

Revised Particulate Matter (PM) NAAQS and Exceptional Events in the Southeast

AAPCA 2024 FALL BUSINESS MEETING

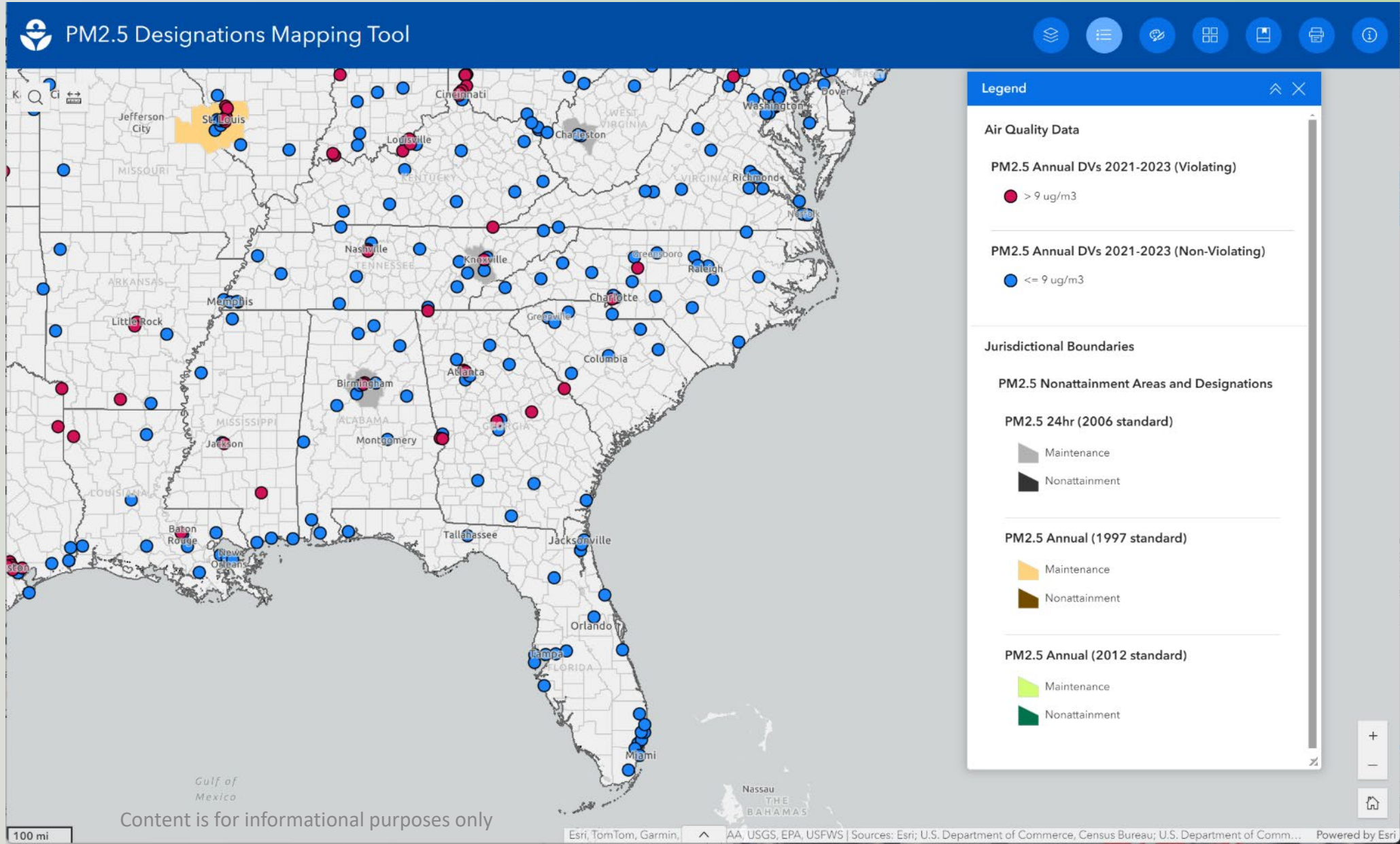
AUGUST 29, 2024

RICK GILLAM
U.S. EPA REGION 4



EPA PM2.5 Designations Mapping Tool

<https://experience.arcgis.com/experience/a2ca272ce9fc4019a88ce35b863e2cab/page/Page/>





EPA 2020 National Emissions Inventory (NEI) PM_{2.5} Data

Wildland fires – including both wildfires and prescribed fires – account for **44 percent** of the nation's primary emissions of fine particulate matter (PM_{2.5})

Figure 7-11: 2020NEI county PM_{2.5} wildland fires emissions in tons per square mile

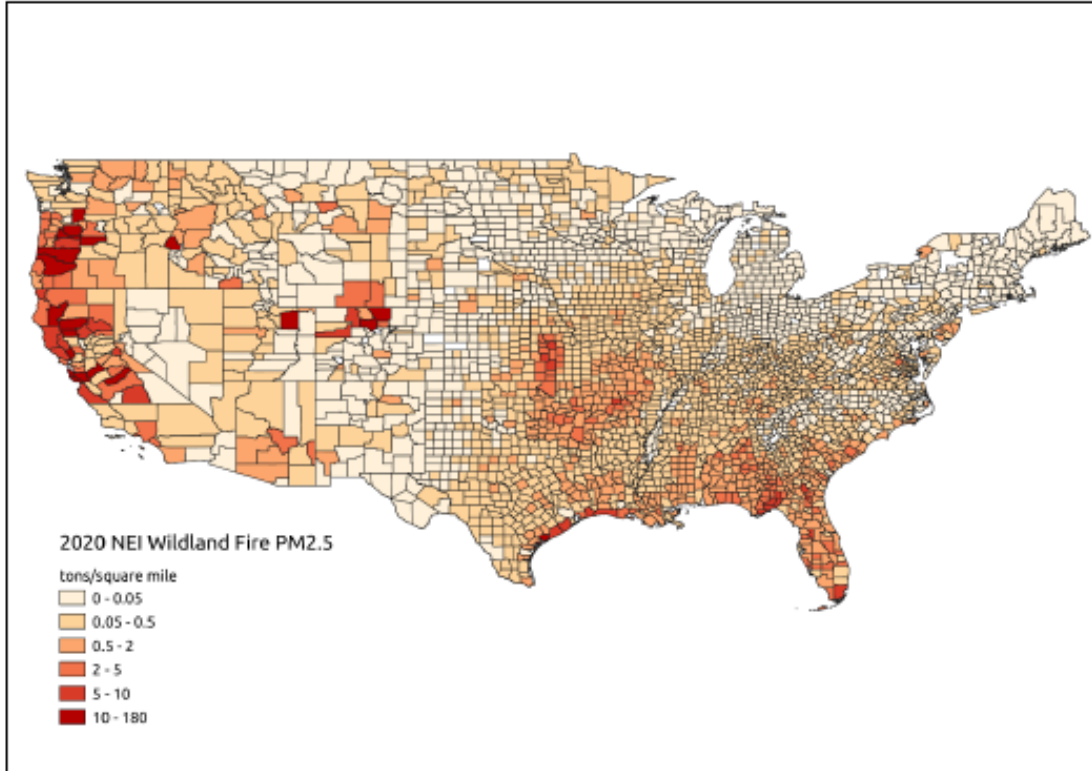
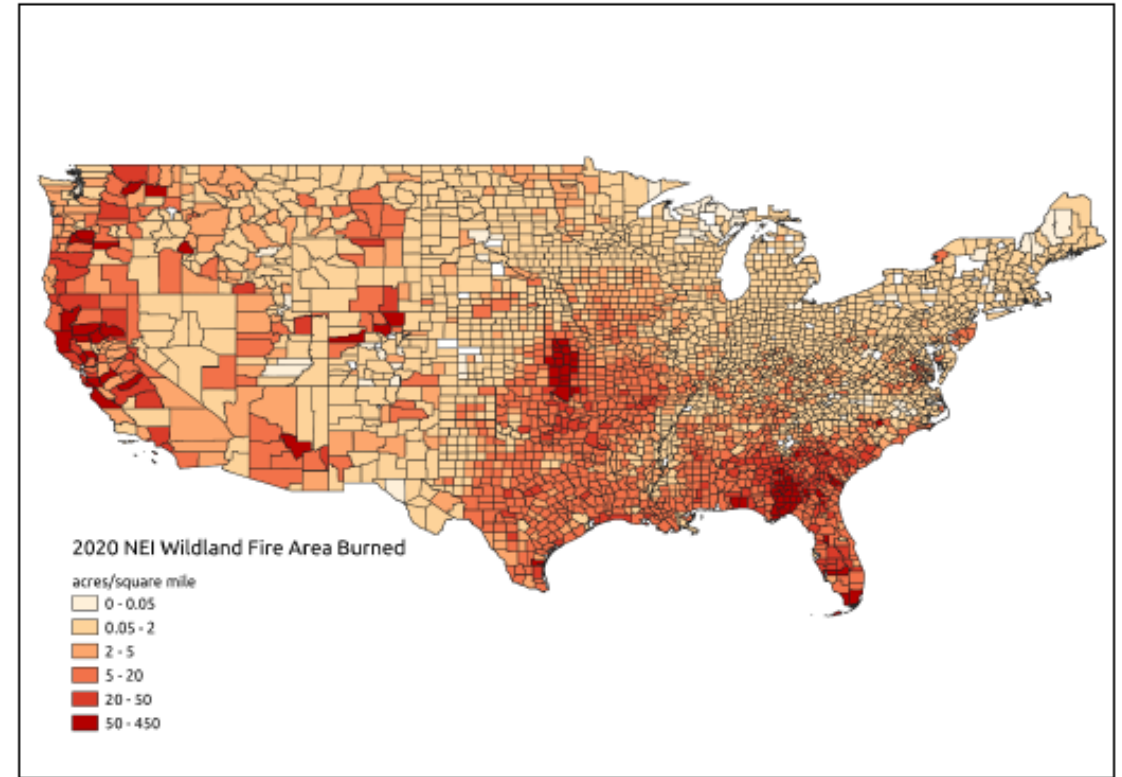


Figure 7-12: 2020NEI wildland fires county area burned in acres per square mile





EPA 2020 National Emissions Inventory (NEI) PM2.5 Data

https://www.epa.gov/system/files/documents/2023-03/NEI2020_TSD_Section7_Fires.pdf

Figure 7-9: Total 2020 NEI area burned by state -wildland fires

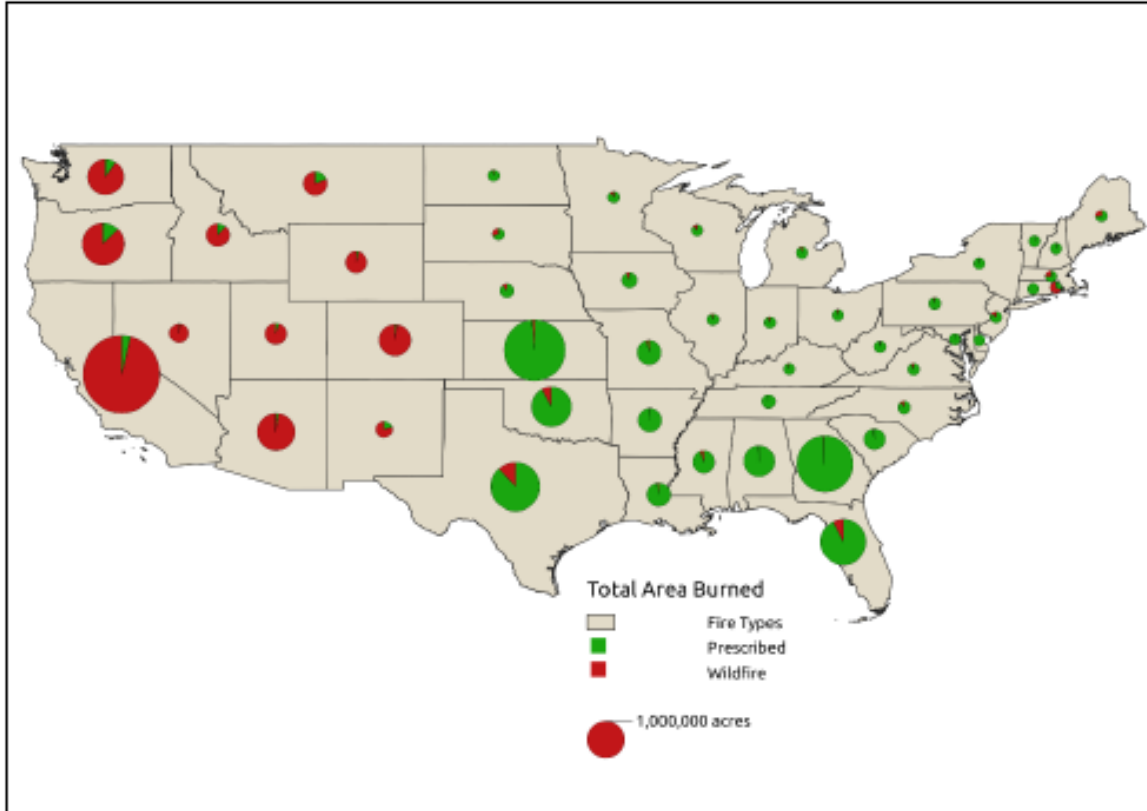
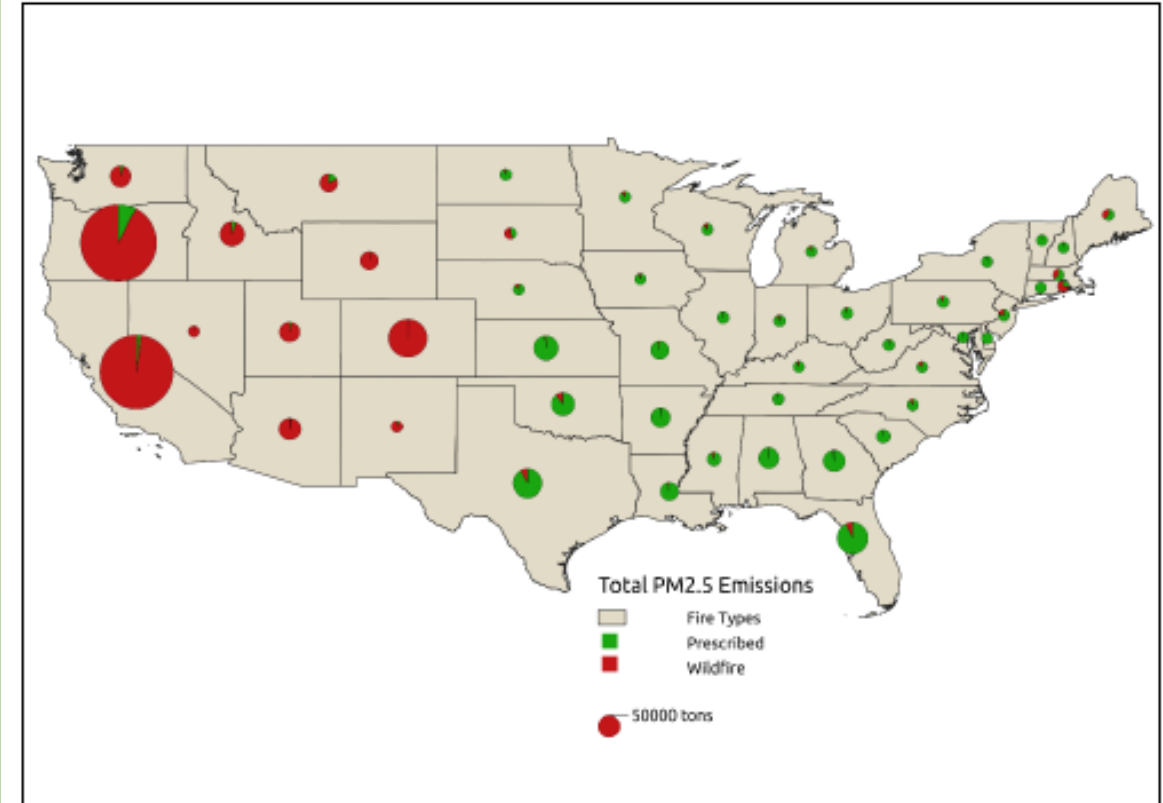


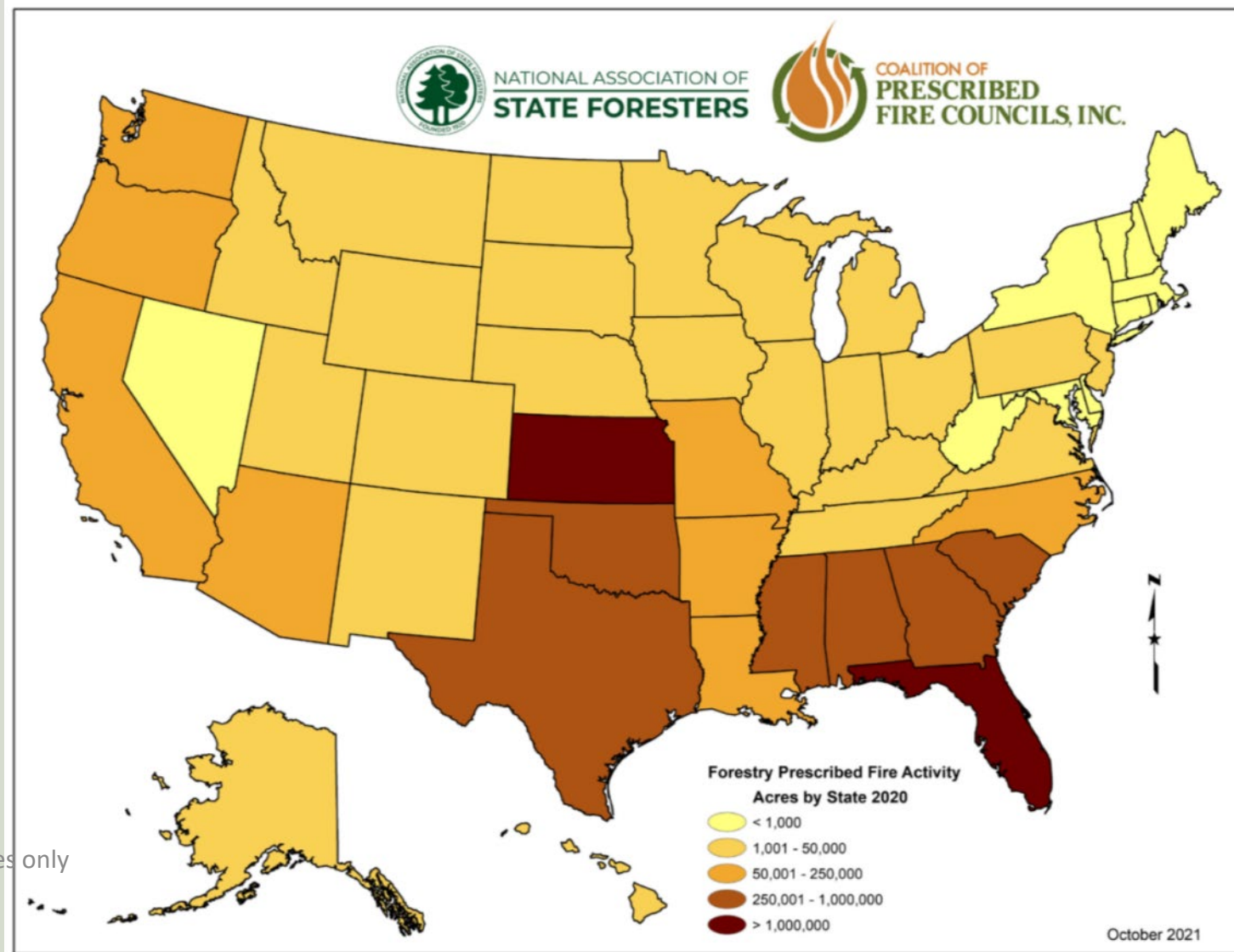
Figure 7-10: Total 2020 NEI PM2.5 wildland fires emissions by state





2020 Prescribed Fire Activity

<http://www.prescribedfire.net/>



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EPA Recognizes the Importance of Prescribed Fire

- “...EPA has continued to express an understanding of the importance of prescribed fire, noting that it can be used to mimic the natural process necessary to manage and maintain existing fire-adapted ecosystems and/or return an area to its historical ecosystem (or another natural ecosystem if the historical ecosystem is no longer attainable) while reducing the risk to public safety and the risk of uncontrolled emissions from catastrophic wildfires.”
 - Quote from the preamble to EPA’s November 2015 Proposed Exceptional Events Rule Revisions - http://www.epa.gov/sites/production/files/2015-11/documents/ee_nprm_11-20-15_80_fr_72840.pdf



November 2023 MOU Between USFS, DOI, EPA and CDC – Wildland Fire and Air Quality Coordination

“The Agencies jointly recognize the importance of significantly increasing the application of prescribed fire in a strategic and coordinated manner to mitigate the risk of high severity fire and its associated smoke impacts.”

<https://www.whitehouse.gov/briefing-room/statements-releases/2023/11/09/biden-harris-administration-agencies-sign-interagency-agreement-to-address-wildfire-risk-and-protect-communities-from-smoke/>



**MEMORANDUM OF UNDERSTANDING BETWEEN THE
UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE
AND THE
UNITED STATES DEPARTMENT OF THE INTERIOR
AND THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AND THE
UNITED STATES CENTERS FOR DISEASE CONTROL AND
PREVENTION**

Wildland Fire and Air Quality Coordination

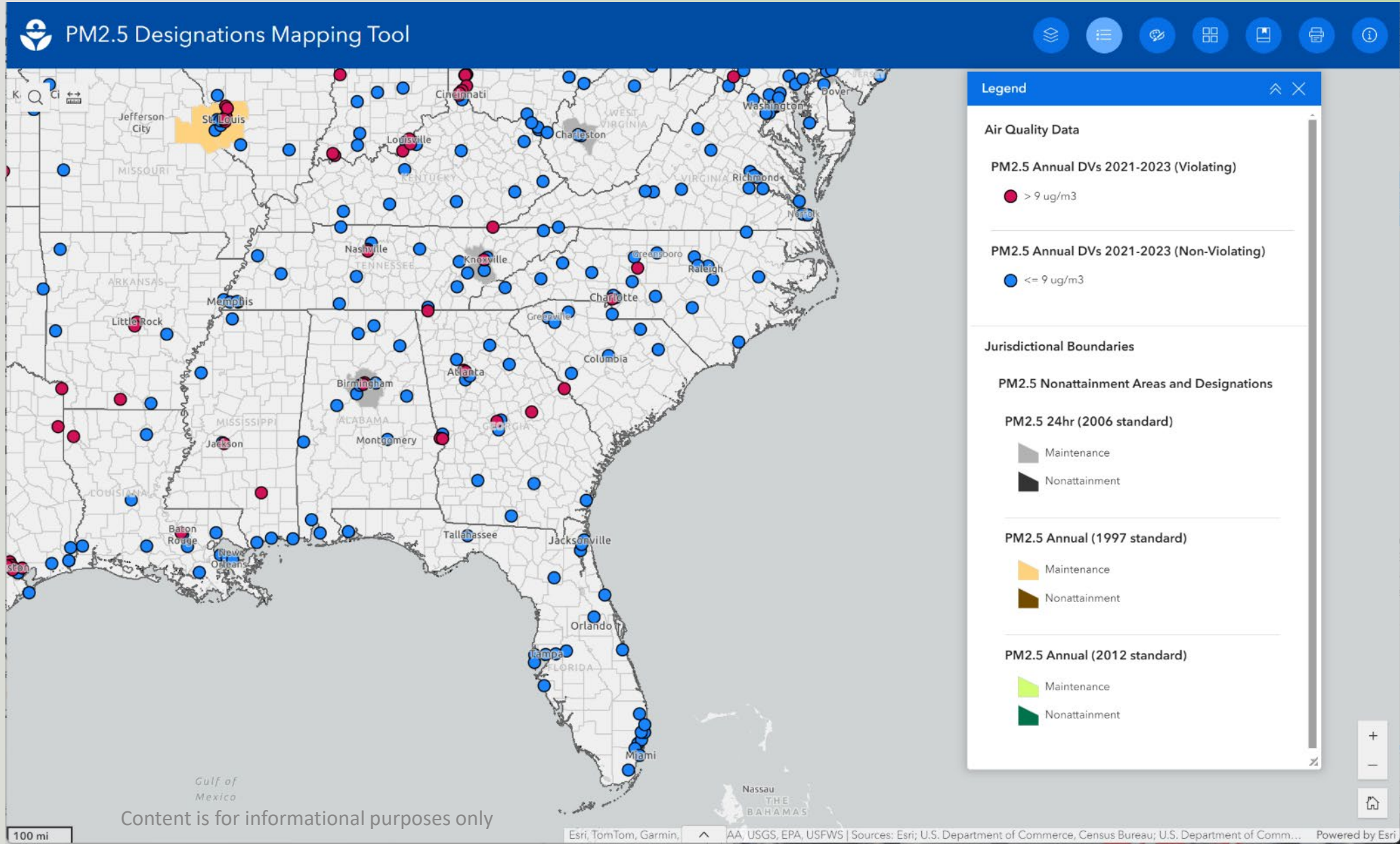
I. BACKGROUND

Wildfires have been growing in size, duration, and destructivity, with millions of people at risk from wildfire and wildfire smoke. This risk is expected to grow due to a combination of accumulating fuels, a warming climate, and expanding development in fire-prone landscapes. This wildfire crisis is a public health crisis, including significant impacts on air quality. The U.S. Department of Agriculture (USDA), Forest Service (FS), Natural Resources and Environment (NRE), under the program area, Fire and Aviation Management (FAM); the U.S. Department of the Interior (DOI); the U.S. Environmental Protection Agency (EPA); and the U.S. Centers for Disease Control and Prevention (CDC) (subsequently referred to as the



EPA PM2.5 Designations Mapping Tool

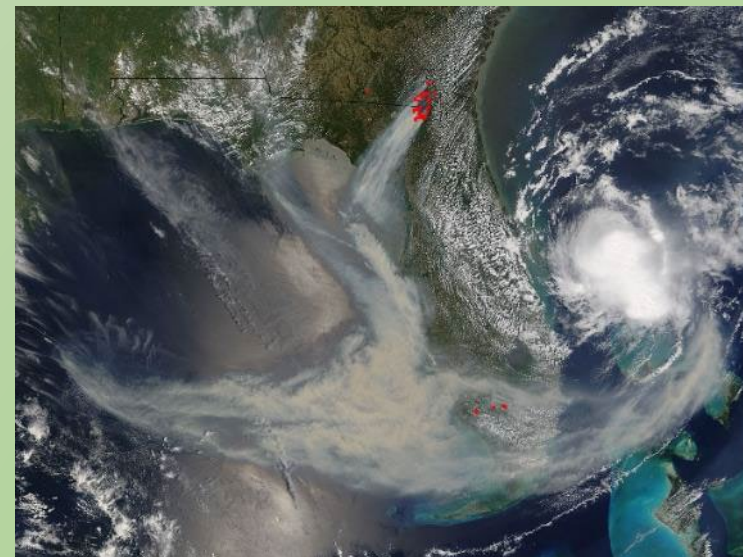
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Exceptional Events Regulations and Guidance

- The Exceptional Events Rule provides a way for air quality monitoring data to be excluded from regulatory decisions and actions such as nonattainment designations if a state can provide convincing evidence to EPA that high monitoring values are the result of an exceptional or natural event
- **CAA Section 319 defines an exceptional event as an event that:**
 - Affects air quality;
 - Is not reasonably controllable or preventable;
 - Is an event that is caused by human activity that is unlikely to recur at a particular location, or is a natural event; and
 - Is determined by EPA to be an exceptional event
- Exceptional Events Guidance: “Prescribed Fire on Wildland that May Influence Ozone and Particulate Matter Concentrations,” August 2019
 - <https://www.epa.gov/air-quality-analysis/final-2016-exceptional-events-rule-supporting-guidance-documents-updated-faqs>



Exceptional Events Demonstrations Must Include:

1. A **narrative conceptual model** that describes the event(s) causing the exceedance or violation and a discussion of how emissions from the event(s) led to the exceedance or violation at the affected monitor(s);
2. A demonstration that the event affected air quality in such a way that there exists a **clear causal relationship** between the specific event and the monitored exceedance or violation;
3. Analyses **comparing the claimed event-influenced concentration(s)** to concentrations at the same monitoring site at other times;
4. A demonstration that the event was both **not reasonably controllable** and **not reasonably preventable**;
5. A demonstration that the event was caused by **human activity that is unlikely to recur** at a particular location or was a **natural event**; and
6. Documentation that the submitting air agency followed the **public comment process**
7. Documentation that **Mitigation Requirements** were addressed (next slide)





Mitigation Requirements

- A state requesting to exclude air quality data due to exceptional events must take “appropriate and reasonable actions to protect public health from exceedances or violations of the national ambient air quality standards.”
- To address the mitigation requirements, a state must:
 - provide prompt public notification whenever air quality concentrations exceed or are expected to exceed an applicable ambient air quality standard;
 - provide for public education concerning actions that individuals may take to reduce exposures to unhealthy levels of air quality during and following an exceptional event; and
 - provide for the implementation of appropriate measures to protect public health from exceedances or violations of ambient air quality standards caused by exceptional events.

New EPA Exceptional Events Tools and Resources

<https://www.epa.gov/air-quality-analysis/treatment-air-quality-monitoring-data-influenced-exceptional-events>

The screenshot shows the EPA website's 'Air Quality Analysis' section. The header includes the EPA logo, 'United States Environmental Protection Agency', and a search bar. Navigation links for 'Environmental Topics', 'Laws & Regulations', 'Report a Violation', and 'About EPA' are visible. The main content area features a sidebar with links to 'Air Quality Analysis Home', 'NAAQS Review Analysis', 'Exceptional Events Analysis' (highlighted), 'Federal Register Notices', 'Example Demonstrations and Responses', and 'Final 2016 Exceptional Events Rule'. The main heading is 'Treatment of Air Quality Monitoring Data Influenced by Exceptional Events'. Below this is a 'New Information' section with a yellow background, containing a paragraph and a bulleted list of links. A 'CONTACT US' link is in the top right. A disclaimer at the bottom states: 'Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal, state or local air agencies may implement in order to attain and maintain the National Ambient Air Quality Standards'.

An official website of the United States government [Here's how you know](#) ▾

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Air Quality Analysis CONTACT US

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[Exceptional Events Analysis](#)

[Federal Register Notices](#)

[Example Demonstrations and Responses](#)

[Final 2016 Exceptional Events Rule](#)

Treatment of Air Quality Monitoring Data Influenced by Exceptional Events

New Information

April 30, 2024 – EPA has developed three products to improve and support an efficient process for demonstrating exceptional events impacting air concentrations of fine particulate matter (PM_{2.5}).

- [PM2.5 Wildland Fire Exceptional Events Tiering Document \(pdf\)](#) (419.8 KB, 04/30/2024, EPA-457/R-24-001)
- [See Data Visualization Tools](#)
- [Prescribed Fire Demonstration](#)
- [January 11, 2024 Webinar](#)

Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal, state or local air agencies may implement in order to attain and maintain the National Ambient Air Quality Standards

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ATTACHMENT 2

Schedule for Exceptional Events Flagging and Documentation Submission for Data to be Used in Initial Area Designations*

Action	Anticipated Deadline	Applicable Data Years
Initial notifications for intent to submit exceptional events demonstrations for the purpose of initial area designations recommendations	No later than January 1, 2025	2021, 2022, 2023* *States and Tribes are not required to submit initial notifications or demonstrations for data years that will not be relied upon for final area designations (data year 2021). ¹⁴
Exceptional Events demonstration submittal	No later than February 7, 2025	2021, 2022, 2023
State and Tribal initial area designations recommendations	No later than February 7, 2025	2021, 2022, 2023
Initial notification and exceptional events demonstration submittal	No later than September 30, 2025	2024
The EPA sends out 120-day Letters for initial area designations	October 9, 2025	2022, 2023, 2024
The EPA promulgates final 2024 PM _{2.5} NAAQS area designations	February 6, 2026	2022, 2023, 2024

Timelines

- The table is in the February 7, 2024, “*Initial Area Designations for the 2024 Revised Primary Annual PM_{2.5} NAAQS Memorandum.*”
- EPA is working under the expectation that exceptional events demonstrations affecting designations would not be relevant for data year 2021.
- The schedules reflect the EPA’s interest in ensuring that exceptional events claims are fully considered, as appropriate, in final designations decisions.

Source:

https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-designations-memo_2.7.2024_-jg-signed.pdf



EPA Region 4 Exceptional Events Review Team

- **Leaders (3):** *Rick Gillam (Modeling), Darren Palmer (Monitoring), Katy Lusky (Management)*
- **Members (12):**
 - **Monitoring Team:** *Daniel Garver, Corrina Wang, Katie-Marie Beck, Katherine Meiser, Allison Fankhauser, Chelsey Laurencin*
 - **Modeling Team:** *Chris Howard, Richard Monteith, Richard Wong*
 - **Air Regulatory Management Section:** *Simone Jarvis*
 - **Permits Section:** *Jacqueline Summers-Evans*
 - **Planning Branch:** *Katie Walther*
- **Note:** *The Region 4 Team is working closely with the EPA HQ team to ensure consistency in reviews.*





Southeast Prescribed Fire and Air Quality Smoke Summits and Workgroup

- Consists of Representatives from State Air Quality and State Forestry Agencies for 8 EPA Region 4 Southeast States along with National/Regional/Local partners
- Initiated in 2013, by Jones Center @ Ichuaway, Wildland Fire Leadership Council (WFLC), and EPA Region 4
- Purpose: Forum of exchange for state, regional, and national prescribed fire, smoke management and air quality goals and issues
- In-person meetings at Smoke Summits approximately every 2 years and quarterly conference calls in-between
- **Smoke Summit VI held at the Jones Center from Feb 12-14, 2024**
 - Focused entirely on the Revised PM NAAQS and potential impacts on use of Rx fire in the southeast
 - Much discussion about how to develop Exceptional Events Rule demonstrations for prescribed fire
 - Will be a major focus for many southeast state air quality agencies and EPA for the next couple years



Florida Wildfire Example EE Demonstration

- At the 2024 Southeast Smoke Summit, the Florida Department of Environmental Protection volunteered to develop a **Draft Exceptional Events Demonstration for Canadian Wildfire Smoke Impacts in 2023**
 - FDEP developed a Draft EE Demo and shared it with EPA Region 4 for review in May 2024
 - EPA reviewed the draft and provided comments to FDEP in June 2024
 - A Final Draft Document was shared with other States to use as a template for EE Demos for the Canadian Wildfire impacts
 - NCDQAQ has informed EPA Region 4 that they are using the FL template for their Canadian Wildfire EE Demos
 - Others are sure to follow!



Excerpt from Florida's Example EE Demonstration

The following text and figures are included in the “Clear Causal” portion of FDEP’s Wildfire Exceptional Events Demonstration:

On October 3, the smoke-filled air was trapped from continuing moving south by a stationary front across the southern tip of Florida (**Figures 10 and 11**). It inundated most of the state with PM2.5 concentrations over the daily NAAQS.

Figure 10: October 3, 2023, 09 Z Surface Analysis Weather Predictive Center.

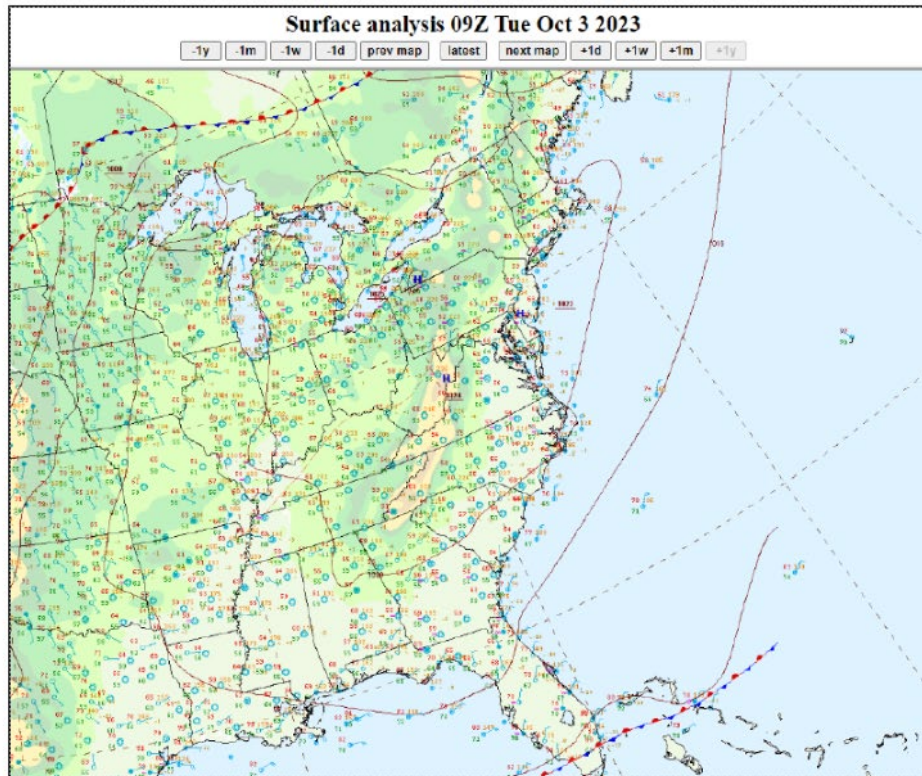
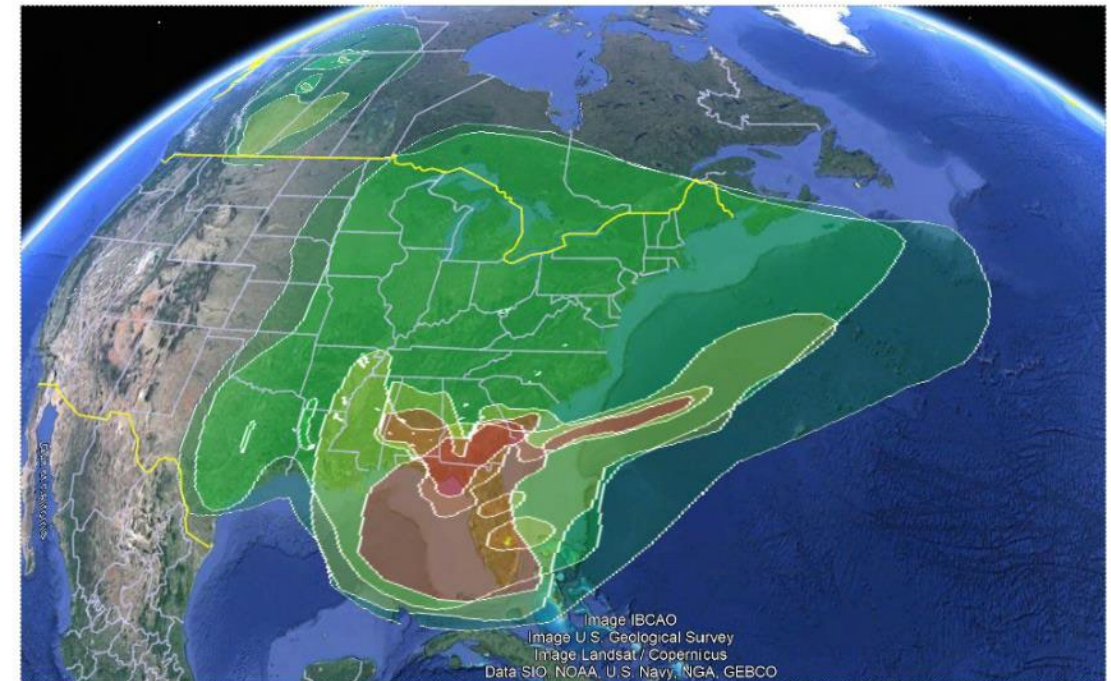


Figure 11: October 3, 2023, Smoke Layer from Hazard Map.

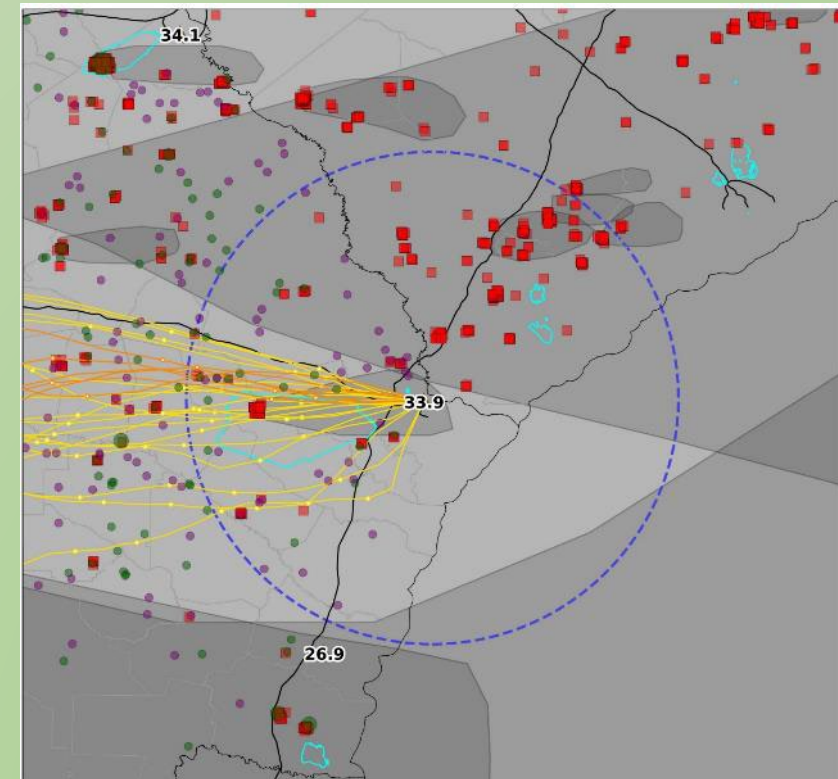
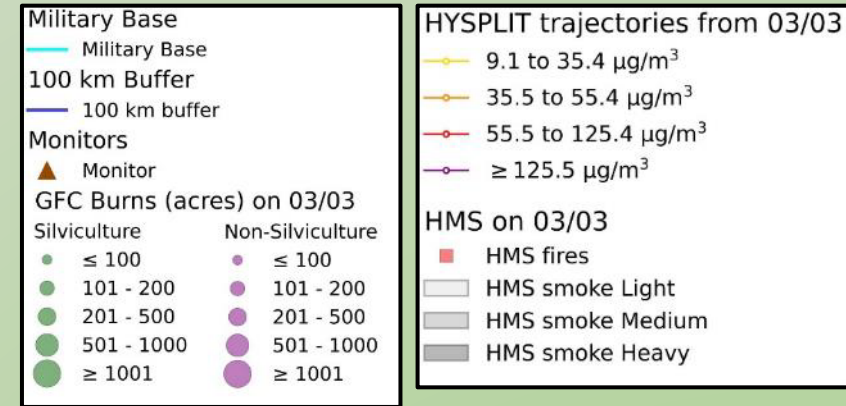


Kudos to FDEP for
Volunteering to
Create this
Helpful Canadian
Wildfire Example
EE Demo!!!



Georgia Prescribed Fire Example

- GA EPD has informed us that they are estimating that they need to prepare EE demonstrations for the upcoming PM designations for well over 100 PM_{2.5} monitor exceedances, mainly caused by prescribed fire impacts
- They have been spending significant amounts of time on developing a template for prescribed fire EE demos
 - Using the California Rx Fire EE demo as a guide
 - Focusing on streamlining as much as possible
- GA is planning to share with EPA for review soon
- Jim Boylan will share more details in his presentation



Georgia Prescribed Fire Tabletop Exercise

- January 16-18, 2024, at the Jones Center @ Ichuaway in SW GA
- Federal, State, & Local land managers met with air quality regulators and other Rx fire stakeholders
- Facilitate understanding and dialog concerning how to maintain/increase use of prescribed fire, while protecting public health and minimizing impacts on air quality
- Outcome: Georgia Prescribed Fire and Air Quality Task Force – 5 Workgroups formed to focus on specific issues
 1. Area and State Planning Workgroup
 2. Rx Fire/Air Quality Best Practices Workgroup
 3. Exceptional Events Workgroup
 4. Public Communication and Burner Outreach Workgroup
 5. National Rx Fire Conversation Workgroup
- Workgroups have begun meeting and making progress
 - Group 1: Work on revising GA State Wildlife Action Plan (SWAP) to incorporate data and info to support EE demonstrations
 - Group 3: Work has begun on Rx Fire Exceptional Events demonstrations
 - Group 4: Work on crafting consistent public messaging re: Rx fire and air quality/public health





SERPPAS Prescribed Fire Initiative

<https://serppas.org/strategic-plan-and-focus-areas/southeast-prescribed-fire-initiative/>

- Southeast Regional Partnership for Planning and Sustainability (SERPPAS)
- Partnership between Federal and State Agencies in NC, SC, GA, FL, AL & MS focusing on sustainability issues in the southeast
- SERPPAS Prescribed Fire Workgroup
- SERPPAS Smoke and Air Quality Subcommittee (Exceptional Events Task Force)
 - Planning a Smoke and Air Quality Meeting at EPA HQ in RTP, NC in November 2024

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SERPPAS Meetings

Southeast Prescribed Fire Initiative

Restores ecosystems
Reduces risk of catastrophic wildfires
Protects air quality
Improves wildlife habitat

About

Fire is a critically important agent of renewal in natural ecosystems. However, wildfires can pose a substantial risk to people and infrastructure and the Southeast has more wildfires than any other region. The Southeast region also includes several fire-dependent ecosystems where prescribed burning is necessary to safely manage the land and resources. By promoting prescribed fire as a land management tool, SERPPAS partners minimize the risk of destructive wildfires while restoring critical habitat and species in the Southeast.

Working with fire experts from around the region, the SERPPAS Prescribed Fire Work Group developed a Comprehensive Prescribed Fire Strategy that guides their work. This strategy describes regional, state, and local activities needed to progress toward the strategic goals. The strategy recommends leveraging numerous

Coordination with DOD and Land Managers

- An important outcome from both the GA Tabletop Meeting and Smoke Summit VI was that coordination with DOD, USDA FS, DOI, State and Local Land Managers/Rx Burners will be critical
 - Follow State Smoke Management Programs (SMPs) or use Basic Smoke Management Practices (BSMPs)
 - Public notification and education about Rx burning and potential smoke exposure/actions to protect yourself (<https://www.airnow.gov/wildfires/>)
 - Share documentation with State Air Quality Agencies and EPA for use in Exceptional Event Demonstrations
- Through the efforts of DOD leadership and others, prescribed fire data is now being shared by more military installations with state forestry and air quality agencies



Southeast Smoke Management Collaboration





http://pzrservices.typepad.com/vintageadvertising/vintage_public_service_announcements_psas/

Questions?

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