State of Mississippi
TATE REEVES
Governor
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHRIS WELLS, EXECUTIVE DIRECTOR

Public Notice

Exceptional Events Demonstration for PM2.5 Exceedances in Hinds County, Mississippi (2023–2025)

The Mississippi Department of Environmental Quality (MDEQ) is providing notice and opportunity for public comment on an exceptional events demonstration for the Hinds Community College PM2.5 monitoring site (AQS ID: 28-049-0021) in Jackson, Hinds County, for calendar years 2023, 2024, and 2025.

Purpose of This Document

MDEQ is requesting that the U.S. Environmental Protection Agency (EPA) exclude certain PM2.5 air quality monitoring data from regulatory decisions due to exceptional events. These events included smoke impacts from prescribed fires, wildfires in Mexico and Central America, Canadian wildfires, and a Saharan (African) dust intrusion that affected air quality in Hinds County during 2023 and 2024.

Overview of Exceptional Events

The demonstration covers 8 distinct event periods, comprising 20 individual days for which exclusion is requested. All 20 days fall in 2023 and 2024; no days in 2025 are included, although 2025 is part of the design-value period:

2023 Events (4 total, 12 days):

- One prescribed fire event (February 28)
- One combined Mexico/Central America wildfire and prescribed fire event (March 6–9)
- Two Canadian wildfire events (May 21–26 and October 3–5)

2024 Events (4 total, 8 days):

- Two prescribed fire events (February 2–3 and February 20–21)
- One Mexico/Central America wildfire event (May 9)
- One Saharan dust event (July 31 – August 2)

Regulatory Significance

This request is significant because:

- It affects the area's attainment status under the 2024 revised annual PM2.5 National Ambient Air Quality Standards (NAAQS)
- It impacts the area's 2023–2025 design value calculation
- Current monitoring data shows:
    - 2023–2025 Design Value: 9.3 µg/m³
    - Design Value with Requested Exclusions: 9.0 µg/m³
    - 2024 Annual PM2.5 NAAQS: 9.0 µg/m³

Supporting Evidence

The demonstration includes comprehensive technical evidence for each event, including:

- Satellite imagery showing smoke and dust plumes
- HYSPLIT trajectory analyses demonstrating transport
- Surface meteorological data
- Upper air analyses
- Historical concentration comparisons
- AirNow-Tech Navigator imagery
- GOES satellite imagery (True Color and GeoColor)
- NOAA Hazard Mapping System fire detections and smoke polygon analyses
- Mississippi Forestry Commission prescribed-fire permit records
- Co-located coarse-particle (PM10) and speciation data for the dust event
- AQS exceptional-event flag documentation and monitor quality-assurance records

Public Comment Period

MDEQ is providing a 30-day public comment period on this exceptional events demonstration. The comment period opens August 24, 2026 and closes September 23, 2026.

How to Comment:

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

- Submit written comments to Rodney Cuevas, RCuevas@mdeq.ms.gov
- Comments must be received by September 23, 2026
- The complete demonstration document is available for review on MDEQ's website
- For questions or additional information, contact Rodney Cuevas, MDEQ Air Division, RCuevas@mdeq.ms.gov

Next Steps

After the public comment period:

1. MDEQ will review and address all comments received
2. The demonstration and public comments will be submitted to EPA Region 4
3. EPA will review the demonstration and make a final concurrence decision

This notice is being provided in accordance with the EPA's Exceptional Events Rule (40 CFR 50.14).

Hinds County, Mississippi PM2.5 Exceptional Event Demonstration

Years: 2023, 2024, 2025

Concurrence Request

Submitted to: EPA, Region 4, Prepared by: Rodney Cuevas, Mississippi Department of Environmental Quality - Date: August 2026

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Concurrence Request

The Mississippi Department of Environmental Quality (MDEQ) requests the U.S. Environmental Protection Agency's (EPA) concurrence on excluding PM2.5 concentration data influenced by multiple exceptional events. These events affected the Hinds Community College monitoring site (AQS ID: 28-049-0021) in Hinds County, Mississippi (Jackson Metropolitan Area), during calendar years 2023 and 2024, within the 2023–2025 design-value period. The exclusion of this data is sought in support of Mississippi's designation and attainment determinations for the revised primary annual PM2.5 National Ambient Air Quality Standard (NAAQS).

Episodic prescribed fires, wildfires, Saharan dust, and Canadian wildfire smoke during these years caused the Hinds CC monitor to measure a design value that MDEQ believes is not representative of typical air quality conditions in the area.

Key Information

- **Affected Monitoring Site:** Hinds Community College, Hinds County (Jackson Metro Area)
- **AQS ID:** 28-049-0021
- **Applicable NAAQS:** Revised Primary Annual PM2.5 NAAQS (9.0 µg/m³)
- **Design Value Period for this Submission:** 2023 – 2025
- **Design Value (2023–2025) without EE Concurrence:** 9.3 µg/m³
- **Anticipated Design Value (2023–2025) with EE Concurrence: 9.0 µg/m³ (computation in Appendix D)**

Exceptional Events Summary

The following is a summary of the exceptional events and the corresponding measured 24-hour PM2.5 concentrations at the Hinds CC site (AQS ID: 28-049-0021) that are included in this demonstration:

Table A. *Summary of PM2.5 concentrations from exceptional events included in this demonstration.*

Event Type	Year	Date(s)	24-hr PM2.5 (µg/m³)
Prescribed Fire	2023	February 28, 2023	36.4
Mexico/Central America Wildfire/Prescribed Fire	2023	March 6, 7, 8 and 9, 2023	28.3, 28.2, 27.7, 25.2
Canadian Wildfire	2023	May 21, 22, 25 and 26, 2023	27.5, 31.9, 19.5, 23.2
Canadian Wildfire	2023	October 3, 4 and 5, 2023	19.8, 25.8, 24.1
Prescribed Fire	2024	February 2 and 3, 2024	23.5, 23.9
Prescribed Fire	2024	February 20 and 21, 2024	21.2, 27.4
Mexico/Central America Wildfire	2024	May 9, 2024	24.4
Saharan Dust	2024	July 31, August 1 and 2, 2024	20.0, 30.5, 21.7

Supporting Documentation

- Satellite imagery showing smoke plumes
- HYSPLIT trajectory analyses demonstrating transport
- Surface meteorological data
- Upper air analyses

- Historical concentration comparisons
- AirNow-Tech Navigator imagery
- GOES satellite imagery (True Color and GeoColor)
- Fire inventory and HMS fire detection data
- NOAA HMS smoke polygon analyses (smoke density over the monitor); AQS exceptional-event flag documentation (Appendix A); hourly PM2.5 records for every event day (Appendix B); and Mississippi Forestry Commission prescribed-fire permit records (Appendix F)

Event Characteristics

- 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
- Documented fire locations and smoke transport patterns
- Synoptic weather patterns favorable for pollutant transport and stagnation

Impact Analysis

These exceptional events contributed to elevated annual PM2.5 concentrations at the Hinds CC monitor. The events span long-range-transported Canadian wildfire smoke, Mexican/Central American wildfire smoke, regional and local prescribed burning, and a Saharan (African) mineral-dust intrusion. Excluding these documented exceptional events would lower the 2023–2025 design value from 9.3 µg/m³ to 9.0 µg/m³, bringing the Jackson/Hinds County area into compliance with the 2024 annual PM2.5 NAAQS of 9.0 µg/m³.

EPA Exceptional Events 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

Prescribed Fire Events

The prescribed fires in question were conducted in accordance with *Mississippi's Voluntary Smoke Management Guidelines (VSMG)* 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:

- 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 (MFC) permits, which require adherence to daily guides consisting of mixing height and transport wind speed parameters to ensure adequate smoke dispersion.

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

Adherence to Mississippi's Smoke Management Guidelines and BSMPs

To demonstrate that the prescribed fires were conducted using appropriate Basic Smoke Management Practices (BSMPs), this section documents adherence to Mississippi's Voluntary Smoke Management Guidelines (VSMG). A key component of these guidelines is the pre-burn evaluation of meteorological conditions to ensure adequate smoke dispersion. The Mississippi Forestry Commission (MFC) provides daily guidance based on mixing height and transport wind speed, which determines burn-permit eligibility. The analysis below uses the National Weather Service Jackson (KJAN) Fire Weather Planning Forecast for Hinds County on each prescribed-fire event day, from which a ventilation index (mixing height (m) × transport wind speed (m/s)) is computed and compared against the MFC permit-eligibility thresholds.

Table C. Hinds County fire-weather conditions and MFC burn-permit eligibility on each prescribed-fire event day (NWS Jackson Fire Weather Planning Forecast).

Date	PM2.5 (µg/m³)	Mixing Height (m)	Transport Wind (m/s)	Vent Index	MFC Permit Status
February 28, 2023	36.4	1,240	5 SW	6,391	**Eligible; approved by MFC****
February 2, 2024	23.5	1,294	2 S	2,668	**Approved by MFC***
February 3, 2024	23.9	852	8 SE	7,026	**Eligible**
February 20, 2024	21.2	1,539	4 W	5,553	**Eligible**
February 21, 2024	27.4	1,301	8 S	10,729	**Eligible**

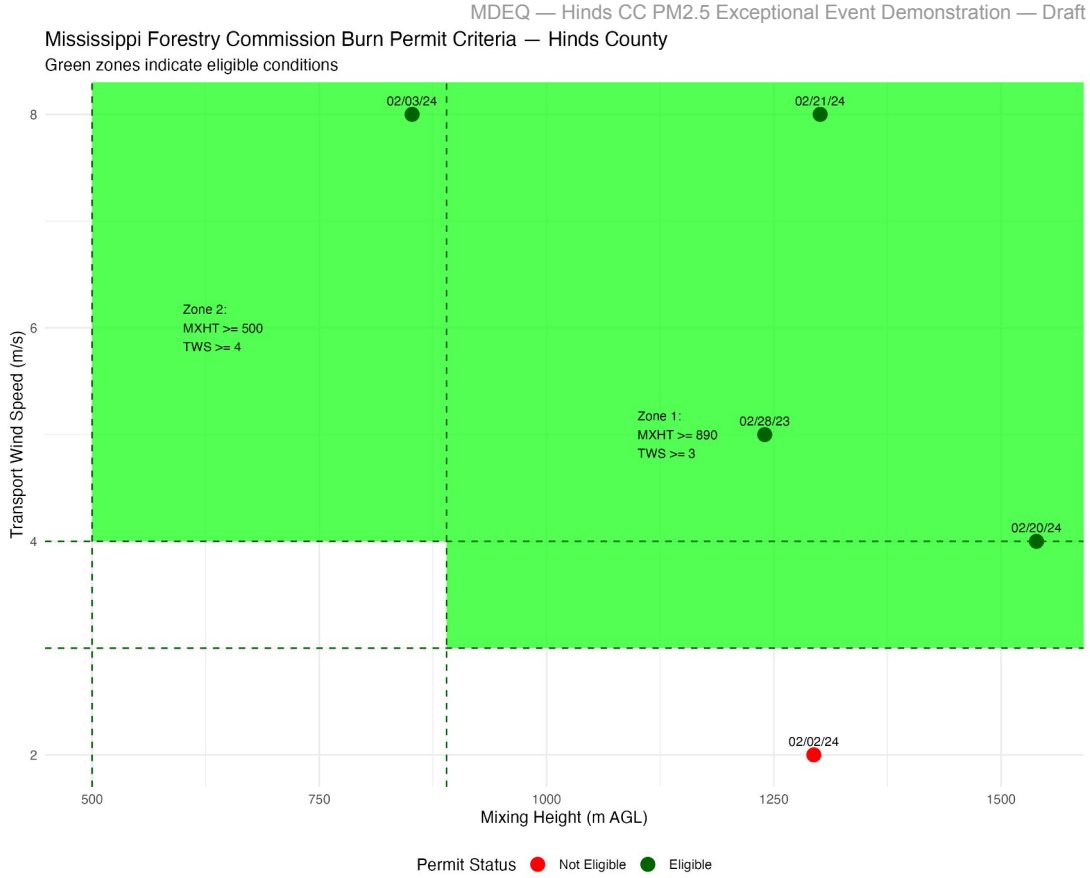


Figure 1. MFC burn-permit criteria for Hinds County. Green zones indicate eligible dispersion conditions (Zone 1: mixing height ≥ 890 m and transport wind ≥ 3 m/s; Zone 2: mixing height ≥ 500 m and transport wind ≥ 4 m/s).

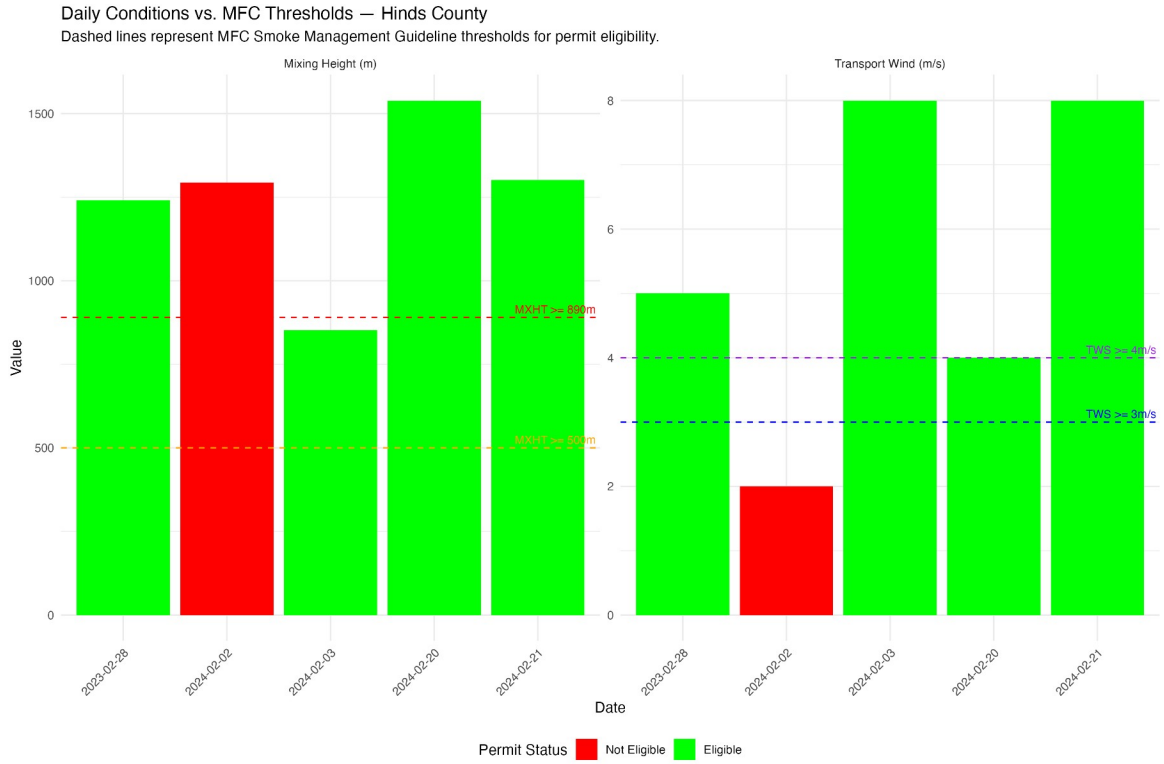


Figure 2. Daily mixing height and transport wind speed for Hinds County versus the MFC smoke-management thresholds (dashed lines). *February 2, 2024 was approved by MFC (21 of 21 statewide burns approved; 6 within 100 km, incl. Hinds County); observed winds met the dispersion threshold by early afternoon. **February 28, 2023 was likewise approved by MFC (126 of 126 statewide burns approved, zero denials; 31 within 100 km of the monitor), per the Commission's 2023 permit record. February 20, 2024, met the

dispersion screen outright (mixing height 1,539 m; transport wind 4 m/s from the west; ventilation index 5,553), and MFC approved all 122 burns requested statewide that day (17,807 acres; 25 within 100 km of the monitor).

All five prescribed-fire event days were conducted under valid Mississippi Forestry Commission (MFC) burn permits, and each fell within or, on February 2, 2024, reached by midday, the MFC dispersion window, indicating that burners followed BSMPs by evaluating smoke-dispersion conditions prior to ignition, consistent with Mississippi's VSMG. Four of the five days (February 28, 2023; February 3, 2024; February 20, 2024; and February 21, 2024) met the forecast dispersion thresholds outright, while February 2, 2024, was a State-permitted burn day on which morning stagnation cleared to favorable midday dispersion (see below). This adherence supports the finding that the resulting PM2.5 concentrations occurred despite compliance with the state's established smoke-management framework, fulfilling the "not reasonably controllable" criterion. The Mississippi Forestry Commission's 2023 and 2024 permit records confirm this directly: on every one of the five days MFC approved each burn requested statewide and denied none,126 burns (16,641 acres) on February 28, 2023; 21 (2,123 acres) on February 2, 2024; 30 (3,428 acres) on February 3, 2024; 122 (17,807 acres) on February 20, 2024; and 139 (16,757 acres) on February 21, 2024. The permit-level records underlying these counts. The statewide approved and denied totals for each day, and every approved burn within 150 km of the monitor with its county, acreage, ignition time, distance and bearing are reproduced in Appendix F (Tables F-1 and F-2).

February 2, 2024. On this day the Mississippi Forestry Commission (MFC), the State prescribed-fire permitting authority approved every burn requested statewide (21 of 21; zero denials), including one in Hinds County and six approved burns totaling roughly 1,488 acres within 100 km of the Hinds CC monitor. The contributing burns were therefore conducted in full compliance with the State's smoke-management program. The Fire Weather Planning Forecast transport-wind value of 2 m/s was a conservative morning planning figure; mixing height (1,294 m) was well above the MFC threshold, so dispersion was limited only by early-day wind. Observed winds at Jackson (KJAN) confirm the morning stagnation cleared by midday, strengthening from calm to 3.1–3.6 m/s out of the south between roughly 1:00 and 3:00 p.m., meeting the MFC dispersion threshold. Consistent with Basic Smoke Management Practices, the two burns nearest the monitor were ignited late-morning (10:23 a.m. and 11:32 a.m.) as the inversion broke and dispersion improved. Accordingly, February 2, 2024, is documented as a permitted, BSMP-compliant prescribed fire day.

February 28, 2023. On this day the Mississippi Forestry Commission approved every burn requested statewide 126 burns totaling 16,641 acres, with zero denials, of which 31 burns (1,991 acres) were within 100 km of the Hinds CC monitor and 7 burns (805 acres) within 50 km. The nearest was a 45-acre burn in Hinds County 30 km south of the monitor, ignited at 5:25 p.m. CST, followed by a 300-acre Hinds County burn 44 km to the southwest ignited at 6:54 p.m. CST. With the Fire Weather Planning Forecast transport wind out of the southwest at 5 m/s, these burns lay directly upwind of the monitor, and their late-afternoon and evening ignitions released smoke into a rapidly stabilizing nocturnal boundary layer. The day met the MFC dispersion screen outright (mixing height 1,240 m; ventilation index 6,391), so the contributing burns were both State-permitted and conducted within the smoke-management window prescribed by Mississippi's Voluntary Smoke Management Guidelines.

Prescribed-Fire Component of the March 6–9, 2023 Event

The March 6–9, 2023 event is a hybrid episode in which long-range-transported Mexico/Central America wildfire smoke combined with regional prescribed burning. The four days are flagged in AQS under the RG (Fire — Mexico/Central America) qualifier, which reflects the dominant source; the concurrent prescribed-fire contribution is documented here as a contributing component of the same episode rather than as a separate qualifier. March is the peak of Mississippi's prescribed-burning season, 1,130 permits were issued statewide that month, more than any other month of 2023, so the prescribed-fire component is evaluated here against the same MFC permit and ventilation criteria applied to the February events.

As with every other event day in this demonstration, the Mississippi Forestry Commission approved every burn requested statewide on each of the four days and denied none: 87 burns (13,334 acres) on March 6, 79 (10,878 acres) on March 7, 46 (3,193 acres) on March 8, and 22 (3,842 acres) on March 9; the individual permit records for all four days are listed in Appendix F, Table F-2. Near-field burning, however, varied sharply. March 6 and March 9 carried a genuine local contribution, 19 approved burns (2,772 acres) and 9 approved burns (3,124 acres) respectively within 100 km of the monitor. March 7 and March 8 did not: only 3 burns totaling 61 acres were approved within 100 km on March 7, and 14 burns (857 acres) on March 8.

March 7 is the most diagnostic day of the four. It was the only day in the episode that failed the MFC dispersion screen, a ventilation index of 3,658, reflecting a transport wind of just 2 m/s from the northwest, and it was also the day on which near-monitor burning effectively ceased (61 permitted acres within 100 km). Yet the Hinds CC monitor still recorded 28.2 µg/m³, essentially identical to March 6. With no meaningful local smoke source and stagnant local flow, the March 7 exceedance cannot be attributed to Mississippi prescribed fire; it is the signature of the transported Mexico/Central America smoke plume documented earlier in this section. The prescribed-fire contribution on March 6 and March 9 was, in turn, conducted entirely under State permits on days that met the MFC dispersion criteria (ventilation indices of 9,769 and 9,631), satisfying the same not-reasonably-controllable showing made for the February events.

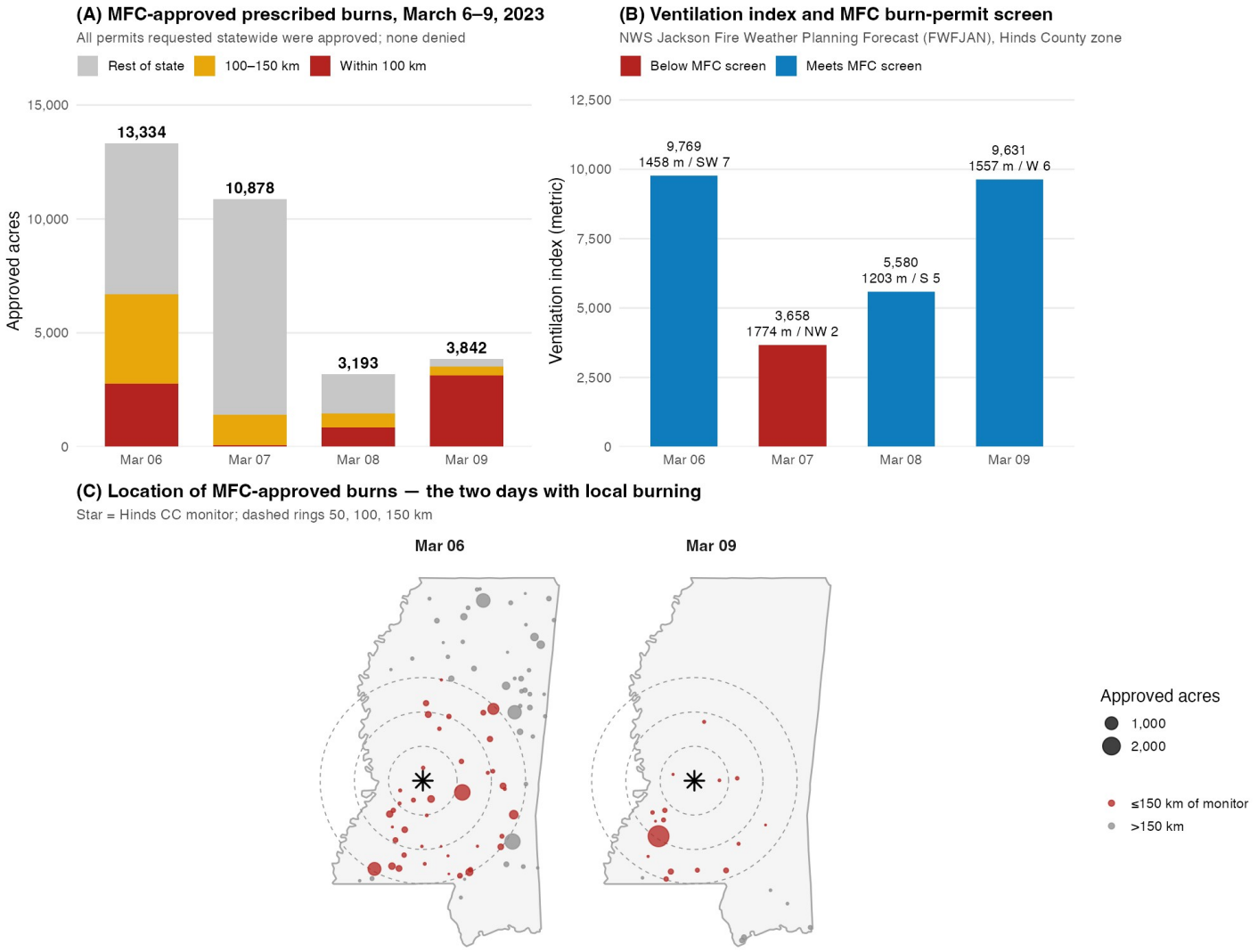


Figure 3. March 6–9, 2023 prescribed-fire component at the Hinds CC monitor. (A) MFC-approved burn acreage by day, split by distance from the monitor; every burn requested statewide was approved and none were denied. (B) Ventilation index for the Hinds

County zone from the NWS Jackson Fire Weather Planning Forecast, against the MFC burn-permit dispersion screen (mixing height ≥ 890 m with transport wind ≥ 3 m/s, or ≥ 500 m with ≥ 4 m/s); March 7 is the only day of the episode that fails the screen. (C) Location and permitted acreage of approved burns on March 6 and March 9, the two days with a material near-field prescribed-fire contribution; the star marks the monitor and the dashed rings are 50, 100 and 150 km.

Wildfire and Canadian Wildfire Events

The wildfire and Canadian wildfire events were natural events that could not be reasonably controlled or prevented through any air-quality-management strategy available to MDEQ. The smoke originated from wildfires outside Mississippi's jurisdiction (including long-range transport from Canadian wildfires) and impacted the Hinds CC monitor through documented synoptic transport.

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 events or human activities unlikely to recur at a particular location. The PM2.5 exceedances at the Hinds CC monitor were caused by natural events and human activities that meet the criteria for exceptional events.

Natural Fire Regime and Historical Evidence

Historical fire-frequency data supports the natural occurrence of fire in the central Mississippi region. According to Guyette et al. (2012), the natural mean fire return interval (MFI) for this region historically ranged on the order of 4–6 years, as demonstrated in continental U.S. fire-frequency mapping based on the Physical Chemistry Fire Frequency Model (PC2FM).

To corroborate the natural fire regime, MDEQ analyzed the contemporary fire record for the area within 50 kilometers of the Hinds CC monitor using the integrated Mississippi fire dataset (2,705 fire records, 1984–2024) on a 2-kilometer analysis grid. The observed mean fire return interval is 2.21 years, with approximately 96 percent of the burned landscape reburning on intervals of 8 years or less. This frequent-fire signature is consistent with, and slightly more frequent than the natural mean fire interval of roughly 4–8 years predicted for central Mississippi by the Guyette et al. (2012) Physical Chemistry Fire Frequency Model. The same analysis applied to MDEQ's other exceptional-events monitors yields nearly identical results (DeSoto/Hernando 2.31 years; Hattiesburg 2.02 years), confirming that central and southern Mississippi function as a single, fire-adapted, frequently burned landscape. The contemporary interval is shorter than the modeled natural interval because modern prescribed-fire management is intentionally concentrated on managed stands; the agreement in ecological classification, a frequent-fire regime with single-digit-year return intervals supports classification of these fire-driven PM2.5 events under the natural-events and historical return-interval criterion.

Monitor / Site	Observed mean FRI (yr)	Median FRI (yr)	% area burning ≤8 yr	Guyette natural MFI (yr)
Hinds CC (28-049-0021)	2.21	1.48	95.9%	4–8
DeSoto / Hernando (28-033-0002)	2.31	1.51	95.1%	4–8
Hattiesburg (28-035-0004)	2.02	1.41	97.4%	4–8

Table D. Observed contemporary fire return interval (FRI)*within 50 km of each MDEQ exceptional-events monitor, compared with the Guyette et al. (2012) modeled natural mean fire interval. Source: integrated MS fire dataset (permit/FireLoc + MTBS), 1984–2024, 2 km grid.*

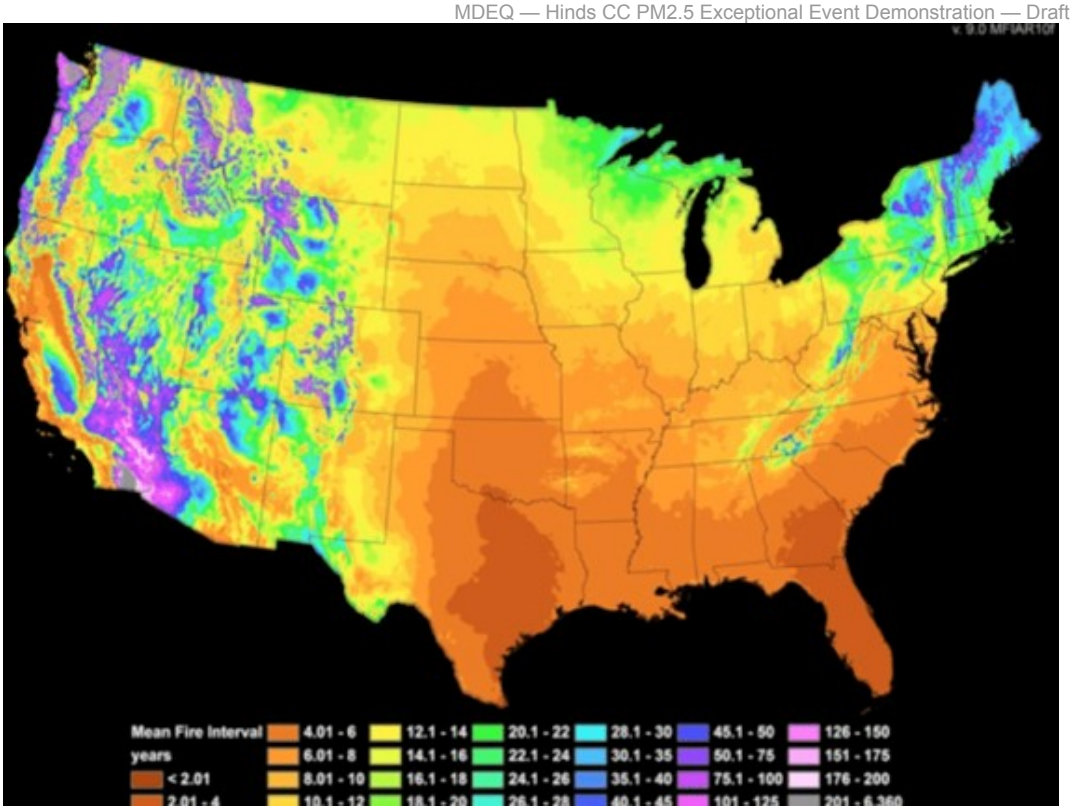


Figure 4. *Predicted natural mean fire interval (years) for the continental United States, Physical Chemistry Fire Frequency Model (Guyette et al., 2012). Mississippi lies in the ~4–8 year (orange) band — a naturally frequent-fire regime.*

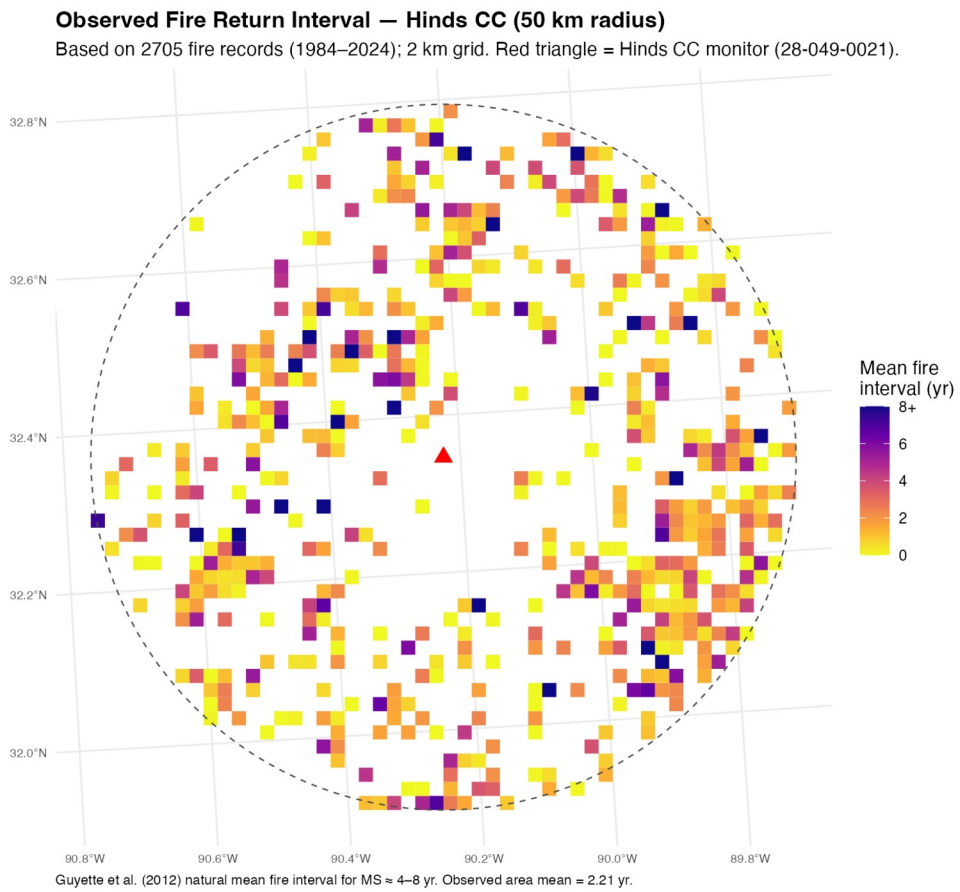


Figure 5. *Observed fire return interval within 50 km of the Hinds CC monitor (2 km grid; 2,705 fire records, 1984–2024). Most of the landscape (yellow/orange) reburns every 0–4 years; area mean = 2.21 years, consistent with the Guyette natural interval.*

Classification Conclusion

The wildfire and Canadian-wildfire events meet the criteria for natural events as defined in the Exceptional Events Rule, as none resulted from controllable human activity. These natural mechanisms cannot be reasonably controlled at the source, follow documented natural patterns and frequencies, are supported by extensive scientific literature, and represent fundamental Earth-system processes. The prescribed-fire events constitute a recurring, but managed land-management activity conducted under Mississippi's VSMG/BSMP framework, satisfying the not-reasonably-controllable-or-preventable criterion.

Mitigation Criterion

Mississippi fulfills the public-notification requirement under 40 CFR 51.930(a)(1). MDEQ maintains a comprehensive public-notification system for air-quality events through multiple channels.

Primary Notification System — Enviroflash: MDEQ uses Enviroflash to provide daily 3-day forecasts for both Ozone and PM2.5, with coverage for key areas including the Jackson Metro Area, DeSoto County, and the MS Gulf Coast; forecast notifications are issued by 2:45 PM daily, seven days per week, with customizable alert thresholds.

Multi-Channel Distribution: Air-quality forecasts and alerts are distributed via Enviroflash email notifications, the MDEQ website and social media, and AirNow Mobile App integration. MDEQ extends the forecasting season to begin March 1st (instead of April 1st), continuously monitors trends, and issues action-oriented alerts (e.g., burning restrictions on code-orange days and health advisories for sensitive groups).

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 an exceedance of applicable air-quality standards.

Request

MDEQ requests EPA's concurrence on these exceptional events to support appropriate regulatory determinations for the Hinds County / Jackson Metro 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 2023 and 2024 affected PM2.5 concentrations over the 2023–2025 design-value period at the Hinds Community College monitoring site (AQS ID: 28-049-0021) in the Jackson Metropolitan Area. 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 eight (8) distinct exceptional event periods that affected the Hinds CC monitoring site during 2023 and 2024. These exclusions have regulatory significance as they affect attainment status under the 2024 revised annual PM2.5 NAAQS and the area's 2023–2025 design value calculation.

Current monitoring data shows a 2023–2025 design value of 9.3 μg/m³; with the requested exclusions, the design value is anticipated to be 9.0 μg/m³. Appendix D sets out the full computation for both cases under 40 CFR Part 50 Appendix N, quarter by quarter and at full precision.

Document Overview

This demonstration provides comprehensive technical evidence supporting the exclusion of the identified PM2.5 concentration data at the Hinds Community College monitor through the following lines of analysis:

Historical Data Analysis

- Comparison of each event-day concentration to the site's multi-year historical PM2.5 record
- Seasonal and annual PM2.5 trends at the Hinds CC monitor
- Percentile rankings of the event-day concentrations within the historical distribution

Clear Causal Relationship Evidence

- Tiered analysis following EPA's PM2.5 exceptional-events guidance and the 2024 Wildland Fire PM2.5 Tiering Tool
- Smoke- and fire-transport pathway documentation
- Multiple independent, mutually corroborating lines of evidence

Technical Tools and Analyses

- HYSPLIT back-trajectory modeling
- NOAA Hazard Mapping System (HMS) smoke polygons and fire-detection points
- GOES satellite imagery (True Color and GeoColor)
- Surface meteorological data and upper-air analyses
- Hour-by-hour PM2.5 concentration progressions
- Mississippi Forestry Commission prescribed fire permit records and fire-inventory data
- AirNow-Tech Navigator imagery

The demonstration is organized chronologically by year and event. Each event analysis includes the event description and classification, a historical concentration comparison, clear-causal-relationship (tiered) evidence, smoke and fire-transport pathway analysis, meteorological conditions, and satellite/HMS imagery. Prescribed-fire events additionally document adherence to Mississippi's Voluntary Smoke Management Guidelines and Basic Smoke Management Practices, and the natural-events analysis establishes central Mississippi's frequent-fire regime.

The requested exclusions carry regulatory significance: they affect the Hinds County / Jackson Metropolitan Area's attainment status under the 2024 revised annual PM2.5 NAAQS and the monitor's 2023–2025 design value, which decreases from 9.3 µg/m³ to 9.0 µg/m³ with the requested exclusions. The eight events comprise 20 flagged event days spanning prescribed fire, long-range-transported Canadian and Mexican/Central American wildfire smoke, and Saharan (African) mineral dust, as summarized below.

Exceptional Event Summary Table (Table B). Summary of exceptional events with associated Air Quality System (AQS) data and tiered exceedance values.

Date(s) of Event	Event Type	AQS Flag	Exceedance Concentration(s) (µg/m³)	Tier(s)	Tier 1 (µg/m³)	Tier 2 (µg/m³)
February 28, 2023	Prescribed Fire	RM	36.4	1	27.6	18.4
March 6–9, 2023	Mexico/Central America Wildfire/Prescribed Fire	RG	28.3, 28.2, 27.7, 25.2	1 & 2	27.6	18.4
May 21, 22, 25 & 26, 2023	Canadian Wildfire	RF	27.5, 31.9, 19.5, 23.2	1 & 2	25.8	17.2
October 3, 4 & 5, 2023	Canadian Wildfire	RF	19.8, 25.8, 24.1	2	27.0	18.0
February 2 & 3, 2024	Prescribed Fire	RM	23.5, 23.9	2	27.6	18.4
February 20 & 21, 2024	Prescribed Fire	RM	21.2, 27.4	2	27.6	18.4
May 9, 2024	Mexico/Central America Wildfire	RG	24.4	2	25.8	17.2
July 31 – August 2, 2024	Saharan Dust	RA	20.0, 30.5, 21.7	1 & 2	23.9	15.9

Note. Site: Hinds Community College, AQS ID 28-049-0021. AQS flags: RM = Prescribed Fire; RF = Canadian Wildfire; RG = Mexico/Central America Wildfire; RA = African/Saharan Dust. Tier 1 and Tier 2 are the site- and month-specific PM2.5 exceptional-events thresholds from EPA's tiering dataset (for_posting.csv, October 2025); the Tier(s) column classifies each event-day concentration relative to those thresholds (value ≥ Tier 1 → Tier 1; Tier 2 ≤ value < Tier 1 → Tier 2). Threshold values rounded to one decimal. PM2.5 concentrations reported throughout this demonstration are the EPA/Teledyne-corrected Teledyne T640 FEM values as recorded in AQS (method code 736 for 2018–2023; method code 636, T640 with Network Data Alignment, for 2024–2025) — the data of record used for NAAQS design-value calculations — not the uncorrected real-time (method code 236) values, which carry a documented instrument high bias. Reporting convention: 24-hour concentrations in the summary tables and event-summary cards are truncated to one decimal place, consistent with 40 CFR Part 50 Appendix N; the same values are rounded to one decimal place in the narrative text and figure captions, so a table value and its narrative counterpart may differ by 0.1 µg/m³ (for example, February 21, 2024 is 27.49 µg/m³, shown as 27.4 in the tables and 27.5 in the text). Hourly clock times are given as hour-ending local time. Supporting documentation for the entries in this table is provided in the appendices: the AQS flag documentation for every day listed is reproduced in Appendix A, the underlying hourly concentrations are tabulated in Appendix B, and the design-value computation is set out in Appendix D. Tables lettered without a hyphen (Tables A to D) appear in the body of this demonstration; tables carrying a hyphen (for example Table B-3 or Table F-1) appear in the appendix denoted by their letter.

Other flagged days not included in this request. Five additional days in 2025 carry request-for-exclusion qualifiers in AQS at this site but are not part of this demonstration: June 7, 2025 (RF, 22.5 µg/m³) and August 3, 2025 (RF, 19.2 µg/m³), both associated with transported Canadian wildfire smoke, and July 3, 4 and 5, 2025 (RH – Fireworks; 10.8, 25.2 and 22.7 µg/m³), which carry partial-day hourly flags. Separately, August 22, 2024 carries the informational qualifier IF (Fire – Canadian) on 23 hours; informational qualifiers document a suspected influence but do not request exclusion of data, and no exclusion is sought for that day. MDEQ is not requesting exclusion of these days in this submittal; the exclusions requested here are sufficient to address the 2023–2025 design value, and MDEQ may address the 2025 days separately.

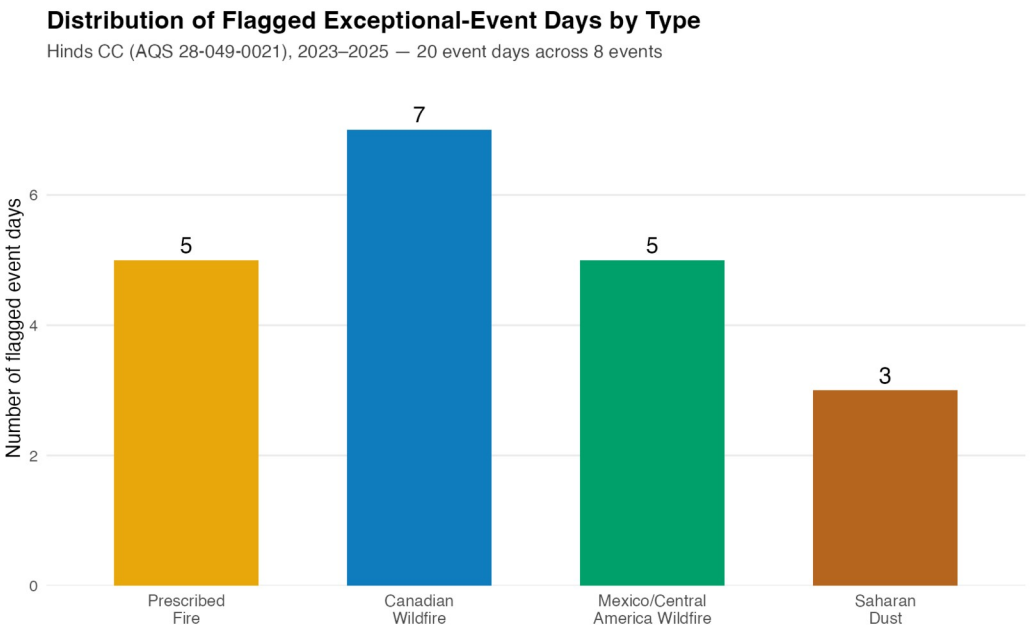


Figure 6. Distribution of the 20 flagged exceptional-event days at the Hinds CC monitor (2023–2024) by event type. Long-range-transported Canadian wildfire smoke (7 days) accounts for the largest share, followed by Mexico/Central America wildfire smoke (5 days) and prescribed fire (5 days), with Saharan dust (3 days).

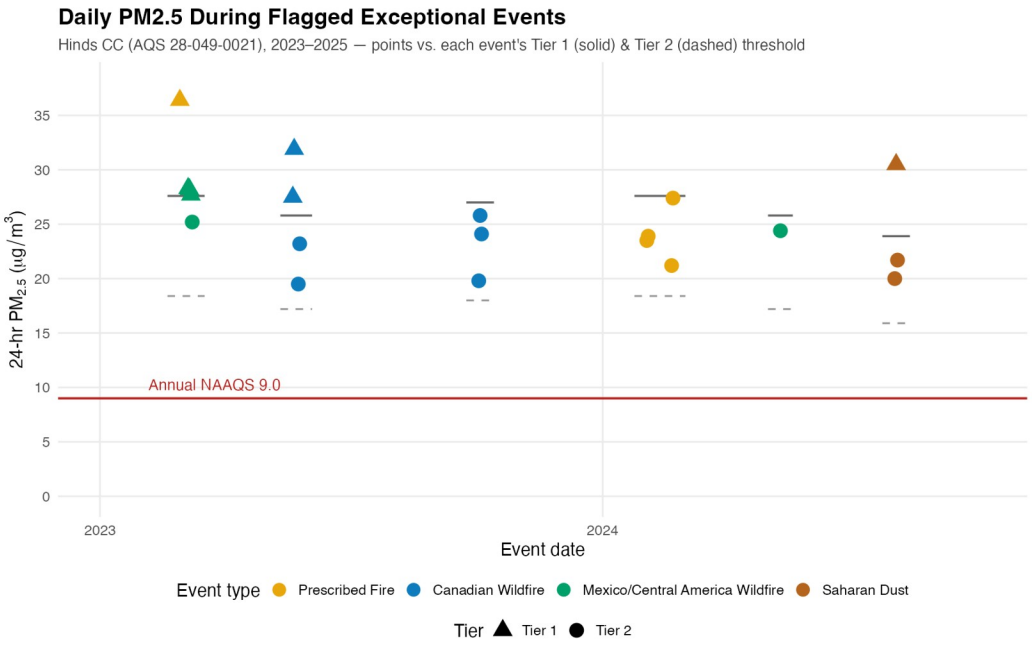


Figure 7. *Daily 24-hour PM2.5 concentrations during the flagged exceptional events at Hinds CC (2023–2024), color-coded by event type and shaped by tier. Each point is shown against its own site- and month-specific Tier 1 (solid grey) and Tier 2 (dashed grey) threshold and the annual PM2.5 NAAQS (9.0 µg/m³), consistent with Table B.*

MDEQ Air Monitoring Network

The Hinds Community College monitor (AQS ID: 28-049-0021) is operated as part of the MDEQ Air Monitoring Network. PM2.5 is measured under parameter code 88101 (PM2.5 – Local Conditions) using an EPA-approved Federal Reference or Equivalent Method.

The Hinds Community College monitor (AQS ID 28-049-0021) is located in Hinds County at 32.3467° N, 90.2257° W, within the Jackson, Mississippi metropolitan statistical area. PM2.5 is measured continuously as parameter code 88101 (PM2.5 – Local Conditions) with a Teledyne T640 Federal Equivalent Method analyzer. The data of record used for NAAQS design-value calculations transitioned from method code 736 (2018–2023) to method code 636 (T640 with Network Data Alignment) beginning in 2024. The site is a population-oriented monitor representative of PM2.5 concentrations across the Jackson metropolitan area and is located approximately 4 km from the Jackson NCORE multi-pollutant station (AQS 28-049-0020), whose collocated PM10 and PM2.5 speciation measurements are referenced in the Saharan dust analysis in this demonstration. All data are collected and quality-assured under MDEQ's EPA-approved quality-assurance program in accordance with 40 CFR Part 58.

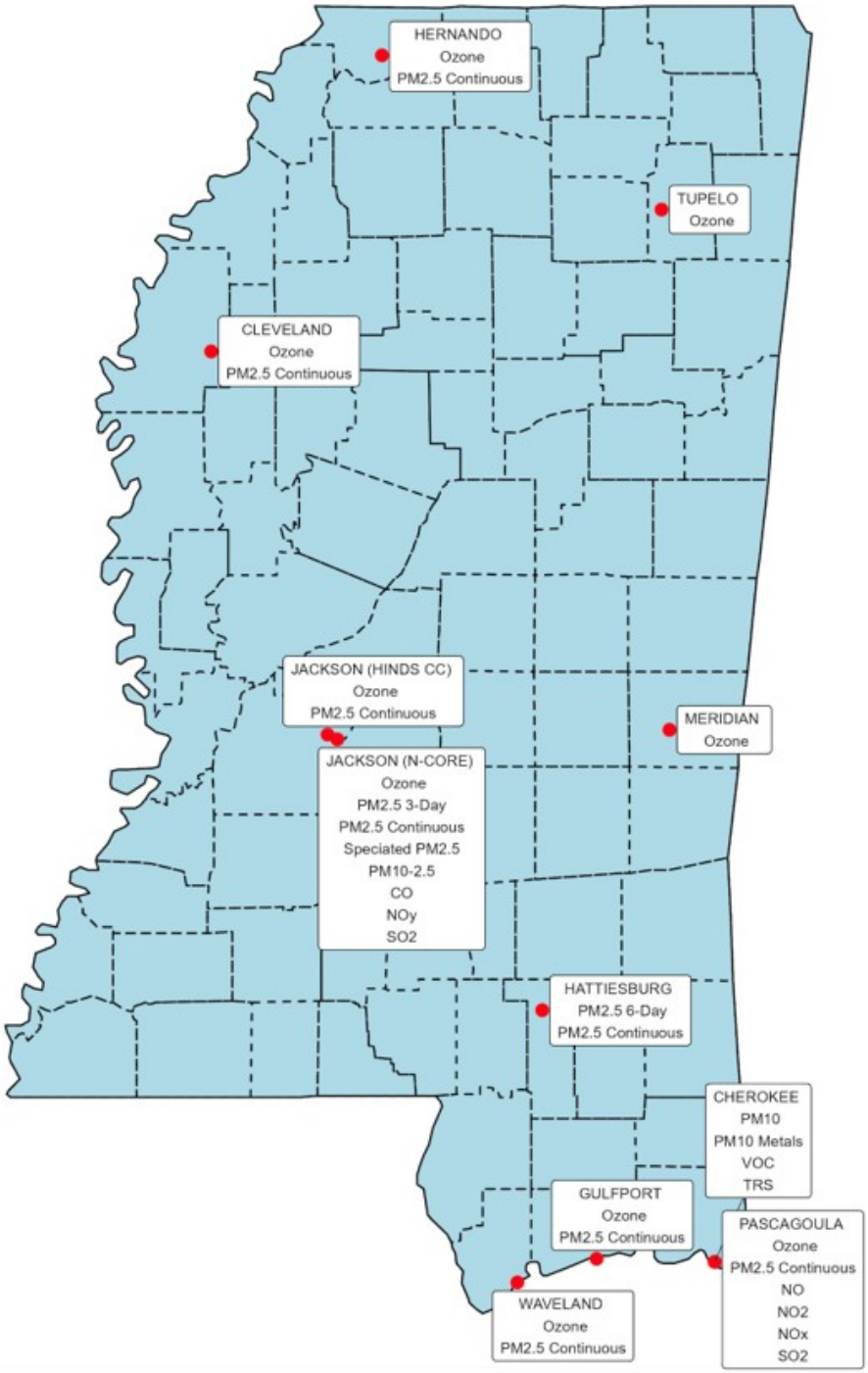


Figure 8. *MDEQ air monitoring network and the location of the Hinds Community College PM2.5 monitor (AQS 28-049-0021) in the Jackson metropolitan area.*

Exceptional Event Demonstrations

2023 Exceptional Events

February 28, 2023 — Prescribed Fire

Field	Detail
Event Type	Prescribed Fire
Date(s)	February 28, 2023
24-hr PM2.5 (µg/m³)	36.4
EPA Tier	Tier 1
AQS Flag (preliminary)	RM

Synopsis: February 28, 2023, produced the highest 24-hour PM2.5 concentration of any day addressed in this demonstration, 36.4 µg/m³, four times the eight-year non-event average of 9.1 µg/m³ for the same calendar day and well above the site's February Tier 1 threshold of 27.6 µg/m³. The exceedance was caused by smoke from State-permitted prescribed burns in and around the Jackson metropolitan area, concentrated at the surface on two separate occasions by a shallow, near-calm nocturnal boundary layer. The episode began the preceding evening. Surface winds at Jackson (KJAN) fell from 20 knots on the afternoon of February 27 to calm by 10 p.m., the temperature dropped from an afternoon maximum of 81 °F to 55 °F at daybreak, and visibility fell from 10 miles to 4 miles, the signature of a strong nocturnal radiation inversion. Hourly PM2.5 at Hinds CC rose from 13.6 µg/m³ at 5 p.m. on February 27 to 38.7 µg/m³ at midnight and held between 31 and 40 µg/m³ through 8 a.m. on February 28, hours in which none of that day's permitted burns within 100 km of the monitor had yet been ignited; that overnight burden was residual smoke from the preceding days' burning, 4,293 acres approved within 100 km of the monitor on February 26 alone, including a single 3,240-acre Scott County burn, still smoldering and held down by the inversion.

After sunrise the inversion eroded and the mixed layer deepened, visibility recovered to 10 miles by 1 p.m., and concentrations fell to a daytime minimum of 22.1 µg/m³ at 2 p.m. February 28 was then the heaviest single day of prescribed burning in Mississippi to that point in the year: the Mississippi Forestry Commission approved every burn requested statewide,126 burns totaling 16,641 acres, with zero denials, of which 31 burns (1,991 acres) lay within 100 km of the monitor and 7 burns (805 acres) within 50 km. Under south-southwesterly surface flow a discrete plume crossed the site in the late afternoon and produced a single-hour maximum of 74.0 µg/m³ at 5 p.m., the highest hourly concentration recorded at Hinds CC on any event day in this demonstration; GOES-East true-color imagery from 3:11 p.m. that afternoon shows a plume from a fire directly southwest of the monitor trailing across the monitoring station. Winds then backed to the south-southeast at 6 to 7 knots, a second nocturnal inversion formed after sunset, and smoke from the near-field burns ignited between 4:40 and 7:00 p.m. was drawn into the Jackson area and trapped near the surface, producing a broader evening peak of 63.9 µg/m³ at 10 p.m. and hourly values of 42 µg/m³ or greater through the end of the day.

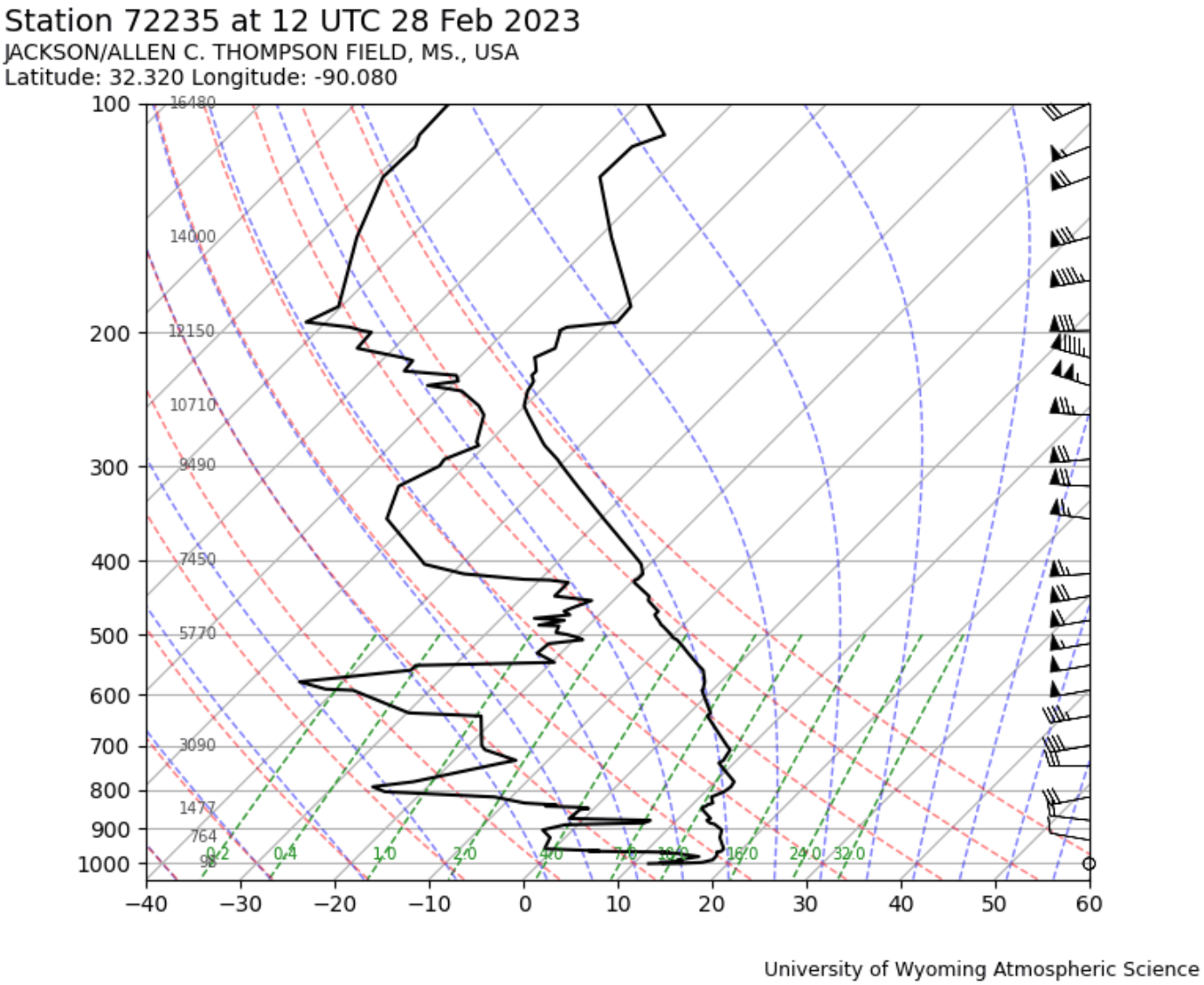


Figure 9. The 12 UTC (6:00 a.m. CST) sounding at Jackson/Thompson Field (station 72235) for February 28, 2023, records the nocturnal radiation inversion that held prescribed-fire smoke at the surface overnight. Temperature increases with height from 13.2 °C at the surface to 18.0 °C at roughly 180 m above ground, a surface-based inversion of nearly 5 °C, and remains near-isothermal to about 385 m. The dewpoint collapses across the top of that layer, from 16.2 °C to below 0 °C, and the calm surface wind gives way to a 10 to 15 knot westerly flow immediately above it, so the shallow surface layer was decoupled from the drier, faster-moving air aloft and could not ventilate. This is the lid responsible for the 31 to 40 µg/m³ PM2.5 plateau measured at the Hinds CC monitor through 8 a.m.

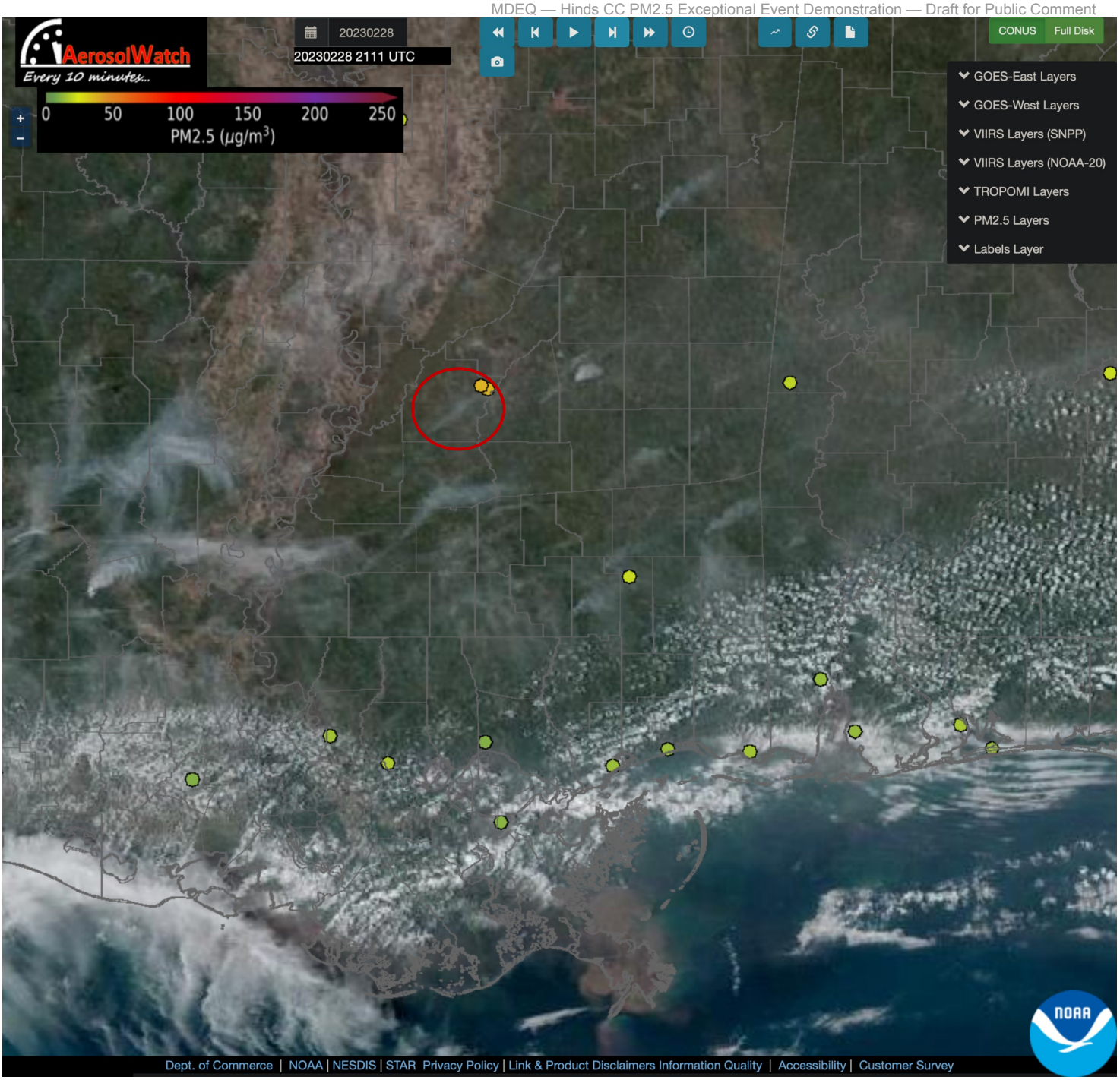


Figure 10. The GOES-East True Color satellite image from February 28, 2023, at 2111 UTC, illustrates multiple smoke plumes from prescribed fires surrounding the Hinds CC monitor. The orientation of these plumes confirms southwesterly surface winds, which transported smoke from the southwest to the northeast. Notably, a distinct smoke plume originating from a prescribed fire directly southwest of the monitor is shown trailing directly over the monitoring station, providing a clear causal link to the elevated PM2.5 concentrations observed.

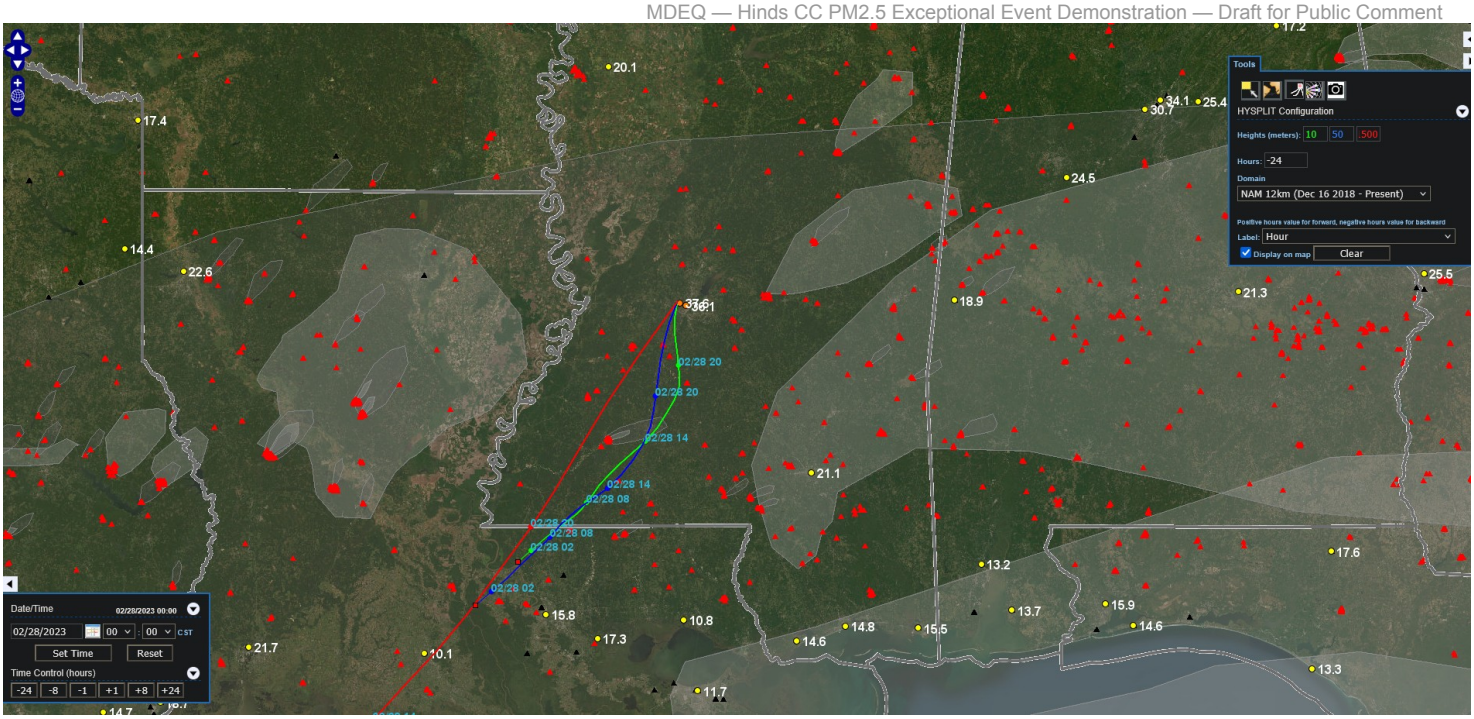


Figure 11. The 24-hour HYSPLIT back-trajectory overlay for February 28, 2023, illustrates that air parcels at the 10m (green) and 50m (blue) levels originated from the southwest and moved toward the northeast. This transport pathway carried smoke from active prescribed fires located directly southwest of the monitoring site to the Hinds CC monitor, resulting in the observed elevation in PM2.5 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
Hinds CC/280490021/PM2.5-88101/3	02/28/23	40.8	41.7	38.1	33	38.2	37.3	35.1	35	26.3	26.5	28.2	29.3	28.1	23	23.6	29.7	74.9	38.6	27.3	32.5	55.4	64.8	54	43	37.68	74.9

Figure 12. Hourly PM2.5 values on February 28, 2023, shown in the figure above, remained elevated in the 30s and 40s during the morning hours. Concentrations leveled off in the 20s through the early afternoon before spiking significantly during the evening. This evening surge was driven by direct impacts from smoke plumes originating from prescribed fires to the southwest, leading to a peak hourly concentration of 74.0 µg/m³ at 5:00 p.m. (1700 CST). The resulting 24-hour average PM2.5 concentration for the day was 36.4 µg/m³.

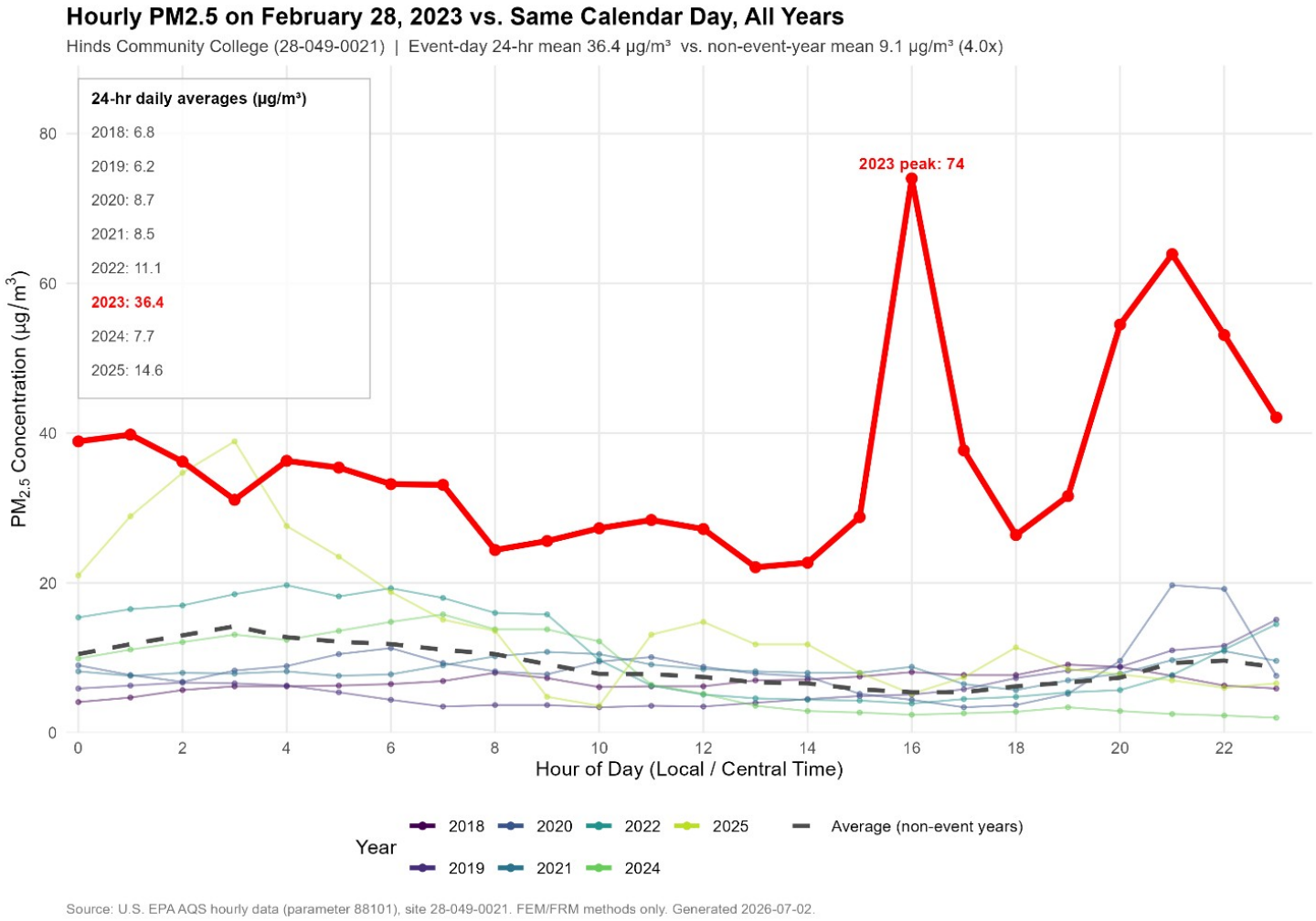
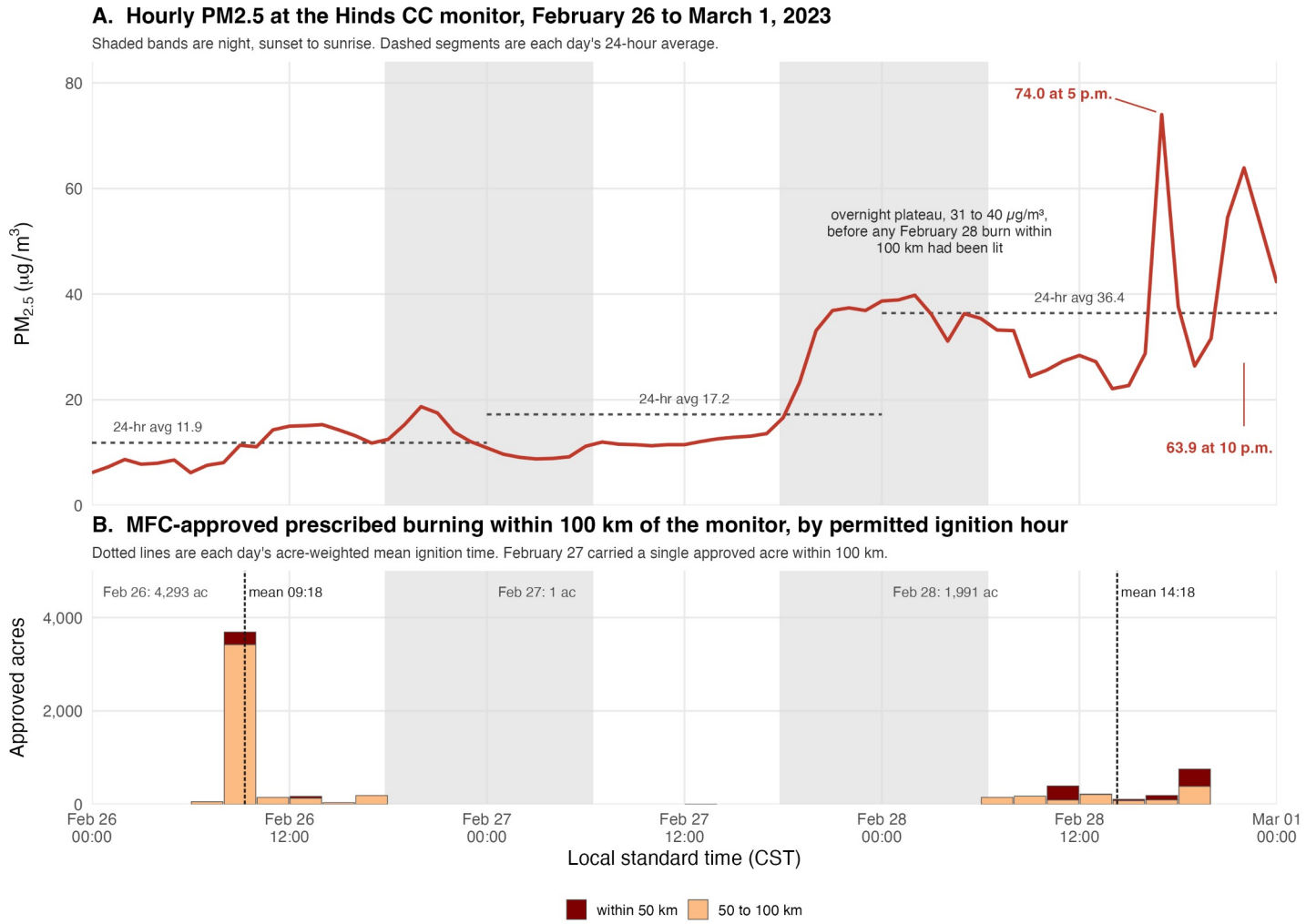


Figure 13. The historical hourly comparison in the figure above illustrates PM2.5 levels on February 28th over an eight-year period (2018–2025). The 2023 event day (red line) shows concentrations significantly higher than the average of non-event years (dashed line), with a 24-hour mean four times greater than the historical norm. A dramatic hourly spike reaching 74 µg/m³ occurs in the late afternoon, driven by the direct transport of smoke from prescribed fires located to the southwest of the Hinds CC monitor.



Sources: U.S. EPA AQS hourly PM2.5 (parameter 88101, site 28-049-0021, POC 23, method 736); Mississippi Forestry Commission 2023 prescribed-burn permit records. Great-circle distances computed from each permitted burn to the monitor at 32.3467 N, 90.2257 W. Permit-level records for February 28 are listed in Appendix F, Table F-2.

Figure 14. Near-field prescribed burning and hourly PM2.5 at the Hinds CC monitor, February 26 to March 1, 2023. Panel A gives the continuous hourly record, with night shaded and each day's 24-hour average drawn as a dashed segment. Panel B gives the Mississippi Forestry Commission approved acreage within 100 km of the monitor, placed at each burn's permitted ignition hour and split by distance band. Read together, the two panels separate the two contributions to the February 28 exceedance. February 26 carried more near-field acreage than February 28, 4,293 against 1,991 acres, but almost all of it was ignited in the morning, at an acre-weighted mean of 9:18 a.m., into a deepening daytime mixed layer, and that day's 24-hour average was only 11.9 µg/m³. February 27 carried a single approved acre within 100 km, yet concentrations climbed from 13.6 to 38.7 µg/m³ after sunset as the boundary layer collapsed and held between 31 and 40 µg/m³ until 8 a.m. on February 28, before any February 28 burn within 100 km had been lit. February 28's own burning was then lit some five hours later in the day, at an acre-weighted mean of 2:18 p.m., with 47 percent of the near-field acreage ignited at or after 4 p.m. against 4 percent on February 26, and it produced the two excursions that carried the daily average to 36.4 µg/m³: a single-hour maximum of 74.0 µg/m³ at 5 p.m. and a broader evening peak of 63.9 µg/m³ at 10 p.m.

Boundary-layer setting and the overnight accumulation. The February 28 exceedance was as much a boundary-layer concentration event as an emissions event, and the surface record at Jackson–Medgar Wiley Evers International Airport (KJAN), approximately 15 km east-southeast of the monitor, documents the mechanism directly. Through the afternoon of February 27, a southerly flow of 14 to 20 knots kept the boundary layer well-ventilated and hourly PM2.5 at the monitor between 11 and 14

µg/m³. Winds slackened after 5 p.m., went calm at 10 p.m. and stayed calm until after 7 a.m.; the temperature fell from an afternoon maximum of 81 °F to 55 °F by 6 a.m., and horizontal visibility deteriorated steadily from 10 miles at 7 p.m. to 4 miles at daybreak. Hourly PM2.5 tracked that collapse exactly, climbing from 13.6 µg/m³ at 5 p.m. on February 27 to 38.7 µg/m³ at midnight and holding a plateau of 31 to 40 µg/m³ until 8 a.m. Prescribed burning on February 27 itself was negligible, six burns statewide totaling 310 acres, of which a single one-acre burn lay within 100 km of the monitor, so the overnight plateau cannot be attributed to fresh ignitions on that day. It consists instead of material already resident in the local air mass, and the visibility record identifies that material as particulate rather than moisture: the KJAN observer coded haze explicitly at 3:54 a.m. and again at 8:54 a.m., mist was coded only during the saturated pre-dawn hours between, and the evening reduction from 10 to 7 miles occurred at a relative humidity below 65 percent, too dry for a moisture explanation. The likely source is continuing emission from the 6,448 acres of MFC-approved burning within 100 km of the monitor on February 25 and 26, including a single 3,240-acre Scott County burn, since prescribed burns smolder and emit for 24 to 72 hours after ignition; the same overnight-trapping mechanism is documented at this monitor for the February 2–3 and February 20–21, 2024 events. The 12 UTC sounding reproduced above (Figure 9) shows how shallow the trapping layer was. Whatever its precise origin, that burden was already in place before the day's own burning began, and the excursions that drove the exceedance came afterwards, from the February 28 burns themselves (Figure 14).

On February 28th, the day of the event, daytime scour and the two afternoon and evening peaks. After sunrise the inversion eroded and the boundary layer deepened rapidly: the KJAN dewpoint fell 18 °F between 9 a.m. and 5 p.m. as dry air was mixed down to the surface, visibility recovered to 10 miles by 1 p.m., and hourly PM2.5 declined to a daytime minimum of 22.1 µg/m³ at 2 p.m., a value that, although the low point of the day, was still nearly two and a half times the eight-year non-event daily average for this calendar date.

Concentrations then rose to 28.8 µg/m³ at 4 p.m. and spiked to 74.0 µg/m³ at 5 p.m. before falling back to 37.7 µg/m³ within the hour. A single-hour excursion of that shape, a near-tripling and an almost complete recovery inside two hours is the signature of a discrete, near-field plume crossing the monitor rather than of regional haze. Surface winds at KJAN were from 200 degrees at 7 to 8 knots through that window, placing the monitor directly downwind of the day’s southwestern burns, and the GOES-East true-color image captured at 3:11 p.m. shows a smoke plume from a fire directly southwest of the monitor trailing across the monitoring station (Figure 10). After 5 p.m. the wind backed to 150 to 180 degrees at 6 to 7 knots and the surface layer re-stabilized, and a second, broader peak developed through the late evening: 54.5 µg/m³ at 9 p.m., 63.9 µg/m³ at 10 p.m. and 53.1 µg/m³ at 11 p.m., with the final hour of the day still at 42.1 µg/m³. That second peak coincides with the arrival of smoke from the cluster of near-field burns ignited between 4:40 and 7:00 p.m. to the south, southwest and east-southeast of the monitor, released into a rapidly stabilizing nocturnal boundary layer. The full hourly record for the day is tabulated in Appendix B, Table B-1, and the individual permitted burns, with their acreage, ignition times, distances and bearings, are listed in Appendix F, Table F-2.

Local origin of the exceedance. The magnitude of the February 28 concentration was specific to the Jackson metropolitan area. Of the 44 PM2.5 monitors reporting a valid 24-hour average that day across Mississippi, Louisiana, Alabama, Arkansas and Tennessee, the two highest were Hinds CC at 36.4 µg/m³ and the Jackson NCORE station 4 km away at 36.1 µg/m³. The third-highest value anywhere in that five-state area was 25.4 µg/m³ at the Leeds monitor in Jefferson County, Alabama, and the median of the other 42 monitors was 14.8 µg/m³. Every other Mississippi monitor was far lower: Hattiesburg 21.1, Cleveland 18.8, Hernando 16.4, Pascagoula 14.6, Gulfport 13.9 and

Waveland 13.7 µg/m³. Two conclusions follow. First, the close agreement between Hinds CC and Jackson NCORE, two independent monitors 4 km apart, operated on separate analyzers confirms that the elevated concentrations were a genuine, area-wide feature of the Jackson air mass rather than an instrument artifact or a very local source at the Hinds CC site, and is consistent with impact from burns 30 to 60 km away rather than from any on-site or fenceline source. Second, the separation of roughly 11 µg/m³ between the Jackson pair and the next-highest monitor anywhere in the region establishes that the exceedance was driven by near-field prescribed-fire smoke and not merely by the elevated regional smoke background that prevailed across the Southeast on this heavy burn day. That regional background was itself raised, into the mid-teens and low 20s, by widespread prescribed burning, but it accounts for well under half of the concentration measured at Hinds CC.

Weight of evidence. Taken together, the evidence establishes each element required under 40 CFR 50.14. The event was not reasonably controllable or preventable: every contributing burn was conducted under a valid Mississippi Forestry Commission permit on a day that met the Commission's own dispersion screen outright (mixing height 1,240 m; transport wind southwest at 5 m/s; ventilation index 6,391), and the Commission approved every burn requested statewide and denied none, so no further control was available under the smoke-management framework then in force (Table C; Appendix F, Tables F-1 and F-2). The event is a natural event within the meaning of 40 CFR 50.1(k) and EPA's 2019 prescribed-fire guidance, for the reasons set out in the natural-events classification analysis earlier in this demonstration. And the clear causal relationship between the burning and the measured exceedance rests on the convergence of independent lines of evidence assembled above: the satellite plume geometry, the HYSPLIT back-trajectories, the permit-level burn inventory and its position upwind of the monitor, the surface meteorology at KJAN, the hourly concentration profile with its two inversion-driven peaks, and the contrast between the two Jackson monitors and the 42 others reporting across five states. On this record MDEQ requests concurrence in the exclusion of the February 28, 2023 24-hour PM2.5 value at the Hinds Community College monitor as a prescribed-fire exceptional event.

March 6–9, 2023 — Mexico/Central American Wildfire and Prescribed Fire

Field	Detail
Event Type	Mexico/Central America Wildfire/Prescribed Fire
Date(s)	March 6, 7, 8 and 9, 2023
24-hr PM2.5 (µg/m³)	28.3, 28.2, 27.7, 25.2
EPA Tier	Tier 1 & Tier 2
AQS Flag (preliminary)	RG

Synopsis: March 6-9th experienced a hybrid PM2.5 exceptional event combining local prescribed fires around the Hinds CC 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 53.4 µg/m³ was recorded during the early morning hours. Ongoing prescribed fires throughout the day around the Hinds CC monitor kept PM2.5 values elevated, with levels remaining in the teens µg/m³ range during several afternoon hours. With values climbing back into the 30’s µg/m³ range during the overnight hours’ thanks again to the development of a low-level nocturnal inversion, trapping particulates from fires close to the surface, elevating PM2.5 concentrations.

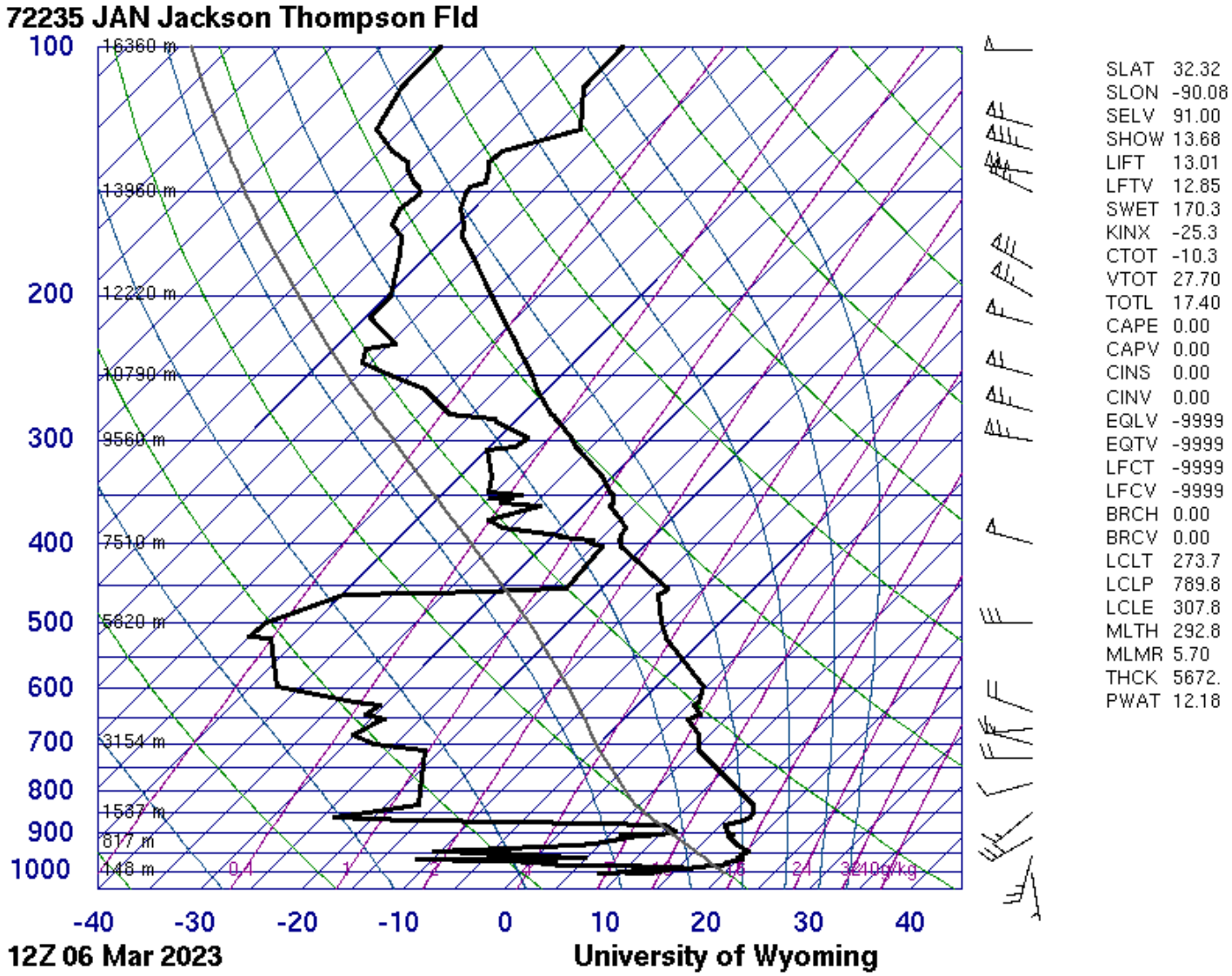


Figure 15. Morning sounding on March 6th, 2023, shows very strong low level nocturnal inversion that set up overnight trapping smoke from previous days prescribed fires, keeping PM2.5 elevated overnight into the 30's, 40's and low 50's, with a one-hour max of 53.4 µg/m³.

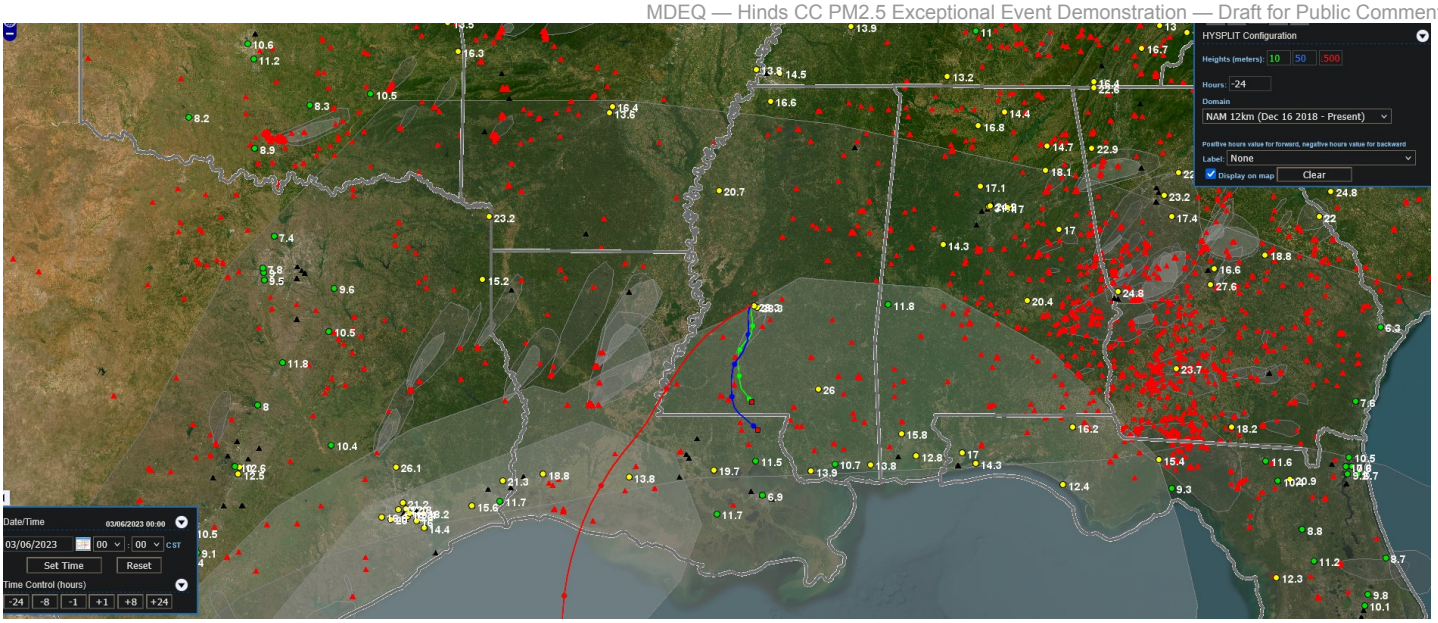


Figure 16. The AirNowTech Navigator image from March 6, 2023, the onset of this multi-day exceptional event displays widespread prescribed fire activity across the Southeastern United States. Notably, numerous fire detections are located directly south and southwest of the Hinds CC monitor. The 24-hour HYSPLIT back trajectories at the 10m (green) and 50m (blue) levels confirm light southerly surface winds, which transported smoke from these fires directly to the monitoring site.

Furthermore, satellite-derived smoke density mapping illustrates an encroachment of smoke from seasonal fires in Mexico and Central America moving across the Gulf of Mexico into the Gulf States. This long-range transport was embedded in the same southerly flow, as indicated by the 500m trajectory (red). The combination of local prescribed fire plumes and regional smoke transport from the south resulted in the elevated PM2.5 concentrations observed at the Hinds CC monitor during this period.

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
Hinds CC/280490021/PM2.5-88101/3	03/06/23	27.8	34.9	47.7	53.4	49.3	47.9	48.4	44.4	28.4	15.7	14.2	12.8	12.5	12.6	13.8	15.9	17.6	15.4	20.1	25.3	27.3	27.4	32.5	33.9	28.3	53.4

Figure 17. Smoke from ongoing prescribed fires in the vicinity of the Hinds CC monitor kept PM2.5 values elevated throughout March 6, 2023. Concentrations were particularly high during the overnight and early morning hours, reaching a peak of 53.4 µg/m³ at 4:00 a.m. (0400 CST). While midday values dipped slightly as atmospheric mixing increased, the presence of smoke led to an elevated daily average of 28.3 µg/m³.

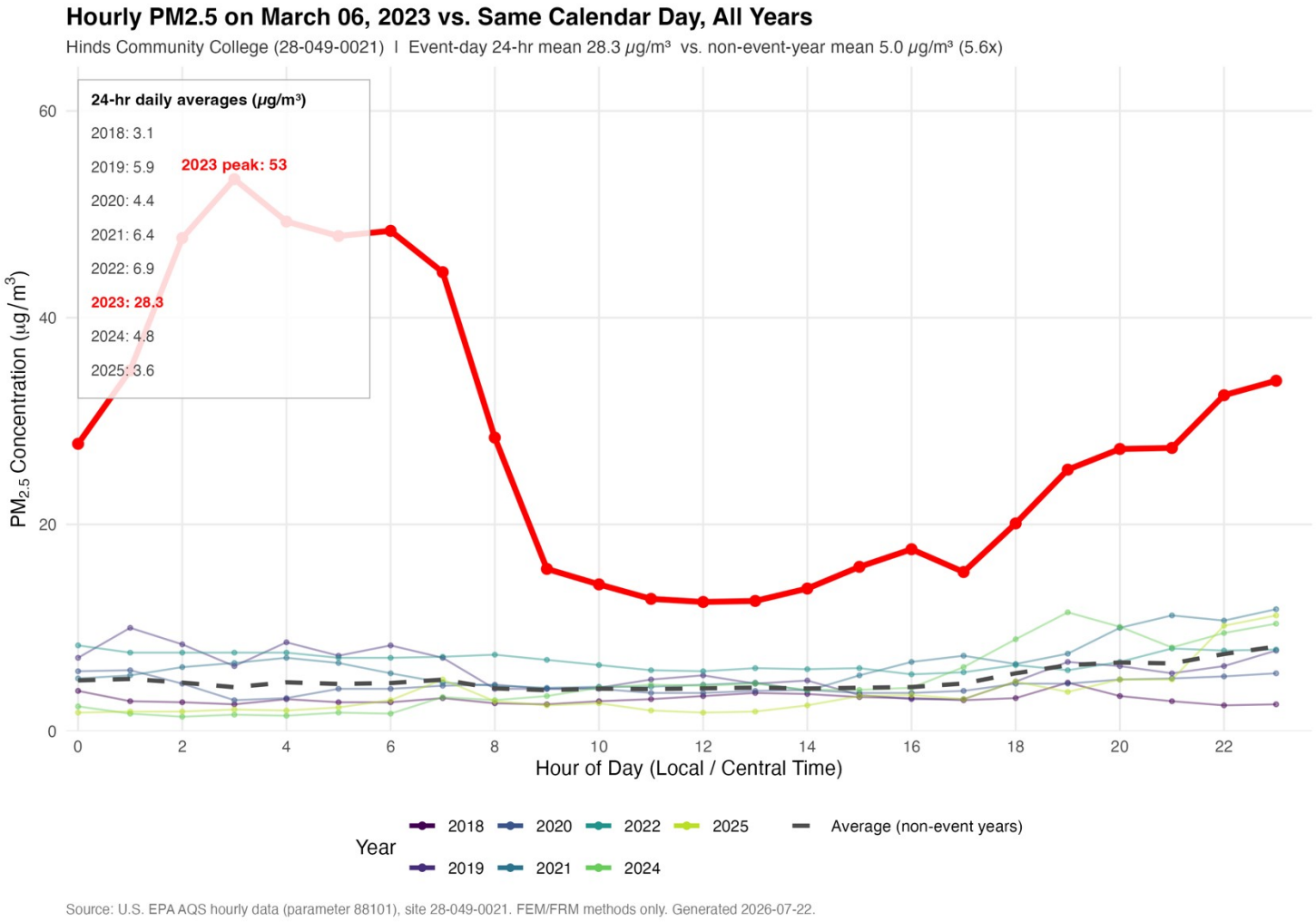


Figure 18. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels on March 6 over an eight-year period (2018–2025). This chart highlights the significantly anomalous values observed in 2023 compared to the average of non-exceptional years. The 2023 event-day mean of 28.3 µg/m³ was 5.6 times higher than the historical non-event average of 5.0 µg/m³. A distinct smoke-impact signature is visible in the data, with hourly concentrations peaking at 53 µg/m³ during the early morning hours before atmospheric mixing occurred.

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.

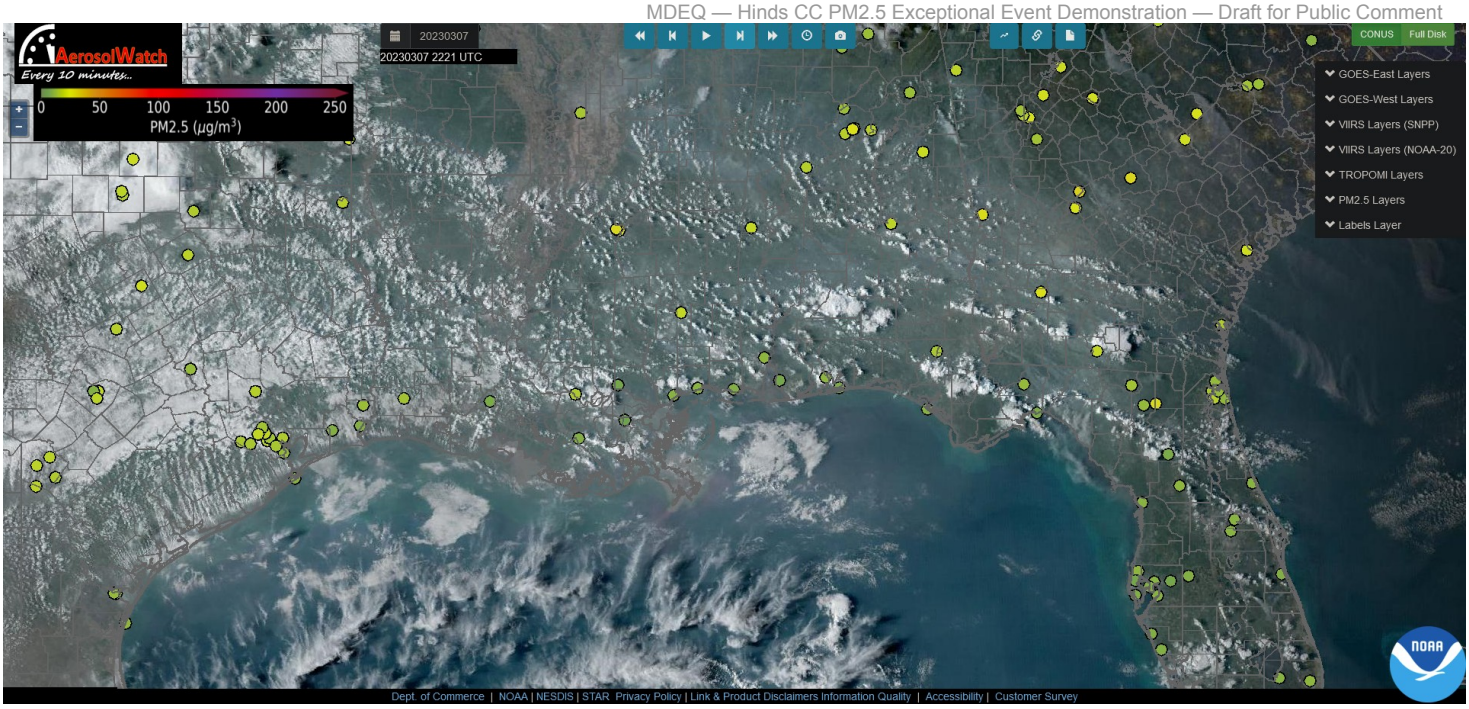


Figure 19. The GOES-East True Color satellite image from March 7, 2023, at 2221 UTC, illustrates an expansive smoke shield across the Southeastern United States. This widespread haze resulted from the combination of smoke plumes from regional prescribed fires and long-range transport from wildfires in Mexico and Central America. The density of the smoke layer shown here provides clear evidence of the regional-scale impact on air quality, including at the Hinds CC monitor.

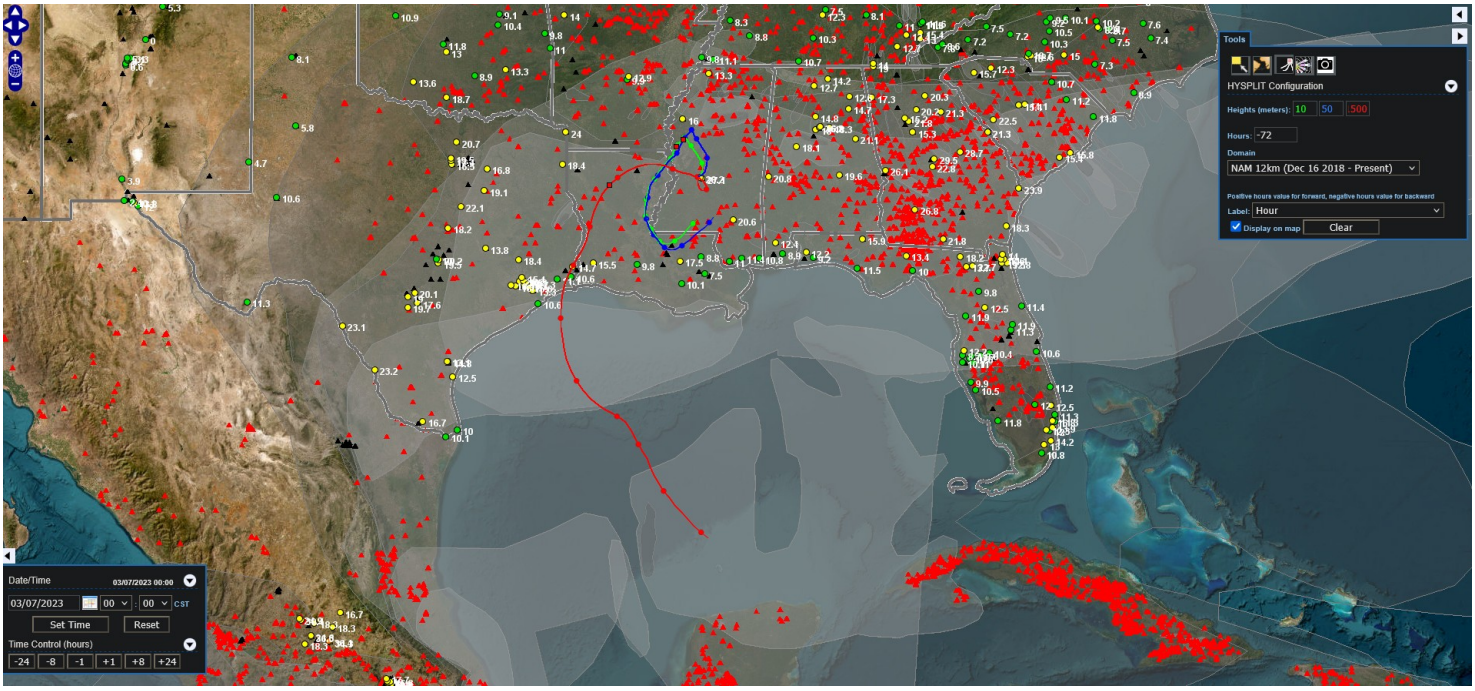


Figure 20. The AirNowTech Navigator image from March 7, 2023, illustrates the interaction between long-range smoke transport and regional stagnation. While the 72-hour HYSPLIT back trajectories at the 10m (green) and 50m (blue) levels show limited air parcel movement, reflecting stagnant surface conditions, the 500m trajectory (red) confirms a clear transport pathway from wildfire source regions in Mexico and Central America. This setup allowed smoke from distant wildfires to be transported

over the Gulf States and subsequently entrained into the stagnant surface layer, where it combined with emissions from local prescribed fires to elevate PM2.5 levels at the Hinds CC monitor.

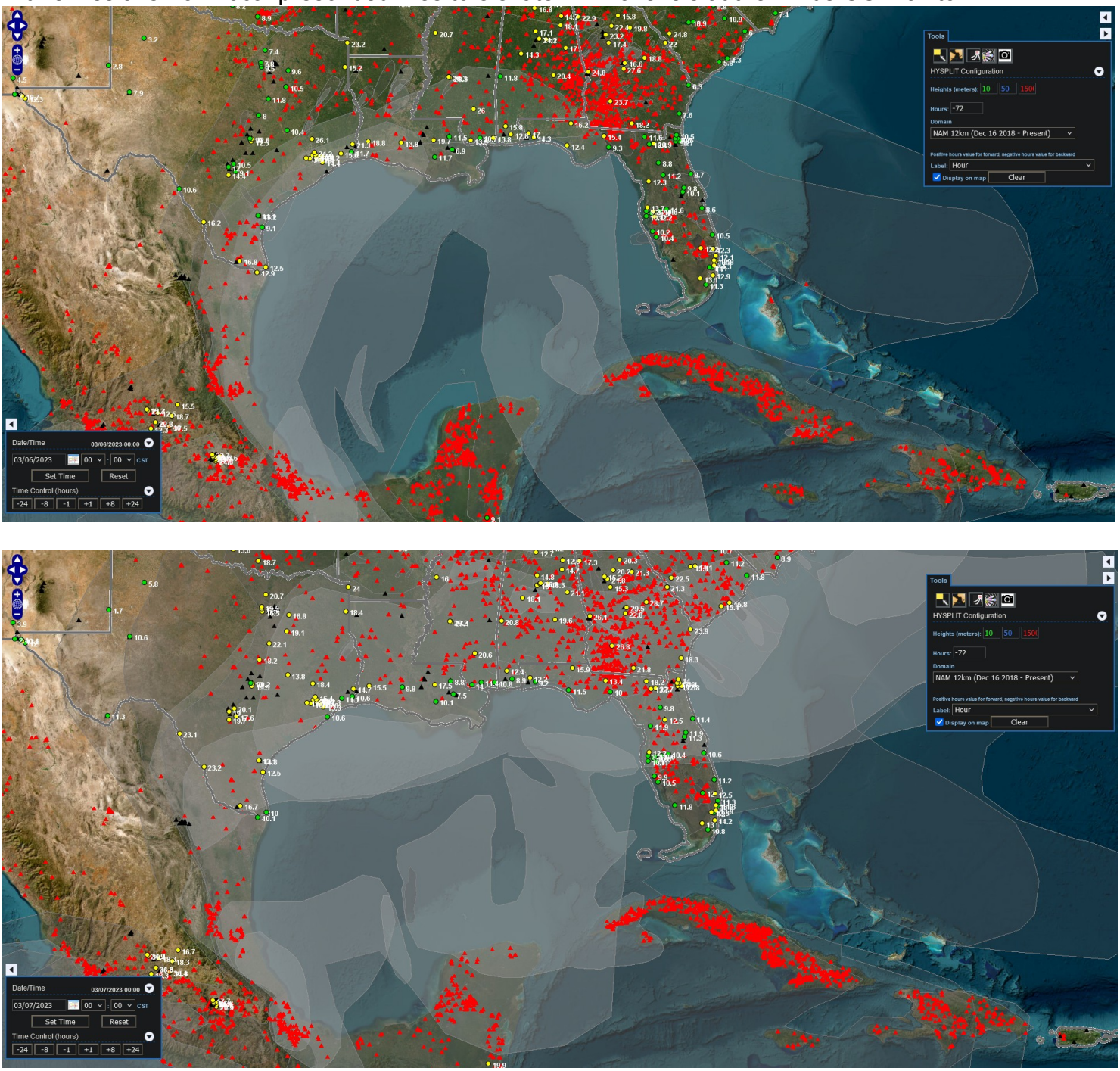


Figure 21. The pair of AirNowTech Navigator images from March 6 and March 7, 2023, illustrate the northward progression of smoke-laden airmasses originating from wildfires in Mexico and Central America. The sequence documents how these plumes moved across the Gulf of Mexico and into the Gulf States, providing clear evidence of regional-scale transport that contributed to the elevated PM2.5 concentrations observed at the Hinds CC 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
Hinds CC/280490021/PM2.5-88101/3	03/07/23	32.2	27.3	24.4	26.9	27	25.1	25.4	25.5	28.5	29.6	27.1	28.1	26.1	26.8	31.4	29.6	40.9	28.9	22.4	23.4	24.1	28.9	34.3	35.1	28.29	40.9

Figure 22. Hourly PM2.5 concentrations at the Hinds CC monitor for March 7, 2023, remained consistently elevated throughout the 24-hour period, as shown in the figure above. This sustained elevation resulted from the regional impact of long-range smoke transport from Mexican wildfires combined with local prescribed fire activity. The monitoring site recorded a daily average of 28.3 µg/m³, with hourly concentrations peaking at 40.9 µg/m³.

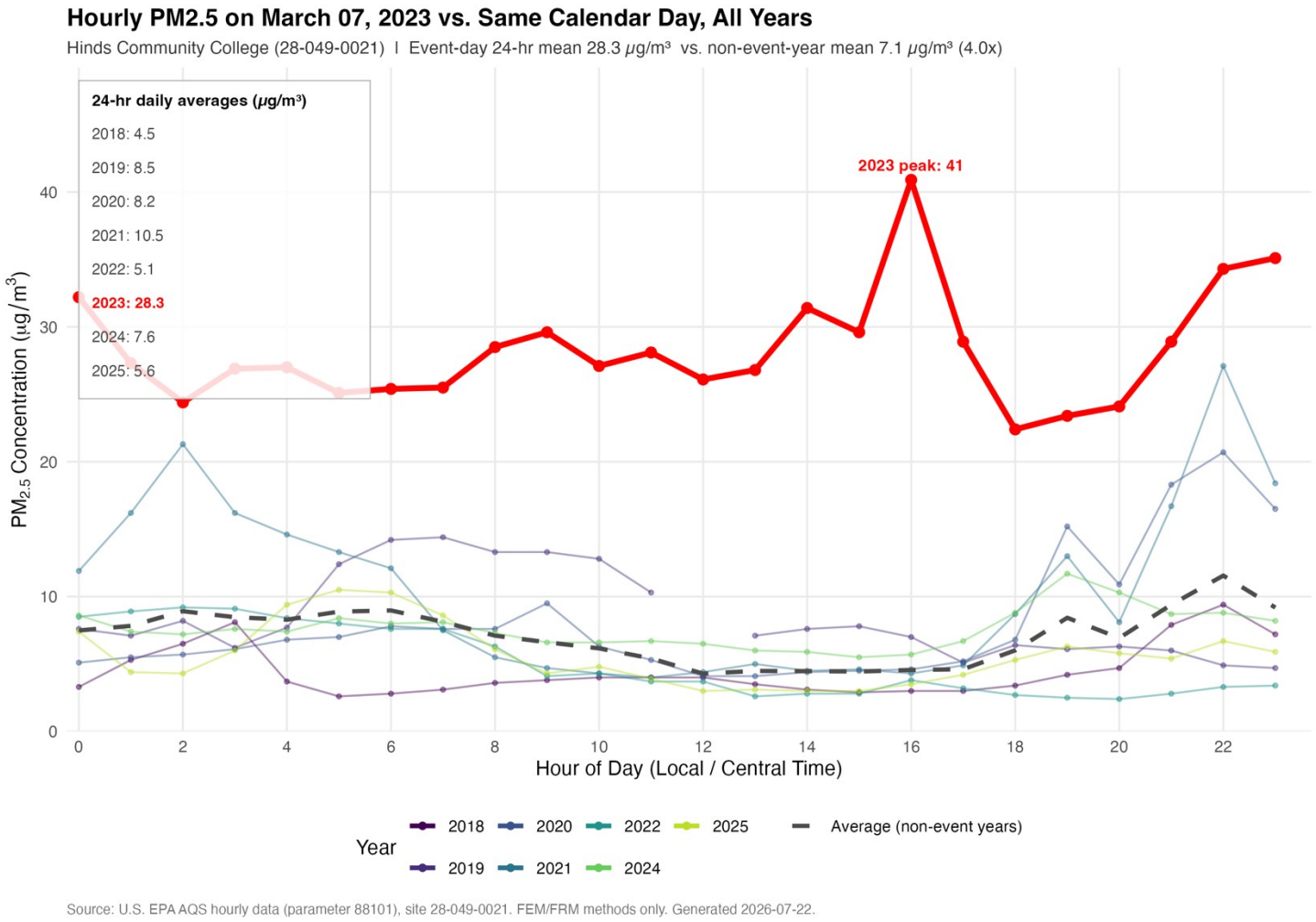


Figure 23. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on March 7 over an eight-year period (2018–2025). The 2023 event data (red line) shows a dramatic departure from the historical norm, with concentrations remaining consistently elevated above 20 µg/m³ throughout the entire day. This sustained elevation resulted from the convergence of local prescribed fire plumes and long-range transport from Mexican and Central American wildfires. Notably, the event-day mean of 28.3 µg/m³ was 4.0 times higher than the non-event historical average of 7.1 µg/m³.

March 8th: The Hinds CC monitor continued to see elevated PM2.5 concentrations, with values remaining in the 20–35 µg/m³ range throughout the day. These elevated concentrations were due in large part to continued smoke transport from wildfires in Mexico and Central America, as well as prescribed fires in the vicinity of the Hinds CC monitoring site.

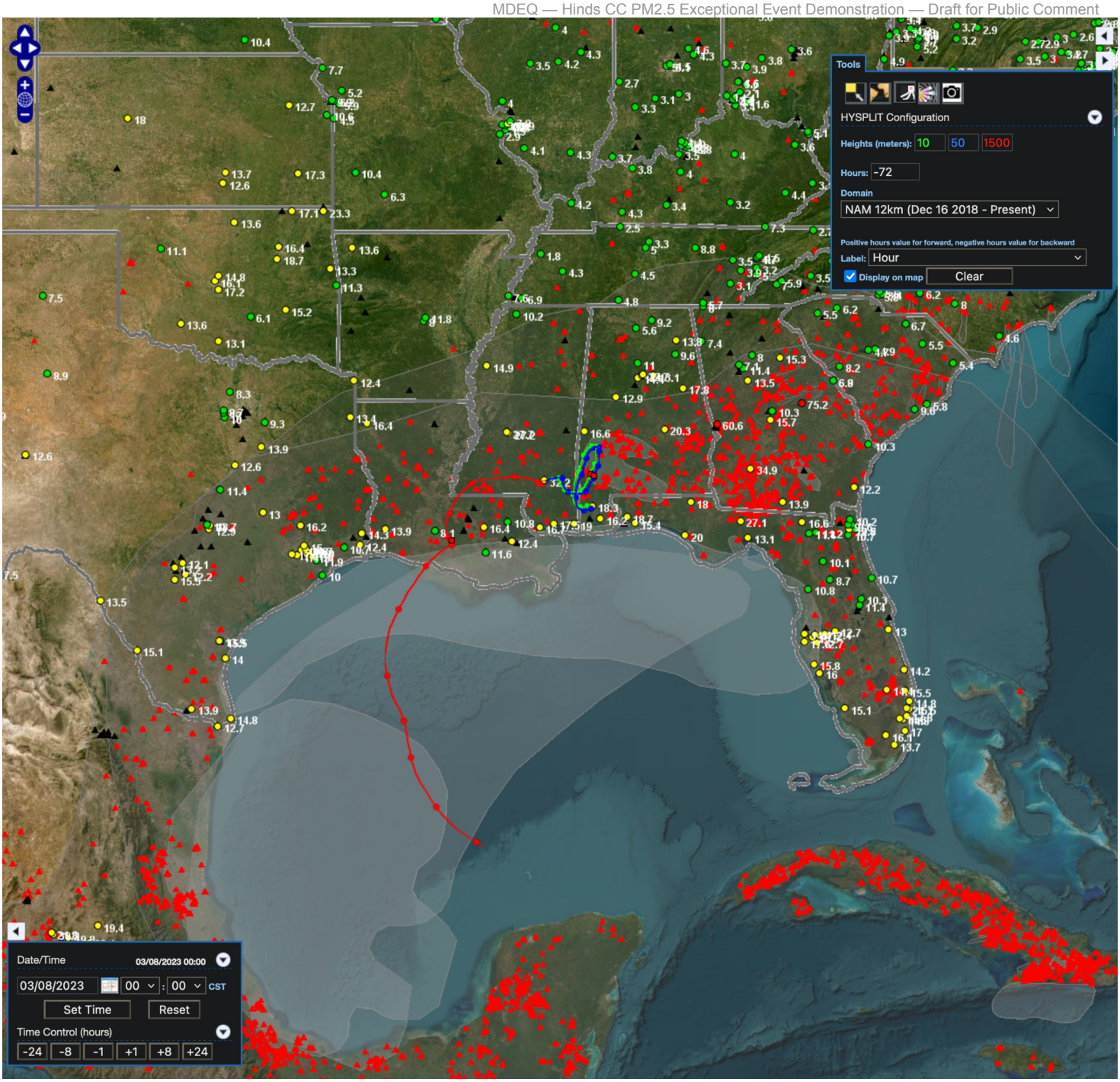


Figure 24. The AirNowTech Navigator image from March 8, 2023, illustrates a complex multi-source smoke impact across the Gulf States. The 72-hour HYSPLIT back-trajectory overlay reveals two distinct transport mechanisms: long-range transport aloft and low-level stagnation. The 1500m parcel (red) traces directly back to wildfire source regions in Mexico and Central America, confirming the continued influx of smoke into the regional airmass. Simultaneously, the 10m (green) and 50m (blue) parcels show tight, recirculating trajectories centered over Alabama and eastern Mississippi. This indicates stagnant, low-wind surface conditions that trapped smoke from regional prescribed fires near the Hinds CC monitor, resulting in sustained elevated PM2.5 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
Hinds CC/280490021/PM2.5-88101/3	03/08/23	35.1	32.3	29.8	28.3	27.4	26	25.1	25.8	30.7	28.6	29	30.5	27.4	26.9	25.9	27.7	23.5	22.5	23.7	25.5	26.2	29.7	29.3	28.2	27.71	35.1

Figure 25. Hourly PM2.5 concentrations at the Hinds CC monitor on March 8, 2023, remained consistently elevated throughout the 24-hour period, as illustrated in the figure above. Every hourly observation for the day exceeded 22 µg/m³, resulting in a daily average of 27.7 µg/m³. This sustained elevation was driven by the regional impact of long-range smoke transport from Mexican wildfires combined with stagnant surface conditions that trapped local prescribed fire emissions near the monitor.

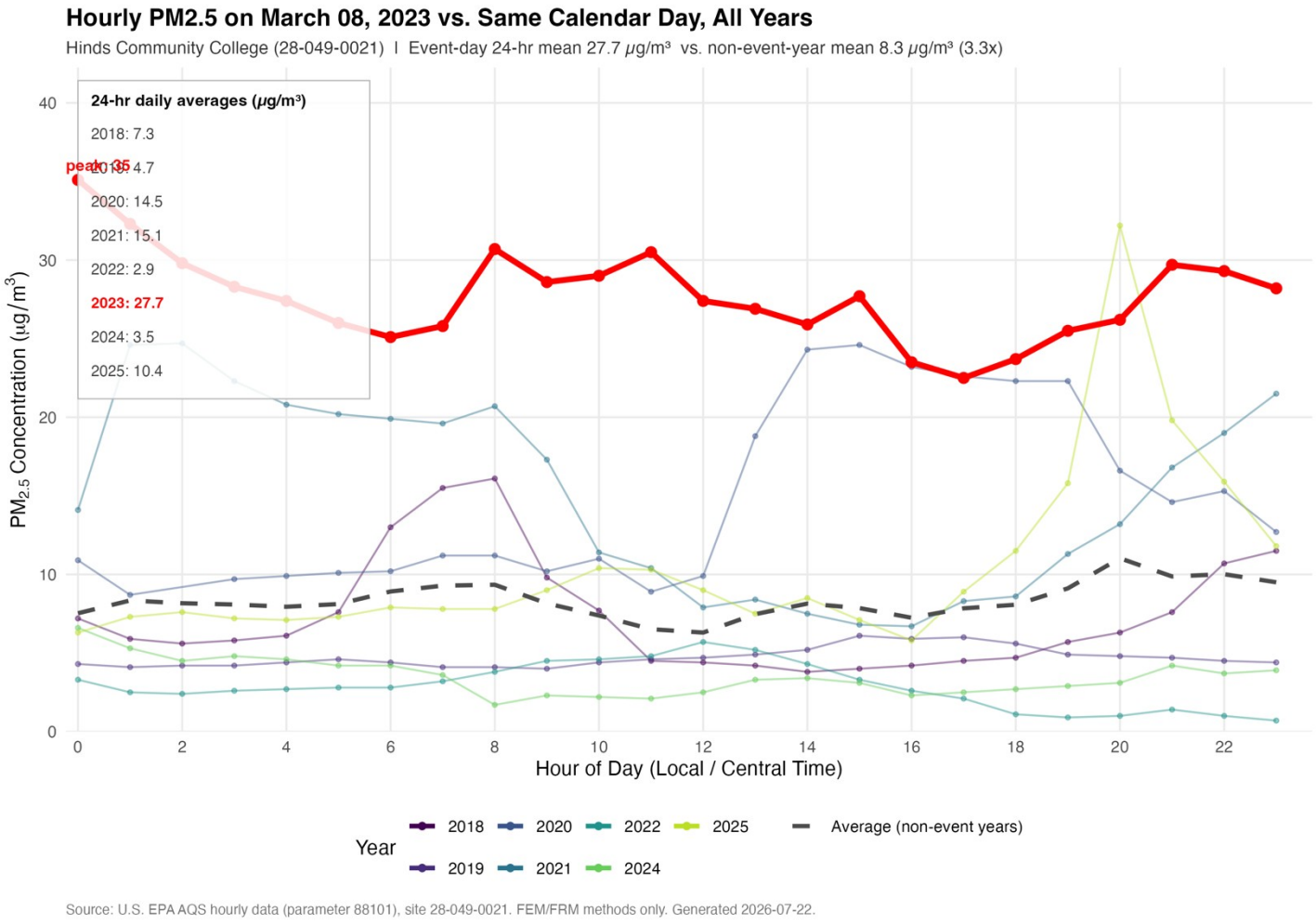


Figure 26. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on March 8 over an eight-year period (2018–2025). The 2023 event data (red line) shows a significant and sustained departure from the historical average (dashed line). This elevated 'floor' where concentrations remained above 20 µg/m³ for the entire 24-hour period highlights the impact of a regional smoke airmass. The elevation resulted from the convergence of local prescribed fire emissions and long-range transport from Mexican and Central American wildfires. Notably, the 2023 daily mean of 27.7 µg/m³ was 3.3 times higher than the non-event historical average of 8.3 µg/m³.

March 9th: PM2.5 levels remained elevated, with the majority of the hours during the day in the 20s µg/m³ 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 concentrations remained in the mid- to upper-20 µg/m³ range through the morning hours. Around midday, the stationary boundary lifted north as a warm front. As the overcast skies cleared, a cumulus field developed, increasing solar heating and raising mixing heights. These improved mixing conditions gradually reduced PM2.5 concentrations into the mid/upper teens by mid-afternoon, with the daily minimum of 16.3 µg/m³ occurring at 1700 CST. Despite the improved daytime mixing, prescribed fires continued throughout the afternoon, limiting the decrease in PM2.5 concentrations. As the warm front moved north, it left a warm, stagnant air mass over the Hinds CC monitor, reducing ventilation. Following sunset, a nocturnal inversion developed, causing PM2.5 concentrations to steadily increase into the upper 20s and lower 30s µg/m³ during the evening. These elevated nighttime concentrations contributed to a 24-hour average PM2.5 concentration of 25.2 µg/m³.

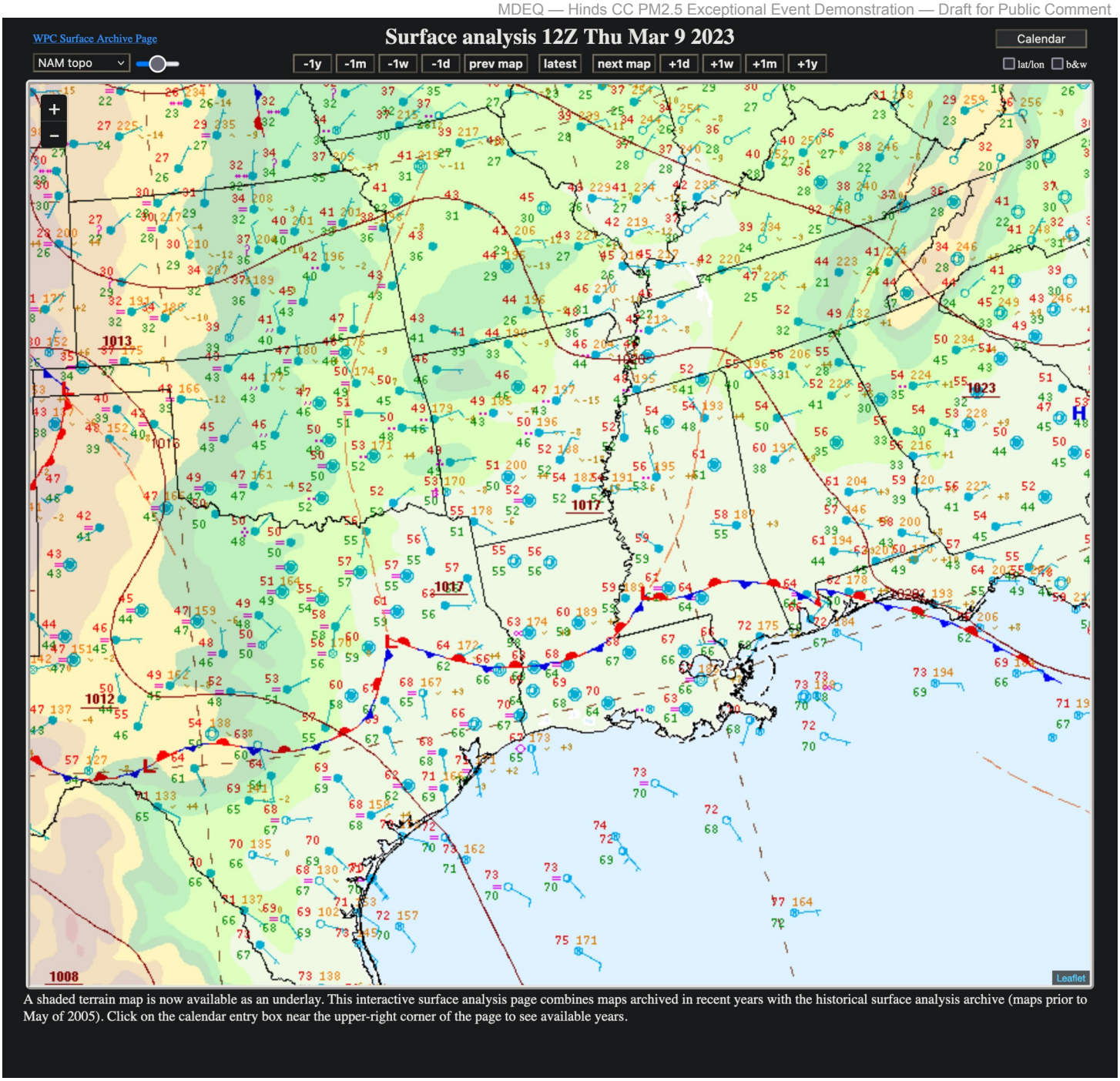


Figure 27. 12Z surface analysis from March 9, 2023, showing a stationary boundary draped across southern Mississippi. The Hinds CC monitor lay north of the boundary in the cool, overcast air behind it, where calm surface winds and suppressed daytime heating sustained the shallow frontal inversion that held prescribed-fire smoke near the ground through the morning hours.

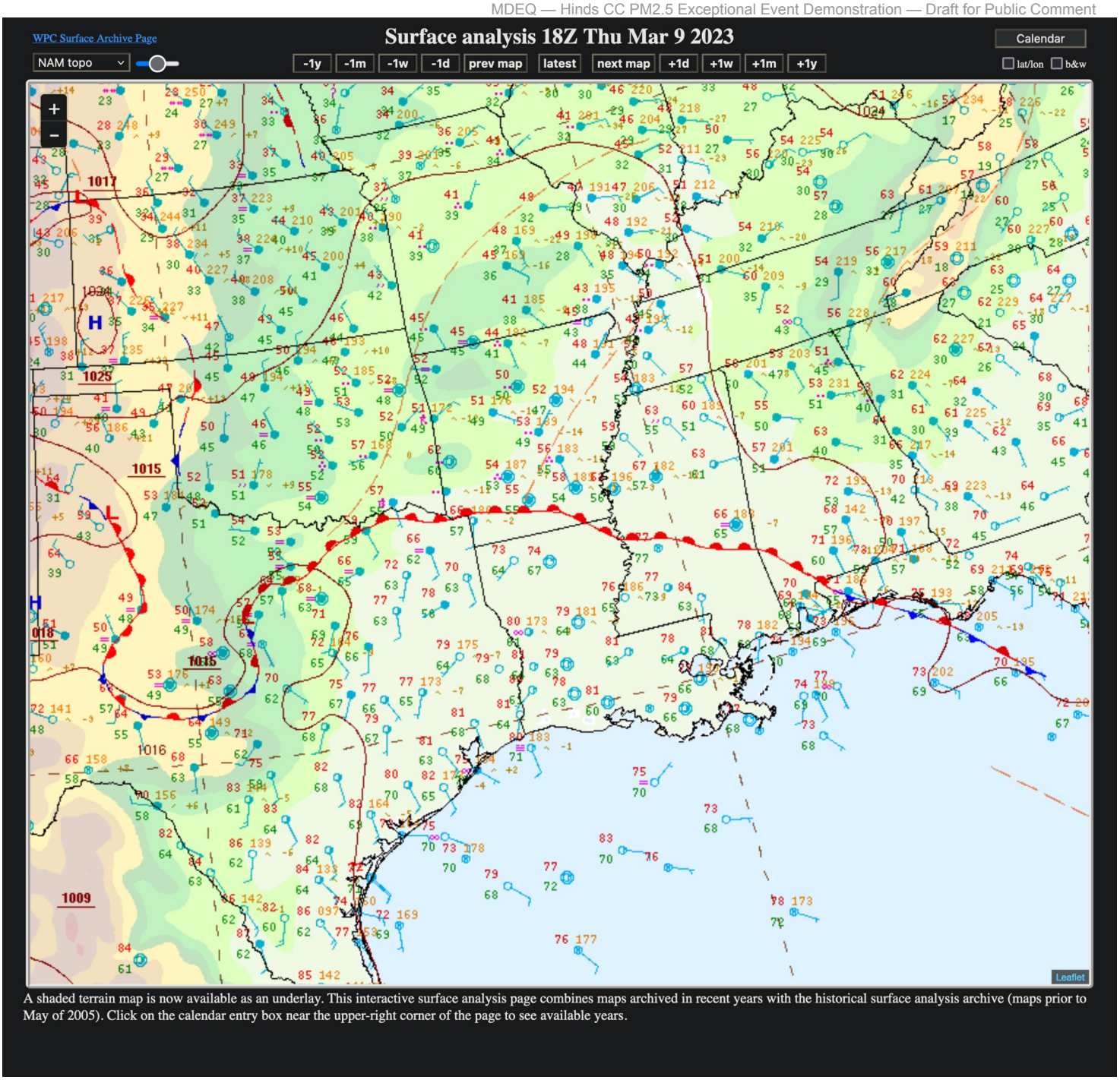


Figure 28. 18z surface analysis from March 9, 2023, showing stationary boundary began to move northward as a warm front, in its wake, leaving warm, stagnant airmass.

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
Hinds CC/280490021/PM2.5-88101/3	03/09/23	28	27.2	26.2	26.6	26.2	25.7	26.5	26.6	27.5	29.7	26.8	25.3	23.5	22.3	20.4	18.4	16.3	17.9	20.9	24.6	28.3	28.2	30.2	32.7	25.25	32.7

Figure 29. The hourly values for March 9, 2023, illustrated in the figure above, show elevated PM2.5 concentrations during the overnight and morning hours, remaining in the mid-to-high 20s. These levels persisted until mid-afternoon, before atmospheric mixing allowed concentrations to briefly dip into the 'teens' (reaching a low of 16.3 µg/m³ at 1700 CST). Following sunset, concentrations increased significantly, returning to the 20s and 30s as a low-level nocturnal inversion developed and

limited vertical mixing. The daily average for the final day of this event window was 25.2 µg/m³, with a maximum hourly value of 32.7 µg/m³ recorded at the end of the day.

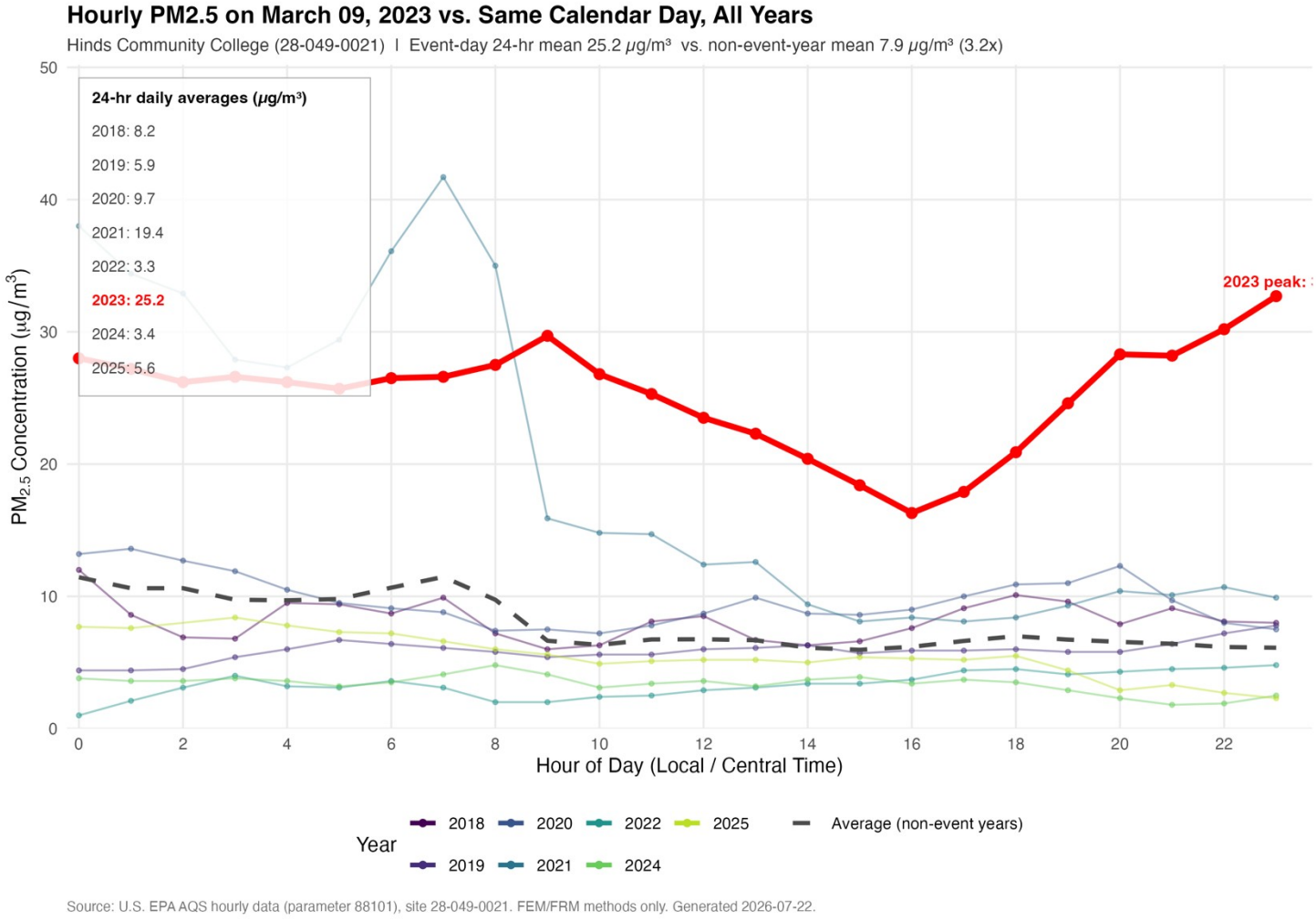
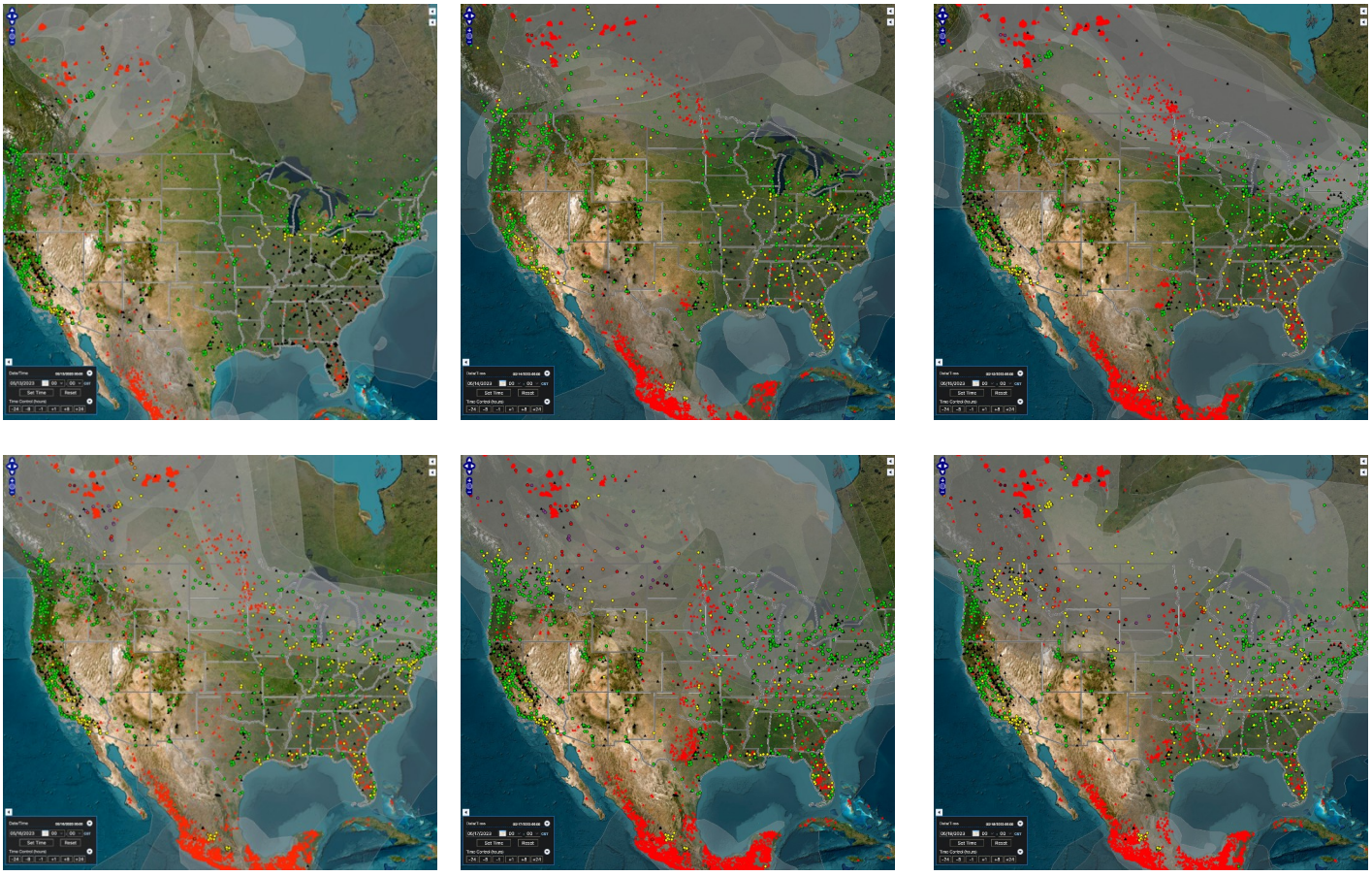


Figure 30. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on March 9 over an eight-year period (2018–2025). The 2023 event data (red line) consistently exceeds the non-event historical average (dashed line) throughout the day. This sustained elevation resulted from the cumulative impact of long-range transport from Mexican/Central American wildfires and emissions from regional prescribed fires. Notably, the 2023 daily mean of 25.2 µg/m³ was 3.2 times higher than the historical average of 7.9 µg/m³, with concentrations rising to a peak of 33 µg/m³ late in the evening due to a strengthening nocturnal inversion.

May 21–26, 2023 — Canadian Wildfire

Field	Detail
Event Type	Canadian Wildfire
Date(s)	May 21, 22, 25 and 26, 2023
24-hr PM2.5 (µg/m³)	27.5, 31.9, 19.5, 23.2
EPA Tier	Tier 1 & Tier 2
AQS Flag (preliminary)	RF

Synopsis: May 21st through the 26th, the Hinds CC 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.



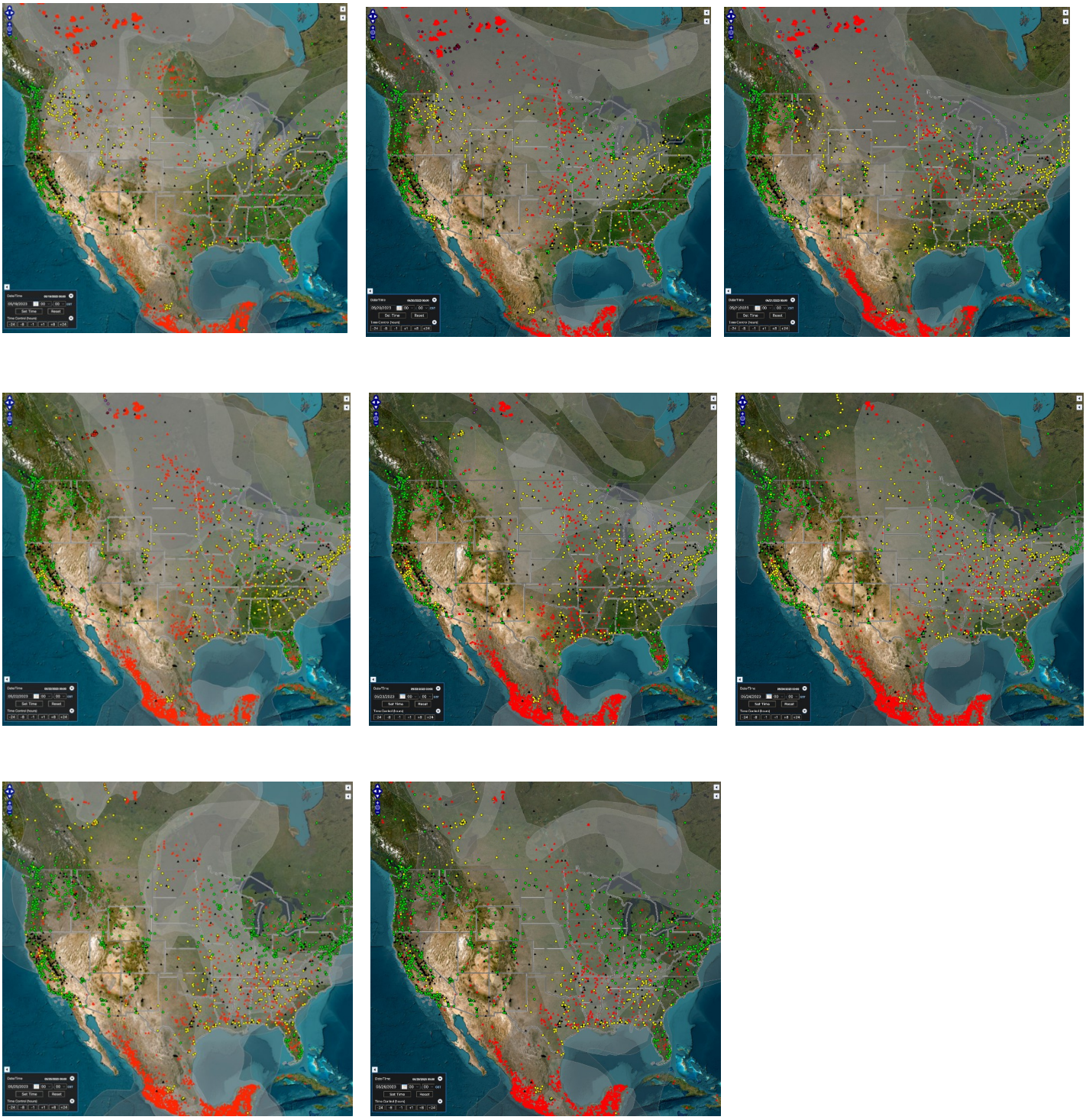


Figure 31. Series of AirNowTech Navigator image taken from May 13th, 2023, through May 26th, 2023, show the progression of smoke from the Canadian wildfires, into the eastern 2/3rds of the United States. Transport of the smoke into the United States was aided by persistent upper-level troughing, helping 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.

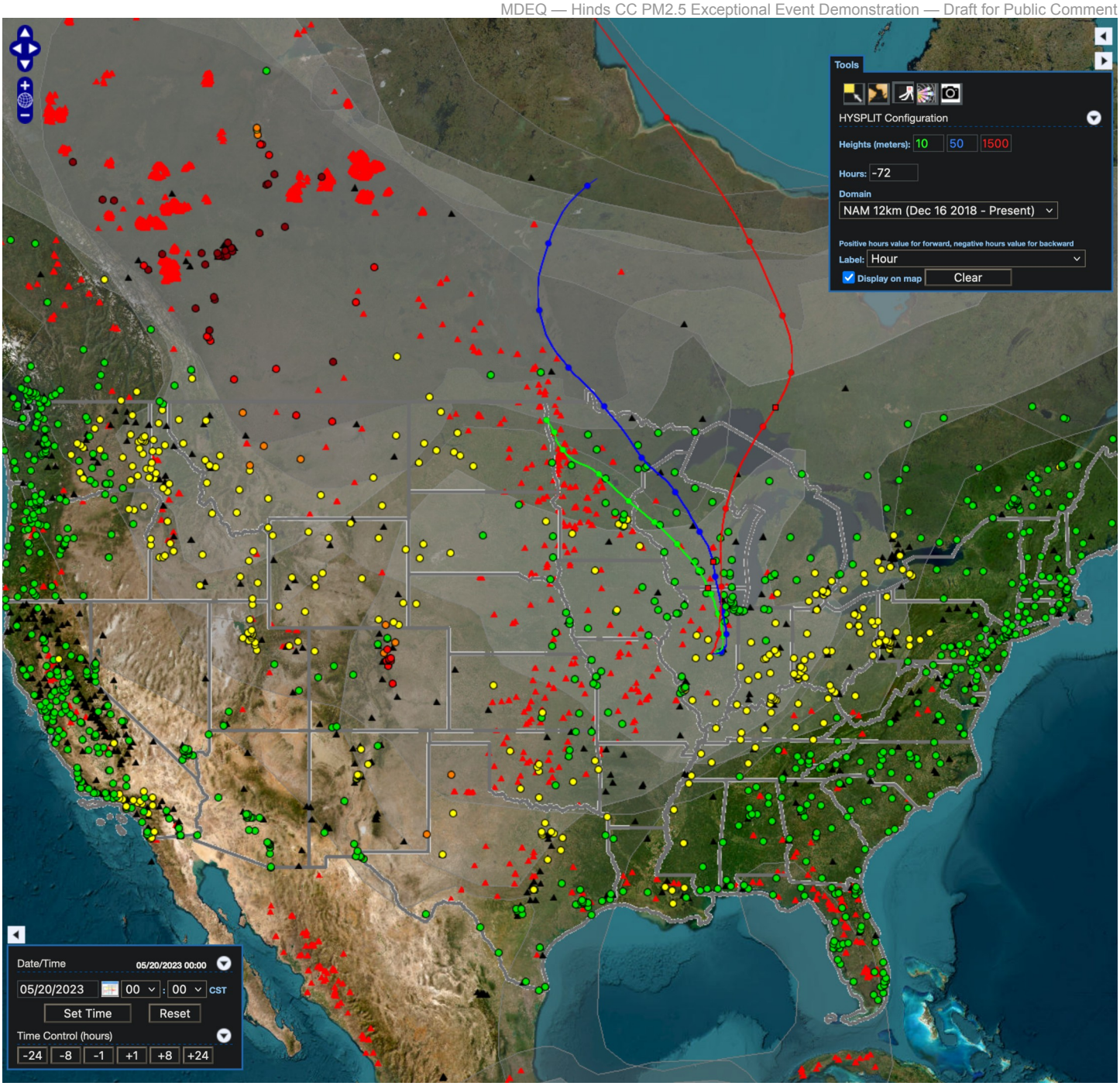


Figure 32. The AirNowTech Navigator image from May 20, 2023, illustrates the massive scale of the wildfires in Western Canada, with numerous source-region monitors reporting purple AQI values (Very Unhealthy), confirming extreme surface smoke concentrations. The 72-hour HYSPLIT back-trajectories (10m, 50m, and 1500m) demonstrate how the leading edge of this smoke airmass was transported from Canada into the Ohio River Valley and toward Mississippi. This southward movement was driven by a cold front that passed through the region the previous day, effectively funneling the smoke-laden air behind the frontal boundary toward the Hinds CC monitor.

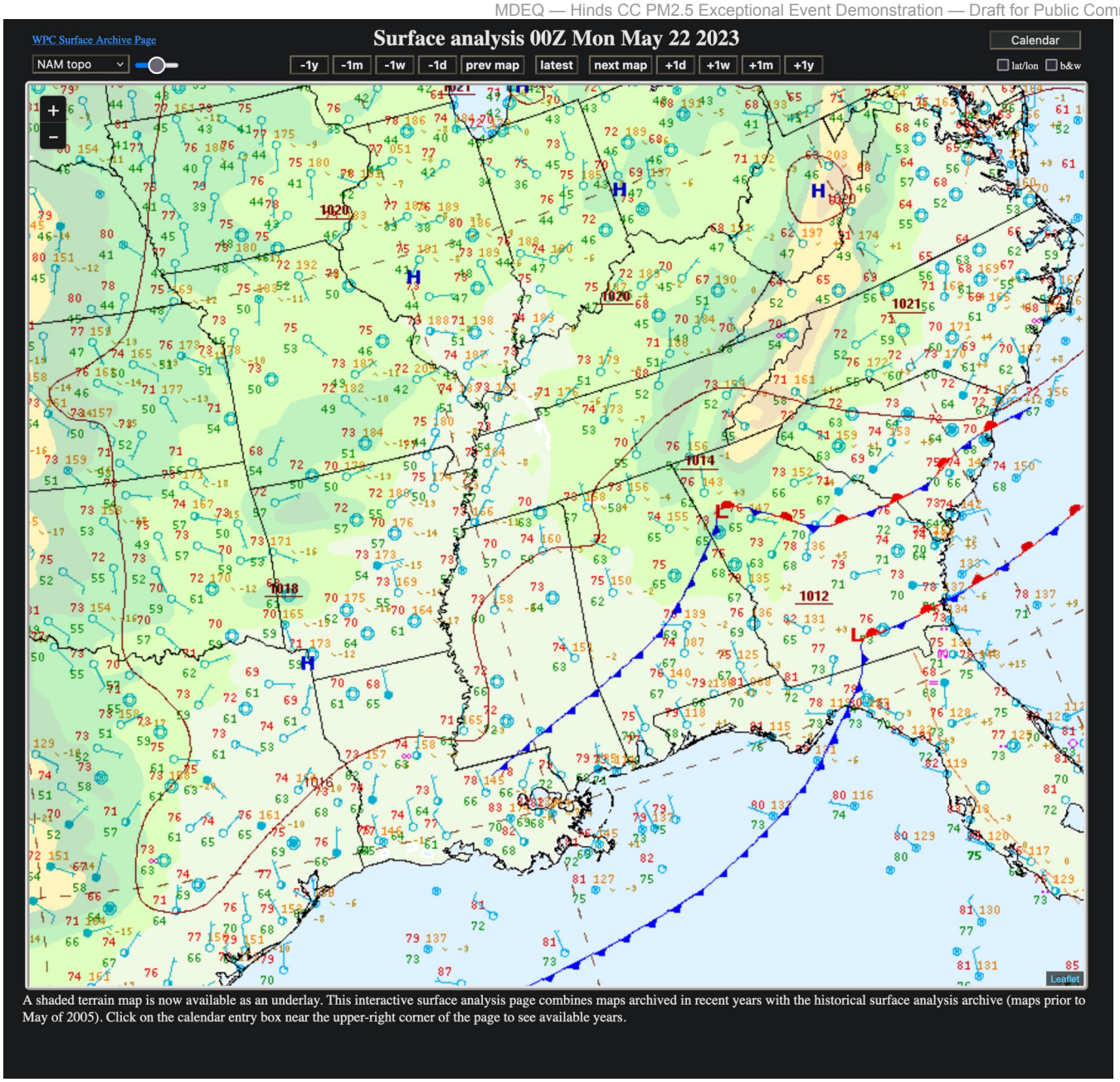


Figure 33. 00z surface analysis (May 21st, 2023, at 7PM CDT), the start date for the exceptional event period for the Hinds CC monitor, showing frontal passages, where northerly flow behind these frontal passages would transport Canadian wildfire smoke over the area.

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
Hinds CC/280490021/PM2.5-88101/3	05/21/23	18.6	20.9	22.7	26.9	29.7	29.2	28.8	27	30.2	34.4	34.8	36.3	36	34.9	32.7	29.4	28.4	27.8	27.1	27.3	26.6	27.1	27.3	26.6	28.78	36.3

Figure 34. The hourly PM2.5 values for May 21, 2023, illustrated in the figure above, show significantly elevated concentrations primarily in the twenties and thirties. Following the passage of an initial frontal boundary the previous day, concentrations increased steadily throughout the morning. As a secondary front moved through the region, a smoke-laden Canadian airmass arrived, causing PM2.5 values to peak during the late morning and midday hours. The maximum hourly concentration of 35.4 µg/m³ was recorded at 1:00 p.m. (1300 CDT). Although levels decreased slightly in the evening, they remained elevated in the high 20s. Atmospheric transport, combined with a developing low-level

nocturnal inversion, served to trap the smoke near the surface, maintaining these high concentrations and resulting in a daily average of 27.5 µg/m³ at the Hinds CC monitor.

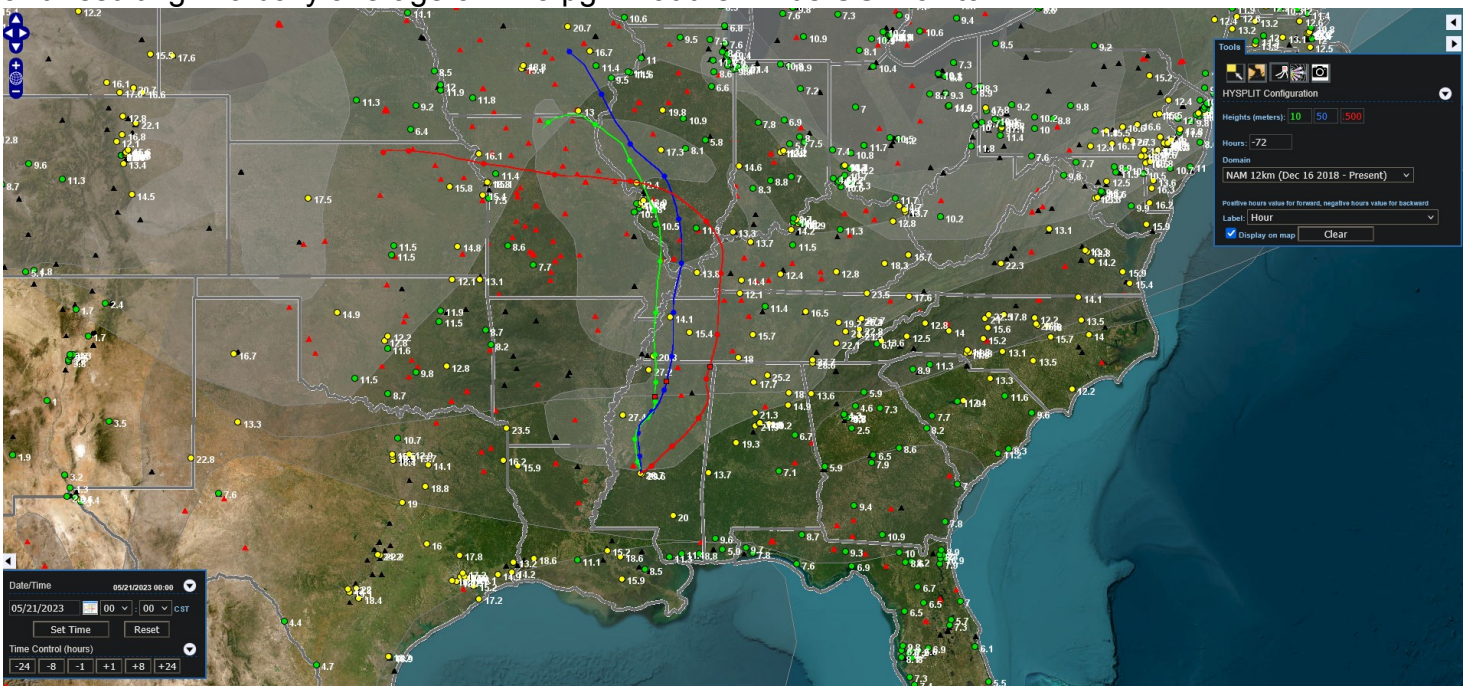


Figure 35. The AirNowTech Navigator image from May 21, 2023, the first day of the exceptional event illustrates that following a series of frontal passages, smoke was transported directly toward and over the Hinds CC monitor. The 72-hour HYSPLIT back-trajectory overlay indicates that air parcels at the 10m (green) and 50m (blue) levels originated from a smoke-laden airmass to the north, moving southward into Mississippi. These low-level trajectories confirm a clear transport pathway of Canadian smoke from the source region to the Hinds CC monitor, resulting in the elevated PM2.5 concentrations observed.

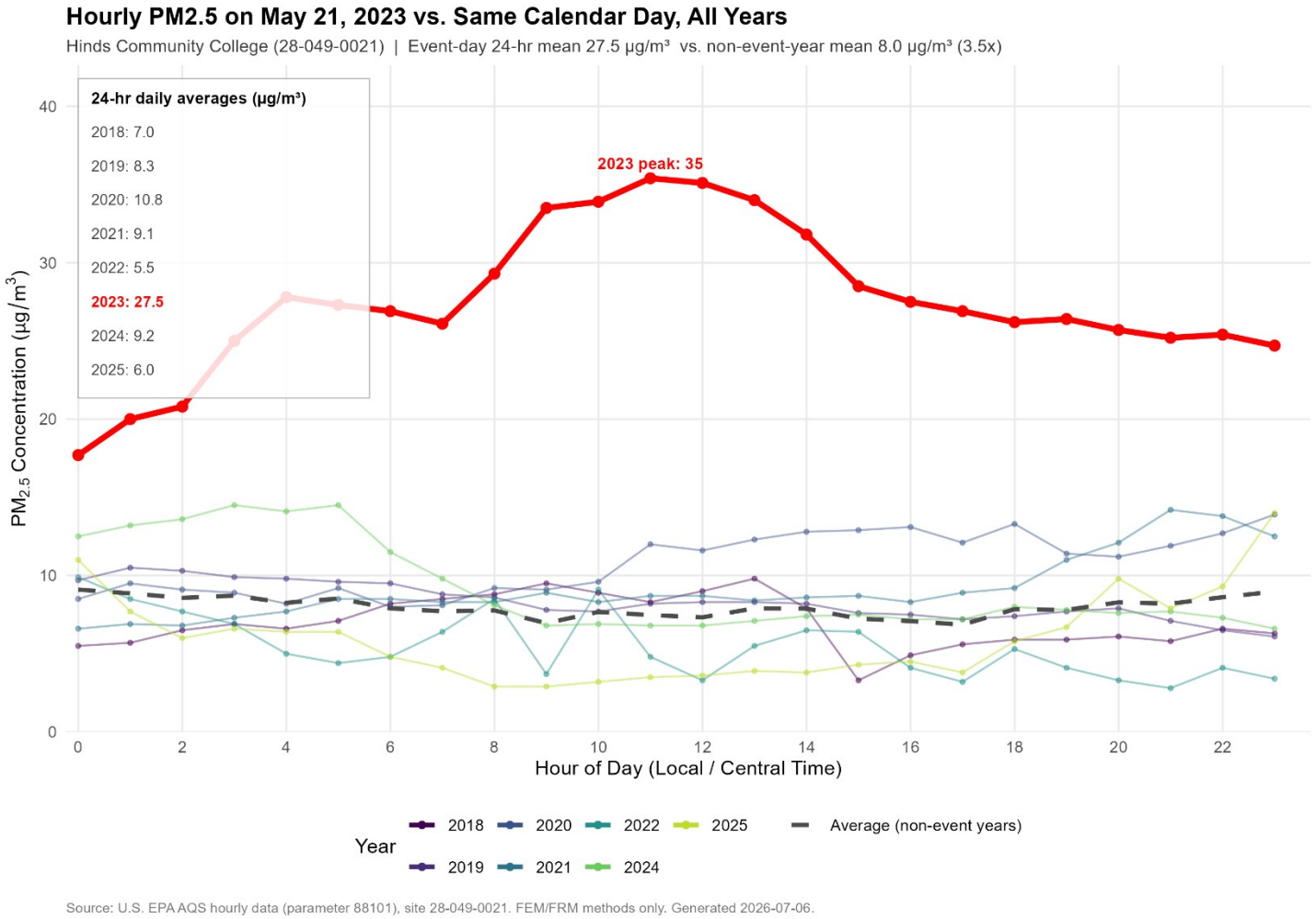


Figure 36. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on May 21 over an eight-year period (2018–2025). The 2023 event data (red line) represents a significant and sustained departure from the historical average (dashed line). On this day, the 24-hour mean of 27.5 µg/m³ was nearly 3.5 times higher than the non-event historical average of 8.0 µg/m³. While typical years show concentrations consistently below 15 µg/m³, the 2023 data remains elevated throughout the entire 24-hour period, reaching an hourly peak of 35 µg/m³. This anomalous deviation from the multi-year climatology confirms that the elevated concentrations were the result of an exceptional external smoke event rather than typical local emissions.

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.

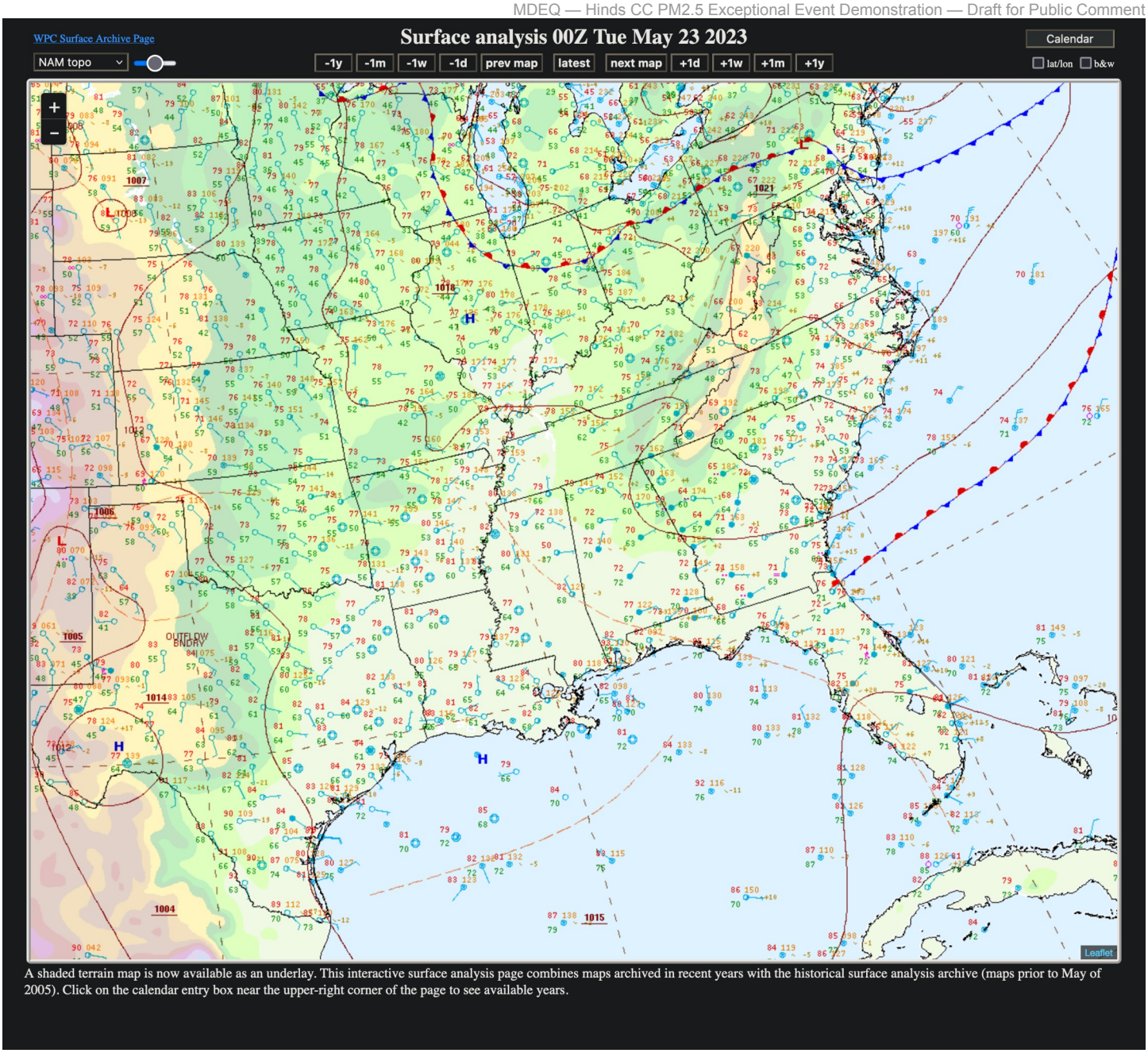


Figure 37. 00z surface analysis (May 22nd, 2023, at 7PM CDT), showing High pressure leading to stagnant conditions across Mississippi and around the Hinds CC monitor.

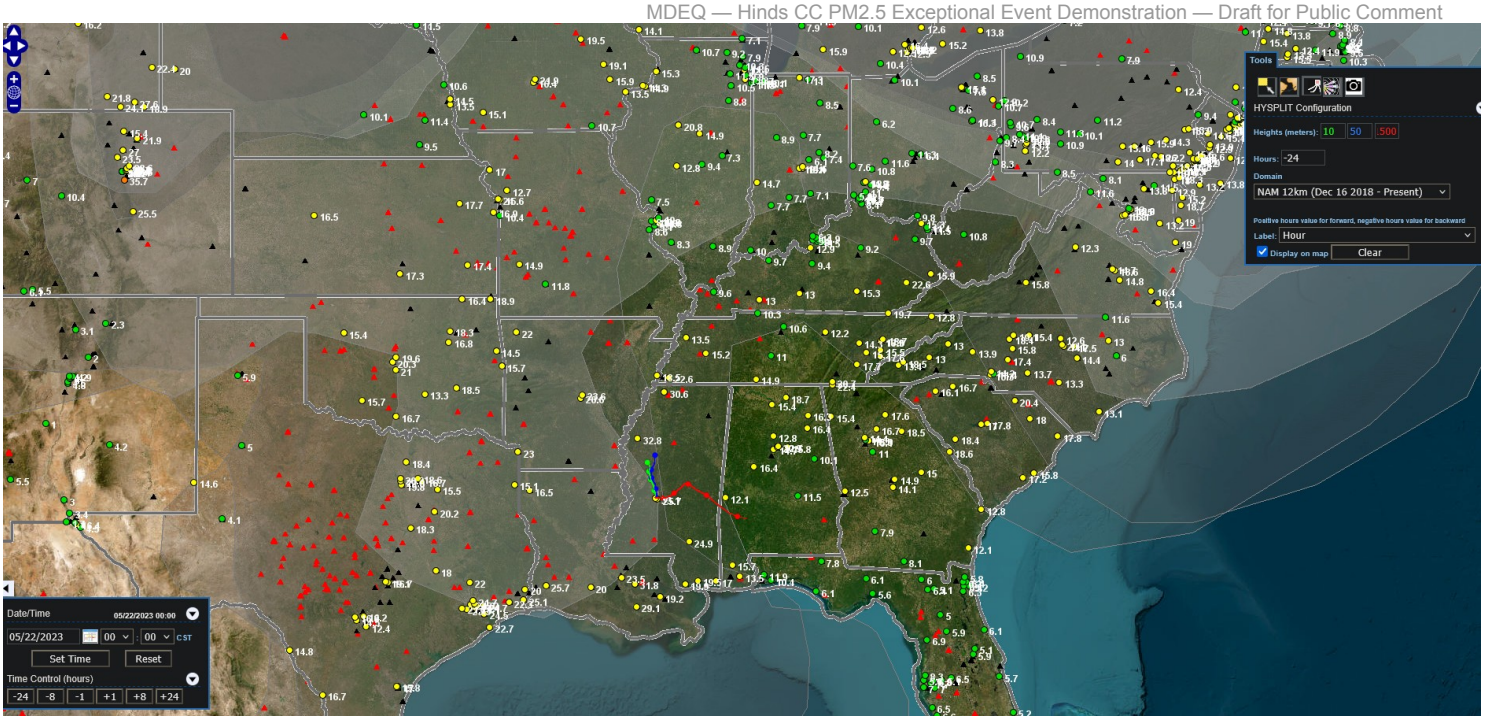


Figure 38. The AirNowTech Navigator image from May 22, 2023, illustrates significantly elevated PM2.5 concentrations at the Hinds CC monitor. This was the result of regional stagnation and limited ventilation following the initial arrival of Canadian smoke. The 24-hour HYSPLIT back-trajectories for the 10m (green), 50m (blue), and 500m (red) levels show tight, recirculating air parcels with very little horizontal movement. These stagnant conditions kept the monitor entrenched in the smoke-laden airmass that had been transported southward from Canadian wildfires, preventing the dispersion of pollutants and resulting in a 24-hour average of 32.0 µg/m³.

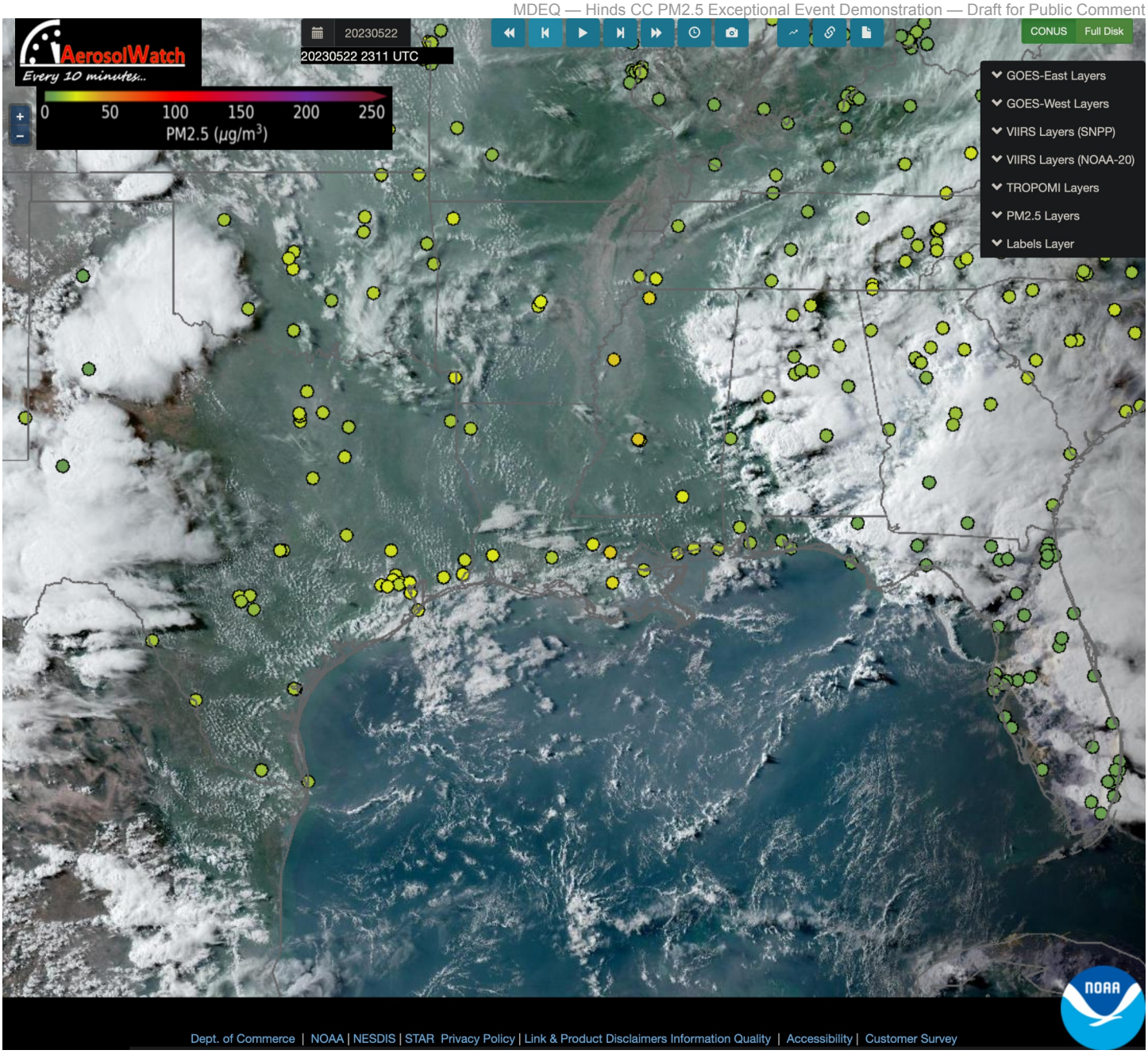


Figure 39. The GOES-East True Color satellite image from May 22, 2023, at 2311 UTC, illustrates an expansive smoke shield covering the Gulf States. This broad airmass of smoke was transported southward from Canadian wildfires, as confirmed by back-trajectory analysis. The region-wide haze is corroborated by the numerous yellow icons representing PM2.5 monitoring sites across Mississippi, Louisiana, and Alabama, which indicate sustained 'Moderate' AQI levels during this period.

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
Hinds CC/280490021/PM2.5-88101/3	05/22/23	25.9	24.7	28.7	34.7	35.2	35.5	33.7	33.6	33.1	33.2	33.7	34.6	34.1	34.1	33.8	33	32.4	32.9	34.7	35.3	34.3	34.1	35.3	35.4	33.17	35.5

Figure 40. Hourly PM2.5 concentrations at the Hinds CC monitor on May 22, 2023, remained consistently elevated throughout the 24-hour period, as shown in the figure above. These sustained high levels were a direct response to the thick Canadian smoke shield encompassing the Southeastern United States. The continuous impact of the smoke-laden airmass resulted in a 24-hour daily average of 32.0 µg/m³, with hourly concentrations reaching an hourly maximum of 34.5 µg/m³.

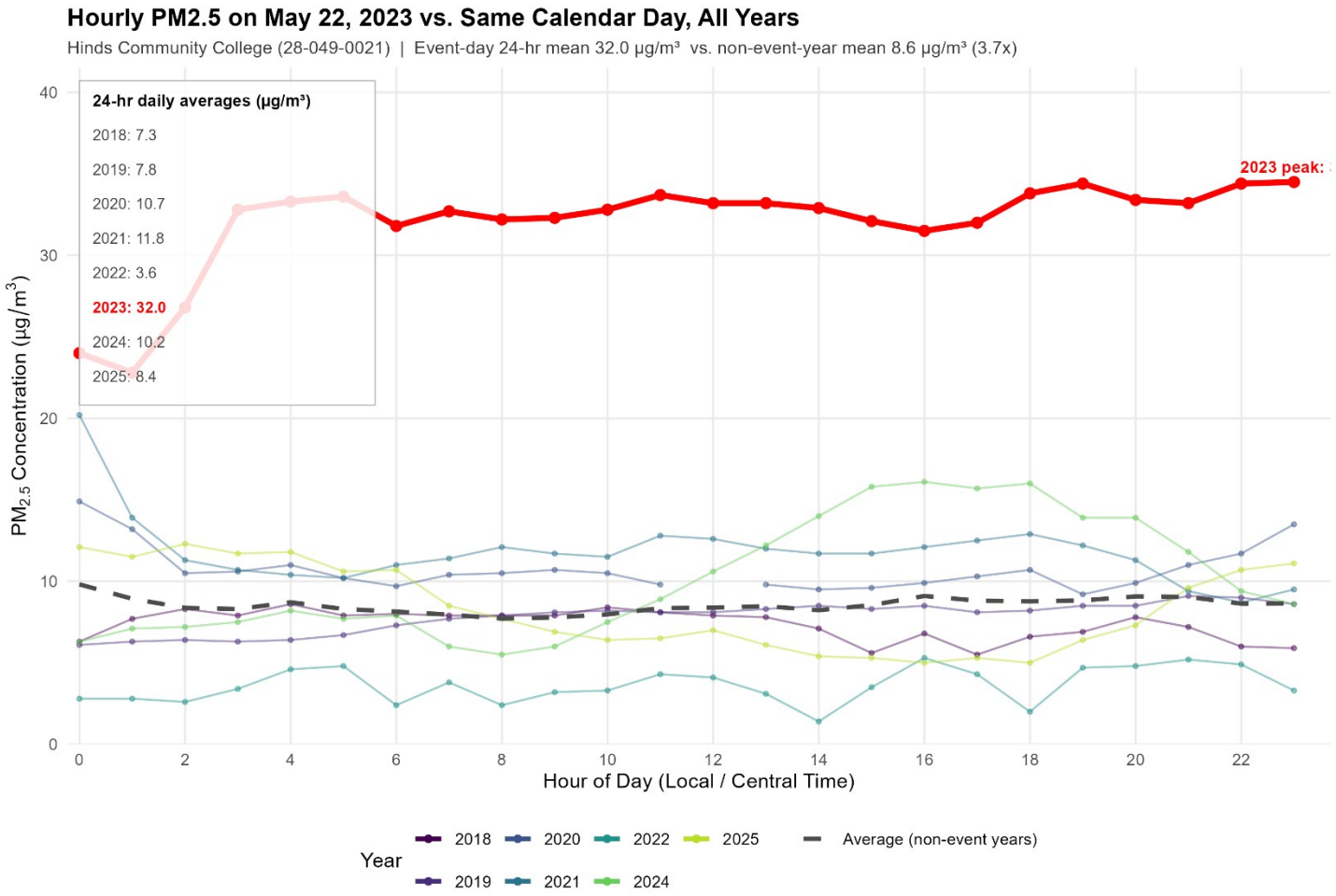


Figure 41. The historical hourly comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on May 22 over an eight-year period (2018–2025). The 2023 event data (red line) represents a drastic departure from the historical average (dashed line), with concentrations remaining sustained between 30 and 35 µg/m³ throughout the entire 24-hour period. On this day, the 2023 daily mean of 32.0 µg/m³ was 3.7 times higher than the non-event historical average of 8.6 µg/m³. This anomalous temporal profile confirms that a smoke-laden Canadian airmass dominated the regional air quality, overriding typical local diurnal patterns.

May 25th: Under the same persistent surface high-pressure and coastal low-pressure couplet that anchored Canadian wildfire smoke over the Lower Mississippi Valley (described below), the Hinds CC monitor recorded a 24-hour PM2.5 average of 19.6 µg/m³ on May 25, 2023 (Tier 2). The site remained in exceedance without interruption between the May 22 and May 26 peaks, confirming that the transported smoke shield persisted continuously through the intervening days. May 23 and May 24, 2023, remain flagged in AQS under the same RF qualifier, as they fall within this continuous smoke episode; MDEQ is not requesting their exclusion because their 24-hour averages — 12.1 and 12.6 µg/m³ — fall below the 17.2 µg/m³ Tier 2 screening threshold applicable to the site for this period.

Figure 42. 00z surface analysis (May 25th, 2023, at 7PM CDT) showing expansive very light /stagnant winds over central Mississippi helping trap Canadian wildfire smoke over the area, keeping PM2.5 concentrations elevated.

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.

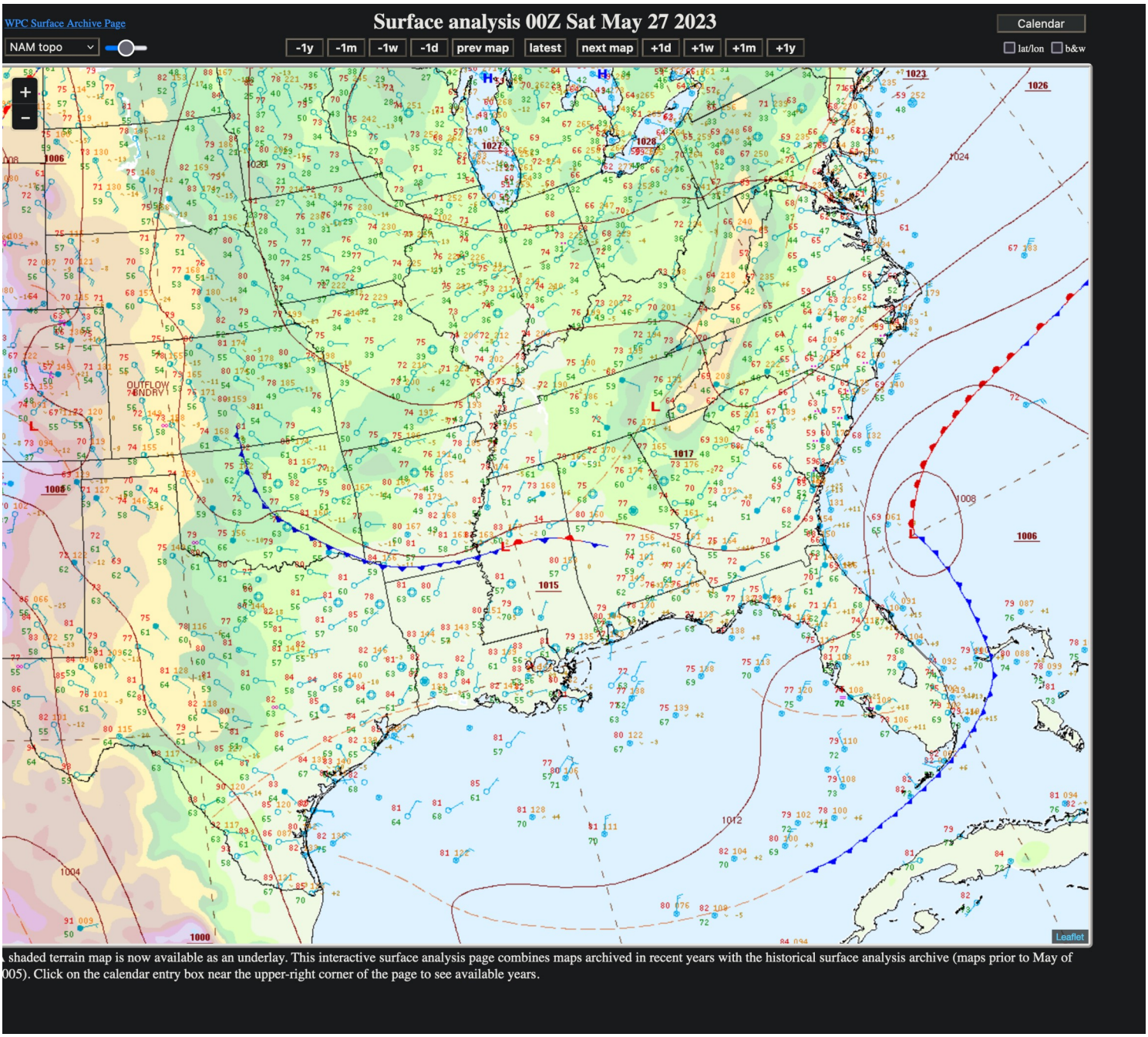


Figure 43. 00z surface analysis (May 26th, 2023, at 7PM CDT) showing expansive High-pressure system over the Great Lakes Region and Low-pressure system of the Florida, Georgia coastline, that would help steer the Canadian wildfire smoke into the Lower Mississippi River Valley.

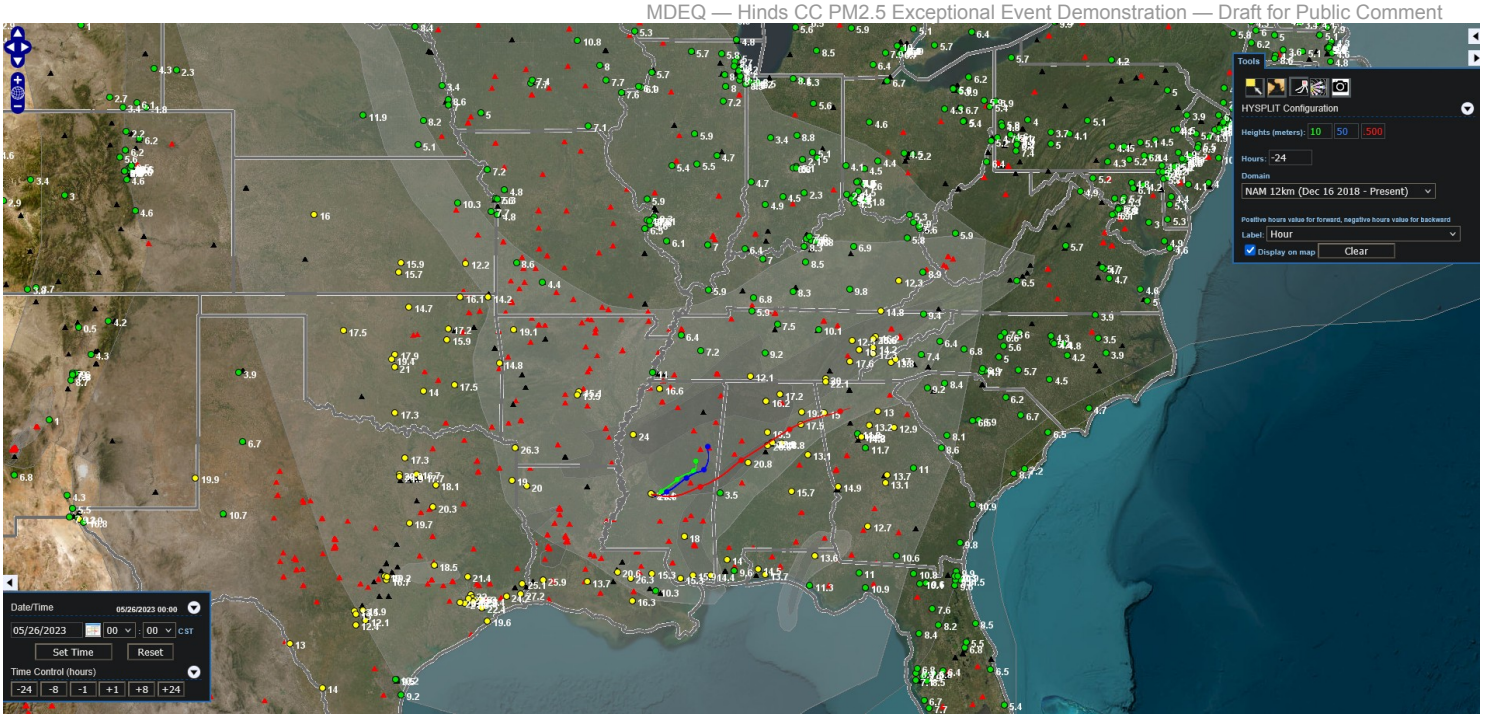


Figure 44. The AirNowTech Navigator image from May 26, 2023, illustrates a broad area of smoke-laden air persisting over the Gulf States. The 24-hour HYSPLIT back-trajectories for the 10m (green), 50m (blue), and 500m (red) levels show a consistent transport pathway from the northeast. This meteorological setup continued to funnel Canadian wildfire smoke—which had previously entered the eastern United States—directly toward the Hinds CC monitor. The sustained impact of this airmass resulted in a daily PM2.5 average of 23.3 µg/m³, placing the monitor well into the Moderate AQI category.

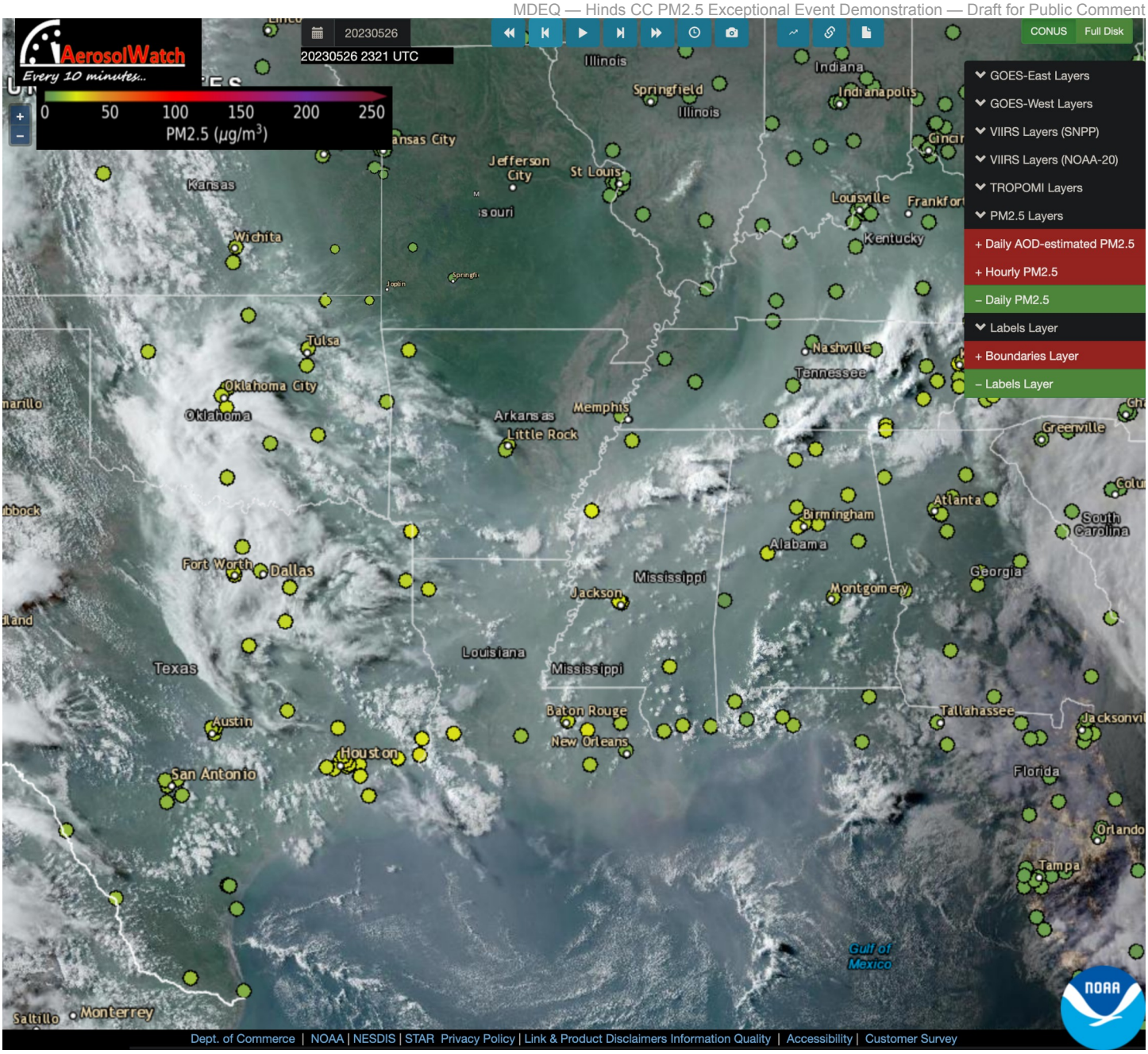


Figure 45. The GOES-East True Color satellite image from May 26, 2023, at 2321 UTC, illustrates an expansive smoke shield originating from Canadian wildfires encompassing the Lower Mississippi River Valley. This regional-scale haze is responsible for the elevated PM2.5 concentrations observed throughout the region. The widespread nature of the impact is corroborated by the yellow icons across the monitoring network, which indicate that the Hinds CC monitor and surrounding stations were still entrenched in a smoke-laden airmass with 'Moderate' AQI 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
Hinds CC/280490021/PM2.5-88101/3	05/26/23	28.2	28.3	27.2	28.6	30.9	29.5	26.9	25.2	24.9	24.4	22.6	21.7	21.4	21.4	20.3	20.3	19.7	20	20.6	21.7	25.6	26.4	25.2	26.3	24.47	30.9

Figure 46. Hourly PM2.5 concentrations at the Hinds CC monitor for May 26, 2023, remained consistently elevated throughout the 24-hour period, as shown in the figure above. Concentrations peaked during the early morning hours at 29.0 µg/m³ (6:00 a.m., 0600 CDT) as lingering Canadian smoke was trapped near the surface by a nocturnal inversion. Although values dipped slightly during

the afternoon due to increased vertical mixing, they remained well above typical background levels, never falling below 18.8 µg/m³. This sustained impact resulted in a daily average of 23.3 µg/m³, confirming that the Hinds CC monitor remained entrenched in the smoke-laden airmass through the end of the event period.

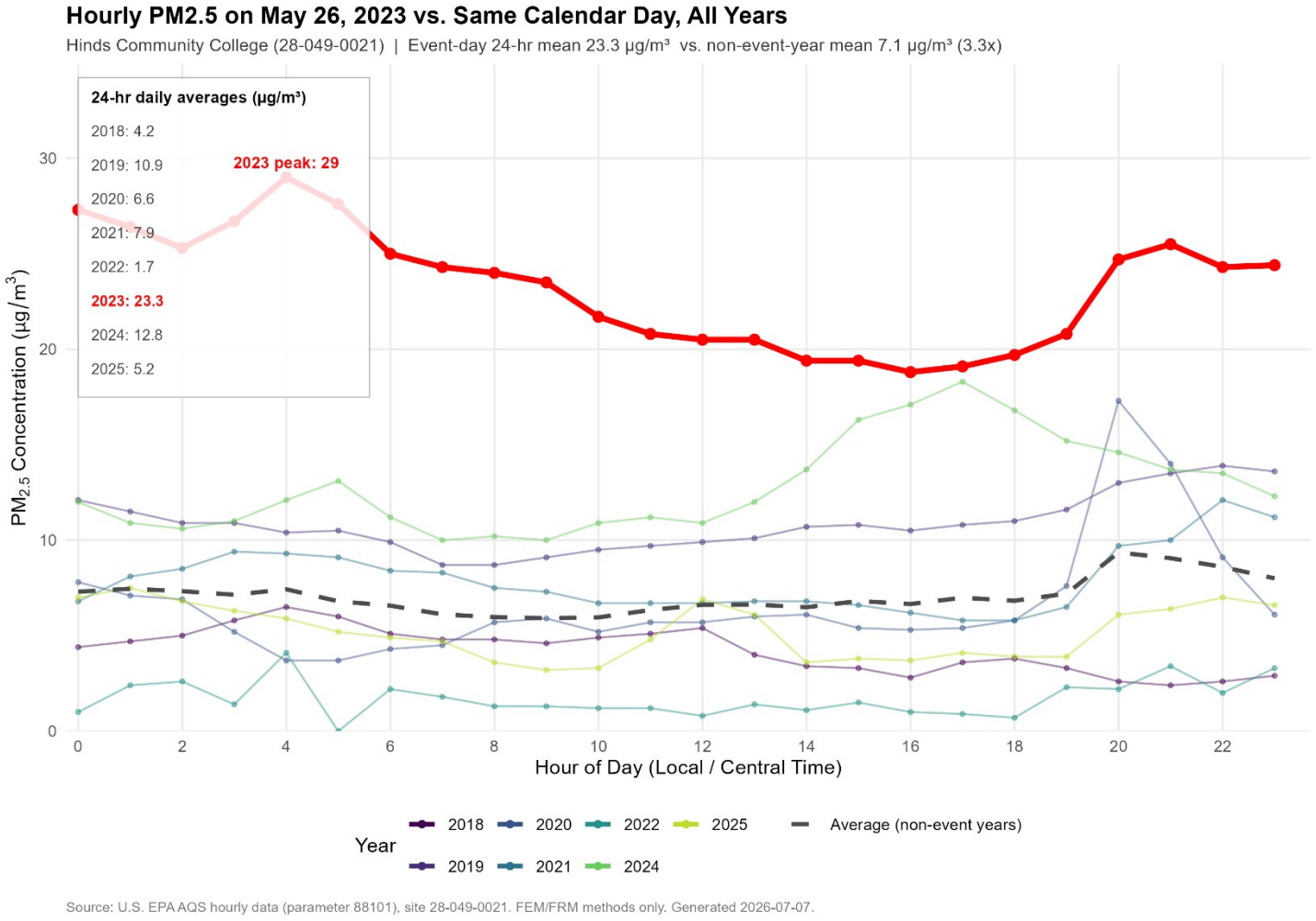
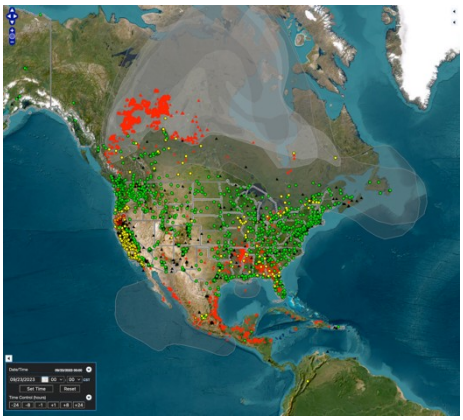


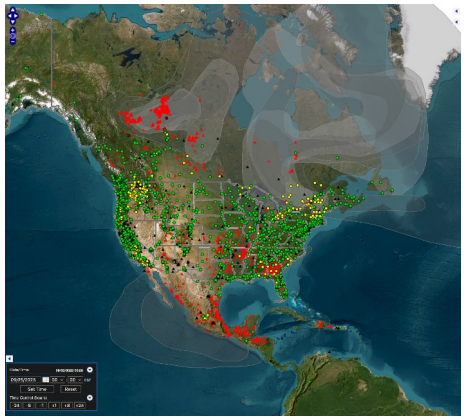
Figure 47. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on May 26 over an eight-year period (2018–2025). The 2023 event data (red line) represents a sustained and significant departure from the historical average (dashed line). On this day, the 24-hour mean of **23.3 µg/m³** was **3.3 times higher** than the non-event historical average of 7.1 µg/m³. Notably, the lowest hourly concentration recorded in 2023 (19 µg/m³) remained higher than the peak hourly values of almost every other non-event year in the dataset. This anomalous profile confirms that the monitor remained impacted by an external smoke-laden airmass rather than typical local emissions.

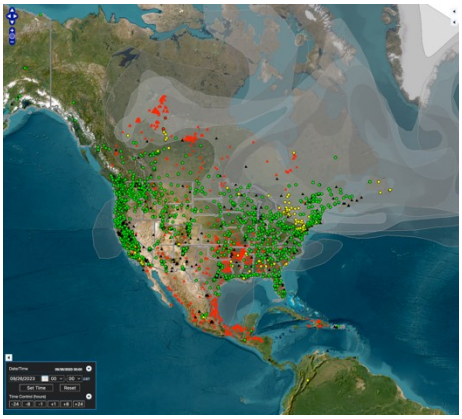
October 3–5, 2023 — Canadian Wildfire

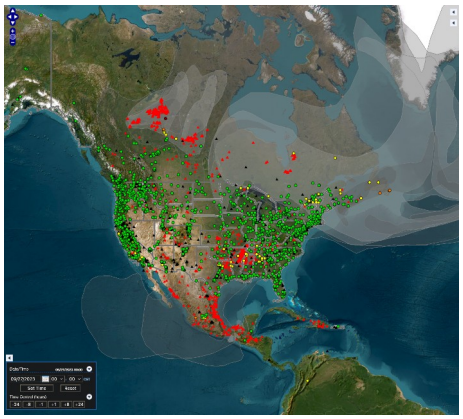
Field	Detail
Event Type	Canadian Wildfire
Date(s)	October 3, 4 and 5, 2023
24-hr PM2.5 (µg/m³)	19.8, 25.8, 24.1
EPA Tier	Tier 2
AQS Flag (preliminary)	RF

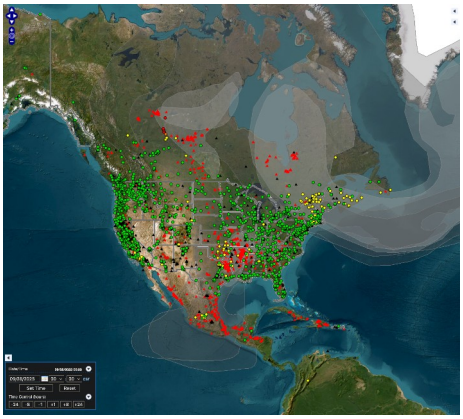
Synopsis: In the days leading up to the exceptional event at the Hinds CC monitor, numerous wildfires in both northwestern Canada as well as northeastern and eastern Canada which created a large shield of wildfire smoke that blanketed much of Canada. From late September into early October, these Canadian 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 Hinds CC monitor in Mississippi.

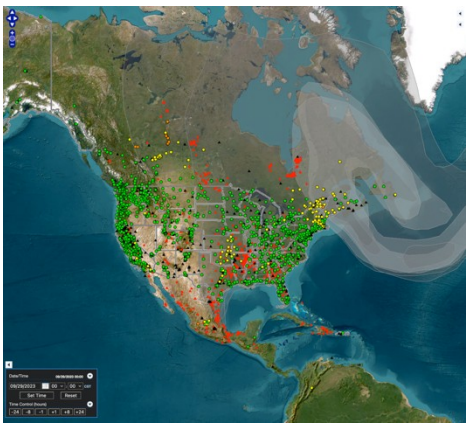


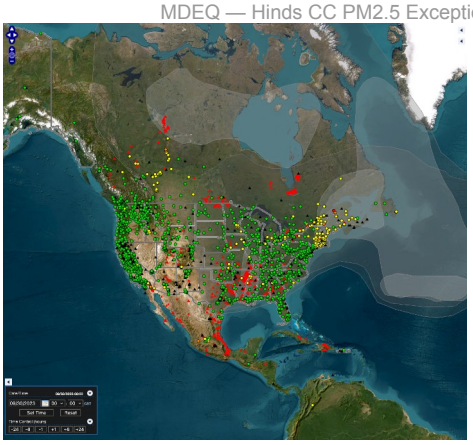


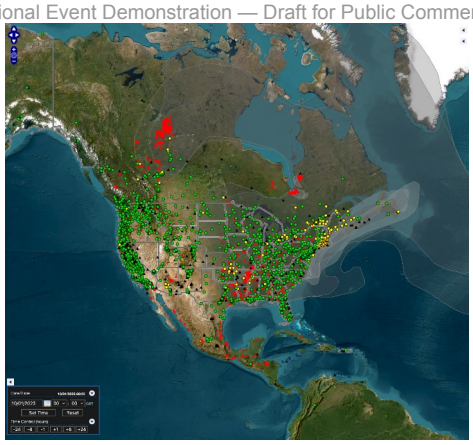


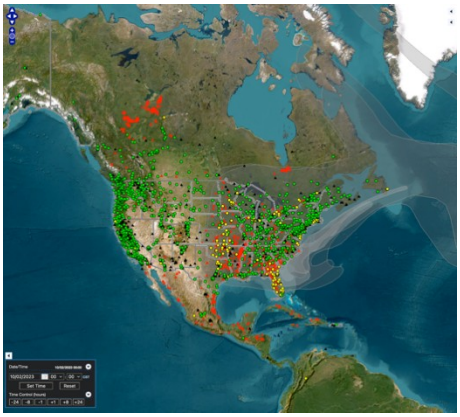


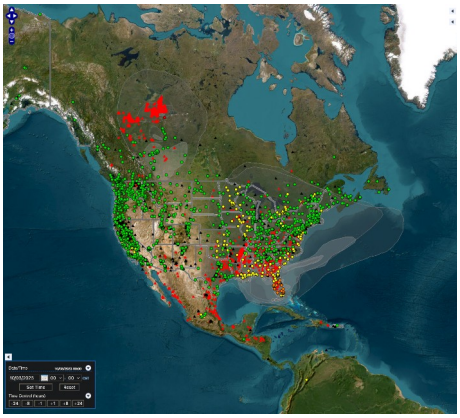


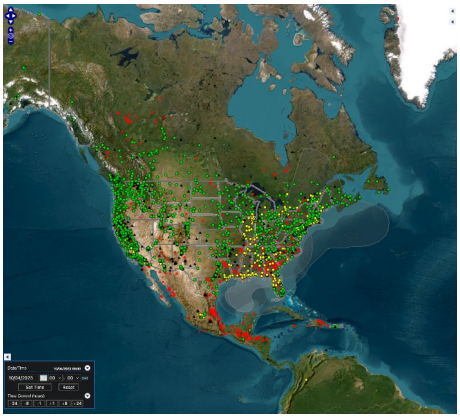












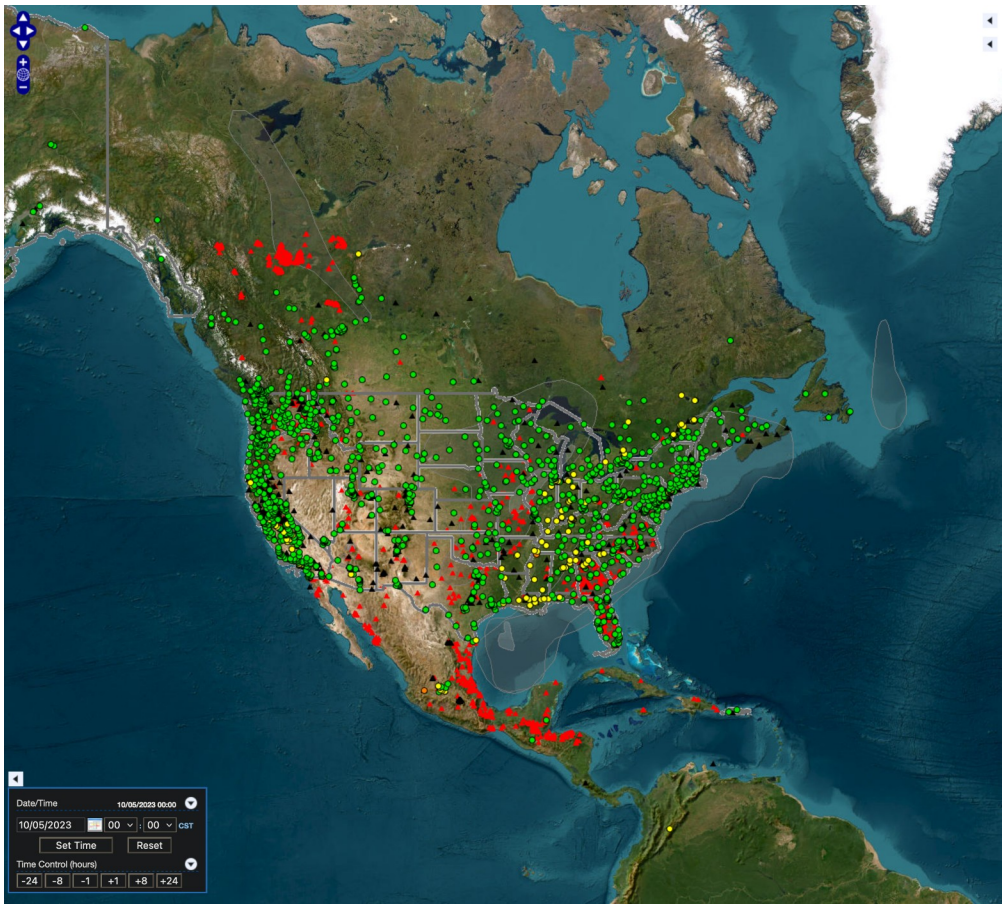

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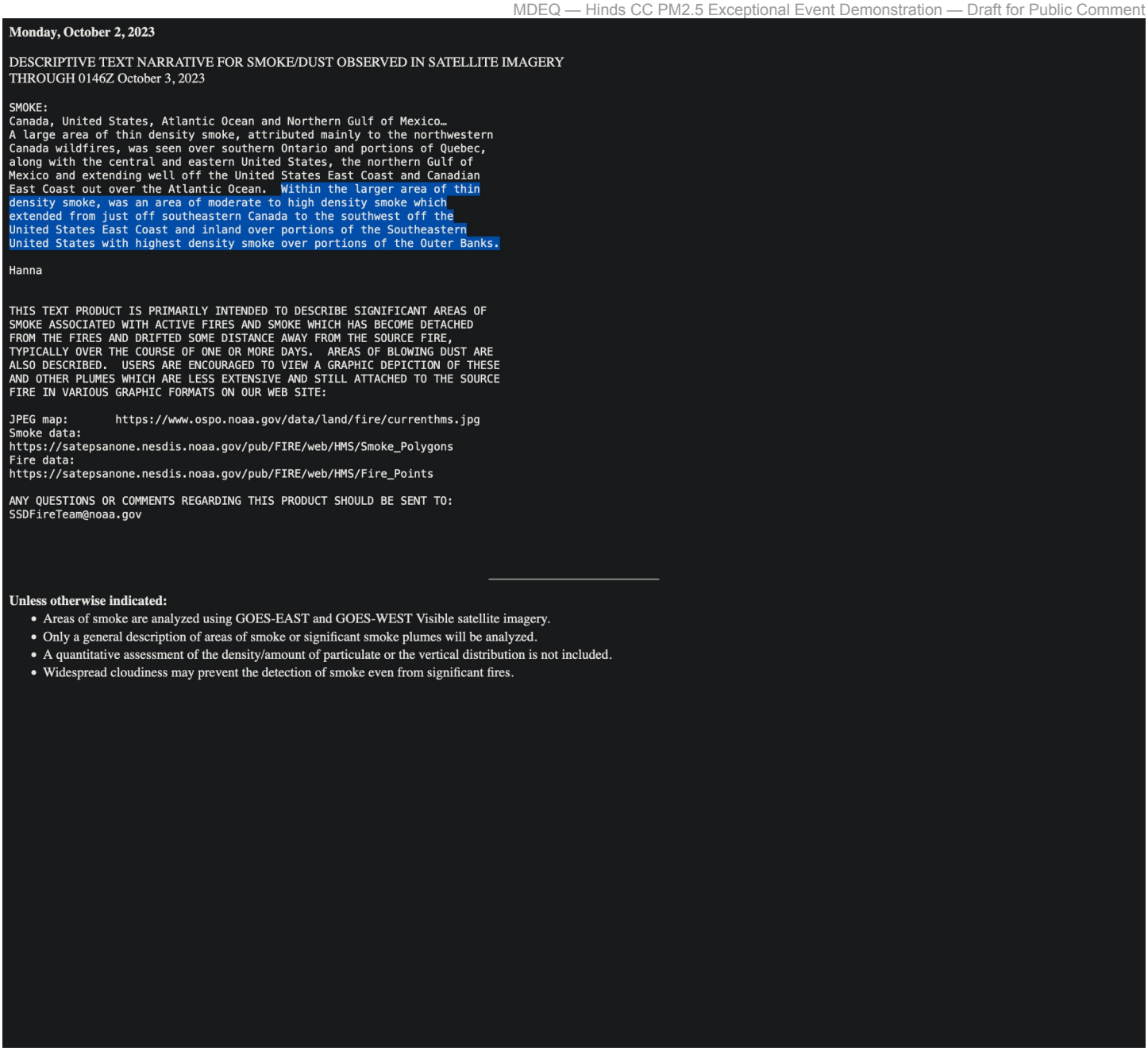
Figure 48. A series of AirNowTech Navigator images from September 23rd through October 5th, 2023, shows the progression of Canadian wildfire smoke. The smoke from fires in western Canada moved eastward and merged with smoke from ongoing wildfires in Quebec. The combined plume then transported southward 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:

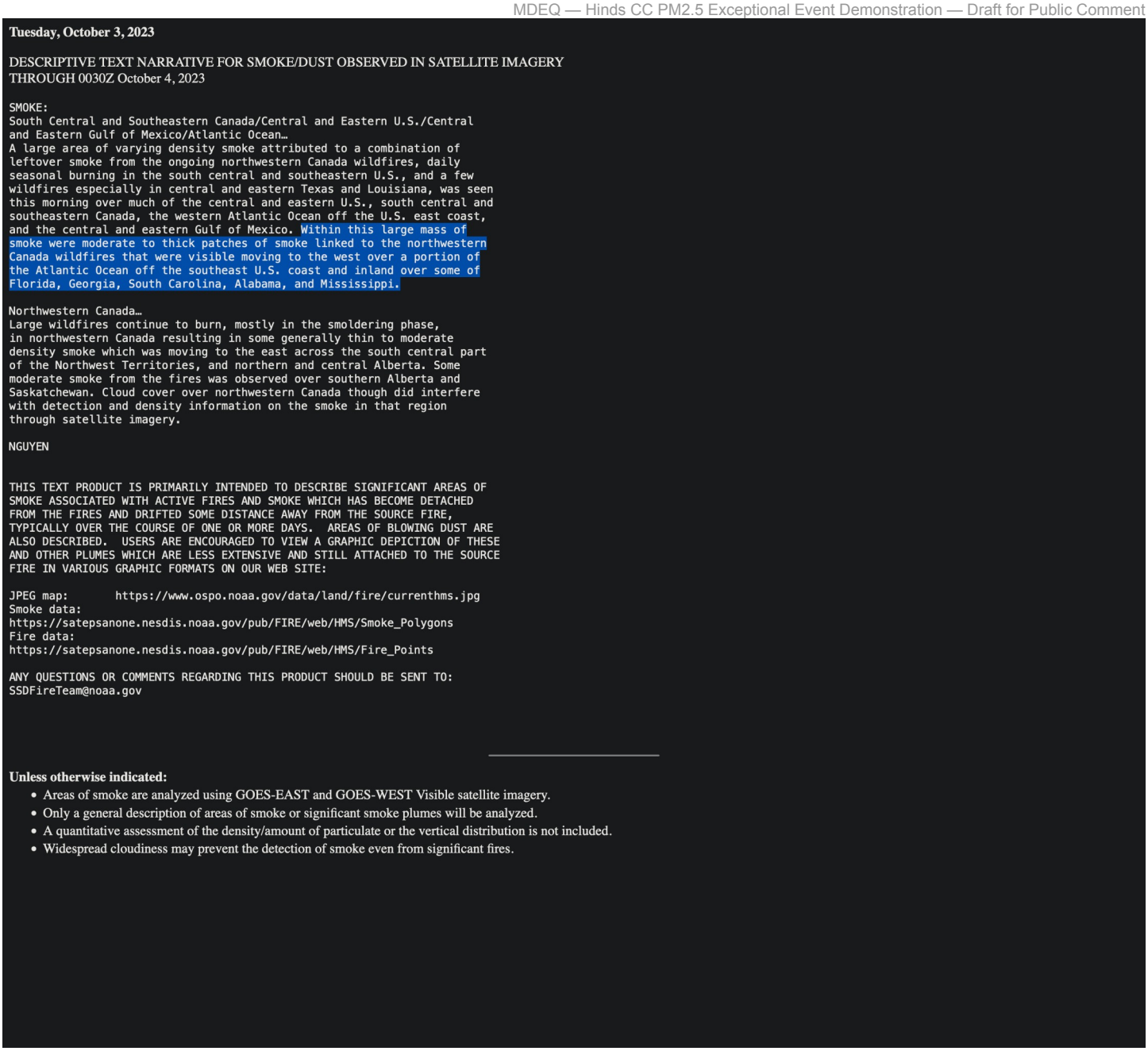
JPEG map: https://www.ospo.noaa.gov/data/land/fire/currenthms.jpg
Smoke data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Smoke_Polygons
Fire data:
https://satepsanone.nesdis.noaa.gov/pub/FIRE/web/HMS/Fire_Points

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.

Figure 49. 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.

Figure 50. 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.

October 3rd: As this dense smoke shield overspread Mississippi from the east, the Hinds CC monitor's 24-hour PM2.5 average on October 3, 2023, reached 19.9 µg/m³ (Tier 2), marking the onset of the exceedance episode that continued through October 4 and 5. The Mid-Atlantic surface high and the resulting northeasterly transport documented above — the surface analysis, the 48-hour back-trajectories, and the GOES-East imagery, all for this day — were already funneling the smoke-laden airmass over the monitor.

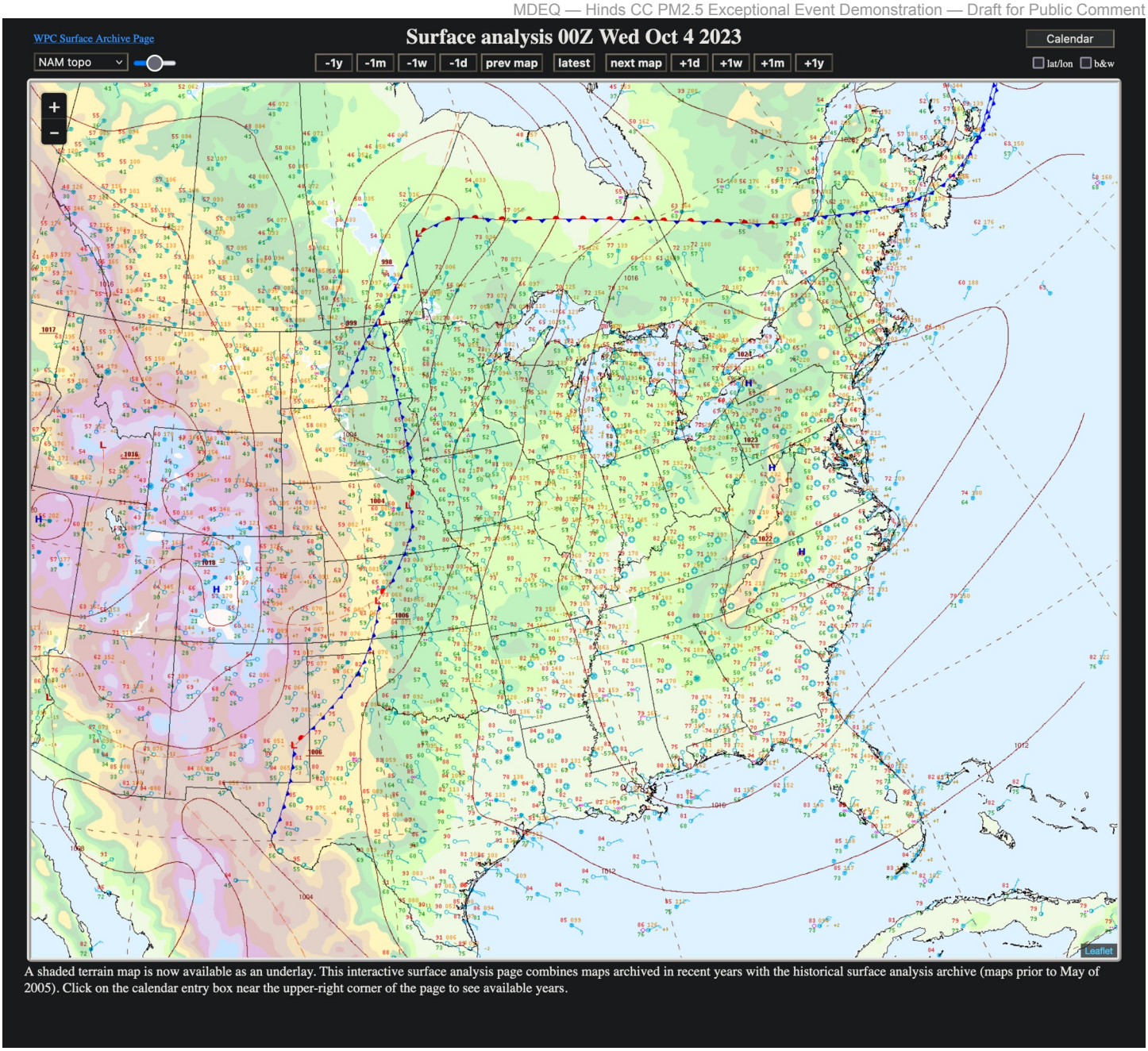


Figure 51. The 00z surface analysis (October 3rd, 2023, at 7PM CDT) shows expansive 1022mb High pressure parked over the Mid-Atlantic states where anticyclonic flow is allowing smoke from Canadian wildfires to funnel into the southeastern United States via northeasterly flow on the south side of the High, elevating PM2.5 values all across the Gulf States.

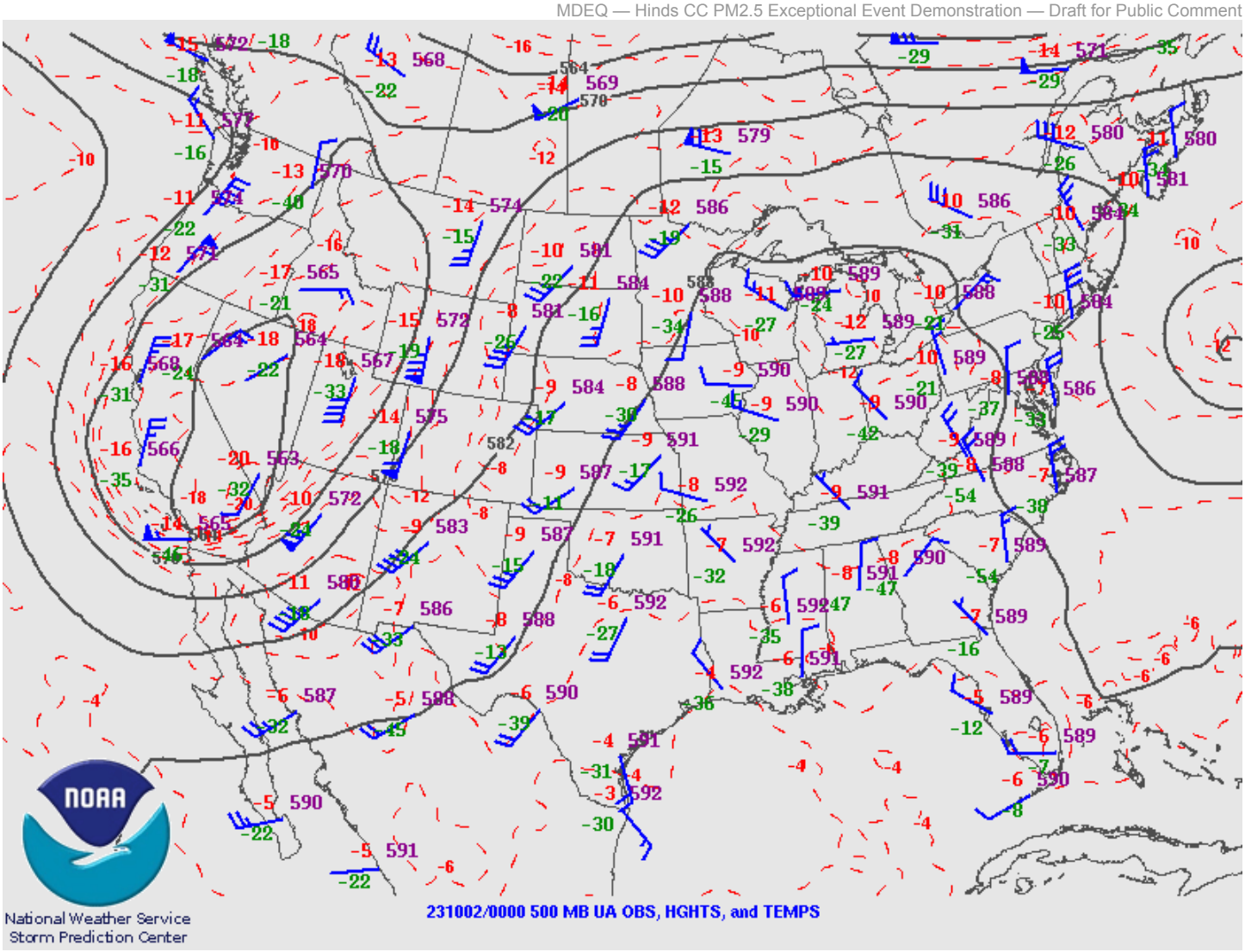


Figure 52. The 500 mb upper-level analysis from 00Z (October 1st, 2023, at 7 PM CDT) shows upper-level ridging over the Great Lakes with an upper-level low parked off the northeastern United States. These two synoptic systems helping drive smoke from Canadian wildfires down into the southeastern U.S elevating PM2.5 for the first few days in October.

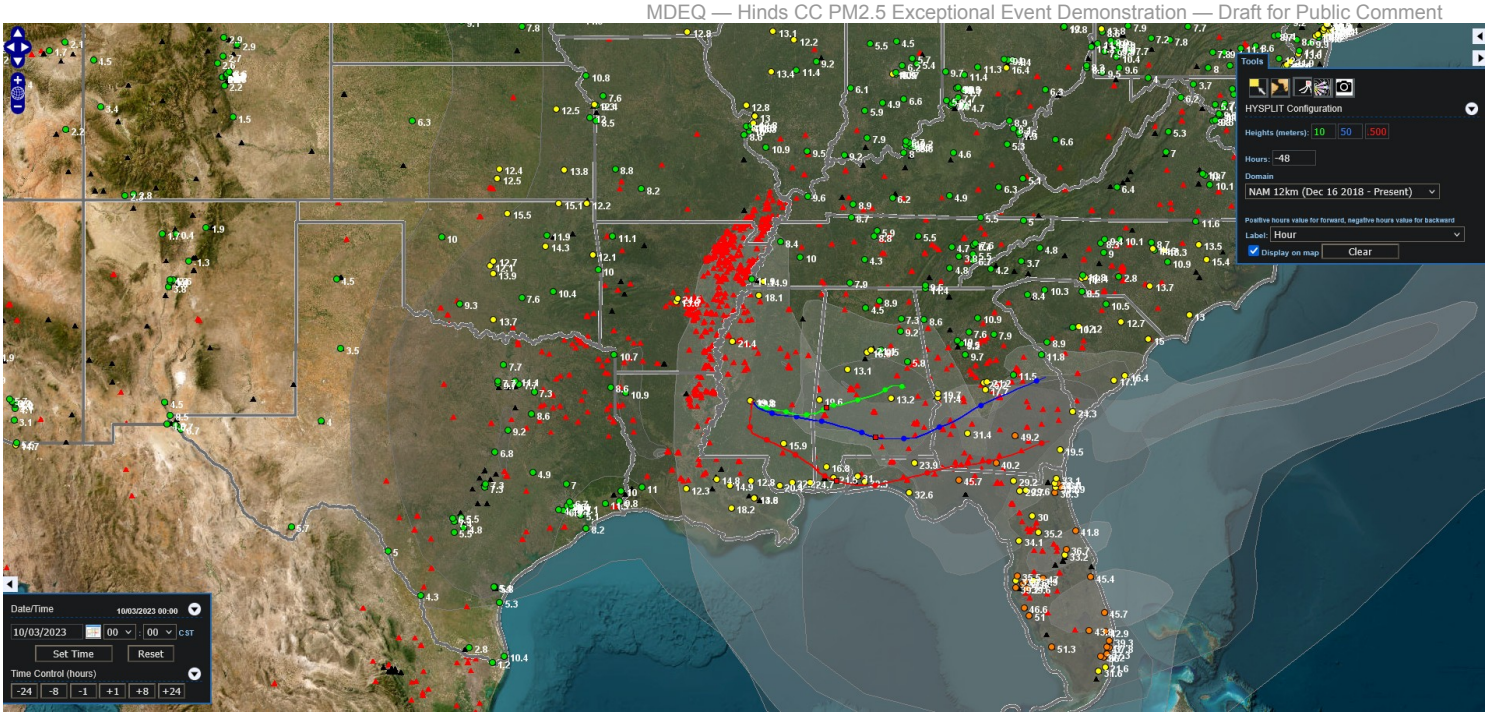


Figure 53. The AirNowTech Navigator image from October 3, 2023, illustrates smoke from Canadian wildfires moving over Florida and westward into the Gulf States. Numerous monitoring sites in Florida recorded daily PM2.5 averages in the 'Unhealthy for Sensitive Groups' (USG) range on this day. The westward transport of this smoke airmass is demonstrated by the 48-hour back trajectories at the 10m (green), 50m (blue), and 1500m (red) levels. These parcels show air movement around the southern periphery of a surface high-pressure system stationed over the Mid-Atlantic region, which effectively funneled the smoke-laden airmass directly toward the Hinds CC monitor, resulting in significantly elevated PM2.5 concentrations.

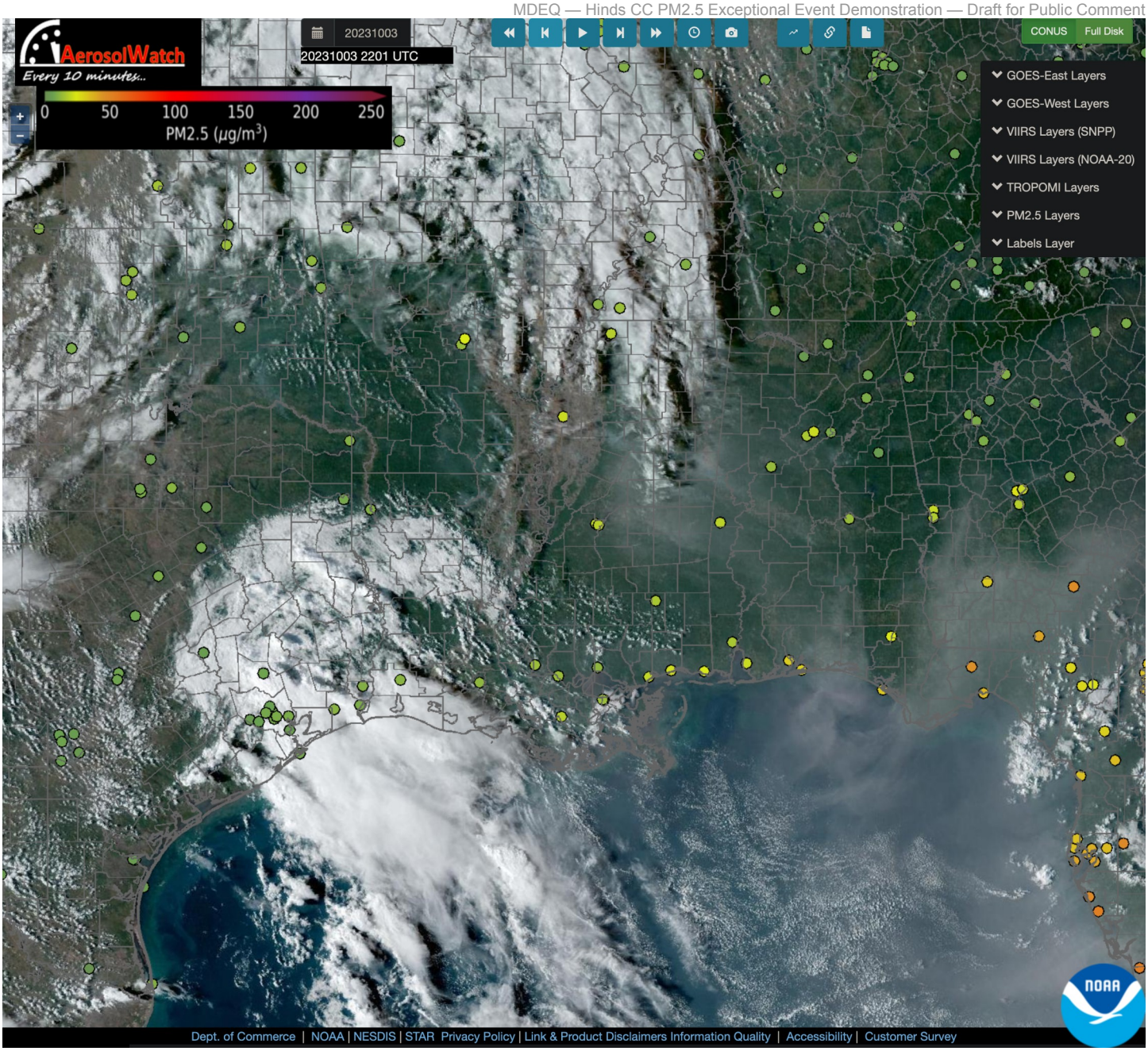


Figure 54. The GOES-East True Color satellite image from October 3, 2023, at 2201 UTC, illustrates an expansive and dense smoke shield encompassing Florida, Georgia, and Alabama, while moving westward toward Mississippi. The presence of smoke at the surface is corroborated by ground-level monitoring data in Florida, where numerous sites (indicated by orange icons) recorded PM2.5 concentrations in the 'Unhealthy for Sensitive Groups' (USG) range. This imagery provides a clear visual link between the smoke-laden airmass in the eastern Gulf region and the subsequent impact on the Hinds CC 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
Hinds CC/280490021/PM2.5-88101/3	10/03/23	10.9	12.9	11.1	11.6	11.4	11.7	12	10.6	16.3	17.8	14.9	13.9	14.6	14.7	16.3	17.2	18.7	22.1	32.1	34.9	34.6	40.2	40.9	35.2	19.86	40.9

Figure 55. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor for October 3, 2023, documenting the onset of the Canadian wildfire smoke event. Concentrations remained at near-background levels (10–12 µg/m³) through the morning before beginning a sharp, sustained climb in

the late afternoon. As the smoke-laden airmass—advected in an anticyclonic loop around the Mid-Atlantic surface high, reached central Mississippi, values doubled from 22.1 µg/m³ at 6:00 p.m. to a peak of 40.9 µg/m³ by 11:00 p.m. CDT This late-day surge resulted in a 24-hour average of 19.86 µg/m³, marking the start of a three-day exceedance episode.

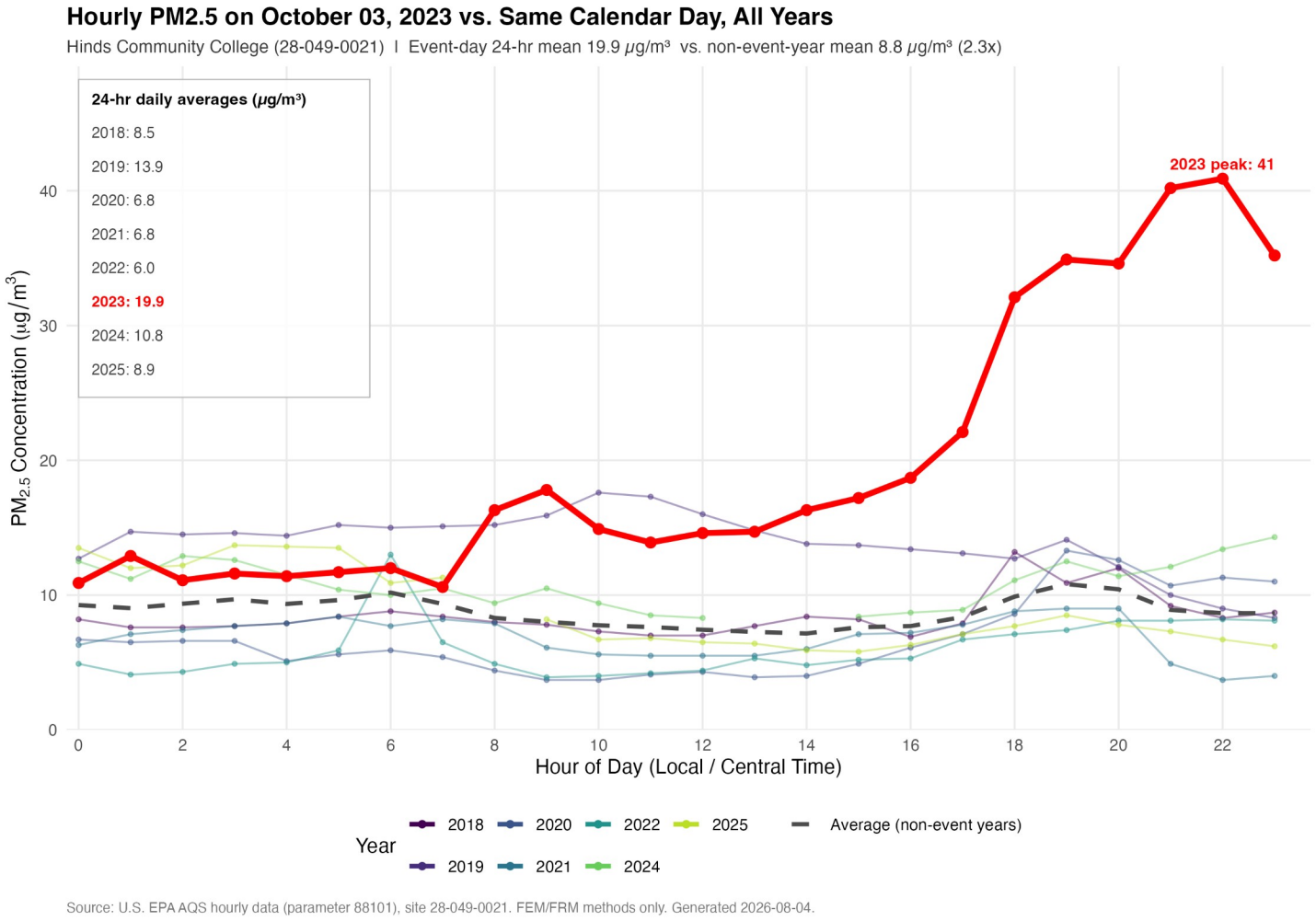


Figure 56. The hourly PM2.5 profile for October 3, 2023 (bold red line), illustrates the physical arrival of the transported Canadian 'smoke shield' at the Hinds CC monitor. The 24-hour mean of 19.9 µg/m³ is more than double (2.3x) the historical non-event average of 8.8 µg/m³. The curve tracks near the historical baseline through the morning hours before beginning a sharp, sustained climb at Hour 16. This evening surge, reaching a peak of 41 µg/m³ at Hour 22, is the numerical signature of the smoke-laden airmass being advected into central Mississippi from the east/northeast.

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.

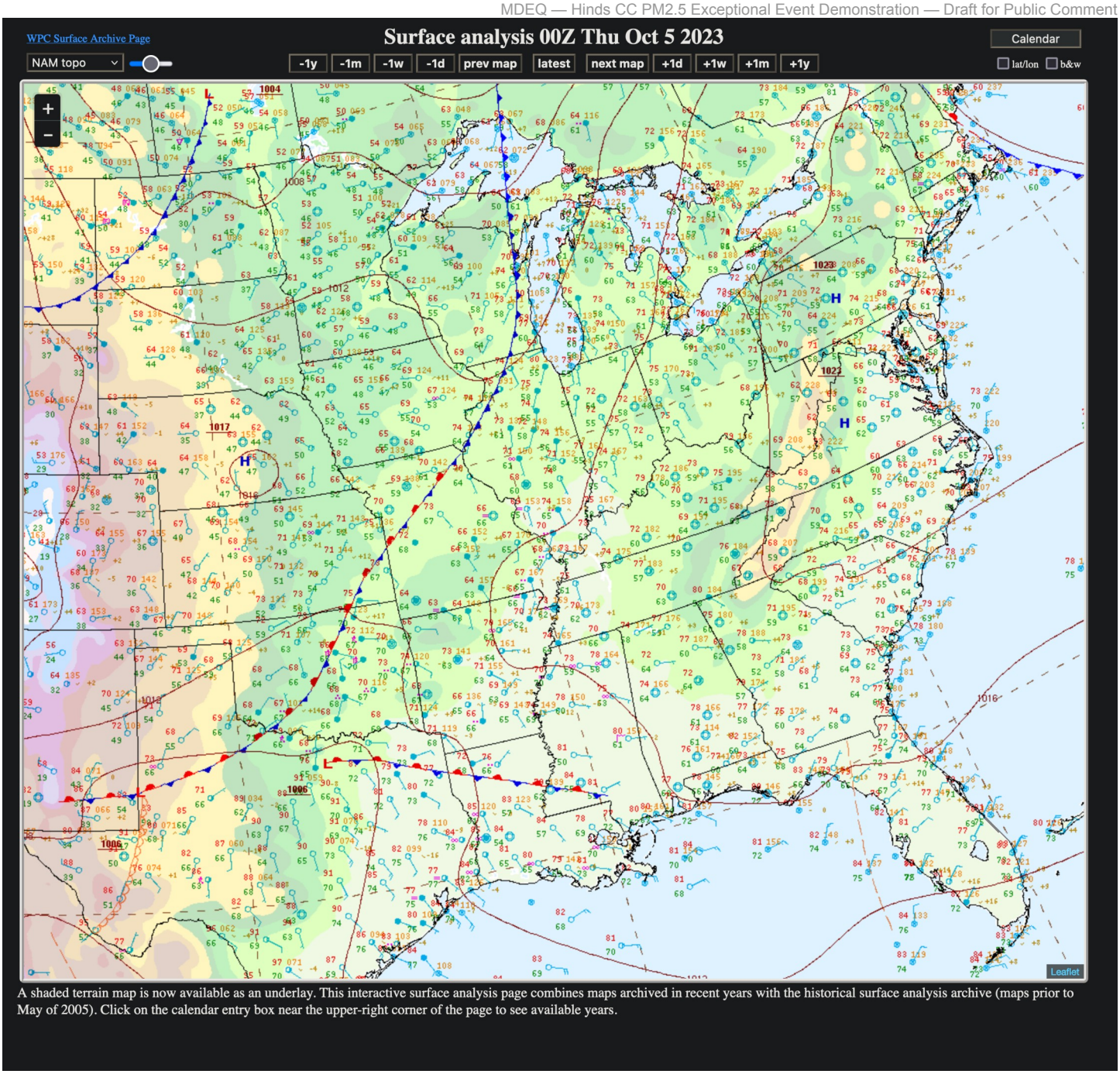


Figure 57. The 00z surface analysis (October 4th, 2023, at 7PM CDT) shows continued expansive 1022mb High pressure parked over the Mid-Atlantic states where anticyclonic flow is allowing smoke from Canadian wildfires to funnel into the southeastern United States via northeasterly flow on the south side of the High, elevating PM2.5 values all across the Gulf States.

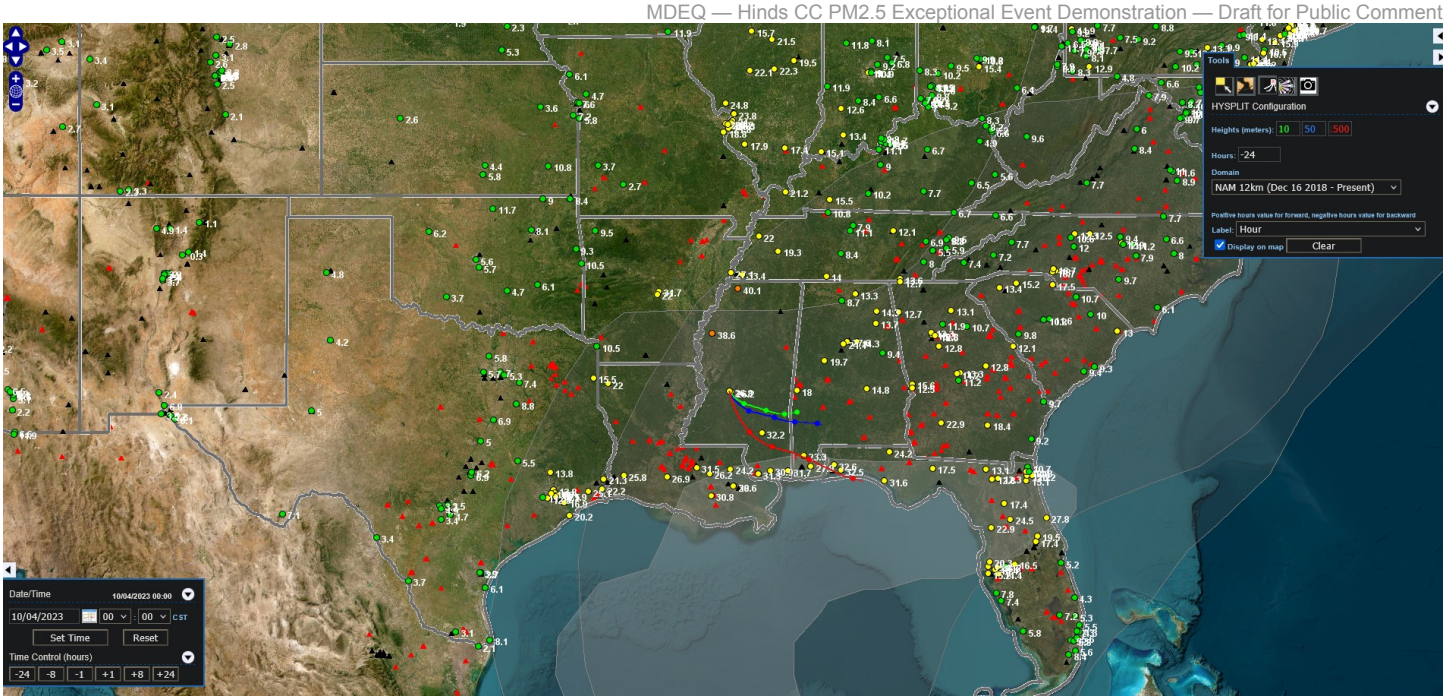


Figure 58. The AirNowTech Navigator image from October 4, 2023, illustrates the continued westward transport of a smoke-laden airmass from Canadian wildfires across the Gulf States. The 24-hour HYSPLIT back-trajectories for the 10m (green), 50m (blue), and 1500m (red) levels show air parcels moving around the southern periphery of the surface high-pressure system stationed over the Mid-Atlantic. This anticyclonic flow continued to funnel smoke across Alabama and into Mississippi, directly impacting the Hinds CC monitor and maintaining elevated PM2.5 concentrations in the 'Moderate' AQI category.

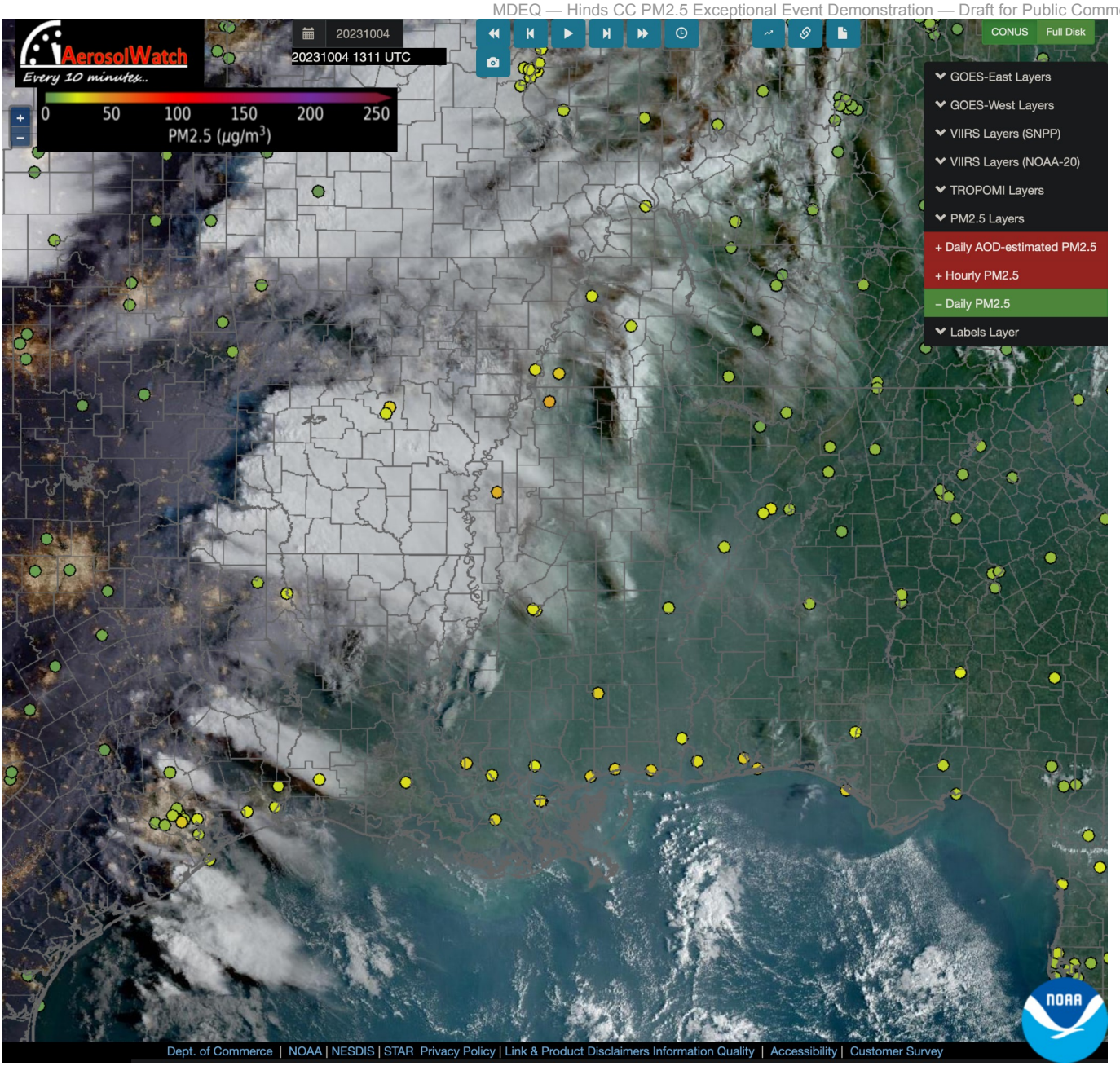


Figure 59. The GOES-East True Color imagery from October 4, 2023, at 1311 UTC, illustrates a dense smoke shield originating from Canadian wildfires. The imagery clearly shows the smoke layer stretching across the Florida Panhandle and Alabama, progressing westward into Mississippi. The regional impact of this long-range transport is corroborated by the elevated PM2.5 concentrations (indicated by the yellow monitoring icons) across the transport pathway, confirming that the Hinds CC monitor was being impacted by the same smoke-laden airmass seen in the satellite data.

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
Hinds CC/280490021/PM2.5-88101/3	10/04/23	27.5	25.8	26.3	25.9	25.6	27.2	27.4	27.3	30.1	29.6	26.1	26.2	25.3	23.7	24.2	24.4	23.7	27.1	31.6	27.4	27.2	28	28.5	29.1	26.88	31.6

Figure 60. The Hinds CC monitor's hourly PM2.5 values on October 4, 2023, remained consistently elevated throughout the 24-hour period. Concentrations began the day in the mid-to-high twenties and remained between 22.8 µg/m³ and 30.7 µg/m³ for the duration of the event. This sustained elevation occurred as a smoke-laden airmass from Canadian wildfires moved into central Mississippi

from the east, circulating around the southern periphery of a surface high-pressure system stationed over the Mid-Atlantic. As a result, the Hinds CC monitor recorded a 24-hour daily average PM2.5 concentration of 25.8 µg/m³.

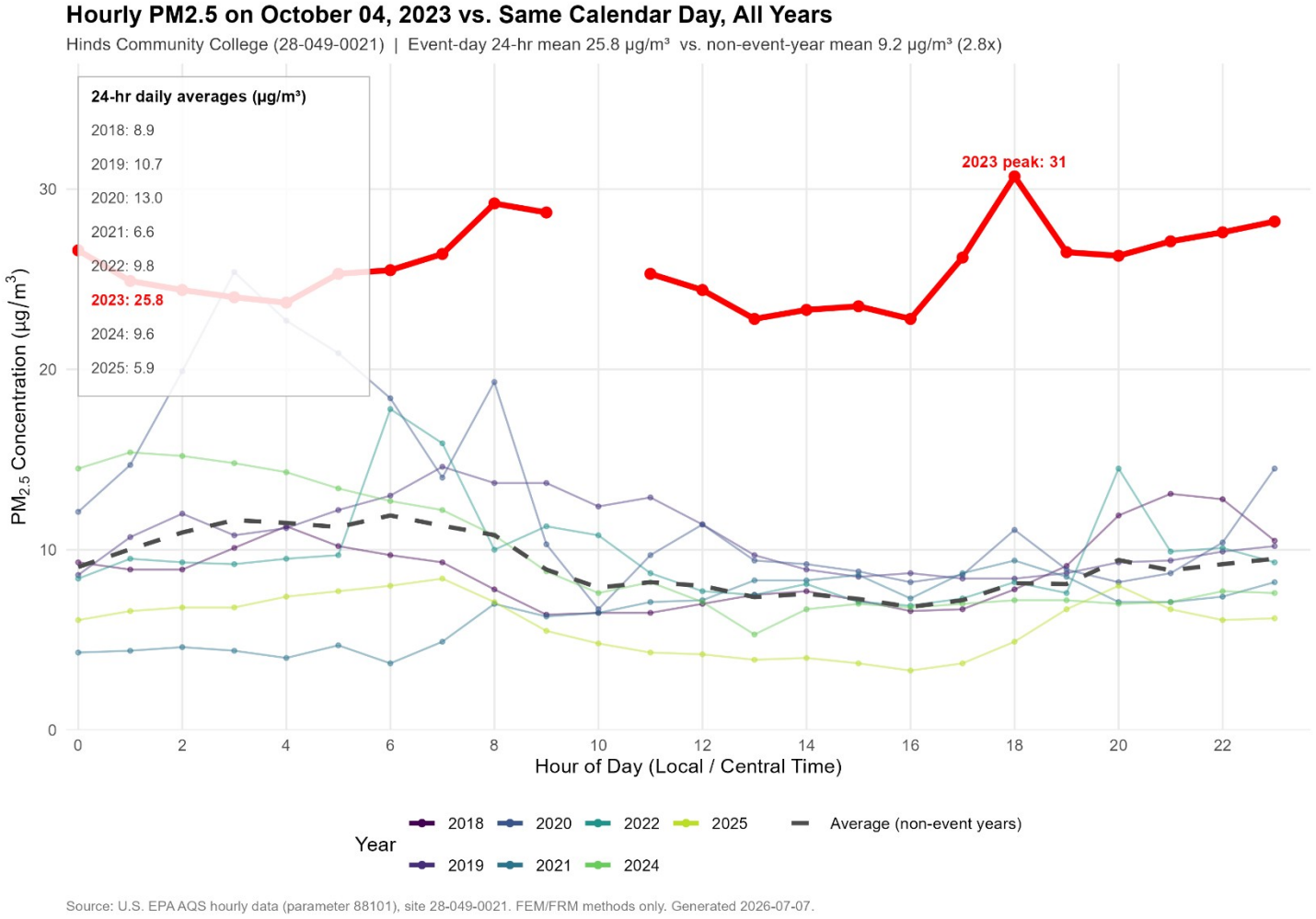


Figure 61. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on October 4 over an eight-year period (2018–2025). The 2023 event data (red line) shows a dramatic departure from the historical norm, with a 24-hour mean of 25.8 µg/m³ that was 2.8 times higher than the non-event historical average of 9.2 µg/m³. The temporal profile shows sustained, elevated concentrations throughout the day, reaching a peak of 31 µg/m³. This anomalous deviation from the multi-year climatology confirms that the elevated concentrations resulted from a smoke-laden airmass transported into the region rather than typical local emission patterns.

October 5th: On October 5, 2023, the Hinds CC monitor remained impacted by the transported Canadian wildfire smoke airmass for the majority of the 24-hour period. PM2.5 concentrations remained elevated in the high 20s and low 30s throughout the morning hours, peaking at 29.6 µg/m³ at 3:00 a.m. (0300 CDT). As a cold front approached from the west, increased atmospheric mixing and the eventual frontal passage began to displace the smoke-laden airmass, allowing hourly values to gradually decrease into the low 20s during the afternoon and evening. However, due to the sustained high concentrations earlier in the day, the 24-hour daily average reached 24.1 µg/m³.

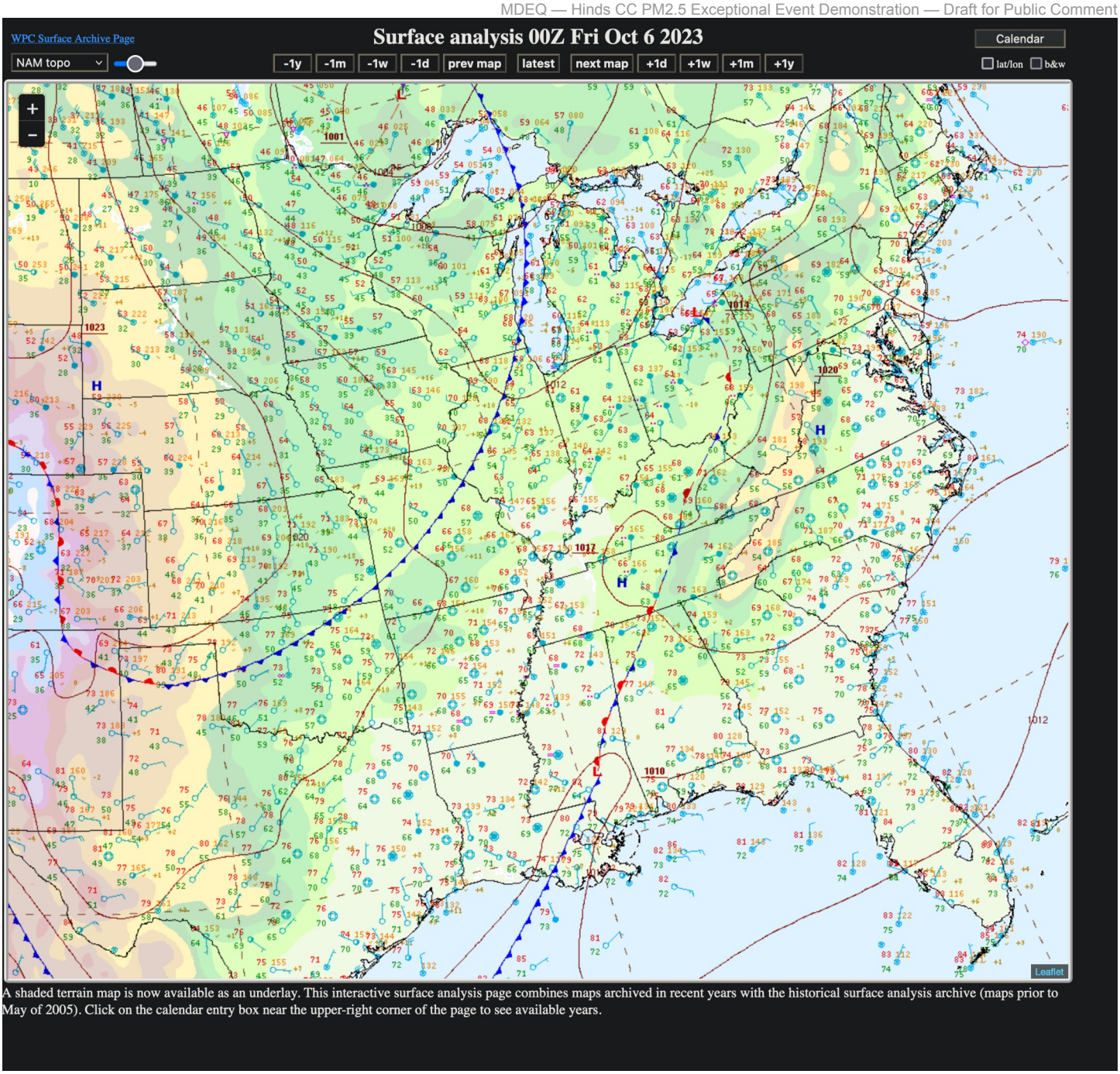


Figure 62. The 00Z surface analysis (October 5th, 2023, at 7 PM CDT) shows a frontal boundary moving through the area that helped clean out the air mass. While this frontal passage eventually provided the ventilation necessary to displace the smoke-laden airmass, the Hinds CC monitor remained in the stagnant pre-frontal environment for the majority of the October 5 regulatory day. During this period, the station was entrenched in Canadian wildfire smoke, resulting in the sustained elevated PM2.5 concentrations observed prior to the evening clearance.

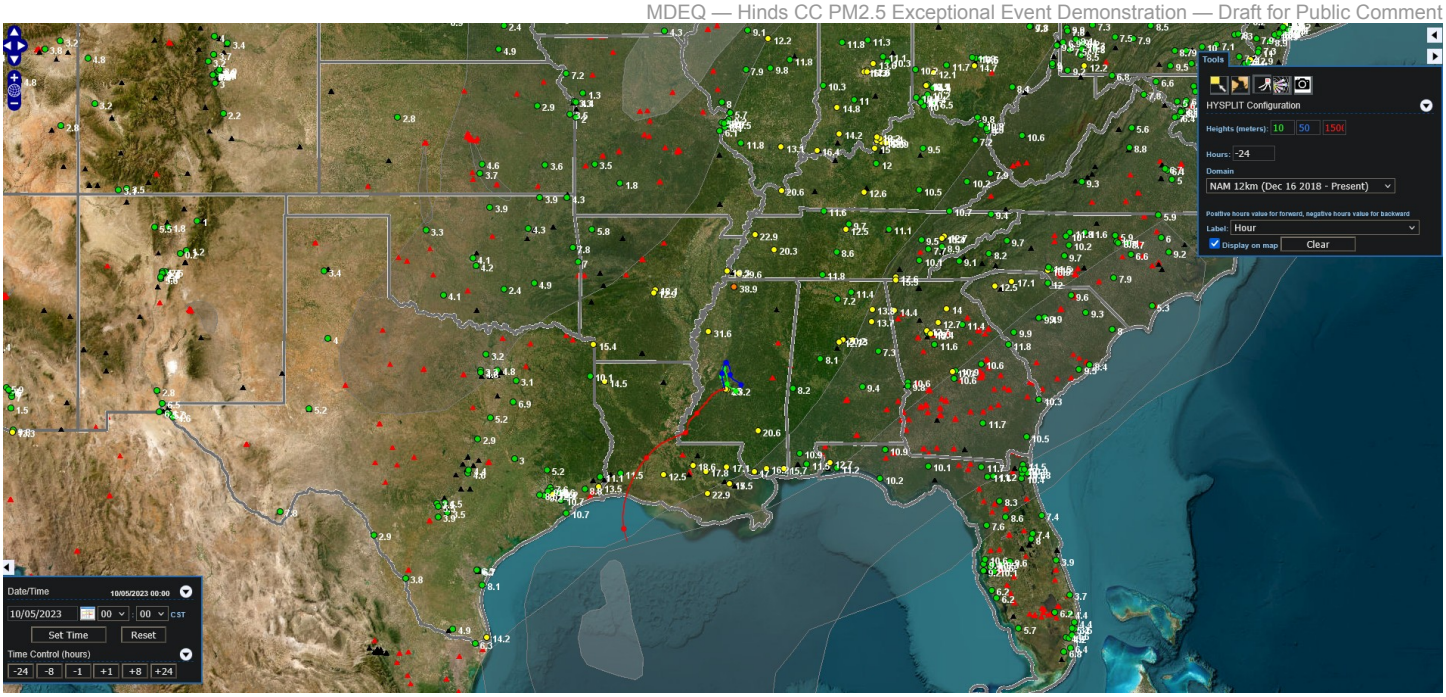


Figure 63. The AirNowTech Navigator image from October 5, 2023, illustrates the final stages of the smoke event at the Hinds CC monitor. The 24-hour HYSPLIT back trajectories at the 10m (green), 50m (blue), and 1500m (red) levels indicate significant low-level stagnation and recirculation over central Mississippi. Very little movement of the 10m and 50m air parcels reflects extremely limited horizontal ventilation, which served to trap the existing Canadian wildfire smoke airmass at the surface. These stagnant conditions maintained elevated PM2.5 concentrations at the Hinds CC monitor throughout the day, until the arrival of a cold front later that evening provided the necessary atmospheric clearing.

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
Hinds CC/280490021/PM2.5-88101/3	10/05/23	29.9	30.5	29.4	29.4	29.6	29.4	29.8	29.6	28.6	26.6	24.3	23	22.4	20.9	21.4	20.7	22.2	22.3	22.8	21.7	22.4	22.1	21.5	20	25.02	30.5

Figure 64. The Hinds CC monitor's hourly PM2.5 values on October 5, 2023, began in the high twenties and low thirties, as the monitor started the day submerged in a smoke-laden airmass from Canadian wildfires. As the morning progressed, concentrations began a gradual decline but remained consistently in the twenties throughout the afternoon and evening hours. This slow decrease was driven by the approach and subsequent passage of a cold front which began to disperse the smoke airmass. However, because concentrations remained at or near 20 µg/m³ or above for all but the final hour of the day, the elevated morning levels resulted in a daily average PM2.5 value of 24.1 µg/m³ at the Hinds CC monitor.

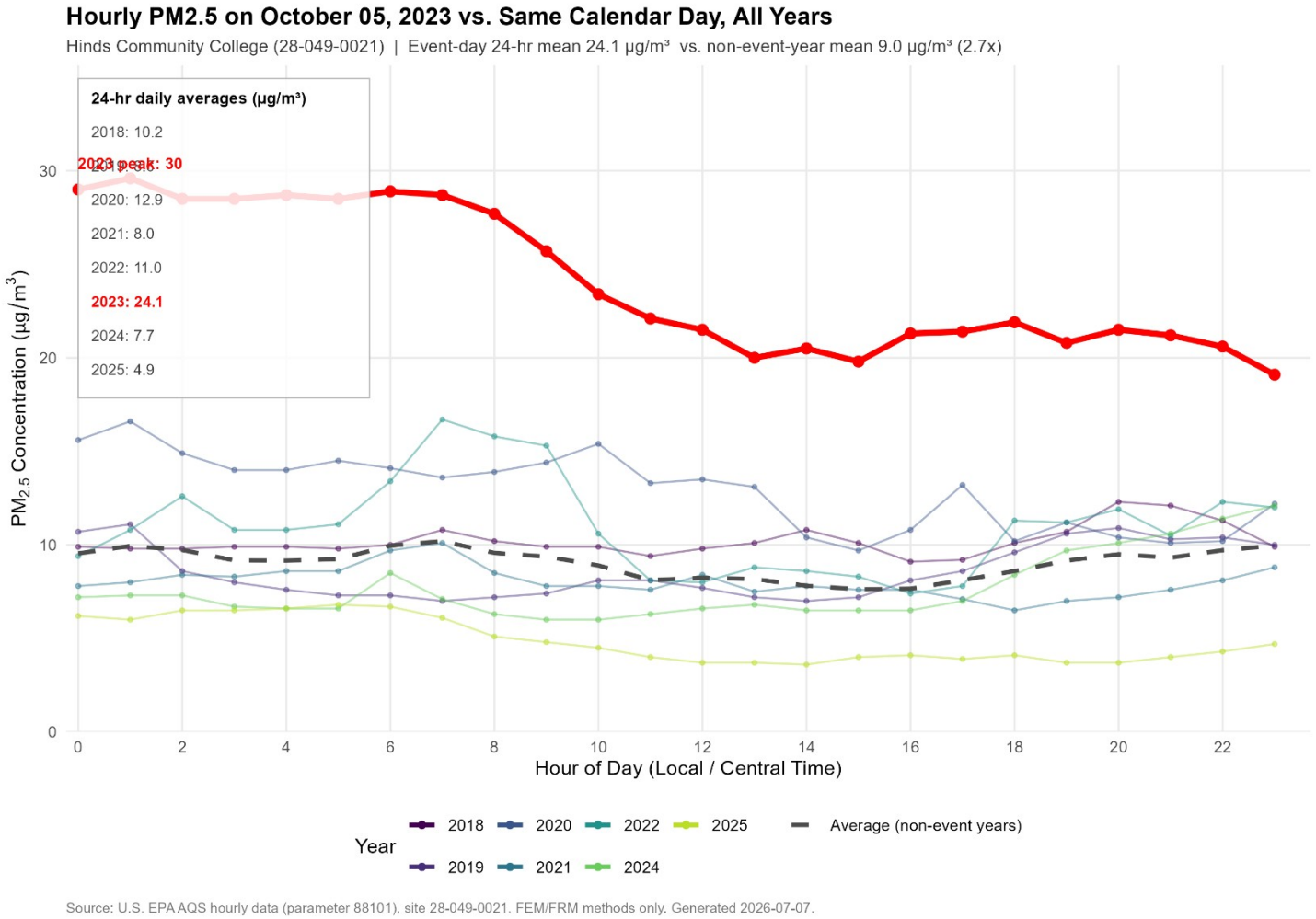


Figure 65. The historical hourly time-series comparison in the figure above illustrates PM2.5 levels at the Hinds CC monitor on October 5 over an eight-year period (2018–2025). The 2023 event data (red line) represents a significant departure from the historical norm, with a 24-hour mean of 24.1 µg/m³ that was 2.7 times higher than the non-event historical average of 9.0 µg/m³. The plot clearly shows the sustained impact of the smoke-laden airmass through the morning hours before a cold front initiated a gradual clearing in the afternoon. This anomalous deviation from the multi-year climatology confirms that the elevated concentrations were driven by an exceptional external event rather than typical local background conditions.

2024 Exceptional Events

February 2–3, 2024 — Prescribed Fire

Field	Detail
Event Type	Prescribed Fire
Date(s)	February 2 and 3, 2024
24-hr PM2.5 (µg/m³)	23.5, 23.9
EPA Tier	Tier 2
AQS Flag (preliminary)	RM

Synopsis: February 2–3, 2024 was a regional prescribed-fire event in which the elevated 24-hour PM2.5 at the Hinds CC monitor (23.6 and 24.0 µg/m³) was produced not by a single daytime plume overhead, but by the repeated overnight accumulation of near-field prescribed-fire smoke beneath shallow nocturnal inversions under a stagnant surface-high regime. On February 1 the Mississippi Forestry Commission approved every prescribed burn requested statewide (29 of 29, zero denials), including 2,123 acres within 100 km of the monitor, most notably an 1,817-acre Scott County burn ignited mid-morning. Daytime mixing held the February 1 average to a moderate 18.2 µg/m³, but as surface winds went calm and a nocturnal inversion developed after sunset, that afternoon's smoke was compressed into a shallow surface layer and hourly PM2.5 ramped sharply through the evening, peaking at 53.2 µg/m³ at 11 p.m. This trapped smoke persisted overnight and into the early-morning hours of February 2, when concentrations held in the 30s and 40s (hourly maximum 41.6 µg/m³ at 9 a.m.), before the day's own burns had ignited, confirming that the morning peak was carry-over smoke held down by the inversion rather than fresh emissions. After sunrise the inversion eroded, and the boundary layer deepened (see the 12 UTC Jackson sounding); concentrations fell steadily through mid-morning into the single digits by mid-afternoon (minimum 6.6 µg/m³ near 5 p.m.). As sunset approached, a second shallow nocturnal inversion re-formed and near-field smoke from the 1,488 acres of MFC-approved burns within 100 km of the monitor on February 2, including a 1,296-acre Scott County burn, again concentrated at the surface, driving concentrations back upward through the evening and carrying the exceedance into February 3. The 24-hour HYSPLIT back-trajectory ending the evening of February 2 shows minimal horizontal transport and recirculation at the 10 m, 50 m, and 1,500 m levels, confirming that the air impacting the monitor was of local-to-regional origin under near-stagnant flow, consistent with the surface high indicated by the morning sounding and ruling out long-range or non-fire sources.

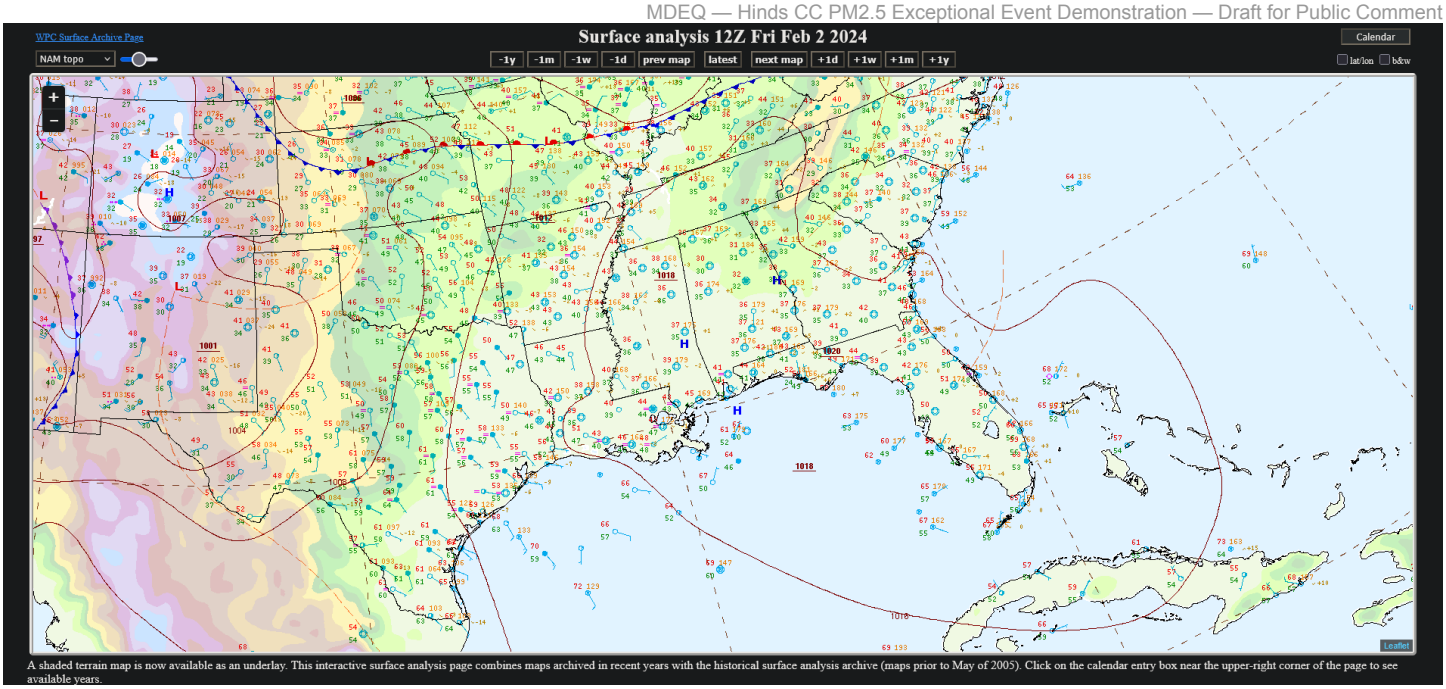


Figure 66. The 12Z surface analysis (6:00 a.m. CST, February 2, 2024) depicts an expansive surface high-pressure system centered over the Southeastern U.S. The resulting stagnant conditions and weak pressure gradient facilitated a stout nocturnal inversion. This atmospheric 'lid' trapped residual smoke from the previous day's prescribed burns within a shallow surface layer, leading to the sharp increase in PM2.5 concentrations observed overnight at the Hinds CC monitor.

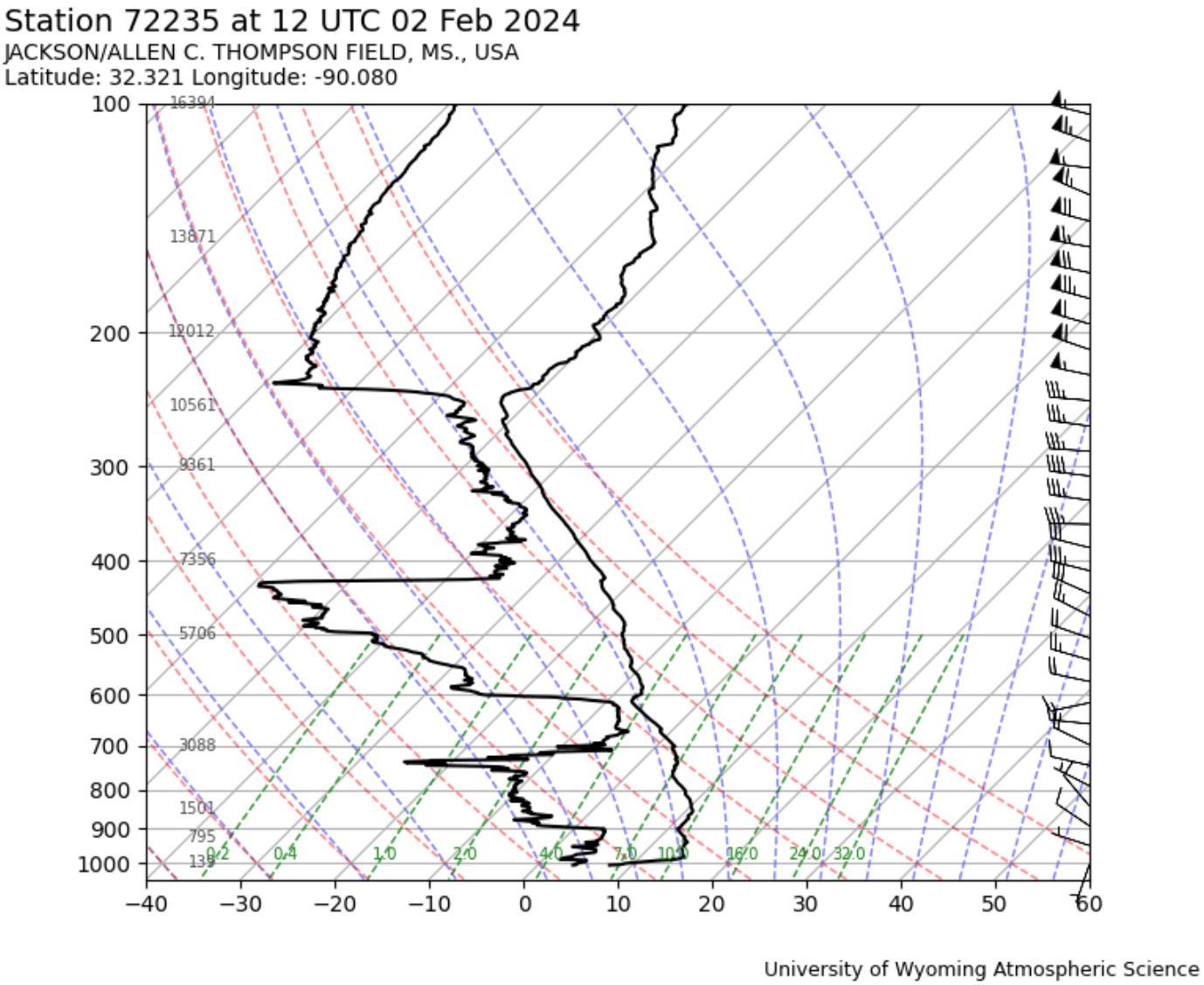


Figure 67. The 12 UTC (6 a.m. CST) morning sounding at Jackson (station 72235) documents a strong low-level nocturnal inversion capping a shallow surface layer, with dry, subsident air aloft, the signature of surface high pressure and light winds over the region. This shallow, stable morning boundary layer is what concentrated near-surface prescribed-fire smoke and sustained the elevated overnight and early-morning PM2.5, while the subsidence aloft confirms the suppressed ventilation responsible for the stagnation.

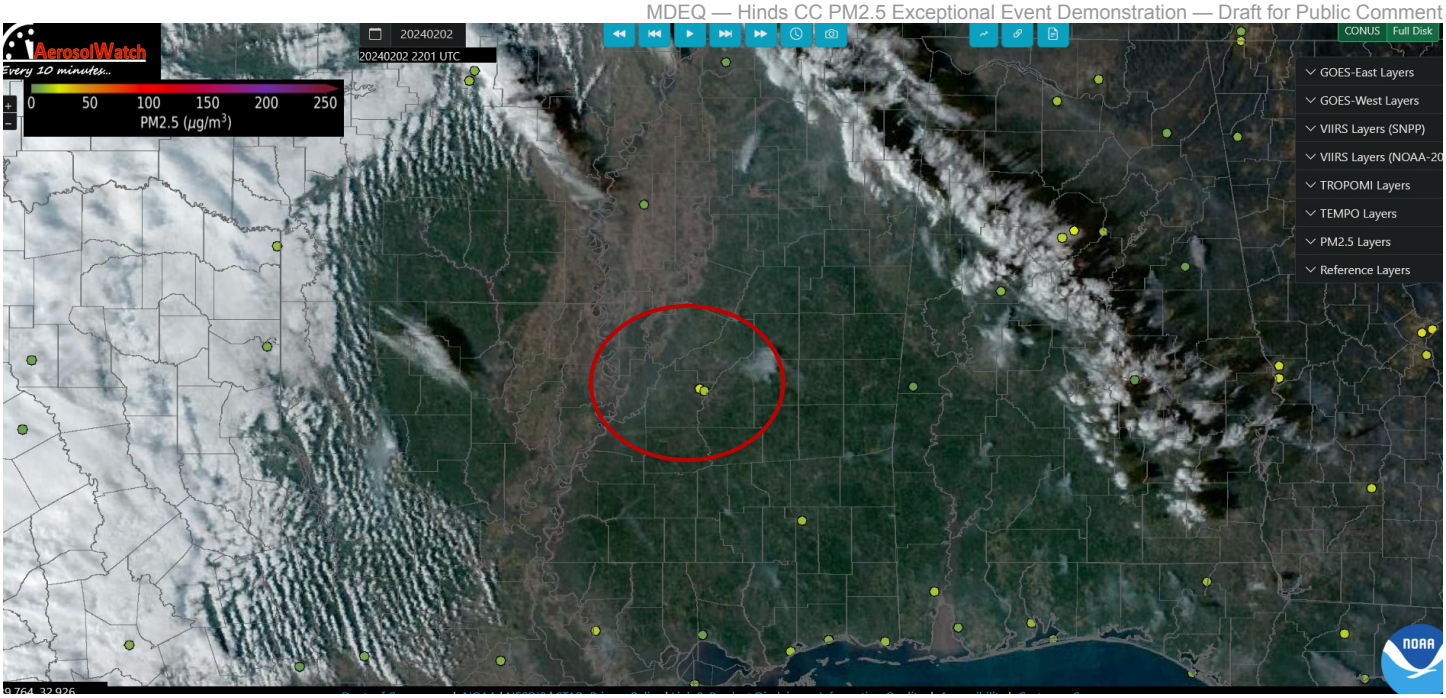


Figure 68. GOES-East True Color imagery from February 2, 2024, at 2201 UTC (4:01 p.m. CST), shows a visible area of smoke and haze centered over Hinds County and extending to the north and west. This satellite evidence is corroborated by elevated PM2.5 concentrations (yellow monitoring icons), confirming that the Hinds CC monitor was directly impacted by the regional smoke-laden airmass captured in the imagery.

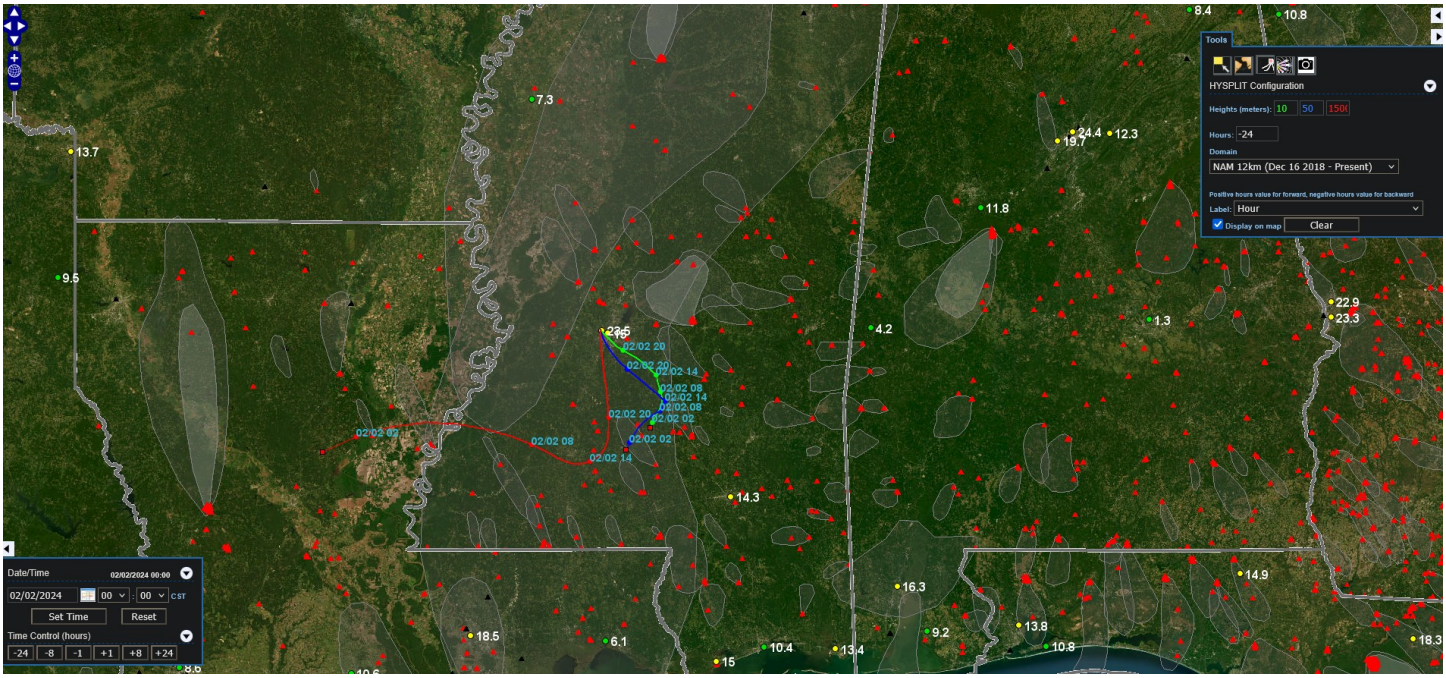


Figure 69. The 24-hour HYSPLIT back-trajectory ending 00 UTC February 3 (early evening, February 2) shows the air arriving at the monitor at the 10 m (green), 50 m (blue), and 1,500 m (red) levels underwent very little horizontal movement over the preceding 24 hours, looping and recirculating near the Jackson metro area. This near-absence of transport confirms stagnant conditions beneath the surface high and demonstrates that the air impacting the Hinds CC monitor was of local-to-regional

origin, tying the elevated PM2.5 directly to the nearby MFC-permitted prescribed burns rather than to any long-range or upwind anthropogenic source.

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
Hinds CC/280490021/PM2.5-88101/3	02/01/24	10.8	10.9	13.2	20.7	19.5	19.3	19.1	20.1	22	15.7	11.9	8.9	6.9	5.8	7.2	7.6	6.1	6.8	13.7	30.3	26.4	40.6	53.2	39.1	18.16	53.2
Hinds CC/280490021/PM2.5-88101/3	02/02/24	36.9	39.3	37.4	36.3	31.4	30.4	28.3	29.6	41.6	36.9	24.2	14.2	12.4	10.4	13.3	9.1	6.6	10.2	16	18.7	22.8	18.6	17.4	23.5	23.56	41.6

Figure 70. The Hinds County hourly PM2.5 values for February 1–2 (local standard time) shows the diurnal accumulation signature of trapped near-field smoke. February 1 daytime values remained moderate (single digits to low 20s) before ramping through the evening to a maximum of 53.2 µg/m³ at 11 p.m. as the nocturnal inversion set up. Values held in the 30s and 40s overnight and into the early morning of February 2 (maximum 41.6 µg/m³ at 9 a.m.), then fell steadily as the mixed layer deepened after sunrise, reaching a minimum of 6.6 µg/m³ by mid-afternoon before rising again after sunset as a second nocturnal inversion re-formed, the overnight-trap / midday-scour / overnight-trap pattern characteristic of a stagnant, fire-influenced boundary layer.

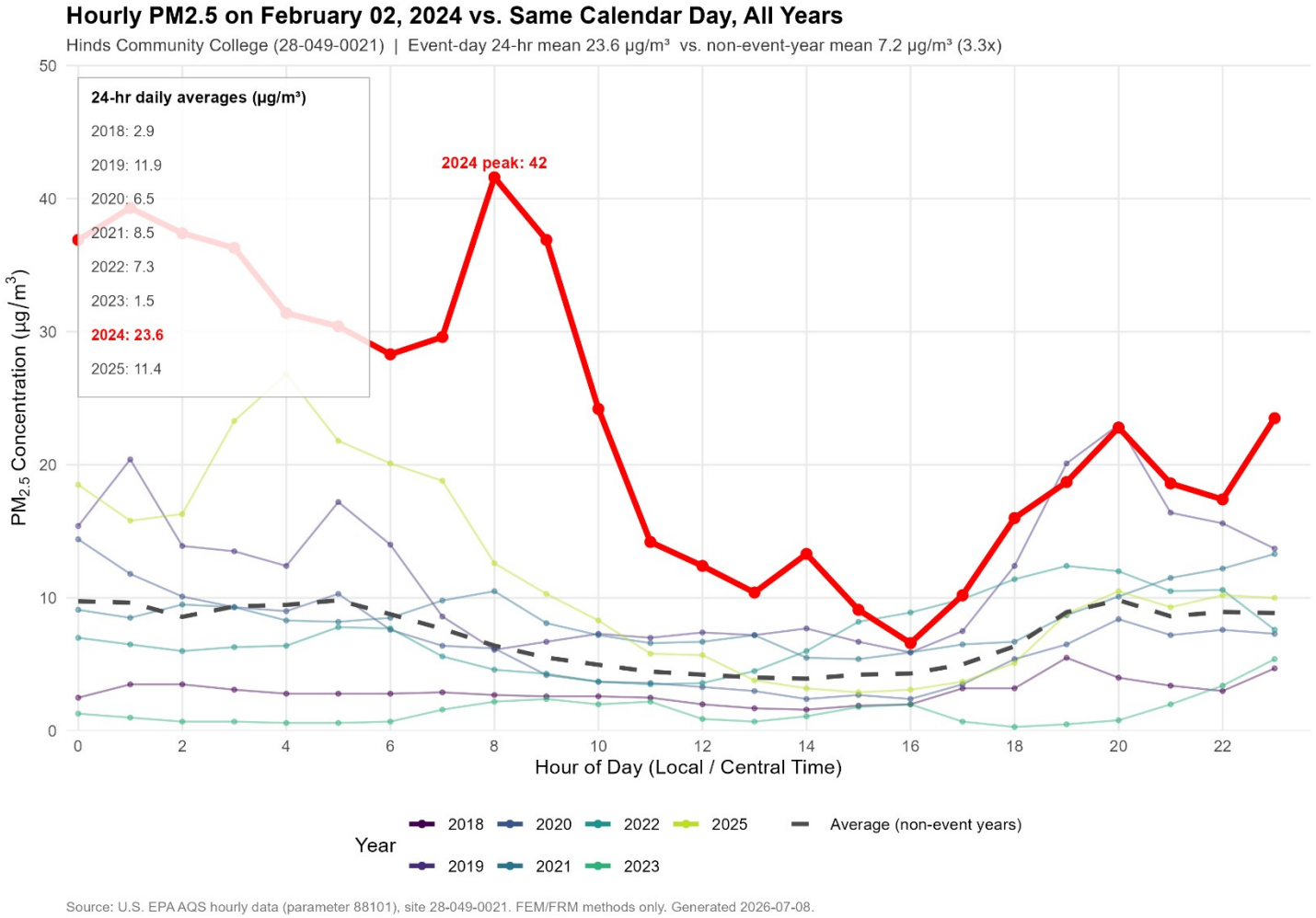


Figure 71. The hourly PM2.5 profile for February 2, 2024 (bold red line), is compared against historical data for the same calendar day. The 24-hour mean of 23.6 µg/m³ is more than triple the historical average (7.2 µg/m³). The morning peak of 41.6 µg/m³ at 0900 CST illustrates the 'carry-over' effect, where smoke from the previous day's burns were trapped by a robust nocturnal inversion. The sharp midday decline (reaching a minimum of 6.6 µg/m³ at 1700 CST) coincides with the erosion of the

inversion and the deepening of the boundary layer. The evening resurgence confirms the impact of that day's new prescribed burns being trapped as a second nocturnal inversion formed after sunset.

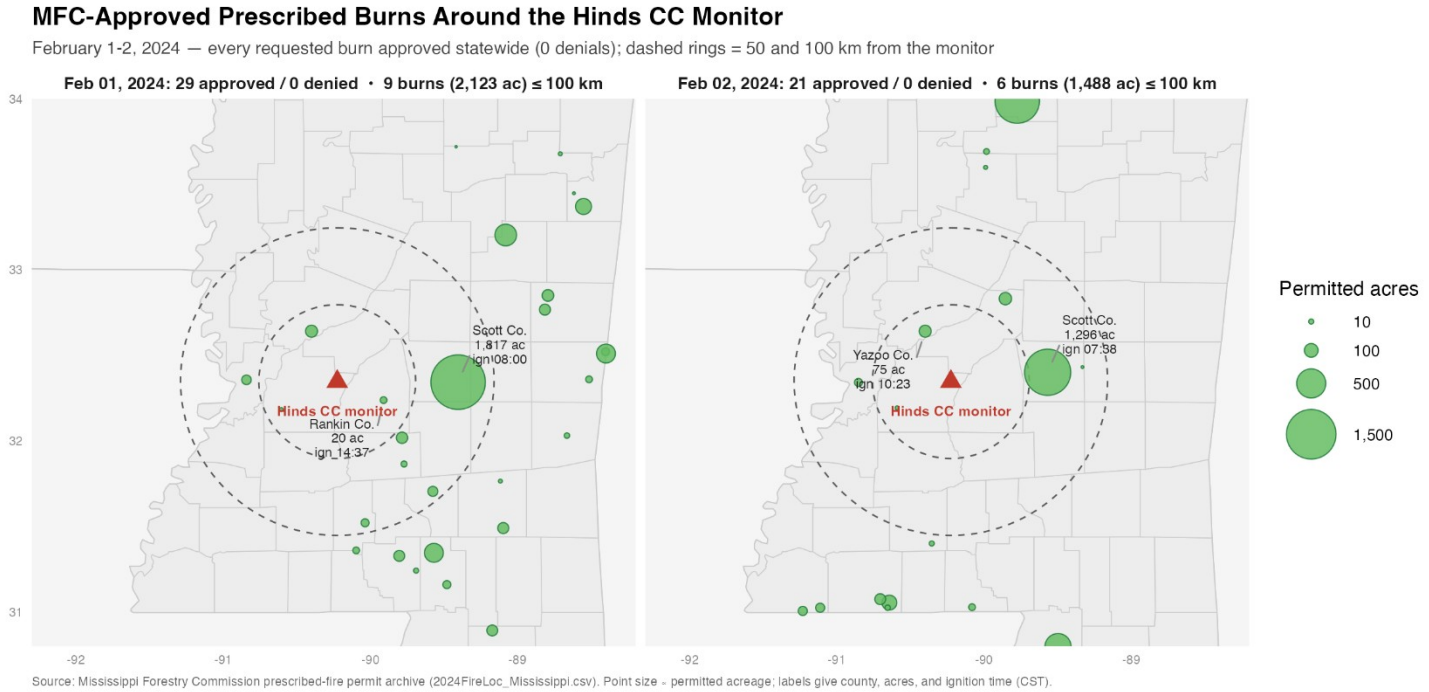


Figure 72. On both event days the Mississippi Forestry Commission, the State's prescribed-fire permitting authority, approved every burn requested statewide, with no denials (29 of 29 on February 1; 21 of 21 on February 2). The mapped burns include a dense cluster within 100 km of the Hinds CC monitor: nine burns totaling 2,123 acres on February 1 and six totaling 1,488 acres on February 2, among them large Scott County burns of 1,817 and 1,296 acres ignited mid-morning. This State-permitted burn activity, concentrated just upwind of the monitor and conducted in full compliance with Mississippi's smoke-management program, is the near-field smoke source that, trapped beneath the shallow nocturnal inversions and near-stagnant flow documented above, produced the elevated PM2.5 at the Hinds CC monitor. Because the contributing smoke originated from burns conducted under valid MFC permits and Basic Smoke Management Practices, the resulting exceedances were not reasonably controllable or preventable.

February 3rd: February 3, 2024, represents the continuation and decay limb of the February 2 prescribed-fire exceptional event rather than an independent episode; the two days are best understood as a single, continuous ~48-hour smoke-trapping regime. A second consecutive, well-defined nocturnal radiation inversion, evident in the 12 UTC February 3 Jackson/Thompson Field sounding (Station 72235) as a sharp low-level temperature increase above a shallow surface layer, re-established a stable, poorly ventilated boundary layer over central Mississippi. Under this cap, residual smoke from the large near-field prescribed burns of February 1–2 (2,123 acres approved within 100 km on February 1 and 1,488 acres within 100 km on February 2, including a 1,296-acre burn in Scott County), which continue to smolder and emit for 24–72 hours after ignition, was concentrated in a shallow layer near the surface. Prescribed burning across the State remained heavy and entirely uncontrolled: on February 3 the Mississippi Forestry Commission approved all 30 burns requested statewide (3,428 acres) with zero denials, sustaining a smoke-laden regional airmass even as near-field ignitions tapered.

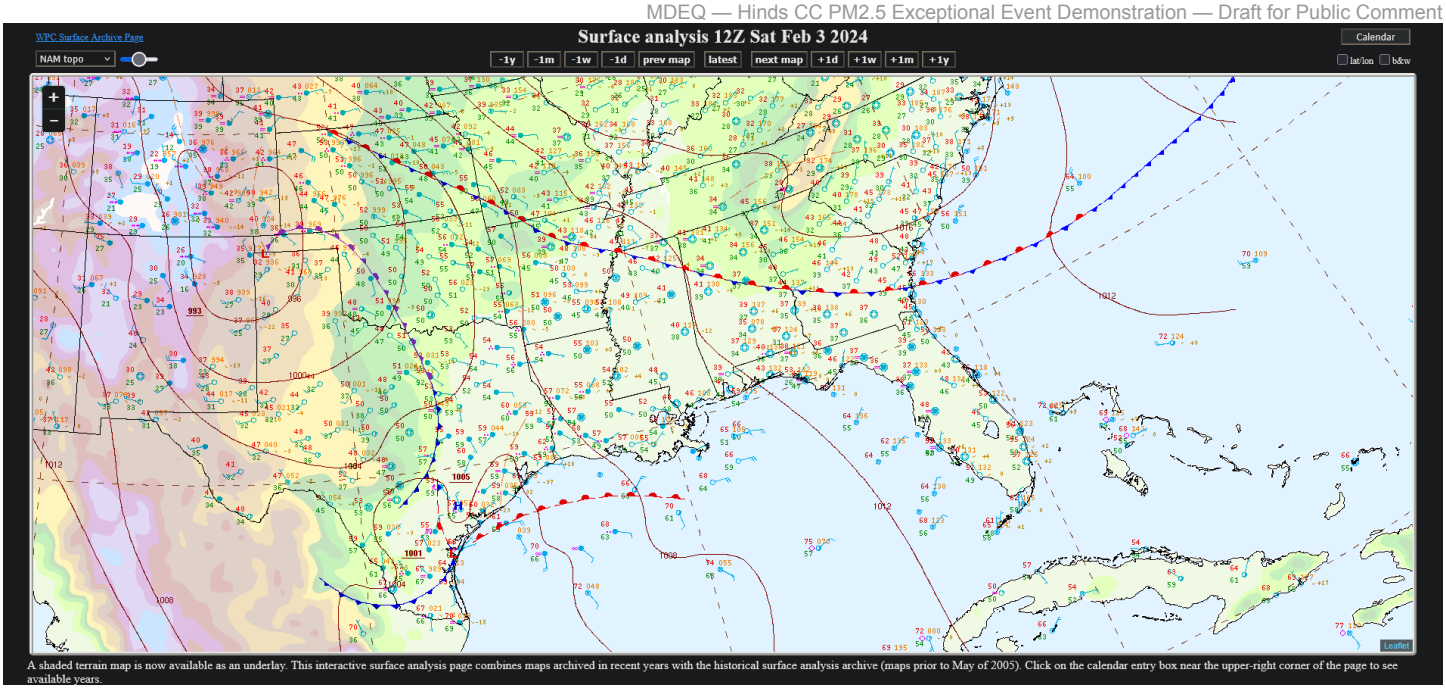


Figure 73. The 12Z surface analysis (6:00 a.m. CST, February 3, 2024) shows a weak pressure gradient over Mississippi, situated between a developing low-pressure system along the Gulf Coast and a ridge to the north. These near-calm conditions supported a second consecutive, stout nocturnal inversion. This atmospheric 'lid' trapped residual smoke and smoldering emissions from the previous 48 hours of regional burning within a shallow surface layer, driving the overnight PM2.5 peak at the Hinds CC monitor.

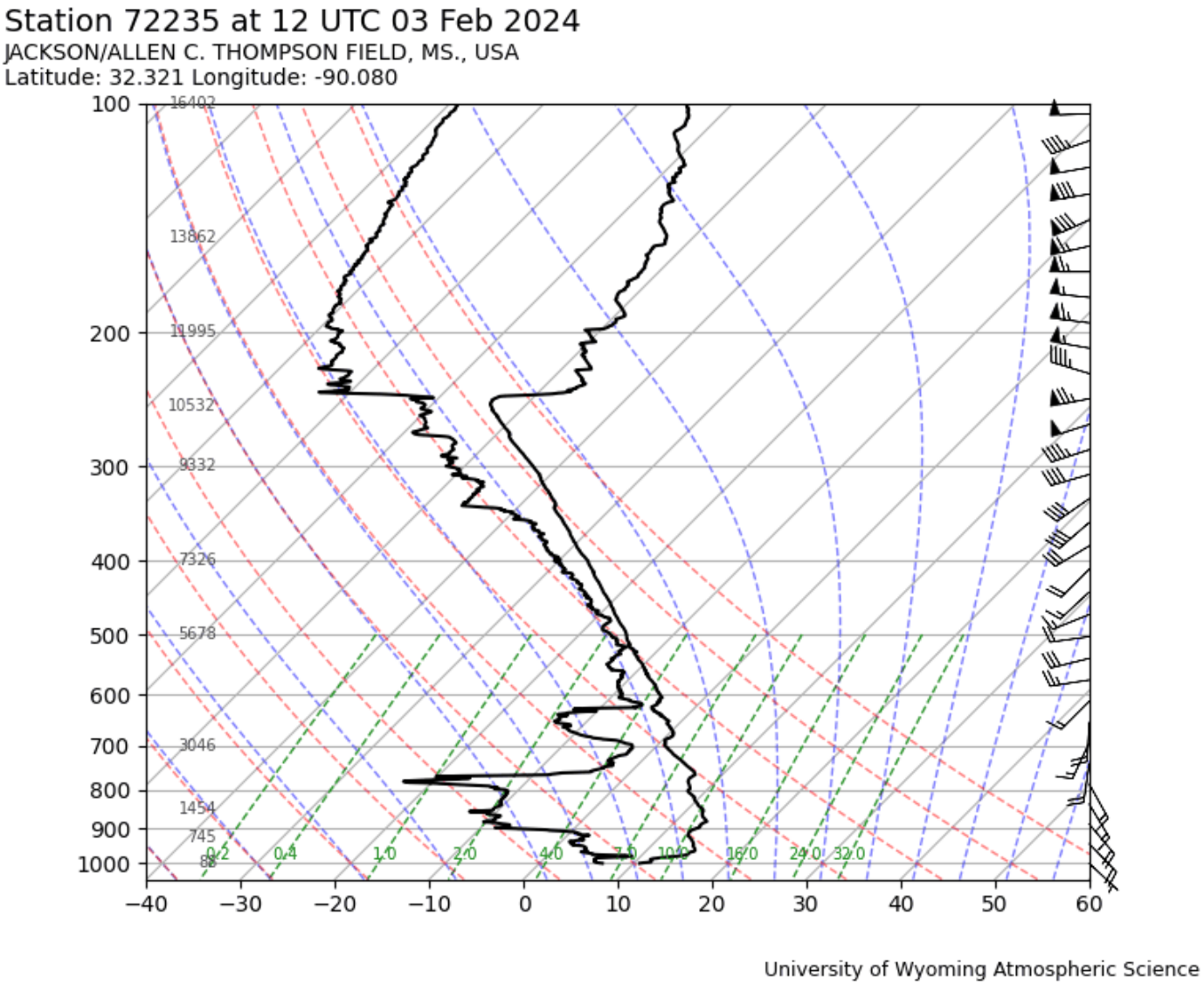


Figure 74. The 12 UTC (6:00 a.m. CST) sounding at Jackson (Station 72235) on February 3, 2024, documents a pronounced low-level nocturnal inversion. This temperature increases with height created a stable 'cap' over a shallow surface layer, preventing vertical mixing. The dry air and subsidence indicated aloft, coupled with the light-and-variable wind barbs near the surface, confirm the stagnant conditions that trapped regional prescribed-fire smoke. This restricted boundary layer depth is the primary mechanism that sustained elevated overnight and early-morning PM2.5 concentrations.

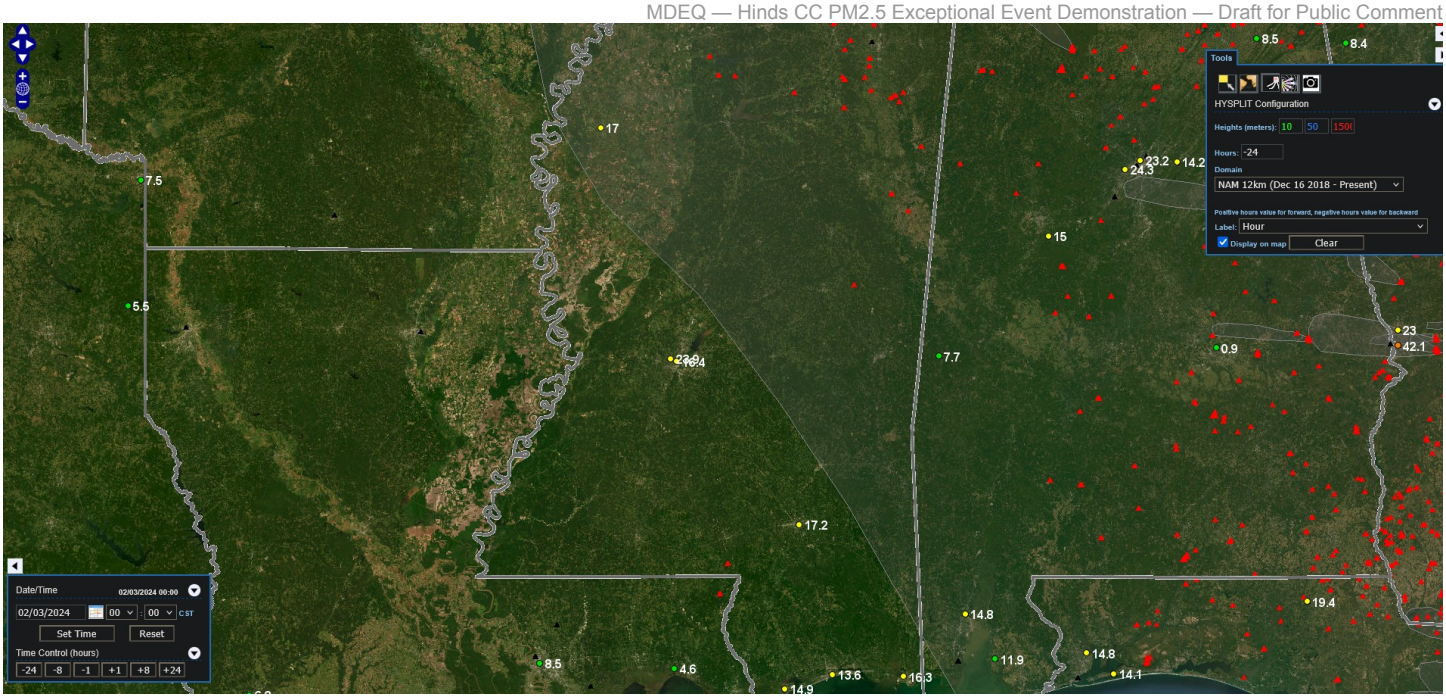


Figure 75. The Airnow-Tech Navigator imagery for February 3, 2024, displays moderate daily average PM2.5 levels at the Hinds CC monitor (yellow icon). While NOAA HMS smoke polygons are absent, this reflects satellite obstruction by an extensive cloud deck rather than a lack of smoke. The surface low-pressure system tracking along the Gulf Coast blanketed the region in clouds, but the numerous fire from previous days and elevated ground-level monitoring confirm that a smoke-laden airmass remained trapped across central Mississippi.

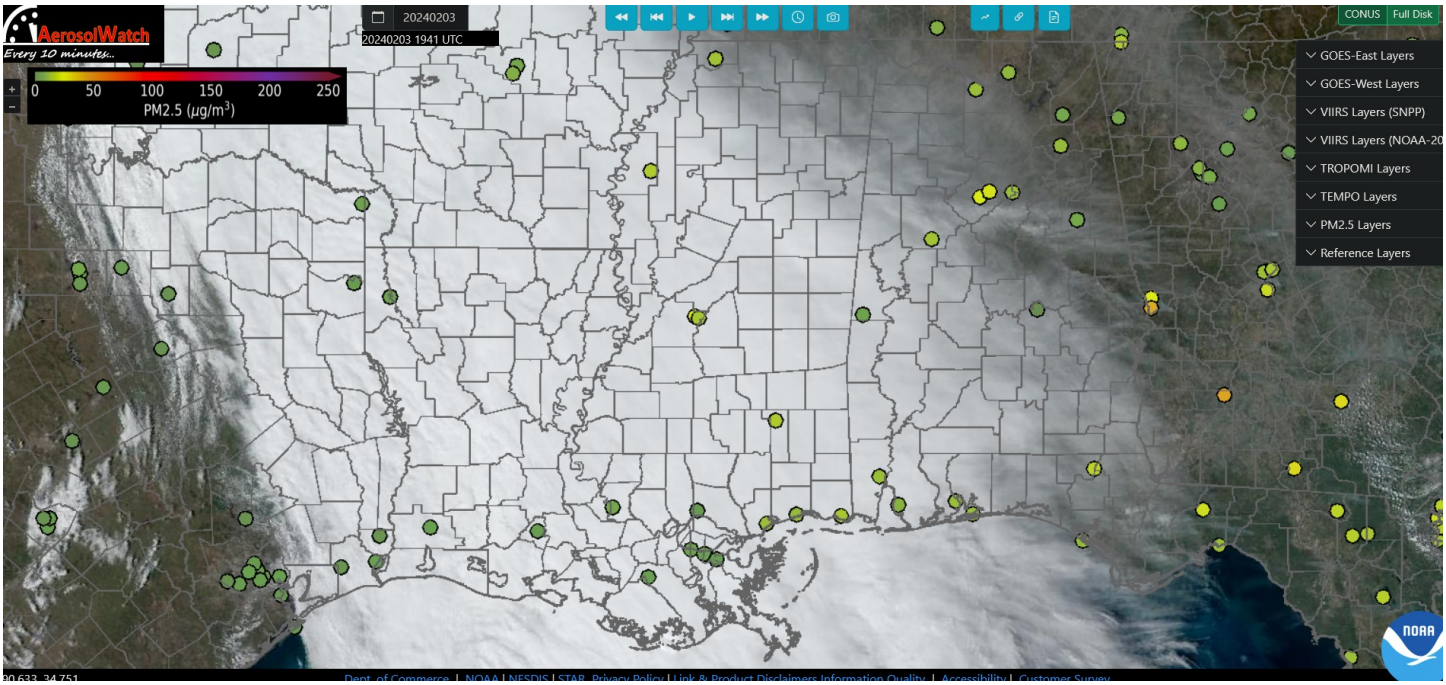
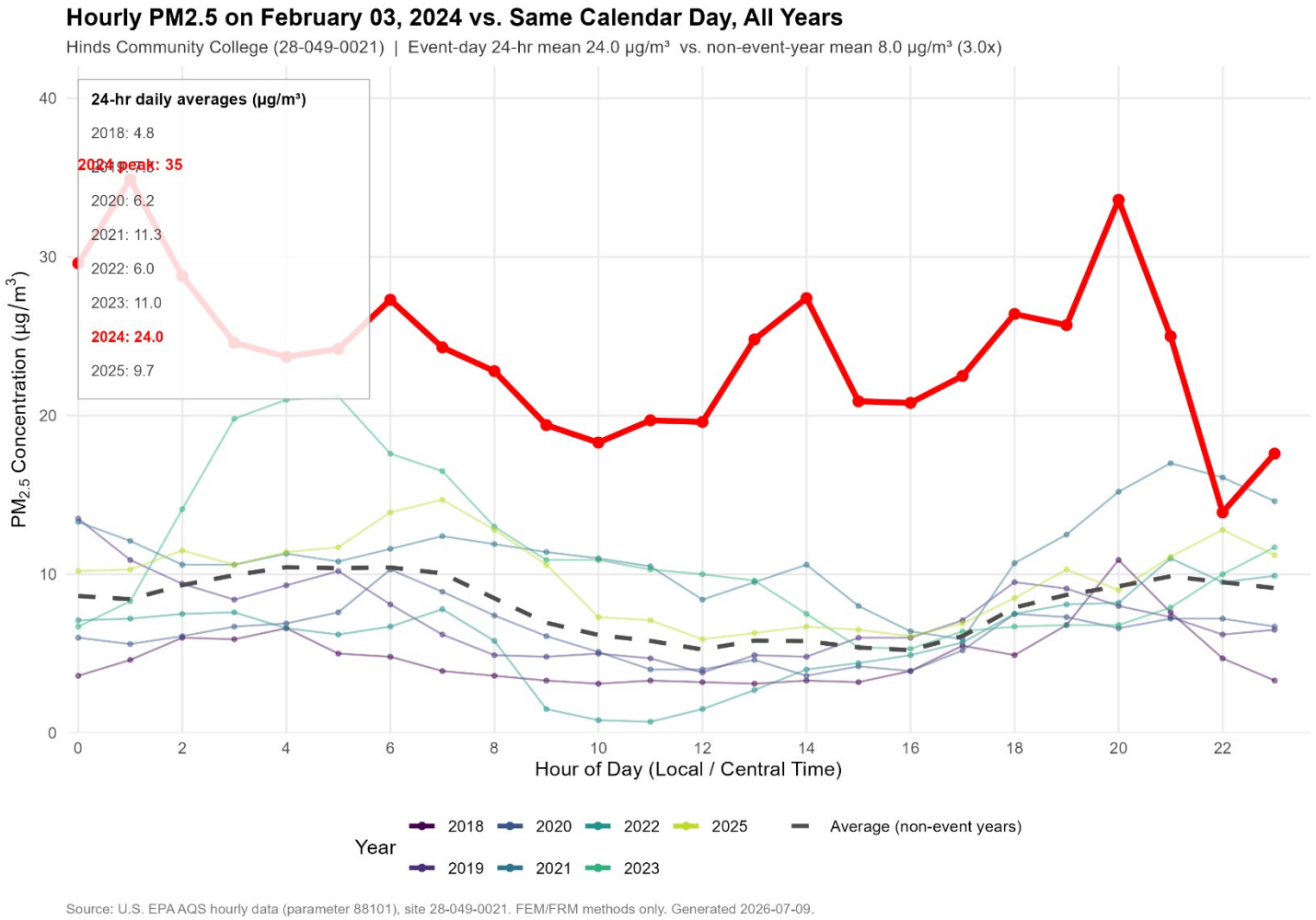


Figure 76. The NOAA Hazard Mapping System (HMS) did not delineate a smoke polygon over central Mississippi on February 3. This absence reflects the limitations of the satellite smoke product, not an absence of smoke: HMS smoke analysis is derived from visible GOES/VIIRS imagery and cannot resolve surface smoke beneath a cloud deck. The same coastal low that drove the stagnation blanketed the region in cloud, as confirmed by GOES-East true-color imagery at 1941 UTC (1:41 p.m.

CST), which shows solid overcast over Mississippi. Under those conditions an HMS smoke delineation was not possible, and the absence of a polygon carries no weight as evidence against the presence of trapped smoke. The persistent nocturnal inversion documented near-field and regionally prescribed burning, and stagnant near-surface flow together provide the affirmative evidence that surface-level smoke was present and concentrated at the 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
Hinds CC/280490021/PM2.5-88101/3	02/03/24	29.6	34.9	28.8	24.6	23.7	24.2	27.3	24.3	22.8	19.4	18.3	19.7	19.6	24.8	27.4	20.9	20.8	22.5	26.4	25.7	33.6	25	13.9	17.6	23.99	34.9

Figure 77. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor (AQS: 28-049-0021) for February 3, 2024. The data displays a textbook 'inversion fingerprint,' with concentrations peaking overnight at 34.9 µg/m³ (0200 CST) and again in the evening at 33.6 µg/m³ (2100 CST). The partial midday clean-out—reaching a minimum of 18.3 µg/m³ at 1100 CST—remained well above historical baselines, confirming that a heavily smoke-laden airmass was sustained across the region throughout the 24-hour period, resulting in a daily average of 23.99 µg/m³.



Source: U.S. EPA AQS hourly data (parameter 88101), site 28-049-0021. FEM/FRM methods only. Generated 2026-07-09.

Figure 78. The hourly PM2.5 profile for February 3, 2024 (bold red line), remains significantly elevated above all historical years for this calendar day. The 24-hour mean of 24.0 µg/m³ is exactly triple the historical non-event average of 8.0 µg/m³. Notably, the midday 'dip' remains well above the historical envelope, reaching a minimum of only 18.3 µg/m³ at 1100 CST. This illustrates the persistent trapping effect of the coastal low's cloud deck, which suppressed daytime mixing and prevented the smoke-

laden airmass from dispersing. The sharp resurgence to 33.6 µg/m³ at 2100 CST confirms the re-establishment of the nocturnal inversion over continuing regional smoldering.

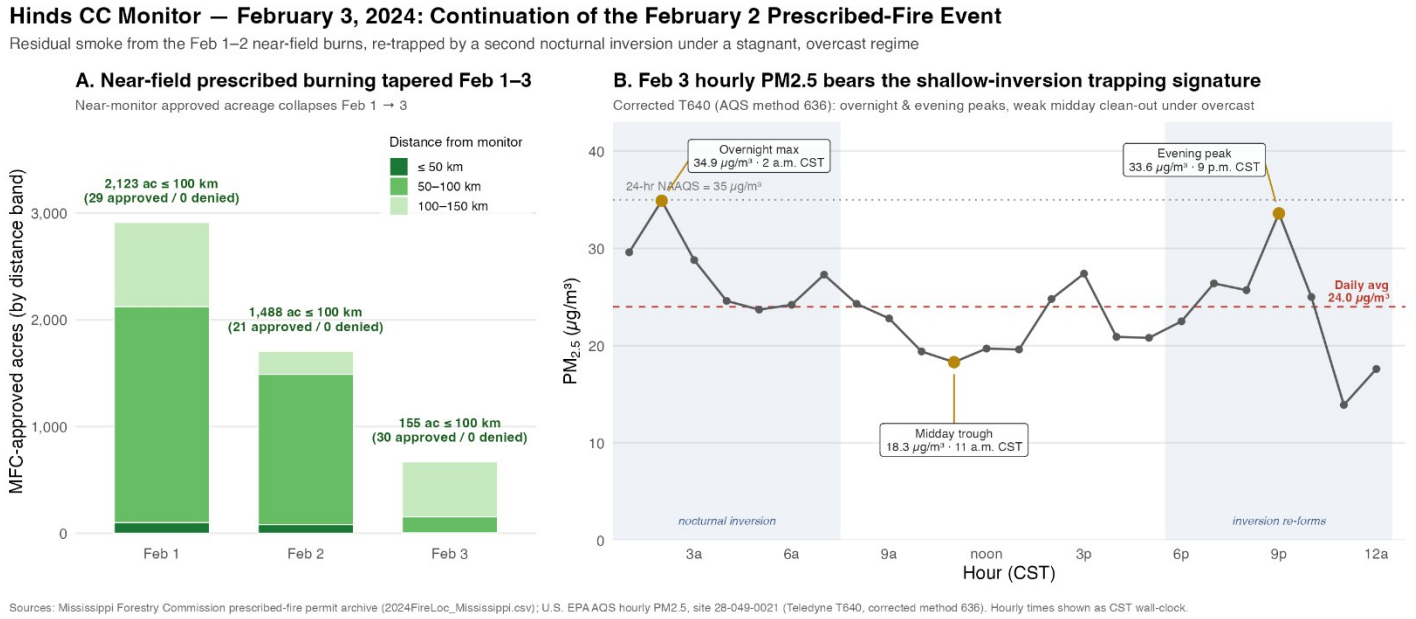


Figure 79. February 3, 2024, as the continuation and decay limb of the February 2 prescribed fire event. (A) Mississippi Forestry Commission–approved prescribed-burn acreage by distance from the Hinds CC monitor for February 1–3; approved acreage within 100 km of the monitor collapses from 2,123 to 155 acres even as statewide prescribed burning remains entirely uncontrolled (29, 21, and 30 burns approved with zero denials on February 1, 2, and 3, respectively), indicating that the elevated February 3 concentrations reflect carryover and regional smoke rather than new near-field ignitions. (B) Corrected (AQS method 636) hourly PM2.5 at the monitor on February 3, displaying the shallow-inversion trapping signature: an overnight maximum of 34.9 µg/m³ at 2 a.m. CST, a weak midday clean-out to 18.3 µg/m³ at 11 a.m. CST beneath the coastal low's cloud deck, and an evening rebuild to 33.6 µg/m³ at 9 p.m. CST as the nocturnal inversion re-formed. Daily average 24.0 µg/m³; hourly times shown as CST wall-clock.

February 20–21, 2024 — Prescribed Fire

Field	Detail
Event Type	Prescribed Fire
Date(s)	February 20 and 21, 2024
24-hr PM2.5 (µg/m³)	21.2, 27.4
EPA Tier	Tier 2
AQS Flag (preliminary)	RM

Synopsis: The 24-hour PM2.5 exceedances at the Hinds Community College monitor on February 20 (21.2 µg/m³) and February 21 (27.5 µg/m³) were the result of a multi-day regional prescribed-fire episode. The event was characterized by two primary mechanisms: (1) the repeated overnight accumulation of smoke from the previous day's smoldering burns beneath robust nocturnal inversions, and (2) the daytime transport of fresh smoke from active regional ignitions. During this 48-hour period, prescribed burning across Mississippi was extensive and conducted under full state authorization. On February 20, the Mississippi Forestry Commission (MFC) approved all 122 requested burns (17,807 acres), and on February 21, approved all 139 requests (16,757 acres), with zero denials statewide on either day. This confirms that the emissions were from fully permitted sources and were not reasonably controllable or preventable.

Pre-Event Buildup: February 19, 2024: While February 19 did not reach tier 2 levels (16.9 µg/m³), it provided the initial smoke reservoir for the ensuing event. Heavy regional burning on the 19th culminated in a late-evening peak of 45.0 µg/m³ at 11:00 p.m. CST. As surface winds went calm and a strong radiation inversion developed after sunset, this smoke was trapped in a shallow surface layer. This "primed" the airmass, causing the following day (February 20) to open with a high hourly concentration of 43.7 µg/m³ at midnight.

February 20, 2024: Event Onset: February 20 represents the onset of the exceedance episode, reaching a 24-hour average of 21.2 µg/m³ (Tier 2). The hourly record displays a classic "carryover" signature: concentrations remained in the 30s and 40s during the early morning hours prior to that day's ignitions, confirming that the monitor was impacted by smoke trapped from the February 19th burns. After an afternoon minimum of 6.0 µg/m³ at 6:00 p.m. CST (Hour 17) due to boundary layer mixing, concentrations surged again to 31.1 µg/m³ by midnight as a second nocturnal inversion formed, trapping smoke from the day's 17,807 acres of approved burning.

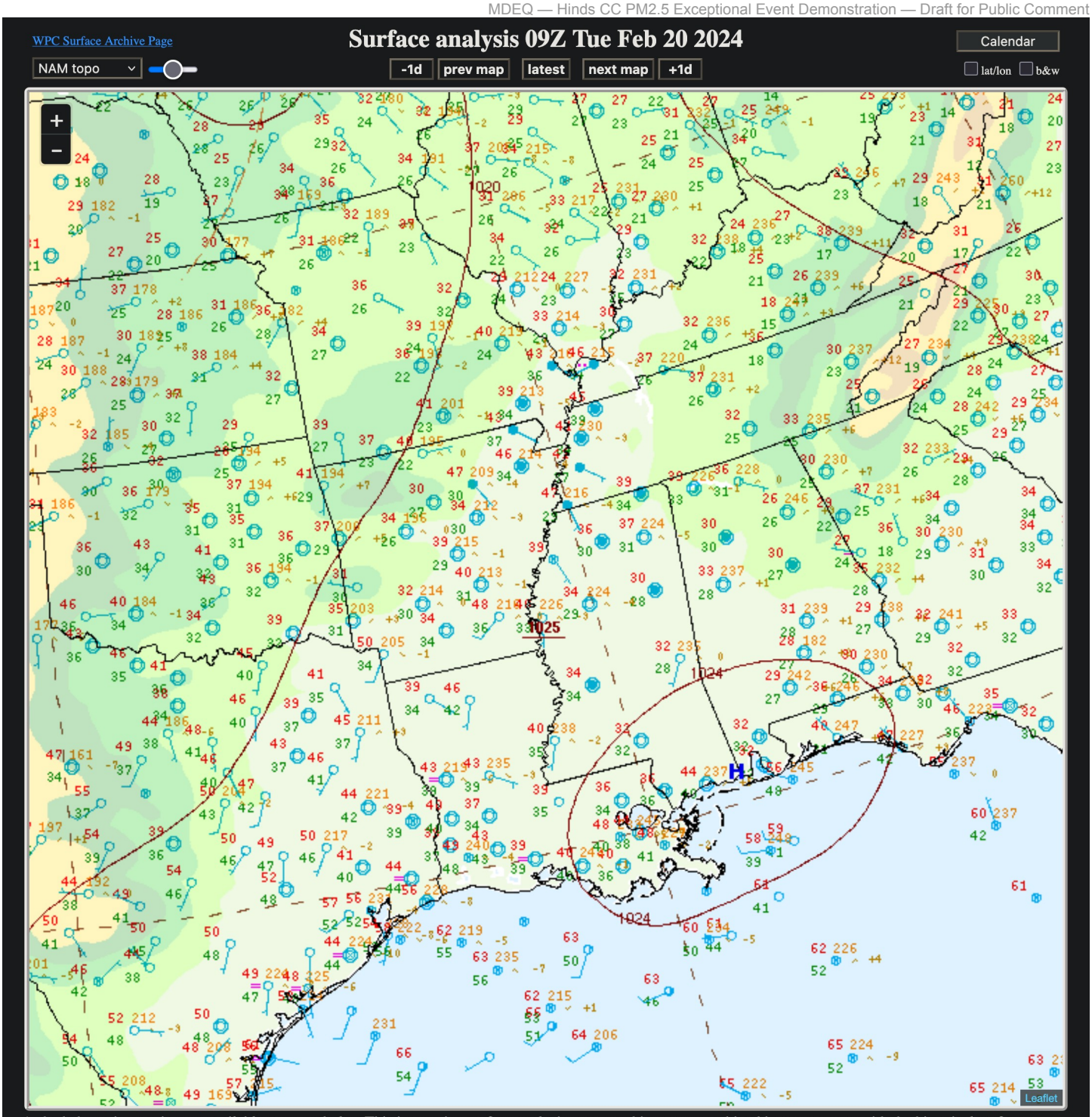


Figure 80. The 09Z surface analysis (3:00 a.m. CST, February 20, 2024) depicts the Southeastern U.S. under the influence of an expansive 1025 mb high-pressure system. The resulting calm winds and clear skies facilitated a stout nocturnal radiation inversion. This atmospheric 'lid' trapped residual smoke and smoldering emissions from the previous day's regional burning within a shallow surface layer, driving the elevated overnight PM2.5 concentrations (reaching 43.7 µg/m³ at Hour 0) observed at the Hinds CC monitor.

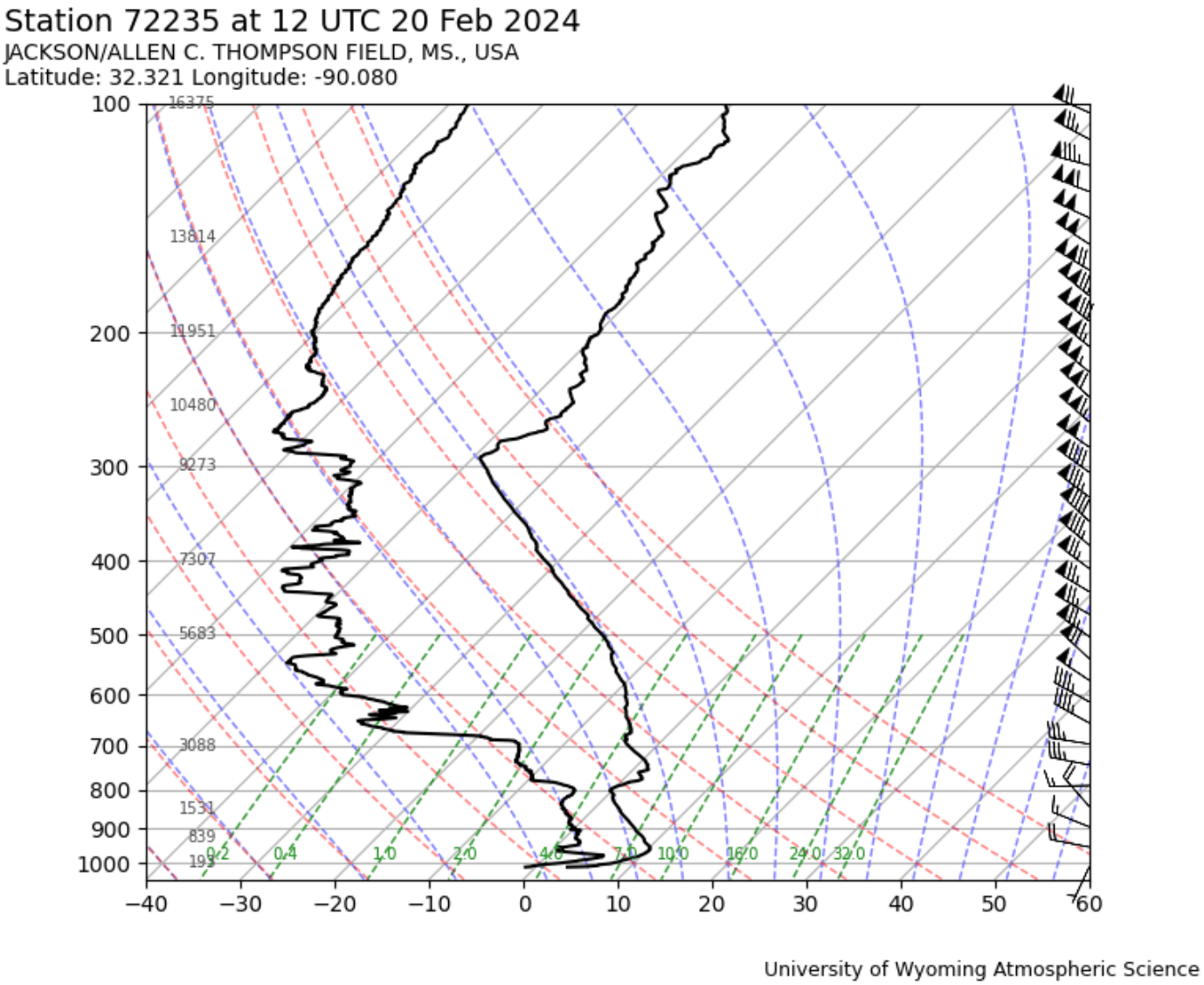


Figure 81. The 12 UTC (6:00 a.m. CST) sounding at Jackson (Station 72235) on February 20, 2024, provides physical evidence of a robust surface-based nocturnal inversion extending to approximately 950 mb. This temperature increases with height created a stable 'cap' that effectively suppressed vertical mixing and ventilation. Light-and-variable wind barbs in the lowest levels confirm the stagnant surface conditions. This atmospheric setup trapped 'carryover' smoke from the previous day's extensive regional burning, resulting in the elevated hourly PM2.5 concentrations (reaching 43.7 µg/m³) observed throughout the pre-dawn hours.

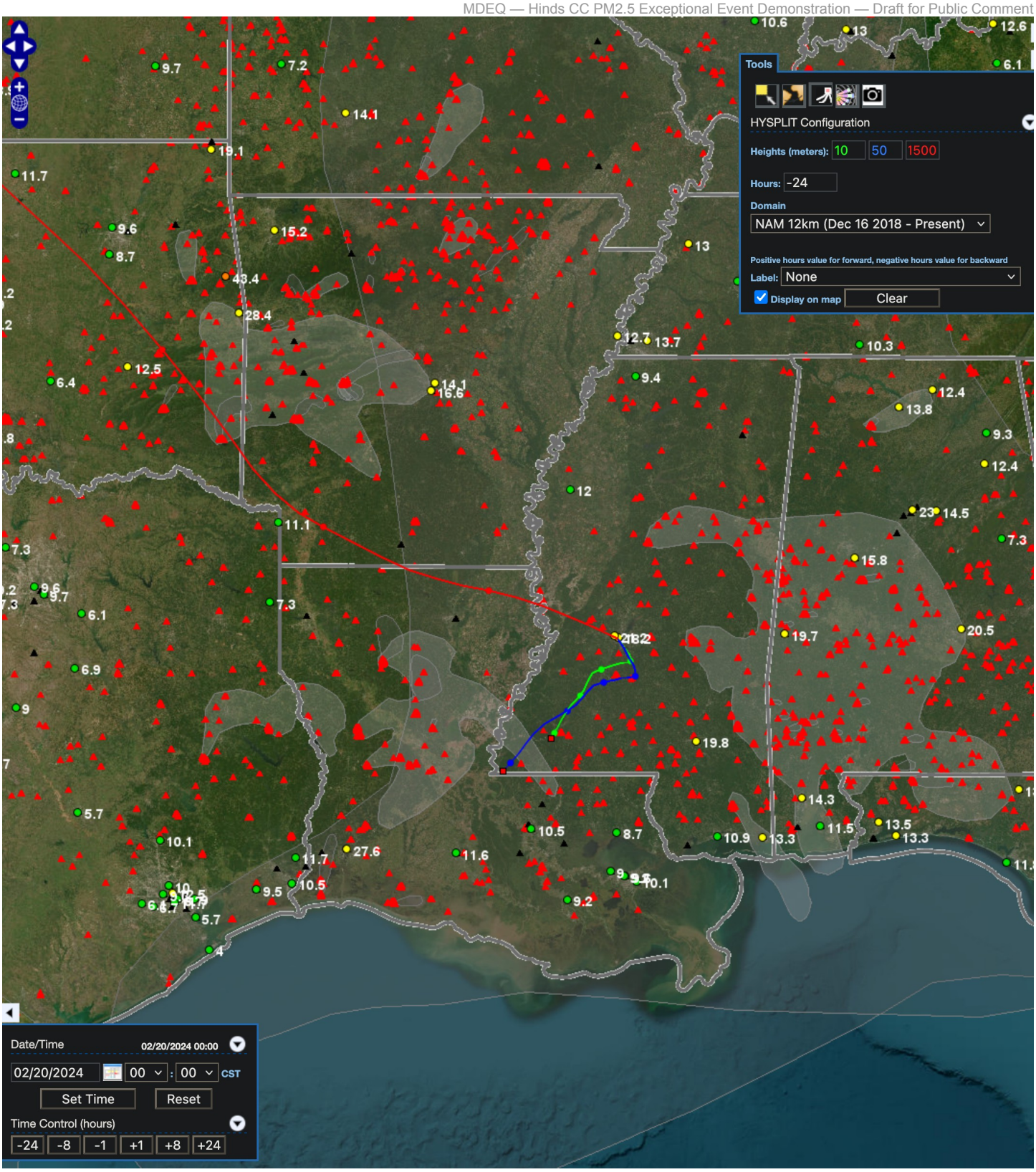


Figure 82. AirNow-Tech Navigator imagery for February 20, 2024 (00Z on Feb 21), displaying 24-hour back-trajectories for the Hinds CC monitor. The low-level trajectories (10m green and 50m blue) are exceptionally short and remain within central Mississippi, confirming the stagnant surface conditions and lack of horizontal ventilation throughout the day. The monitor is surrounded by numerous fire hotspots (red triangles) and sits directly within an HMS smoke polygon (grey shading). This visual

evidence confirms that smoke from 17,807 acres of approved regional burning was effectively 'pooled' at the surface, driving the daily PM2.5 average to 21.2 µg/m³.

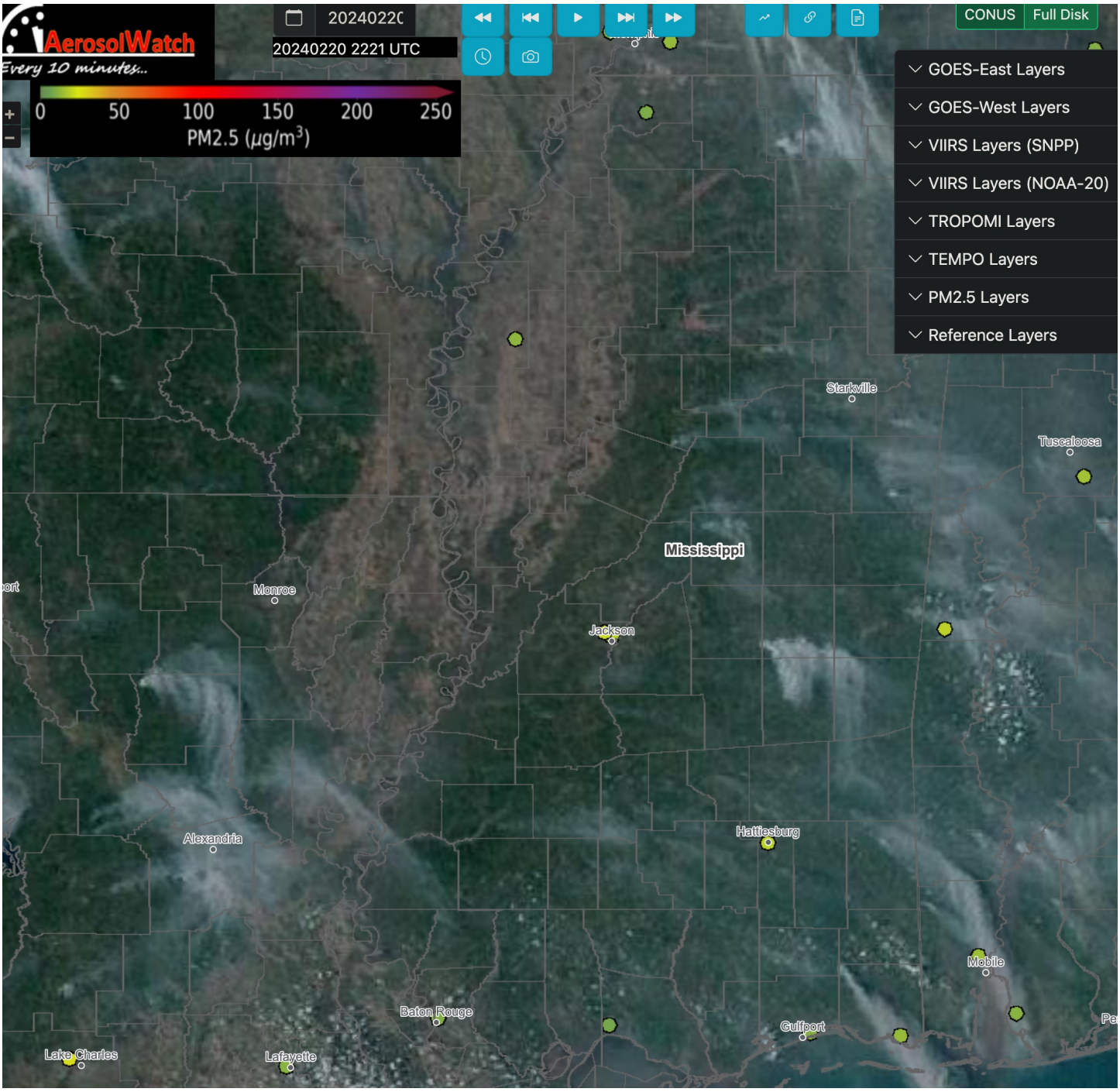


Figure 83. GOES-East True Color imagery from February 20, 2024, at 2221 UTC (4:21 p.m. CST), captures multiple active smoke plumes and widespread regional haze centered over the Jackson metropolitan area. These emissions, originating from the 17,807 acres of MFC-approved prescribed fires ignited that day, are seen accumulating under light-wind conditions. This visible smoke reservoir provides the 'ground truth' for the aerosols that would subsequently be trapped by the developing nocturnal inversion, leading to the high 'carryover' concentrations observed through the following morning.

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
Hinds CC/280490021/PM2.5-88101/3	02/19/24	11.9	12.8	15.7	16.9	16.7	19.3	22.2	23.4	23	15.7	12.8	10.3	10.2	8.4	7.4	6.9	5.9	6.3	9.2	17.1	28	32.4	28.3	45	16.91	45
Hinds CC/280490021/PM2.5-88101/3	02/20/24	43.7	41.9	31	35.2	34.8	31	27.4	26.9	29.4	22.4	16.5	11	8.3	8.3	7.8	6.8	6.9	6	7	10.3	17.7	19.3	28.3	31.1	21.21	43.7

Figure 84. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor for February 19–20, 2024. The inclusion of February 19 illustrates the initial onset of the smoke-trapping regime. Following sunset, concentrations rose sharply from 17.1 µg/m³ (Hour 19) to a peak of 45.0 µg/m³ (Hour 23) as a robust nocturnal inversion compressed regional smoke at the surface. This 'primed' the airmass, explaining why the event day (February 20) opened with an elevated concentration of 43.7 µg/m³ at midnight—hours before that day's ignitions began, confirming the impact was sustained carryover smoke from previous regional burning.

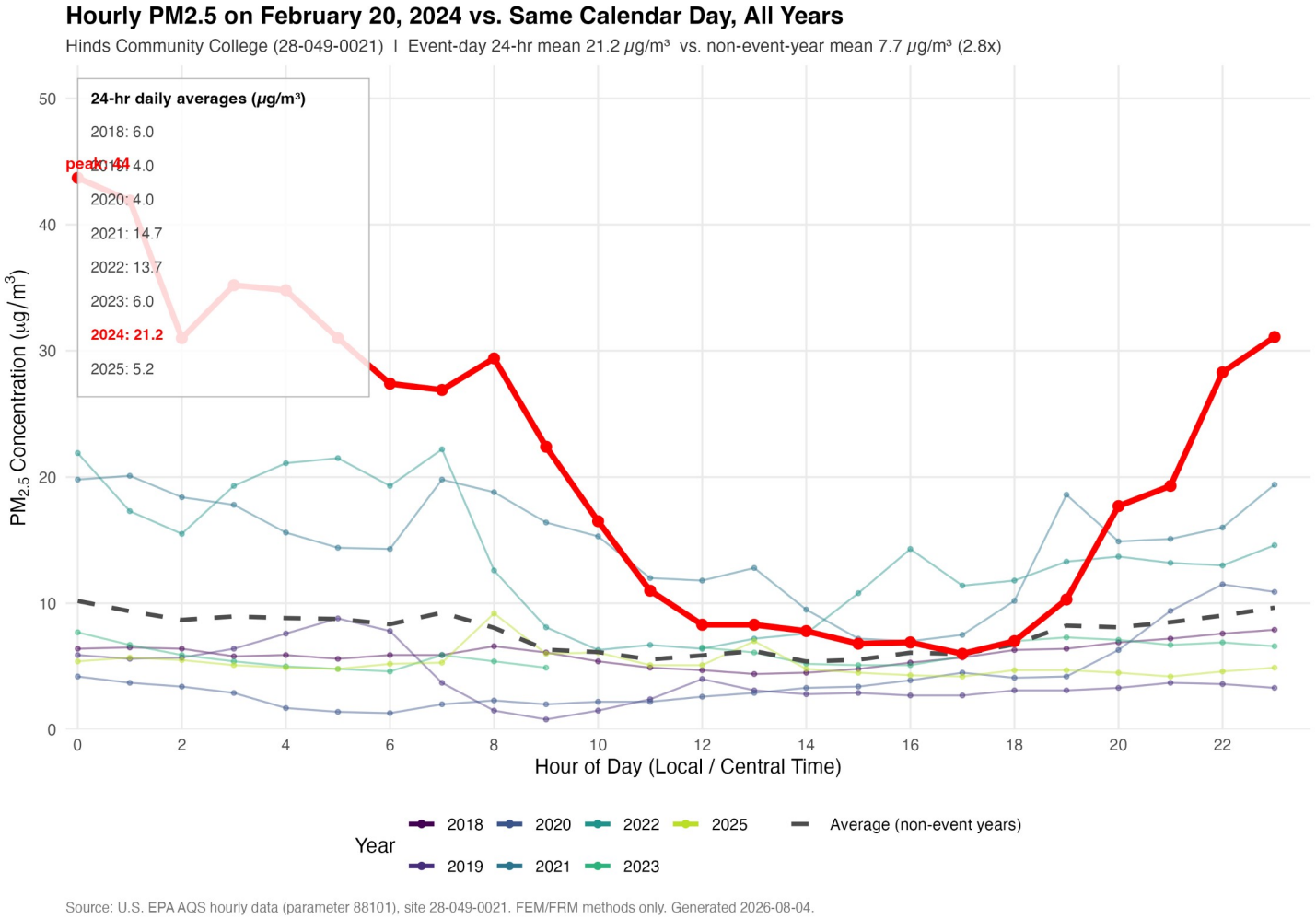


Figure 85. The hourly PM2.5 profile for February 20, 2024 (bold red line), illustrates the impact of regional smoke trapping at the Hinds CC monitor. The 24-hour mean of 21.2 µg/m³ is nearly triple (**2.8x**) the historical non-event average of 7.7 µg/m³. The curve shows exceptionally high 'carryover' concentrations from the February 19th burns (starting at 44 µg/m³ at Hour 0) which remained trapped until the morning inversion eroded. The sharp mid-afternoon decline to near-baseline levels (~6 µg/m³) confirms that the air was clean when vertical mixing was maximized, while the rapid evening surge demonstrates the trapping of new emissions from the 17,807 acres of burns approved on February 20th.

February 21, 2024: Event Peak: February 21 was the peak of the episode, reaching a 24-hour average of 27.5 µg/m³ (Tier 2). The hourly data shows a distinct two-part impact:

1. Morning Carryover: Trapped smoke from the February 20th burns drove an early morning peak of 50.6 µg/m³ at 7:00 a.m. CST. The Jackson sounding (Station 72235) at 12Z documents the robust surface-based inversion that prevented this smoke from dispersing.
2. Afternoon Transport: As the morning inversion eroded, a light southerly surface flow developed. Fresh smoke from same-day ignitions south of the monitor—including a 650-acre burn in Copiah County (72 km SW) ignited at 08:45 CST was advected northward. This caused PM2.5 to rebuild to a secondary afternoon peak of 31.0 µg/m³ at 5:00 p.m. CST.

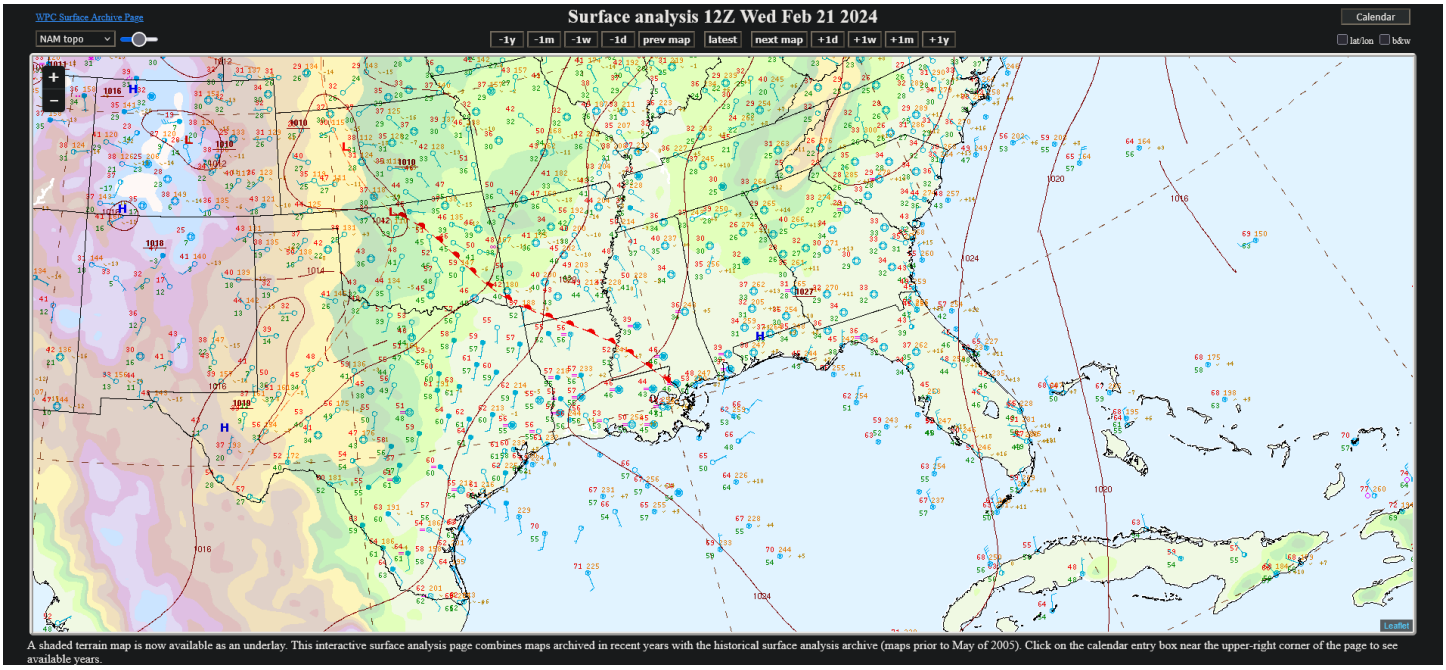


Figure 86. The 12Z surface analysis (6:00 a.m. CST, February 21, 2024) depicts a 1027 mb surface high-pressure system centered over the Southeastern U.S. The resulting stagnant conditions and negligible pressure gradient across Mississippi facilitated a robust nocturnal radiation inversion. This atmospheric 'lid' trapped residual smoke from the 17,807 acres of MFC-approved burning on February 20th within a shallow surface layer. As a result, PM2.5 concentrations at the Hinds CC monitor remained elevated throughout the night, reaching a morning carryover peak of 50.6 µg/m³ at 0700 CST.

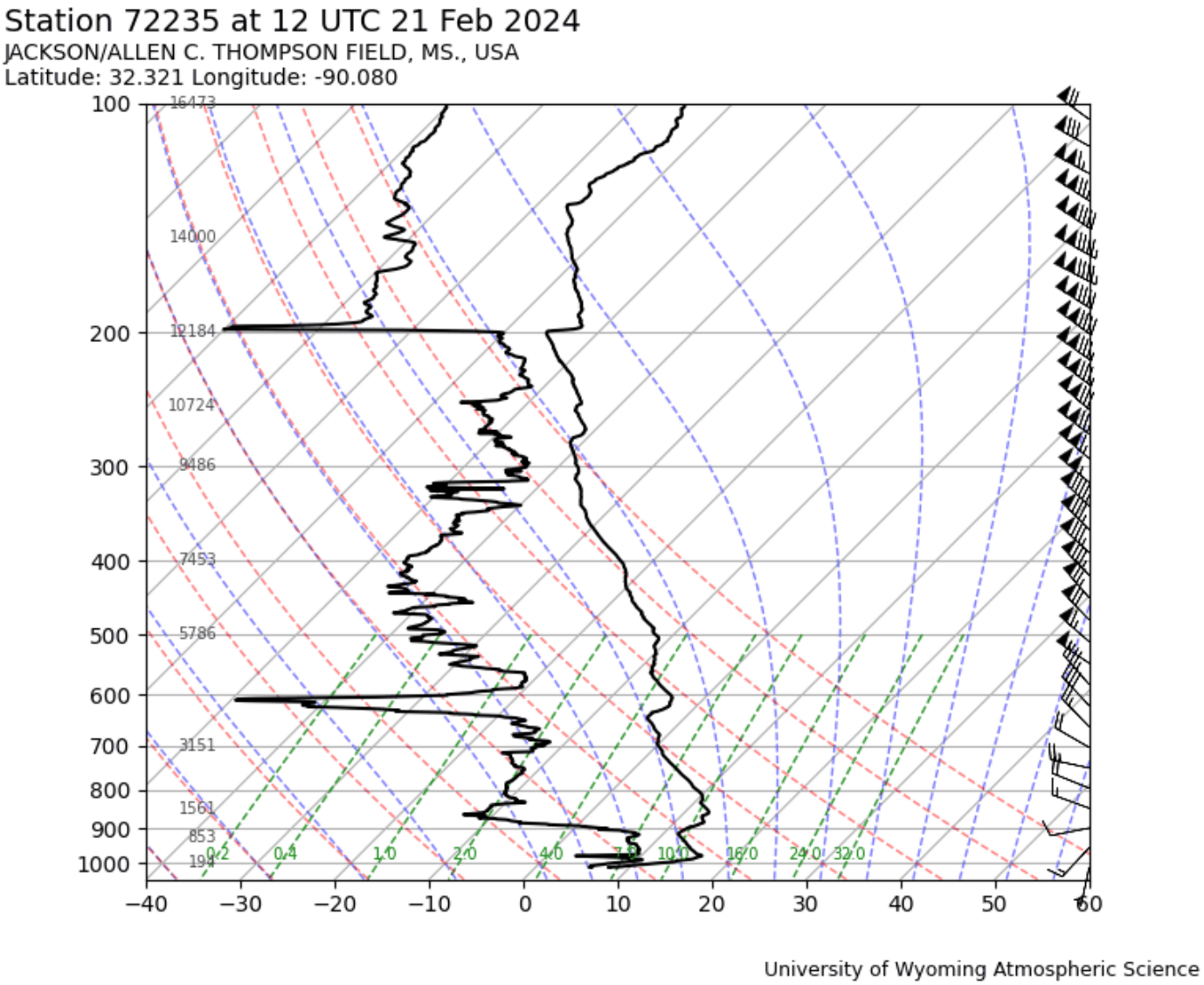


Figure 87. The 12 UTC (6:00 a.m. CST) sounding at Jackson (Station 72235) on February 21, 2024, documents a pronounced low-level nocturnal inversion. This temperature increases with height created a stable 'cap' over a shallow surface layer, preventing vertical mixing and ventilation. The significant gap between the temperature and dewpoint lines indicates dry, subsident air aloft, which—coupled with the light surface wind barbs—confirms the stagnant conditions that trapped regional smoke. This restricted boundary layer depth was the primary mechanism that sustained the peak early-morning PM2.5 concentration of 50.6 µg/m³ observed at the Hinds CC monitor.

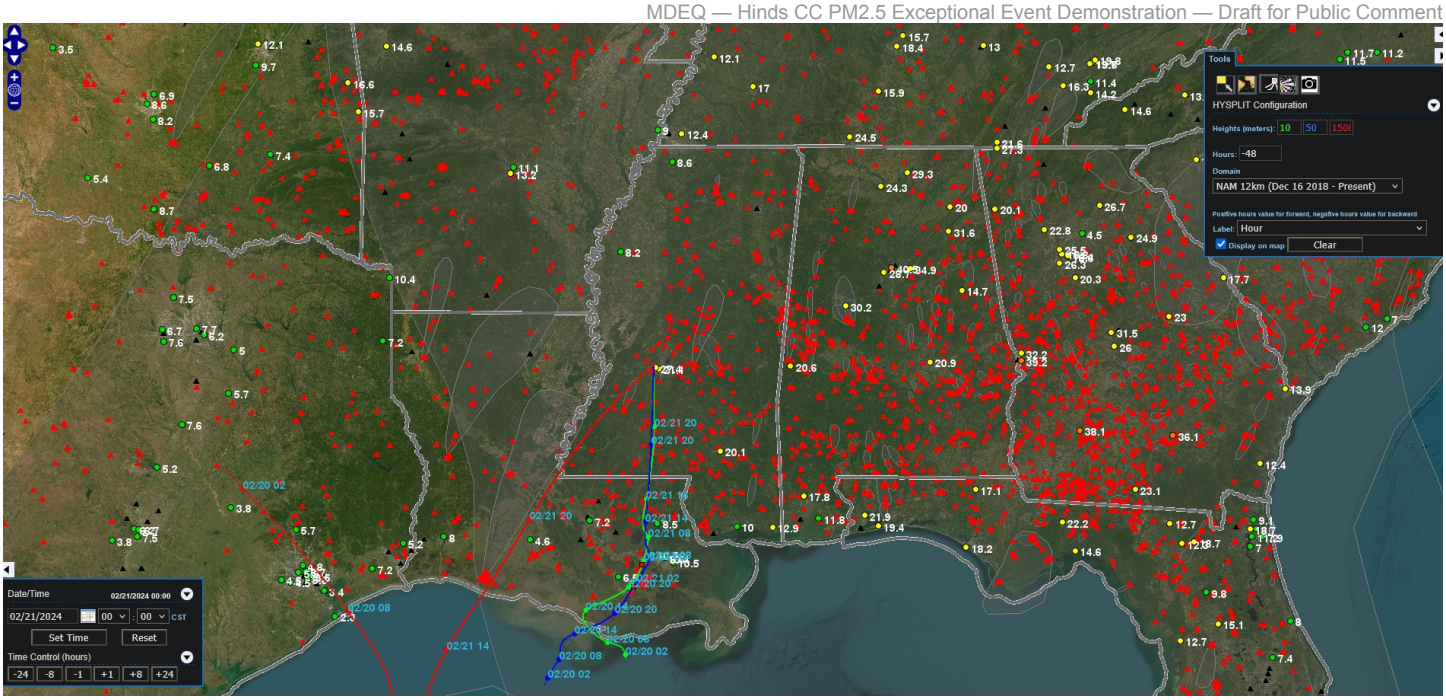


Figure 88. AirNow-Tech Navigator imagery for February 21, 2024, integrates ground-level monitoring, satellite smoke detections, and atmospheric modeling to illustrate the afternoon smoke transport regime. As the controlling surface high shifted eastward, winds veered to a light southerly flow, advecting smoke from 33 MFC-approved burns (2,363 total acres) located south of the monitor—most notably a 650-acre burn in Copiah County. This transport is directly corroborated by the 48-hour HYSPLIT back-trajectories (green/blue lines), which show low-level parcels (10 m and 50 m) traveling from the Gulf Coast across numerous regional fire hotspots (red triangles) to the Hinds CC monitor. This influx of fresh emissions drove the secondary afternoon PM2.5 peaks of 30.6 µg/m³ and 31.0 µg/m³ observed at 4:00 p.m. and 5:00 p.m. CST.

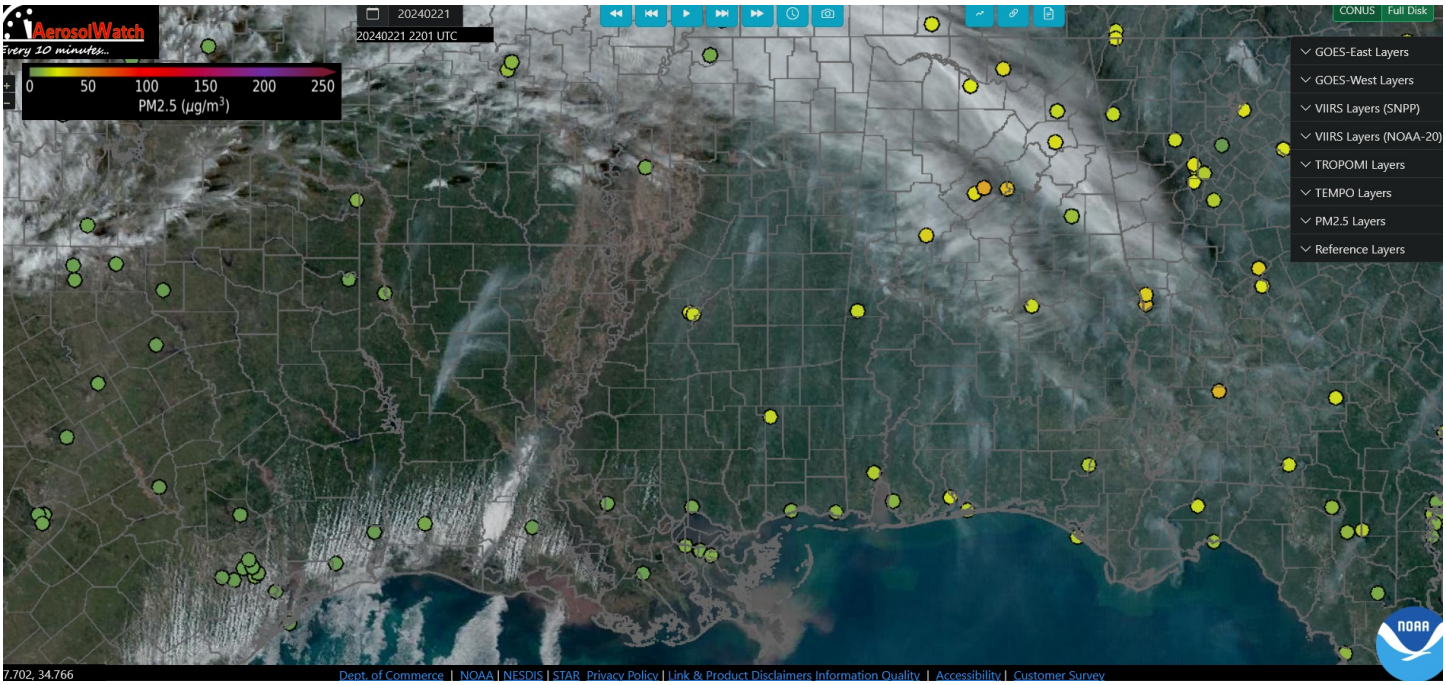


Figure 89. GOES-East True Color imagery from February 21, 2024, at 2201 UTC (4:01 p.m. CST) provides direct visual confirmation of the smoke-transport regime. Numerous discrete smoke plumes

are visible originating from regional burns in southern Mississippi and streaming northward under a light southerly flow. This imagery captures the smoke-laden airmass at the exact time the Hinds CC monitor recorded its afternoon peak (31.0 µg/m³ at 1700 CST), providing a clear physical link between the same-day prescribed fires and the ground-level PM2.5 exceedance.

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
Hinds CC/280490021/PM2.5-88101/3	02/20/24	43.7	41.9	31	35.2	34.8	31	27.4	26.9	29.4	22.4	16.5	11	8.3	8.3	7.8	6.8	6.9	6	7	10.3	17.7	19.3	28.3	31.1	21.21	43.7
Hinds CC/280490021/PM2.5-88101/3	02/21/24	35	36.9	36.6	39.9	43.9	46	50.6	50	40.2	15.7	9.7	11.4	14.7	19.3	23.1	30.6	31	16.1	16.9	17.2	17.8	13.9	20.9	22.4	27.49	50.6

Figure 90. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor (28-049-0021) for February 20–21, 2024. The data for February 21 quantifies the two-part impact mechanism: (1) a morning 'carryover' peak of 50.6 µg/m³ at 0700 CST resulting from smoke trapped beneath a robust nocturnal inversion, and (2) a secondary afternoon peak of 31.0 µg/m³ at 1700 CST driven by the southerly transport of fresh emissions. The midday minimum of 9.7 µg/m³ (Hour 10) corresponds to the brief period of boundary layer ventilation before the arrival of the afternoon smoke plumes, resulting in an exceptional 24-hour daily average of 27.49 µg/m³.

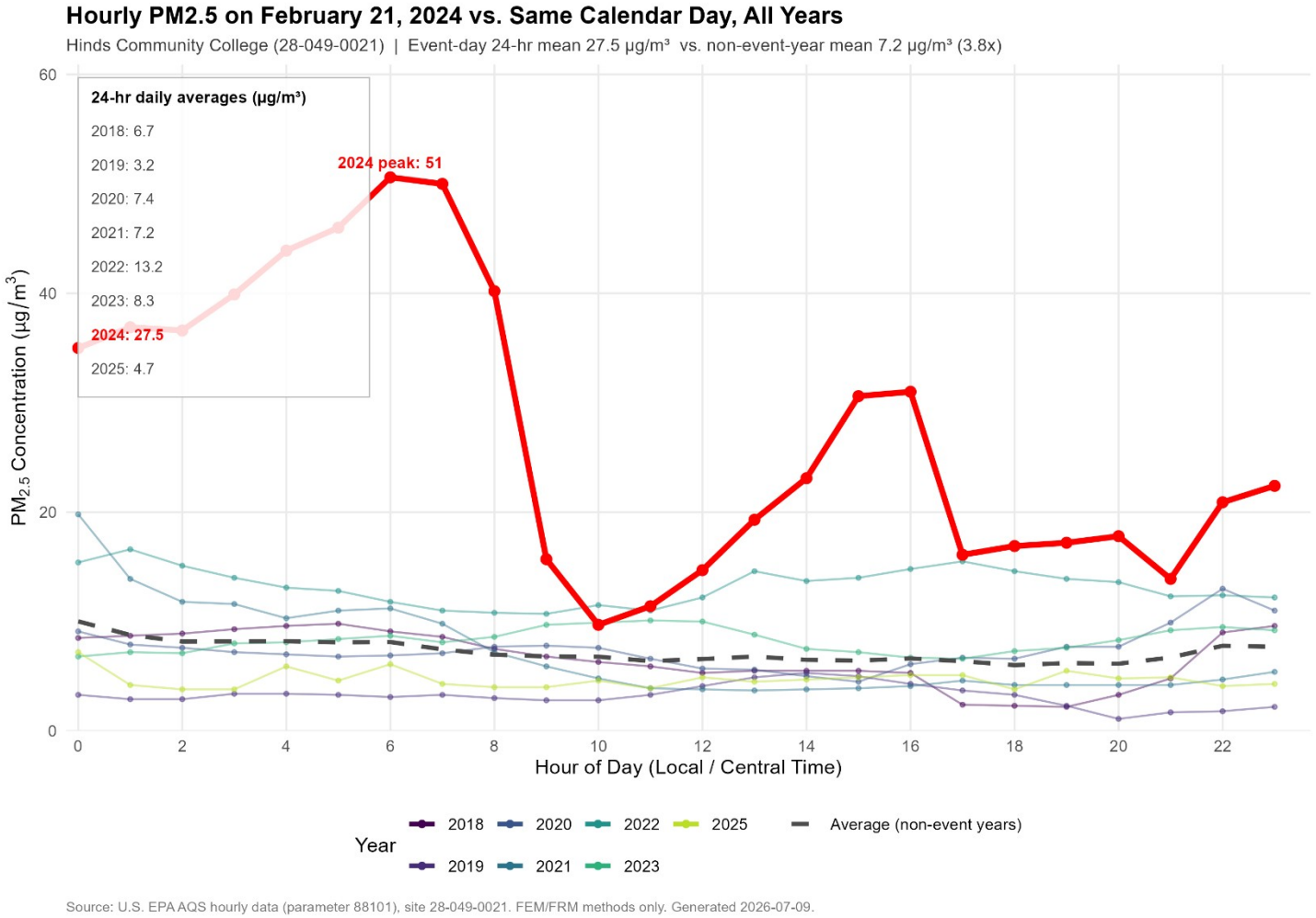
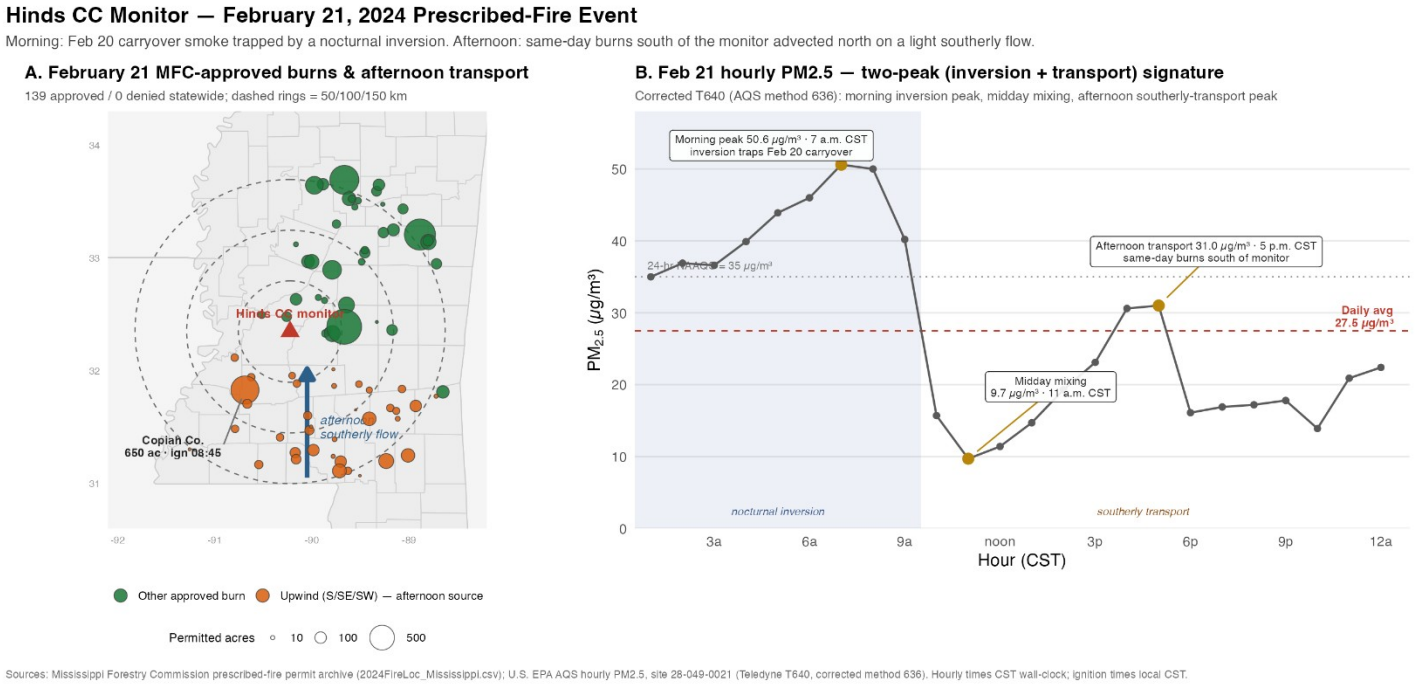


Figure 91. The hourly PM2.5 profile for February 21, 2024 (bold red line), presents a stark departure from historical norms at the Hinds CC monitor. The 24-hour mean of 27.5 µg/m³ is nearly quadruple (**3.8x**) the historical non-event average of 7.2 µg/m³. The curve perfectly illustrates the 'two-part' mechanism: a massive morning carryover peak of 50.6 µg/m³ (0700 CST) due to inversion trapping,

and a distinct afternoon resurgence to 31.0 µg/m³ (1700 CST) driven by the southerly transport of fresh smoke. This 'double-peak' signature is entirely absent from the historical baseline, confirming the exceptional nature of the regional fire impact.



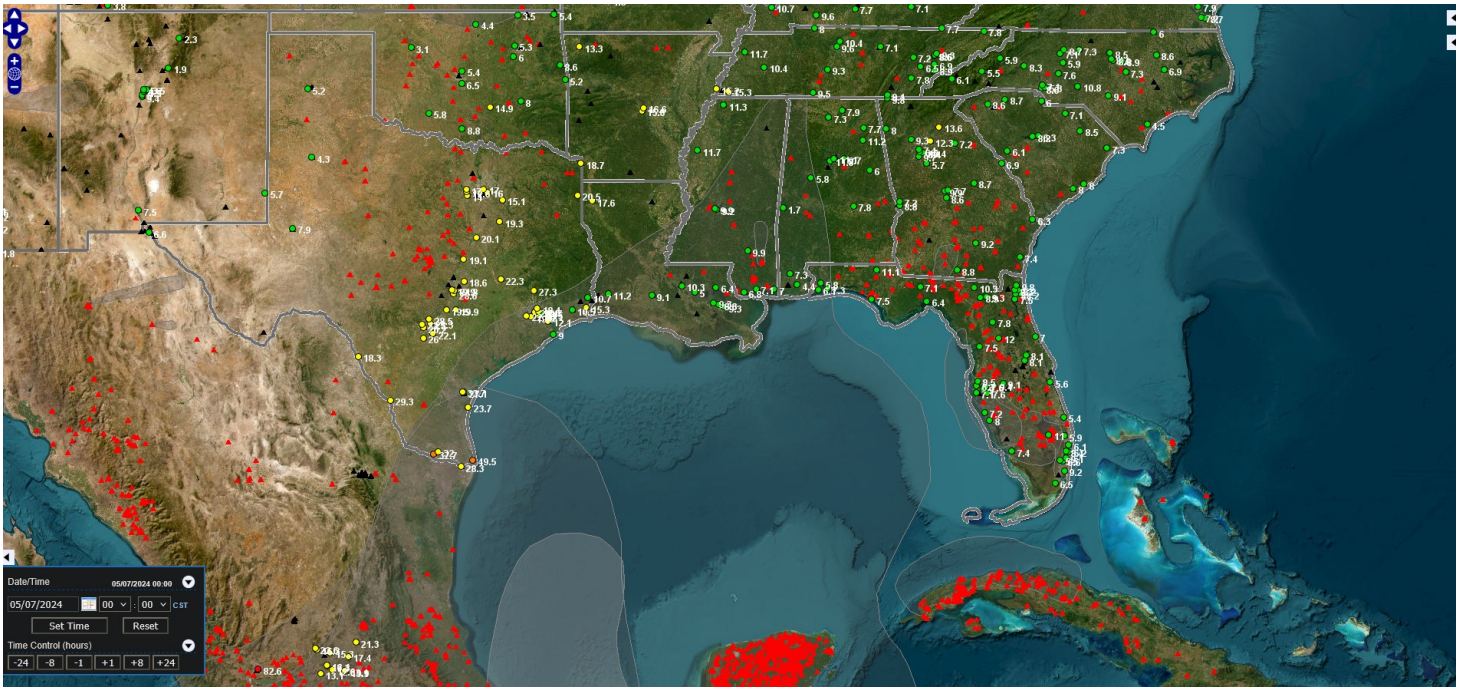
Sources: Mississippi Forestry Commission prescribed-fire permit archive (2024FireLoc_Mississippi.csv); U.S. EPA AQS hourly PM2.5, site 28-049-0021 (Teledyne T640, corrected method 636). Hourly times CST wall-clock; ignition times local CST.

Figure 92. February 21, 2024, prescribed-fire event at the Hinds CC monitor. (A) Mississippi Forestry Commission–approved prescribed burns for February 21 (139 approved, zero denied statewide); the red triangle is the monitor, dashed rings are 50, 100 and 150 km, and symbol size is permitted acreage. Burns lying south, southeast and southwest of the monitor (orange) are the upwind sources for the afternoon transport under the light southerly flow indicated by the arrow, most notably the 650-acre Copiah County burn ignited at 08:45 CST. (B) Corrected (AQS method 636) hourly PM2.5 at the monitor on February 21, showing the two-part impact: a morning carryover peak of 50.6 µg/m³ at 7:00 a.m. CST beneath the nocturnal inversion, a midday mixing minimum of 9.7 µg/m³ at 11:00 a.m. CST, and an afternoon transport peak of 31.0 µg/m³ at 5:00 p.m. CST, giving a 24-hour average of 27.5 µg/m³.

May 9, 2024 — Mexico/Central America Wildfire

Field	Detail
Event Type	Mexico/Central America Wildfire
Date(s)	May 9, 2024
24-hr PM2.5 (µg/m³)	24.4
EPA Tier	Tier 2
AQS Flag (preliminary)	RG

Synopsis: The elevated 24-hour PM2.5 recorded at the Hinds Community College monitor on May 9, 2024 (24.5 µg/m³) resulted from the arrival of wildfire smoke transported from sustained fires across the Yucatán Peninsula and southern Mexico/Central America. Over the several days preceding the event, this smoke accumulated across Texas and was advected northeastward, through Louisiana and into Mississippi, by persistent southerly flow on the western flank of a surface high-pressure system anchored off the southeastern U.S./Florida.



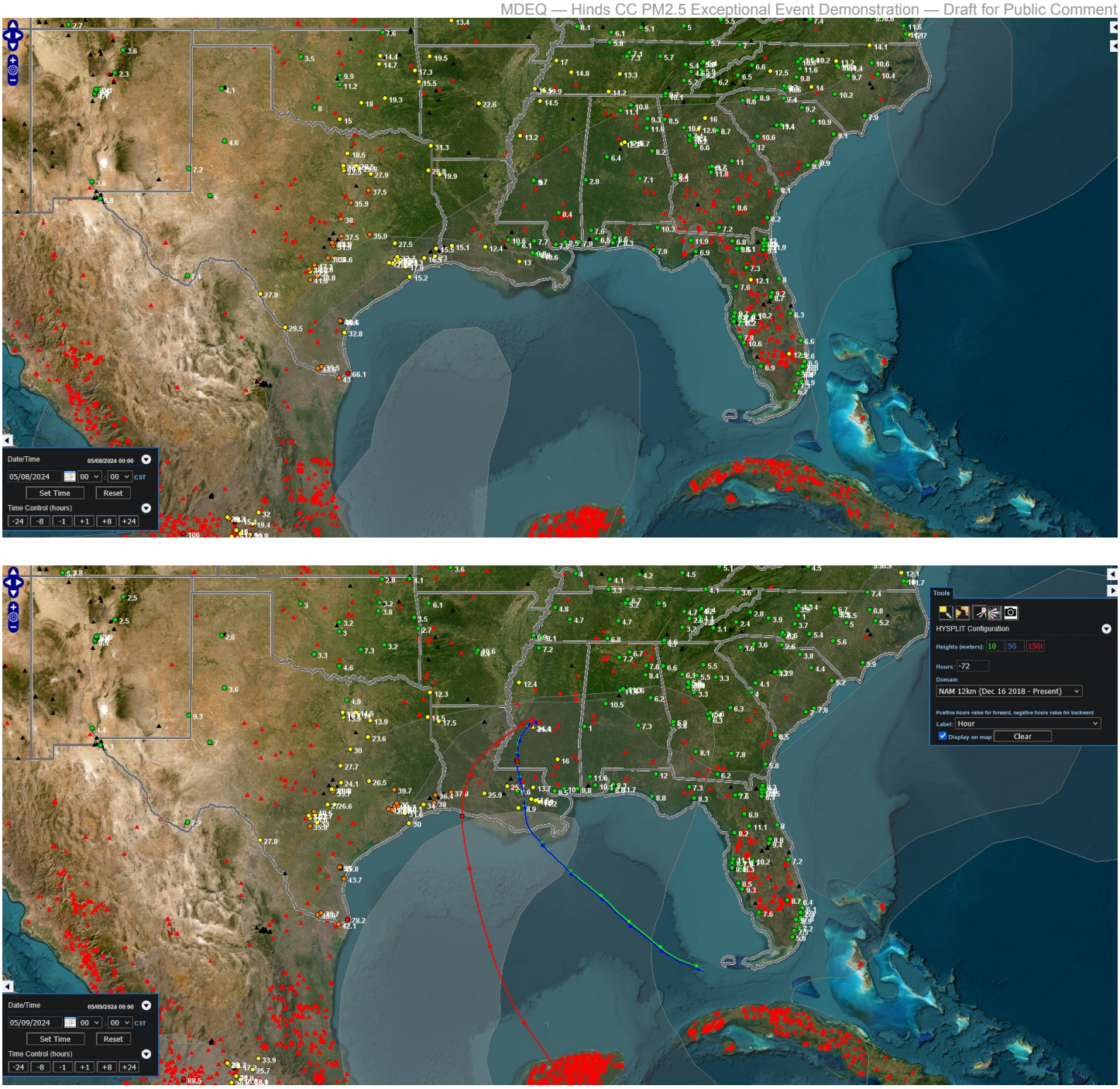


Figure 93. Series of Airnowtech navigator images showing elevated PM2.5 first became entrenched over Texas. Statewide Texas daily average PM2.5 climbed from roughly 12 µg/m³ on May 4 to 21 µg/m³ on May 7 and 30 µg/m³ on May 8, with dozens of monitors exceeding 20 µg/m³ (39 Texas sites on May 8 alone). Deep South Texas nearest the Mexican border remained smoke-impacted for four or more consecutive days (Brownsville 28, 43, 42, and 45 µg/m³ on May 7–10; Corpus Christi peaking at 46 µg/m³ on May 9). Louisiana and Mississippi, by contrast, held near background (approximately 7–10 µg/m³) through May 8 and then spiked sharply on May 9, Lake Charles 38 µg/m³, Baton Rouge 26 µg/m³, Jackson NCORE 25.5 µg/m³, and Hinds CC 24.5 µg/m³ before returning to background the following day (Hinds CC 5.2 µg/m³ on May 10). This time-lagged, southwest-to-northeast progression is the signature of a transported regional smoke plume rather than any local emissions source. The -72-hour HYSPLIT back-trajectory ending the evening of May 9 confirms this pathway: the elevated

(1,500 m) parcel traces back over Mexico, while the low-level parcels arrive from the south helping issue in the smoke-laden airmass.

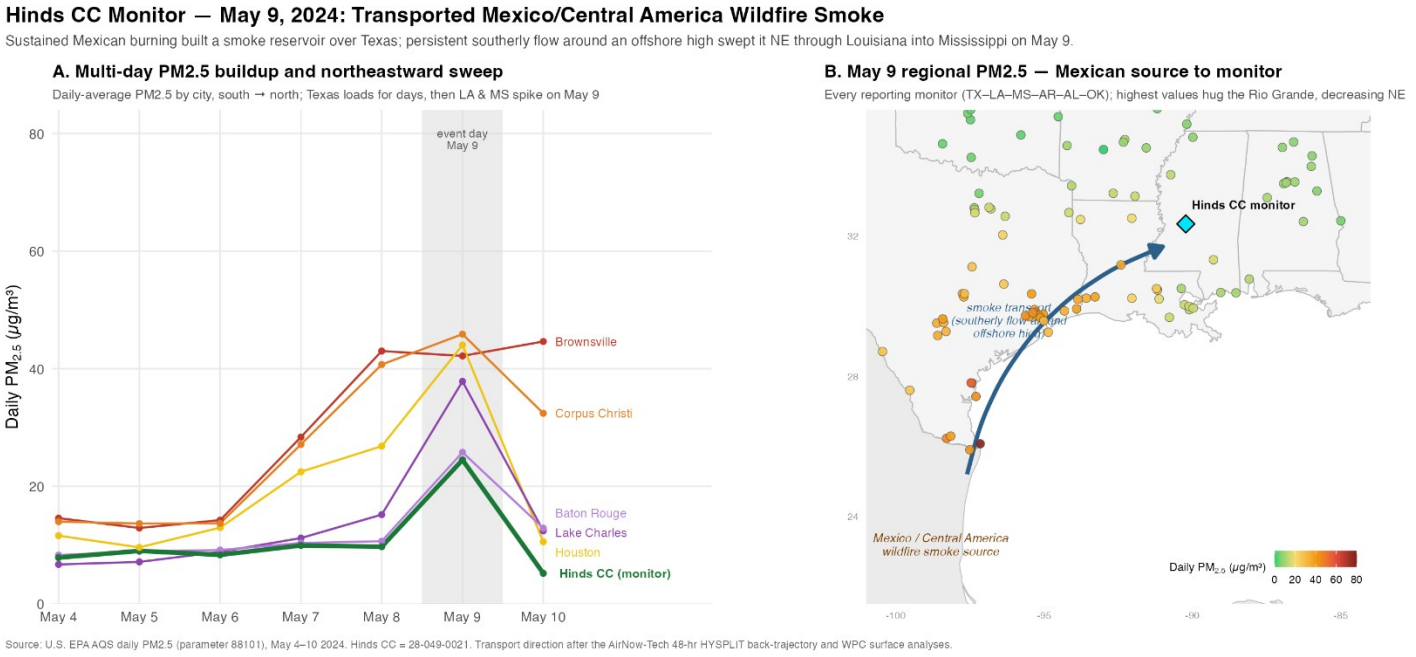


Figure 94. May 9, 2024, regional smoke transport to the Hinds CC monitor. (A) Daily-average PM2.5 at representative monitors from south Texas to central Mississippi, May 4–10, 2024. Elevated concentrations became entrenched over Texas several days before the event (Brownsville and Corpus Christi reaching 40–46 µg/m³ by May 8–9), while Louisiana and Mississippi held near background until the plume arrived on May 9 (Baton Rouge 26, Hinds CC 24.5 µg/m³) and cleared the next day, a time-lagged, southwest-to-northeast progression diagnostic of transported smoke rather than a local source. (B) Daily average PM2.5 at every reporting monitor in the region on May 9; the highest values hug the Rio Grande and Texas coast nearest the Mexican fire source and decrease northeastward toward the monitor (cyan diamond). The arrow indicates the smoke-transport pathway, northeastward on persistent southerly flow around the offshore high, consistent with the 72-hour HYSPLIT back-trajectory and WPC surface analyses.

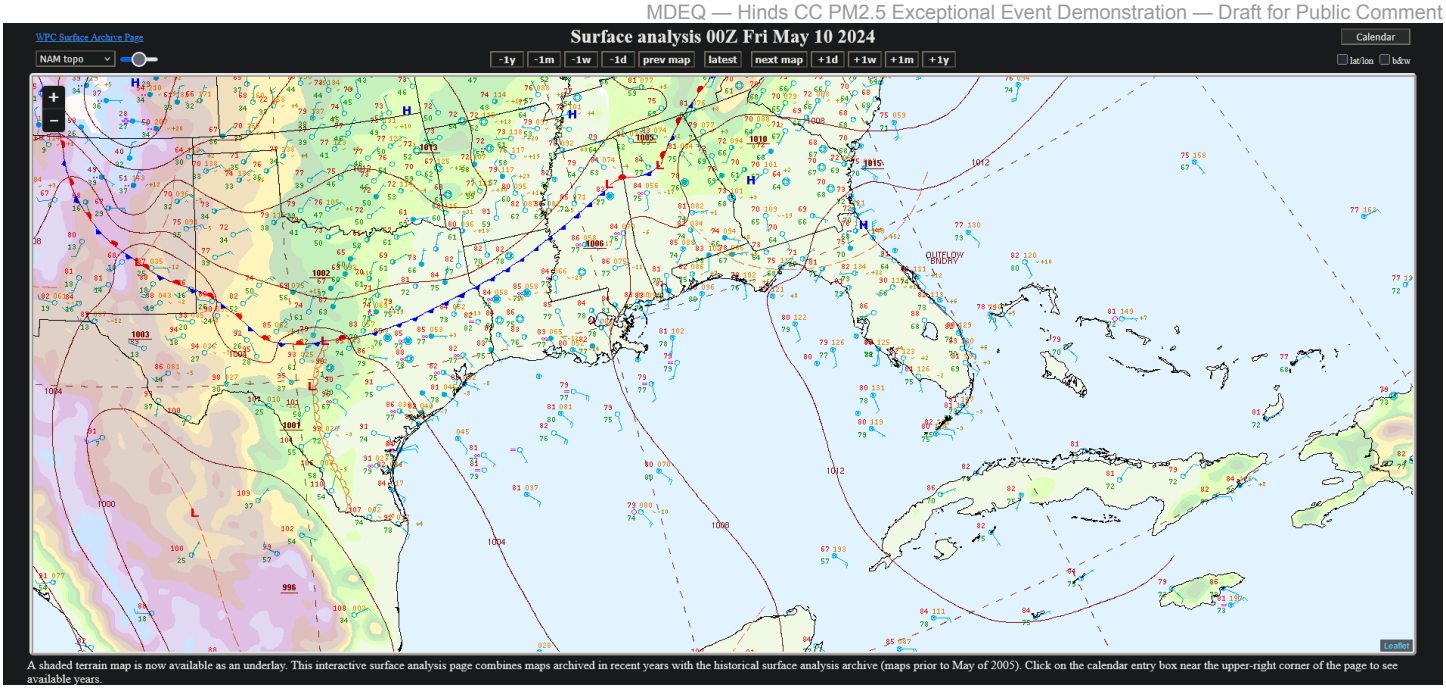


Figure 95. The 00Z surface analysis (7:00 p.m. CDT, May 9, 2024) depicts surface high-pressure system centered over the Southeastern U.S. continuing to issue in smoke from Mexico/Central American wildfires from southerly flow around backside of surface high pressure, elevating PM2.5 concentrations at the Hinds CC monitor.

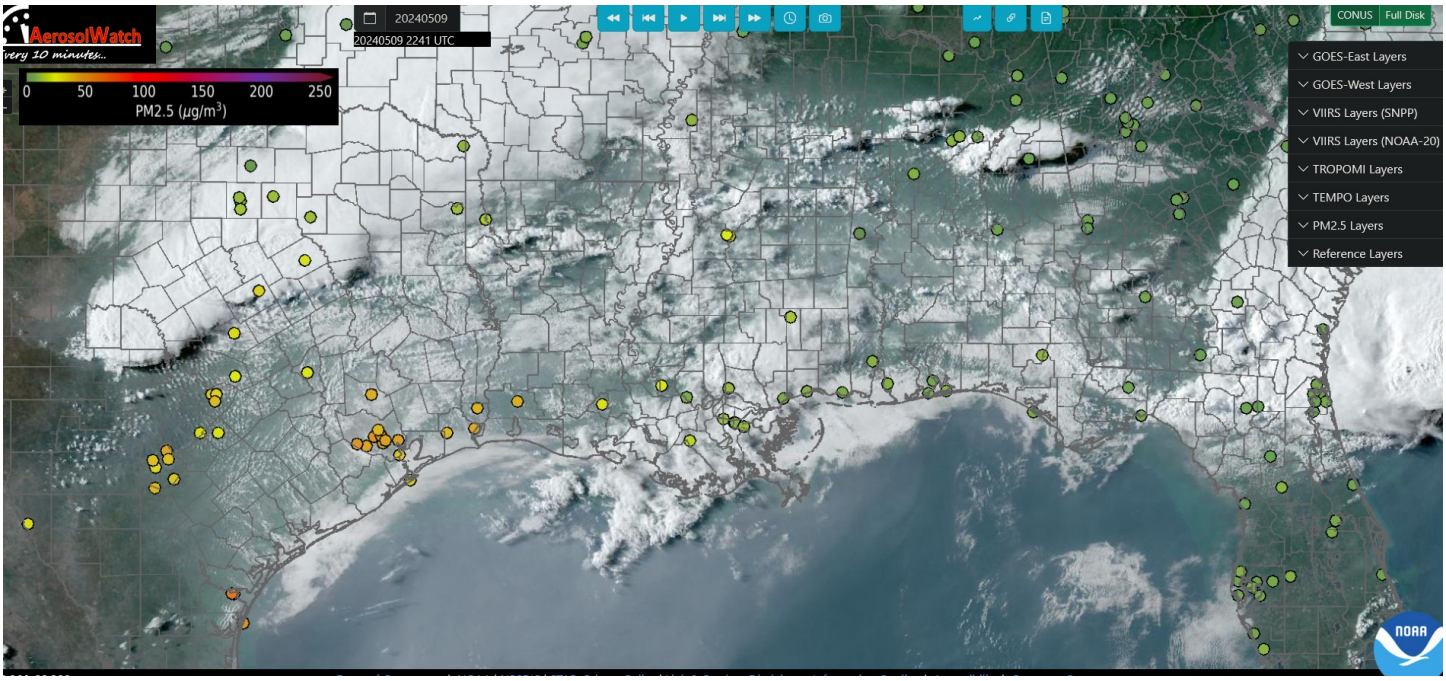
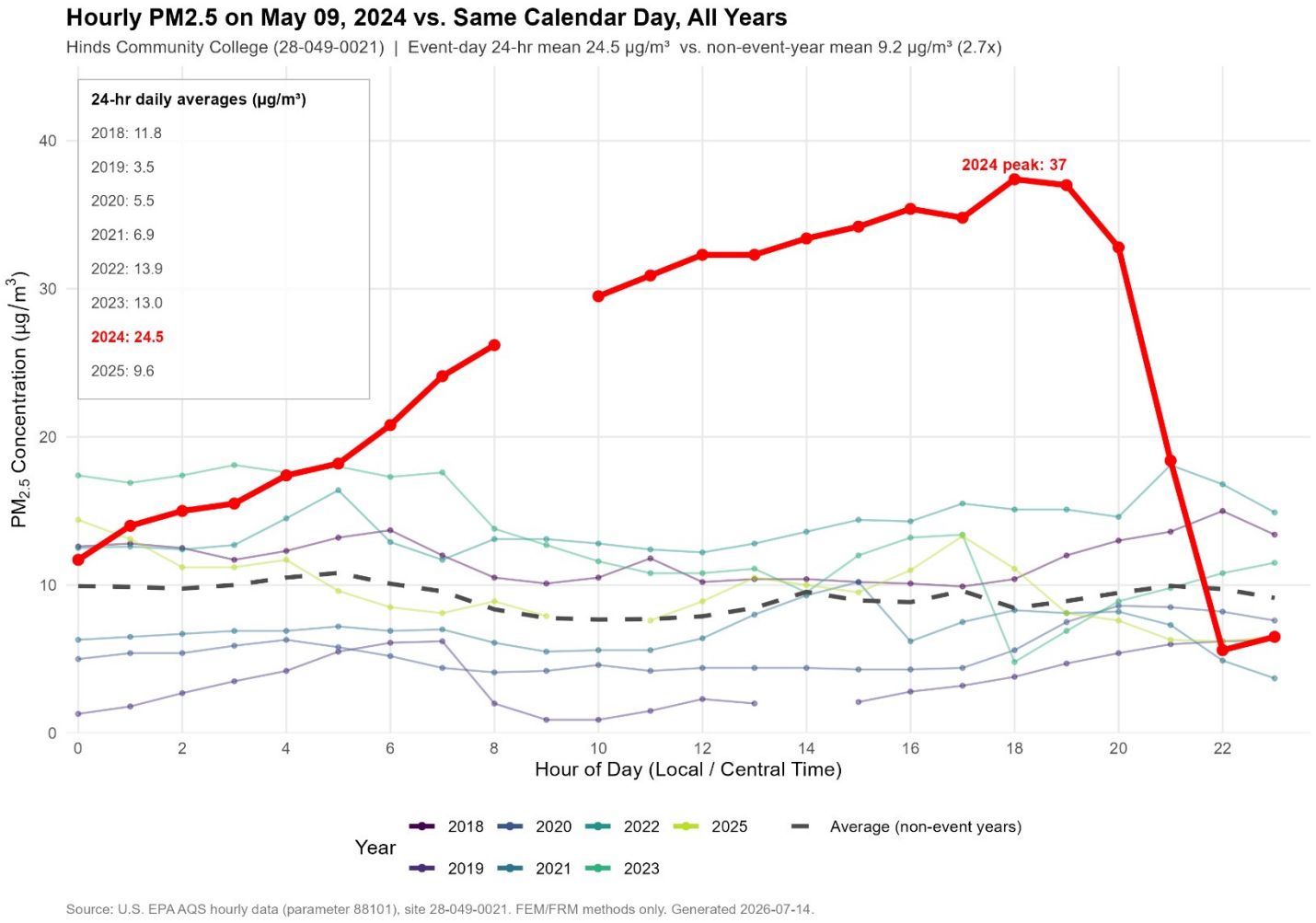


Figure 96. GOES-East True Color imagery from May 9, 2024, at 2241 UTC (5:41 p.m. CST) showing expansive smoke shield that has moved up from Mexico, into Texas, Louisiana, and Mississippi, elevating PM2.5 values well into the orange range over Houston/Galveston area and well into the moderate range at the Hinds CC 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
Hinds CC/280490021/PM2.5-88101/3	05/09/24	11.7	14	15	15.5	17.4	18.2	20.8	24.1	26.2	25.6	29.5	30.9	32.3	32.3	33.4	34.2	35.4	34.8	37.4	37	32.8	18.4	5.6	6.5	24.5	37.4

Figure 97. Consistent with a daytime transport arrival, hourly PM2.5 concentrations at the Hinds CC monitor rose steadily through the day — from the low teens in the early morning to a maximum of 37.4 µg/m³ near 8 p.m. CDT — then fell sharply overnight thanks to a frontal system moving through. The 24-hour average PM2.5 reached 24.5 µg/m³.



Source: U.S. EPA AQS hourly data (parameter 88101), site 28-049-0021. FEM/FRM methods only. Generated 2026-07-14.

Figure 98. The hourly PM2.5 profile for May 9, 2024 (bold red line), illustrates the arrival of a transported regional smoke plume at the Hinds CC monitor. The 24-hour mean of 24.5 µg/m³ is **2.7x** the historical non-event average (9.2 µg/m³). Unlike the stagnant, 'double-peak' patterns seen in winter prescribed fire events, this May profile shows a steady daytime climb as the plume advected into central Mississippi from the southwest. Concentrations peaked in the early evening at 37.4 µg/m³ (Hour 18–19 CDT) before falling sharply as the plume moved through the region. This progression lagging several days behind the initial smoke buildup in Texas, serves as the primary signature for long-range transport from international wildfire sources in Mexico and Central America.

July 31 – August 2, 2024 — Saharan Dust

Field	Detail
Event Type	Saharan Dust
Date(s)	July 31, August 1 and 2, 2024
24-hr PM2.5 (μg/m³)	20.0, 30.5, 21.7
EPA Tier	Tier 1 & Tier 2
AQS Flag (preliminary)	RA

Synopsis. During late July and early August 2024, the peak of the Saharan Air Layer (SAL) season, a large plume of Saharan dust transported from the Sahara Desert across the Atlantic Ocean and Caribbean into the Gulf of Mexico and then advected onshore across Texas, Louisiana, and Mississippi. A Bermuda high anchored off the southeastern United States drove persistent southerly-to-southwesterly flow that carried the dust-laden air mass into the Hinds Community College area on July 31 – August 2, 2024. This natural event elevated 24-hour PM2.5 at the Hinds CC monitor to 20.0, 30.5, and 21.7 μg/m³ on July 31, August 1, and August 2, respectively, and drove co-located PM10 at the Jackson NCORE monitor (AQS 28-049-0020, ~4 km from Hinds CC) to 67, 115, and 76 μg/m³. Louisiana independently flagged July 31, 2024, in AQS as “IA – African Dust” at its Lake Charles monitor, directly on the transport path. MDEQ requests exclusion of the three PM2.5 exceedances at Hinds CC as a Saharan dust natural event. The analysis below follows MDEQ’s EPA-concurred Hattiesburg June 13–15, 2022 Saharan dust demonstration.

Conceptual model. The Saharan Air Layer is a well-documented natural phenomenon in which strong winds and thermal convection over North Africa lift millions of tons of mineral dust into a dry, elevated air mass (roughly 5,000–20,000 feet) that is transported westward across the Atlantic between late spring and early fall. On reaching the western Atlantic and Caribbean, the dust is entrained into the circulation around the subtropical Bermuda high and carried into the Gulf of Mexico and onshore across the Gulf Coast states. Because the source and transport are entirely natural and originate outside Mississippi’s jurisdiction, the resulting PM2.5 elevations are not reasonably controllable or preventable (40 CFR 50.14(b)(8)(vii)) and qualify as a natural event (40 CFR 50.1(k)).
Geographic context. On these same days MDEQ’s DeSoto/Hernando monitor in far northern Mississippi, nearer the Canadian smoke plume advancing from the north, was influenced primarily by that wildfire smoke and is addressed in a separate demonstration. The Hinds CC monitor, roughly 250 km further south and much closer to the Gulf of Mexico, lay beneath the Saharan dust intrusion arriving from the southwest, which dominated both the fine and coarse particle mass here. The two monitors therefore reflect different dominant aerosols on the same dates, consistent with their latitudes and the north-versus-southwest transport pathways.

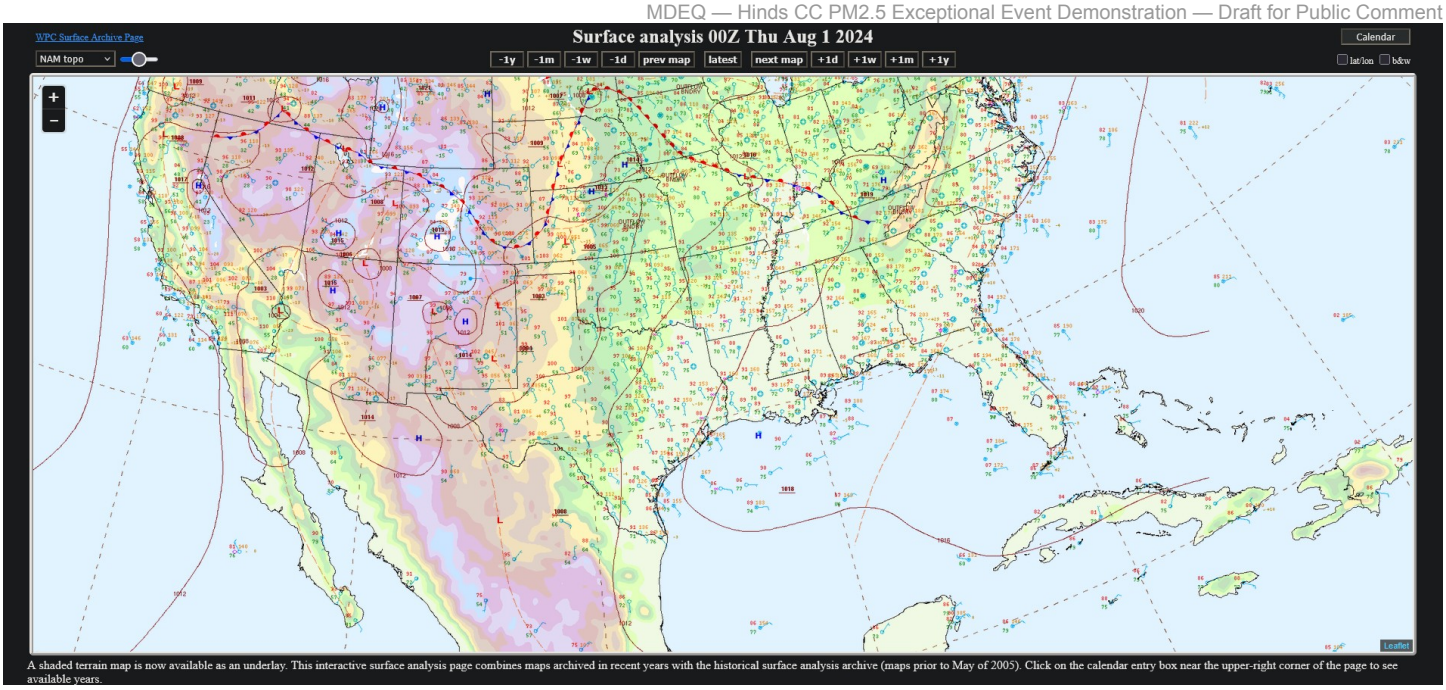


Figure 99. The 00Z surface analysis (7:00 p.m. CDT, July 31, 2024) depicts a surface high-pressure system centered over the Western Gulf Coast and a sprawling Bermuda High extension off the Southeastern U.S. Clockwise circulation around this anticyclonic regime maintained a persistent southerly-to-southwesterly flow, advecting a dust-laden Saharan Air Layer (SAL) air mass from the Gulf of Mexico into Texas, Louisiana, and Mississippi. The weak pressure gradient over the region promoted light winds and the development of nocturnal inversions, which facilitated the subsidence and surface-level accumulation of mineral dust. This synoptic setup provided the direct transport pathway for the multi-day PM2.5 and PM10 elevations observed at the Hinds CC and Jackson NCORE monitors.

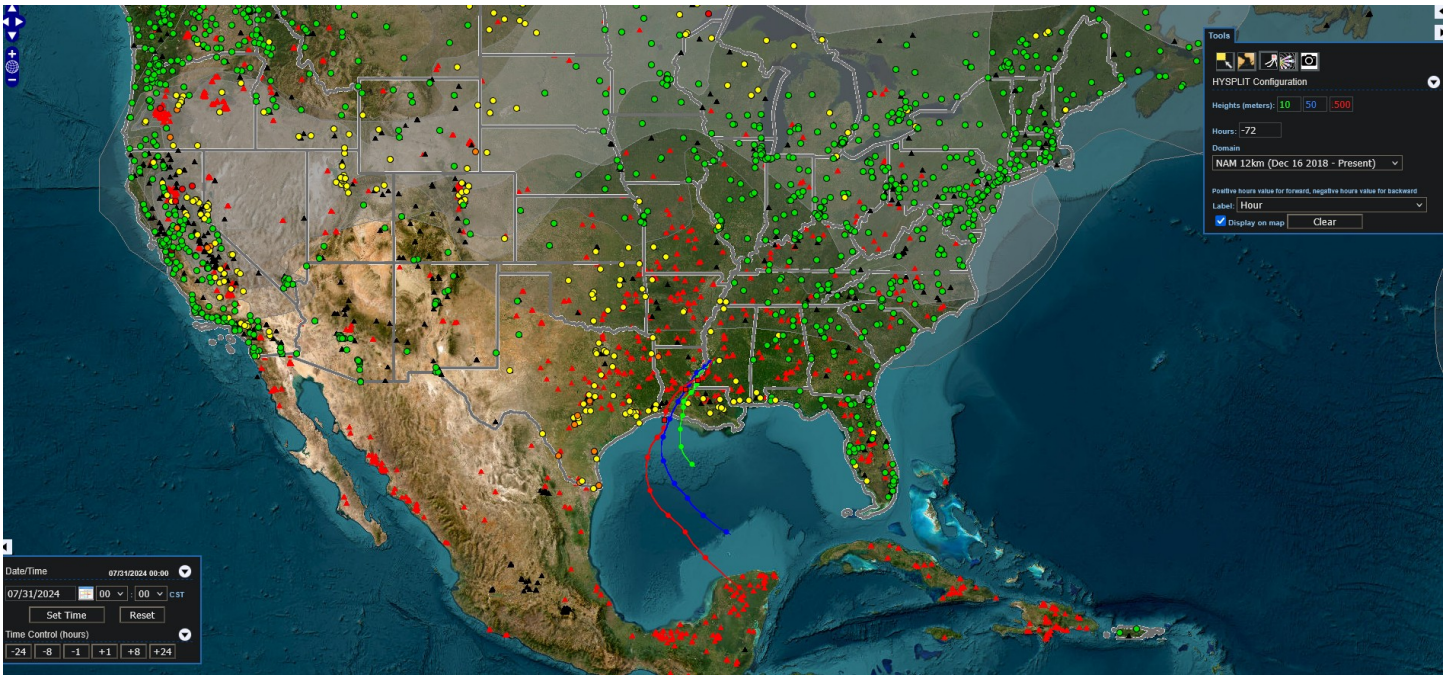


Figure 100. AirNow-Tech Navigator imagery for July 31, 2024, displaying 72-hour HYSPLIT back-trajectories (10m, 50m, and 1500m) for the Hinds CC monitor. The air parcels trace a consistent path

from the central Gulf of Mexico, advecting onshore across the 'upstream' states of Texas and Louisiana. The ground-level monitoring icons (yellow and orange) confirm that this air mass was already dust-laden before reaching Mississippi, with multiple sites in Texas and Louisiana recording elevated PM2.5 along the transport pathway. This spatial consistency confirms that the Hinds CC monitor was impacted by a broad, regional-scale dust intrusion originating from international transport rather than local emissions.

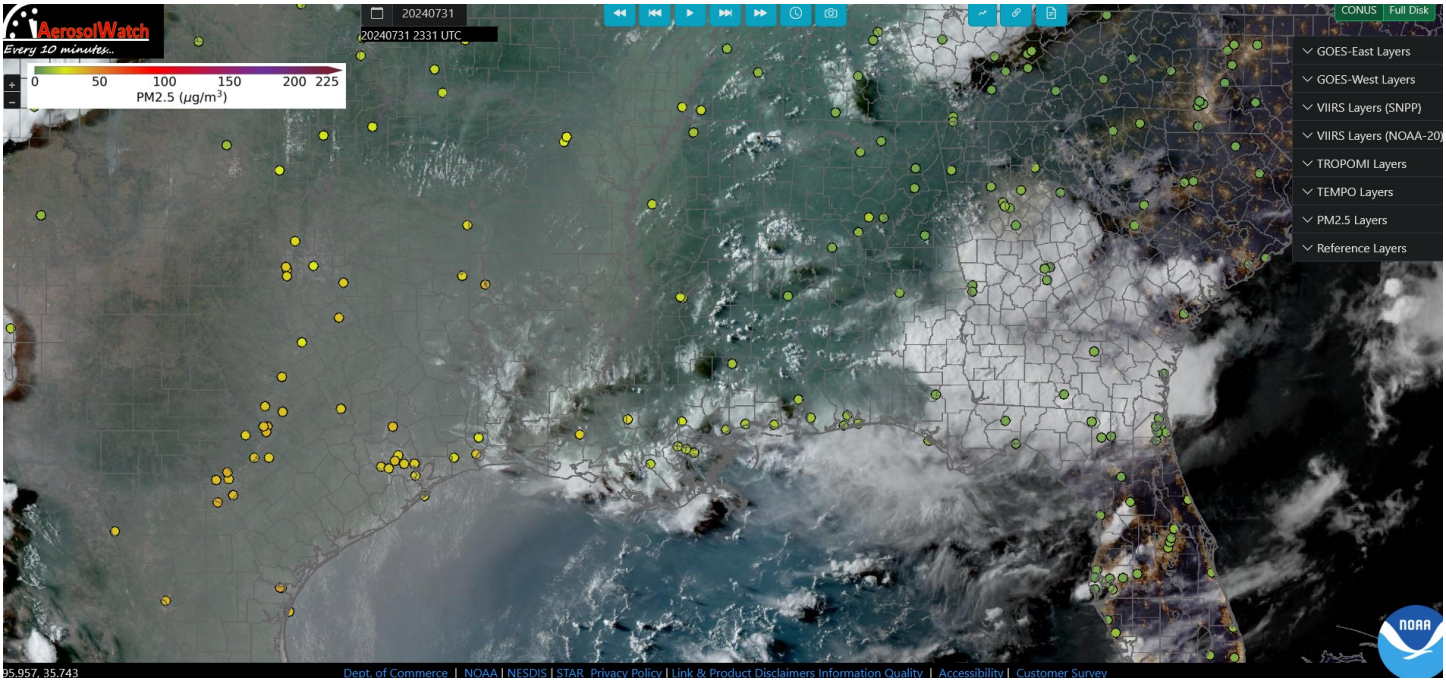


Figure 101. GOES-East True Color imagery from July 31, 2024, at 2331 UTC, captures a dense, milky-brown aerosol layer—characteristic of Saharan mineral dust, advecting onshore from the Gulf of Mexico. The imagery shows the dust plume traversing Louisiana and entering western Mississippi, driven by the southwesterly return flow around Bermuda High. This satellite evidence is corroborated by elevated ground-level PM2.5 monitoring (yellow and orange icons) along the transport pathway, confirming the arrival of the dust plume that would drive the multi-day exceedance at the Hinds CC 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
Hinds CC/280490021/PM2.5-88101/3	07/31/24	12.2	11.6	10.7	11.7	13	13.5	16	17.4	18	17.6	17.3	16.4	14.4	15.4	16.9	20.6	25.9	28.5	29.6	30.4	30.6	30.4	32	31.5	20.07	32

Figure 102. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor for July 31, 2024, illustrating the arrival of the Saharan dust event. Concentrations began the day at near-background levels (10–12 µg/m³) before beginning a steady climb in the mid-afternoon (Hour 15). As the dust plume advected into central Mississippi from the west/southwest, values reached a peak of 32.0 µg/m³ during the late evening hours (Hour 22). This progressive increase through the evening, resulting in a 24-hour average of 20.07 µg/m³.

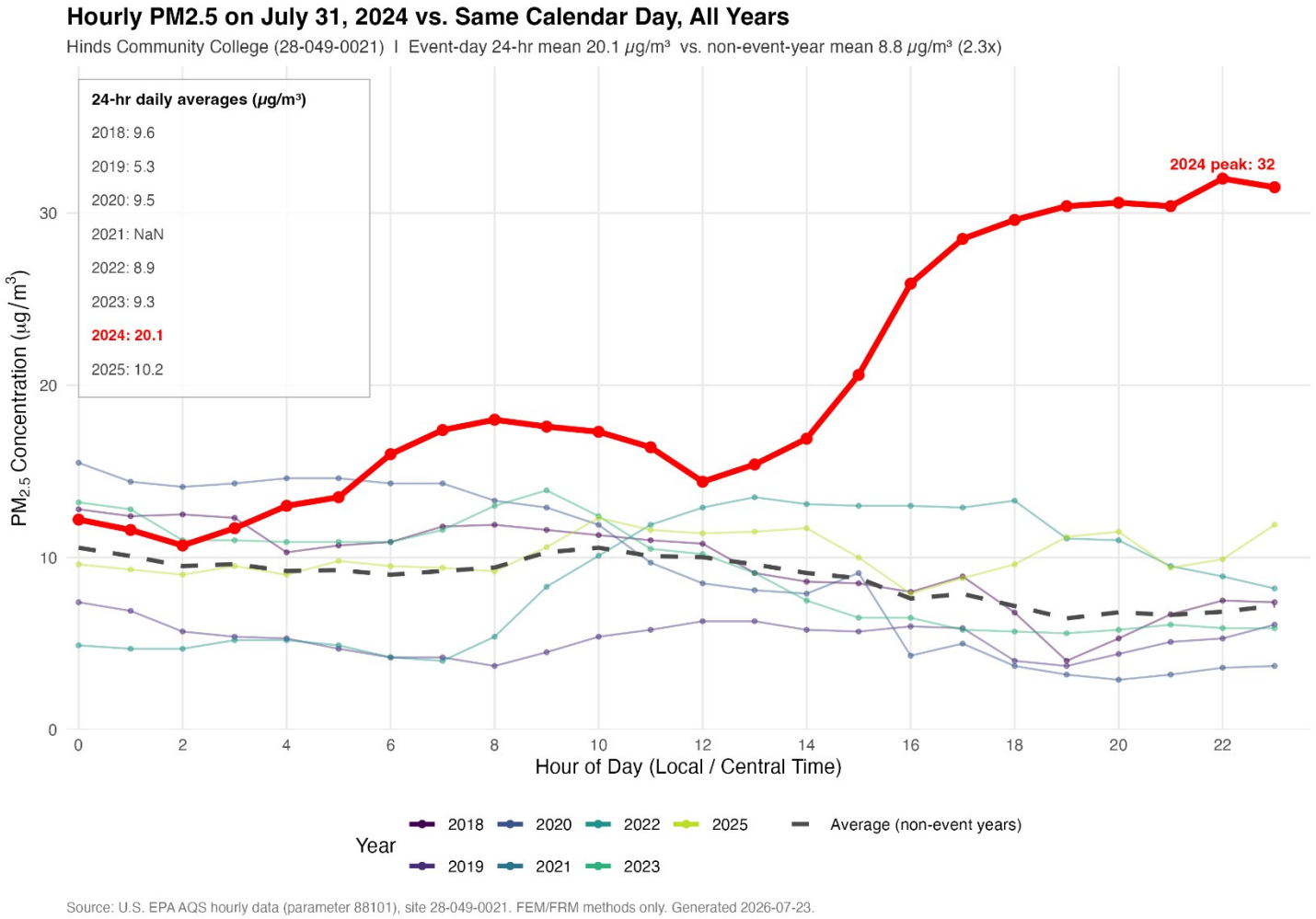


Figure 103. The hourly PM2.5 profile for July 31, 2024 (bold red line), illustrates the arrival and entrainment of the Saharan dust plume at the Hinds CC monitor. The 24-hour mean of 20.1 µg/m³ is more than double (2.3x) the historical non-event average of 8.8 µg/m³. The curve shows concentrations starting within the historical envelope before beginning a sharp, sustained climb in the afternoon (Hour 14). This 'stair-step' increase, peaking at 32 µg/m³ at the end of the day, is a classic transport signature that coincides with the southwesterly advection of dust seen in satellite and HYSPLIT data, rather than local diurnal activity.

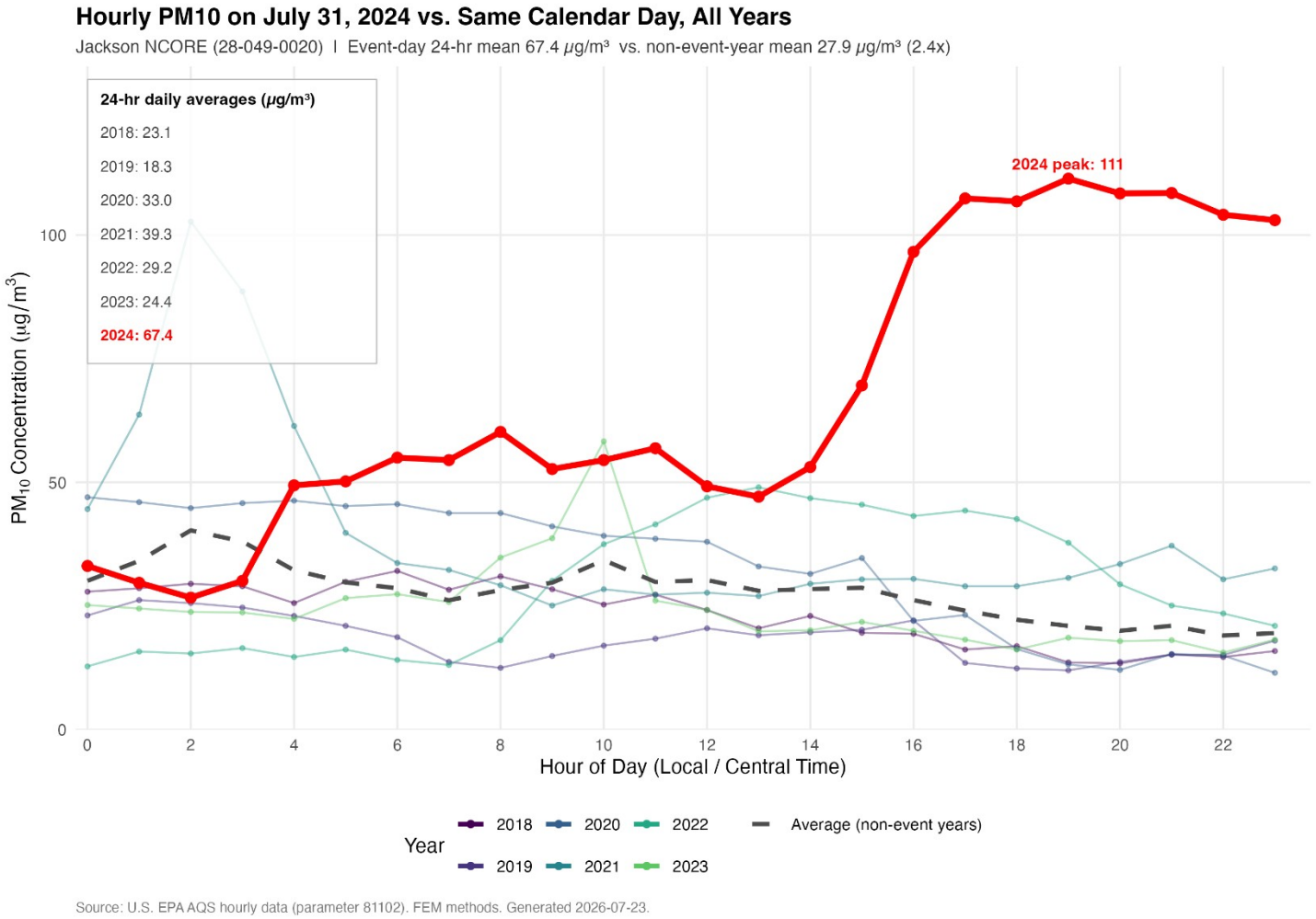


Figure 104. The hourly PM10 profile at the Jackson NCORE station (4 km from Hinds CC) for July 31, 2024, provides the definitive physical signature of a Saharan dust event. The 24-hour mean of 67.4 µg/m³ is **2.4x** the historical average. Most significantly, the PM10 concentrations spiked to a maximum of 111 µg/m³ at 1900 CDT. This high concentration of coarse particles, occurring simultaneously with the PM2.5 elevation, results in a PM2.5/PM10 ratio of approximately 0.30 at the peak. This coarse-dominated mass is diagnostic of mineral dust and rules out fine-particle-dominated wildfire smoke or anthropogenic combustion as the primary source of the exceedance.

August 1st: On August 1, 2024, the Saharan Air Layer (SAL) intrusion intensified across the Gulf Coast states. Clockwise circulation around a sprawling high-pressure system anchored in the Gulf of Mexico maintained a persistent south-southwesterly flow, advecting a dense plume of dust into Texas, Louisiana, and Mississippi. This synoptic setup continued the entrainment of Saharan dust into the region, resulting in the multi-day peak of the event, with the Hinds CC monitor recording a significant 24-hour PM2.5 average of 30.5 µg/m³.

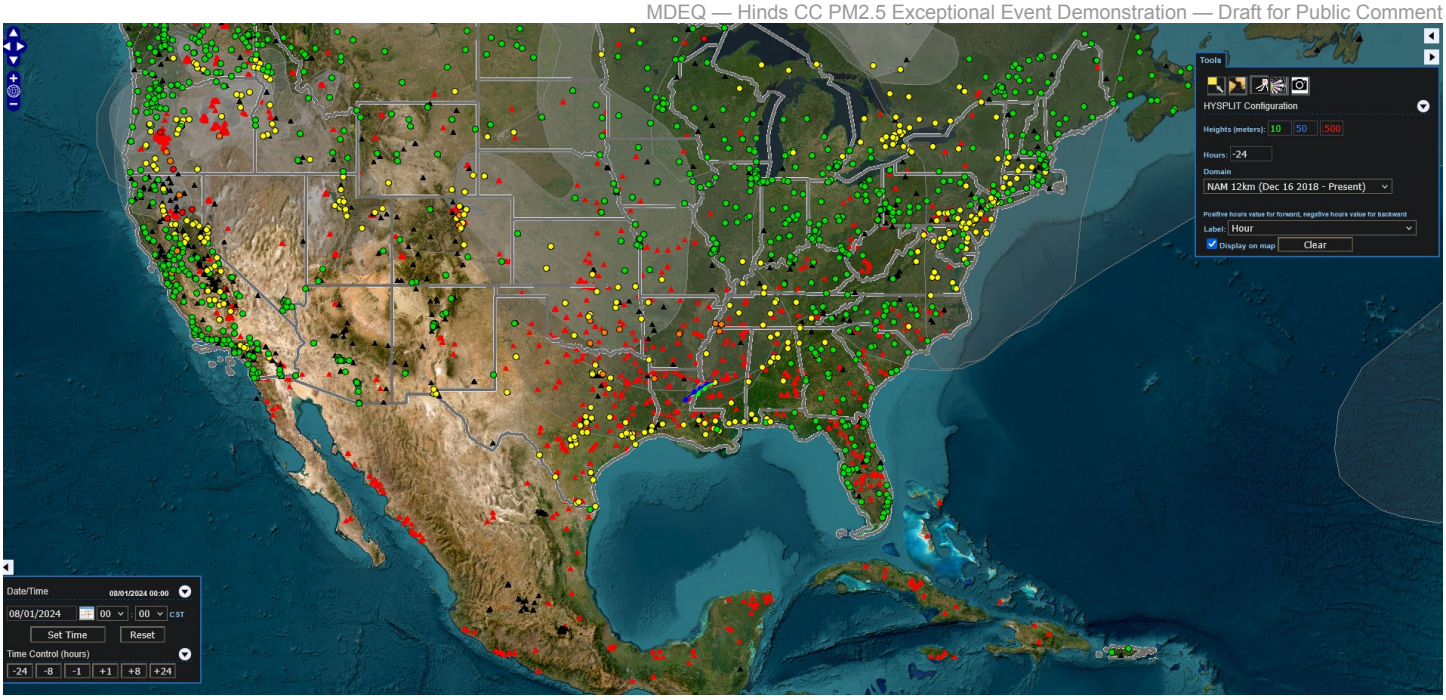


Figure 105. AirNow-Tech Navigator illustrates the 24-hour back-trajectories for the peak event day (August 1). The 10m, 50m, and 500m parcels exhibit a consistent eastward-to-northeastward progression from East Texas and Louisiana toward the Hinds CC monitor. The presence of numerous 'upstream' orange and yellow monitoring icons along this path confirms that the air mass was already heavily saturated with Saharan dust before reaching central Mississippi, directly resulting in the peak 24-hour PM2.5 average of 30.5 µg/m³.

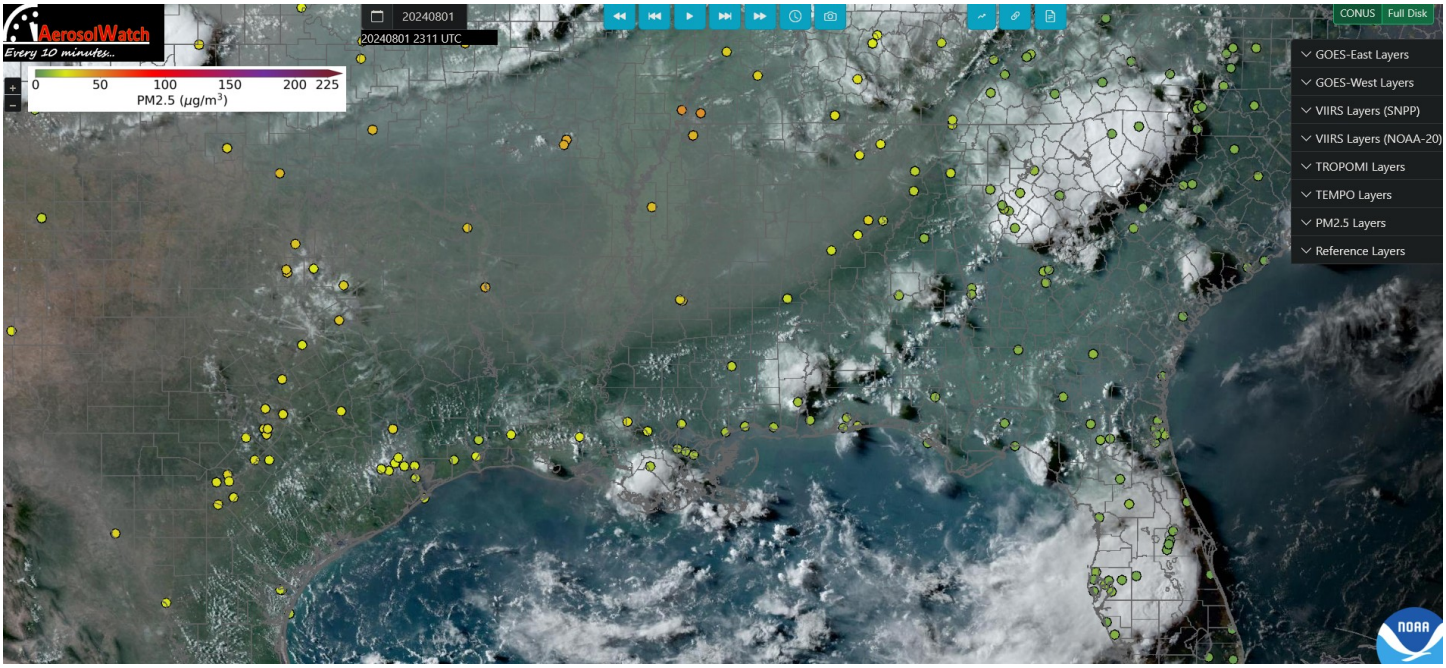


Figure 106. GOES-East True Color imagery from August 1, 2024, at 2311 UTC (6:11 p.m. CDT), reveals an expansive, milky-tan aerosol layer characteristic of Saharan dust. This hazy airmass is shown encompassing Mississippi, Louisiana, and Alabama, driven by southwesterly advection around Bermuda High. The satellite-detected haze is corroborated by a widespread network of elevated PM2.5 monitoring icons (yellow and orange), confirming that the international dust plume was the

primary driver of the regional air quality degradation that resulted in the 30.5 µg/m³ daily average at the Hinds CC 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
Hinds CC/280490021/PM2.5-88101/3	08/01/24	31.7	30	27.9	29.1	28.7	27.3	28.8	28.1	30.2	31	29.1	29.3	31.3	34.5	33.4	32.4	33.9	33.4	32.4	32.4	31.6	30.6	29	27.7	30.58	34.5

Figure 107. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor (28-049-0021) for August 1, 2024. The data reveals a remarkably flat and sustained profile, with every hour of the day remaining above 27 µg/m³. The lack of a diurnal minimum or 'clean-out' period confirms that the monitor was submerged in a deep, stagnant regional airmass saturated with Saharan dust. These consistent concentrations resulted in a significant 24-hour daily average of **30.58** µg/m³ and a maximum hourly value of 34.5 µg/m³.

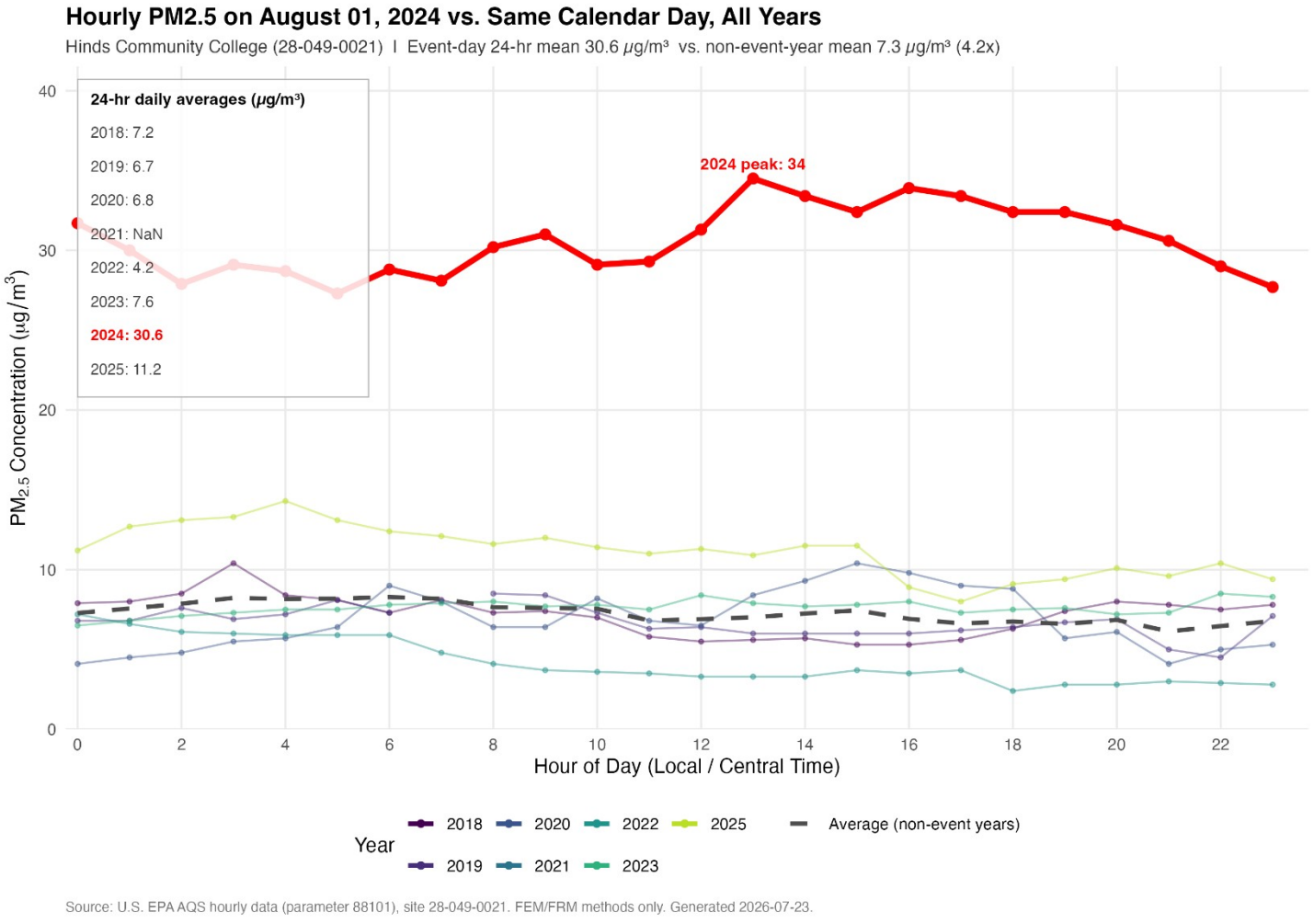


Figure 108. The hourly PM2.5 profile for August 1, 2024 (bold red line), illustrates the peak of the Saharan dust intrusion at the Hinds CC monitor. The 24-hour mean of 30.6 µg/m³ is more than quadruple (4.2x) the historical non-event average of 7.3 µg/m³. The curve shows remarkably sustained concentrations that remain entirely separated from the historical envelope for all 24 hours. This 'plateau' pattern, peaking at 34 µg/m³ during the afternoon, confirms that the monitor was submerged in a deep, regional Saharan Air Layer (SAL) that prevented the typical diurnal 'clean-out' seen in previous years.

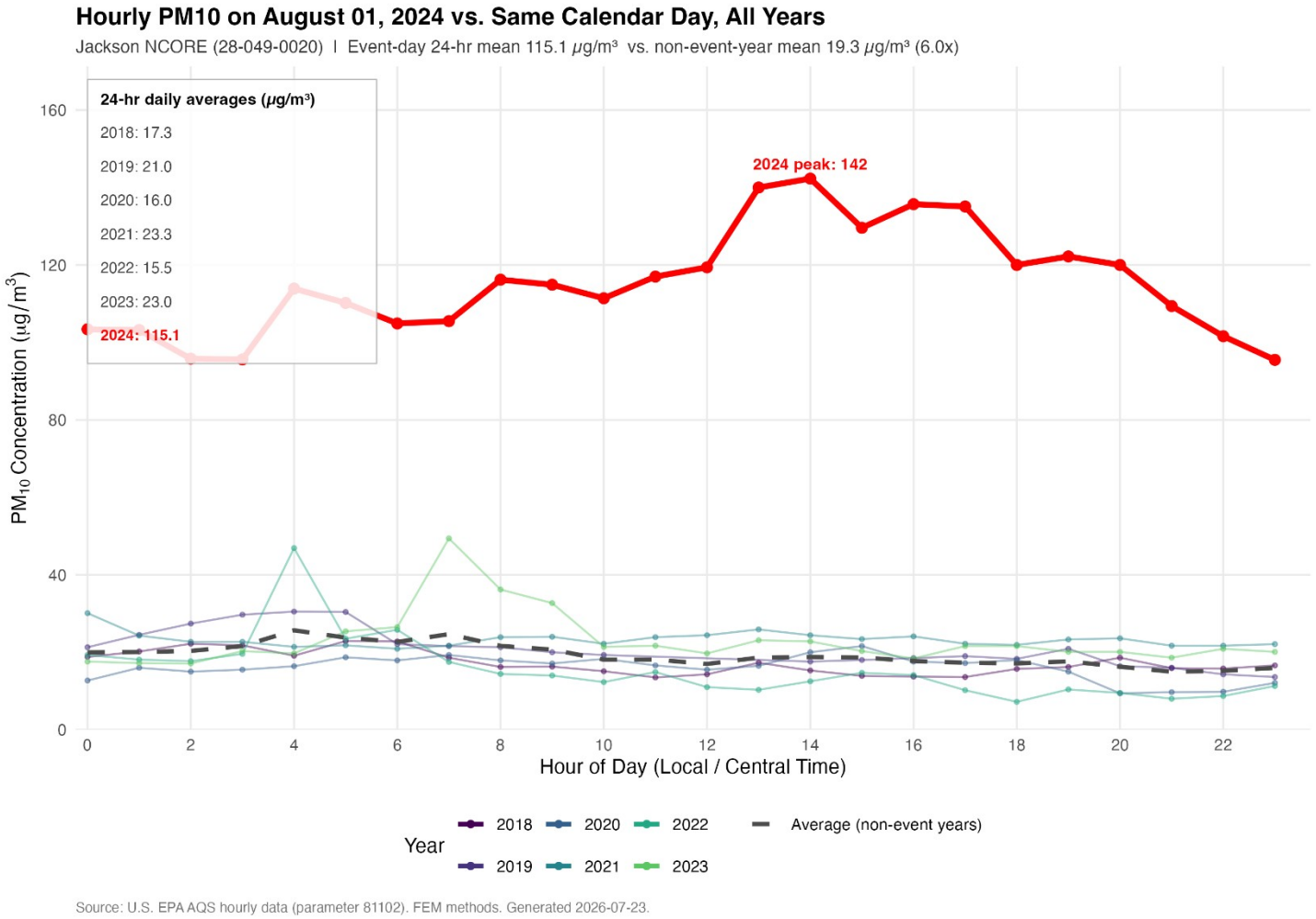


Figure 109. The hourly PM10 profile at the Jackson NCORE station for August 1, 2024, provides the definitive physical evidence of a massive Saharan dust intrusion. The 24-hour mean of **115.1** µg/m³ is a remarkable **6.0x** the historical average (19.3 µg/m³), with hourly concentrations peaking at **142** µg/m³. This overwhelming influx of coarse particles occurring simultaneously with the PM2.5 elevation, is diagnostic of Saharan dust. The resulting low PM2.5/PM10 ratio (approximately 0.27) confirms that the exceedance was driven by an international natural event rather than fine-particle-dominated smoke or local combustion.

August 2nd: On August 2, 2024, the Saharan Air Layer (SAL) intrusion began to weaken across the Gulf Coast states as a cold front approached from the northwest and started to break down the Gulf high that had anchored the event. Through the morning, a lingering south-southwesterly surface flow continued to advect the dust-laden airmass into central Mississippi before the dust mass gradually cleared later in the day. Hourly PM2.5 at the Hinds CC monitor opened elevated near 27 µg/m³, held in the low-20s, and then declined, producing a 24-hour average of 21.7 µg/m³ with a co-located Jackson NCORE PM10 of 76 µg/m³. Notably, while the approaching front transported wildfire smoke aloft over the region, evident in satellite imagery and in the 1500 m back-trajectory, this elevated smoke layer did not mix down to the surface: the surface PM2.5/PM10 ratio remained coarse-dominated (approximately 0.30) throughout the day, including the evening hours, confirming that the ground-level exceedance was driven by Saharan dust rather than smoke.

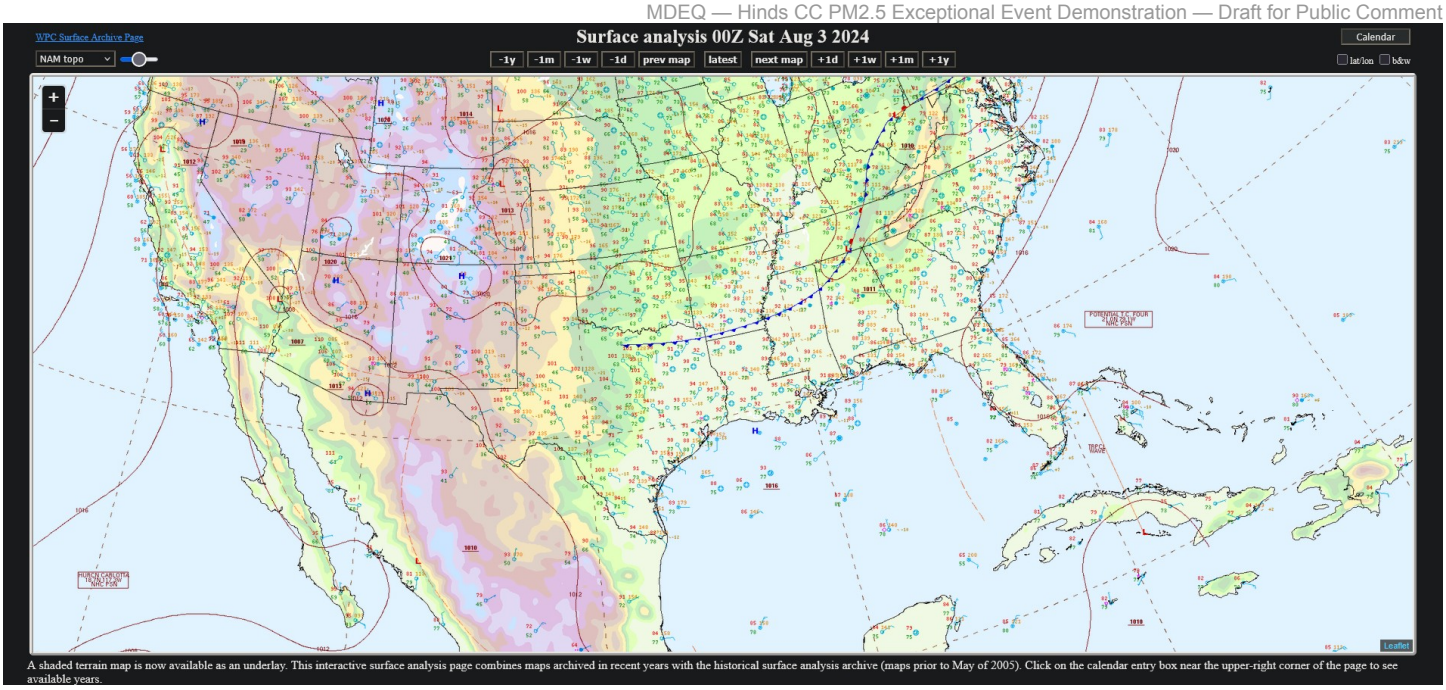


Figure 110. The 00Z surface analysis (7:00 p.m. CDT, August 2, 2024) depicts a cold front advancing southeastward out of the Upper Midwest and Great Lakes toward the Ohio and mid-Mississippi Valleys, while the high-pressure ridge that had anchored the event remained entrenched over the Gulf of Mexico and the Southeastern U.S. Ahead of the front, clockwise circulation around this ridge sustained a persistent south-to-southwesterly surface flow that continued to advect the dust-laden Saharan Air Layer (SAL) from the Gulf across Texas, Louisiana, and Mississippi. Behind and along the front, northwesterly flow drew wildfire smoke from the Upper Midwest into the region aloft; however, this smoke remained confined to an elevated layer.

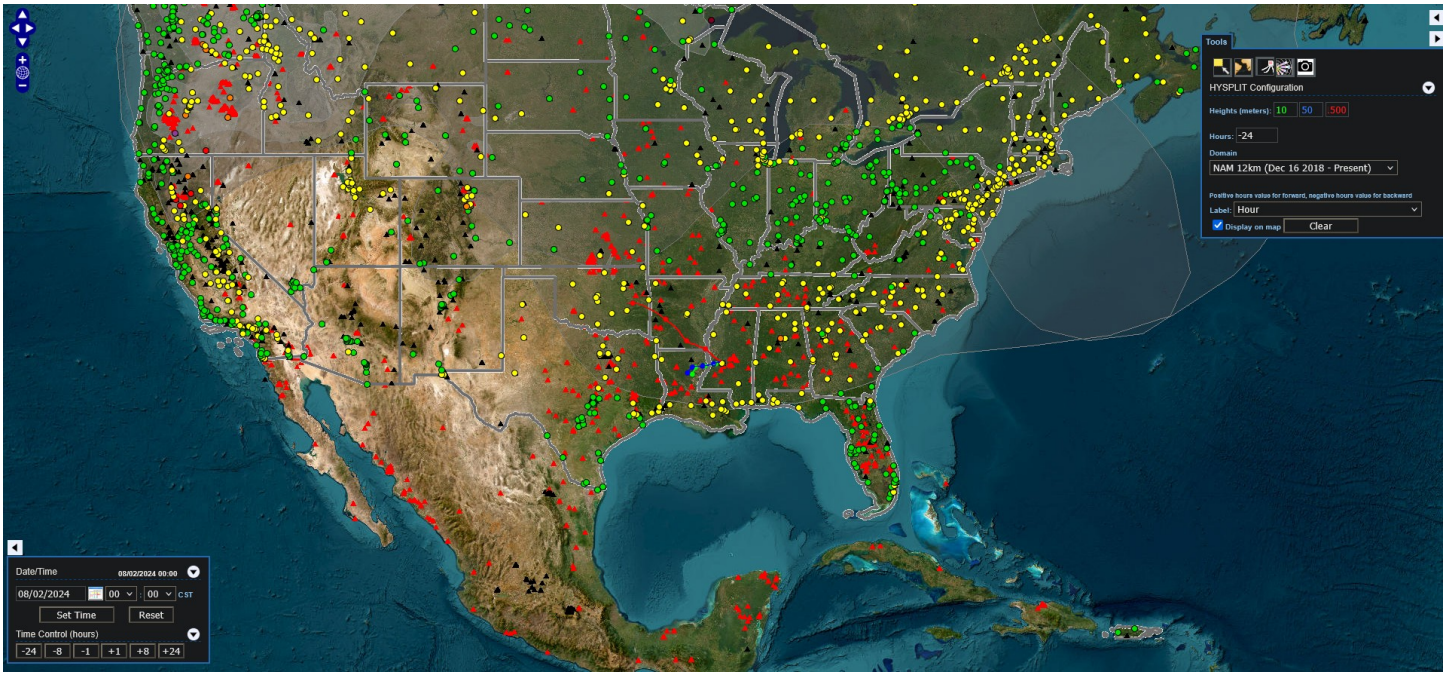


Figure 111. AirNow-Tech Navigator imagery for August 2, 2024, displaying 24-hour HYSPLIT back-trajectories (10 m, 50 m, and 1500 m) ending at the Hinds CC monitor at 0000 CST. The two near-surface parcels (10 m and 50 m) are short and trace back to the south-southwest, the light, pre-frontal

Gulf flow that kept the monitor embedded in the Saharan dust plume while the elevated 1500 m parcel veers sharply to the northwest, back toward the approaching cold front and its Upper Midwest wildfire-smoke source. This directional shear demonstrates that the smoke remained confined to an elevated layer and did not mix down to the surface; at ground level, the pre-frontal southwesterly flow held the coarse Saharan-dust plume in place through much of the day. That decoupling is corroborated at the surface by the coarse-dominated PM2.5/PM10 ratio (~0.30) sustained through the day at the co-located Jackson NCORE monitor, before the frontal passage and its wind shift finally cleared the dust late in the period.

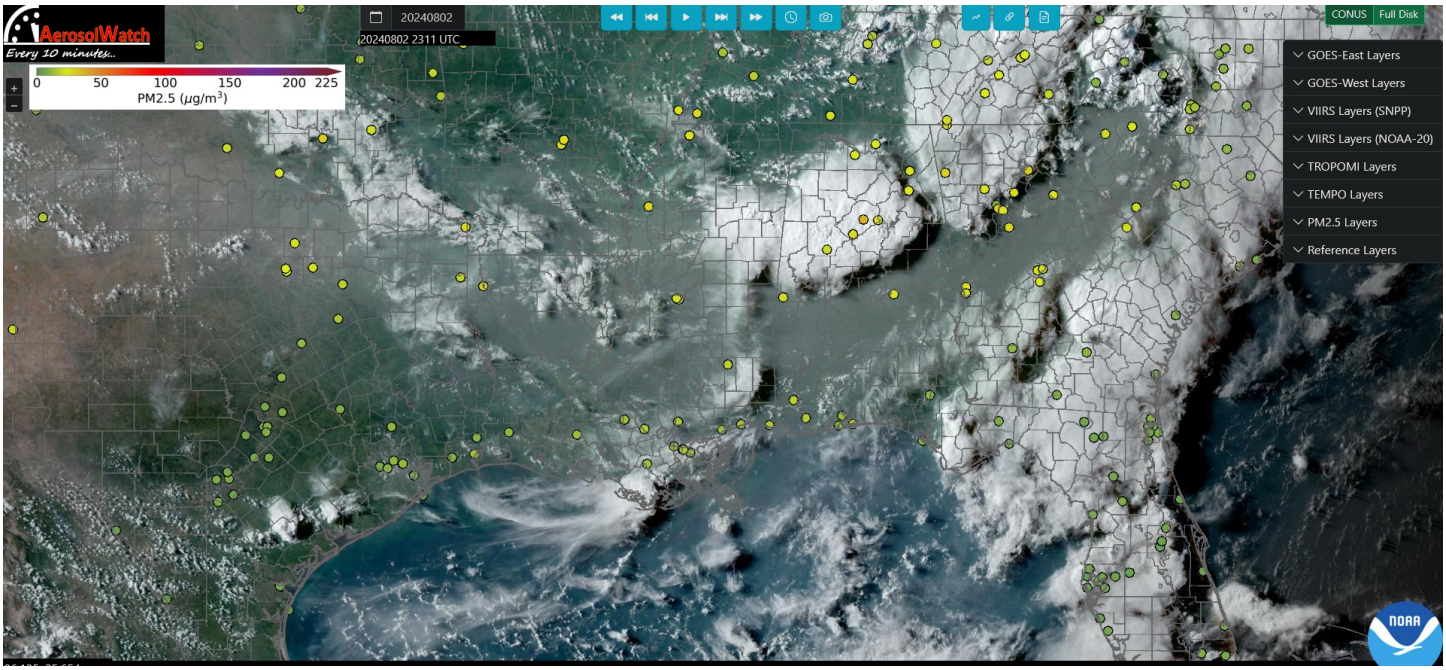


Figure 112. GOES-East True Color imagery from August 2, 2024, at 2311 UTC (6:11 p.m. CDT), shows a diffuse, milky haze over Mississippi, Louisiana, and the central Gulf Coast, now thinning and increasingly broken by the cloud band of the cold front advancing from the northwest. Compared with the dense, milky-tan layer of August 1, the aerosol appears more diffuse, consistent with the Saharan dust beginning to clear as the front approached. The scattered yellow PM2.5 monitoring icons, together with co-located PM10 of 76 µg/m³ and a coarse-dominated PM2.5/PM10 ratio near 0.30, confirm that the surface aerosol remained Saharan dust and produced the still-elevated 24-hour average of 21.7 µg/m³ at the Hinds CC 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
Hinds CC/280490021/PM2.5-88101/3	08/02/24	26.8	25.7	25.9	24.4	23.8	23.1	21.9	20.7	22.8	22.1	21.8	20.8	21.2	20.9	21.1	21.2	21.2	20.4	19.7	19.7	20.1	18.9	18.6	18.7	21.73	26.8

Figure 113. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor (28-049-0021) for August 2, 2024. In contrast to the flat plateau of August 1, concentrations declined steadily throughout the day, opening at the daily maximum of 26.8 µg/m³ (Hour 0), easing into the low-20s through the afternoon, and falling to a daily minimum of 18.6 µg/m³ in the final hours, indicating the dust airmass was clearing out behind the advancing front. Notably, the day's lowest concentrations occurred during the evening hours, the opposite of what a near-surface smoke intrusion would produce, reinforcing that the departing aerosol at ground level was residual Saharan dust. This steady decline yielded a 24-hour average of 21.7 µg/m³.

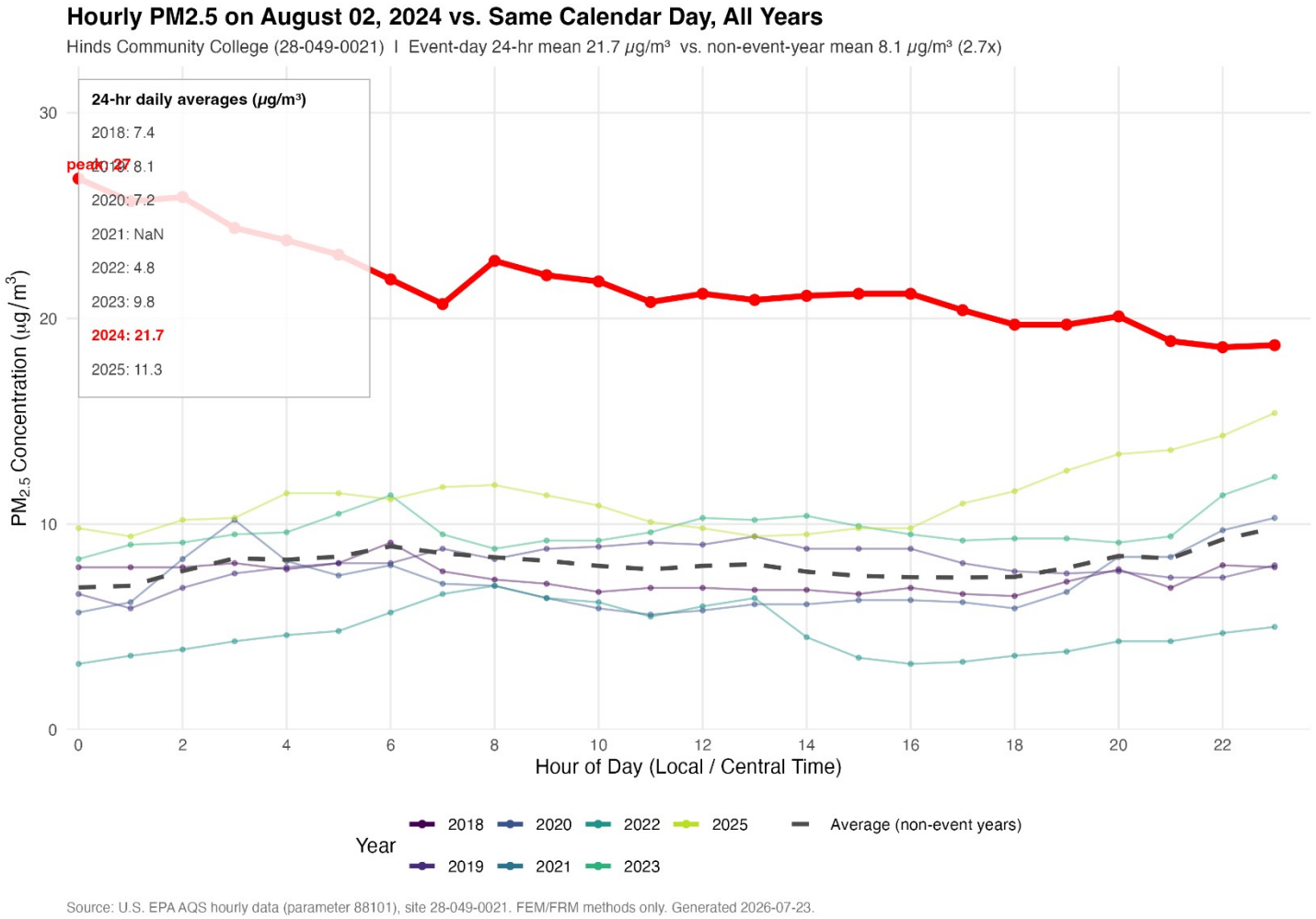


Figure 114. The hourly PM2.5 profile for August 2, 2024 (bold red line), represents the final day of the multi-day Saharan dust event at the Hinds CC monitor. While the intrusion began to weaken, the 24-hour mean of 21.7 µg/m³ remained nearly triple (**2.7x**) the historical non-event average of 8.1 µg/m³. The curve displays a gradual downward trend throughout the day, consistent with the 'clean-out' phase as the regional dust mass was displaced by an approaching frontal system. Despite the presence of wildfire smoke at higher altitudes (1,500m), the sustained elevation above historical norms was driven by the lingering surface-level Saharan dust.

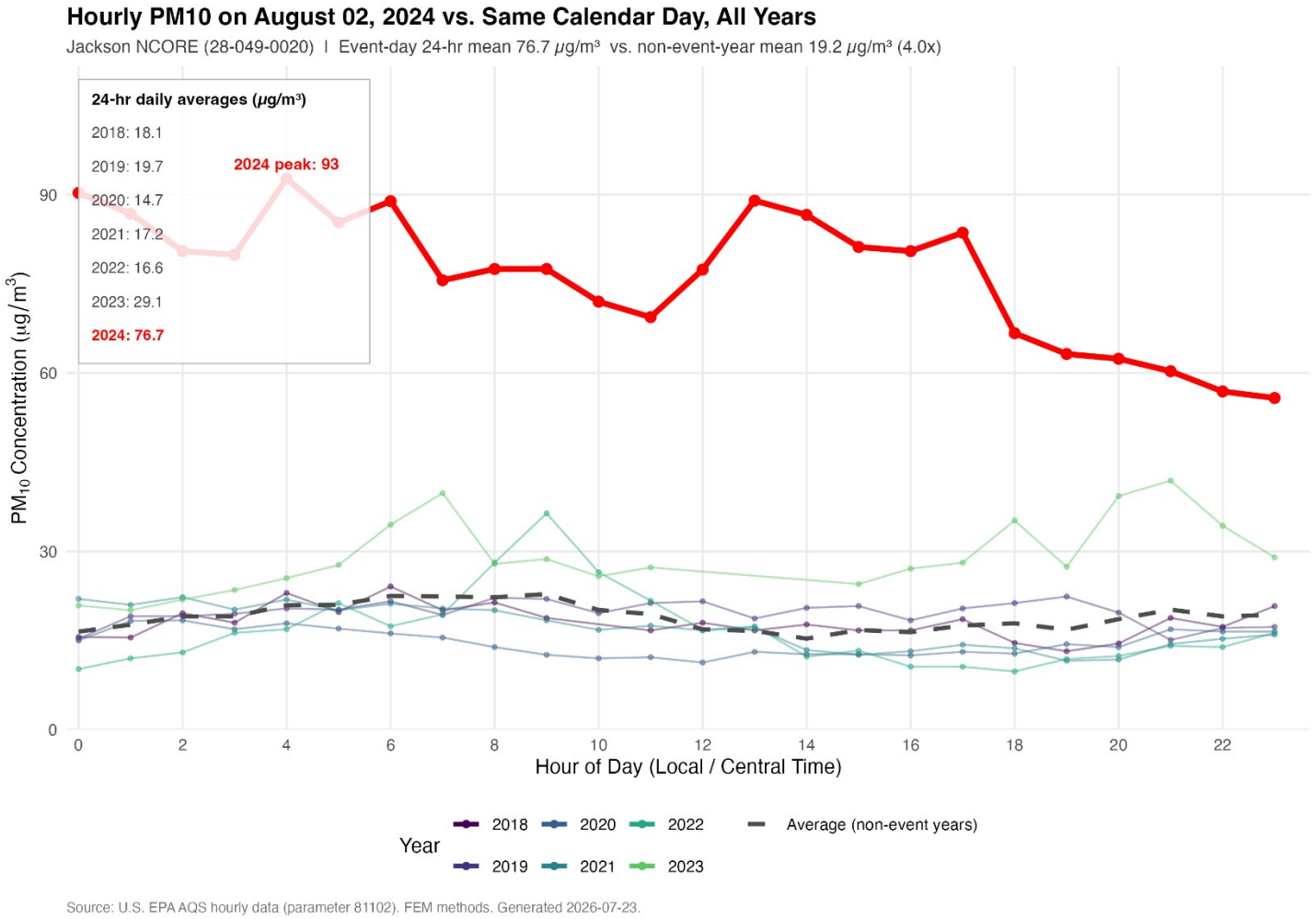
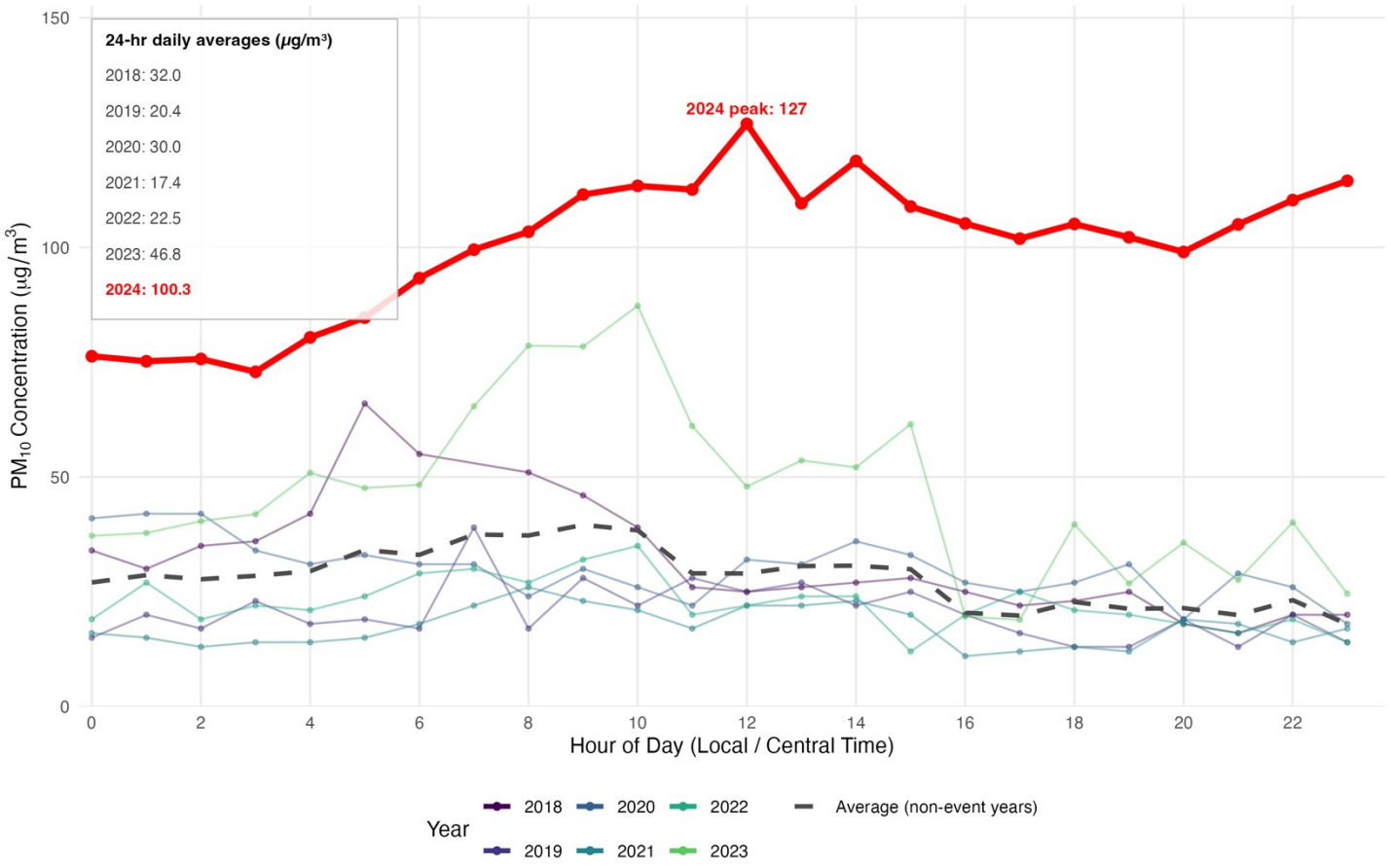


Figure 115. The hourly PM10 profile at Jackson NCORE for August 2, 2024, provides conclusive proof of the lingering mineral dust airmass. The 24-hour mean of 76.7 µg/m³ is exactly **4.0x** the historical average (19.2 µg/m³), with hourly peaks reaching 93 µg/m³. The sustained high PM10 relative to the PM2.5 (daily ratio of ~0.29) provides the definitive coarse-particle fingerprint of Saharan dust. This statistical anomaly persists throughout the 24-hour period, confirming that ground-level air quality was dominated by Saharan dust rather than the high-altitude wildfire smoke observed in regional satellite imagery.

Coarse-particle (PM10) evidence multi-day and regional. Beyond the individual daily profiles above, the co-located Jackson NCORE monitor (28-049-0020) traces the full arc of the event: 24-hour PM10 rose sharply from 24 µg/m³ on July 30 to 67 (July 31), 115 (August 1), and 76 µg/m³ (August 2), before falling to 30 µg/m³ on August 3. Along the transport path, PM10 was also very high on July 31, about 144 µg/m³ at Lake Charles, LA (which flagged the day “IA – African Dust”), about 100 µg/m³ at East Baton Rouge, LA, and 100–175 µg/m³ at multiple Texas monitors. The ratio of Hinds CC PM2.5 to co-located NCORE PM10 fell to 0.27–0.30 on July 31 – August 2 (versus 0.36–0.41 on the immediately adjacent clean days of July 29, July 30 and August 3; the same ratio formed from NCORE's own co-located PM2.5 and PM10 is 0.28–0.30 across the event, and hourly values are tabulated in Table B-9), roughly 70% of the mass in the coarse (2.5–10 µm) fraction. A coarse-dominated ratio near 0.3 is characteristic of transported mineral dust and is inconsistent with wildfire smoke, for which the PM2.5/PM10 ratio typically exceeds 0.7.

Hourly PM10 on July 31, 2024 vs. Same Calendar Day, All Years

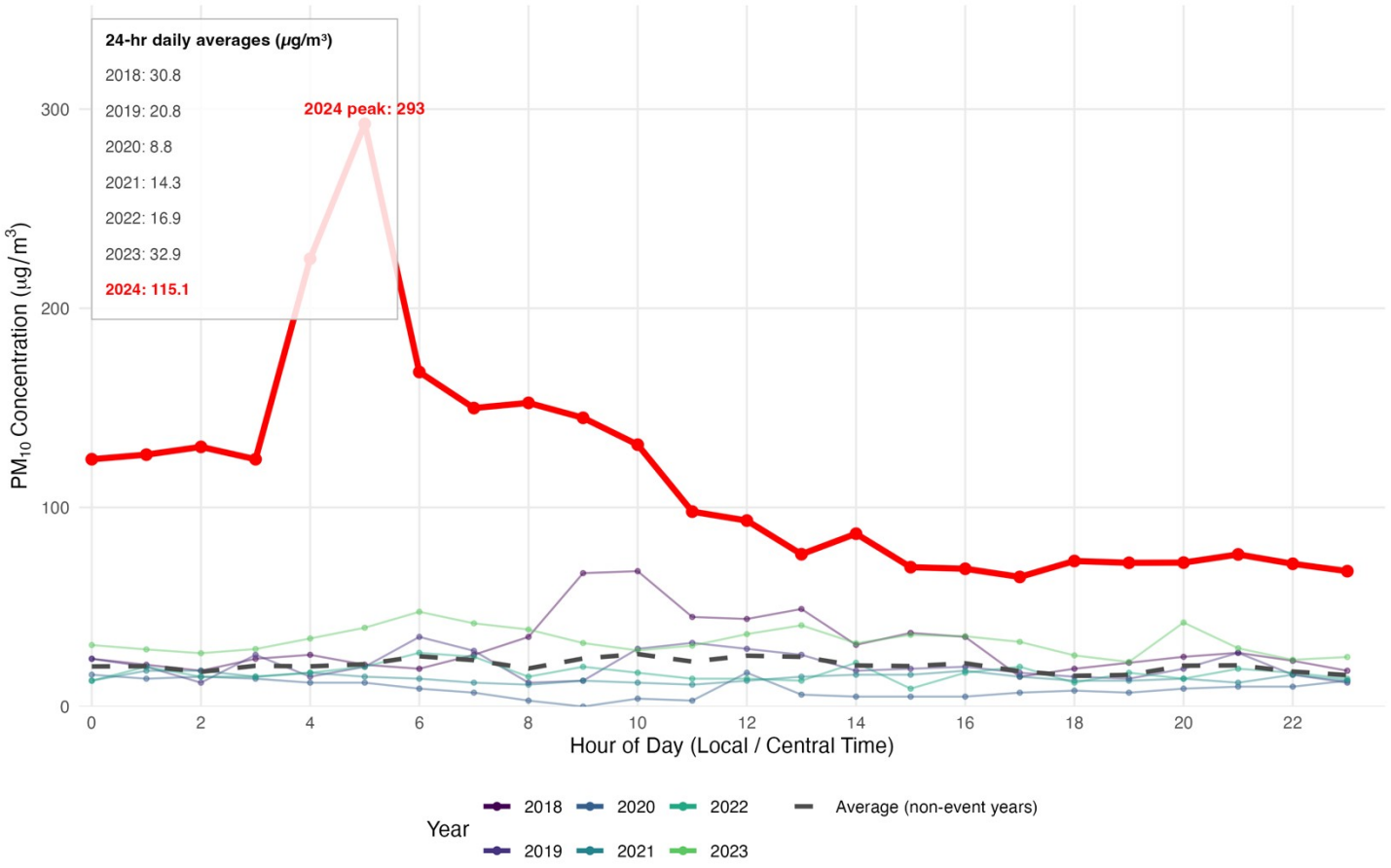
East Baton Rouge, LA (22-033-0009) | Event-day 24-hr mean 100.3 µg/m³ vs. non-event-year mean 28.2 µg/m³ (3.6x)



Source: U.S. EPA AQS hourly data (parameter 81102). FEM methods. Generated 2026-07-23.

Hourly PM10 on August 01, 2024 vs. Same Calendar Day, All Years

East Baton Rouge, LA (22-033-0009) | Event-day 24-hr mean 115.1 µg/m³ vs. non-event-year mean 20.7 µg/m³ (5.6x)



Source: U.S. EPA AQS hourly data (parameter 81102). FEM methods. Generated 2026-07-23.

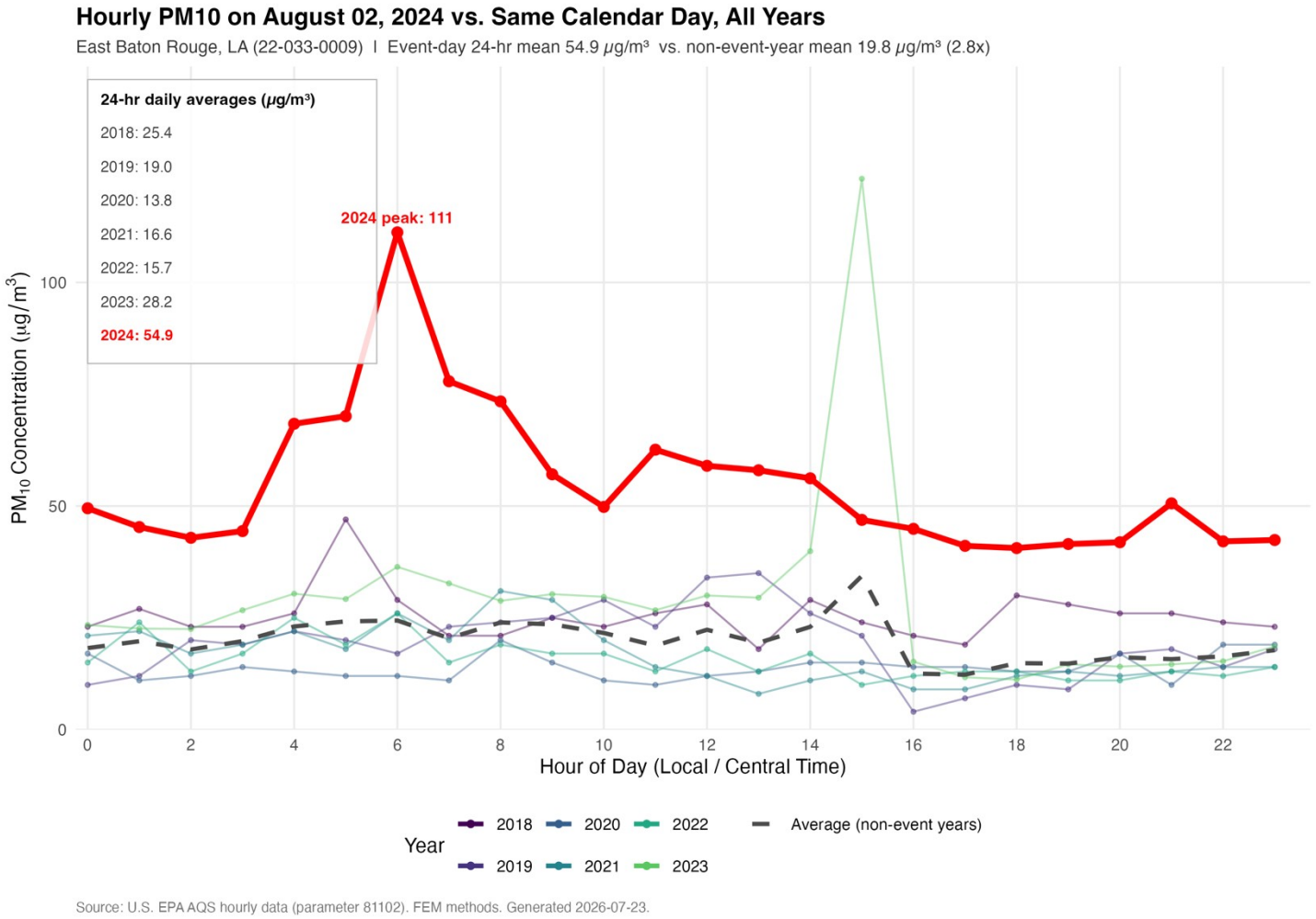


Figure 116. Historical hourly PM10 cross-sections at East Baton Rouge, LA (AQS 22-033-0009) for July 31, August 1, and August 2, 2024 (event year in red; muted lines are the 2018–2024 non-event years). PM10 at this upwind Louisiana monitor spiked on the same three days, well above its multi-year envelope, corroborating the coarse-particle dust signal at the co-located Jackson NCORE monitor (shown per-day above) and confirming a broad regional dust intrusion across the Gulf Coast states rather than a local Mississippi source.

Chemical (speciation) evidence. PM2.5 chemical speciation at the Jackson NCORE monitor on the August 1, 2024 sample day shows an unambiguous mineral-dust (soil) signature. Relative to a clean-day baseline (July 29), the crustal elements increased by more than an order of magnitude: silicon 0.09 → 4.89 µg/m³ (55×), aluminum 0.04 → 2.38, iron 0.05 → 1.37, calcium 0.03 → 0.71, and titanium 0.005 → 0.14 µg/m³. The reconstructed IMPROVE soil mass is approximately 22 µg/m³ — about two-thirds of the 33.5 µg/m³ PM2.5 measured that day — and, including the roughly 82 µg/m³ coarse fraction, about 90% of the PM10 mass was mineral dust. By contrast the smoke tracers barely moved: organic carbon rose only modestly (1.2 → 2.4 µg/m³) and elemental carbon actually declined. The potassium-to-silicon ratio of 0.11 is characteristic of crustal material rather than biomass burning (which yields a K/Si ratio well above 1). The high silicon and soil content are the definitive chemical fingerprint of Saharan dust.

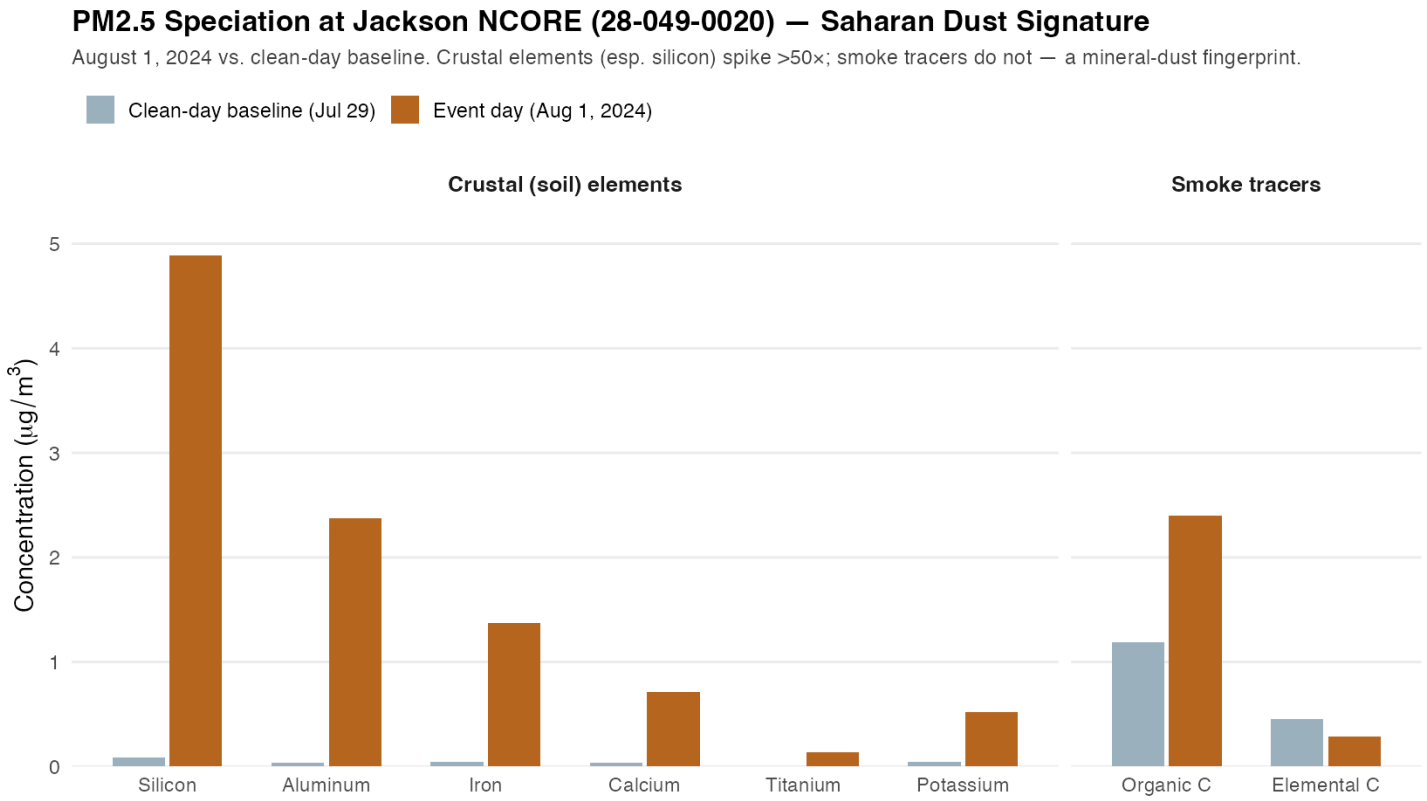


Figure 117. PM2.5 chemical speciation at the Jackson NCORE monitor for the August 1, 2024 sample day versus a clean-day baseline (July 29, 2024). The crustal (soil) elements — silicon, aluminum, iron, calcium, and titanium — rise by more than an order of magnitude (silicon ~55×), while the biomass-smoke tracers (organic and elemental carbon) barely move, producing the definitive mineral-dust fingerprint of Saharan dust.

Comparison with historical concentrations. The July 31 – August 2, 2024 daily PM2.5 values (20.0, 30.5, 21.7 µg/m³) and co-located PM10 values (67, 115, 76 µg/m³) are far above the same-calendar-day concentrations in non-event years (PM2.5 non-event means of 8–9 µg/m³; PM10 non-event means of roughly 15–25 µg/m³), as shown in the historical hourly cross-section figures. This clear deviation from the typical non-event pattern supports the clear causal relationship between the Saharan dust event and the monitored exceedances.

Not reasonably controllable or preventable; natural event. Saharan dust transport is a natural meteorological phenomenon that results from no controllable human activity; it cannot be controlled or prevented through any air-quality management strategy and originates outside Mississippi's jurisdiction. Under 40 CFR 50.14(b)(8)(vii) the Administrator does not require case-specific controllability justification for emissions-generating activity outside the state's boundaries, and under 40 CFR 50.1(k) the event qualifies as a natural event. The event therefore satisfies the not-reasonably-controllable-or-preventable and natural-event criteria of the Exceptional Events Rule.

Appendices

Appendix A: AQS Exceptional-Event Flag Documentation

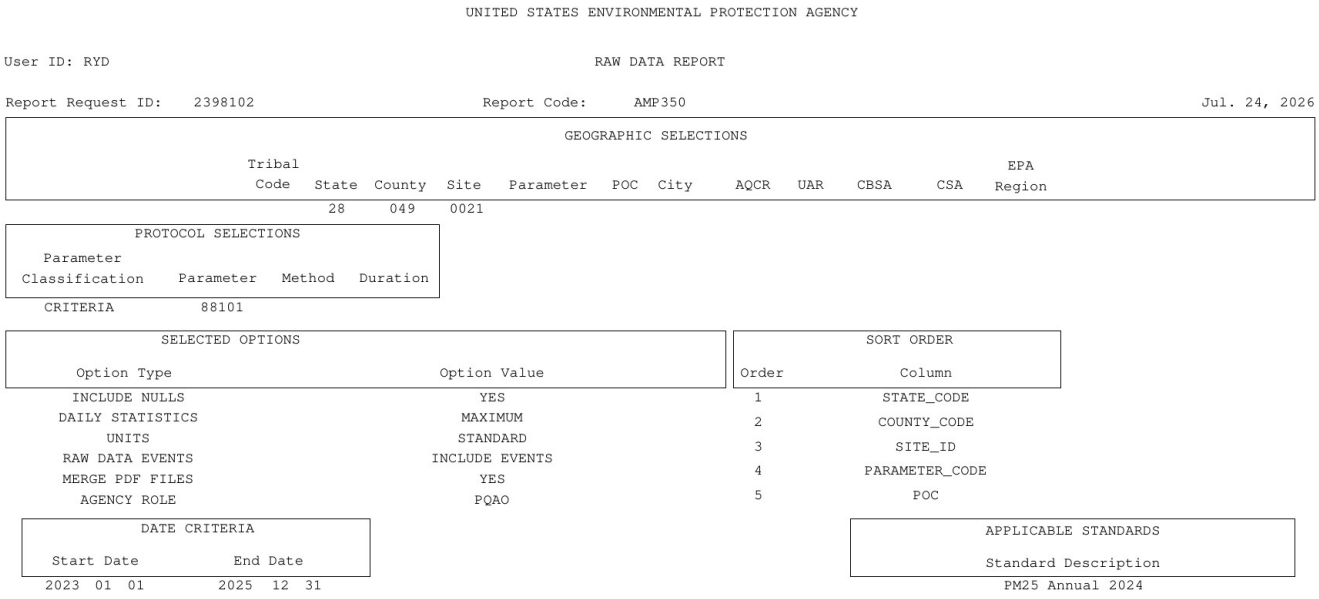
All days for which exclusion is requested are flagged in the EPA Air Quality System (AQS) with the applicable exceptional-event qualifier on the regulatory data series for the site: POC 23, method code 736 (Teledyne T640, corrected) for 2023, and POC 3, method code 636 (Teledyne T640 with Network Data Alignment) for 2024. Flag documentation is reproduced in full below as an AQS AMP350 Raw Data Report extract covering the eight event months, together with the report selection criteria and the AQS qualifier-code legend. The complete 2023–2025 report for all methods is retained as the source record and is available on request.

Table A-1 lists every day for which exclusion is requested, the qualifier applied, and the extract page on which it appears. Two features of the AMP350 report should be noted when reading the pages that follow. First, qualifier codes are printed in lower case (rm, rf, rg, ra). As stated in the note at the foot of each page, AQS prints a qualifier in upper case once the EPA Region has concurred and in lower case where the qualifier has been submitted but not yet regionally reviewed; lower case is therefore the expected presentation for a pending concurrence request such as this one. Second, the page footers read “Page n of 49” because the extract preserves the pagination of the full source report from which the event months were drawn; the extract itself is ten pages, numbered A-1 through A-10 below.

Table A-1. AQS exceptional-event qualifiers applied at the Hinds CC monitor (AQS 28-049-0021) for the days included in this demonstration.

Date	Event type	AQS qualifier	Hours flagged	POC / method code	Extract page
February 28, 2023	Prescribed fire	rm	24	23 / 736	2
March 6, 2023	Mexico/Central America wildfire	rg	24	23 / 736	3
March 7, 2023	Mexico/Central America wildfire	rg	24	23 / 736	3
March 8, 2023	Mexico/Central America wildfire	rg	24	23 / 736	3
March 9, 2023	Mexico/Central America wildfire	rg	24	23 / 736	3
May 21, 2023	Canadian wildfire	rf	24	23 / 736	4
May 22, 2023	Canadian wildfire	rf	24	23 / 736	4
May 25, 2023	Canadian wildfire	rf	24	23 / 736	4
May 26, 2023	Canadian wildfire	rf	24	23 / 736	4
October 3, 2023	Canadian wildfire	rf	24	23 / 736	5
October 4, 2023	Canadian wildfire	rf	23	23 / 736	5
October 5, 2023	Canadian wildfire	rf	24	23 / 736	5
February 2, 2024	Prescribed fire	rm	24	3 / 636	6
February 3, 2024	Prescribed fire	rm	24	3 / 636	6
February 20, 2024	Prescribed fire	rm	24	3 / 636	6
February 21, 2024	Prescribed fire	rm	24	3 / 636	6
May 9, 2024	Mexico/Central America wildfire	rg	23	3 / 636	7
July 31, 2024	Saharan (African) dust	ra	24	3 / 636	8
August 1, 2024	Saharan (African) dust	ra	24	3 / 636	9
August 2, 2024	Saharan (African) dust	ra	24	3 / 636	9

Note. Qualifier codes: rm = Prescribed Fire; rf = Fire – Canadian; rg = Fire – Mexico/Central America; ra = African Dust. All four are request-for-exclusion (REQEXC) qualifiers. Hours flagged is the number of hourly observations carrying the qualifier on that calendar day; where fewer than 24 hours are flagged, the remaining hour is a null-coded observation rather than an unflagged measurement.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: RYD — RAW DATA REPORT

Report Request ID: 2398102 — Report Code: AMP350 — Jul. 24, 2026

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	28	049	0021								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
CRITERIA	88101		

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
2023 01 01	2025 12 31

APPLICABLE STANDARDS

Standard Description
PM25 Annual 2024

Selection Criteria Page 1

Figure A-1. AQS AMP350 Raw Data Report — report selection criteria, showing the site, parameter, date range and reporting options used to generate the extract.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 23
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
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
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: FEBRUARY 2023

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

DAY	HOUR 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	4.6	4.6	4.3	4.3	4.7	5.6	6.2	6.0	6.7	7.2	8.1	7.7	4.8	3.8	3.7	4.1	3.7	2.3	1.9	2.0	1.9	2.4	1.8	24	8.1
2	1.3	1.0	.7	.7	.6	.6	.7	1.6	2.2	2.4	2.0	2.2	.9	.7	1.1	1.8	2.0	.7	.3	.5	.8	2.0	3.4	5.4	24	5.4
3	6.7	8.3	14.1	19.8	21.0	21.2	17.6	16.5	13.0	10.9	10.9	10.3	10.0	9.6	7.5	5.4	5.3	6.4	6.7	6.8	6.8	7.9	10.0	11.7	24	21.2
4	14.6	12.2	13.9	13.8	9.8	6.6	11.2	13.9	19.1	14.3	19.3	16.6	36.2	36.7	30.6	23.8	6.0	8.1	15.9	13.0	14.6	11.1	11.0	9.7	24	36.7
5	8.5	7.1	6.6	6.6	7.2	7.2	7.5	7.8	7.5	5.4	4.1	4.6	4.8	4.9	4.8	4.7	4.8	5.0	5.5	7.7	12.1	15.5	19.6	25.5	24	25.5
6	24.0	28.1	33.1	18.4	19.0	19.8	22.1	20.6	15.4	9.7	8.2	6.3	5.9	5.8	5.6	5.0	5.0	5.4	6.1	7.9	9.6	10.1	7.9	8.9	24	33.1
7	9.3	8.3	8.9	8.7	9.6	9.6	9.7	9.9	9.1	8.8	10.5	9.4	8.2	7.3	8.7	7.4	5.6	4.1	4.4	5.2	6.6	4.8	5.3	6.7	24	10.5
8	8.1	7.3	7.2	8.4	8.1	7.6	6.7	5.8	5.4	AZ	6.6	7.4	8.5	9.6	9.4	9.4	8.0	9.6	6.4	3.1	3.7	3.1	1.7	2.4	23	9.6
9	2.5	2.9	3.1	3.5	3.7	3.9	3.7	3.7	3.6	3.3	3.0	2.0	1.5	1.8	1.5	1.5	1.6	1.9	3.7	6.6	2.4	2.8	2.7	3.3	24	6.6
10	2.6	3.4	3.6	3.3	2.8	3.1	3.1	2.6	2.3	2.0	2.1	1.9	2.0	2.0	2.0	2.0	2.6	2.2	2.4	2.6	2.8	3.2	3.3	3.5	24	3.6
11	3.7	4.1	5.6	6.7	8.0	10.1	11.9	13.2	13.1	11.6	10.4	9.6	9.0	8.7	9.1	10.1	11.8	12.3	13.6	13.1	12.2	9.2	6.6	4.8	24	13.6
12	3.6	3.1	2.7	2.5	2.5	2.5	2.4	2.4	2.8	3.0	2.8	2.2	1.8	1.5	1.4	1.4	1.2	1.5	3.2	7.1	4.9	6.8	7.5	7.7	24	7.7
13	12.4	12.9	14.4	13.9	7.2	6.7	9.1	8.8	6.8	4.2	6.1	6.3	5.2	5.1	4.1	3.9	3.5	3.3	4.6	9.2	27.6	24.9	31.4	27.1	24	31.4
14	18.8	14.1	10.8	10.3	10.9	11.4	14.8	14.6	9.6	7.3	5.8	5.6	4.1	3.7	4.0	3.7	3.7	3.7	3.7	3.7	4.3	5.0	5.4	4.8	24	18.8
15	4.7	5.4	6.3	7.1	7.6	7.6	7.6	8.4	10.2	9.5	9.5	8.4	8.8	8.4	7.0	6.4	6.6	6.5	6.1	7.1	8.2	9.3	9.6	9.9	24	10.2
16	10.1	10.2	10.6	10.7	10.6	9.6	10.0	11.3	10.8	10.9	9.8	8.7	8.2	5.7	4.1	4.6	6.3	6.5	5.1	4.4	3.7	3.3	2.8	3.2	24	11.3
17	3.4	4.0	4.6	4.6	4.4	3.3	3.1	3.1	3.3	3.9	3.9	4.4	3.7	3.8	3.7	3.3	2.8	2.4	2.7	2.7	2.6	2.5	2.7	2.2	24	4.6
18	2.1	2.2	2.3	2.8	3.0	3.1	3.3	3.5	2.4	2.0	2.1	2.5	2.5	2.5	3.2	3.1	3.1	3.5	4.8	7.1	9.3	12.3	12.6	8.3	24	12.6
19	6.1	5.0	3.9	3.3	4.1	4.3	4.3	4.4	4.3	3.3	2.9	3.2	3.4	3.9	4.2	4.2	4.6	4.9	6.1	7.2	7.7	8.2	13.2	10.3	24	13.2
20	7.7	6.7	5.9	5.4	5.0	4.8	4.6	5.9	5.4	4.9	AV	AV	6.5	6.1	5.2	5.1	5.1	5.8	7.0	7.3	7.1	6.7	6.9	6.6	22	7.7
21	6.8	7.2	7.1	8.0	8.1	8.4	8.7	8.1	8.6	9.7	9.9	10.1	10.0	8.8	7.5	7.2	6.7	6.6	7.3	7.6	8.3	9.2	9.5	9.2	24	10.1
22	7.6	7.1	7.2	8.0	7.6	8.8	10.1	10.3	11.2	9.3	8.6	10.3	11.0	11.9	11.3	11.6	10.7	11.4	10.7	10.5	10.6	10.2	9.4	9.9	24	11.9
23	10.1	10.4	10.7	11.4	12.0	12.6	12.8	13.7	AZ	AZ	15.6	15.5	15.8	15.4	15.7	15.1	14.7	16.8	16.0	15.9	18.3	17.2	17.1	18.1	22	18.3
24	17.3	17.3	14.3	11.2	8.7	8.6	8.7	8.3	8.1	7.7	7.2	8.8	9.5	10.1	10.6	11.0	10.1	9.9	8.6	7.7	8.4	10.3	9.0	9.2	24	17.3
25	10.2	11.1	11.3	11.7	11.6	12.7	14.0	15.5	15.8	14.4	10.8	10.3	9.6	8.3	8.7	9.6	17.9	13.4	6.5	5.6	5.9	6.0	6.2	6.2	24	17.9
26	7.3	8.7	7.8	8.0	8.6	6.2	7.6	8.1	11.4	11.1	14.3	15.0	15.1	15.3	14.3	13.2	11.8	12.5	15.3	18.7	17.5	13.9	12.1	10.9	24	18.7
27	9.7	9.1	8.8	8.9	9.2	11.2	12.0	11.6	11.5	11.3	11.5	11.5	12.1	12.6	12.9	13.1	13.6	16.6	23.3	33.1	36.9	37.4	36.9	38.7	24	38.7
28	38.9rm	39.8rm	36.2rm	31.1rm	36.3rm	35.4rm	33.2rm	33.1rm	24.4rm	25.6rm	27.3rm	28.4rm	27.2rm	22.1rm	22.7rm	28.8rm	74.0rm	37.7rm	26.4rm	31.6rm	54.5rm	63.9rm	53.1rm	42.1rm	24	74.0
29																									0	
30																									0	
31																									0	
NO.:	28	28	28	28	28	28	28	28	27	26	27	27	28	28	28	28	28	28	28	28	28	28	28	28		
MAX:	38.9	39.8	36.2	31.1	36.3	35.4	33.2	33.1	24.4	25.6	27.3	28.4	36.2	36.7	30.6	28.8	74.0	37.7	26.4	33.1	54.5	63.9	53.1	42.1		
AVG:	9.45	9.34	9.51	9.04	8.98	8.99	9.50	9.75	9.01	8.20	8.61	8.50	8.90	8.47	8.03	7.86	9.04	7.94	8.03	9.10	11.05	11.38	11.40	11.00		

MONTHLY OBSERVATIONS: 667 MONTHLY MEAN: 9.22 MONTHLY MAX: 74.0

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.

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Figure A-2. AQS AMP350 Raw Data Report — February 2023 (POC 23, method 736). February 28 carries the qualifier rm on all 24 hours; no other February day is flagged.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 23
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
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
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: MARCH 2023

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

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	29.8	26.3	25.7	23.5	19.9	17.1	15.5	15.7	15.6	15.6	16.9	18.0	20.1	19.6	17.1	14.7	11.5	10.0	10.6	11.0	12.5	12.3	12.0	10.3	24	29.8
2	10.0	9.7	9.4	8.8	8.6	8.5	8.6	9.3	9.6	9.5	8.7	11.5	11.0	11.8	11.4	11.6	10.8	8.4	7.5	7.3	6.7	7.6	9.9	10.6	24	11.8
3	11.2	11.2	9.2	8.7	8.6	8.7	8.9	10.0	6.8	4.3	3.3	2.8	2.6	2.8	2.7	2.8	3.1	3.0	3.2	3.5	4.6	5.2	5.4	6.3	24	11.2
4	6.6	7.0	8.2	8.9	7.9	7.1	7.0	5.9	4.6	4.1	4.5	4.7	4.1	4.0	8.5	24.6	19.3	5.5	3.3	3.7	5.4	5.4	8.1	8.2	24	24.6
5	7.4	9.1	7.4	8.1	8.4	6.6	7.5	7.2	5.9	5.2	5.7	6.1	5.5	5.1	5.1	15.8	26.2	13.1	18.0	14.9	12.3	13.4	22.3	27.6	24	27.6
6	27.8rg	34.9rg	47.7rg	53.4rg	49.3rg	47.9rg	48.4rg	44.4rg	28.4rg	15.7rg	14.2rg	12.8rg	12.5rg	12.6rg	13.8rg	15.9rg	17.6rg	15.4rg	20.1rg	25.3rg	27.3rg	27.4rg	32.5rg	33.9rg	24	53.4
7	32.2rg	27.3rg	24.4rg	26.9rg	27.0rg	25.1rg	25.4rg	25.5rg	28.5rg	29.6rg	27.1rg	28.1rg	26.1rg	26.8rg	31.4rg	29.6rg	40.9rg	28.9rg	22.4rg	23.4rg	24.1rg	28.9rg	34.3rg	35.1rg	24	40.9
8	35.1rg	32.3rg	29.8rg	28.3rg	27.4rg	26.0rg	25.1rg	25.8rg	30.7rg	28.6rg	29.0rg	30.5rg	27.4rg	26.9rg	25.9rg	27.7rg	23.5rg	22.5rg	23.7rg	25.5rg	26.2rg	29.7rg	29.3rg	28.2rg	24	35.1
9	28.0rg	27.2rg	26.2rg	26.6rg	26.2rg	25.7rg	26.5rg	26.6rg	27.5rg	29.7rg	26.8rg	25.3rg	23.5rg	22.3rg	20.4rg	18.4rg	16.3rg	17.9rg	20.9rg	24.6rg	28.3rg	28.2rg	30.2rg	32.7rg	24	32.7
10	32.5	28.2	25.6	22.6	11.5	2.8	2.0	2.8	3.3	3.7	3.8	3.9	4.5	5.1	4.9	4.5	3.5	3.3	4.1	4.7	4.1	3.9	3.8	4.1	24	32.5
11	4.5	5.2	6.1	7.3	8.4	8.6	8.2	7.2	6.5	6.4	6.8	8.5	11.3	11.8	12.1	13.4	22.2	25.7	20.8	15.9	14.1	16.4	17.1	11.9	24	25.7
12	11.8	12.4	11.0	2.5	3.3	3.6	2.8	2.9	2.6	2.9	3.8	3.1	2.4	3.0	2.8	3.2	3.6	3.4	3.3	3.5	4.1	4.5	4.8	5.1	24	12.4
13	5.8	6.1	6.3	6.2	6.3	6.3	6.1	5.6	5.0	4.2	4.1	4.2	4.1	3.5	3.3	3.0	2.8	2.1	3.1	2.4	2.7	2.7	3.2	3.3	24	6.3
14	3.7	4.1	4.6	4.6	4.6	5.0	5.7	6.0	6.2	5.9	AZ	5.9	5.4	5.0	4.6	4.3	4.6	4.5	4.3	4.2	5.6	5.6	7.9	8.7	23	8.7
15	7.5	7.1	7.3	9.9	17.7	18.1	16.3	7.8	6.7	7.5	9.5	9.5	9.5	10.2	12.1	11.3	9.6	9.4	9.5	19.7	17.3	14.3	11.0	7.6	24	19.7
16	7.3	7.6	9.7	14.1	18.2	21.1	23.1	24.7	14.3	9.7	6.1	6.6	6.5	6.2	6.3	5.9	5.2	5.6	8.1	7.7	6.4	5.4	5.0	4.3	24	24.7
17	3.9	4.0	4.5	3.8	3.7	4.2	4.5	2.0	.7	1.1	1.8	2.3	3.7	3.5	2.9	3.2	3.1	3.4	3.6	3.7	3.5	3.7	3.1	3.3	24	4.5
18	3.2	3.0	3.1	3.0	2.8	2.9	3.5	3.4	3.1	3.0	2.8	2.8	2.8	3.0	2.9	2.8	3.2	3.3	3.4	3.7	3.7	4.6	3.7	3.7	24	4.6
19	3.5	3.4	3.3	3.3	3.3	3.3	3.3	3.6	3.9	4.1	4.1	3.8	3.9	4.0	4.1	4.0	4.1	4.0	4.3	3.9	4.2	4.0	4.5	4.1	24	4.5
20	4.0	3.5	3.7	4.4	4.4	5.6	7.0	8.6	6.4	5.1	5.4	4.5	4.4	4.1	4.3	4.6	5.4	5.3	4.5	12.9	46.6	12.2	9.2	7.8	24	46.6
21	8.2	7.6	8.0	8.6	9.8	10.5	11.3	11.2	10.9	10.3	9.2	8.0	7.7	8.8	8.9	8.5	9.4	9.8	9.8	12.5	13.4	10.1	7.7	8.1	24	13.4
22	10.1	11.5	11.6	11.8	12.7	12.7	12.2	10.7	8.5	7.6	8.2	7.9	7.5	6.2	7.1	7.8	6.4	8.5	14.5	16.5	11.4	8.8	7.5	6.7	24	16.5
23	7.4	7.7	7.3	7.7	8.1	8.6	8.3	7.2	8.2	8.3	7.4	6.8	6.6	7.6	15.1	10.0	8.3	9.8	10.5	12.0	10.9	9.5	9.1	9.3	24	15.1
24	9.5	9.0	8.3	7.7	7.9	8.2	8.3	8.4	8.4	8.2	8.3	8.1	8.7	8.9	9.2	8.5	7.7	7.2	4.7	6.6	8.4	8.1	8.8	9.3	24	9.5
25	6.5	6.3	5.1	5.9	7.6	20.8	11.0	9.9	12.7	10.0	13.2	14.8	14.4	15.2	16.2	15.9	12.7	12.7	14.2	16.2	14.7	17.6	29.5	39.8	24	39.8
26	27.8	22.3	12.3	13.4	12.1	12.5	12.5	12.7	13.1	12.1	10.8	8.1	8.5	10.1	10.9	11.5	6.1	3.8	4.2	7.3	8.7	5.5	4.8	5.4	24	27.8
27	6.0	6.6	7.9	9.8	7.7	6.4	6.2	7.0	7.1	7.2	8.3	8.7	8.5	9.0	8.9	8.4	8.2	8.0	9.2	7.5	6.3	6.2	6.1	6.3	24	9.8
28	6.4	6.3	6.7	8.1	9.9	10.0	9.6	9.3	8.3	7.5	7.7	7.8	8.2	6.6	8.0	8.6	5.9	5.4	5.4	5.3	4.9	5.1	5.4	5.7	24	10.0
29	5.6	5.8	5.9	6.1	5.9	5.9	5.9	5.8	5.6	5.7	5.4	5.4	5.4	5.4	4.9	5.0	5.3	5.4	6.3	9.3	9.3	21.2	16.7	15.6	24	21.2
30	13.3	13.5	14.6	16.4	16.7	15.6	14.5	11.7	7.0	6.0	6.2	6.8	6.9	6.2	5.8	6.0	6.1	7.2	6.9	8.5	9.9	10.0	8.1	8.4	24	16.7
31	9.2	10.1	10.4	10.6	11.3	12.5	12.9	12.1	11.8	11.3	11.8	11.3	10.2	10.3	10.7	10.6	10.8	10.8	10.8	10.6	10.3	9.9	9.7	10.9	24	12.9
NO.:	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	35.1	34.9	47.7	53.4	49.3	47.9	48.4	44.4	30.7	29.7	29.0	30.5	27.4	26.9	31.4	29.6	40.9	28.9	23.7	25.5	46.6	29.7	34.3	39.8		
AVG:	12.45	12.14	11.98	12.29	12.17	12.19	11.87	11.32	10.25	9.36	9.36	9.31	9.16	9.21	9.75	10.39	10.43	9.14	9.52	10.77	11.87	11.21	11.96	12.33		

MONTHLY OBSERVATIONS: 743 MONTHLY MEAN: 10.85 MONTHLY MAX: 53.4

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.

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Figure A-3. AQS AMP350 Raw Data Report — March 2023 (POC 23, method 736). March 6, 7, 8 and 9 each carry the qualifier rg on all 24 hours.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 23
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
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
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: MAY 2023

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

DAY	HOUR 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	5.7	5.0	5.3	5.0	4.8	4.7	4.0	3.1	2.9	3.0	3.0	3.0	3.0	3.2	3.4	3.4	3.7	4.5	12.5	7.6	9.3	15.0	11.8	24	15.0
2	7.8	5.9	5.7	5.6	6.4	6.2	6.1	5.0	4.6	AZ	3.5	3.6	3.8	4.0	5.1	7.5	7.6	7.2	7.5	12.7	11.3	14.4	15.2	19.6	23	19.6
3	18.3	20.9	19.8	18.5	23.0	20.1	7.2	4.3	3.8	3.7	3.7	3.9	3.9	3.7	3.7	4.1	4.2	4.3	5.8	13.8	12.2	8.4	11.5	9.3	24	23.0
4	20.5	18.6	13.9	10.9	10.7	9.2	9.9	7.3	7.3	6.0	5.5	5.5	5.6	5.6	5.9	6.1	6.9	7.3	11.0	14.5	13.8	12.2	10.7	8.3	24	20.5
5	6.7	7.2	7.2	7.8	9.4	10.7	12.4	12.2	9.6	9.7	9.8	9.3	8.7	9.0	7.0	6.1	6.1	6.9	7.2	7.5	8.2	7.8	8.8	24.0	24	24.0
6	31.3	19.9	12.1	9.2	8.7	8.3	6.5	5.6	5.5	5.2	6.9	9.0	9.5	9.5	8.6	7.6	7.4	7.1	5.6	5.1	4.4	4.7	5.0	4.8	24	31.3
7	5.4	5.0	5.8	6.6	7.2	6.7	6.7	6.2	6.2	6.7	7.6	8.6	8.9	9.2	10.0	10.5	10.7	5.6	7.7	6.5	6.6	10.1	9.9	9.8	24	10.7
8	10.5	10.7	10.5	10.6	11.1	21.4	12.3	11.2	10.5	11.3	12.1	11.8	11.5	12.9	13.7	13.3	13.5	13.3	13.6	12.9	13.9	14.3	16.0	16.6	24	21.4
9	17.4	16.9	17.4	18.1	17.6	18.0	17.3	17.6	13.8	12.7	11.6	10.8	10.8	11.1	9.5	12.0	13.2	13.4	4.8	6.9	8.9	9.8	10.8	11.5	24	18.1
10	11.1	10.8	11.4	11.5	12.0	11.3	11.3	12.3	11.6	9.9	9.9	9.7	8.1	7.6	8.0	8.7	9.0	8.0	7.5	8.4	9.3	10.0	10.3	10.5	24	12.3
11	11.2	11.5	11.0	9.3	8.6	8.9	8.1	8.1	7.9	7.6	7.5	7.3	7.0	4.1	4.7	6.8	5.0	4.9	5.1	4.8	5.7	5.8	5.9	5.0	24	11.5
12	5.0	5.6	6.0	6.3	6.2	6.0	5.7	6.3	6.0	6.6	7.5	7.9	8.3	7.4	6.7	7.2	6.1	5.8	5.4	5.4	4.8	4.1	4.7	5.1	24	8.3
13	4.4	4.1	4.6	5.0	5.4	5.1	5.4	4.8	4.5	5.8	7.3	9.5	10.7	11.0	11.5	10.8	8.9	9.5	10.1	10.7	10.7	14.5	14.9	13.2	24	14.9
14	14.1	14.2	13.8	12.1	13.1	12.8	12.7	12.4	11.2	10.3	10.2	10.9	11.2	11.9	11.5	11.5	10.9	11.2	11.6	12.4	12.9	13.8	15.3	16.1	24	16.1
15	15.6	15.1	14.5	14.1	14.0	13.7	13.4	12.5	12.3	13.1	13.3	13.3	12.8	13.0	12.8	11.0	11.0	10.6	10.5	11.4	12.8	13.3	11.8	9.9	24	15.6
16	10.1	10.9	11.4	11.7	11.7	12.0	11.8	11.6	AZ	10.6	10.5	10.6	10.3	10.1	9.9	10.0	10.0	10.6	10.5	9.9	12.6	9.4	7.4	6.7	23	12.6
17	6.9	7.6	8.2	8.4	9.0	9.0	8.9	8.2	6.9	6.3	6.5	6.8	6.9	7.7	6.8	6.9	6.5	6.4	6.7	6.8	6.3	7.0	8.2	8.6	24	9.0
18	9.0	8.7	9.6	9.8	9.1	8.5	9.1	9.7	9.7	9.8	10.0	7.7	7.1	6.1	6.1	6.1	6.4	6.2	6.3	7.1	9.3	8.6	8.5	8.8	24	10.0
19	9.2	9.2	9.4	8.9	9.9	8.9	11.0	11.1	11.8	11.7	11.4	10.3	10.9	10.5	10.1	9.4	9.2	9.4	9.6	10.5	11.7	13.0	12.2	12.2	24	13.0
20	12.4	13.2	12.8	13.2	13.6	13.8	13.4	14.0	12.7	10.2	8.9	6.8	5.7	5.9	5.7	6.0	6.0	6.7	10.0	14.4	16.1	17.9	17.7	17.2	24	17.9
21	17.7rf	20.0rf	20.8rf	25.0rf	27.8rf	27.3rf	26.9rf	26.1rf	29.3rf	33.5rf	33.9rf	35.4rf	35.1rf	34.0rf	31.8rf	28.5rf	27.5rf	26.9rf	26.2rf	26.4rf	25.7rf	25.2rf	25.4rf	24.7rf	24	35.4
22	24.0rf	22.8rf	26.8rf	32.8rf	33.3rf	33.6rf	31.8rf	32.7rf	32.2rf	32.3rf	32.8rf	33.7rf	33.2rf	33.2rf	32.9rf	32.1rf	31.5rf	32.0rf	33.8rf	34.4rf	33.4rf	33.2rf	34.4rf	34.5rf	24	34.5
23	33.1rf	24.8rf	19.0rf	17.8rf	13.6rf	9.3rf	9.7rf	7.3rf	6.7rf	8.4rf	8.9rf	8.9rf	8.5rf	8.5rf	8.1rf	7.3rf	8.4rf	9.5rf	10.3rf	13.3rf	13.7rf	12.6rf	11.8rf	10.8rf	24	33.1
24	7.6rf	8.1rf	12.2rf	15.2rf	15.6rf	16.1rf	15.3rf	15.6rf	14.7rf	14.7rf	16.0rf	14.1rf	12.3rf	11.4rf	10.2rf	7.8rf	9.2rf	9.7rf	13.7rf	12.0rf	13.1rf	13.2rf	12.1rf	11.6rf	24	16.1
25	12.5rf	12.0rf	12.7rf	12.2rf	12.3rf	13.3rf	13.2rf	16.2rf	17.6rf	18.9rf	18.5rf	19.4rf	20.4rf	22.8rf	22.5rf	23.3rf	24.2rf	23.4rf	23.9rf	24.4rf	25.0rf	25.4rf	25.8rf	29.3rf	24	29.3
26	27.3rf	26.4rf	25.3rf	26.7rf	29.0rf	27.6rf	25.0rf	24.3rf	24.0rf	23.5rf	21.7rf	20.8rf	20.5rf	20.5rf	19.4rf	19.4rf	18.8rf	19.1rf	19.7rf	20.8rf	24.7rf	25.5rf	24.3rf	24.4rf	24	29.0
27	24.0	22.3	23.6	23.5	24.4	25.5	23.2	17.3	14.9	15.7	15.8	15.7	15.5	15.6	15.2	15.6	15.5	14.7	15.1	16.0	17.9	16.5	16.8	16.6	24	25.5
28	16.9	17.2	17.0	17.2	17.3	17.8	18.7	19.6	18.8	16.4	15.5	15.3	14.9	14.8	14.3	14.0	13.4	13.3	13.7	15.0	15.8	36.2	43.4	38.9	24	43.4
29	25.2	21.4	20.6	22.5	21.9	22.1	33.8	19.2	17.3	15.4	14.5	13.7	13.3	12.8	13.2	13.0	12.9	13.0	12.9	13.5	14.9	14.5	14.4	15.2	24	33.8
30	18.6	18.4	17.1	18.2	18.5	17.2	17.2	18.1	15.2	10.9	9.0	8.5	8.9	9.0	8.9	9.4	9.7	10.2	10.6	12.0	15.1	16.7	16.8	18.0	24	18.6
31	17.8	17.6	18.7	18.0	19.7	22.4	21.4	14.5	9.7	AZ	9.5	9.1	9.5	10.3	10.2	10.3	10.4	11.0	11.5	13.5	16.7	15.3	15.2	17.1	23	22.4
NO.:	31	31	31	31	31	31	31	31	30	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31		
MAX:	33.1	26.4	26.8	32.8	33.3	33.6	33.8	32.7	32.2	33.5	33.9	35.4	35.1	34.0	32.9	32.1	31.5	32.0	33.8	34.4	33.4	36.2	43.4	38.9		
AVG:	14.76	13.96	13.67	13.94	14.36	14.44	13.87	12.75	11.98	12.06	11.70	11.64	11.51	11.49	11.20	11.15	11.08	11.00	11.37	12.76	13.39	14.28	14.85	15.16		

MONTHLY OBSERVATIONS: 741 MONTHLY MEAN: 12.85 MONTHLY MAX: 43.4

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.

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Figure A-4. AQS AMP350 Raw Data Report — May 2023 (POC 23, method 736). May 21 through May 26 each carry the qualifier rf on all 24 hours. MDEQ requests exclusion of May 21, 22, 25 and 26 only; May 23 and 24 remain flagged but fall below the Tier 2 screening threshold and are not part of this request.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 23
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
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
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: OCTOBER 2023

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

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	13.6	13.8	15.3	14.5	13.4	13.2	14.5	13.0	9.5	7.8	7.2	7.5	7.5	7.4	7.0	7.2	6.6	6.1	7.5	7.8	8.1	8.2	8.7	8.6	24	15.3
2	9.0	9.6	9.7	8.7	9.0	9.7	11.2	9.8	6.5	4.7	5.3	5.3	4.4	4.6	4.1	3.8	3.9	3.7	4.3	5.3	6.0	6.5	7.1	10.0	24	11.2
3	10.9rf	12.9rf	11.1rf	11.6rf	11.4rf	11.7rf	12.0rf	10.6rf	16.3rf	17.8rf	14.9rf	13.9rf	14.6rf	14.7rf	16.3rf	17.2rf	18.7rf	22.1rf	32.1rf	34.9rf	34.6rf	40.2rf	40.9rf	35.2rf	24	40.9
4	26.6rf	24.9rf	24.4rf	24.0rf	23.7rf	25.3rf	25.5rf	26.4rf	29.2rf	28.7rf	AZ	25.3rf	24.4rf	22.8rf	23.3rf	23.5rf	22.8rf	26.2rf	30.7rf	26.5rf	26.3rf	27.1rf	27.6rf	28.2rf	23	30.7
5	29.0rf	29.6rf	28.5rf	28.5rf	28.7rf	28.5rf	28.9rf	28.7rf	27.7rf	25.7rf	23.4rf	22.1rf	21.5rf	20.0rf	20.5rf	19.8rf	21.3rf	21.4rf	21.9rf	20.8rf	21.5rf	21.2rf	20.6rf	19.1rf	24	29.6
6	18.5	17.3	16.7	16.9	14.2	11.8	10.4	10.6	12.1	11.8	11.2	9.2	8.1	6.7	7.0	6.5	7.0	6.8	6.7	6.1	5.6	4.8	4.3	4.1	24	18.5
7	4.1	4.0	3.8	3.7	3.7	3.7	3.7	3.8	3.7	3.7	3.3	3.3	3.1	3.0	3.2	3.4	3.2	3.8	3.3	3.3	3.3	3.3	3.6	3.9	24	4.1
8	3.7	3.8	3.9	4.1	4.2	4.4	4.5	4.4	3.7	3.6	3.5	3.4	3.2	3.1	3.7	3.3	3.3	3.3	4.0	5.4	7.0	6.8	11.1	13.0	24	13.0
9	15.4	12.9	10.8	9.6	11.4	13.1	11.9	10.4	7.1	5.2	4.8	4.4	4.3	4.2	4.3	4.5	4.5	4.7	9.3	6.1	7.4	9.2	6.2	5.9	24	15.4
10	6.5	6.9	7.4	7.9	9.4	12.8	12.8	11.1	9.4	9.9	10.3	9.2	8.0	8.0	8.1	7.3	6.6	6.7	10.9	10.7	15.2	14.1	13.9	12.7	24	15.2
11	12.7	12.4	12.8	14.7	15.6	14.8	14.1	14.4	12.4	9.5	7.5	5.1	5.7	5.3	5.0	4.6	4.5	2.8	2.4	1.7	1.8	2.5	3.1	3.6	24	15.6
12	3.6	3.5	3.7	3.7	3.9	4.7	4.6	5.7	5.9	5.1	3.9	3.7	3.7	4.0	4.4	4.2	4.5	4.8	5.1	5.2	5.8	5.9	5.5	5.0	24	5.9
13	4.8	5.0	6.3	6.7	6.8	7.2	5.4	4.2	5.0	5.9	6.0	5.9	5.7	5.5	5.2	4.7	4.9	6.7	8.3	8.6	7.1	7.3	8.3	7.7	24	8.6
14	8.9	9.8	9.8	8.6	5.6	4.5	4.6	5.4	5.3	5.3	5.4	4.5	3.8	3.4	3.5	3.4	7.9	7.1	4.1	3.7	4.2	6.1	5.8	5.7	24	9.8
15	5.3	5.1	3.5	2.7	2.3	1.7	1.6	1.5	1.4	1.5	1.8	2.0	1.8	1.7	2.3	1.7	1.9	2.7	2.9	3.2	3.1	3.2	3.0	3.0	24	5.3
16	3.2	3.6	4.4	4.6	4.4	4.2	4.3	3.9	3.2	2.6	2.2	1.9	2.1	2.1	2.1	2.0	2.0	2.4	2.8	3.6	4.5	5.4	6.3	6.3	24	6.3
17	6.2	6.5	7.0	6.8	7.7	12.4	15.9	19.2	30.3	31.4	21.8	26.8	35.4	34.4	29.4	21.8	20.9	21.7	21.8	23.4	28.8	26.2	24.8	26.9	24	35.4
18	28.3	30.4	27.2	28.1	28.1	29.1	30.0	26.9	26.6	18.6	10.5	9.9	9.7	9.4	8.9	9.7	9.7	10.1	11.4	13.0	14.4	13.5	12.3	13.0	24	30.4
19	14.6	15.6	16.4	16.3	22.5	20.9	21.3	18.5	15.1	11.3	7.2	4.3	AZ	4.4	4.6	4.5	4.7	4.8	7.1	6.3	6.4	8.8	9.6	8.4	23	22.5
20	6.7	6.3	5.5	5.2	5.2	5.2	5.5	5.9	7.4	6.1	4.9	4.6	3.7	3.9	4.4	4.7	5.8	5.9	7.6	7.2	6.3	6.1	11.3	7.2	24	11.3
21	10.5	8.2	14.5	14.5	9.3	8.4	9.5	10.8	20.0	22.9	15.4	11.1	9.8	8.9	7.2	5.8	6.2	6.3	6.5	8.3	8.5	9.5	10.9	11.3	24	22.9
22	11.1	12.7	15.2	16.0	16.4	16.8	17.6	16.1	16.2	14.3	13.8	13.4	13.2	12.3	10.6	10.9	11.0	13.9	13.2	15.2	13.3	12.5	13.2	14.2	24	17.6
23	14.9	16.4	16.5	19.0	19.9	24.4	24.6	28.7	29.5	23.2	15.4	12.5	11.0	10.0	10.6	10.1	9.8	10.3	12.8	12.3	12.8	14.9	15.0	15.8	24	29.5
24	16.8	17.5	17.4	17.6	21.3	18.8	15.3	13.9	12.7	11.5	11.1	10.5	9.5	8.6	7.4	7.9	9.7	9.2	7.7	8.2	8.4	9.1	8.5	8.5	24	21.3
25	9.0	8.1	7.8	7.7	9.4	8.3	7.5	7.5	8.2	7.3	6.4	6.0	6.0	6.1	6.1	6.1	6.0	6.5	11.2	7.0	6.7	6.9	7.2	7.3	24	11.2
26	7.7	11.3	15.8	12.4	7.6	7.2	6.5	5.8	4.8	4.5	4.1	3.8	3.9	4.3	4.3	4.0	4.0	4.4	5.2	5.7	6.0	5.8	5.8	6.4	24	15.8
27	6.7	6.9	7.1	6.2	7.3	7.9	8.6	8.0	7.3	6.4	5.7	6.0	5.8	5.4	5.1	5.0	5.1	7.8	10.2	6.2	6.4	6.6	6.7	6.6	24	10.2
28	6.7	6.3	6.8	7.3	7.5	7.6	8.3	7.7	6.7	6.1	5.6	6.0	5.9	5.7	5.7	5.6	5.9	6.2	6.6	6.8	6.6	6.9	6.9	6.3	24	8.3
29	6.2	6.8	6.3	6.1	6.2	6.0	6.2	7.0	5.9	5.9	5.7	5.3	5.8	5.7	5.4	5.5	5.6	6.0	7.1	7.6	10.7	10.3	9.5	10.4	24	10.7
30	6.6	3.9	3.3	2.5	2.1	2.6	2.4	2.8	2.7	1.7	1.0	.7	1.1	2.0	2.9	4.1	4.6	6.3	6.3	6.3	9.7	12.1	12.3	10.4	24	12.3
31	9.4	8.9	9.0	8.3	8.2	7.6	6.9	6.2	5.5	5.0	AZ	AZ	4.0	4.1	4.4	4.6	4.3	4.1	4.5	5.0	5.4	5.0	5.0	5.2	22	9.4
NO.:	31	31	31	31	31	31	31	31	31	31	29	30	30	31	31	31	31	31	31	31	31	31	31	31		
MAX:	29.0	30.4	28.5	28.5	28.7	29.1	30.0	28.7	30.3	31.4	23.4	26.8	35.4	34.4	29.4	23.5	22.8	26.2	32.1	34.9	34.6	40.2	40.9	35.2		
AVG:	10.88	11.00	11.22	11.11	11.17	11.44	11.49	11.25	11.53	10.48	8.25	8.25	8.22	7.80	7.65	7.34	7.64	8.22	9.53	9.40	10.06	10.52	10.81	10.64		

MONTHLY OBSERVATIONS: 740 MONTHLY MEAN: 9.84 MONTHLY MAX: 40.9

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.

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Figure A-5. AQS AMP350 Raw Data Report — October 2023 (POC 23, method 736). October 3, 4 and 5 carry the qualifier rf; October 4 shows 23 flagged hours because one hour is coded AZ (quality-control audit).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 3
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution
MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (636) Teledyne T640 at 5.0 LPM w/Network
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: FEBRUARY 2024

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

DAY	HOUR 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	10.8	10.9	13.2	20.7	19.5	19.3	19.1	20.1	22.0	15.7	11.9	8.9	6.9	5.8	7.2	7.6	6.1	6.8	13.7	30.3	26.4	40.6	53.2	39.1	24	53.2
2	36.9rm	39.3rm	37.4rm	36.3rm	31.4rm	30.4rm	28.3rm	29.6rm	41.6rm	36.9rm	24.2rm	14.2rm	12.4rm	10.4rm	13.3rm	9.1rm	6.6rm	10.2rm	16.0rm	18.7rm	22.8rm	18.6rm	17.4rm	23.5rm	24	41.6
3	29.6rm	34.9rm	28.8rm	24.6rm	23.7rm	24.2rm	27.3rm	24.3rm	22.8rm	19.4rm	18.3rm	19.7rm	19.6rm	24.8rm	27.4rm	20.9rm	20.8rm	22.5rm	26.4rm	25.7rm	33.6rm	25.0rm	13.9rm	17.6rm	24	34.9
4	17.8	14.5	12.3	12.3	8.2	9.1	9.7	10.0	11.6	10.1	8.2	6.4	4.2	3.3	3.1	3.4	3.9	5.1	6.6	5.1	5.5	4.8	3.9	2.6	24	17.8
5	1.4	2.1	3.1	3.4	4.1	5.0	6.2	6.8	6.9	6.3	5.7	4.8	3.8	4.0	4.8	5.7	5.4	5.4	5.8	6.2	6.5	6.3	6.2	7.1	24	7.1
6	8.1	9.0	7.6	7.2	7.0	6.6	7.1	7.4	5.2	4.6	4.5	4.3	4.7	4.3	4.2	4.1	4.3	4.7	9.9	8.5	11.5	12.9	5.2	7.0	24	12.9
7	7.6	6.8	7.8	7.9	10.4	10.0	12.2	11.2	10.7	5.5	4.8	4.3	3.4	5.1	3.8	4.3	3.7	4.4	5.7	5.8	6.2	5.6	5.9	6.3	24	12.2
8	6.5	7.4	7.8	7.5	8.1	9.0	12.5	9.7	9.1	7.9	7.1	6.8	7.3	8.0	7.7	8.1	8.0	8.7	9.7	10.1	10.1	8.5	7.7	7.4	24	12.5
9	8.3	8.8	8.5	8.4	7.6	11.2	11.1	8.7	8.5	9.0	8.3	7.7	7.3	6.8	5.0	4.7	5.4	5.7	8.3	9.6	9.9	13.9	9.2	8.8	24	13.9
10	8.7	8.9	9.4	10.9	11.4	9.7	10.1	9.7	7.6	7.0	6.3	6.7	6.5	6.3	5.3	5.1	5.0	6.3	8.5	7.8	8.4	9.4	1.6	.5	24	11.4
11	.9	1.0	.8	1.2	1.4	1.5	1.6	2.0	2.3	2.3	2.5	2.6	3.8	5.7	3.4	1.7	2.3	2.3	2.0	2.8	2.5	2.2	2.9	3.3	24	5.7
12	3.0	5.0	5.5	4.9	4.5	1.5	1.1	2.5	3.1	3.3	2.3	3.4	3.0	2.8	3.7	2.9	2.0	2.2	2.8	2.3	1.3	2.2	3.9	4.3	24	5.5
13	3.8	3.0	2.8	3.2	3.5	3.9	4.8	6.2	5.9	5.7	6.0	5.5	5.1	4.7	4.4	4.0	3.8	3.8	4.7	5.3	6.1	6.4	8.1	10.9	24	10.9
14	14.4	21.6	15.3	15.3	20.3	16.6	15.6	15.2	16.1	9.8	5.8	4.9	4.9	4.5	4.4	4.3	4.3	4.2	5.7	8.9	9.0	8.2	9.3	10.6	24	21.6
15	10.1	10.5	13.2	16.7	24.9	22.6	18.0	18.5	23.4	11.1	7.8	6.2	7.0	8.2	8.2	8.3	8.9	8.2	11.5	28.6	16.9	15.3	19.8	29.9	24	29.9
16	25.9	26.8	22.4	21.6	23.6	24.2	24.3	24.5	23.4	17.7	13.0	11.4	9.7	10.7	9.4	7.9	6.9	7.3	8.2	11.1	13.5	12.3	9.3	6.1	24	26.8
17	6.3	6.1	5.4	5.3	6.1	5.6	5.7	6.4	6.3	5.0	4.3	3.9	3.7	3.6	3.7	5.1	7.1	7.2	8.2	9.9	9.3	9.0	8.3	7.9	24	9.9
18	7.6	7.5	7.7	7.4	6.7	6.2	5.4	5.2	4.6	4.8	4.9	4.6	4.5	4.2	4.0	5.1	5.2	4.6	7.7	5.8	6.0	6.8	8.6	8.3	24	8.6
19	11.9	12.8	15.7	16.9	16.7	19.3	22.2	23.4	23.0	15.7	12.8	10.3	10.2	8.4	7.4	6.9	5.9	6.3	9.2	17.1	28.0	32.4	28.3	45.0	24	45.0
20	43.7rm	41.9rm	31.0rm	35.2rm	34.8rm	31.0rm	27.4rm	26.9rm	29.4rm	22.4rm	16.5rm	11.0rm	8.3rm	8.3rm	7.8rm	6.8rm	6.9rm	6.0rm	7.0rm	10.3rm	17.7rm	19.3rm	28.3rm	31.1rm	24	43.7
21	35.0rm	36.9rm	36.6rm	39.9rm	43.9rm	46.0rm	50.6rm	50.0rm	40.2rm	15.7rm	9.7rm	11.4rm	14.7rm	19.3rm	23.1rm	30.6rm	31.0rm	16.1rm	16.9rm	17.2rm	17.8rm	13.9rm	20.9rm	22.4rm	24	50.6
22	12.4	10.6	8.0	8.8	11.4	13.2	14.4	14.3	12.4	9.6	6.7	5.1	5.4	5.3	4.8	AV	AV	AV	5.3	6.4	5.6	5.5	5.8	5.8	21	14.4
23	6.5	7.7	8.1	8.5	8.7	7.7	6.1	9.5	8.4	5.9	5.1	4.7	4.1	4.0	4.5	4.1	3.2	3.2	3.1	3.2	3.6	4.3	6.5	8.6	24	9.5
24	8.9	5.7	7.9	13.4	17.8	25.6	28.3	35.0	22.3	17.5	11.3	6.7	5.4	4.7	4.5	6.5	6.7	6.6	7.3	5.9	6.5	6.8	10.0	13.1	24	35.0
25	17.0	18.5	19.0	18.9	17.6	16.7	17.4	17.5	19.0	23.4	16.5	13.5	9.4	7.8	9.1	9.5	9.6	13.8	20.4	21.8	22.9	24.7	28.1	27.4	24	28.1
26	25.1	24.3	19.3	20.1	20.6	20.0	17.9	18.0	15.9	12.7	10.7	10.0	9.0	8.9	9.1	10.6	14.1	12.0	10.1	11.5	9.8	10.9	11.0	10.9	24	25.1
27	8.4	7.1	6.6	6.3	5.9	6.1	6.4	6.2	6.4	AZ	AZ	AZ	7.6	7.8	7.3	8.2	8.3	9.4	10.6	9.5	9.6	9.2	10.3	13.4	21	13.4
28	9.9	11.1	12.1	13.1	12.4	13.6	14.8	15.8	13.8	13.8	12.2	6.4	5.2	3.6	2.9	2.7	2.4	2.6	2.8	3.4	2.9	2.5	2.3	2.0	24	15.8
29	2.1	2.4	2.3	2.4	2.3	2.4	2.3	2.4	2.2	2.1	2.1	2.1	1.9	2.3	2.7	6.4	24.2	18.9	4.0	2.8	3.9	6.4	8.3	6.6	24	24.2
30																									0	
31																									0	
NO.:	29	29	29	29	29	29	29	29	29	28	28	28	29	29	29	28	28	28	29	29	29	29	29	29		
MAX:	43.7	41.9	37.4	39.9	43.9	46.0	50.6	50.0	41.6	36.9	24.2	19.7	19.6	24.8	27.4	30.6	31.0	22.5	26.4	30.3	33.6	40.6	53.2	45.0		
AVG:	13.40	13.90	12.95	13.73	14.29	14.42	14.76	15.07	14.62	11.46	8.91	7.41	6.86	7.02	7.11	7.31	7.93	7.66	8.90	10.74	11.51	11.86	12.21	13.36		

MONTHLY OBSERVATIONS: 690 MONTHLY MEAN: 11.17 MONTHLY MAX: 53.2

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.

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Figure A-6. AQS AMP350 Raw Data Report — February 2024 (POC 3, method 636). February 2, 3, 20 and 21 each carry the qualifier rm on all 24 hours.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 3
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution
MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (636) Teledyne T640 at 5.0 LPM w/Network
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: MAY 2024

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

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	16.5	19.9	17.1	23.7	16.5	15.5	15.3	9.6	7.3	6.4	6.0	5.6	5.6	6.0	6.2	6.1	5.8	5.4	6.9	9.0	9.6	10.4	10.7	10.4	24	23.7
2	12.2	13.1	14.1	11.7	9.5	7.6	7.1	7.0	6.6	7.1	8.1	7.3	7.6	7.8	7.8	8.1	8.5	8.7	9.2	9.5	9.7	9.8	8.8	8.6	24	14.1
3	9.5	9.0	9.3	8.8	9.0	8.9	7.7	5.6	6.3	6.4	5.9	5.8	4.8	4.2	2.8	2.9	3.0	5.7	7.3	7.8	7.4	8.9	7.4	9.3	24	9.5
4	8.4	7.5	8.0	7.8	7.9	7.9	7.6	7.9	6.9	5.8	5.5	5.6	5.8	5.9	5.9	5.8	5.9	6.0	6.7	8.6	12.9	12.9	13.6	12.2	24	13.6
5	14.7	14.9	13.3	12.5	12.4	12.1	11.9	9.5	6.7	6.7	7.7	7.5	7.5	7.2	6.4	6.2	6.1	6.5	6.7	7.4	7.6	7.8	9.3	7.9	24	14.9
6	8.1	8.8	8.9	9.2	9.2	9.2	7.7	6.5	6.4	6.6	6.5	6.3	6.6	7.1	6.6	6.8	7.2	7.7	10.2	16.5	9.5	9.4	9.5	9.9	24	16.5
7	9.5	9.3	9.1	9.0	8.8	9.5	9.4	10.0	9.4	9.8	9.7	9.2	8.7	8.6	9.4	9.7	10.2	10.5	11.4	11.6	11.4	11.8	11.7	11.0	24	11.8
8	10.0	9.7	10.0	10.7	10.9	10.1	9.6	8.8	8.8	9.3	9.4	9.5	9.9	10.2	10.6	10.2	9.8	9.2	8.7	8.6	9.0	9.4	10.3	10.9	24	10.9
9	11.7rg	14.0rg	15.0rg	15.5rg	17.4rg	18.2rg	20.8rg	24.1rg	26.2rg	AZ	29.5rg	30.9rg	32.3rg	32.3rg	33.4rg	34.2rg	35.4rg	34.8rg	37.4rg	37.0rg	32.8rg	18.4rg	5.6rg	6.5rg	23	37.4
10	7.2	8.7	10.2	10.3	9.2	9.7	10.1	7.8	5.6	4.1	3.0	2.8	2.9	2.7	2.8	2.7	2.7	2.7	2.8	3.2	3.3	3.2	3.6	3.7	24	10.3
11	4.3	4.4	4.7	4.6	5.0	5.2	5.5	4.9	4.1	3.6	3.6	3.6	3.8	4.3	4.6	4.5	4.6	4.8	5.5	6.9	9.3	12.4	14.6	13.5	24	14.6
12	11.8	12.7	11.5	10.1	9.6	10.4	10.3	10.8	9.9	9.0	8.8	8.0	7.2	6.8	7.1	8.0	9.7	8.4	8.6	6.9	6.7	6.8	7.2	8.1	24	12.7
13	7.9	7.6	8.4	10.7	11.1	6.4	4.8	3.6	3.0	3.1	3.3	3.6	3.8	4.0	4.6	4.5	4.5	5.4	5.4	5.1	5.4	4.5	5.7	5.9	24	11.1
14	6.3	7.0	7.2	7.1	7.3	7.5	6.7	5.6	5.1	5.9	6.1	6.5	6.7	6.2	5.9	5.8	6.0	6.0	6.3	10.7	10.8	8.5	8.3	7.9	24	10.8
15	7.8	7.9	7.5	7.1	6.6	6.8	7.8	10.5	18.2	21.9	23.7	21.5	20.6	16.0	11.9	12.1	11.8	10.9	10.8	11.9	13.2	16.6	17.5	17.0	24	23.7
16	19.4	18.8	17.0	12.7	11.4	14.1	12.9	11.6	10.3	9.9	11.7	12.7	13.0	12.5	11.2	8.2	7.0	7.2	8.2	8.7	9.1	9.8	10.0	9.0	24	19.4
17	9.1	10.2	11.0	11.1	11.3	11.0	11.6	11.3	9.1	5.6	4.6	5.8	6.1	4.8	4.5	6.4	5.2	4.1	4.5	4.7	5.2	5.5	6.4	7.5	24	11.6
18	8.0	9.4	10.6	9.4	13.6	8.8	7.0	7.1	7.9	8.4	8.0	7.7	7.7	7.8	7.6	7.6	7.7	7.8	8.1	9.2	9.9	9.5	9.7	12.0	24	13.6
19	10.6	9.2	9.2	9.3	9.1	9.8	8.0	5.1	3.8	3.4	3.5	3.8	3.9	4.1	4.4	4.7	4.8	4.6	5.2	5.6	9.0	9.8	12.5	10.9	24	12.5
20	11.0	11.2	11.4	11.3	11.0	10.9	11.3	11.5	10.1	7.5	7.0	7.3	7.8	8.4	8.6	8.4	8.5	8.3	8.4	9.0	11.2	11.0	10.5	11.1	24	11.5
21	12.5	13.2	13.6	14.5	14.1	14.5	11.5	9.8	8.1	6.8	6.9	6.8	6.8	7.1	7.4	7.5	7.2	7.2	8.0	7.8	7.6	7.7	7.3	6.6	24	14.5
22	6.3	7.1	7.2	7.5	8.2	7.7	7.9	6.0	5.5	6.0	7.5	8.9	10.6	12.2	14.0	15.8	16.1	15.7	16.0	13.9	13.9	11.8	9.4	8.6	24	16.1
23	4.5	4.0	3.1	2.8	3.4	3.5	4.4	5.1	5.3	6.2	7.6	8.4	8.7	AZ	6.9	8.9	10.2	11.0	11.6	12.2	12.9	12.2	11.7	11.3	23	12.9
24	11.2	10.8	11.0	11.2	11.5	11.6	11.2	11.2	11.8	11.5	12.1	13.3	13.1	12.9	13.2	13.7	14.4	14.9	15.2	17.0	18.1	18.6	16.2	16.4	24	18.6
25	17.7	17.2	17.4	17.6	17.7	18.0	16.4	15.2	15.6	16.2	15.4	16.2	17.5	18.3	19.9	20.3	18.8	18.9	18.3	18.1	18.1	17.1	14.3	13.0	24	20.3
26	12.0	10.9	10.6	11.0	12.1	13.1	11.2	10.0	10.2	10.0	10.9	11.2	10.9	12.0	13.7	16.3	17.1	18.3	16.8	15.2	14.6	13.7	13.5	12.3	24	18.3
27	12.8	13.1	14.0	14.4	13.9	14.6	15.9	17.6	18.5	18.4	18.3	17.1	15.6	13.6	13.0	12.7	11.0	11.3	12.8	12.8	14.2	15.4	15.9	19.4	24	19.4
28	16.5	17.4	18.9	17.7	17.9	16.3	13.0	10.4	7.6	5.9	4.8	4.6	3.7	4.9	4.6	4.8	4.4	5.0	4.3	4.9	5.1	4.9	5.5	5.7	24	18.9
29	9.6	10.2	10.6	10.5	9.6	9.5	9.1	8.5	6.1	7.2	5.6	4.0	4.4	5.0	5.2	6.2	7.7	7.9	7.8	8.2	8.6	8.4	8.3	8.3	24	10.6
30	8.8	9.2	9.4	9.5	7.7	8.1	6.7	6.1	5.4	5.2	5.5	5.6	5.6	5.6	6.0	5.9	5.9	6.1	6.7	7.0	7.5	12.6	14.1	12.0	24	14.1
31	9.7	10.9	7.2	3.7	6.1	7.3	5.9	4.4	2.1	2.8	3.9	4.2	5.2	6.0	6.1	5.6	4.9	5.4	6.1	5.6	5.2	5.7	6.8	7.2	24	10.9
NO.:	31	31	31	31	31	31	31	31	31	30	31	31	31	30	31	31	31	31	31	31	31	31	31	31		
MAX:	19.4	19.9	18.9	23.7	17.9	18.2	20.8	24.1	26.2	21.9	29.5	30.9	32.3	32.3	33.4	34.2	35.4	34.8	37.4	37.0	32.8	18.6	17.5	19.4		
AVG:	10.50	10.88	10.85	10.74	10.61	10.45	9.88	9.13	8.64	7.89	8.71	8.75	8.85	8.82	8.78	9.05	9.10	9.24	9.74	10.34	10.61	10.47	10.19	10.13		

MONTHLY OBSERVATIONS: 742 MONTHLY MEAN: 9.69 MONTHLY MAX: 37.4

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.

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Figure A-7. AQS AMP350 Raw Data Report — May 2024 (POC 3, method 636). May 9 carries the qualifier rg on 23 hours.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 3
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution
MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (636) Teledyne T640 at 5.0 LPM w/Network
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: JULY 2024

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

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	5.9	5.4	5.3	5.1	5.5	5.9	6.1	6.6	7.3	7.1	7.4	7.8	7.2	6.9	7.5	5.8	5.1	5.3	5.4	5.1	5.0	5.3	24	7.8
2	5.6	5.8	6.2	6.6	7.0	7.2	8.1	7.5	8.3	8.3	7.0	6.8	AZ	AZ	7.9	7.4	6.9	7.2	7.9	8.3	8.8	9.8	11.1	10.6	22	11.1
3	10.9	11.2	11.2	12.2	12.0	12.2	12.9	14.3	12.8	11.8	11.6	10.6	11.2	10.5	10.3	8.6	10.3	10.3	8.2	8.5	8.8	10.2	12.2	11.5	24	14.3
4	10.7	10.6	9.5	8.7	8.4	9.5	10.2	9.0	8.8	8.1	8.6	9.3	9.2	9.3	9.6	12.3	10.0	9.8	9.0	8.1	19.1	16.5	20.3	15.3	24	20.3
5	12.0	10.6	10.2	9.0	8.3	9.4	8.6	8.4	8.0	7.9	7.7	4.6	5.4	6.0	4.6	4.2	5.0	4.9	4.8	4.6	5.8	6.4	6.0	5.8	24	12.0
6	6.4	6.2	6.7	7.5	7.5	6.6	5.9	4.7	4.0	3.8	3.7	3.9	4.1	4.2	4.2	4.0	3.8	3.9	3.8	4.3	5.1	7.2	5.9	5.8	24	7.5
7	6.6	7.3	7.6	7.2	6.9	7.0	6.7	6.2	5.9	5.7	6.1	6.7	6.7	6.7	6.8	6.9	6.6	6.7	8.6	9.4	9.8	10.9	11.5	12.6	24	12.6
8	12.2	11.7	11.5	12.1	12.3	11.1	11.2	13.4	15.0	15.1	13.6	13.3	12.3	11.3	11.7	10.6	8.9	6.2	6.7	7.6	7.3	6.2	5.8	6.0	24	15.1
9	6.0	6.6	6.9	7.2	6.6	5.4	5.7	6.2	6.3	4.7	2.9	2.9	3.1	3.5	3.3	2.8	2.7	2.7	3.2	3.1	3.1	4.0	4.0	3.9	24	7.2
10	4.5	5.0	5.3	5.1	5.8	7.4	4.5	3.6	3.7	4.1	4.4	4.4	4.7	4.7	4.8	4.7	4.4	4.6	4.6	4.8	5.5	5.9	6.6	7.2	24	7.4
11	7.8	7.8	9.0	11.5	7.5	6.7	7.9	6.3	6.2	5.3	5.4	4.8	4.4	4.8	5.2	5.7	6.1	6.2	6.1	7.0	9.2	7.8	7.5	8.4	24	11.5
12	10.0	10.1	10.4	10.9	10.9	11.0	11.0	11.6	10.6	9.4	9.0	AZ	10.0	10.0	9.7	8.6	8.6	8.8	10.2	10.6	13.2	11.3	12.2	14.7	23	14.7
13	15.1	15.4	15.9	16.2	15.9	15.4	14.0	13.0	12.0	11.7	10.7	10.4	11.9	10.4	10.0	10.2	9.8	10.0	10.1	10.9	11.0	6.7	6.3	6.7	24	16.2
14	7.3	8.2	9.0	9.7	10.4	10.5	11.1	11.2	11.1	10.6	10.2	10.5	9.9	9.5	9.7	10.4	9.7	9.5	9.8	9.4	9.3	9.2	8.1	7.2	24	11.2
15	6.1	6.5	7.0	7.4	8.4	9.4	9.6	10.0	10.0	10.8	10.9	10.4	10.1	11.5	12.3	12.4	12.9	12.7	12.7	12.9	13.8	13.6	13.1	11.6	24	13.8
16	11.3	10.7	9.8	9.4	9.0	8.6	8.9	9.7	9.4	8.7	8.2	7.4	7.3	7.1	7.4	7.7	7.8	7.1	5.5	6.9	7.0	6.6	7.2	7.5	24	11.3
17	7.8	8.5	8.8	8.9	8.6	8.4	7.5	7.0	6.0	5.5	5.8	6.0	5.4	5.2	5.4	5.8	5.5	5.3	5.4	5.7	6.3	6.7	6.3	5.6	24	8.9
18	5.5	5.3	5.3	5.0	5.1	5.2	5.3	5.0	5.2	5.7	6.0	6.6	6.9	6.9	7.2	6.6	3.7	3.5	4.4	3.9	5.1	4.8	5.0	4.9	24	7.2
19	5.3	5.8	5.5	5.8	5.5	7.3	7.4	7.3	7.2	6.1	5.3	4.6	3.9	4.6	4.9	4.7	4.1	4.0	3.3	2.5	3.2	4.1	7.3	4.9	24	7.4
20	5.0	5.6	4.8	4.5	5.9	6.5	6.6	5.3	4.8	4.8	5.0	4.7	4.4	4.5	4.5	4.7	4.9	5.2	5.4	5.7	6.6	7.2	8.3	9.0	24	9.0
21	9.4	9.3	9.3	9.6	8.7	8.5	7.1	6.6	6.4	6.6	7.1	7.4	7.3	7.0	4.4	5.1	3.9	3.2	3.6	3.7	4.1	4.2	4.5	4.8	24	9.6
22	7.1	14.3	6.7	6.5	6.4	5.5	5.2	5.6	6.9	8.3	9.3	9.6	10.3	10.3	10.4	9.7	9.1	7.5	6.9	6.6	7.1	7.7	8.3	8.8	24	14.3
23	8.3	10.0	9.6	10.2	8.6	8.0	7.9	7.1	6.7	5.4	5.2	5.2	5.1	5.6	5.9	5.5	5.0	5.0	5.0	5.8	4.9	4.7	5.4	5.8	24	10.2
24	6.5	5.9	6.0	5.9	5.8	4.4	4.6	4.5	4.7	4.0	3.0	3.0	2.5	4.7	5.3	6.6	6.6	6.9	6.9	7.2	7.8	8.3	8.4	8.3	24	8.4
25	8.4	8.4	8.7	9.4	10.2	8.8	8.0	7.4	6.2	5.7	7.4	8.8	AZ	AZ	10.2	11.1	12.1	12.2	12.6	15.6	17.5	18.0	17.9	18.3	22	18.3
26	17.9	17.8	17.6	17.5	17.7	17.3	16.8	15.5	14.4	13.7	13.1	13.6	14.4	14.9	15.2	16.2	14.2	7.9	6.1	4.5	5.5	6.0	6.2	6.6	24	17.9
27	6.7	7.7	8.2	8.6	8.1	8.5	8.9	9.0	8.8	8.1	6.7	7.0	5.4	4.9	4.9	5.1	5.2	5.3	5.4	5.6	6.1	7.7	7.7	7.0	24	9.0
28	6.3	6.1	5.4	5.2	5.1	5.2	5.1	5.2	5.5	5.1	4.8	4.5	4.7	4.6	4.4	4.4	4.4	4.8	5.2	5.7	6.7	7.1	7.0	6.0	24	7.1
29	5.7	6.4	6.6	6.3	6.2	6.4	6.6	6.8	6.6	6.2	5.2	4.6	5.0	4.9	5.3	4.4	4.6	4.8	4.8	5.3	6.3	7.2	7.2	7.7	24	7.7
30	7.5	7.2	7.1	7.4	7.5	7.7	7.7	7.2	7.5	7.1	6.4	6.1	6.5	7.8	8.7	8.5	8.6	9.9	10.4	12.0	11.5	12.5	14.1	12.4	24	14.1
31	12.2ra	11.6ra	10.7ra	11.7ra	13.0ra	13.5ra	16.0ra	17.4ra	18.0ra	17.6ra	17.3ra	16.4ra	14.4ra	15.4ra	16.9ra	20.6ra	25.9ra	28.5ra	29.6ra	30.4ra	30.6ra	30.4ra	32.0ra	31.5ra	24	32.0
NO.:	31	31	31	31	31	31	31	31	31	31	31	30	29	29	31	31	31	31	31	31	31	31	31	31		
MAX:	17.9	17.8	17.6	17.5	17.7	17.3	16.8	17.4	18.0	17.6	17.3	16.4	14.4	15.4	16.9	20.6	25.9	28.5	29.6	30.4	30.6	30.4	32.0	31.5		
AVG:	8.33	8.71	8.46	8.66	8.54	8.51	8.47	8.32	8.16	7.82	7.58	7.37	7.38	7.54	7.69	7.82	7.70	7.43	7.46	7.80	8.76	8.84	9.30	9.09		

MONTHLY OBSERVATIONS: 739 MONTHLY MEAN: 8.16 MONTHLY MAX: 32.0

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.

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Figure A-8. AQS AMP350 Raw Data Report — July 2024 (POC 3, method 636). July 31 carries the qualifier ra on all 24 hours.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT

Jul. 24, 2026

(88101) PM2.5 - Local Conditions

SITE ID: 28-049-0021 POC: 3
COUNTY: (049) Hinds
CITY: (36000) Jackson
SITE ADDRESS: 3925 Sunset Drive
SITE COMMENTS:
MONITOR COMMENTS:

STATE: (28) Mississippi
AQCR: (005) MOBILE-PENSACOLA-PANAMA CITY-SOUTH
URBANIZED AREA: (3560) JACKSON, MS
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:
LATITUDE: 32.346722
LONGITUDE: -90.225667
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 106
PROBE HEIGHT: 5

SUPPORT AGENCY: (0703) Mississippi DEQ, Office Of Pollution
MONITOR TYPE: SLAMS
COLLECTION AND ANALYSIS METHOD: (636) Teledyne T640 at 5.0 LPM w/Network
PQAO: (0703) Mississippi DEQ, Office Of Pollution

REPORT FOR: AUGUST 2024

DURATION: 1 HOUR
UNITS:Micrograms/cubic meter (LC)
MIN DETECTABLE: .1

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	31.7ra	30.0ra	27.9ra	29.1ra	28.7ra	27.3ra	28.8ra	28.1ra	30.2ra	31.0ra	29.1ra	29.3ra	31.3ra	34.5ra	33.4ra	32.4ra	33.9ra	33.4ra	32.4ra	32.4ra	31.6ra	30.6ra	29.0ra	27.7ra	24	34.5
2	26.8ra	25.7ra	25.9ra	24.4ra	23.8ra	23.1ra	21.9ra	20.7ra	22.8ra	22.1ra	21.8ra	20.8ra	21.2ra	20.9ra	21.1ra	21.2ra	21.2ra	20.4ra	19.7ra	19.7ra	20.1ra	18.9ra	18.6ra	18.7ra	24	26.8
3	18.5	18.4	18.8	18.9	18.9	20.3	19.2	14.9	10.8	9.0	9.0	9.1	9.1	8.2	7.9	7.7	7.9	8.3	8.1	8.7	9.3	8.1	8.2	9.3	24	20.3
4	10.0	11.1	10.1	10.5	10.3	12.5	9.8	8.8	7.8	7.3	7.3	7.3	8.1	8.4	8.6	8.2	8.4	7.7	7.9	7.9	8.3	8.6	8.0	8.7	24	12.5
5	9.2	9.5	10.1	10.5	12.0	12.9	13.2	11.4	9.3	9.2	8.3	8.5	10.2	10.3	10.2	10.5	10.6	10.4	10.4	10.7	10.7	12.6	12.7	13.7	24	13.7
6	14.5	15.0	13.8	12.1	11.9	11.8	11.8	14.4	13.9	12.7	12.7	11.8	12.3	12.4	12.9	13.5	14.3	14.2	14.5	15.4	15.6	16.7	18.3	20.0	24	20.0
7	17.1	15.8	15.2	15.4	15.4	15.8	15.8	17.0	15.5	15.0	15.6	15.6	16.3	16.4	16.2	16.4	17.1	17.3	16.6	14.6	13.7	12.6	11.5	10.7	24	17.3
8	8.4	7.4	6.0	7.0	7.2	7.5	6.4	6.1	5.8	5.2	5.0	4.9	AZ	5.4	5.4	5.6	6.2	6.6	6.9	7.6	8.2	9.8	11.7	10.2	23	11.7
9	10.1	10.9	10.5	10.5	10.3	10.3	10.0	7.5	8.1	5.9	5.8	5.7	5.7	5.9	6.0	6.2	6.4	7.0	8.2	8.6	8.5	8.6	8.7	9.0	24	10.9
10	9.4	9.8	9.9	9.7	10.1	10.7	10.3	10.7	9.7	9.9	9.3	10.9	10.1	8.0	6.8	6.7	7.1	7.3	8.8	18.6	11.8	7.9	7.8	7.5	24	18.6
11	7.2	7.4	8.0	8.0	7.8	7.6	8.7	8.5	8.2	8.5	8.2	7.9	7.4	7.4	7.6	7.6	7.4	7.3	7.4	8.6	9.3	9.4	10.3	10.3	24	10.3
12	9.4	10.4	15.4	17.4	17.4	12.7	10.4	9.5	8.9	8.8	10.1	10.3	9.9	8.8	9.2	8.9	8.9	8.4	7.9	8.1	8.8	8.9	10.4	10.0	24	17.4
13	10.5	10.7	10.8	11.3	11.8	12.7	13.0	12.2	11.5	11.3	15.8	13.1	11.8	11.5	11.2	11.1	11.2	11.9	11.5	11.2	12.6	15.3	16.2	17.0	24	17.0
14	15.7	16.1	15.0	14.4	14.8	15.0	15.2	17.1	15.3	15.5	12.6	12.7	14.2	14.0	9.0	8.8	8.5	8.9	7.7	7.7	8.3	8.8	9.2	10.1	24	17.1
15	10.6	11.6	11.9	11.9	11.5	11.9	14.0	12.9	11.9	12.1	13.2	13.4	14.6	14.9	13.8	11.5	9.0	8.4	9.8	10.7	11.2	11.1	11.0	10.4	24	14.9
16	11.3	11.8	11.7	11.4	10.9	11.4	11.1	8.4	7.3	6.2	6.2	6.7	7.9	10.2	10.4	9.9	8.4	7.1	7.2	8.0	8.2	7.9	7.5	7.7	24	11.8
17	8.9	9.2	10.0	11.3	12.5	13.3	13.1	11.0	10.0	8.3	6.9	7.0	6.1	4.6	4.2	5.1	8.7	9.7	8.8	9.2	12.9	9.8	8.7	8.5	24	13.3
18	8.6	9.4	9.2	8.8	8.8	8.8	8.8	8.7	8.4	8.1	7.9	8.2	8.3	8.4	8.7	9.3	9.6	9.4	8.5	8.5	9.4	5.9	6.8	7.4	24	9.6
19	7.4	7.4	7.3	7.4	7.3	7.2	6.7	6.8	6.6	6.5	6.3	5.5	5.2	5.2	5.3	6.2	10.3	6.8	6.5	10.8	9.2	10.5	10.1	10.0	24	10.8
20	10.7	13.6	12.7	12.9	13.0	12.7	12.9	12.0	10.8	10.4	10.7	12.5	16.2	19.4	20.9	20.4	20.5	18.9	17.3	17.1	17.0	23.5	19.9	18.3	24	23.5
21	19.2	19.1	17.9	16.3	16.3	15.9	15.3	13.5	13.9	14.9	16.1	17.4	15.3	15.4	13.6	13.3	13.4	13.0	11.4	11.7	13.2	12.8	13.1	12.6	24	19.2
22	13.3IF	12.5IF	12.8IF	15.8IF	13.3IF	13.1IF	13.3IF	13.2IF	14.8IF	15.6IF	17.3IF	17.6IF	17.2IF	AZ	16.5IF	15.9IF	15.9IF	15.0IF	14.9IF	17.2IF	23.4IF	24.2IF	20.8IF	14.3IF	23	24.2
23	12.9	12.1	11.3	10.9	11.0	9.9	9.5	9.0	9.3	8.7	8.6	8.6	8.3	7.8	8.1	8.0	7.7	7.7	8.2	9.5	10.6	11.2	11.8	12.3	24	12.9
24	13.3	13.6	13.9	14.0	14.9	15.5	16.0	15.8	12.0	9.7	10.0	10.2	11.7	11.2	10.7	10.7	10.9	10.4	10.5	14.0	17.1	13.5	12.3	12.6	24	17.1
25	12.5	13.1	12.1	11.2	11.7	12.5	11.6	9.1	7.9	7.3	6.2	5.8	6.3	6.3	6.8	6.8	6.7	6.7	7.5	8.1	10.2	10.4	9.1	10.5	24	13.1
26	11.3	11.9	12.2	12.2	13.2	13.3	12.8	9.7	9.8	11.0	10.7	11.1	11.0	11.4	11.4	11.2	11.1	11.5	9.6	11.4	12.8	15.2	13.8	14.7	24	15.2
27	14.6	15.4	16.5	18.0	18.3	16.8	21.3	11.0	9.0	9.4	10.4	11.1	11.0	11.0	11.5	11.4	10.5	10.4	11.2	13.2	14.6	14.2	12.2	12.0	24	21.3
28	12.6	12.6	12.9	13.4	14.6	16.7	17.8	18.7	18.1	13.4	10.8	9.4	10.3	10.9	10.6	8.5	5.3	7.7	5.9	4.6	2.2	2.2	3.0	3.1	24	18.7
29	4.1	3.4	3.6	4.0	4.5	4.7	5.1	5.4	4.7	4.1	3.9	3.9	4.6	4.0	4.0	4.3	4.0	5.0	4.8	4.9	5.0	5.4	5.8	5.3	24	5.8
30	5.3	4.9	4.9	5.3	5.1	5.5	5.5	5.6	4.8	4.3	4.2	4.0	3.7	2.7	3.1	3.3	3.4	3.7	4.7	4.9	5.4	5.1	5.0	5.2	24	5.6
31	5.2	5.0	4.9	4.8	4.9	4.8	4.5	4.3	4.9	4.4	4.1	4.4	3.0	2.3	2.7	3.3	3.4	3.8	4.0	4.5	4.6	4.8	4.1	4.5	24	5.2
NO.:	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31		
MAX:	31.7	30.0	27.9	29.1	28.7	27.3	28.8	28.1	30.2	31.0	29.1	29.3	31.3	34.5	33.4	32.4	33.9	33.4	32.4	32.4	31.6	30.6	29.0	27.7		
AVG:	12.27	12.41	12.36	12.54	12.65	12.72	12.70	11.68	11.03	10.51	10.45	10.47	10.94	10.59	10.57	10.45	10.58	10.46	10.28	11.23	11.74	11.76	11.47	11.36		

MONTHLY OBSERVATIONS: 742 MONTHLY MEAN: 11.39 MONTHLY MAX: 34.5

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.

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Figure A-9. AQS AMP350 Raw Data Report — August 2024 (POC 3, method 636). August 1 and 2 each carry the qualifier ra on all 24 hours. August 22 carries the informational qualifier IF (Fire – Canadian) on 23 hours; that day is not part of this request.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA REPORT Jul. 24, 2026

QUALIFIER CODES:

Qualifier Code	Qualifier Description	Qualifier Type
AH	Sample Flow Rate or CV out of Limits.	NULL
AN	Machine Malfunction.	NULL
AV	Power Failure.	NULL
AZ	Q C Audit.	NULL
BA	Maintenance/Routine Repairs.	NULL
BL	QA Audit.	NULL
IF	Fire - Canadian.	INFORM
IM	Prescribed Fire.	INFORM
IT	Wildfire-U. S.	INFORM
ra	African Dust.	REQEXC
rf	Fire - Canadian.	REQEXC
rg	Fire - Mexico/Central America.	REQEXC
rh	Fireworks.	REQEXC
rm	Prescribed Fire.	REQEXC
rt	Wildfire-U. S.	REQEXC

Note: Qualifier codes with regional concurrence are shown in upper case,
and those without regional concurrence are shown in lower case.

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Figure A-10. AQS AMP350 Raw Data Report — AQS qualifier-code legend, listing each qualifier code, its description and its type (NULL, INFORM or REQEXC).

Appendix B: Event-Specific Technical Documentation

This appendix reproduces the measured hourly PM2.5 record underlying each event narrative, taken from the regulatory data series for the Hinds Community College monitor (AQS 28-049-0021): POC 23, method code 736 for 2023 and POC 3, method code 636 for 2024. These are the same corrected Teledyne T640 values used for design-value calculations and reported in Table A and Table B, not the uncorrected real-time (method 236) values. Tables B-1 through B-8 give the hourly concentrations for every event day, together with the two pre-event buildup days (February 1 and February 19, 2024) and the two continuously flagged days that are not part of this request (May 23 and 24, 2023), because all four are discussed in the narratives. Table B-9 adds the co-located Jackson NCORE coarse-particle record for the Saharan dust event.

Reading the tables. Hours are given as hour-ending local standard time (LST), the basis on which AQS stores and averages the data year-round: the row labelled 17:00 is the observation covering 16:00–17:00 LST, and the 24 rows of each column are exactly the 24 observations that form that day's regulatory 24-hour average. On dates falling within daylight saving time — May 21–26 and October 3–5, 2023, May 9, 2024, and July 31 – August 2, 2024 — the event narratives and figures quote wall-clock time (CDT), which is one hour later than the LST label used here; a value shown at 12:00 in Table B-3 is the 1:00 p.m. CDT peak described in the May 21 narrative. The AMP350 report reproduced in Appendix A labels the same observations by hour beginning, one hour earlier again. Daily averages are shown at full precision and are the values that, truncated to one decimal place under 40 CFR Part 50 Appendix N, appear in Table A and Table B. A dash indicates an hour with no valid measurement (a null-coded observation).

Table B-1. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — February 28, 2023 — prescribed fire.

Hour ending (LST)	February 28
01:00	38.9
02:00	39.8
03:00	36.2
04:00	31.1
05:00	36.3
06:00	35.4
07:00	33.2
08:00	33.1
09:00	24.4
10:00	25.6
11:00	27.3
12:00	28.4
13:00	27.2
14:00	22.1
15:00	22.7
16:00	28.8
17:00	74.0
18:00	37.7
19:00	26.4
20:00	31.6
21:00	54.5
22:00	63.9
23:00	53.1
24:00	42.1
24-hour average	36.4083
Maximum hour	74.0
Valid hours	24

Table B-2. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — March 6–9, 2023 — Mexico/Central America wildfire and prescribed fire.

Hour ending (LST)	March 6	March 7	March 8	March 9
01:00	27.8	32.2	35.1	28.0

Hour ending (LST)	March 6	March 7	March 8	March 9
02:00	34.9	27.3	32.3	27.2
03:00	47.7	24.4	29.8	26.2
04:00	53.4	26.9	28.3	26.6
05:00	49.3	27.0	27.4	26.2
06:00	47.9	25.1	26.0	25.7
07:00	48.4	25.4	25.1	26.5
08:00	44.4	25.5	25.8	26.6
09:00	28.4	28.5	30.7	27.5
10:00	15.7	29.6	28.6	29.7
11:00	14.2	27.1	29.0	26.8
12:00	12.8	28.1	30.5	25.3
13:00	12.5	26.1	27.4	23.5
14:00	12.6	26.8	26.9	22.3
15:00	13.8	31.4	25.9	20.4
16:00	15.9	29.6	27.7	18.4
17:00	17.6	40.9	23.5	16.3
18:00	15.4	28.9	22.5	17.9
19:00	20.1	22.4	23.7	20.9
20:00	25.3	23.4	25.5	24.6
21:00	27.3	24.1	26.2	28.3
22:00	27.4	28.9	29.7	28.2
23:00	32.5	34.3	29.3	30.2
24:00	33.9	35.1	28.2	32.7
24-hour average	28.3000	28.2917	27.7125	25.2500
Maximum hour	53.4	40.9	35.1	32.7
Valid hours	24	24	24	24

Table B-3. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — May 21–26, 2023 — Canadian wildfire.

Hour ending (LST)	May 21	May 22	May 23	May 24	May 25	May 26
01:00	17.7	24.0	33.1	7.6	12.5	27.3
02:00	20.0	22.8	24.8	8.1	12.0	26.4
03:00	20.8	26.8	19.0	12.2	12.7	25.3
04:00	25.0	32.8	17.8	15.2	12.2	26.7
05:00	27.8	33.3	13.6	15.6	12.3	29.0
06:00	27.3	33.6	9.3	16.1	13.3	27.6
07:00	26.9	31.8	9.7	15.3	13.2	25.0
08:00	26.1	32.7	7.3	15.6	16.2	24.3
09:00	29.3	32.2	6.7	14.7	17.6	24.0
10:00	33.5	32.3	8.4	14.7	18.9	23.5
11:00	33.9	32.8	8.9	16.0	18.5	21.7
12:00	35.4	33.7	8.9	14.1	19.4	20.8
13:00	35.1	33.2	8.5	12.3	20.4	20.5
14:00	34.0	33.2	8.5	11.4	22.8	20.5
15:00	31.8	32.9	8.1	10.2	22.5	19.4
16:00	28.5	32.1	7.3	7.8	23.3	19.4
17:00	27.5	31.5	8.4	9.2	24.2	18.8
18:00	26.9	32.0	9.5	9.7	23.4	19.1
19:00	26.2	33.8	10.3	13.7	23.9	19.7
20:00	26.4	34.4	13.3	12.0	24.4	20.8
21:00	25.7	33.4	13.7	13.1	25.0	24.7
22:00	25.2	33.2	12.6	13.2	25.4	25.5
23:00	25.4	34.4	11.8	12.1	25.8	24.3

Hour ending (LST)	May 21	May 22	May 23	May 24	May 25	May 26
24:00	24.7	34.5	10.8	11.6	29.3	24.4
24-hour average	27.5458	31.9750	12.0958	12.5625	19.5500	23.2792
Maximum hour	35.4	34.5	33.1	16.1	29.3	29.0
Valid hours	24	24	24	24	24	24

Table B-4. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — October 3–5, 2023 — Canadian wildfire.

Hour ending (LST)	October 3	October 4	October 5
01:00	10.9	26.6	29.0
02:00	12.9	24.9	29.6
03:00	11.1	24.4	28.5
04:00	11.6	24.0	28.5
05:00	11.4	23.7	28.7
06:00	11.7	25.3	28.5
07:00	12.0	25.5	28.9
08:00	10.6	26.4	28.7
09:00	16.3	29.2	27.7
10:00	17.8	28.7	25.7
11:00	14.9	—	23.4
12:00	13.9	25.3	22.1
13:00	14.6	24.4	21.5
14:00	14.7	22.8	20.0
15:00	16.3	23.3	20.5
16:00	17.2	23.5	19.8
17:00	18.7	22.8	21.3
18:00	22.1	26.2	21.4
19:00	32.1	30.7	21.9
20:00	34.9	26.5	20.8
21:00	34.6	26.3	21.5
22:00	40.2	27.1	21.2
23:00	40.9	27.6	20.6
24:00	35.2	28.2	19.1
24-hour average	19.8583	25.8000	24.1208
Maximum hour	40.9	30.7	29.6
Valid hours	24	23	24

Table B-5. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — February 1–3, 2024 — prescribed fire (February 1 is the pre-event buildup day).

Hour ending (LST)	February 1	February 2	February 3
01:00	10.8	36.9	29.6
02:00	10.9	39.3	34.9
03:00	13.2	37.4	28.8
04:00	20.7	36.3	24.6
05:00	19.5	31.4	23.7
06:00	19.3	30.4	24.2
07:00	19.1	28.3	27.3
08:00	20.1	29.6	24.3
09:00	22.0	41.6	22.8
10:00	15.7	36.9	19.4
11:00	11.9	24.2	18.3
12:00	8.9	14.2	19.7
13:00	6.9	12.4	19.6

Hour ending (LST)	February 1	February 2	February 3
14:00	5.8	10.4	24.8
15:00	7.2	13.3	27.4
16:00	7.6	9.1	20.9
17:00	6.1	6.6	20.8
18:00	6.8	10.2	22.5
19:00	13.7	16.0	26.4
20:00	30.3	18.7	25.7
21:00	26.4	22.8	33.6
22:00	40.6	18.6	25.0
23:00	53.2	17.4	13.9
24:00	39.1	23.5	17.6
24-hour average	18.1583	23.5625	23.9917
Maximum hour	53.2	41.6	34.9
Valid hours	24	24	24

Table B-6. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — February 19–21, 2024 — prescribed fire (February 19 is the pre-event buildup day).

Hour ending (LST)	February 19	February 20	February 21
01:00	11.9	43.7	35.0
02:00	12.8	41.9	36.9
03:00	15.7	31.0	36.6
04:00	16.9	35.2	39.9
05:00	16.7	34.8	43.9
06:00	19.3	31.0	46.0
07:00	22.2	27.4	50.6
08:00	23.4	26.9	50.0
09:00	23.0	29.4	40.2
10:00	15.7	22.4	15.7
11:00	12.8	16.5	9.7
12:00	10.3	11.0	11.4
13:00	10.2	8.3	14.7
14:00	8.4	8.3	19.3
15:00	7.4	7.8	23.1
16:00	6.9	6.8	30.6
17:00	5.9	6.9	31.0
18:00	6.3	6.0	16.1
19:00	9.2	7.0	16.9
20:00	17.1	10.3	17.2
21:00	28.0	17.7	17.8
22:00	32.4	19.3	13.9
23:00	28.3	28.3	20.9
24:00	45.0	31.1	22.4
24-hour average	16.9083	21.2083	27.4917
Maximum hour	45.0	43.7	50.6
Valid hours	24	24	24

Table B-7. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — May 9, 2024 — Mexico/Central America wildfire.

Hour ending (LST)	May 9
01:00	11.7
02:00	14.0
03:00	15.0

Hour ending (LST)	May 9
04:00	15.5
05:00	17.4
06:00	18.2
07:00	20.8
08:00	24.1
09:00	26.2
10:00	—
11:00	29.5
12:00	30.9
13:00	32.3
14:00	32.3
15:00	33.4
16:00	34.2
17:00	35.4
18:00	34.8
19:00	37.4
20:00	37.0
21:00	32.8
22:00	18.4
23:00	5.6
24:00	6.5
24-hour average	24.4957
Maximum hour	37.4
Valid hours	23

Table B-8. Hourly PM2.5 concentrations (µg/m³) at the Hinds CC monitor — July 31 – August 2, 2024 — Saharan dust.

Hour ending (LST)	July 31	August 1	August 2
01:00	12.2	31.7	26.8
02:00	11.6	30.0	25.7
03:00	10.7	27.9	25.9
04:00	11.7	29.1	24.4
05:00	13.0	28.7	23.8
06:00	13.5	27.3	23.1
07:00	16.0	28.8	21.9
08:00	17.4	28.1	20.7
09:00	18.0	30.2	22.8
10:00	17.6	31.0	22.1
11:00	17.3	29.1	21.8
12:00	16.4	29.3	20.8
13:00	14.4	31.3	21.2
14:00	15.4	34.5	20.9
15:00	16.9	33.4	21.1
16:00	20.6	32.4	21.2
17:00	25.9	33.9	21.2
18:00	28.5	33.4	20.4
19:00	29.6	32.4	19.7
20:00	30.4	32.4	19.7
21:00	30.6	31.6	20.1
22:00	30.4	30.6	18.9
23:00	32.0	29.0	18.6
24:00	31.5	27.7	18.7
24-hour average	20.0667	30.5750	21.7292

Hour ending (LST)	July 31	August 1	August 2
Maximum hour	32.0	34.5	26.8
Valid hours	24	24	24

Table B-9. Hourly PM2.5 and PM10 concentrations (µg/m³) at the co-located Jackson NCORE monitor (AQS 28-049-0020, approximately 4 km from Hinds CC) — July 31 – August 2, 2024 Saharan dust event.

Hour ending (LST)	July 31 PM2.5	July 31 PM10	August 1 PM2.5	August 1 PM10	August 2 PM2.5	August 2 PM10
01:00	—	—	—	—	—	—
02:00	10.6	33.1	32.2	103.4	28.8	90.3
03:00	10.1	29.7	32.5	103.2	27.4	86.8
04:00	9.7	26.7	30.5	95.8	26.1	80.5
05:00	10.3	30.1	30.7	95.6	25.2	79.9
06:00	12.8	49.4	31.9	113.9	25.6	92.7
07:00	14.7	50.2	30.8	110.2	23.9	85.3
08:00	16.7	55.0	29.3	104.9	23.9	88.9
09:00	17.7	54.5	29.9	105.5	21.8	75.6
10:00	18.2	60.2	32.1	116.2	22.6	77.5
11:00	16.5	52.7	31.8	114.9	22.1	77.5
12:00	16.4	54.5	30.7	111.4	21.5	72.0
13:00	16.5	56.9	30.8	117.0	20.7	69.4
14:00	15.2	49.2	32.7	119.4	21.5	77.4
15:00	14.4	47.1	35.2	140.0	22.3	89.0
16:00	15.1	53.1	35.3	142.3	22.4	86.6
17:00	19.4	69.6	35.4	129.6	22.4	81.2
18:00	26.6	96.6	35.8	135.7	22.6	80.5
19:00	28.5	107.4	35.2	135.1	22.2	83.6
20:00	30.9	106.8	33.6	120.0	21.4	66.7
21:00	31.7	111.4	35.1	122.2	19.3	63.2
22:00	32.6	108.4	33.5	120.0	19.7	62.4
23:00	32.0	108.5	32.5	109.4	19.8	60.3
24:00	31.7	104.1	31.5	101.6	19.3	56.9
24-hour average	20.0	67	32.4	115	22.5	76
PM2.5 / PM10 ratio	0.30		0.28		0.30	

Note. NCORE PM10 is parameter 81102, POC 1, method code 239; NCORE PM2.5 is parameter 88101, POC 3, method code 638. The 24-hour averages shown are the AQS values of record for each parameter, and the ratio is formed from the two co-located NCORE measurements, which share a single sampling location. The event narrative forms the same ratio using the Hinds CC PM2.5 value over the NCORE PM10 value, because Hinds CC is the monitor for which exclusion is requested; that cross-site ratio is 0.30, 0.27 and 0.29 on July 31, August 1 and August 2 respectively. Both bases give a coarse-dominated ratio near 0.3 — roughly 70 percent of the measured mass in the 2.5–10 µm fraction — against a PM2.5/PM10 ratio typically above 0.7 for wildfire smoke.

Appendix C: Supporting Analyses and Documentation

The analyses and supporting documentation required to establish the clear causal relationship, the not-reasonably-controllable-or-preventable showing and the natural-event classification are presented within the event narratives and appendices of this demonstration rather than as separate attachments. Table C-1 indexes each category of supporting documentation to the place it appears.

Table C-1. Index of supporting analyses and documentation.

Category	Documentation provided	Where it appears
C.1 Meteorological analyses	WPC surface analyses; 500 mb upper-air analysis; Jackson (KJAN, station 72235) radiosonde soundings; HYSPLIT back-trajectories at 10 m, 50 m, and 1,500 m; NWS Jackson Fire Weather Planning Forecast mixing height and transport wind	Within each event narrative; fire-weather values consolidated in the MFC permit-eligibility table under “Adherence to Mississippi’s Smoke Management Guidelines and BSMPs”
C.2 Fire and smoke documentation	NOAA HMS smoke polygons and fire-detection points; GOES-East True Color and GeoColor imagery; AirNow-Tech Navigator imagery; NOAA/NESDIS Satellite Smoke Text Products; MFC prescribed-fire permit records	Within each event narrative; permit records in full in Appendix F
C.3 Chemical and physical evidence	Hourly PM2.5 at Hinds CC; eight-year (2018–2025) same-calendar-day historical cross-sections; co-located Jackson NCORE PM10 and PM2.5/PM10 ratio; PM2.5 chemical speciation (August 1, 2024)	Hourly records tabulated in Appendix B (Tables B-1 to B-9); cross-sections and speciation figures within the event narratives
C.4 Compliance documentation	MFC burn-permit eligibility screen (mixing height and transport wind thresholds); ventilation-index calculation for each prescribed-fire day; BSMP and Mississippi VSMG adherence; statewide approved/denied permit counts and near-field acreage	“Not Reasonably Controllable or Preventable Criterion Analysis” section; permit-level records in Appendix F (Tables F-1 and F-2)

Appendix D: Quality Assurance and Regulatory Information

D.1 Monitoring method, data quality and completeness

All PM2.5 data for site 28-049-0021 (parameter 88101, PM2.5 – Local Conditions) were collected with a Teledyne API Model T640 analyzer, designated by EPA as a Federal Equivalent Method for PM2.5 under EQPM-0516-236 (40 CFR Part 53), and were collected and quality-assured under MDEQ's Quality Assurance Project Plan for Ambient Air Quality Monitoring of Criteria and NCore Multi-Pollutants, Revision 2.0 (July 25, 2024), in accordance with 40 CFR Part 58. EPA Region 4, Laboratory Services and Applied Science Division, approved that quality assurance project plan on November 17, 2023 (Revision 1.0, May 2023; LSASD Project #23-0271). Revision 2.0 updated staff assignments on the approval and distribution pages and removed wind-speed and wind-direction requirements at two coastal sites; it made no change to the PM2.5 methods, measurement quality objectives or validation criteria that apply at the Hinds Community College monitor.

The data of record used for design-value calculation are POC 23, method code 736 (Teledyne T640 at 5.0 LPM, corrected) for 2018–2023, and POC 3, method code 636 (Teledyne T640 at 5.0 LPM with Network Data Alignment enabled) for 2024–2025. The AQS monitor record shows POC 23 closing on December 31, 2023 and method code 636 beginning on POC 3 on January 1, 2024, so the method transition falls exactly on the calendar-year boundary and no single year of the design-value period combines the two. The parallel POC 3, method code 236 series recorded at this site through 2023 is the uncorrected real-time feed; it carries a documented instrument high bias, is not the data of record, and is not used anywhere in this demonstration.

Quality control of the analyzer follows 40 CFR Part 58, Appendix A. A one-point flow-rate verification is performed at least every 30 days against a NIST-traceable certified transfer standard, with an acceptance criterion of ±4.1 percent of the standard, and an independent flow-rate audit is performed twice each calendar year, five to seven months apart, against a separate audit standard held to the same criterion. Table D-1 summarizes the complete flow-rate record for the design-value period.

Table D-1. Flow-rate quality-control record for the Hinds Community College PM2.5 monitor (AQS 28-049-0021), 2023–2025.

Year	POC / method	Verifications (n)	Mean % difference	Range (%)	Semiannual audits (n)	Audit % differences
2023	23 / 736	23	−0.24	−2.53 to +2.39	2	−0.79, 0.00
2024	3 / 636	26	+0.23	−1.58 to +2.46	2	−2.62, +1.80
2025	3 / 636	35	−0.67	−2.35 to +1.00	2	+1.20, +1.40

Note. Source: AQS quality-assurance records (flow-rate verification and flow-rate audit transactions) for site 28-049-0021. Percent difference is the monitor flow rate relative to the certified transfer or audit standard; positive values indicate the monitor read high. The acceptance criterion for both the one-point verification and the semiannual audit is ±4.1 percent of the standard (40 CFR Part 58, Appendix A, §§3.2.1 and 3.2.2; MDEQ quality assurance project plan, Revision 2.0, Table 11). All 84 verifications and all 6 audits performed over the 2023–2025 design-value period met the criterion. The largest single departure in the entire three-year record was −2.62 percent, at the audit of April 1, 2024.

Total measurement system bias is assessed through EPA's Performance Evaluation Program, in which an EPA contractor operates an independent Federal Reference Method sampler collocated with the MDEQ monitor and the resulting filter is weighed by an independent laboratory. Three such audits were conducted at the Hinds Community College monitor during the design-value period, one in each year; the results are given in Table D-2.

Table D-2. Independent performance evaluation audits at the Hinds Community College PM2.5 monitor (AQS 28-049-0021), 2023–2025.

Audit date	Reference sampler (µg/m³)	Monitor (µg/m³)	Difference (µg/m³)	% difference	Method code	Valid pair
October 18, 2023	15.1	17.8	+2.7	+17.9	736	Yes
November 20, 2024	4.2	3.6	−0.6	−14.3	636	Yes

Audit date	Reference sampler (µg/m³)	Monitor (µg/m³)	Difference (µg/m³)	% difference	Method code	Valid pair
December 3, 2025	8.7	9.9	+1.2	+13.8	636	Yes

Note. Source: AQS performance evaluation audit records for site 28-049-0021. All three audits were performed by Battelle under EPA's national Performance Evaluation Program contract using a BGI PQ200 Federal Reference Method sampler, and all three are recorded in AQS as valid pairs. Percent difference is the monitor value relative to the reference value. Under 40 CFR Part 58, Appendix A, §§3.2.4 and 4.2.5, bias is assessed for the primary quality assurance organization as a whole over a three-year period, not for an individual audit or an individual site; the measurement quality objective is ±10 percent for values above 3.0 µg/m³. Individual pairs at low concentration yield large percentage differences from small absolute differences: the November 20, 2024 result is an absolute difference of 0.6 µg/m³.

The measurement quality objectives for PM2.5 are an upper 90 percent confidence limit on the coefficient of variation of 10 percent for precision and ±10 percent for total bias (40 CFR Part 58, Appendix A, §2.3.1.1). As MDEQ's quality assurance project plan provides, these statistics are calculated by EPA within AQS and are aggregated across the primary quality assurance organization — Mississippi DEQ, PQAO 0703 — rather than computed by the monitoring agency for a single site; MDEQ reviews them quarterly through the AQS AMP256 Data Quality Indicator and AMP600 Certification Evaluation and Concurrence reports. Precision is estimated from collocated sampler pairs, which under 40 CFR Part 58, Appendix A, §3.2.3 are operated at 15 percent of the monitors in the organization; within MDEQ those pairs operate at the Jackson NCore station and at Hattiesburg, and the Hinds Community College monitor accordingly has no collocated sampler of its own. Across the 23 valid performance evaluation pairs recorded for PQAO 0703 over 2023–2025, the mean difference between the monitors and the independent reference samplers is −2.5 percent.

No data on any day for which exclusion is requested were invalidated, and no quality-control check bracketing those days failed. Each of the twenty days carries a full 24 hourly observations. On eighteen of the twenty days all 24 hours are valid measurements; on October 4, 2023 and May 9, 2024 one hour is coded AZ (quality-control audit), leaving 23 valid hours, so both days remain well above the minimum hourly data capture required for a valid 24-hour average under 40 CFR Part 50, Appendix N. The nearest flow-rate verification or audit on either side of each of the twenty days agreed with the standard to within 2.33 percent, against the ±4.1 percent criterion. The concentrations on which this request rests are large relative to that measurement uncertainty: the highest event-day 24-hour average is 36.4 µg/m³, some 3.9 times the measured three-year mean of 9.3 µg/m³.

Data completeness satisfies 40 CFR Part 50 Appendix N for every year of the design-value period. All four calendar quarters in 2023, 2024 and 2025 are complete quarters, with a minimum of 88 valid sampled days in any quarter of the measured record (85 after the requested exclusions are applied), well above the 75 percent data-capture requirement. No quarter is substituted or estimated.

D.2 Design-value computation under 40 CFR Part 50 Appendix N

The annual PM2.5 design value is computed under 40 CFR Part 50 Appendix N §4.2–4.3: the four quarterly means for each year are averaged at full precision to give the annual mean, the three annual means are averaged, and the result is rounded once — only at the final step — to one decimal place. Tables D-3 and D-4 give that computation for the 2023–2025 period as measured, and with the twenty days for which exclusion is requested removed. Daily values are the AQS 24-hour block averages listed in Table A and Table B; the underlying hourly observations are in Appendix B.

Table D-3. Design-value computation for 2023–2025 as measured, with all exceptional-event days included (quarterly and annual means in µg/m³, shown at full precision).

Year	Q1 mean	Q2 mean	Q3 mean	Q4 mean	Annual mean
2023	8.4844	10.6396	10.0924	9.0478	9.5661
2024	8.6363	8.6233	8.8130	9.3714	8.8610
2025	8.6811	9.1614	11.2067	8.8783	9.4819

Year	Q1 mean	Q2 mean	Q3 mean	Q4 mean	Annual mean
Three-year average of the annual means					9.3030
Design value (rounded once to 0.1 µg/m³)					9.3

Table D-4. Design-value computation for 2023–2025 with the twenty exceptional-event days for which exclusion is requested removed (quarterly and annual means in µg/m³, shown at full precision).

Year	Q1 mean	Q2 mean	Q3 mean	Q4 mean	Annual mean
2023	7.2682	9.9552	10.0924	8.5697	8.9714
2024	7.9299	8.4461	8.2989	9.3714	8.5116
2025	8.6811	9.1614	11.2067	8.8783	9.4819
Three-year average of the annual means					8.9883
Design value (rounded once to 0.1 µg/m³)					9.0

Concurrence on the twenty days identified in Table A and Table B therefore lowers the 2023–2025 annual PM2.5 design value at the Hinds Community College monitor from 9.3 µg/m³ to 9.0 µg/m³, at or below the 2024 annual PM2.5 NAAQS of 9.0 µg/m³. The three-year mean with the exclusions applied is 8.9883 µg/m³, which is 0.0617 µg/m³ below the 9.05 µg/m³ value at which the design value would round to 9.1. Because 2025 contains no days for which exclusion is requested, the 2025 annual mean is identical in both computations.

D.3 AQS qualifier codes applied

RM = Prescribed Fire; RF = Fire – Canadian; RG = Fire – Mexico/Central America; RA = African Dust. All four are request-for-exclusion (REQEXC) qualifiers. The qualifiers as applied at this site, and the AQS qualifier-code legend, are reproduced in Appendix A.

D.4 Public participation record

This demonstration is being made available for public inspection and comment in accordance with 40 CFR 50.14(c)(3)(v) before submittal to EPA Region 4. MDEQ published the demonstration and a public notice on the agency's website on August 24, 2026, opening a 30-day public comment period. Written comments must be received by September 23, 2026, and may be submitted to Rodney Cuevas, Mississippi Department of Environmental Quality, Air Division, at RCuevas@mdeq.ms.gov. On completion of the comment period, the public notice as published, all comments received, and MDEQ's response to those comments will be appended to this section, and the demonstration will be submitted to EPA Region 4 with that record attached. If comments received during the period result in changes to the demonstration, those changes will be identified in the response-to-comments document so that the version submitted to EPA can be compared against the version made available for comment.

Appendix E: References and Additional Resources

Regulatory authorities

40 CFR § 50.1(k) — Definitions: natural event. U.S. Environmental Protection Agency.

40 CFR § 50.14 — Treatment of air quality monitoring data influenced by exceptional events. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-50/section-50.14

40 CFR § 51.930 — Mitigation of exceptional events. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-Y/section-51.930

40 CFR Part 50, Appendix N — Interpretation of the National Ambient Air Quality Standards for PM2.5.

40 CFR Part 58 — Ambient air quality surveillance, including Appendix A (quality assurance requirements).

Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 89 Fed. Reg. 16202 (March 6, 2024) — revised primary annual PM2.5 NAAQS of 9.0 µg/m³.

Mississippi Prescribed Burning Act, Miss. Code Ann. § 49-19-301 et seq.

EPA guidance

U.S. EPA, August 2019. Guidance on the Preparation of Exceptional Events Demonstrations for Wildfire Events that May Influence Ozone Concentrations and for Prescribed Fire Events. https://www.epa.gov/sites/default/files/2019-08/documents/ee_prescribed_fire_final_guidance_-_august_2019.pdf

U.S. EPA, 2024. PM2.5 Wildland Fire Exceptional Events Tiering Document and accompanying tiering tool. Site- and month-specific Tier 1 and Tier 2 thresholds used in Table B are taken from the tiering dataset distributed as for_posting.csv (October 2025 release).

Data sources

U.S. EPA Air Quality System (AQS). AMP350 Raw Data Report for site 28-049-0021, PM2.5 (88101), January 1, 2023 – December 31, 2025, generated July 24, 2026. Event-month extract reproduced in Appendix A.

U.S. EPA Air Quality System (AQS). Daily and hourly summary data for sites 28-049-0021 (Hinds CC) and 28-049-0020 (Jackson NCORE), retrieved via the AQS Data Mart API. Hourly records reproduced in Appendix B.

U.S. EPA Air Quality System (AQS). Daily summary PM2.5 (88101) data for all reporting monitors in Mississippi, Louisiana, Alabama, Arkansas and Tennessee, February 26 – March 1, 2023, retrieved via the AQS Data Mart API. Basis for the regional comparison in the February 28, 2023 event narrative.

U.S. EPA Air Quality System (AQS). Quality-assurance transactions for site 28-049-0021 — one-point flow-rate verifications, semiannual flow-rate audits and Performance Evaluation Program audits, 2023–2025, retrieved via the AQS Data Mart API. Summarized in Appendix D, Tables D-1 and D-2.

Mississippi Department of Environmental Quality, Air Division, 2024. Quality Assurance Project Plan for Ambient Air Quality Monitoring of Criteria and NCore Multi-Pollutants, Revision 2.0 (July 25, 2024). Revision 1.0 (May 2023) approved by EPA Region 4, Laboratory Services and Applied Science Division, November 17, 2023 (LSASD Project #23-0271).

U.S. EPA. List of Designated Reference and Equivalent Methods, maintained by the Office of Research and Development and published on EPA's Ambient Monitoring Technology Information Center (AMTIC). The Teledyne API Model T640 operated at this site is designated for PM2.5 under EQPM-0516-236.

Mississippi Forestry Commission. Prescribed-fire burn permit records for 2023 (2023 Burn Permits.csv) and 2024 (2024FireLoc_Mississippi.csv). Permit-level records reproduced in Appendix F.

Mississippi Forestry Commission, 2022. Mississippi Voluntary Smoke Management Guidelines. https://www.mfc.ms.gov/wp-content/uploads/2022/08/Voluntary_Smoke_Management_Guidelines_2022.pdf

NOAA Office of Satellite and Product Operations. Hazard Mapping System (HMS) Fire and Smoke Product — smoke polygons and fire-detection points. https://www.ospo.noaa.gov/products/land/hms.html
NOAA/NESDIS Satellite Analysis Branch. Satellite Smoke Text Products, October 3, 2023 (0146Z) and October 4, 2023 (0030Z). https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023J030257.html and https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2023/2023J040054.html
NOAA Air Resources Laboratory. HYSPLIT — Hybrid Single-Particle Lagrangian Integrated Trajectory model. https://www.ready.noaa.gov/HYSPLIT.php
AirNow-Tech Navigator. U.S. EPA / Sonoma Technology. https://www.airnowtech.org
University of Wyoming, Department of Atmospheric Science. Upper-air sounding archive, station 72235 (Jackson, Mississippi). https://weather.uwyo.edu/upperair/sounding.html
NOAA/NWS Weather Prediction Center. Surface analysis archive. https://www.wpc.ncep.noaa.gov/archives/
NOAA/NWS Jackson, Mississippi. Fire Weather Planning Forecast (FWFJAN), archived by the Iowa Environmental Mesonet, Iowa State University. https://mesonet.agron.iastate.edu/wx/afos/
NOAA/NWS. Automated Surface Observing System (ASOS) hourly surface observations for Jackson–Medgar Wiley Evers International Airport (KJAN), archived by the Iowa Environmental Mesonet, Iowa State University. https://mesonet.agron.iastate.edu/request/download.phtml
NOAA GOES-East (GOES-16) Advanced Baseline Imager — True Color and GeoColor imagery.

Scientific literature

Guyette, R.P., Stambaugh, M.C., Dey, D.C., and Muzika, R.-M., 2012. Predicting fire frequency with chemistry and climate. Ecosystems 15(2), 322–335. Basis for the Physical Chemistry Fire Frequency Model (PC2FM) natural mean fire interval used in the natural-events analysis.
Monitoring Trends in Burn Severity (MTBS) programme, USGS/USFS. Burned-area perimeters 1984–2024, used with Mississippi Forestry Commission permit records to derive the observed fire return interval.

Related MDEQ exceptional-event demonstrations

MDEQ. Hattiesburg (AQS 28-035-0004) PM2.5 exceptional-event demonstration for June 13–15, 2022 — Saharan dust. Concurred by EPA Region 4; the analytical approach for the July 31 – August 2, 2024 dust event in this demonstration follows it.
MDEQ. DeSoto County / Hernando (AQS 28-033-0002) PM2.5 exceptional-event demonstration — addresses the Canadian wildfire smoke influence on the same 2024 dates at MDEQ's northern Mississippi monitor.

Note. The public comment period for this demonstration runs from August 24, 2026 through September 23, 2026; see Appendix D.4. The public notice as published, the comments received, and MDEQ's response to comments will be appended to Appendix D.4 on completion of the public process and submitted to EPA Region 4 as part of the final demonstration package.

Appendix F: Prescribed-Fire Permit Records (Mississippi Forestry Commission)

The following tables document the Mississippi Forestry Commission (MFC) prescribed-burn permit records that underlie the permit statistics cited in the prescribed-fire event narratives for February 28 and March 6–9, 2023 and for February 2–3 and February 20–21, 2024. Sources: MFC prescribed-fire permit records for 2023 (2023 Burn Permits.csv) and 2024 (2024FireLoc_Mississippi.csv). Great-circle distances and compass directions are computed from each permitted burn's coordinates to the Hinds Community College monitor (AQS 28-049-0021; 32.3467° N, 90.2257° W). Ignition times are local (CST). Table F-1 summarizes, by day, the statewide approved and denied burn counts, statewide permitted acreage, and the number and acreage of approved burns within 50, 100, and 150 km of the monitor. Table F-2 lists the individual approved burns within 150 km of the monitor, grouped by day and ordered nearest-first.

Table F-1. Daily MFC prescribed-burn permit summary (all requested burns approved; zero denials on every event day).

Date	Statewide approved / denied	Statewide acres	≤ 50 km (burns / ac)	≤ 100 km (burns / ac)	≤ 150 km (burns / ac)
February 28, 2023	126 / 0	16,641	7 / 805	31 / 1,991	72 / 7,249
March 6, 2023	87 / 0	13,334	5 / 379	19 / 2,772	42 / 6,693
March 7, 2023	79 / 0	10,878	1 / 1	3 / 61	23 / 1,396
March 8, 2023	46 / 0	3,193	2 / 60	14 / 857	26 / 1,447
March 9, 2023	22 / 0	3,842	2 / 29	9 / 3,124	16 / 3,529
February 1, 2024	29 / 0	3,386	3 / 100	9 / 2,123	19 / 2,910
February 2, 2024	21 / 0	3,684	2 / 80	6 / 1,488	11 / 1,703
February 3, 2024	30 / 0	3,428	1 / 5	5 / 155	14 / 668
February 20, 2024	122 / 0	17,807	9 / 474	25 / 3,227	55 / 5,400
February 21, 2024	139 / 0	16,757	9 / 557	30 / 3,488	59 / 5,508

Table F-2. Individual MFC-approved prescribed burns within 150 km of the Hinds CC monitor, by day (nearest first).

County	Approved acres	Ignition (CST)	Distance (km)	Direction from monitor
February 28, 2023 — 126 approved / 0 denied statewide (16,641 ac); 72 approved burns within 150 km (7,249 ac)				
Hinds	45	17:25	30.3	S
Rankin	70	18:39	36.7	E
Yazoo	10	13:24	37.2	N
Hinds	300	18:54	43.7	SW
Madison	30	15:47	44.0	NE
Rankin	50	16:41	45.5	SE
Rankin	300	10:20	46.2	SE
Copiah	13	14:23	50.3	S
Copiah	22	18:43	53.4	S
Copiah	70	12:53	61.0	SW
Yazoo	5	15:33	62.2	N
Yazoo	80	16:25	62.7	N
Leake	139	12:05	62.8	NE
Simpson	100	18:32	66.2	SE
Issaquena	50	07:02	69.4	NW
Scott	100	06:35	69.7	E

Yazoo	70	08:09	70.6	N
Copiah	30	10:42	71.7	SW
Scott	60	10:44	72.1	E
Holmes	3	11:48	76.7	N
Holmes	50	08:57	78.1	N
Copiah	1	13:22	79.2	SW
Claiborne	40	18:57	81.1	SW
Scott	80	19:03	83.4	E
Jefferson	42	19:05	87.8	SW
Covington	55	09:52	89.9	SE
Jefferson Davis	40	19:16	94.7	S
Covington	60	18:51	97.6	SE
Covington	60	15:01	97.6	SE
Franklin	1	18:33	98.1	SW
Neshoba	15	16:10	98.3	NE
Jasper	65	16:19	102.1	E
Attala	100	08:25	103.6	NE
Franklin	675	10:54	103.7	SW
Rankin	80	17:36	108.8	SW
Lincoln	20	08:21	109.2	S
Jasper	20	19:00	109.5	E
Pike	30	18:38	118.1	S
Carroll	350	11:59	118.9	N
Marion	60	08:28	120.9	S
Pike	30	18:31	123.3	S
Jones	20	14:41	124.4	SE
Jones	50	18:48	124.5	SE
Jones	40	18:25	125.3	SE
Lamar	300	16:27	126.4	SE
Amite	50	08:09	127.5	S
Lamar	40	16:44	127.8	SE
Lamar	15	22:14	128.4	SE
Winston	45	10:09	130.3	NE
Stone	100	15:15	131.0	SE
Clarke	80	10:24	132.0	E
Lamar	50	12:34	132.4	SE
Marion	100	09:13	132.7	S
Choctaw	60	12:46	133.0	NE
Pike	50	15:46	133.7	S
Carroll	85	10:31	135.4	N
Lamar	500	16:50	135.9	SE
Marion	20	14:27	138.4	S
Amite	5	15:21	139.6	SW
Lauderdale	75	09:13	141.5	E
Pike	40	15:35	143.3	S
Choctaw	1,037	15:36	143.7	NE
Amite	30	19:18	145.5	S
Amite	65	15:42	146.2	SW
Walthall	1	19:01	147.0	S
Marion	500	12:31	147.6	S
Clarke	16	19:12	148.2	E
Lamar	98	16:03	148.6	S
Amite	140	11:04	148.7	S
Clarke	110	15:23	148.9	E

Lamar	100	11:02	148.9	S
Amite	6	15:34	149.7	S
March 6, 2023 — 87 approved / 0 denied statewide (13,334 ac); 42 approved burns within 150 km (6,693 ac)				
Madison	35	11:38	18.7	N
Rankin	224	11:51	29.1	SE
Hinds	60	15:50	31.3	SW
Hinds	30	09:15	36.0	SW
Hinds	30	09:13	47.4	SW
Copiah	22	14:29	50.7	S
Smith	1,501	08:33	60.0	E
Copiah	75	07:58	60.9	SW
Leake	80	14:53	62.8	NE
Claiborne	200	13:55	68.6	SW
Claiborne	NA	13:28	72.1	SW
Copiah	150	15:38	76.0	S
Holmes	40	14:18	79.2	N
Copiah	7	09:03	80.7	SW
Franklin	100	14:10	95.1	SW
Newton	30	09:07	95.4	E
Lawrence	15	15:26	95.4	S
Holmes	170	08:28	96.5	N
Jefferson Davis	3	14:08	99.0	S
Holmes	77	09:38	100.7	N
Newton	47	09:02	103.0	E
Lincoln	80	09:57	111.5	S
Carroll	125	14:35	112.7	N
Neshoba	126	11:37	114.8	NE
Marion	8	12:33	115.2	S
Newton	163	14:19	117.2	E
Newton	26	08:15	120.2	E
Walthall	25	09:45	120.8	S
Jones	10	11:03	124.3	SE
Amite	210	15:33	132.1	S
Amite	160	15:41	132.1	S
Choctaw	100	13:06	132.2	NE
Marion	3	13:15	140.7	S
Jones	60	15:36	141.1	SE
Clarke	400	11:49	141.7	E
Choctaw	711	08:43	146.1	NE
Amite	1,000	11:44	146.5	SW
Lamar	80	13:13	147.0	SE
Lamar	98	12:42	148.4	S
Carroll	10	10:15	148.9	N
Jones	152	12:58	149.2	SE
Lamar	250	14:27	149.4	SE
March 7, 2023 — 79 approved / 0 denied statewide (10,878 ac); 23 approved burns within 150 km (1,396 ac)				
Rankin	1	11:26	28.2	SE
Smith	10	11:59	93.3	SE
Holmes	50	06:54	96.5	N
Newton	30	07:07	103.0	E
Newton	20	11:40	107.5	E
Covington	80	12:06	109.2	SE
Carroll	150	08:17	112.7	N
Marion	67	10:16	113.6	S

Covington	15	10:31	114.3	SE
Newton	8	09:32	116.6	E
Newton	18	08:54	121.3	E
Lauderdale	52	12:40	126.0	E
Winston	5	14:56	126.5	NE
Choctaw	100	12:54	128.0	NE
Montgomery	120	12:04	130.9	NE
Choctaw	150	14:04	132.3	NE
Lamar	30	15:03	132.5	SE
Choctaw	190	07:52	137.2	NE
Jones	40	12:48	138.1	SE
Winston	50	09:04	144.3	NE
Lamar	80	11:55	147.9	SE
Choctaw	50	08:41	148.8	NE
Clarke	80	08:48	149.5	E
March 8, 2023 — 46 approved / 0 denied statewide (3,193 ac); 26 approved burns within 150 km (1,447 ac)				
Madison	45	11:40	20.5	NW
Wilkinson	15	12:23	47.0	S
Copiah	75	07:07	58.7	SW
Smith	10	12:59	59.1	SE
Claiborne	300	08:40	69.0	SW
Simpson	50	10:20	71.8	SE
Scott	30	07:58	77.5	E
Claiborne	10	09:44	81.7	SW
Lincoln	45	07:22	84.4	S
Holmes	1	11:12	90.3	N
Claiborne	126	10:10	93.9	SW
Jasper	30	08:14	95.1	SE
Holmes	50	08:00	96.5	N
Covington	70	09:50	96.5	SE
Attala	100	07:13	102.1	NE
Jones	2	11:34	107.8	SE
Walthall	65	08:24	110.9	S
Covington	20	08:56	114.3	SE
Covington	40	11:00	116.1	SE
Pike	10	11:50	122.3	S
Lamar	1	10:15	131.4	SE
Lamar	20	09:13	132.4	SE
Amite	260	10:48	136.9	SW
Lamar	25	08:58	147.8	SE
Lamar	40	11:43	148.0	SE
Lamar	7	10:03	150.0	SE
March 9, 2023 — 22 approved / 0 denied statewide (3,842 ac); 16 approved burns within 150 km (3,529 ac)				
Rankin	9	09:22	32.4	W
Rankin	20	08:22	36.5	E
Copiah	75	08:11	61.0	SW
Scott	40	15:10	62.5	E
Copiah	60	13:02	72.7	SW
Claiborne	40	14:33	76.7	SW
Claiborne	5	14:27	81.8	SW
Holmes	30	13:22	86.6	N
Jefferson	2,845	07:09	96.2	SW
Covington	30	09:39	112.2	SE
Jones	5	14:30	122.4	SE

Franklin	10	13:05	129.3	SW
Walthall	60	09:25	130.1	S
Amite	120	14:40	136.5	S
Marion	100	10:47	138.4	S
Amite	80	08:18	148.7	S
February 1, 2024 — 29 approved / 0 denied statewide (3,386 ac); 19 approved burns within 150 km (2,910 ac)				
Rankin	20	14:37	31.9	E
Yazoo	75	10:10	36.7	NW
Hinds	5	10:37	40.1	SW
Simpson	66	06:57	55.2	SE
Warren	45	07:42	57.9	W
Simpson	15	12:04	68.5	SE
Scott	1,817	08:00	77.1	E
Lawrence	30	14:48	93.5	S
Covington	50	12:19	94.0	SE
Lawrence	20	11:44	110.4	S
Marion	60	07:54	120.1	S
Jones	5	08:57	122.8	SE
Lamar	200	08:23	127.4	SE
Marion	10	09:00	132.9	SE
Kemper	62	10:14	140.2	E
Jones	62	09:14	142.8	SE
Winston	268	10:13	143.3	NE
Kemper	70	07:14	145.3	NE
Lamar	30	13:51	149.6	SE
February 2, 2024 — 21 approved / 0 denied statewide (3,684 ac); 11 approved burns within 150 km (1,703 ac)				
Yazoo	75	10:23	36.7	NW
Hinds	5	11:32	38.4	SW
Warren	30	07:27	59.0	W
Scott	1,296	07:38	62.0	E
Madison	80	07:55	64.1	NE
Scott	2	13:43	84.4	E
Lincoln	10	12:13	106.0	S
Carroll	5	14:34	141.0	N
Walthall	20	10:18	147.3	S
Amite	60	12:36	148.5	S
Amite	120	06:57	149.0	S
February 3, 2024 — 30 approved / 0 denied statewide (3,428 ac); 14 approved burns within 150 km (668 ac)				
Hinds	5	07:28	31.4	NW
Yazoo	10	09:49	62.9	N
Madison	40	14:35	64.1	NE
Jasper	40	13:50	91.4	E
Newton	60	13:53	98.6	E
Attala	25	08:18	110.0	NE
Jones	40	15:05	111.8	SE
Carroll	150	07:50	116.9	N
Jasper	5	09:18	118.4	N
Carroll	3	15:08	121.9	N
Carroll	30	08:15	122.0	N
Lamar	120	07:37	127.5	SE
Lamar	40	14:39	145.4	SE
Carroll	100	11:01	146.4	N
February 20, 2024 — 122 approved / 0 denied statewide (17,807 ac); 55 approved burns within 150 km (5,400 ac)				
Rankin	60	08:26	29.3	SE

Hinds	25	12:18	31.9	NW
Copiah	41	10:53	35.1	S
Rankin	50	08:29	38.0	E
Rankin	15	08:59	38.2	E
Madison	80	10:48	43.4	NE
Copiah	100	11:33	43.5	S
Hinds	76	08:53	44.0	SW
Scott	27	09:19	44.9	E
Simpson	60	08:37	50.3	S
Copiah	10	14:32	50.8	S
Madison	65	12:57	54.5	NE
Simpson	10	08:37	56.1	SE
Simpson	100	13:51	57.9	S
Leake	120	09:14	60.3	NE
Madison	50	09:59	65.1	NE
Leake	53	13:25	76.6	NE
Attala	154	12:14	80.6	NE
Copiah	2	07:59	80.8	SW
Lincoln	15	09:48	81.4	S
Scott	1,839	09:17	83.5	E
Attala	100	11:44	90.2	NE
Covington	80	10:49	91.4	SE
Smith	15	09:20	95.2	SE
Lincoln	80	11:16	98.6	S
Jasper	103	14:42	103.3	E
Holmes	420	10:25	106.0	N
Lincoln	30	11:18	108.3	S
Jones	30	09:40	110.5	SE
Attala	133	10:12	112.3	NE
Marion	35	13:43	112.8	SE
Carroll	1	14:52	114.1	N
Marion	30	12:44	119.1	S
Franklin	203	08:41	119.3	SW
Marion	70	11:00	120.7	S
Jones	90	07:48	123.4	SE
Pike	150	11:36	124.3	S
Lauderdale	6	14:00	125.6	E
Walthall	18	10:45	126.7	S
Noxubee	20	12:17	134.4	NE
Pike	50	13:36	134.7	S
Lamar	25	12:28	135.1	SE
Amite	23	14:07	136.8	S
Clarke	8	14:32	138.1	E
Montgomery	21	13:04	138.6	NE
Kemper	70	13:13	138.9	NE
Wayne	80	12:32	142.8	SE
Yalobusha	60	08:37	143.0	N
Marion	12	10:45	145.3	S
Walthall	40	13:47	145.7	S
Carroll	150	09:28	146.1	N
Lauderdale	20	09:45	147.2	E
Marion	250	13:02	147.7	S
Lamar	20	12:36	148.3	S
Amite	5	10:51	149.7	S

February 21, 2024 — 139 approved / 0 denied statewide (16,757 ac); 59 approved burns within 150 km (5,508 ac)				
Hinds	70	13:30	15.1	N
Hinds	35	08:33	31.9	NW
Madison	100	11:36	32.4	N
Rankin	42	10:43	34.3	E
Rankin	30	12:12	36.5	E
Rankin	200	11:43	40.9	E
Madison	25	11:47	43.4	NE
Copiah	30	14:48	43.5	S
Madison	25	08:50	45.3	NE
Copiah	40	08:40	51.6	S
Scott	1,010	13:44	52.6	E
Simpson	5	13:16	56.1	SE
Copiah	40	08:12	58.7	SW
Claiborne	40	08:35	59.5	SW
Leake	200	09:13	60.5	NE
Simpson	15	08:06	68.5	SE
Holmes	125	08:40	71.4	N
Holmes	161	08:43	72.1	N
Copiah	650	08:45	72.4	SW
Attala	280	09:10	73.2	NE
Copiah	60	12:53	82.5	SW
Scott	4	15:41	84.4	E
Smith	30	08:57	84.5	SE
Lawrence	50	10:14	84.6	S
Holmes	15	09:15	86.3	N
Lawrence	6	16:04	96.0	S
Smith	25	10:02	96.1	SE
Attala	30	08:43	97.5	NE
Newton	85	09:41	98.7	E
Lawrence	60	12:31	99.2	S
Covington	2	10:16	100.2	SE
Lincoln	40	14:18	104.8	S
Attala	80	11:08	106.0	NE
Attala	40	12:48	108.0	NE
Franklin	40	10:59	109.9	SW
Marion	15	09:50	114.6	S
Carroll	50	10:33	115.1	NE
Covington	143	09:28	115.4	SE
Marion	100	08:56	119.1	S
Lincoln	80	11:47	119.6	S
Jasper	40	11:32	122.4	SE
Jones	40	10:03	123.1	SE
Walthall	70	13:29	126.0	S
Jones	35	13:38	129.5	SE
Marion	10	14:43	130.0	S
Choctaw	80	12:04	132.7	NE
Pike	50	12:10	134.7	S
Jones	15	09:41	135.4	SE
Marion	100	09:06	137.4	S
Montgomery	25	10:34	137.8	NE
Choctaw	110	08:47	141.3	NE
Wayne	100	11:39	142.4	SE
Montgomery	145	09:51	142.9	NE

Montgomery	41	10:41	143.9	NE
Montgomery	29	14:27	144.7	NE
Marion	150	12:19	145.6	S
Carroll	250	14:02	146.2	N
Lamar	40	09:48	148.5	S
Carroll	100	13:28	148.8	N

Notes: (1) Permit-level records for 2023 were provided by the Mississippi Forestry Commission as a separate annual permit export (2023 Burn Permits.csv); 2024–2025 records come from the MFC ArcGIS permit archive. The two exports share the same permit-level fields (county, coordinates, approval status, permitted acreage, and ignition time), so distances, directions and daily summaries are computed identically for both years. (2) One February 1, 2024, record is labeled “Yalobusha County” in the permit archive but its coordinates (32.642° N, 90.400° W) lie in Yazoo County — a data-entry error (Yalobusha County is approximately 200 km to the north); it is shown here as Yazoo. All distances and directions are computed from permit coordinates and are unaffected by county-name labels.