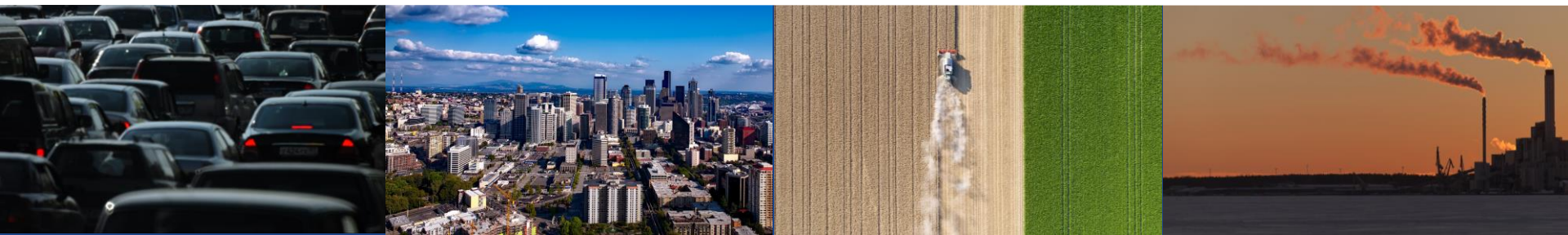


# 2022 Regulatory Emissions Modeling Platform Quarterly Update

National Emissions Collaborative

August 6, 2025



# Agenda

- Summary of activities and accomplishments to date (Mary/Zac)
- Communication support update (Comms)
- Community Poll on analytic years and future modeling needs (Zac)
- Air quality modeling update (EPA)
- 2022v2 base year emissions updates (EPA)
- Comparison of the 2022v1 and 2022v2 base year emissions (EPA)
- Schedule check in (Comms, Mary, Zac)



# 2022 EMP Collaborative

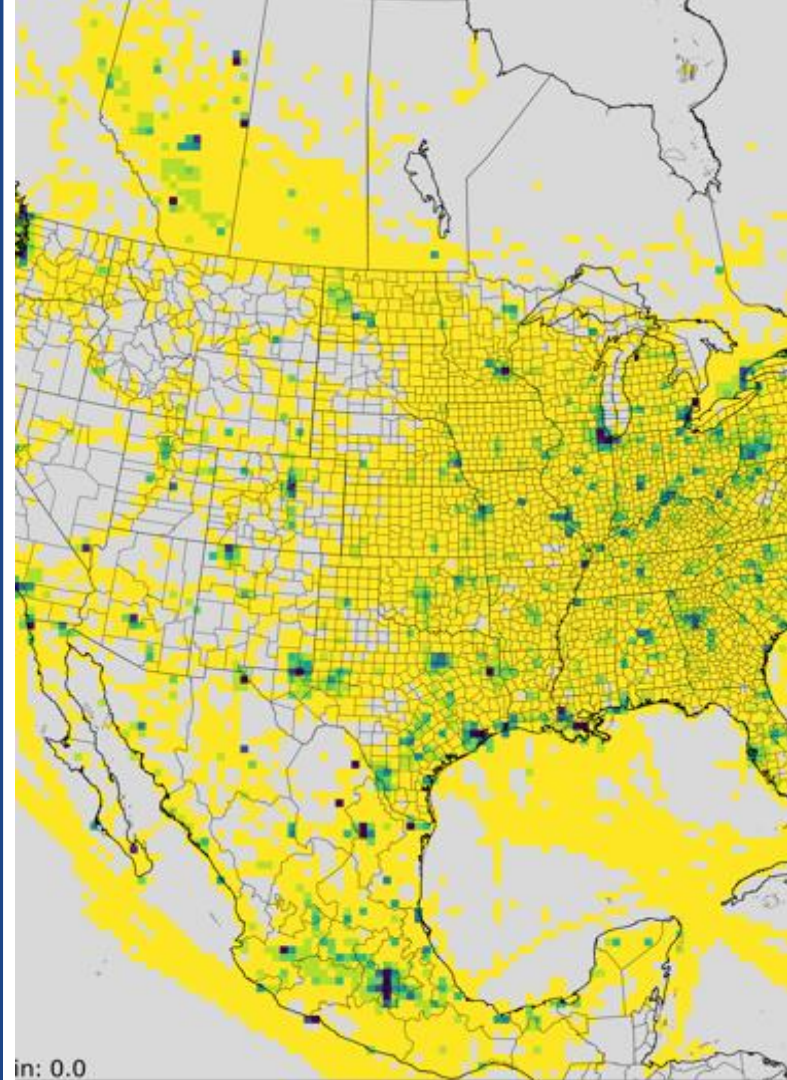
- Co-leads
  - Zac Adelman (LADCO), Mary Uhl (WESTAR), and EPA OAQPS
- Communication support
  - Rhonda Payne (WESTAR/WRAP), Tom Richardson (OK DEQ), Tom Moore (Denver/NFR RAQC)
- Coordination Committee
  - 28 members from MJOs, state agencies, and US EPA staff from OAQPS, OTAQ, and CAMD
  - Monthly calls
  - Quarterly outreach webinars
- Workgroups
  - Leverage existing national emissions workgroups
  - Some 2022-specific workgroups have been created, e.g., fires and projection





# Summary of Activities and Accomplishments

- 2022v1 base year
  - Modeling platform package release including emissions and air quality model inputs
  - Model-ready emissions are available for 36km and 12km grids
- 2022v1 analytic year emissions for 2026
  - Modeling platform package released
  - Model-ready (CMAQ) and CAMx emissions are available for 12km grid (12US1)
- 2022v2 base year emissions
  - Base year emissions released.
  - S/L/T comment period closed and EPA has released comments and responses.
  - Final work on base year emissions underway.



# Communication Support Update



This Photo by Unknown author is licensed under [CC BY NC ND](#).

# 2022 EMP Communications Plan

## Goals of Outreach:

- 2022v2 base year release
- Analytic years for v2 important for certain critical SIP obligations
  - Continue engaging with states and locals to share updates on the direction and timeline for v2 of the analytic years
  - Gather feedback from the community and communicate shared concerns with EMP leadership and EPA about continuing work on v2





# Plans going forward

- Explore options for continued work
  - Document the work performed to date
  - Development of analytic year modeling platform components for the 2032 and 2038 analytic years
  - Request assistance from EPA to complete the work of the EMP collaborative
  - Provide technical tools and capacity building assistance!



# Continued work on Analytic Years

The Projections Workgroup is evaluating different options and approaches.

- Looking at a *de minimis* control scenario approach
  - Include activity projections based on work already completed in v1
  - Re-evaluate analytic year controls, focusing on rules expected to remain OTB
  - States could apply additional controls as warranted.
  - Need to evaluate technical challenges.

Continued Collaboration with EPA would be immensely helpful due to EPA's technical abilities, past program experience, etc.





# Request for Additional EPA Assistance

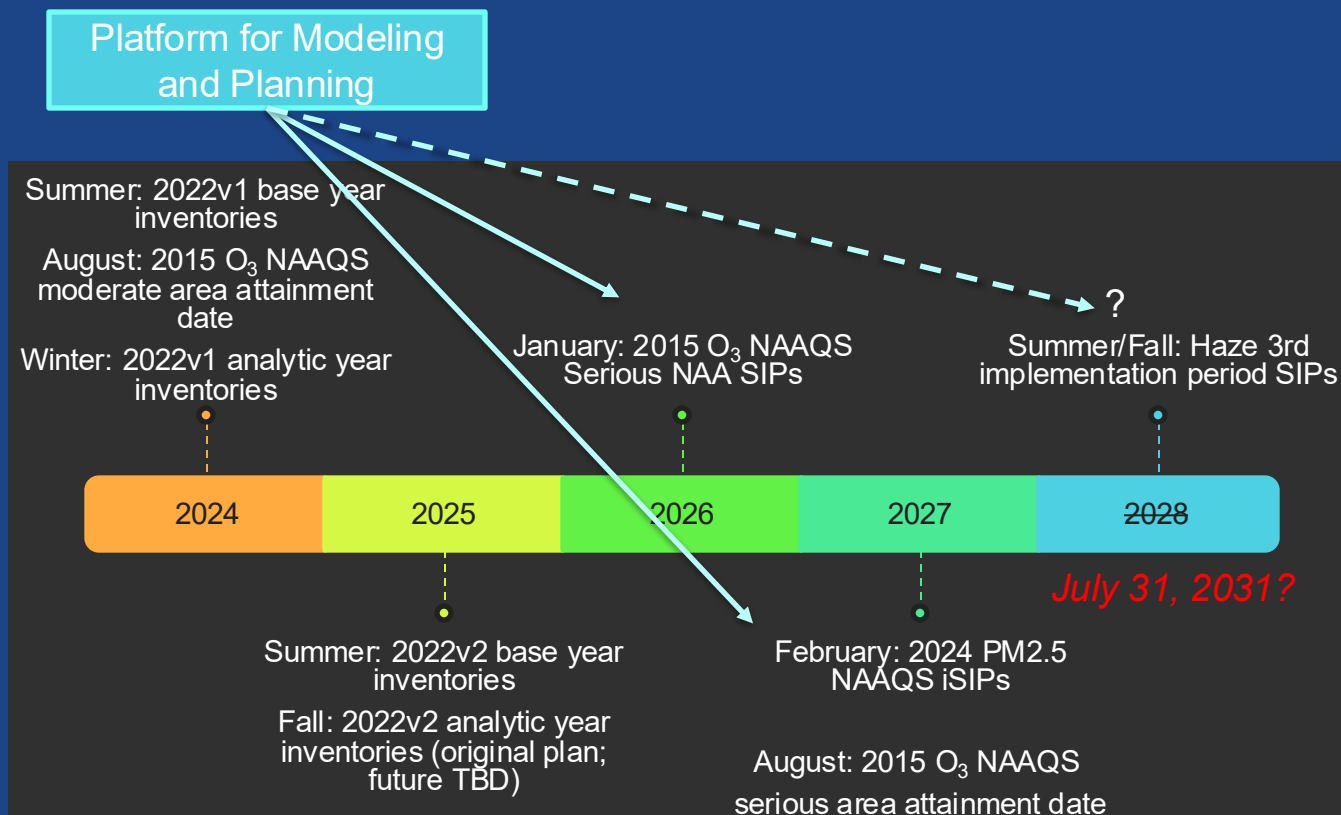
States need v2 of EMP for:

- Serious ozone SIPs – States plan to use 2026v1 data, but would prefer v2 & need 2032 if not attaining standard by 2027
- 2032 for PM2.5 transport SIPs
- Regional Haze SIPs
- Specific AQ mgmt. agency needs – examples:
  - Permitting actions that require analysis of project emissions' contributions to ozone or PM2.5
  - EPA Hemispheric CMAQ evaluation of international anthropogenic transport contributions - States may benefit if they are developing §179(b) demonstrations

MJO letter to describe needs and relay importance of EMP to EPA leadership



# Ongoing use of 2022 EMP for Planning Applications



## Needs:

- *RH Round 3 SIPs*
- *PM<sub>2.5</sub> and Ozone NAA planning*
- *PM<sub>2.5</sub> Transport SIPs*
- *Exceptional Events Analysis*
- *Rulemaking*
- *Regional Planning needs*

# Community Poll: What Are the Needs for a National Emissions Modeling Platform in 2025-26





# Poll Purpose and Intent



## **MJO Letter to EPA**

Formally request ongoing collaboration and engagement from the EPA through the EIC.

## **Proposing National EMPs**

The letter will highlight the need for one or more analytic year national EMPs within the next one to two years.

## **Gathering Community Input**

The poll collects feedback from the community to ensure your voices and needs are reflected in the MJO letter.

# What Are the Needs for a National Emissions Modeling Platform in 2025-26?

## What Are the Needs for a National Emissions Modeling Platform in 2025-26?

Aug 6, 2025

Thank you for participating in this survey. Your feedback will help shape the development of a National Emissions Modeling Platform for 2025-26. Please answer the following questions based on your organization's needs and experiences. Your responses are valuable and will remain confidential.

Start now

<https://forms.office.com/r/Rs6LdbkzYX>

What Are the Needs for a National Emissions Modeling Platform in 2025-26?



# EPA's 2022v1 Air Quality Modeling





# Data Sharing: EPA's 2022 Modeling Platform v1

Data are posted on [AWS](#) through EPA's participation in the AWS Open Data Program

- Meteorological data
- Global model outputs
- 36US3 and 12US2 initial and boundary conditions
- 36US3 and 12US2 CMAQ and CAMx reference output (one day model output for users to check their runs)
- Model ready emissions v1 data for CMAQ and CAMx
- **Site comparison\* files of 12US2 2022 platform v1 preferred CMAQ and CAMx configurations were recently added**

The screenshot shows the AWS Marketplace interface. At the top, there's a search bar and navigation links like 'About', 'Categories', 'Delivery Methods', 'Solutions', 'AWS IQ', 'Resources', and 'Your Saved List'. The main content area features the 'The AWS Open Data Sponsorship Program' logo on the left and the 'OAQPS 2022 Modeling Platform' listing on the right. The listing includes a description: 'Provided by: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards; Air Quality Assessment Division, Air Quality Modeling Group, part of the AWS Open Data Sponsorship Program'. It also states: 'This product is part of the AWS Open Data Sponsorship Program and contains data sets that are publicly available for anyone to access and use. No subscription is required. Unless specifically stated in the applicable data set documentation, data sets available through the AWS Open Data Sponsorship Program are not provided and maintained by AWS.'

The screenshot shows the AWS S3 Explorer interface for the 'epa-2022-modeling-platform' bucket. At the top, it says 'AWS S3 Explorer' and 'epa-2022-modeling-platform'. Below that, there's a 'Show 50 entries' dropdown. The main area lists the objects in the bucket, including '12US2\_wrfcamx/', 'bcon/', 'CAMx\_ancillary\_inputs/', 'CAMx\_output/', 'CMAQ\_ancillary\_inputs/', 'CMAQ\_output/', 'emis/', 'global/', 'MCIP/', 'Model\_jobs/', 'SiteComp/' (highlighted with a red box), 'WRF/', and 'wrfcamx/'. At the bottom, it says 'Showing 1 to 13 of 13 entries'.

\* Model outputs paired with monitoring observations at all monitoring sites for daily and hourly frequency.

## Data Sharing: EPA's 2022 Modeling Platform v1: Site comparison files

### SiteComp/2022EMPv1\_CMAQ/2022hc\_cb6\_HEMI\_clean/

- Version: CMAQv5.4
- Domain: 2022 12US2 simulations
- Chemical Mechanism: STAGE\_EM and CB6r5 AE7 AQ nvPOA
- Biogenics: BEISv4, inline
- Lightning: WWLLNs, inline
- Bi-directional NH3, inline
- Anthropogenic Emissions: Based on OAQPS 2022hc
- Windblown Dust: Turned off
- Boundary Conditions (BCs): From 2022 CMAQ 36US3 HEMI-CMAQ BC clean run

### SiteComp/2022EMPv1\_CAMx/2022hc\_cb6\_HEMI\_clean\_NH3Rscale0v2/

- Version: CAMxv7.2.0
- Domain: 2022 12US2 simulations
- Chemical Mechanism: ZHANG03, CB6r5\_CF2E
- NH3: Rscale set to 0 (CAMx7.2.chemparam.CB6r5\_CF2E)
- Biogenics: BEISv4 (from offline data)
- Lightning: WWLLNs (from offline data)
- Bi-directional NH3 off
- Anthropogenic Emissions: Based on OAQPS 2022hc
- Dust: no
- Boundary Conditions (BCs): From 2022 CMAQ 36US3 HEMI-CMAQ BC clean run

## Next steps

- Complete Technical Support Document of air quality modeling for 2022 EMP v1 platform
- Run CMAQ and CAMx models using v2 emissions, update TSD

# 2022v2 Emissions Modeling Platform Base Year Emissions Updates







# 2022v2 Base Year Data Review

- The [2022 platform Sharepoint site](#) was used for states to submit comments
  - State-specific files of the emissions data were provided on the Sharepoint site for download
- 30 comments were received from 13 agencies: AZ, CT, Clark cty., DC, GA, ID, MI, NV, NJ, NC, OK, TX, UT
- Sectors that received comments
  - 6 on electric generating units
  - 7 on other point sources
  - 5 on fires
  - 4 on onroad mobile
  - 1 on aircraft
  - 1 on locomotives
  - 1 on residential wood combustion
  - 1 on nonpoint oil and gas
  - 4 on other nonpoint sources

The [2022v2 web page](#) provides relevant links for the 2022v2 platform including responses to comments

## 2022v2 Emissions Modeling Platform

The 2022v2 Emissions Modeling Platform is based on the 2020 National Emissions Inventory released in the spring of 2023, with updates to better represent the year 2022. It is being created as a product of the National Emissions Inventory Collaborative and will support multiple applications. The modeling platform contains emissions inventories for 2022, spatial surrogates, temporal profiles, and other ancillary files. The 2022 emissions in the 2022v2 platform have some updates from those in the 2022v1 platform.

- [2022v2 Data Files and Summaries](#)
- [2022v2 Summary Documentation](#)
- [View responses to comments on the 2022v2 Platform](#)
- [2022 National Emissions Collaborative Wiki](#) 
- [View and submit comments on the 2022v2 EMP](#) 

To view or submit comments on the EMP, permission must be granted. If you do not already have access and you would like to provide EPA with a comment on the 2022v2 EMP, please use the Contact Us link (include "2022v2 EMP Comment Access" and your email address in the "Comments" box). Following this request, you will receive an email with a link to the "Comments on the 2022v2 EMP" SharePoint site.

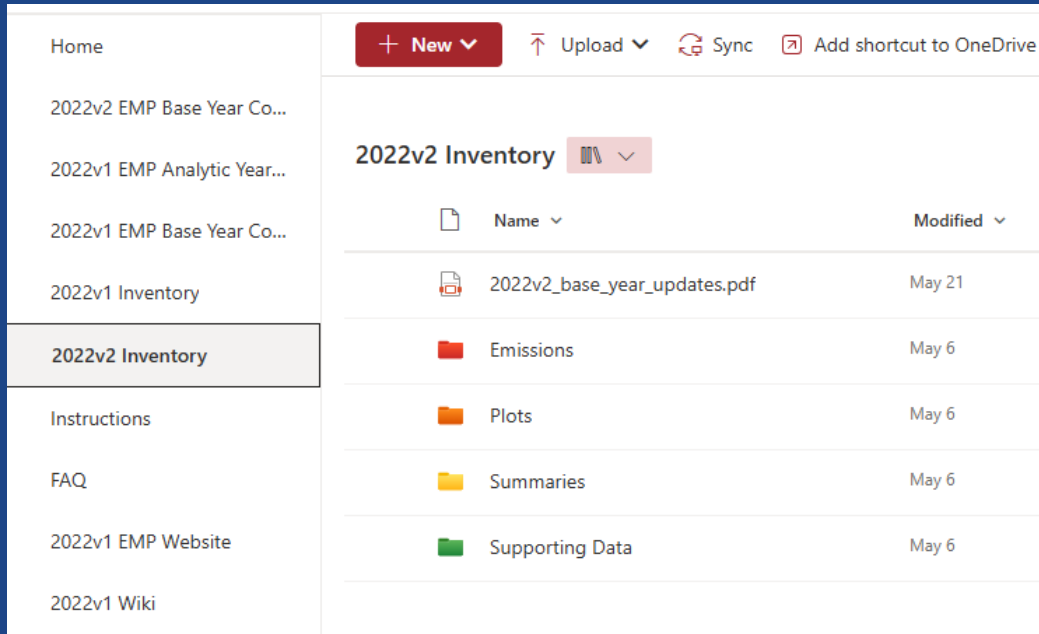
# 2022 EMP Sharepoint site shows data, comments, and responses

The screenshot displays the 'Comments on the 2022 EMP' page. On the left, a sidebar contains a list of links: 'Home', '2022v2 EMP Base Year Co...', '2022v1 EMP Analytic Year...', '2022v1 EMP Base Year Co...', '2022v1 Inventory' (highlighted with a yellow box and an arrow), '2022v2 Inventory', 'Instructions', 'FAQ', '2022v1 EMP Website', '2022v1 Wiki', and '2022 EMP News'. The main content area features a header with 'CE' and 'Comments on the 2022 EMP', along with group settings: 'Public group', 'Not following', and '4 members'. Below the header are options for '+ New', 'Page details', 'Preview', and 'Analytics', and a publication date of 'Published 6/16/2025'. The main content area contains four large image buttons: '2022v2 EMP Base Year Comments' (with text 'Comment period is now closed →'), 'View the 2022v2 Inventory', 'Instructions for Submitting a Comment', and 'Frequently Asked Questions'.

Each picture is a button that can be clicked

The data and pages related to the 2022v1 EMP are still available on the left

# Accessing the Data on the Sharepoint Site



Home

+ New Upload Sync Add shortcut to OneDrive

2022v2 EMP Base Year Co...

2022v1 EMP Analytic Year...

2022v1 EMP Base Year Co...

2022v1 Inventory

**2022v2 Inventory**

Instructions

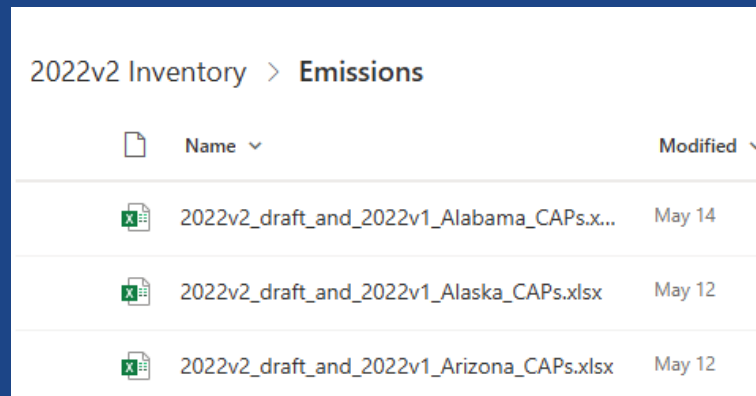
FAQ

2022v1 EMP Website

2022v1 Wiki

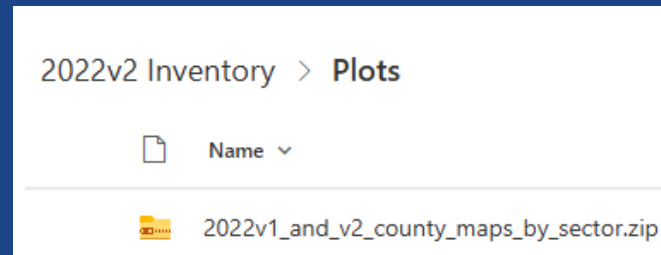
**2022v2 Inventory**

Name	Modified
2022v2_base_year_updates.pdf	May 21
Emissions	May 6
Plots	May 6
Summaries	May 6
Supporting Data	May 6



2022v2 Inventory > Emissions

Name	Modified
2022v2_draft_and_2022v1_Alabama_CAPs.x...	May 14
2022v2_draft_and_2022v1_Alaska_CAPs.xlsx	May 12
2022v2_draft_and_2022v1_Arizona_CAPs.xlsx	May 12














2022v2 Inventory > Plots

2022v1_and_v2_county_maps_by_sector.zip
---

- Emission files for 2022v2 draft and 2022v1 were provided by state
- County maps and comparisons were provided for key pollutants for each sector

# Summaries and Supporting Data Were Also Provided

2022v2 Inventory > Summaries	
 Name ▾	
 2022_point_facility_comparison_22hc-22hd...	
 2022_point_unit_gt1tpy_comparison_22hc-...	
 2022hc 2022hd onroad activity compariso...	
 2022hc_2022hd_state-scc-sector_comparis...	
 2022v2 ptnonipm hourly source emissions....	

2022v2 Inventory > Supporting Data		
 Name ▾		Modified ▾
 2022hd_ptegu_multimatch_unit_list.xlsx		May 21
 fireloc		May 12
 fireloc_ag		May 12
 MOVES_CDBs_2022v2_2022_20250303.zip		May 20

Provided summaries included facility and unit-level comparisons, state+SCC+sector comparisons  
Supporting data included EGU multi-match units, fireloc files and MOVES County databases



# Sharepoint Interface for Comments

2022v2 EMP Base Year Comments ☆ ☑



All Items ▾

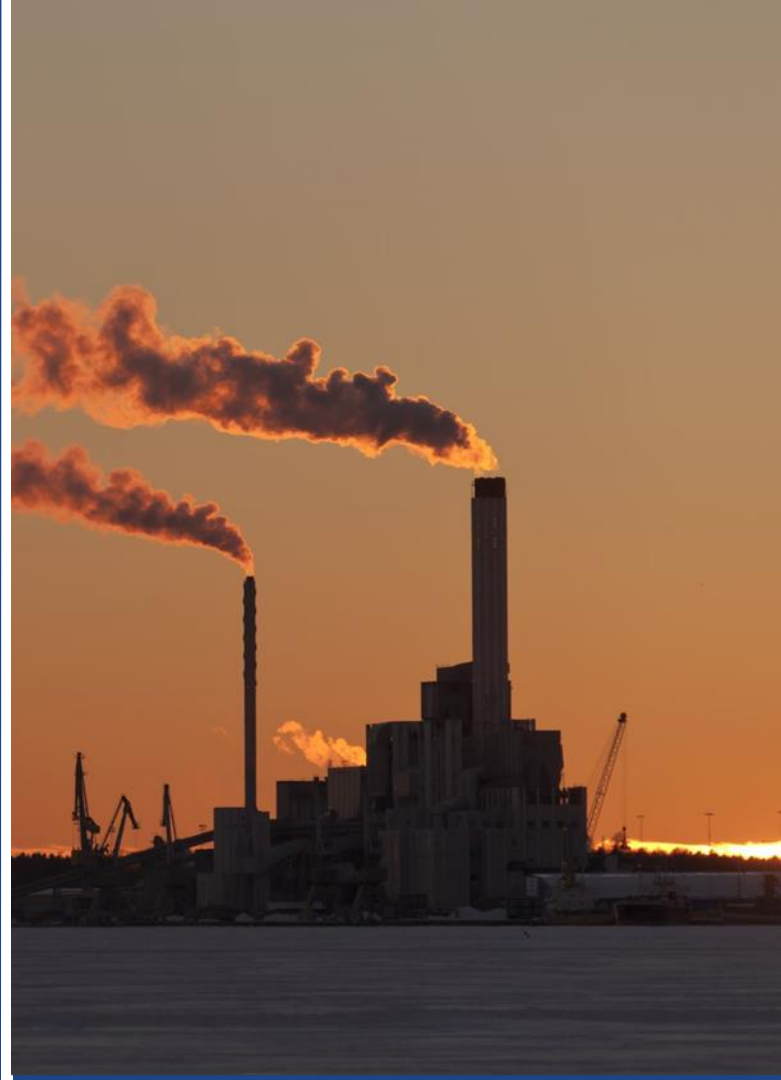
+ Add view

Name	Date	Organization	EIS Sector	Geographi...	EPA Region	Brief description of comment	EPA Response
Steven Potter	6/4/2025 3:08 PM	Connecticut DEEP	Mobile - On-Road Diesel Heav	Connecticut	Region 1	Connecticut 2022 platform annual VMT for all source use types should be about 29,666 million miles a year rather than a value on the order of 31 billion miles.	
Lexie Wilson	6/9/2025 11:38 AM	Utah Division of Air Quality	Industrial Processes - Mining	Utah	Region 8	<p>Emissions from big mining trucks at a Utah copper mine (Kennecott) are kicked out from EIS because they are reported under a mobile source SCC (2270002051). These emissions for 2022 are attached, and should be added back to the 2022 modeling platform.</p> <p>Utah has some other point sources that report mobile emissions from smaller sources (forklifts, construction equipment, some mining equipment, some lawn/garden etc.) that are also missing from the platform. These statewide emissions are generally small, so I've attached them separately from the mining truck emissions file. (527 TPY NOx statewide; 160 TPY PM2.5 statewide; 215 TPY VOC statewide)</p>	
Allie Pindilli	6/9/2025 1:29 PM	NJDEP	Fires - Wildfires	NJ Statewide	Region 2	<ol style="list-style-type: none"><li>1. EPA Wildfire acres burned are lower than NJ for 2022V1 and V2 by 1652 acres. This comment was also made for 2022v1.</li><li>2. EPA wildfire emissions decreased ranging from 66 to 79% from 2022v1 to v2.</li><li>3. The county distribution for EPA's Wildfire acres burned are different for both 2022V1 and V2 than what NJ submitted, see attached summary, and especially by a significant amount in Burlington and Atlantic Counties.</li></ol>	

Comments include submitter information, date, EIS sector, geography, and brief descriptions

# Point Source Comments

- Point source emissions were included in county totals
  - This was requested by states so the county total emissions are complete
- Critical errors during some state submittals prevented some updated data from being incorporated into the inventory
- Merging of facilities resulting in double-counting of emissions because original facilities were not shut down
- Emissions for sources that were not shutdown in 2022 were pulled forward from 2020 or 2021
- Some mobile source emissions from a large mine in Utah were not included
- A typo in a submittal was corrected



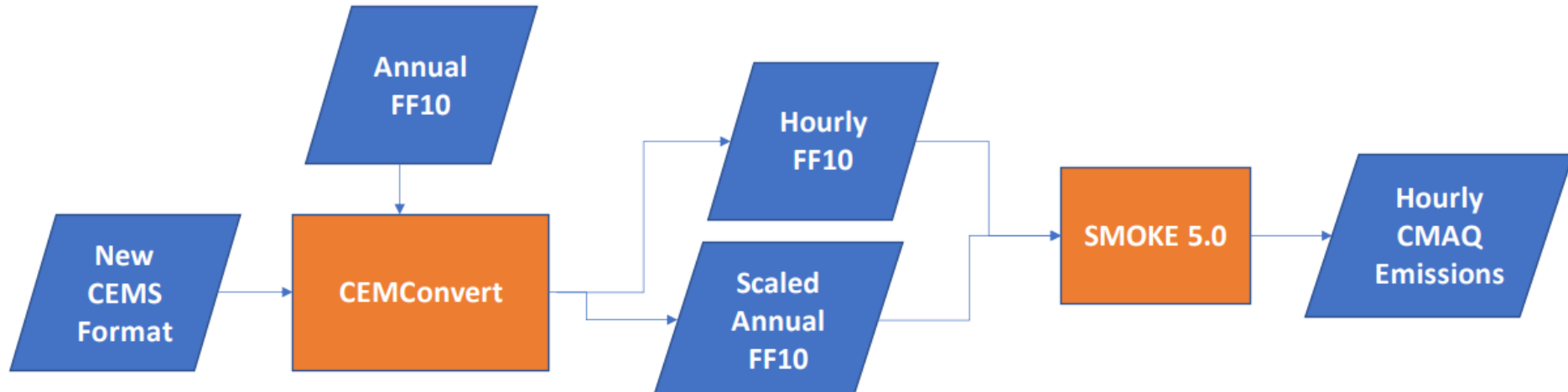
# Point Source Comments (ctd.)

- Commenters noted additional pollutants were available in the inventories
- In addition to State/local/tribal-submitted data, the point inventory leverages other emissions datasets reported to EPA
  - If emissions are submitted to the Toxics Release Inventory (TRI) but not to EIS, TRI emissions are added to the final inventory
- EPA estimates Carbon Monoxide (CO) and Hazardous Air Pollutant (HAP) emissions from large landfills.
  - See [Section 3.5](#) of the 2020 NEI TSD.
- Continuous Emissions Monitoring System (CEMS) data overrides NO<sub>x</sub> and SO<sub>2</sub>



# CEMS data and EGU Emissions in the Modeling Platform

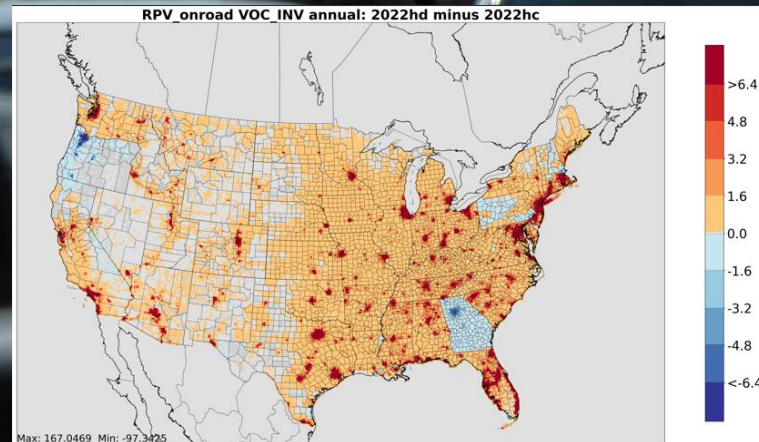
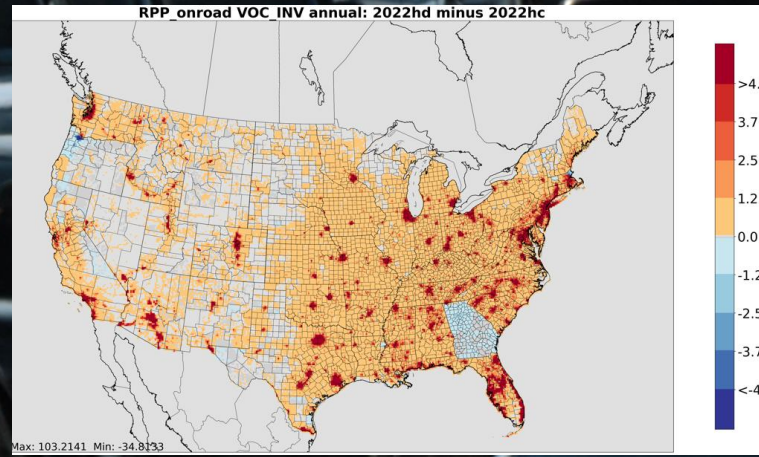
- Some commenters noted that NO<sub>x</sub>/SO<sub>2</sub> EGU emissions in the platform did not match what was submitted to EIS.
- Some units in the EGU sector are matched to Continuous Emissions Monitoring System (CEMS) data via ORIS facility codes and boiler IDs.
- For the matched units, the annual emissions of NO<sub>x</sub> and SO<sub>2</sub> in the flat file were replaced with the hourly CEMS emissions for 2022. Alterations are almost always < 1 tpy or only a few % change.





# Mobile Source Comments

- Short-haul combination truck emissions increases throughout the country along with single unit long-haul truck emissions in some states
  - Long- vs. short-haul combination truck splits were updated in 2022v2 based on a new Vehicle In-Use Survey (VIUS)
  - For single unit trucks, new information became available from updated vehicle population data for 2022v2 / 2023 NEI
- Comment: Some states (GA, OR, PA) have decreases in vapor fuel venting and other evaporative emissions while other states showed increases.



## Mobile Source Comments (ctd.)

- North Carolina Division of Air Quality requested that the activity data be released so that emissions rates vs activity changes could be reviewed
- Washington D.C. DOEE noticed emissions at a railyard were incorrect – this was fixed
- Washington D.C. DOEE provided heliport emissions, but there is no SCC for these yet so they could not be included
- Connecticut mentioned their VMT was incorrect. We found that their submitted data were used but had been converted to annual values.



# Oil and Gas Comments

- Oklahoma DEQ mentioned the importance of drill rig emissions and the correction of the emissions factors for drill rigs that were applied in 2022v2
- Should consider performing additional investigations in the future to confirm the age of the drill rig engines and other factors driving emissions rates of the sources
- Currently, there is a lack of information on the age of these engines. Potentially investigate this for future NEIs.



## Fire Sector Comments from New Jersey

- County distribution of 2022v2 prescribed and wildfire acres burned is different than acres burned submitted by New Jersey
- Multiple fire activity data sources are used including USFS and DOI databases
- Further investigation by EPA found two unconfirmed prescribed burns from a DOI database; the two burns will be removed
- some fires can occur along county boundaries or in multiple counties making accounting for acres burned by county complicated.
- Mullica River wildfire used updated CONSUME module in version 2 that reduced emissions





## Fire Sector Comments from Georgia

- Many different summaries were provided for fires
- How come the emissions from one summary didn't match up with another summary for Georgia?
- This resulted in finding some duplicate fires in Georgia which will be removed in 2022v2
- How come there are pile burns in Georgia when our submitted activity did not have any pile burns?
- Pile burns in Georgia were actually submitted by Alabama and the coordinates put these burns in Georgia. These burns will be removed in 2022v2



# Fire Sector Workgroup meeting

- Scheduled for September 3 at 2 PM Eastern
- Will summarize changes to fires in version 2



# Nonpoint Sector Comments

- Idaho submitted an updated inventory for residential wood combustion using methods more similar to those used elsewhere in 2022v2
- One state requested some nonpoint emissions be removed due to being duplicative of emissions in the point source inventory





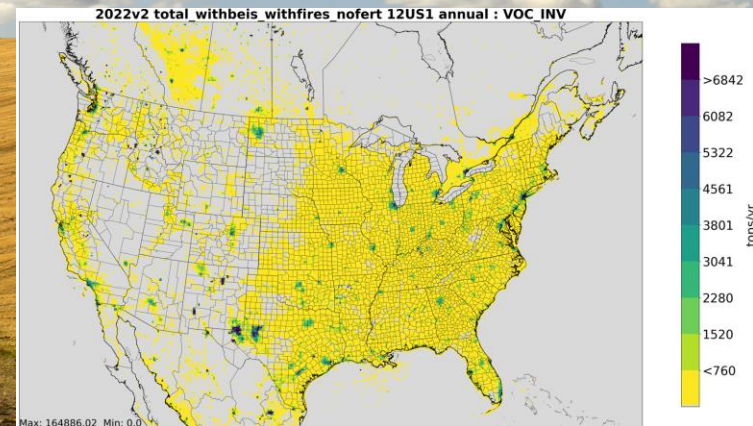
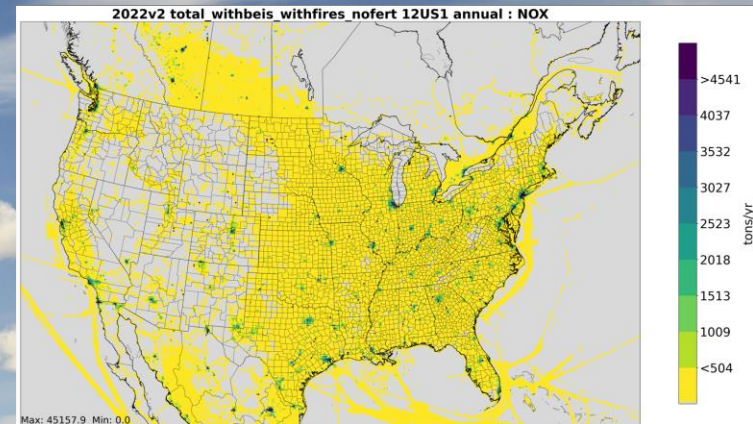
# 2022v2 vs 2022v1 Emissions Comparison





# 2022v2 Base Year Summary of Updates from 2022v1

- Emissions updated for various sectors based on residual comments received on 2022v1 and based on newly available data
- Sectors with significant updates include **onroad** and **residential wood combustion**
- Sectors with minor updates include nonroad, airports, point sources (including CEMS data for some non-EGUs), fugitive dust, livestock waste, oil and gas, fires and other nonpoint
- Some new data are incorporated for Mexico including new data from SEMARNAT in near-border states and new MOVES-Mexico

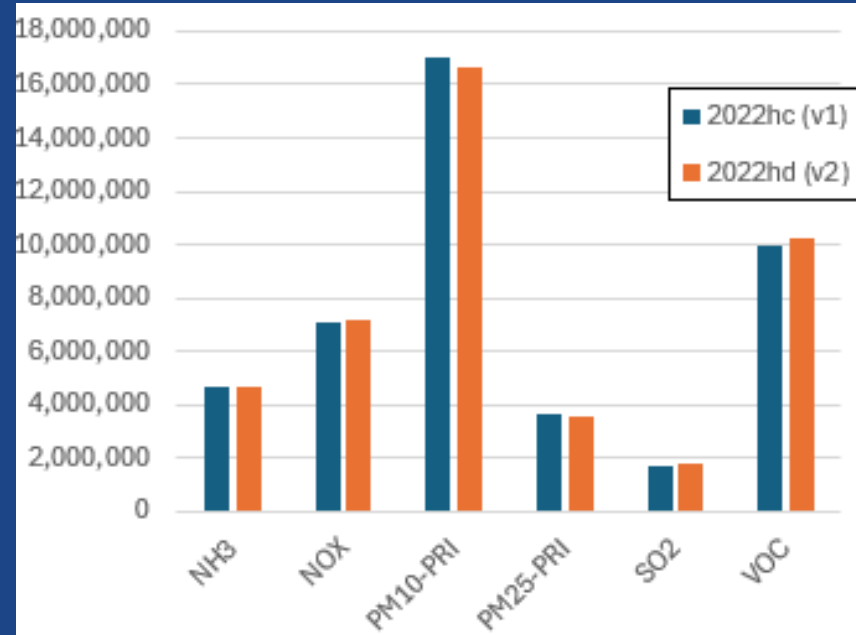


# Continental U.S. Anthropogenic Emissions Totals for 2022v1 and 2022v2 Base Year

Case abbreviations: 2022hc (v1), 2022hd (v2)

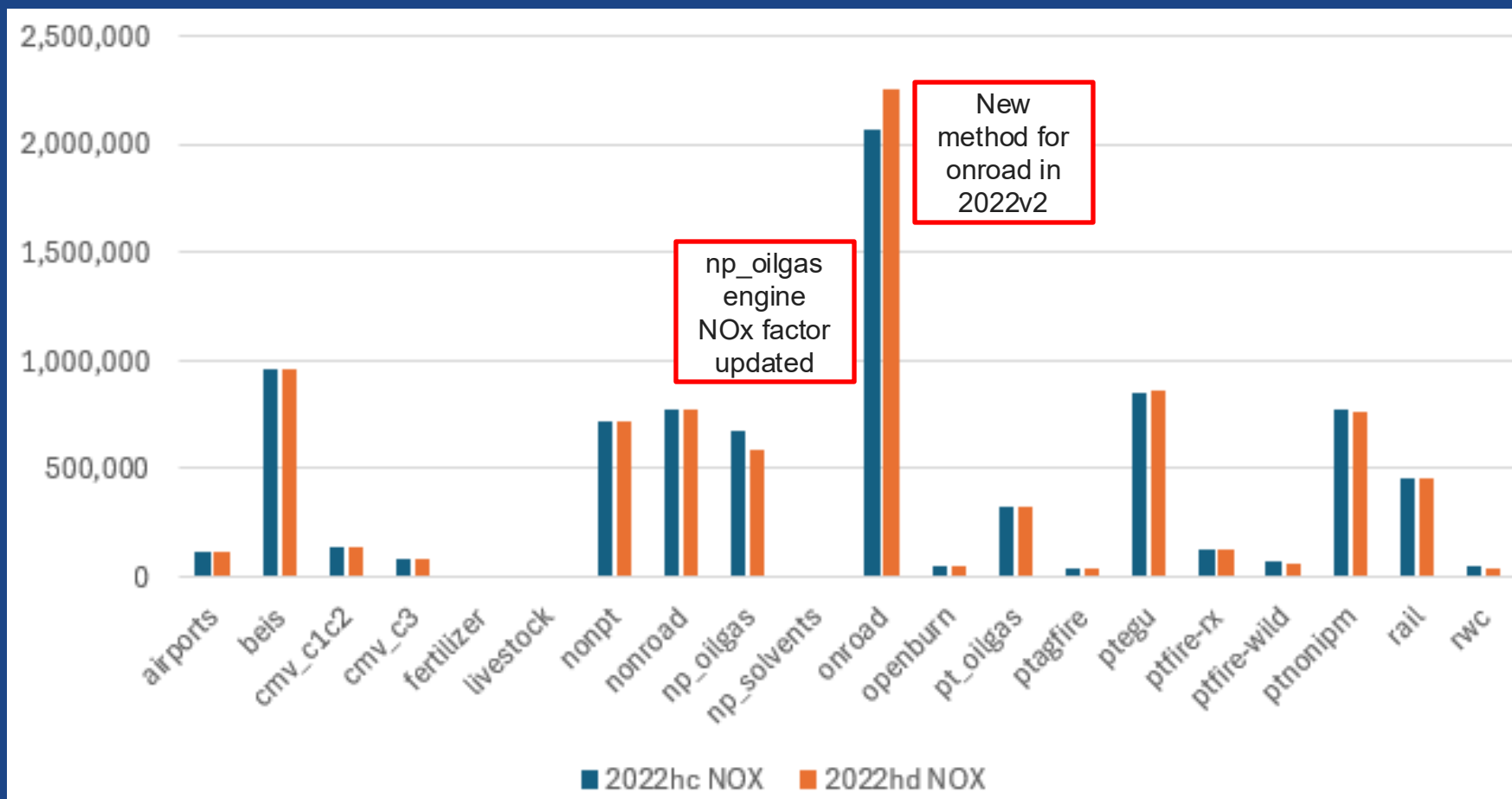
Pollutant	2022hc (v1)	2022hd (v2)	2022hd-2022hc
CO	32,619,000	33,974,000	1,355,000
NH <sub>3</sub>	4,712,000	4,711,000	-1,000
NO <sub>x</sub>	7,069,000	7,146,000	77,000
PM <sub>10</sub>	16,982,000	16,665,000	-317,000
PM <sub>2.5</sub>	3,613,000	3,589,000	-24,000
SO <sub>2</sub>	1,753,000	1,755,000	2,000
VOC	9,992,000	10,216,000	224,000

2022v1 and 2022v2 base year  
Anthropogenic Emissions (tpy)



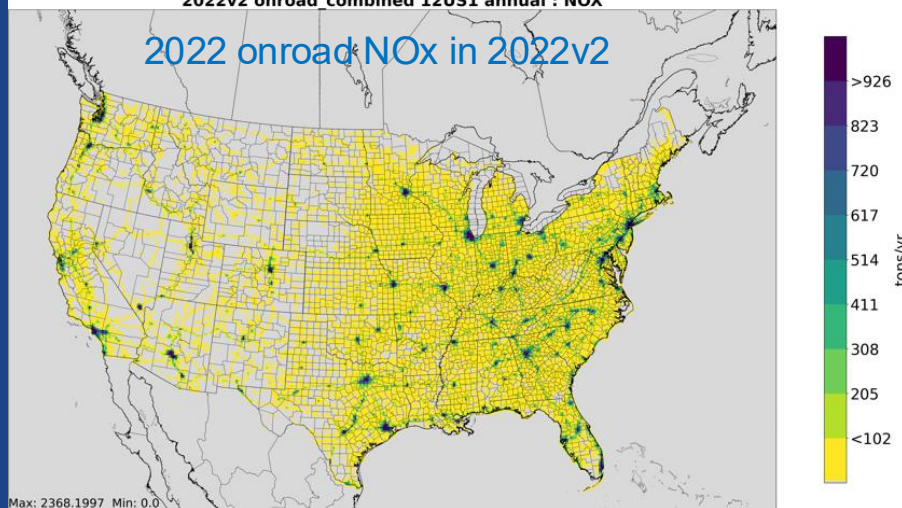
Data are rounded to the nearest 1,000 tons per year

# Continental U.S. Oxides of Nitrogen Emissions (tons/yr)



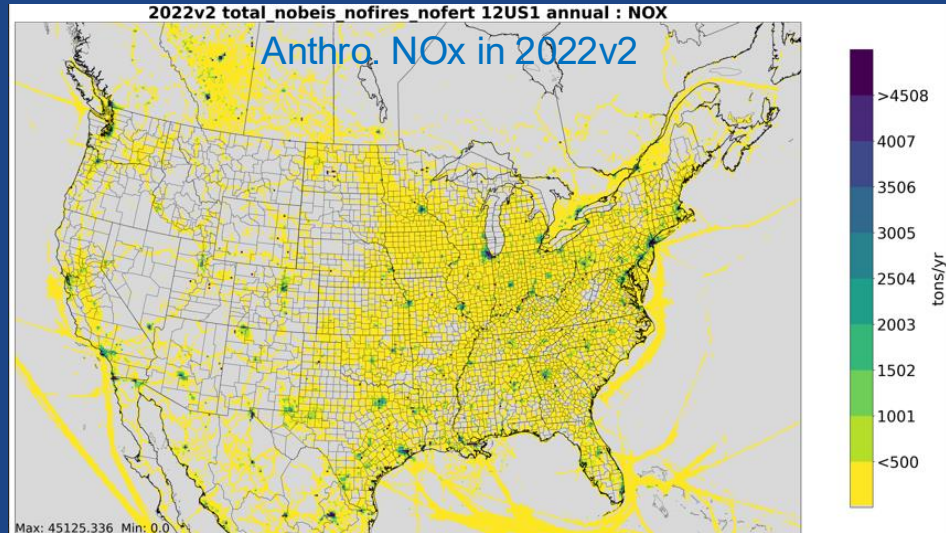
2022v2 onroad\_combined 12US1 annual : NOx

2022 onroad NOx in 2022v2



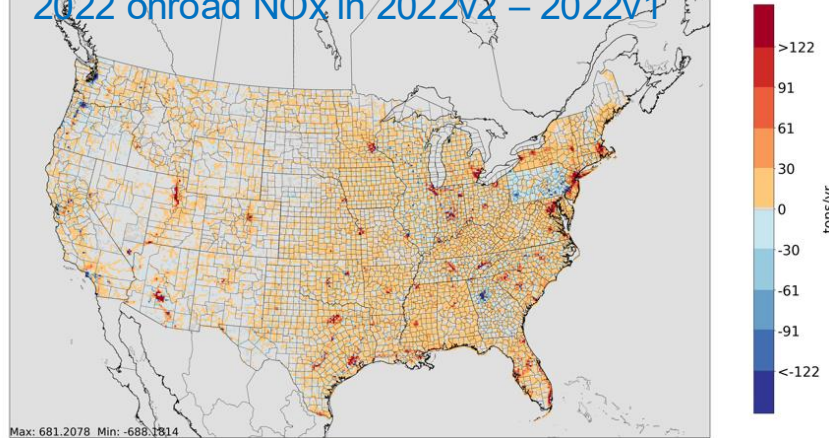
2022v2 total nobeiss\_nofires\_nofert 12US1 annual : NOx

Anthro. NOx in 2022v2



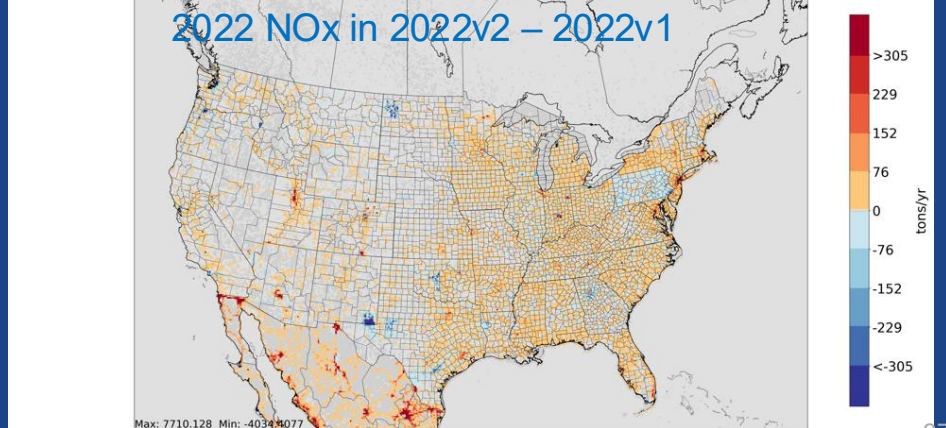
2022hd\_cb6\_22m minus 2022hc\_cb6\_22m annual emissions absolute difference: onroad\_combined NOx

2022 onroad NOx in 2022v2 – 2022v1



2022hd\_cb6\_22m minus 2022hc\_cb6\_22m annual emissions absolute difference: total withbeis\_withfires\_nofert NOx

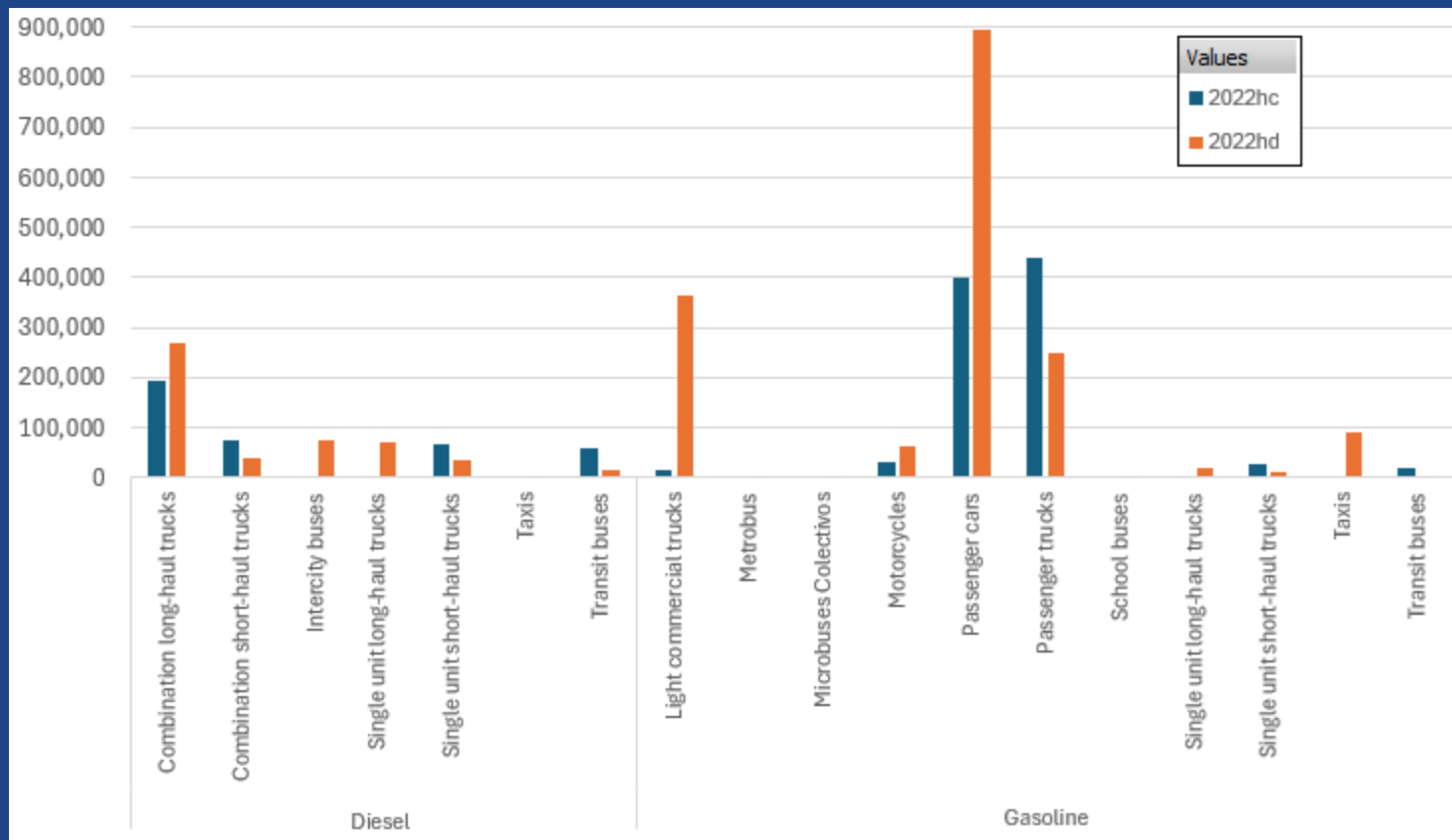
2022 NOx in 2022v2 – 2022v1



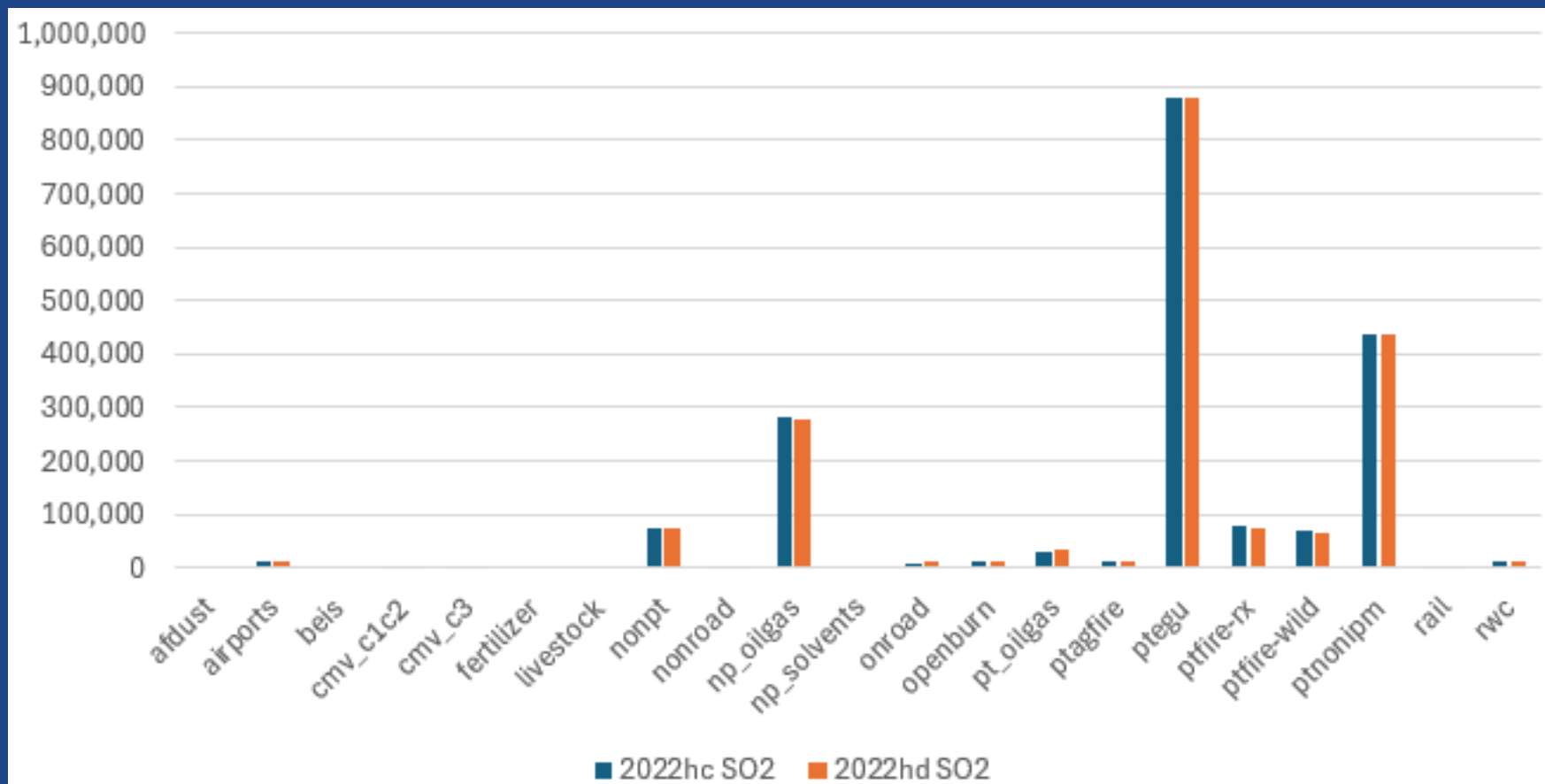
Increases in onroad, Mexico; decreases in np\_oilgas



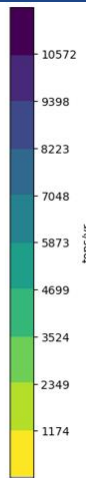
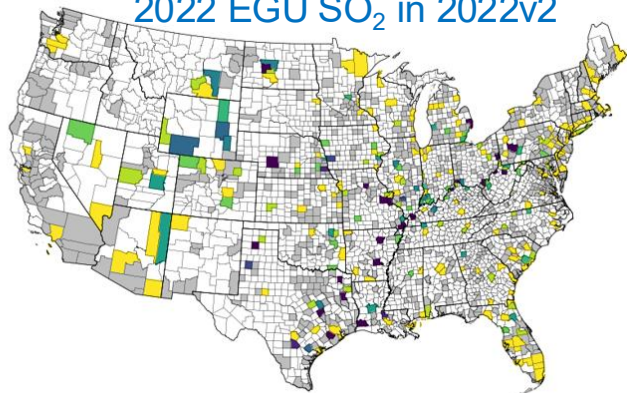
# Mexico Onroad Oxides of Nitrogen Emissions (tons/yr)



# Continental U.S. Sulfur Dioxide Emissions (tons/yr)

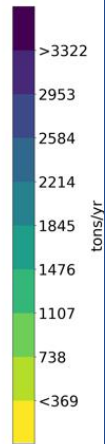
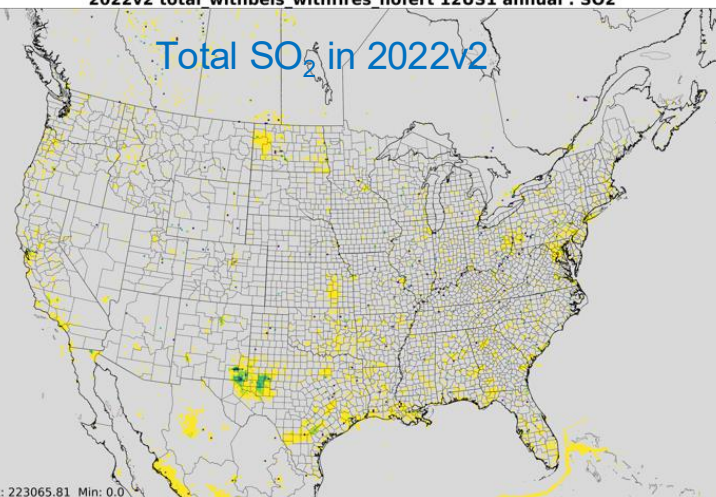


2022v2 ptegu SO2

2022 EGU SO<sub>2</sub> in 2022v2

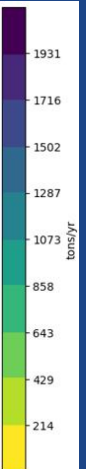
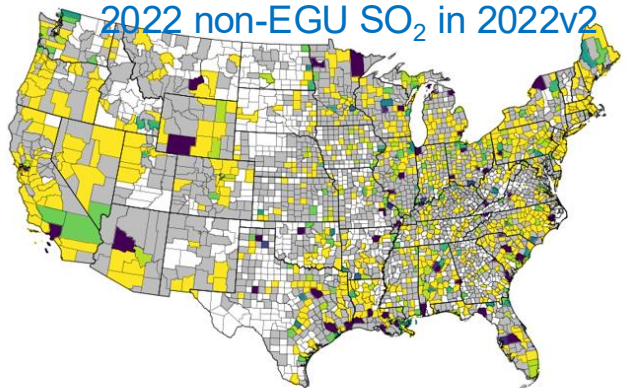
Max: 44227.93 Min: 2.9e-07

2022v2 total withbeis withfires\_nofert 12US1 annual : SO2

Total SO<sub>2</sub> in 2022v2

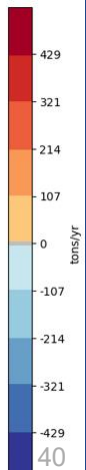
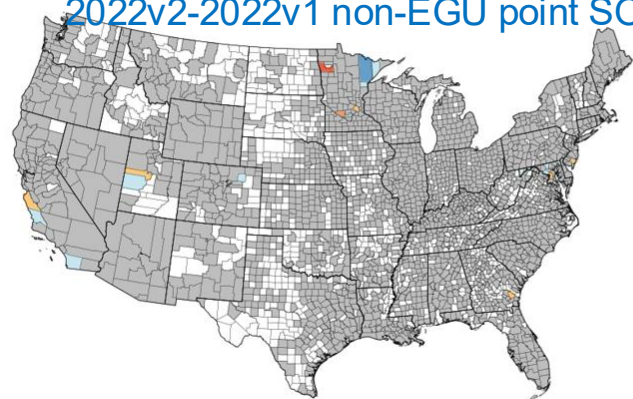
Max: 223065.81 Min: 0.0

2022v2 ptnonipm SO2

2022 non-EGU SO<sub>2</sub> in 2022v2

Max: 15998.792 Min: 0.0

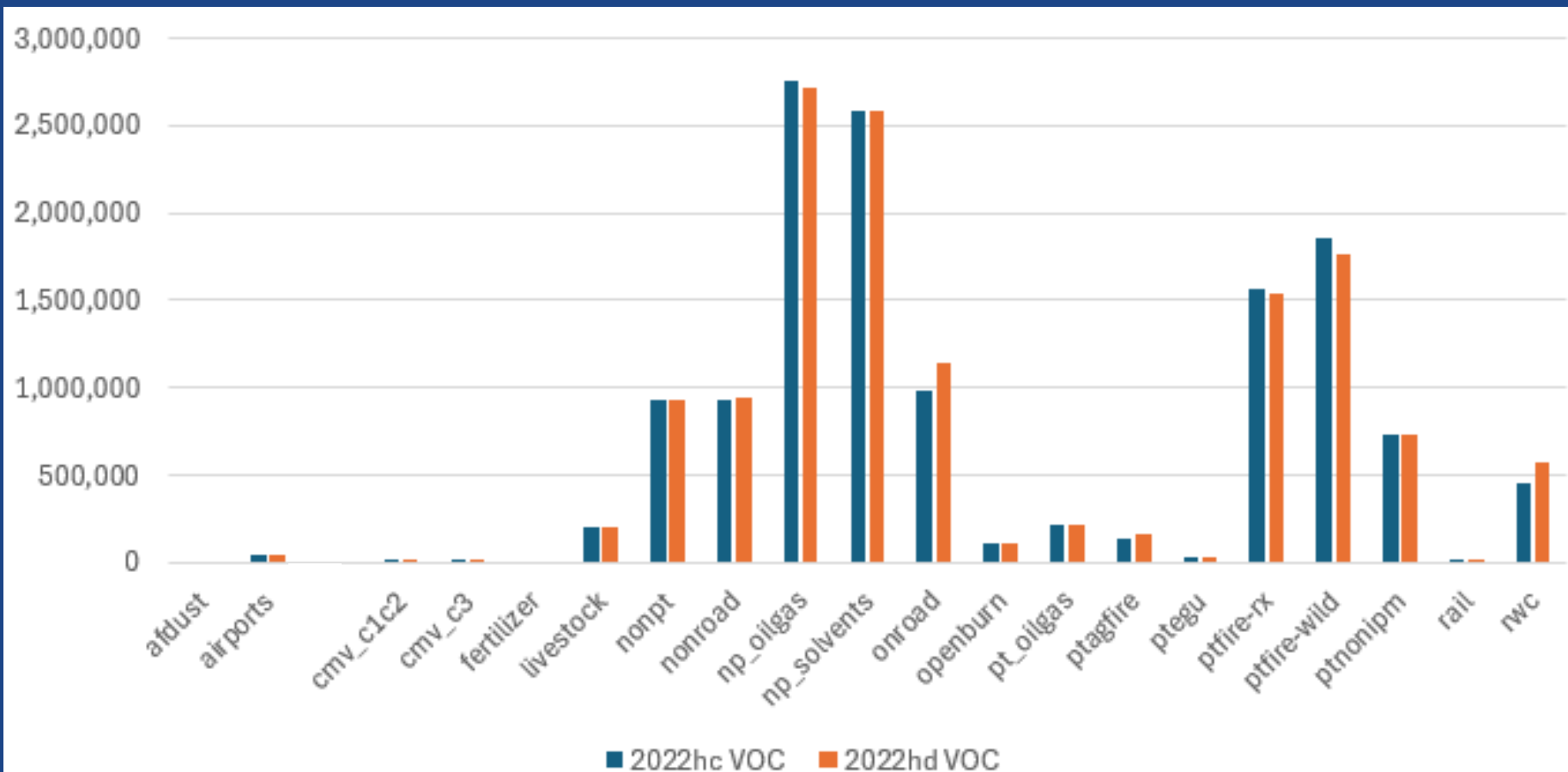
2022v2 minus 2022v1 ptnonipm SO2

2022v2-2022v1 non-EGU point SO<sub>2</sub>

Max: 233.32954 Min: -216.59828

40

# Continental U.S. Volatile Organic Compound Emissions\* (tons/yr)

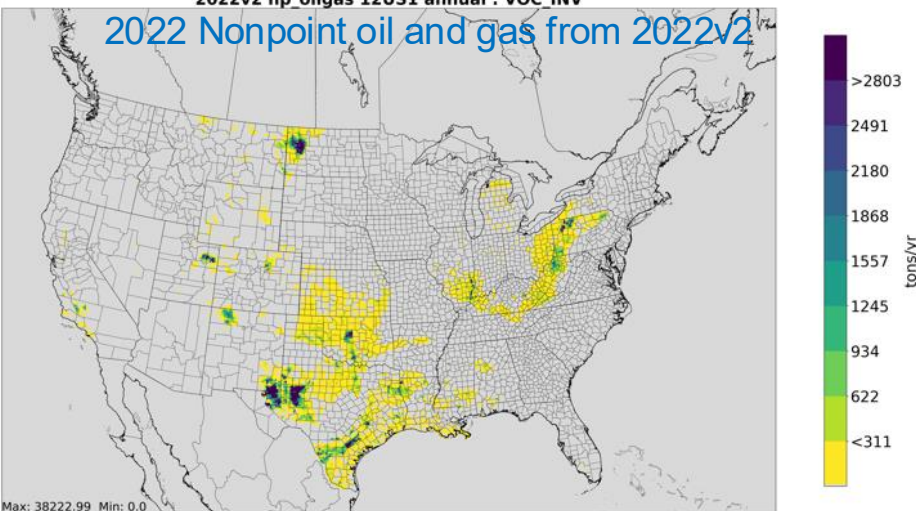


\* excludes biogenic (beis) VOC emissions at 31M tpy



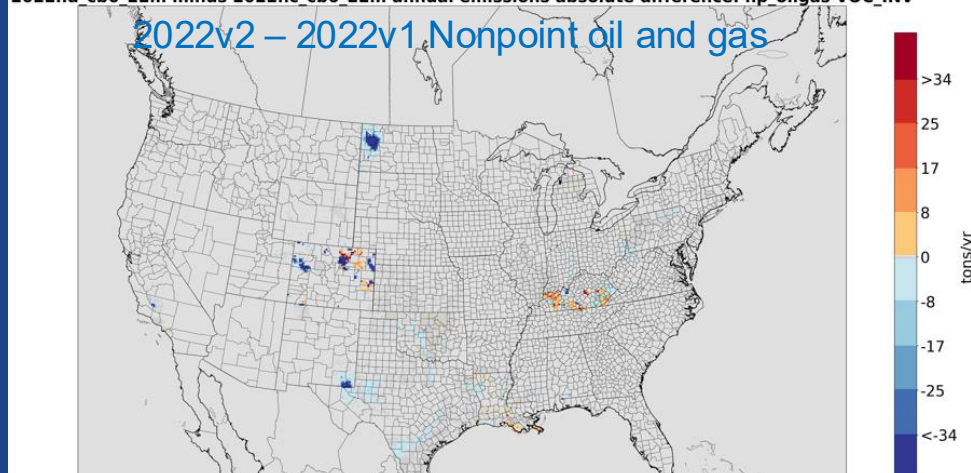
2022v2 np\_oilgas 12US1 annual : VOC INV

2022 Nonpoint oil and gas from 2022v2



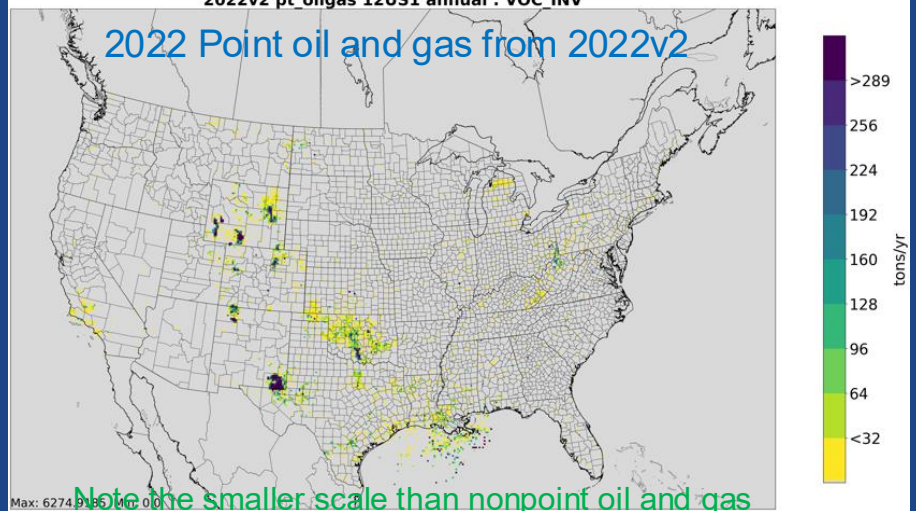
2022hd cb6 22m minus 2022hc\_cb6 22m annual emissions absolute difference: np\_oilgas VOC\_INV

2022v2 – 2022v1 Nonpoint oil and gas



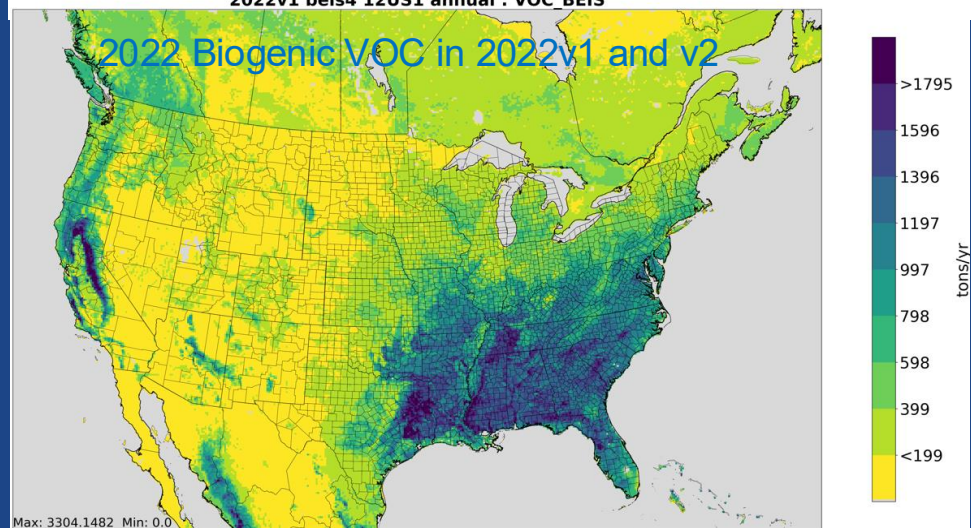
2022v2 pt\_oilgas 12US1 annual : VOC INV

2022 Point oil and gas from 2022v2



2022v1 beis4 12US1 annual : VOC BEIS

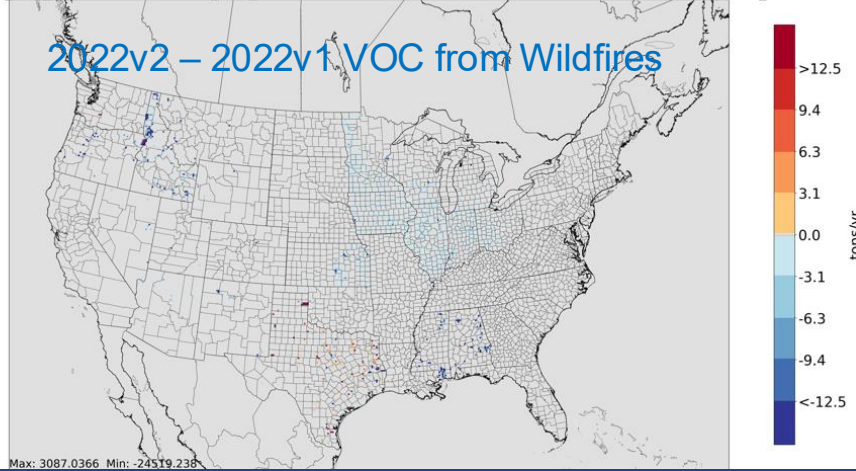
2022 Biogenic VOC in 2022v1 and v2



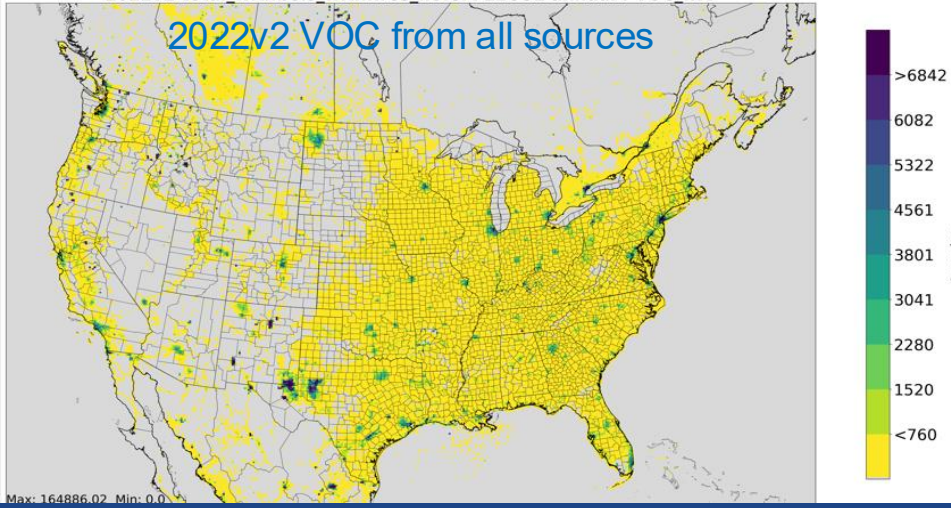
Note the smaller scale than nonpoint oil and gas



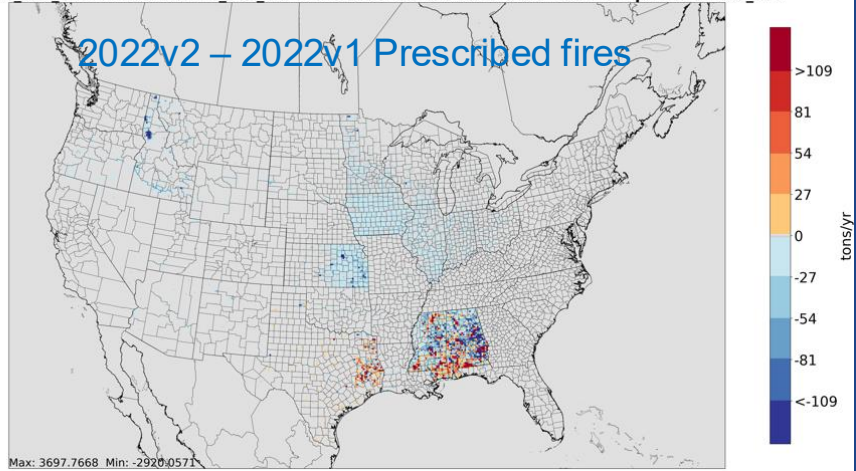
2022hd\_cb6\_22m minus 2022hc\_cb6\_22m annual emissions absolute difference: ptfire-wild VOC\_INV



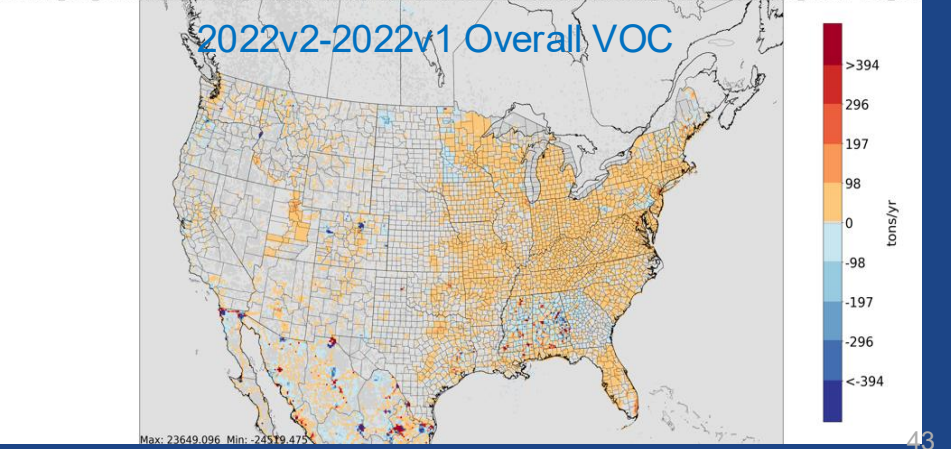
2022v2 total\_withbeis withfires\_nofert 12US1 annual : VOC\_INV



2022hd\_cb6\_22m minus 2022hc\_cb6\_22m annual emissions absolute difference: ptfire-rx VOC\_INV

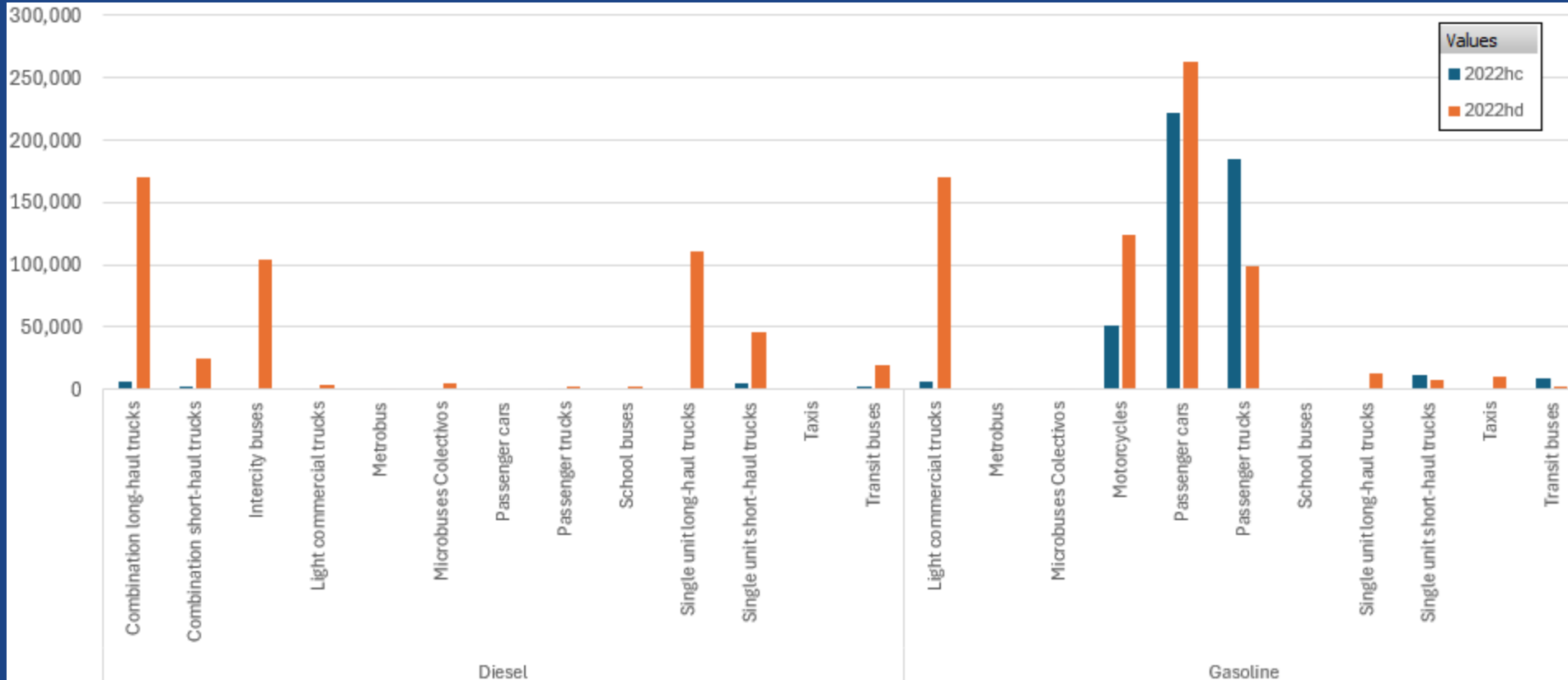


2022hd\_cb6\_22m minus 2022hc\_cb6\_22m annual emissions absolute difference: total\_withbeis withfires\_nofert VOC\_INV

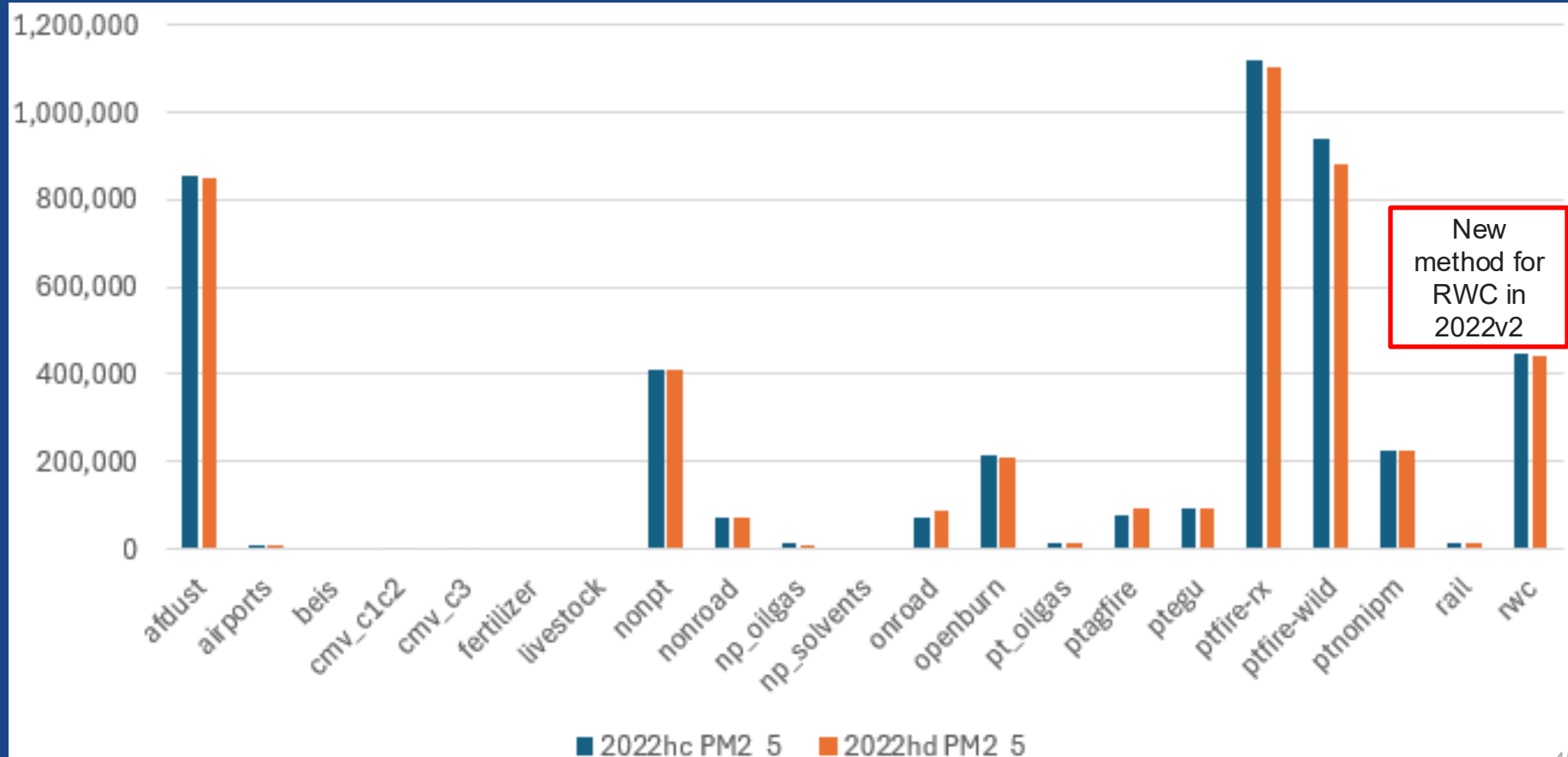


Note: some increases and some decreases

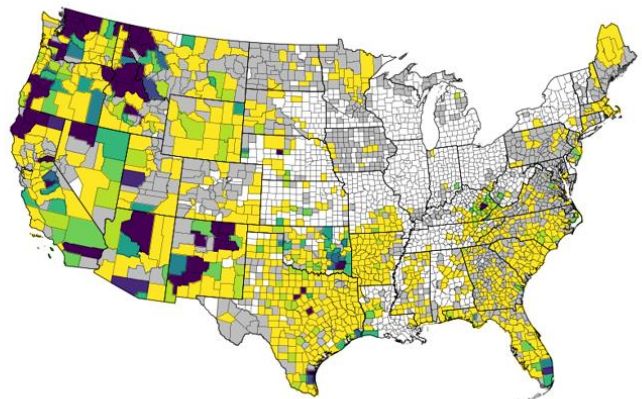
# Mexico Onroad Volatile Organic Compounds Emissions (tons/yr)



# Continental U.S. Fine Particulate Emissions (tons/yr)

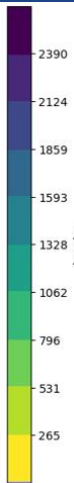


2022v2 ptfire-wild PM25-PRI

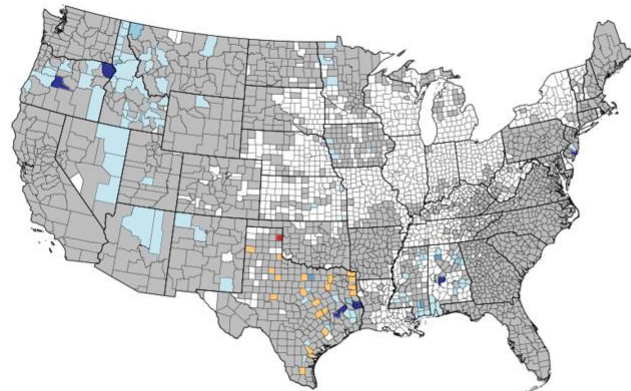


Max: 110603.57 Min: 0.002916

tons/yr

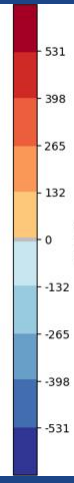


2022v2 minus 2022v1 ptfire-wild PM25-PRI

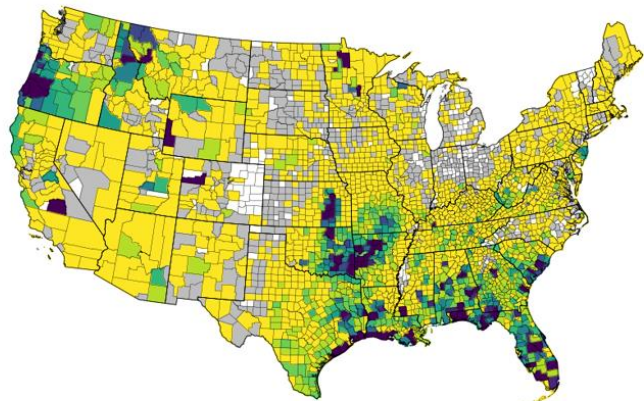


Max: 401.2151 Min: -41368.613

tons/yr

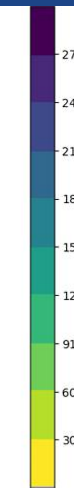


2022v2 ptfire-rx PM25-PRI

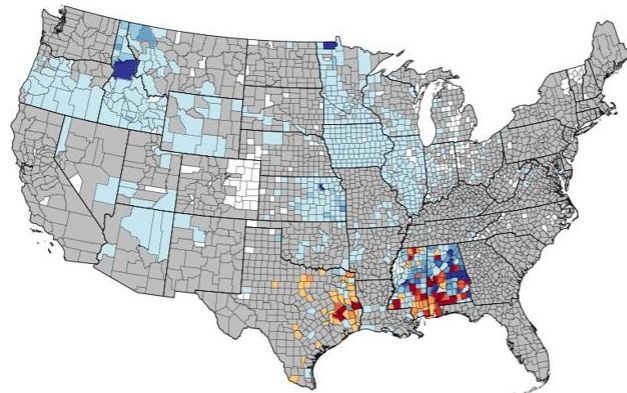


Max: 22201.523 Min: 0.024334

tons/yr

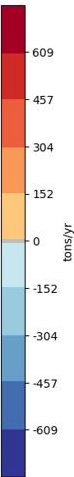


2022v2 minus 2022v1 ptfire-rx PM25-PRI



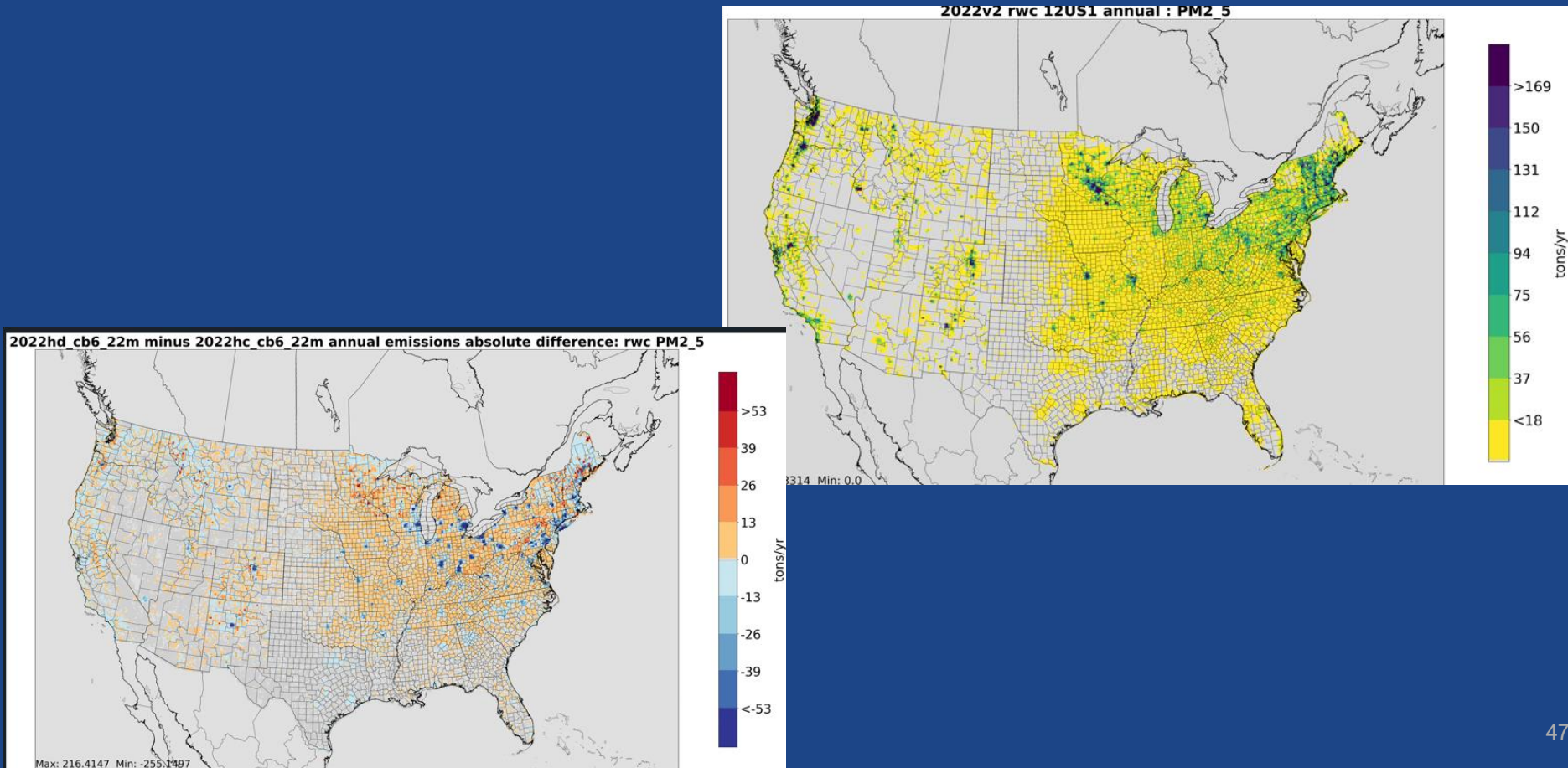
Max: 2639.7917 Min: -2139.2688

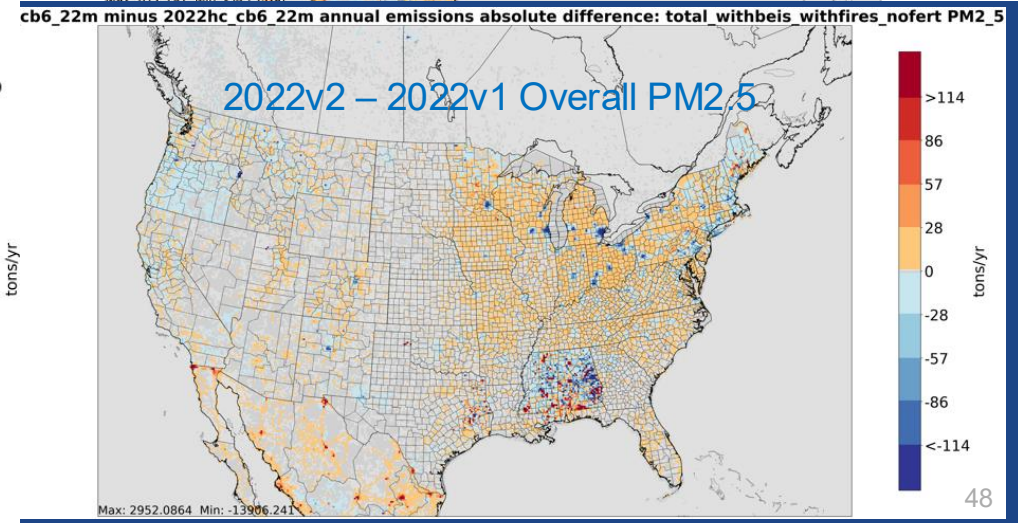
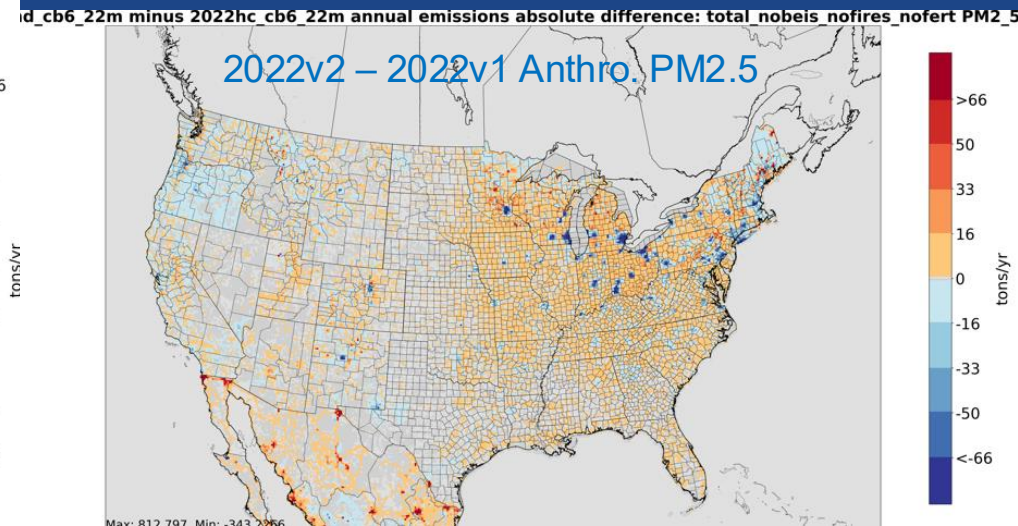
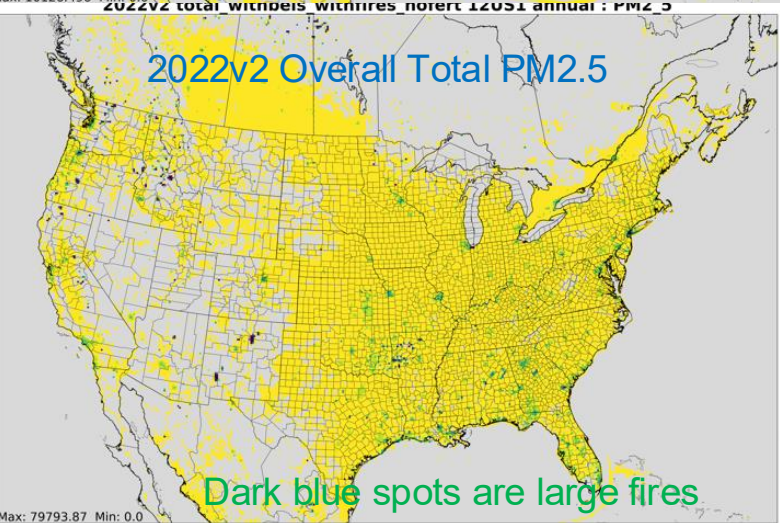
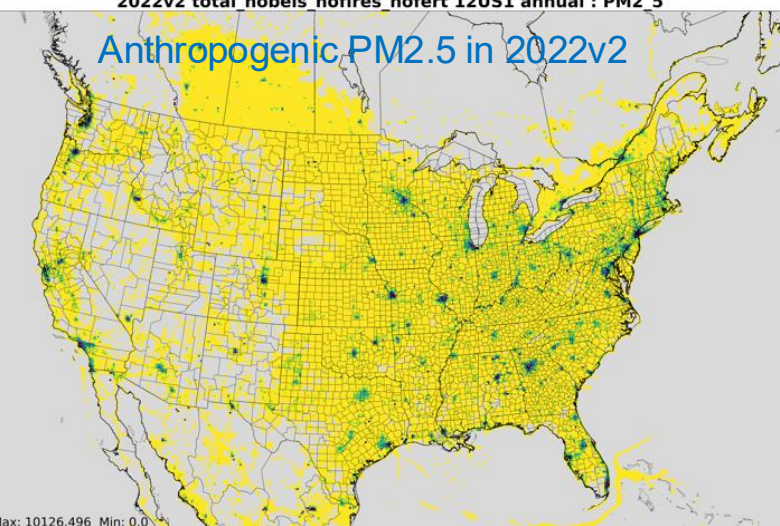
tons/yr



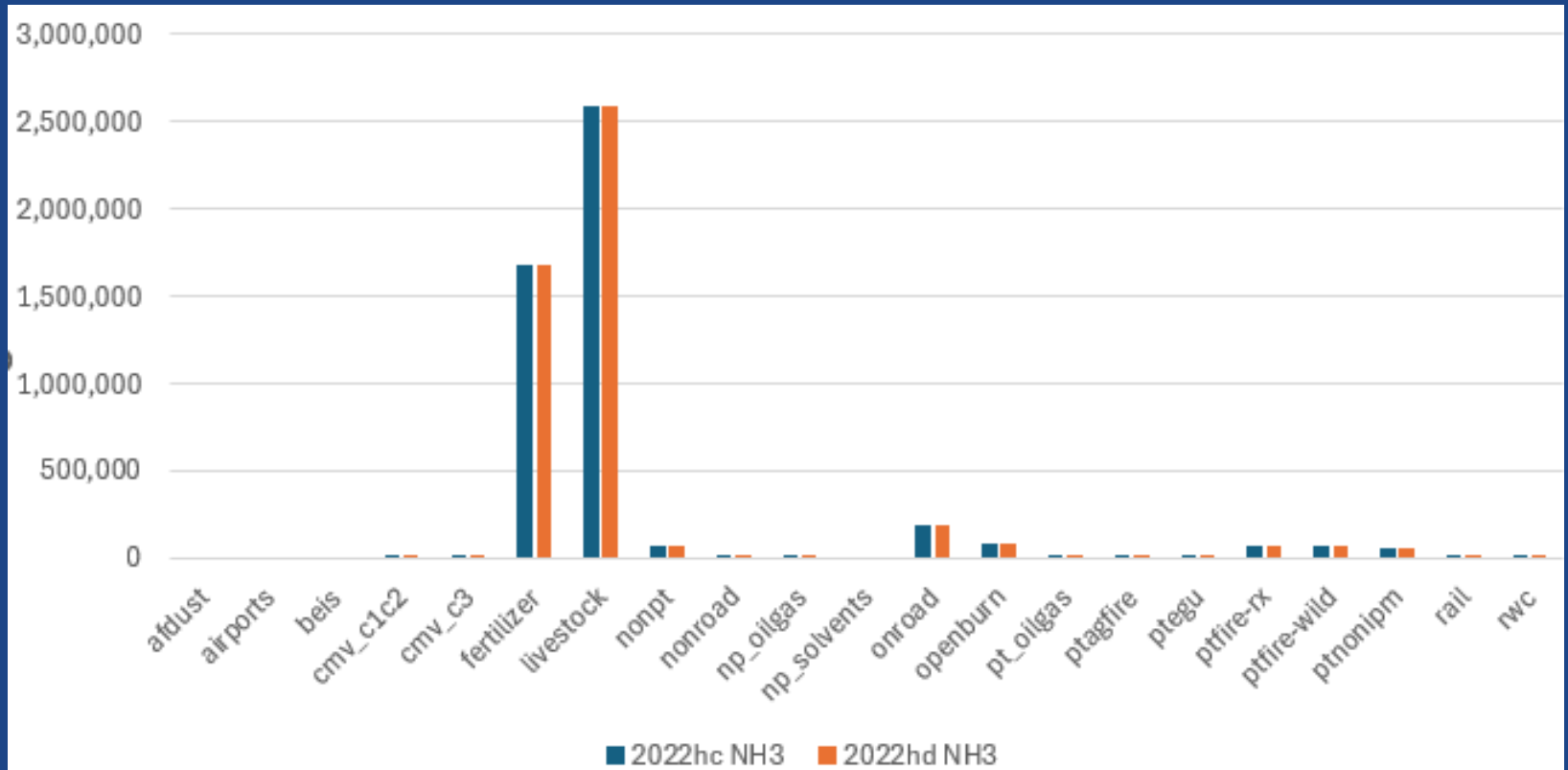


# 2022v2 Residential Wood Combustion PM2.5 and changes from v1



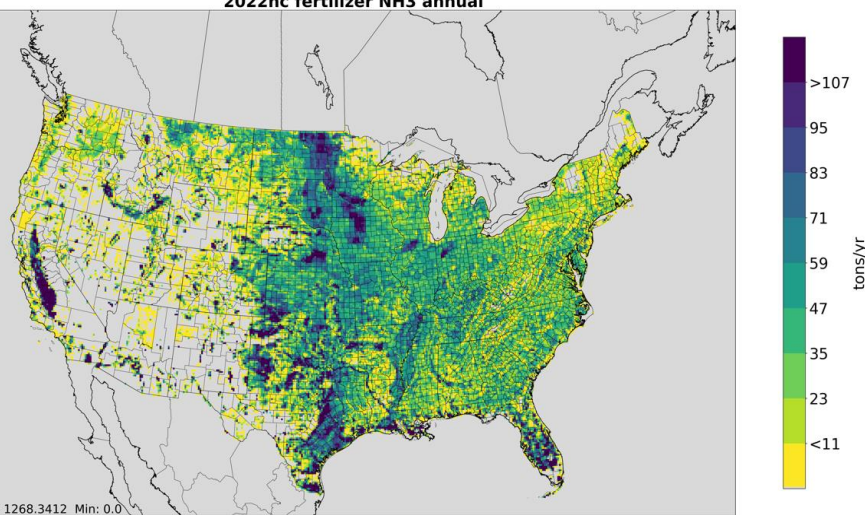


# Continental U.S. Ammonia Emissions (tons/yr)

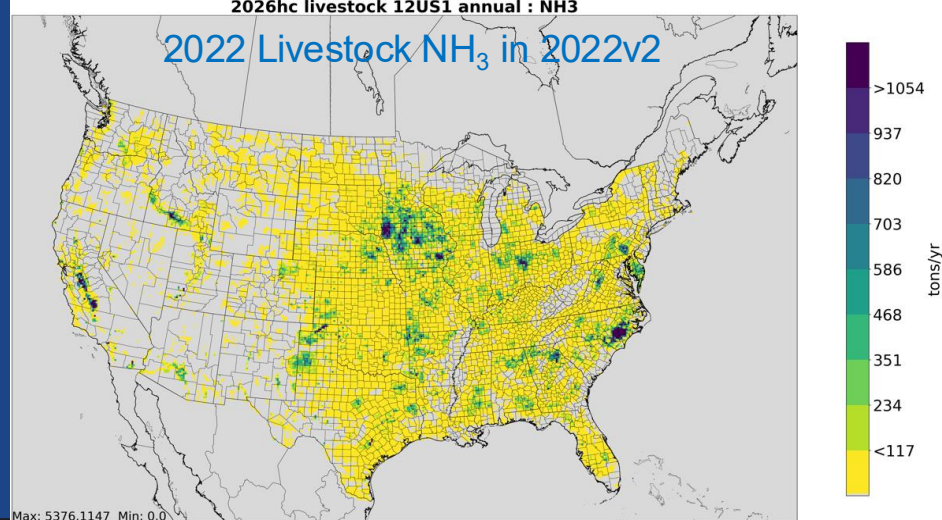




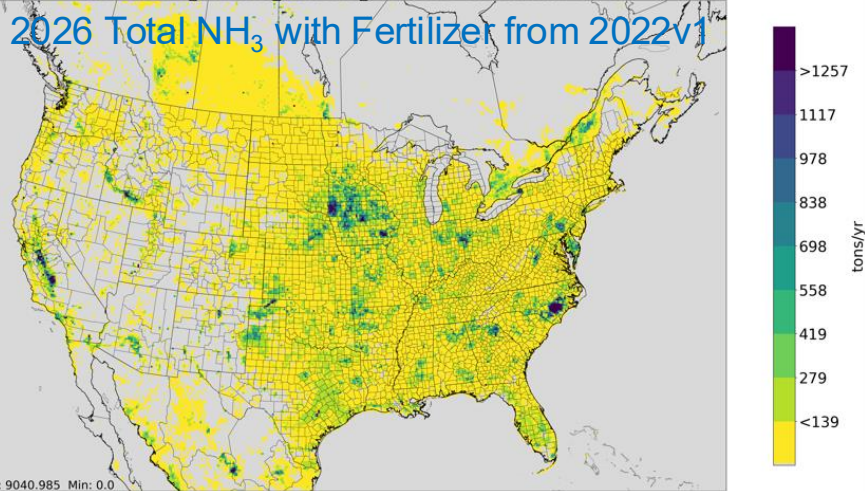
2022hc fertilizer NH<sub>3</sub> annual



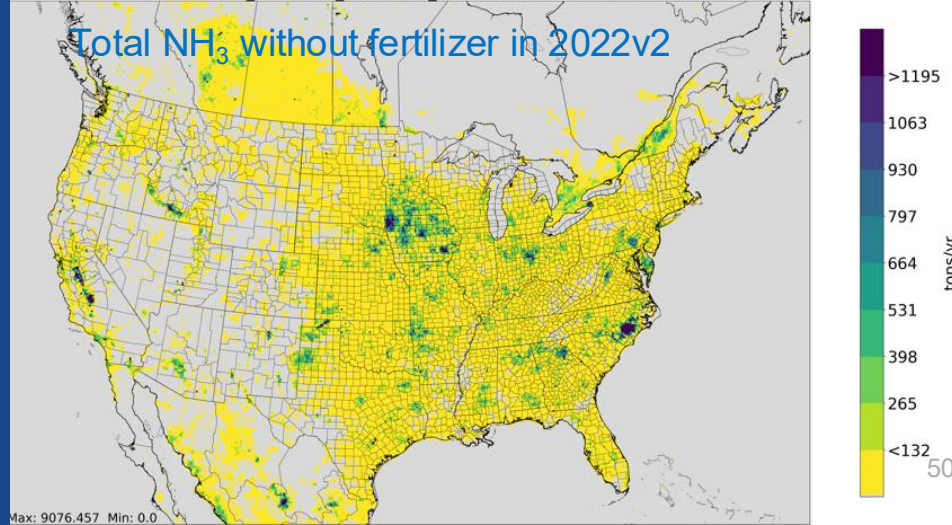
2026hc livestock 12US1 annual : NH<sub>3</sub>



2026hc total withbeis withfires withfert 12US1 annual : NH<sub>3</sub>



2022v2 total withbeis withfires nofert 12US1 annual : NH<sub>3</sub>

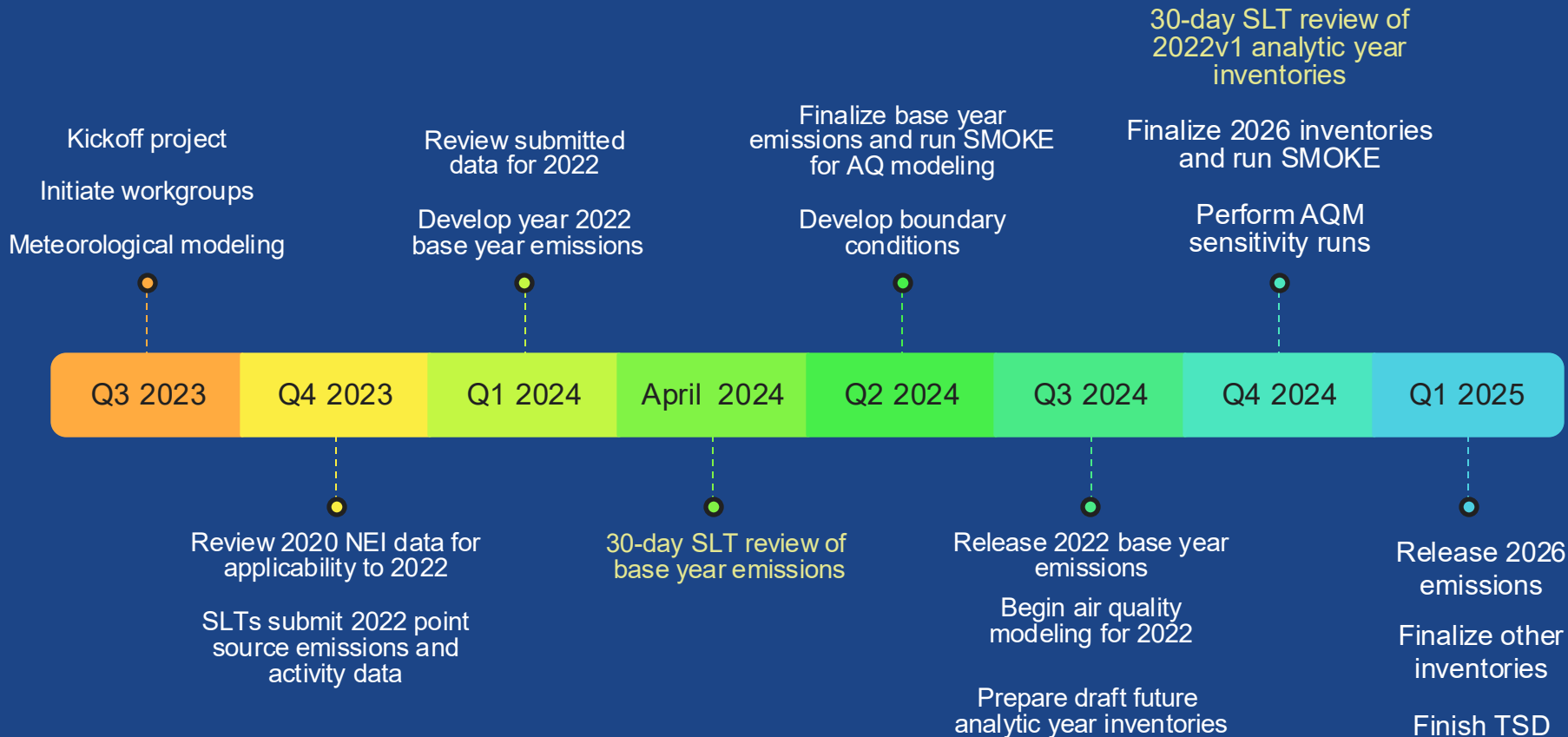




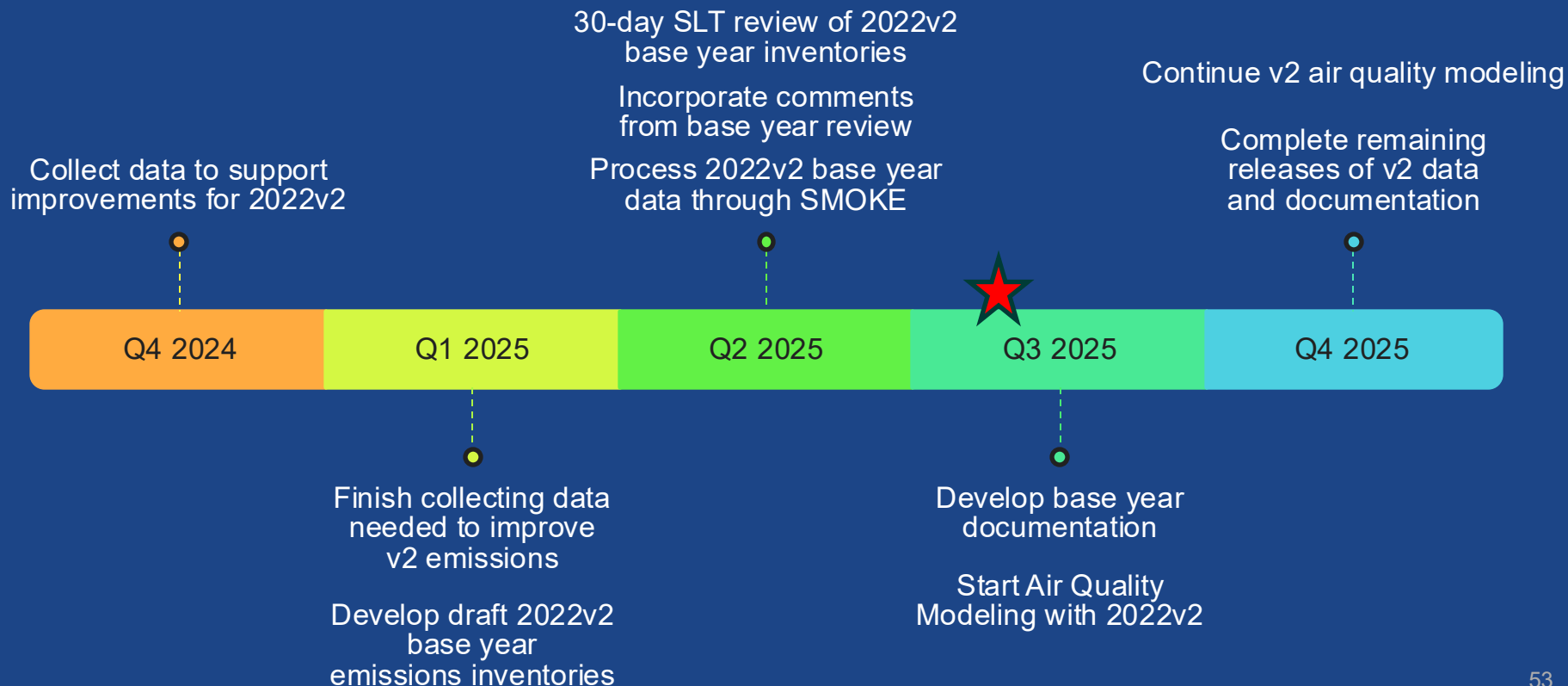
# Timeline Review and Next Steps



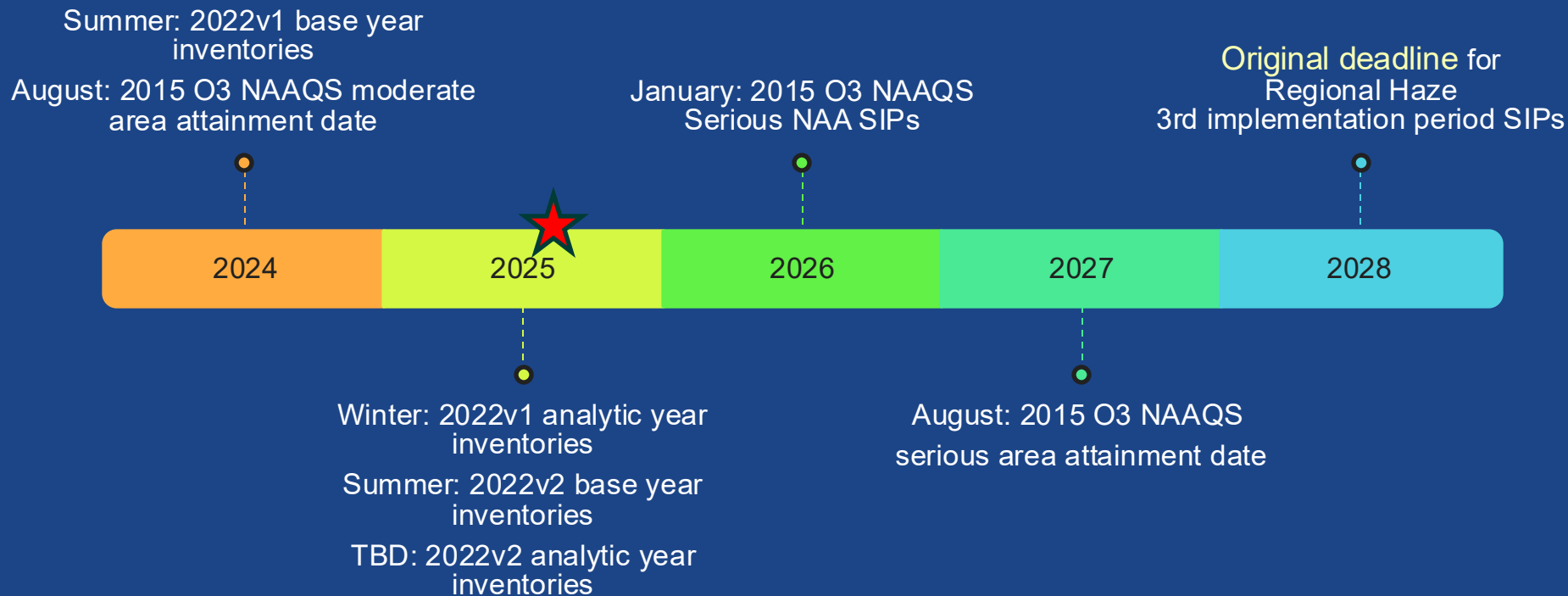
# Historic Timeline for 2022v1 Platform Development



# Timeline for 2022v2 Platform Development



# 2022 Platforms and Planning Timelines





# Ongoing Engagement Opportunities

- S/L/T agencies can:
  - Participate in workgroup meetings
  - Work with other inventory contacts in your region to review the data
  - Explore the 2022v1 and 2022v2 data using the online Emissions Review Tools
  - Participate in the NEI process to improve future modeling platforms
- **Next quarterly call:** November 5, 2025 @ 2 PM Eastern
- **Email Mary Uhl at WESTAR** if you are not already on the email list and want to be added

