	2.4	2.3	2.5	2.6	1.7	1.6	1.1	.6	24	13.8
12	.7	.8	1.5	3.2	3.7	3.6	3.3	3.2	3.7	3.7	8.5	4.6	4.5	5.4	5.3	5.5	5.9	6.1	7.2	5.2	5.9	6.3	6.3	6.9	24	8.5
13	7.6	7.8	8.1	8.1	7.6	6.7	5.6	3.8	3.6	3.9	4.2	4.8	6.5	6.7	7.6	8.0	8.1	7.7	7.9	8.4	9.3	9.6	10.8	10.5	24	10.8
14	11.5	10.3	9.3	10.8	11.1	11.1	9.1	9.9	11.8	9.6	6.1	5.7	5.7	5.7	5.5	5.1	4.2	3.7	4.0	4.0	5.7	7.5	6.7	7.2	24	11.8
15	8.5	7.8	8.0	8.1	8.2	8.0	7.0	5.8	5.0	4.2	3.0	2.4	2.2	2.3	2.1	2.3	2.4	2.1	2.6	2.6	3.1	3.3	3.4	3.7	24	8.5
16	4.0	3.8	3.7	3.7	3.7	3.7	3.7	3.7	3.3	2.9	2.6	2.4	AZ	AZ	2.8	2.7	2.8	2.8	3.0	3.2	3.3	3.8	3.8	4.4	22	4.4
17	5.0	4.6	4.5	5.1	5.4	6.3	7.9	10.3	14.3	11.9	8.5	8.1	9.1	8.4	8.1	8.1	9.4	9.4	12.6	14.4	14.9	15.7	17.5	13.9	24	17.5
18	14.1	13.6	13.3	14.8	15.1	17.1	16.7	19.8	22.7	22.9	21.5	16.7	13.7	13.5	12.4	11.3	10.9	11.5	11.7	11.0	11.6	14.7	16.0	15.6	24	22.9
19	15.0	15.7	18.8	17.4	17.1	18.4	19.2	21.7	27.9	14.3	6.1	4.9	3.8	3.7	4.4	5.2	5.6	6.3	7.1	4.7	6.2	3.6	3.8	4.5	24	27.9
20	4.4	4.0	3.9	4.6	5.3	5.6	5.8	6.5	7.4	7.6	6.9	6.2	5.4	4.7	4.4	4.1	4.0	5.0	8.2	10.3	10.6	12.4	6.5	7.3	24	12.4
21	7.6	8.0	8.2	8.5	8.0	9.3	12.8	10.9	12.9	10.8	11.8	18.0	16.1	14.4	14.5	13.3	13.0	12.2	12.5	14.0	10.6	10.3	10.9	12.7	24	18.0
22	16.8	17.2	16.0	17.2	15.8	15.7	14.6	20.2	17.7	13.8	9.8	10.5	10.3	10.4	9.9	9.6	11.4	13.7	16.4	19.5	18.2	17.8	15.6	14.7	24	20.2
23	14.2	14.3	18.3	19.4	14.6	16.0	19.0	19.5	22.1	20.7	17.9	17.5	18.9	15.3	18.4	16.5	13.4	14.1	15.2	20.4	21.7	20.5	19.4	20.3	24	22.1
24	23.2	30.9	31.4	29.9	28.2	26.7	23.6	15.3	13.3	11.4	14.6	12.6	8.5	8.2	9.5	10.8	9.0	8.3	14.8	9.5	8.7	7.6	11.6	30.0	24	31.4
25	26.2	19.1	16.8	17.8	13.7	7.8	7.8	7.6	8.3	6.7	7.0	7.6	8.4	8.0	8.1	8.0	6.7	7.1	7.3	9.1	8.0	7.4	7.2	12.2	24	26.2
26	12.6	10.6	10.5	9.6	8.8	11.2	9.9	8.7	7.7	7.2	7.1	6.4	6.3	6.7	8.0	9.5	7.6	9.3	11.9	12.0	7.8	6.6	7.4	7.5	24	12.6
27	7.2	7.2	9.4	8.4	4.7	4.4	4.7	5.6	6.7	6.2	6.6	6.1	5.6	5.7	5.5	5.6	5.8	5.8	6.4	8.5	7.9	8.0	8.5	8.3	24	9.4
28	10.1	9.5	11.9	11.6	6.1	5.4	4.0	4.1	4.5	5.7	6.1	6.3	6.0	6.4	6.0	5.7	6.2	6.5	7.1	8.5	8.4	7.5	8.3	7.9	24	11.9
29	7.4	7.3	8.1	11.1	11.2	11.5	12.8	13.1	17.8	15.0	7.2	5.1	4.7	4.7	4.8	4.8	6.1	10.9	7.1	5.9	5.8	5.9	6.1	6.5	24	17.8
30	4.9	3.8	4.0	6.2	6.5	4.9	6.4	9.1	8.2	6.4	5.9	5.5	5.6	5.4	4.8	3.3	2.4	2.7	3.1	3.1	3.3	4.2	5.0	6.3	24	9.1
31	5.9	5.0	6.0	9.6	10.4	10.2	10.9	9.2	7.7	AZ	AZ	5.6	5.3	4.8	4.7	4.6	3.9	3.7	4.2	7.3	5.0	5.2	5.1	5.4	22	10.9
NO.:	31	31	31	31	31	31	31	31	30	29	30	31	30	30	31	31	31	31	31	31	31	31	31	31		
MAX:	30.1	30.9	31.4	29.9	28.6	29.3	33.2	30.2	38.2	43.8	43.5	39.5	37.6	34.9	33.9	32.4	32.5	32.8	34.4	34.2	33.1	31.6	30.5	30.0		
AVG:	10.93	10.88	11.08	11.43	11.17	11.18	11.32	11.66	12.38	11.25	10.01	8.87	8.46	8.26	8.12	7.88	7.65	8.04	9.20	9.59	9.56	9.87	9.72	10.51		

MONTHLY OBSERVATIONS: 738 MONTHLY MEAN: 9.96 MONTHLY MAX: 43.8

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

PROBE HEIGHT: 5

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: NOVEMBER 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	5.6	6.0	6.3	6.3	6.1	6.0	6.6	6.5	6.3	5.9	5.4	4.8	4.5	4.3	4.2	4.4	4.9	5.0	5.7	6.7	6.4	6.5	7.1	7.6	24	7.6
2	10.8	8.1	8.0	8.2	8.3	9.6	10.5	10.7	8.9	7.0	6.2	5.8	5.8	5.7	5.4	5.4	5.2	6.1	6.8	11.6	13.0	13.0	13.5	13.7	24	13.7
3	15.2	13.6	13.1	10.3	9.0	9.5	10.2	13.2	11.1	10.3	8.8	8.8	7.6	6.9	6.7	6.9	7.0	7.0	8.2	13.7	15.9	14.6	16.2	16.5	24	16.5
4	16.4	13.4	11.1	10.3	10.5	11.6	12.8	13.1	13.8	12.5	13.4	8.3	6.7	7.5	7.3	7.2	7.7	9.6	16.6	19.3	18.5	19.1	21.8	18.4	24	21.8
5	20.5	19.9	16.1	12.4	12.7	12.5	13.1	13.2	13.2	13.1	12.1	10.3	8.8	8.5	8.7	9.1	9.1	11.1	13.6	14.6	14.0	15.4	15.1	13.8	24	20.5
6	14.0	13.9	14.5	15.1	15.3	14.4	15.5	16.2	17.1	13.9	11.4	AZ	10.6	9.9	9.4	9.7	10.3	11.6	13.0	11.7	12.8	11.0	11.4	10.3	23	17.1
7	8.9	10.2	10.9	11.6	12.5	12.1	13.0	17.3	17.2	9.5	4.9	4.6	4.1	4.0	3.9	4.8	4.5	5.6	7.4	5.6	5.2	5.5	5.7	5.9	24	17.3
8	6.5	6.4	6.8	7.2	7.2	7.7	9.2	10.7	9.6	8.9	4.5	4.5	4.7	5.0	5.7	6.0	6.1	6.0	6.5	6.2	6.3	5.7	5.9	6.2	24	10.7
9	6.3	6.7	7.2	7.3	7.8	8.2	11.5	15.6	19.5	29.1	14.6	5.2	5.0	4.6	4.8	4.9	5.0	6.6	10.0	6.5	5.1	5.0	4.9	5.0	24	29.1
10	5.1	5.1	5.0	4.9	5.3	5.4	4.8	5.0	5.4	6.4	5.8	4.3	3.6	3.5	4.3	6.7	8.8	11.9	12.4	14.1	15.6	13.0	11.4	10.9	24	15.6
11	9.9	9.6	9.7	7.6	6.9	7.4	7.1	7.0	7.2	6.7	6.7	7.2	7.3	8.2	6.6	6.0	6.5	7.6	8.1	9.3	9.0	8.6	8.9	11.2	24	11.2
12	8.8	6.7	6.2	6.7	7.6	6.7	6.1	5.2	5.2	5.9	5.9	5.9	8.5	9.1	7.4	7.3	7.6	7.6	7.8	7.6	7.8	6.3	7.3	9.7	24	9.7
13	10.4	9.3	9.9	10.3	10.2	13.2	15.4	14.3	13.4	11.9	12.2	11.7	11.1	10.8	11.8	11.9	12.6	12.0	11.9	12.0	11.9	11.6	11.8	12.2	24	15.4
14	12.5	13.9	13.3	13.4	13.9	14.4	14.7	14.7	15.2	15.1	15.8	13.3	13.9	13.3	11.5	8.6	6.6	5.7	6.1	6.6	5.0	4.1	3.5	5.5	24	15.8
15	7.0	8.0	8.9	9.1	8.7	8.6	8.0	7.3	7.4	6.7	6.7	5.7	5.9	5.6	5.9	7.6	9.7	6.6	7.1	7.9	8.1	8.3	8.5	6.8	24	9.7
16	5.8	5.3	6.3	5.8	6.5	4.8	5.0	6.7	7.4	8.1	8.6	10.5	10.8	11.4	11.5	10.6	11.4	12.9	15.3	16.3	15.4	21.2	19.8	20.9	24	21.2
17	20.1	21.5	21.6	20.7	23.4	22.2	18.9	18.2	14.6	12.7	14.0	13.0	11.6	11.2	10.6	10.8	10.8	9.9	9.9	11.2	10.8	10.4	10.9	11.3	24	23.4
18	11.1	9.8	7.2	6.0	5.9	5.5	5.4	5.5	5.9	6.5	7.2	8.0	8.1	8.9	9.3	10.0	10.7	9.7	12.3	13.1	13.5	10.8	12.1	11.7	24	13.5
19	11.0	11.2	12.3	13.6	14.1	14.3	14.4	13.9	12.4	11.0	9.7	8.0	7.7	7.9	9.1	9.1	11.5	23.3	15.4	21.8	42.9	37.3	26.3	21.4	24	42.9
20	20.4	20.8	21.7	21.4	23.8	22.2	23.5	24.6	18.9	12.7	10.5	7.4	7.1	6.0	5.3	5.6	5.9	5.9	5.9	6.3	5.4	5.2	5.5	6.1	24	24.6
21	2.8	1.2	1.6	2.5	2.8	3.3	4.0	4.1	4.6	3.9	4.6	AZ	5.0	5.4	7.7	6.6	7.5	6.9	7.0	6.3	5.5	5.4	4.7	3.7	23	7.7
22	4.7	4.1	3.8	5.2	7.4	7.9	10.7	9.8	9.4	9.0	8.1	7.7	6.7	5.7	5.6	5.8	6.7	13.2	17.0	18.3	17.3	17.9	19.7	13.5	24	19.7
23	17.9	19.9	17.5	14.2	13.0	12.6	13.2	12.8	12.2	12.9	10.7	11.5	10.9	11.2	10.8	11.5	13.1	13.6	15.4	16.1	15.7	15.5	16.8	20.5	24	20.5
24	18.4	19.7	18.8	17.9	17.5	18.2	18.3	17.1	14.8	13.3	12.5	12.2	10.2	11.2	12.8	9.9	12.5	14.5	16.1	15.9	18.0	17.6	22.1	58.0	24	58.0
25	62.8	63.3	66.2	56.3	50.3	39.7	32.4	32.2	30.1	19.9	16.3	12.1	10.3	9.7	8.8	7.8	7.6	11.8	15.9	24.5	27.9	24.0	22.6	20.9	24	66.2
26	18.4	20.0	14.4	13.2	11.9	10.5	9.9	8.5	10.8	7.5	6.4	8.6	9.5	9.8	11.6	10.6	9.7	8.4	8.5	8.3	9.4	10.3	9.2	5.0	24	20.0
27	3.9	4.6	5.8	6.2	6.1	6.3	6.7	7.2	6.9	6.2	6.7	5.3	5.1	4.9	4.7	4.6	4.8	11.3	11.0	8.5	9.5	12.9	5.6	5.4	24	12.9
28	7.4	6.3	6.7	8.1	8.2	9.3	8.4	10.8	10.3	7.2	5.0	4.1	3.9	3.3	2.8	3.3	3.7	5.9	8.5	11.5	13.4	15.0	17.4	23.7	24	23.7
29	23.3	21.1	23.6	25.6	22.9	21.6	23.3	26.2	28.3	36.3	21.0	7.9	4.9	5.0	5.0	5.1	6.2	11.0	35.7	33.5	31.2	26.8	23.7	22.7	24	36.3
30	21.2	25.6	27.4	25.2	21.7	23.3	27.8	29.7	26.6	20.8	16.5	12.9	10.8	11.4	51.6	26.6	28.0	21.2	11.9	13.1	15.9	17.0	18.3	12.6	24	51.6
31																									0	
NO.:	30	30	30	30	30	30	30	30	30	30	30	28	30	30	30	30	30	30	30	30	30	30	30	30		
MAX:	62.8	63.3	66.2	56.3	50.3	39.7	32.4	32.2	30.1	36.3	21.0	13.3	13.9	13.3	51.6	26.6	28.0	23.3	35.7	33.5	42.9	37.3	26.3	58.0		
AVG:	13.57	13.51	13.40	12.75	12.58	12.30	12.68	13.24	12.79	11.70	9.74	8.20	7.69	7.66	9.03	8.15	8.72	9.98	11.57	12.60	13.55	13.17	12.92	13.70		

MONTHLY OBSERVATIONS: 718 MONTHLY MEAN: 11.48 MONTHLY MAX: 66.2

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

Dec. 9, 2024

(88101) PM2.5 - Local Conditions

CAS NUMBER:

SITE ID: 28-035-0004 POC: 23
COUNTY: (035) Forrest
CITY: (31020) Hattiesburg

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH

LATITUDE: 31.32389
LONGITUDE -89.2922
:UTM ZONE:

SITE ADDRESS: 205 Bay Street

URBANIZED AREA: (3285) HATTIESBURG, MS

UTM NORTHING:

SITE COMMENTS:
MONITOR COMMENTS:

LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

UTM EASTING:
ELEVATION-MSL: 0
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution

MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (736) Teledyne T640 at 5.0 LPM (Correcte

REPORT FOR: DECEMBER 2023

DURATION: 1 HOUR
UNITS: Micrograms/cubic meter (LC)

PQAO: (0703) Mississippi DEQ, Office Of Pollution

MIN DETECTABLE: .1

HOUR

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	9.6	9.3	7.9	6.1	5.4	5.2	4.5	2.8	2.0	2.5	2.8	3.9	5.4	5.8	7.6	8.5	9.4	10.6	10.2	8.8	6.7	6.2	6.0	6.2	24	10.6
2	5.8	4.3	3.0	2.8	2.9	2.6	2.6	2.6	2.8	3.3	1.6	1.1	1.3	1.5	2.2	2.8	2.9	2.6	3.1	3.9	5.0	6.7	7.5	5.9	24	7.5
3	5.8	6.2	5.3	3.3	3.7	3.4	4.4	4.8	5.1	6.0	7.2	7.4	7.5	7.7	7.9	6.4	6.2	7.6	9.4	10.1	12.5	11.5	9.8	8.9	24	12.5
4	9.2	9.8	13.1	11.9	11.9	11.9	11.9	11.2	10.0	8.7	BA	AZ	4.9	4.3	3.3	2.8	2.8	5.6	8.3	7.4	5.9	6.2	6.0	5.7	22	13.1
5	5.9	6.3	7.0	7.0	6.4	6.3	6.6	6.5	6.7	5.9	5.5	3.7	3.3	3.2	4.3	6.4	5.0	7.0	13.4	7.9	7.4	8.6	10.2	9.0	24	13.4
6	9.6	5.8	4.6	3.6	3.3	3.3	3.7	4.4	5.1	5.6	5.5	5.3	5.3	5.1	4.4	4.1	5.1	8.1	8.4	11.0	16.1	20.2	22.9	26.6	24	26.6
7	29.9	30.2	26.1	30.1	28.2	28.7	26.8	25.7	24.7	37.3	18.4	7.6	5.7	5.0	5.3	6.0	8.1	11.2	10.1	16.9	19.5	22.1	16.5	13.4	24	37.3
8	12.3	13.3	13.7	13.9	16.8	19.7	21.4	21.9	22.8	14.0	10.6	9.8	7.5	5.5	5.7	4.7	4.5	4.3	4.8	4.5	4.5	4.6	4.9	5.8	24	22.8
9	8.6	5.9	4.2	4.9	4.1	3.9	3.6	4.0	3.8	3.1	2.8	2.9	2.9	3.1	3.0	3.3	3.3	3.7	4.1	3.7	3.5	3.8	4.0	3.9	24	8.6
10	3.6	3.0	2.2	1.5	3.8	4.4	4.9	4.4	3.1	2.7	2.8	2.8	2.4	2.0	2.0	2.1	2.4	2.6	2.5	2.5	2.9	3.1	3.2	3.1	24	4.9
11	2.9	3.1	3.1	3.7	4.0	4.1	4.1	4.1	3.9	BL	AZ	2.5	2.4	2.4	2.4	2.5	2.5	3.6	14.2	15.5	11.3	12.0	14.2	11.0	22	15.5
12	11.9	12.4	8.1	9.4	8.2	9.2	10.2	8.8	7.4	5.5	3.8	2.9	2.6	2.3	2.4	2.9	3.4	4.6	6.7	8.6	15.8	27.1	14.4	13.7	24	27.1
13	14.3	17.4	15.7	10.2	9.4	9.2	9.9	11.1	8.5	6.3	5.4	4.1	3.6	3.5	3.4	4.1	5.4	8.8	7.0	9.5	10.1	17.3	17.6	18.4	24	18.4
14	16.9	16.3	18.6	18.7	15.1	12.6	13.7	13.1	11.4	7.5	5.4	4.1	3.7	3.6	3.4	4.1	4.7	9.4	11.6	10.3	10.2	9.5	9.6	11.4	24	18.7
15	7.5	6.7	6.2	5.8	5.8	5.6	5.8	6.2	5.7	5.5	5.8	5.6	5.4	5.5	6.1	5.2	5.3	5.3	5.9	7.8	8.4	9.0	7.8	7.7	24	9.0
16	7.6	7.8	7.8	7.6	7.4	7.2	7.5	7.6	6.7	6.3	5.7	5.7	6.4	9.5	6.3	6.0	5.9	5.9	7.8	10.9	9.4	12.9	7.5	8.0	24	12.9
17	8.3	8.4	9.3	7.1	6.8	6.3	6.7	5.0	3.5	3.0	3.0	3.3	3.6	3.0	2.6	2.8	3.0	5.5	4.7	6.2	5.5	3.8	3.3	3.4	24	9.3
18	3.8	4.0	4.1	4.9	5.4	5.0	5.1	16.6	6.7	5.6	5.7	4.6	3.5	3.2	3.3	2.6	2.8	4.3	3.8	3.2	3.0	3.5	3.0	3.5	24	16.6
19	3.6	3.7	4.0	4.1	4.7	4.6	4.9	5.7	4.9	2.9	2.5	2.6	3.4	3.6	3.2	3.7	4.5	6.0	9.8	16.7	14.6	15.2	24.3	24.0	24	24.3
20	22.6	28.6	25.6	22.9	15.8	15.7	12.0	13.5	11.0	8.2	7.9	8.2	7.7	7.4	6.9	7.2	9.9	11.2	11.5	14.2	13.2	15.2	16.9	20.2	24	28.6
21	19.2	21.0	20.2	24.4	26.4	24.5	23.8	26.0	23.1	20.1	15.2	AZ	8.0	6.9	6.7	6.5	7.1	10.8	14.2	16.4	17.0	17.0	20.3	17.5	23	26.4
22	17.1	16.7	16.9	17.6	18.2	18.5	17.4	17.9	16.8	13.6	12.6	9.4	8.3	6.8	5.5	5.3	6.1	9.3	10.8	11.3	11.1	17.6	15.2	17.7	24	18.5
23	19.1	12.7	11.8	13.2	17.5	23.9	31.3	27.4	16.2	9.9	6.4	5.7	5.4	5.3	4.8	5.1	5.1	5.3	9.2	20.0	11.0	14.1	18.9	14.7	24	31.3
24	11.8	12.3	12.0	9.4	5.8	5.0	4.9	5.1	5.5	5.9	5.7	5.0	4.1	4.1	4.5	4.3	3.7	3.4	3.3	3.2	3.2	3.0	2.1	2.0	24	12.3
25	2.3	2.3	2.5	3.3	2.4	2.4	2.3	2.8	2.8	2.8	2.8	3.1	3.5	4.2	4.3	4.0	5.7	5.3	6.5	8.4	6.4	5.5	5.7	5.4	24	8.4
26	5.7	5.0	4.1	4.1	4.3	4.6	4.8	5.1	4.8	4.4	4.6	4.8	4.9	4.9	4.6	4.2	3.8	5.6	10.9	13.6	18.6	21.3	16.0	16.6	24	21.3
27	17.6	14.4	27.2	12.4	10.8	10.7	11.4	13.9	12.2	8.8	6.2	5.5	4.7	4.1	4.0	4.0	4.5	5.5	7.2	6.9	9.3	10.8	6.7	6.8	24	27.2
28	6.2	5.2	5.2	4.6	4.6	4.6	4.6	4.8	4.6	4.1	3.4	3.2	2.9	2.9	3.1	2.8	2.8	6.7	3.3	2.8	3.1	3.3	3.7	3.7	24	6.7
29	3.8	3.8	4.1	4.8	5.0	5.4	5.4	5.9	6.7	7.5	6.9	6.3	5.0	4.1	3.7	3.5	3.7	5.0	8.3	10.5	8.1	7.7	7.9	8.4	24	10.5
30	9.9	10.0	9.5	9.1	9.9	12.6	11.7	14.6	9.7	7.6	6.2	6.0	5.0	4.7	4.3	4.9	7.0	6.5	26.9	51.8	56.0	40.6	22.5	27.0	24	56.0
31	29.4	25.7	30.6	32.6	34.5	27.5	23.2	24.4	17.4	15.0	10.6	5.1	4.7	4.3	3.7	3.9	4.7	8.1	15.2	35.2	41.2				21	41.2
NO.:	31	31	31	31	31	31	31	31	31	30	29	29	31	31	31	31	31	31	31	31	31	30	30	30		
MAX:	29.9	30.2	30.6	32.6	34.5	28.7	31.3	27.4	24.7	37.3	18.4	9.8	8.3	9.5	7.9	8.5	9.9	11.2	26.9	51.8	56.0	40.6	24.3	27.0		
AVG:	11.03	10.70	10.76	10.16	9.95	9.95	10.04	10.58	8.89	7.99	6.31	4.90	4.68	4.50	4.35	4.41	4.88	6.43	8.81	11.60	11.95	11.98	10.95	10.99		

MONTHLY OBSERVATIONS: 736 MONTHLY MEAN: 8.62 MONTHLY MAX: 56.0

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("*") indicates that the region has reviewed the value and does not concur with the qualifier.

OFFICE OF THE GOVERNOR
STATE OF MONTANA

GREG GIANFORTE
GOVERNOR

KRISTEN JURAS
LT. GOVERNOR

February 4, 2025

Mark Smith
Regional Administrator
United States Environmental Protection Agency
Region VIII, 8P-AR
1595 Wynkoop Street
Denver, Colorado 80202-1129

RE: Montana Initial Area Recommendations for the 2024 Revised Annual PM2.5 National Ambient Air Quality Standards

Dear Regional Administrator Smith:

The Environmental Protection Agency (EPA) promulgated revisions to the National Ambient Air Quality Standards (NAAQS) for particulate matter smaller than 2.5 microns (PM2.5) on February 7, 2024 (89 Fed. Reg. 16202). Pursuant to 42 U.S. Code § 7407, Congress requires that Governors submit a list of areas designated as "attainment", "nonattainment", or "unclassifiable" in relation to a new or revised NAAQS. This list of designated areas is due no later than one year following the promulgation of a new or revised standard, with the deadline being February 7, 2025.

Montana hereby designates all areas (counties) within the state as "attainment" or "unclassifiable", with the exception of the Libby Valley in Lincoln County. Enclosed are Montana's official area designations for the 2024 revised PM2.5 NAAQS. This submittal includes our Technical Support Document, which outlines Montana's rationale for these designations.

The proposed area designations were noticed for a 30-day public comment period, which ended on January 24, 2025. An opportunity for a public hearing was also provided. No comments were received from the public.

If you have any questions regarding this action, please contact the Department of Environmental Quality's Air Quality Planning and Analysis Section Supervisor, Jennifer Harris, by telephone at (406)444-9741 or by email at jennifer.harris@mt.gov.

STATE CAPITOL • P.O. BOX 200801 • HELENA, MONTANA 59620-0801
TELEPHONE: 406-444-3111 • FAX: 406-444-5529 • WEBSITE: WWW.MT.GOV

Sincerely,

Greg Gianforte
Governor

Air Quality | Montana Initial Area Recommendations for the 2024 Revised Annual PM2.5 Standards| Public Comment Period Ends January 24, 2025

DECEMBER 26 2024

The Montana Department of Environmental Quality (DEQ) is inviting public comment on the Montana Initial Area Recommendations for the 2024 Revised Annual PM2.5 National Ambient Air Quality Standards - Technical Support Document.

DEQ will accept public comment for 30 days beginning on Thursday, December 26, 2024, through Friday, January 24, 2025. All comments received will be included when the report is submitted for final review and submission to the EPA.

Associated Materials:

- 2024 PM 2.5 Area Designation Recommendation - Technical Support Document

Comment Period Ends:

- January 24, 2025 11:59pm

Send Comments To:

- Cory Mitchell

OR

- DEQ Air Quality Bureau

  PO Box 200901

  Helena MT 59620-0901

Tags: Public Comment and Air

From: Montana DEQ <montanadeq@announcements.mt.gov>

Subject: Montana Initial Area Recommendations for the 2024 Revised Annual PM2.5 Standard - Technical Support Document

The Montana Department of Environmental Quality (DEQ) is inviting public comment on the Montana Initial Area Recommendations for the 2024 Revised Annual $PM_{2.5}$ National Ambient Air Quality Standards - Technical Support Document.

DEQ will accept public comment for 30 days beginning on Thursday, December 26, 2024, through Friday, January 24, 2025. All comments received will be included when the report is submitted for final review and submission to the EPA.

Interested persons may view the proposed area recommendation technical support document on the DEQ's website at: http://deq.mt.gov/Public/publiccomment or may call the DEQ at to have copies made available for their inspection.

Interested parties may submit their comments concerning the proposal described above in writing to the DEQ by:

- addressing them to the Air Quality Bureau, MT DEQ, P.O. Box 200901, Helena, Montana 59620-0901;or
- sending them via e-mail to: cory.mitchell2@mt.gov.

deq.mt.gov

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Montana Initial Area Designations

Technical Support Document

2024 Revised Annual $PM_{2.5}$ National Ambient Air Quality Standards

December 26, 2024

DEQ
MONTANA

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Table of Contents

I. Executive Summary

On February 7, 2024, the United States (U.S.) Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard (NAAQS) for particulate matter smaller than 2.5 microns ($PM_{2.5}$), revising the annual primary (health-based) standard from 12.0 micrograms per cubic meter ($\mu g/m^3$) to 9.0 $\mu g/m^3$, expressed as the 3-year average of the annual mean concentrations. The primary 24-hour $PM_{2.5}$ NAAQS has been retained, therefore Montana's initial statewide designations address only the revised primary annual $PM_{2.5}$ NAAQS. The revision was published in the Federal Register (Fed. Reg.) at 89 Fed. Reg. 16202 (March 6, 2024).

According to 42 U.S. Code §7407, *et seq*., Montana must submit to EPA an initial list of geographic areas that attain the standard, do not attain the standard, or are otherwise unclassifiable based on available information. Montana hereby designates all areas (Counties) within the state as "attainment" or "unclassifiable", aside from the Libby Valley that resides within Lincoln County, for the 2024 revised primary annual $PM_{2.5}$ NAAQS. The evaluation provided herein substantiates Montana's area designations.

Designations for Counties

Based on available information, Montana (MT) Department of Environmental Quality (DEQ) determined that an initial designation of "attainment" is appropriate for nine Montana counties with active $PM_{2.5}$ State or Local Air Monitoring Stations (SLAMS) and Special Purpose Monitors (SPMs) for the design value period of 2021 through 2023. Available monitoring data collected at qualifying SLAMS and SPMs supports a conclusion that ambient concentrations of $PM_{2.5}$ in these counties attain the 2024 revised annual $PM_{2.5}$ NAAQS. Counties designated as "attainment" include: Flathead, Lewis and Clark, Missoula, Ravalli, Richland, Silver Bow, Fergus, Powder River, and Yellowstone.

The only area to be designated "nonattainment" is the township of Libby, located in Lincoln County. Libby experiences elevated background concentrations of $PM_{2.5}$ that can be attributed to multiple factors, including residential woodstove smoke, and the unique geography, topography, and meteorology of the area that contributes to strong valley temperature inversions. MT DEQ's five-factor analysis demonstrates the primary impact zone for $PM_{2.5}$ is limited to the tight mountain valley surrounding Libby, and that previous/historical nonattainment area boundaries are still valid.

The remaining forty-six counties in Montana should be designated as "unclassifiable" or "attainment" due to a lack of appropriate and/or adequate monitoring data to determine NAAQS compliance.

II. Introduction

Attainment

Counties designated in attainment are based on monitoring data collected at regulatory air monitors with complete datasets between 2021 through 2023. This data supports findings that ambient concentrations of $PM_{2.5}$ in nine counties (Figure 1 and Table 1) attain the 2024 revised annual $PM_{2.5}$ NAAQS. After regulatorily significant exceptional events are removed, Frenchtown is also in attainment. Data, once finalized and certified, collected during the calendar year 2024 also supports Frenchtown's attainment designation.

Figure 1 - Design Values for Regulatory $PM_{2.5}$ Monitors in Attainment

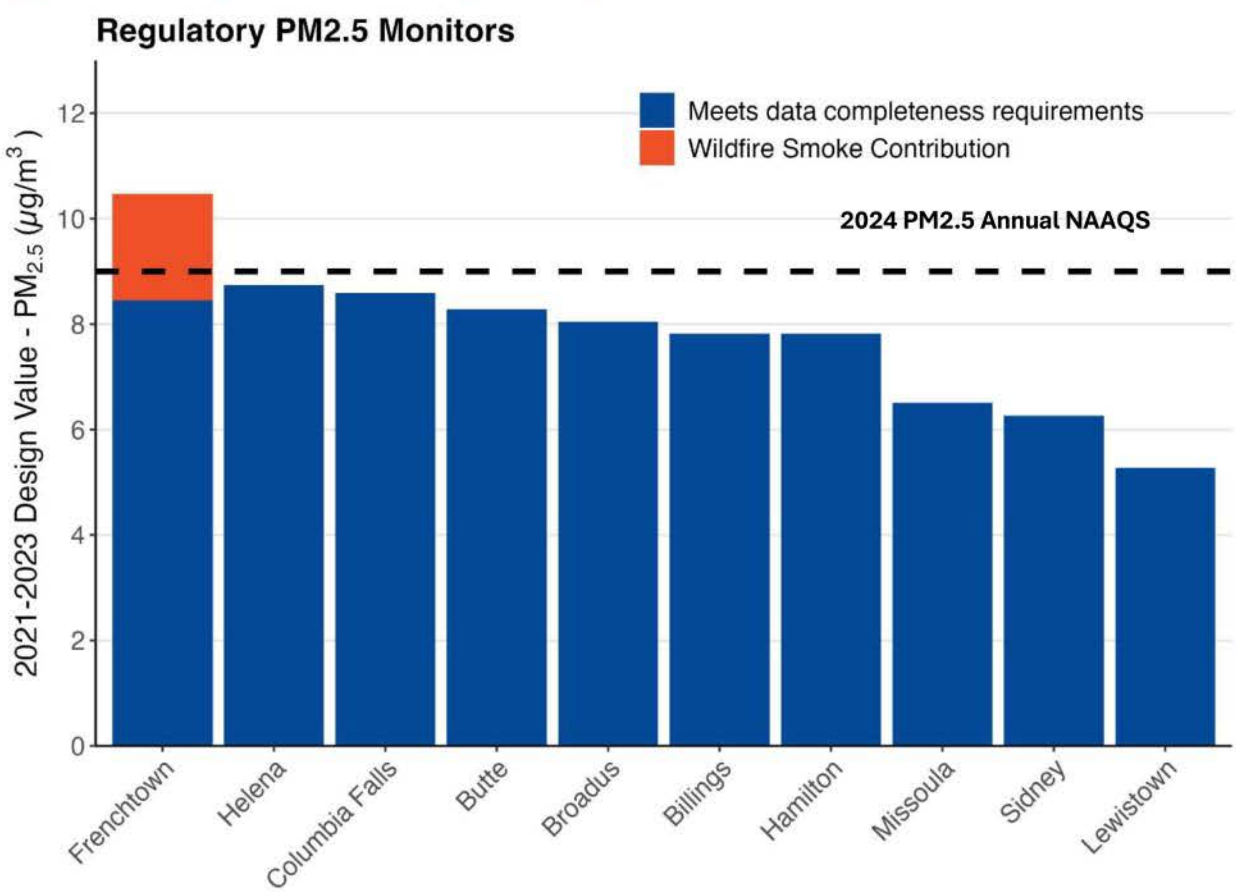


Table 1 -Regulatory Monitors with Data Completeness 2021-2023

County	Location	Site	Design Value
Missoula County	Frenchtown	30-063-0037	10.5 (8.4)[1]
	Missoula	30-063-0024	6.5
Lewis & Clark County	Helena (Rossiter)	30-049-0026	8.7
Flathead County	Columbia Falls (Flathead Valley)	30-029-0049	8.6
Silver Bow County	Butte	30-093-0005	8.3
Powder River Co	Broadus	30-093-0005	8.3
Yellowstone County	Billings	30-111-0066	7.8
Ravalli County	Hamilton	30-081-0007	7.8
Richland County	Sidney	30-083-002	6.2
Fergus County	Lewistown	30-027-0006	5.4

Nonattainment

The only area in the state to qualify for a designation of nonattainment is the town of Libby, within Lincoln County. Historically, Libby has struggled to meet PM NAAQS standards largely because of the intense wintertime temperature inversions the valley experiences, and the pervasive use of woodstoves for residential heating. The town of Libby is considered an environmental justice (EJ) disadvantaged community that meets more than one burden threshold and the associated socioeconomic threshold according to EPA's Climate and Economic Justice Screening Tool (CEJST).

A five-factor analysis performed by MT DEQ (detailed below), demonstrates the previous/historical $PM_{2.5}$ nonattainment area boundary remains valid, and MT DEQ provides evidence to support its continued use.

Unclassifiable

The remaining forty-six counties either have no monitor, a non-regulatory monitor, or a regulatory monitor with an incomplete data set for the 2021-2023 design value period, which means they do not meet regulatory requirements of 40 Code of Federal Regulations (CFR) part 58 for formal designations of attainment. All regulatory monitors with incomplete data sets in the "unclassifiable section" support values under the new $PM_{2.5}$ NAAQS. MT DEQ recommends these remaining counties be designated "unclassifiable".

[1] The Frenchtown design value is 8.4 with the exclusion of wildfire regulatorily significant exceptional events that were submitted in a formal demonstration to EPA.

III. Monitoring Data Analysis

MT DEQ currently operates sixteen SLAMS and eight SPMs for $PM_{2.5}$. Figure 2 shows the location of regulatory $PM_{2.5}$ monitors in the state that were active during the design value period 2021-2023. Non-regulatory monitors (e.g., sensors) and new regulatory monitors added after calendar year 2023, are not represented below. SLAMS are configured for, and operate, following Federal Reference or Federal Equivalent Methods (FRM and FEM, respectively), therefore providing certifiable data suitable for NAAQS compliance comparisons. A portion of the State's SPMs also can be used to support area designations, per 40 CFR 58.20(c) which states, "All data from an SPM using an FRM or FEM which has operated for more than 24 months are eligible for comparison to the relevant NAAQS…". However, some SPMs in the state are not configured for FRM or FEM methods and therefore produce non-regulatory data unsuitable for NAAQS compliance comparisons and designations.

Figure 2 - Regulatory $PM_{2.5}$ Monitors Active During the Design Value Period

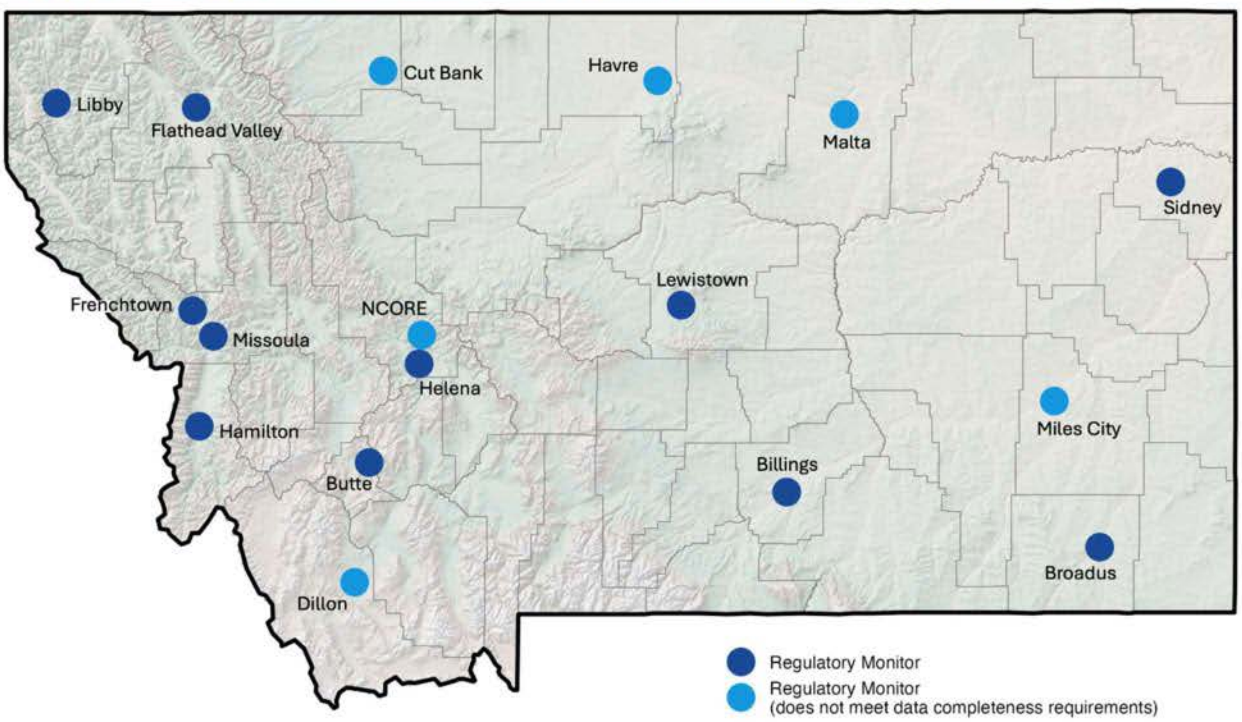


Figure 3 (below) shows data obtained from all sites that produced complete or incomplete data eligible for NAAQS comparison between 2021 and 2023. Data shown in Figure 3 demonstrates most monitoring sites are in compliance with the 2024 revised annual $PM_{2.5}$ NAAQS, excluding Frenchtown and Libby. As discussed previously, several of Montana's SLAMS did not meet data completeness requirements for the design value period of 2021-2023 (lighter blue in Figures 2 and 3). Due to a lack of data completeness, these SLAMS cannot be used to designate the areas as attainment; however, they do support a designation of unclassifiable.

Figure 3 - $PM_{2.5}$ Design Values for Regulatory Monitors 2021-2023

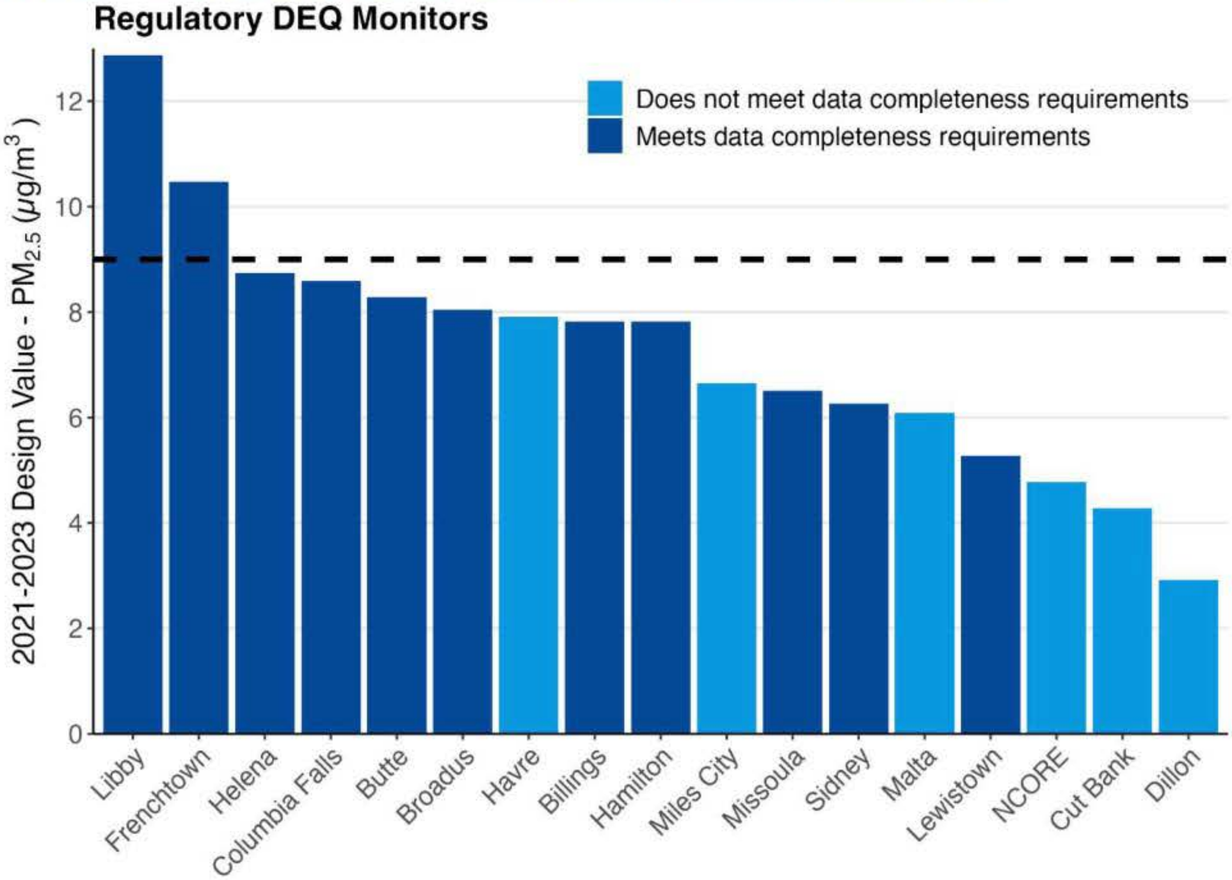
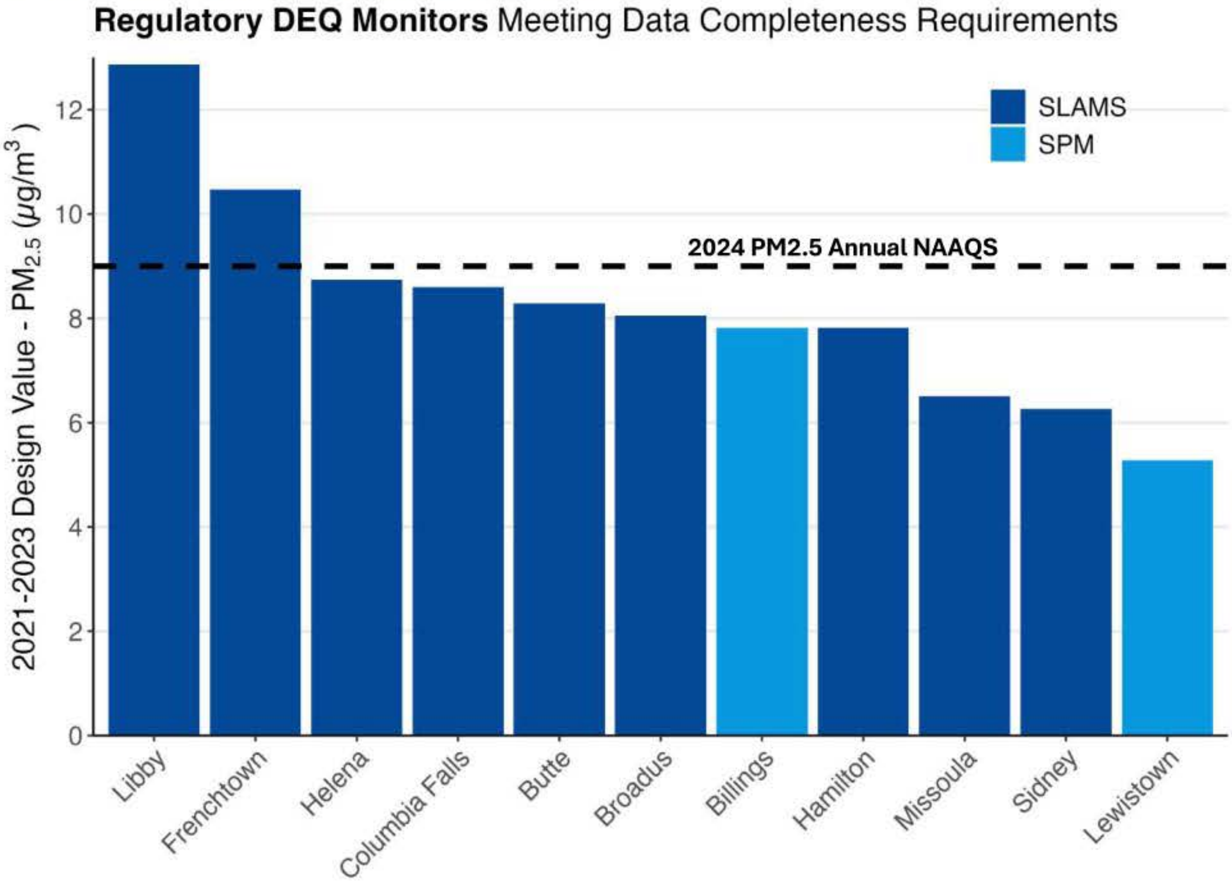


Figure 4 (below) shows only data from SLAMS (dark blue) and SPMs (lighter blue) that meet data completeness requirements during the 2021-2023 design value period. The data shown in Figure 4 demonstrates nine sites in compliance with the 2024 revised annual $PM_{2.5}$ NAAQS, except Frenchtown, before exceptional events are considered, and Libby.

Figure 4 - $PM_{2.5}$ Design Values for Regulatory Monitors Meeting Data Completeness Requirements 2021-2023



Montana is regularly impacted by smoke from wildfires both within and outside of the state. When ambient air monitoring data is impacted by wildfires, MT DEQ flags this data as impacted by an "exceptional event". Any hourly measured concentration believed to be impacted by wildfire smoke receives an informational qualifier (known colloquially as an "I flag"). If, upon further analysis, I-flagged values are determined to contribute in a regulatorily significant manner to a NAAQS violation, the I flags are switched to "R flags". R flags indicate data "requested for exclusion". Days with regulatorily significant impacts from exceptional events, such as wildfire smoke, may be excluded from design value calculations for compliance determination if the event is "not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, and is determined by the EPA in accordance with 40 CFR 50.14 to be an exceptional event." The figures and design value calculations presented here either include or exclude data that have been flagged (either I or R flags), as impacted by exceptional events. Whether or not the flagged data is included or excluded is indicated for each individual plot or type of analysis herein.

MT DEQ's Exceptional Events Demonstration for Exceedances of the Annual $PM_{2.5}$ NAAQS in

Montana Due to Wildfire Smoke 2021-2023, shows that regulatory ambient air quality monitors in Libby and Frenchtown were impacted by smoke from wildfires on many days from 2021-2023, causing both sites to exceed the 2024 annual $PM_{2.5}$ standard of 9.0 µg/m^3. Contributing to these NAAQS exceedances were local, regional, and international wildfires detailed in the demonstration document for those years. The 2021-2023 exceptional events demonstration for both Libby and Frenchtown requests exclusion of only the regulatorily significant wildfire smoke-affected days at each site. While many regulatorily significant days were submitted, 102 days for Libby and 116 days for Frenchtown, there are still more days across the three-year design value period that were affected by wildfire smoke, as reflected in MT DEQ's certified Air Quality System (AQS) dataset with I flags.

Figure 5 represents the complete compliance-level $PM_{2.5}$ ambient monitoring dataset for the design value period of 2021-2023 with wildfire contributions indicated (R- and I-flagged days in pink). If wildfire impacts are accounted for, all SLAMS and SPMs meeting data completeness requirements for the 2021-2023 design value period demonstrate compliance with the 2024 revised annual PM2.5 NAAQS of 9.0 µg/m^3, aside from Libby.

Figure 5 – Wildfire Smoke Contribution to $PM_{2.5}$ Design Values 2021-2023