



2021 Western Wildfire Season Impacts on Air Quality

NW-AIRQUEST Conference

June 29, 2022

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2021 Western Fire, Smoke, and Air Quality Assessment

- Scope and scale of 2021 smoke impacts on air quality are of concern to western state-local-tribes
 - Met in Fall 2021 with OAQPS to flag this issue, also included EPA Regional Offices, Federal Land Managers
- Widespread number of exceedance days due to smoke from wildfires across the Summer and into Fall
 - necessary to explain impacts [ALA report, NCAR article, etc.]
 - manage workload for Clean Air Act planning requirements
 - need to better understand 2021 regional air pollution
 - affects both ozone and PM, dominated by PM

2021 Western Fire, Smoke, and Air Quality Assessment

- Variation from Fall 2021 meeting in responses by agency that EE demonstrations will be submitted
 - regulatory significance
 - flagging requirements
 - staffing/resources limitations
 - upcoming reviews of PM and Ozone National Ambient Air Quality Standards - significance of 2021 data in future
- Collected data from WESTAR/WRAP member agencies:
 - sites and days affected by smoke
 - both PM and ozone
 - define regional geographic and temporal scope
 - scope out any needed technical analysis support

Data Collection Results Summary

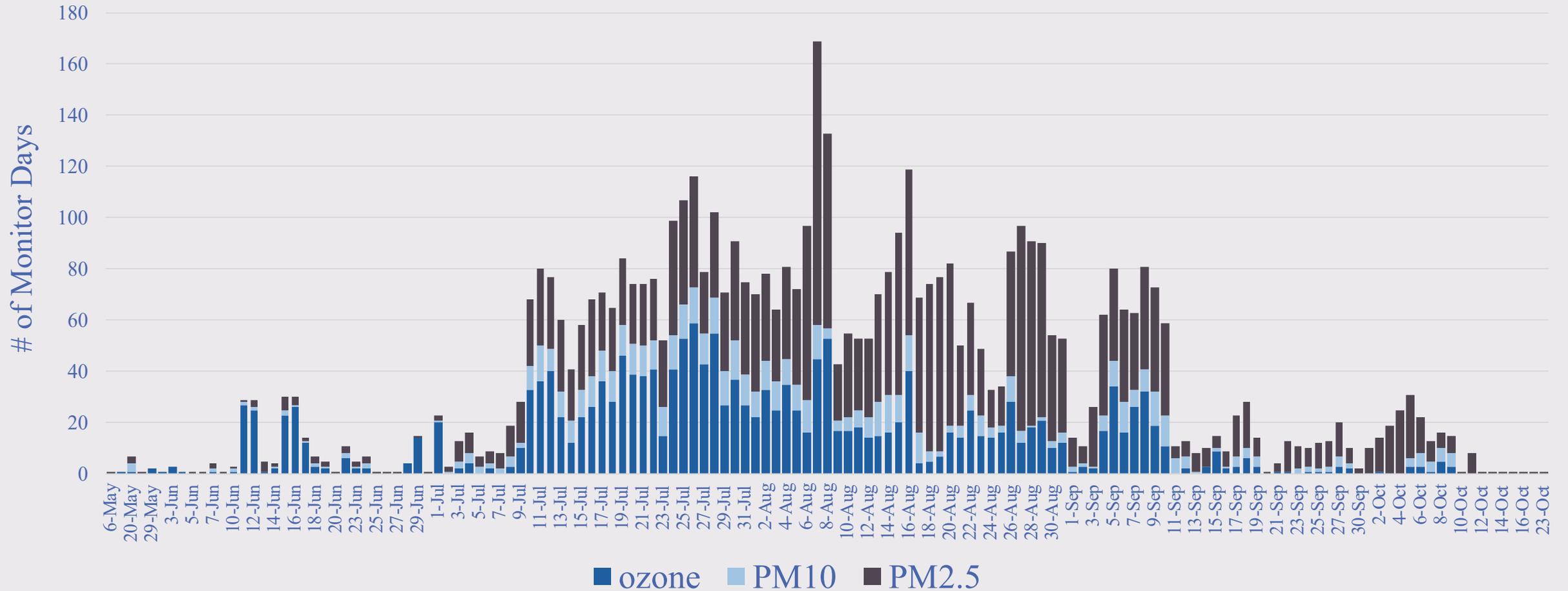
Total
monitor
days
impacted
5,319

PM_{2.5}
Monitor
Days
2,832

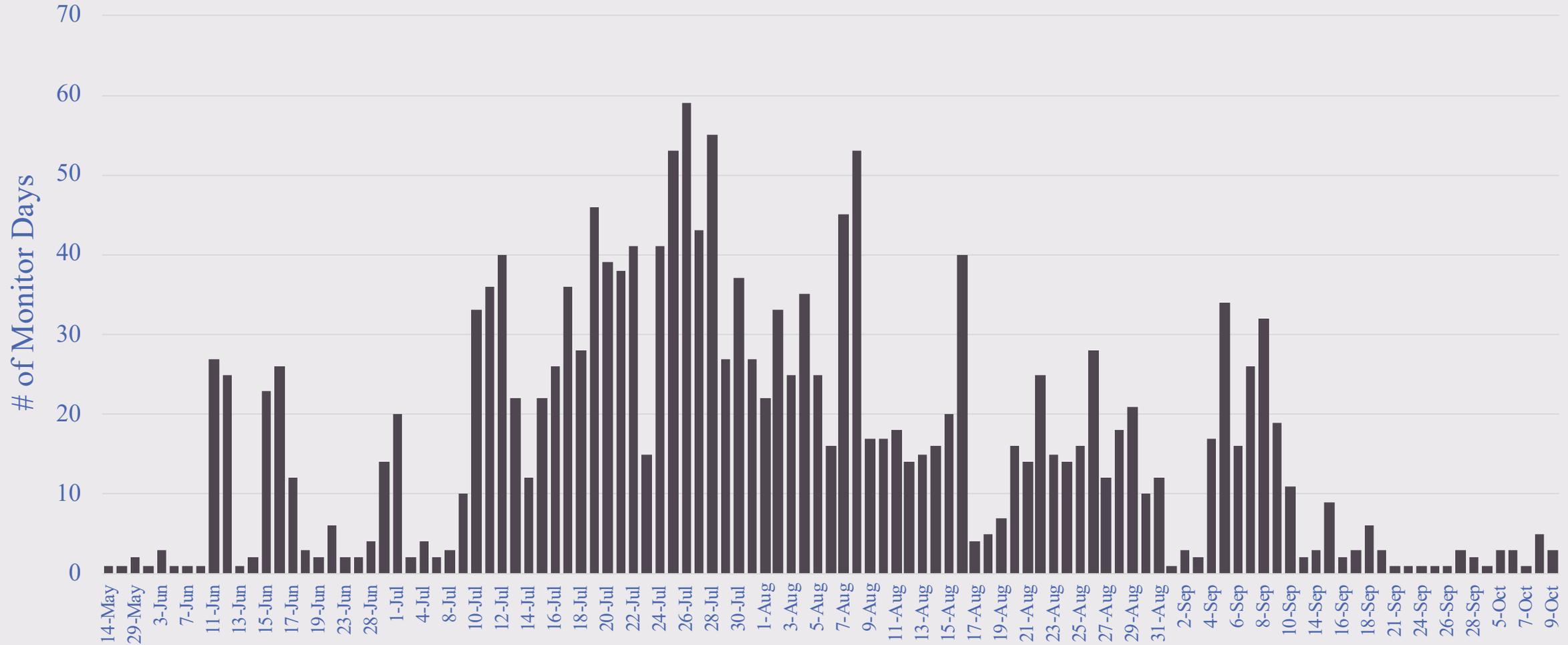
Ozone
Monitor
Days
1,820

PM₁₀
Monitor
Days
667

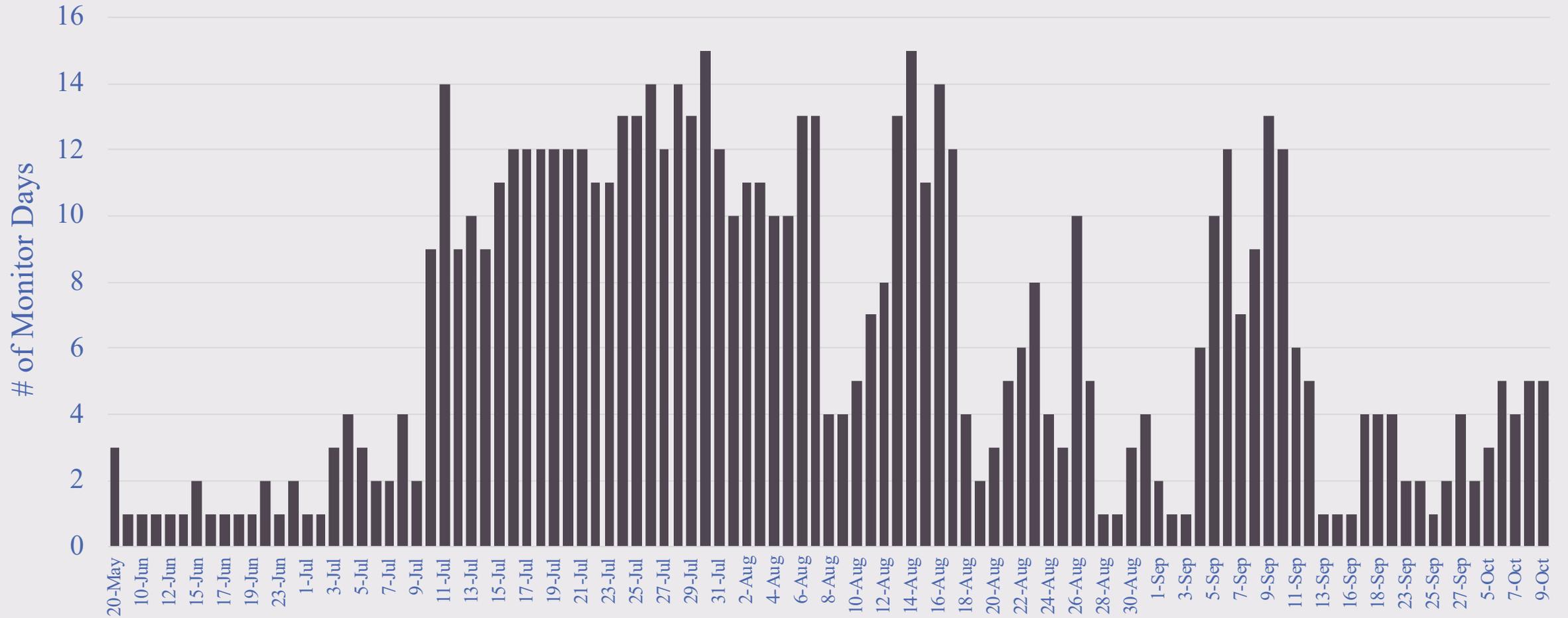
Number of Monitors Impacted by Date



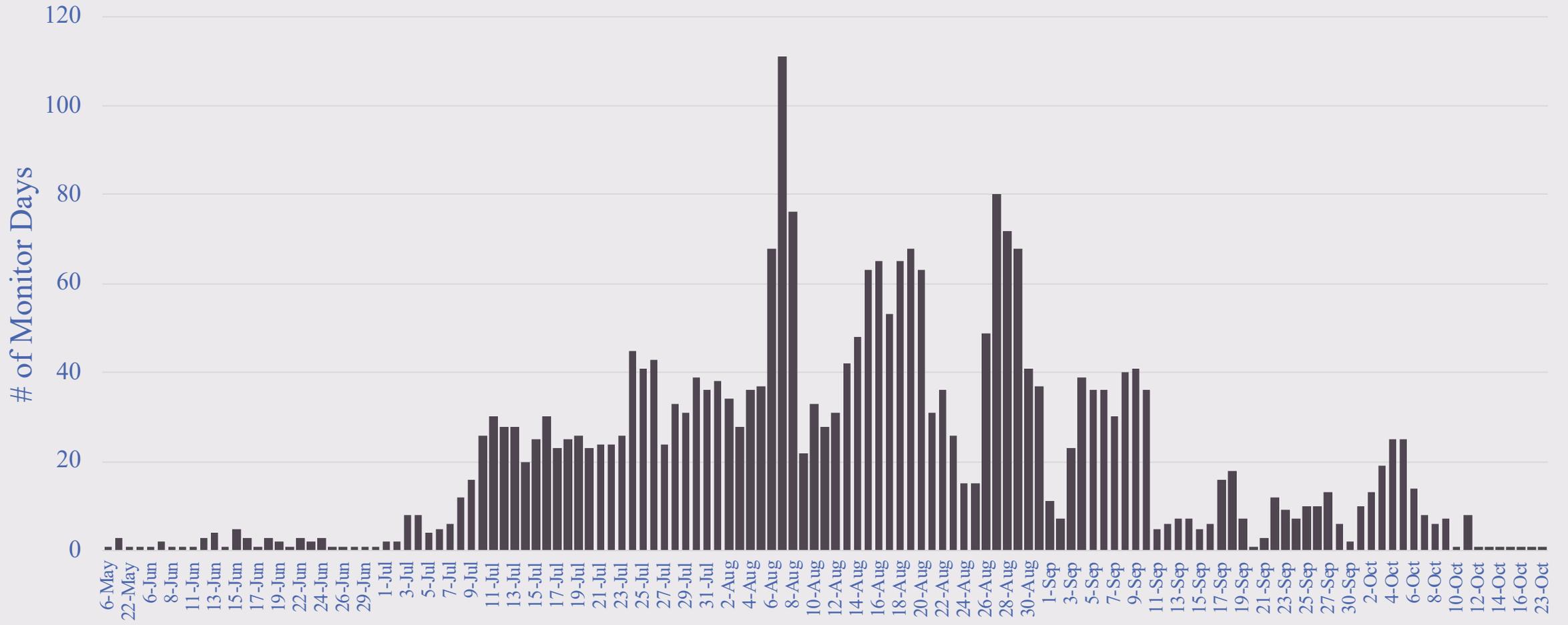
Ozone Monitors Impacted by Date



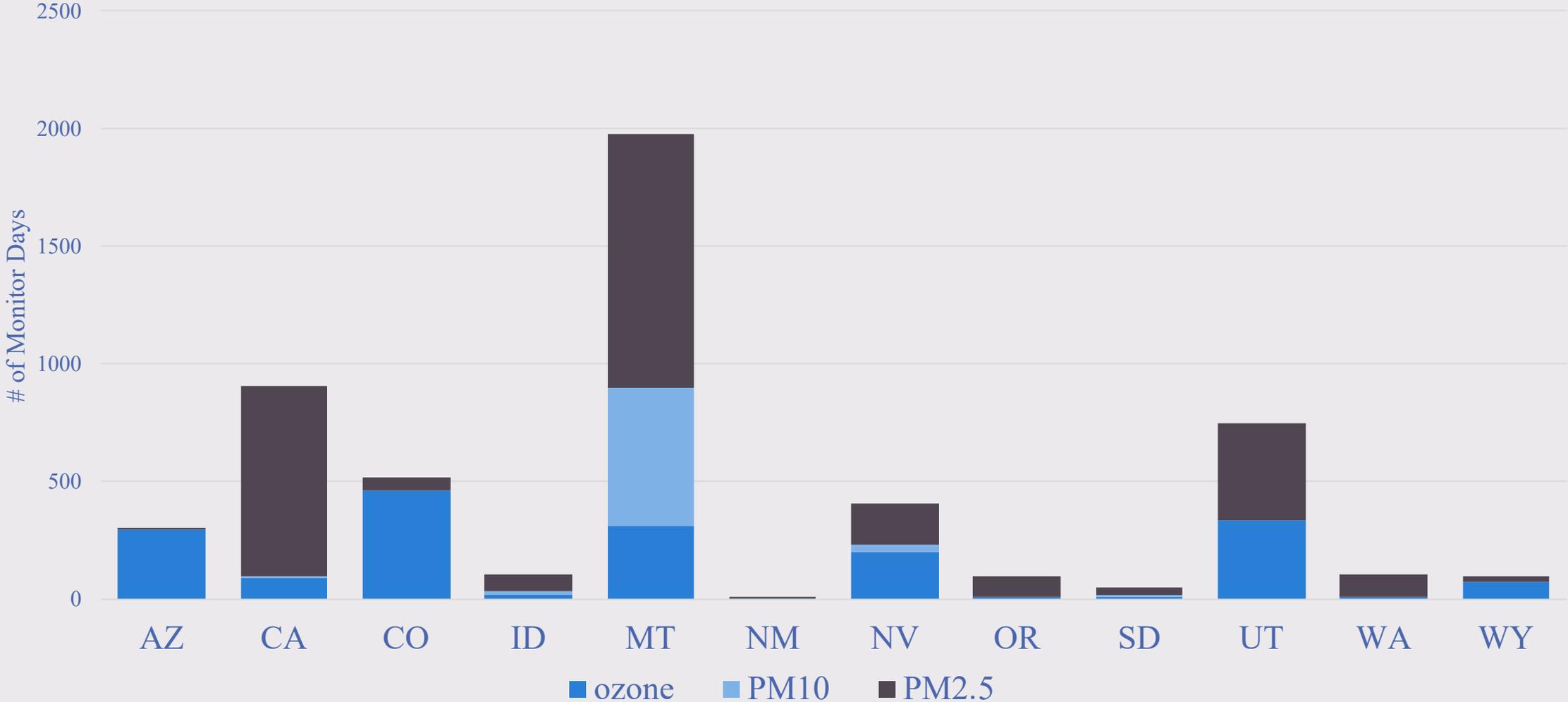
PM₁₀ Monitors Impacted by Date



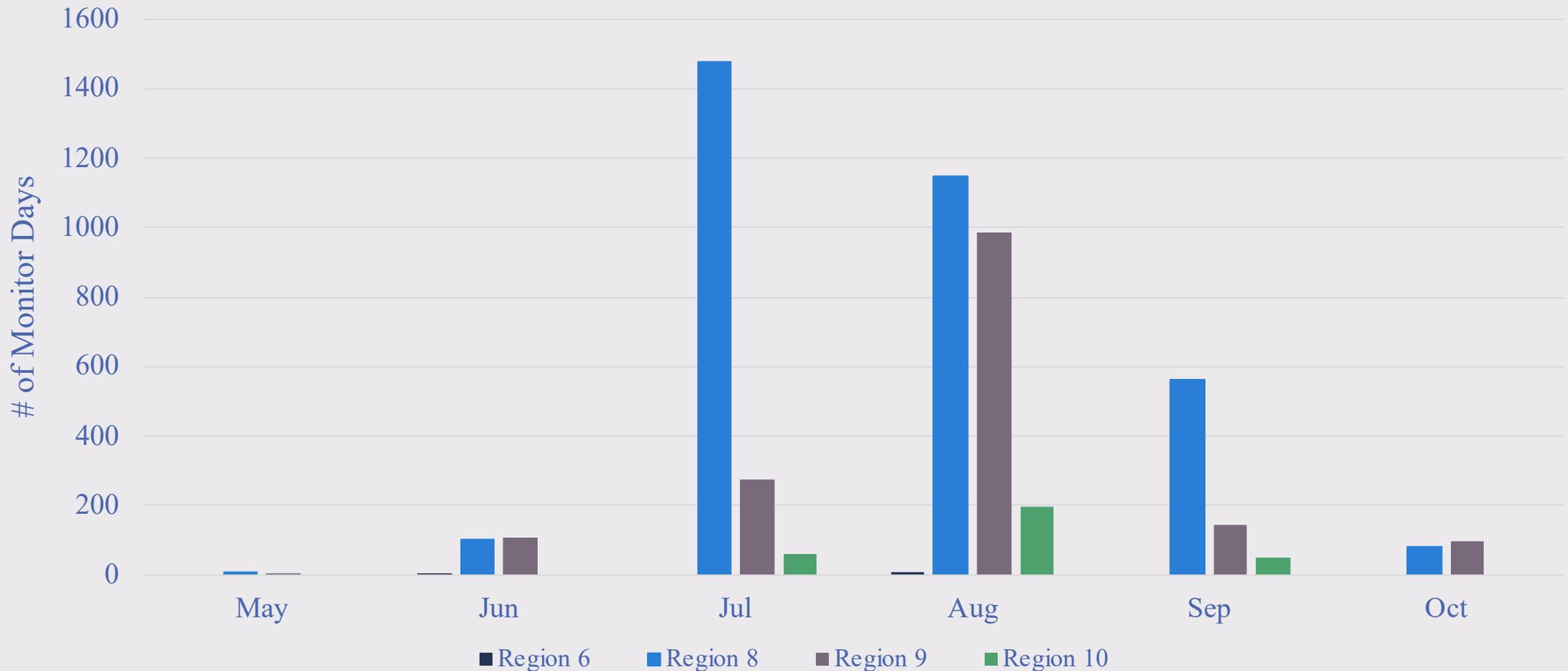
PM_{2.5} Monitors Impacted by Date



Reported Smoke-Impacted Monitor Days by State



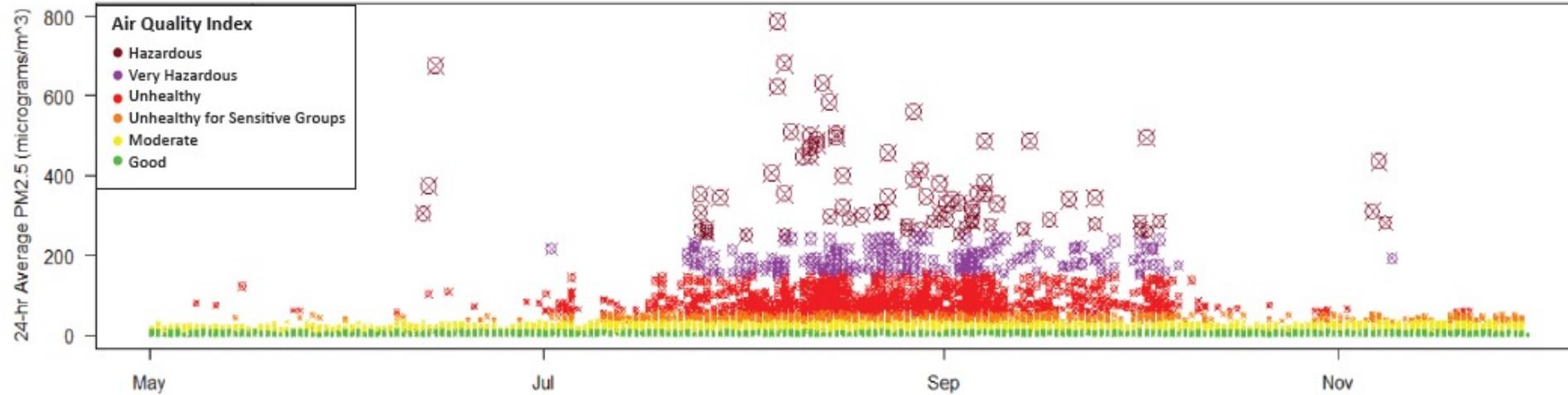
Reported Days by EPA Region



Wildfire Smoke

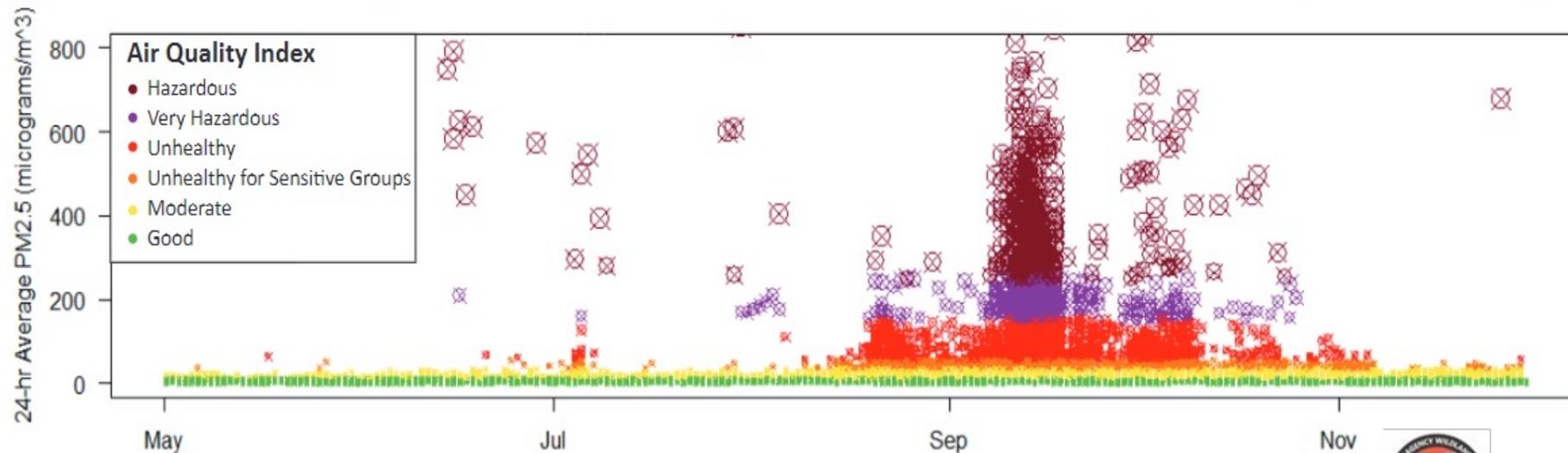
Timing of 2021 Smoke Impacts at All Western US Monitors

(by Air Quality Index (AQI) Level)



Timing of 2020 Smoke Impacts at All Western US Monitors

(by Air Quality Index (AQI) Level)

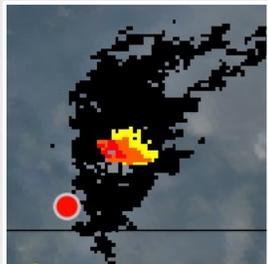
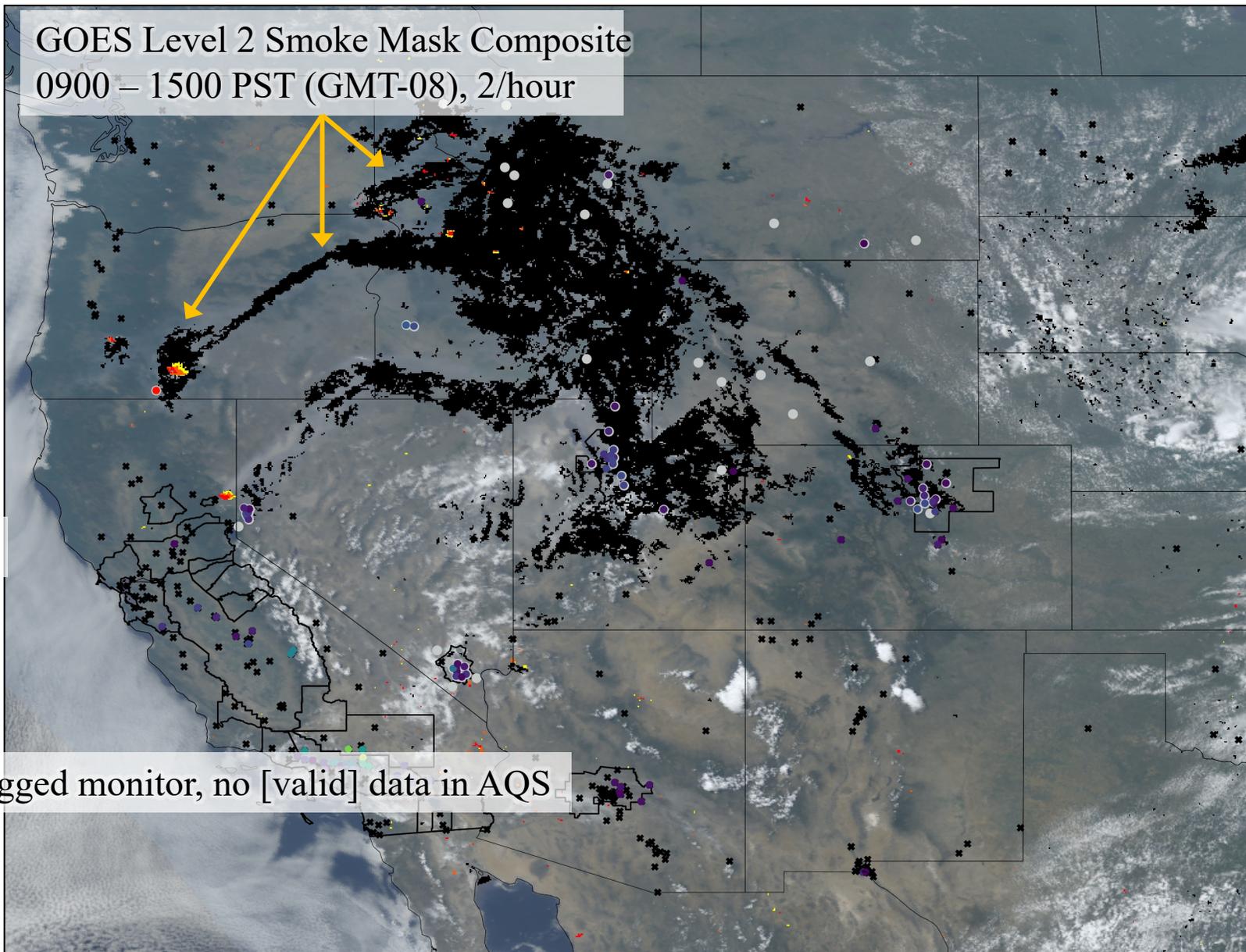


Graphic credit: Interagency Wildland Fire Air Quality Response Program

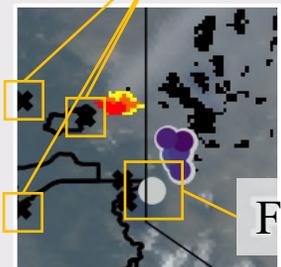


GOES ADP Smoke Product 2021-07-10

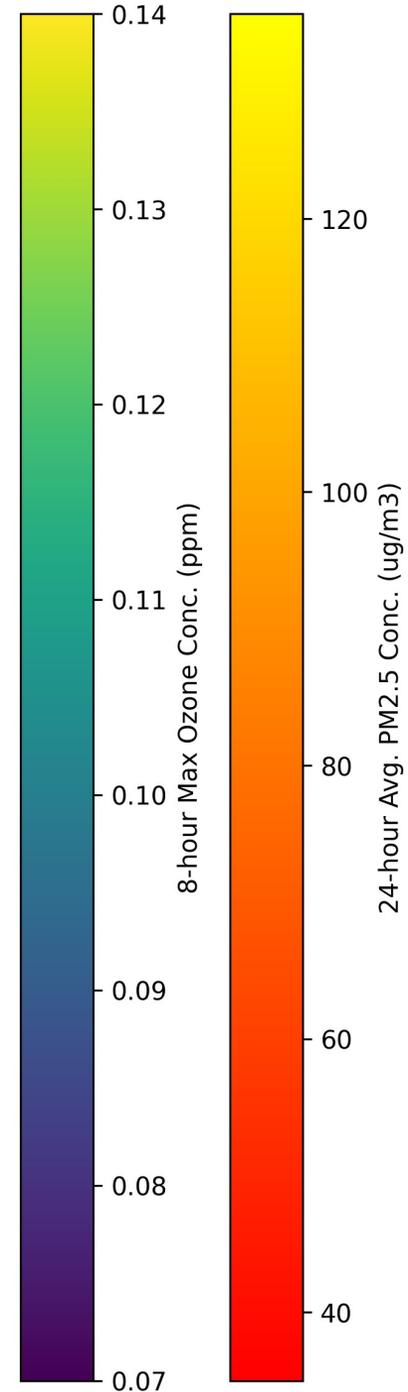
GOES Level 2 Smoke Mask Composite
0900 – 1500 PST (GMT-08), 2/hour



Other monitors



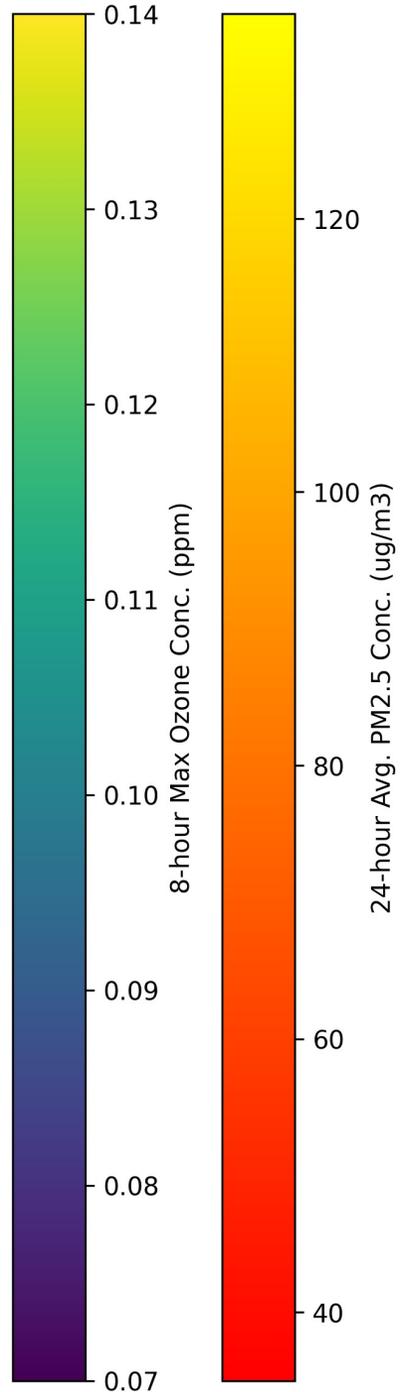
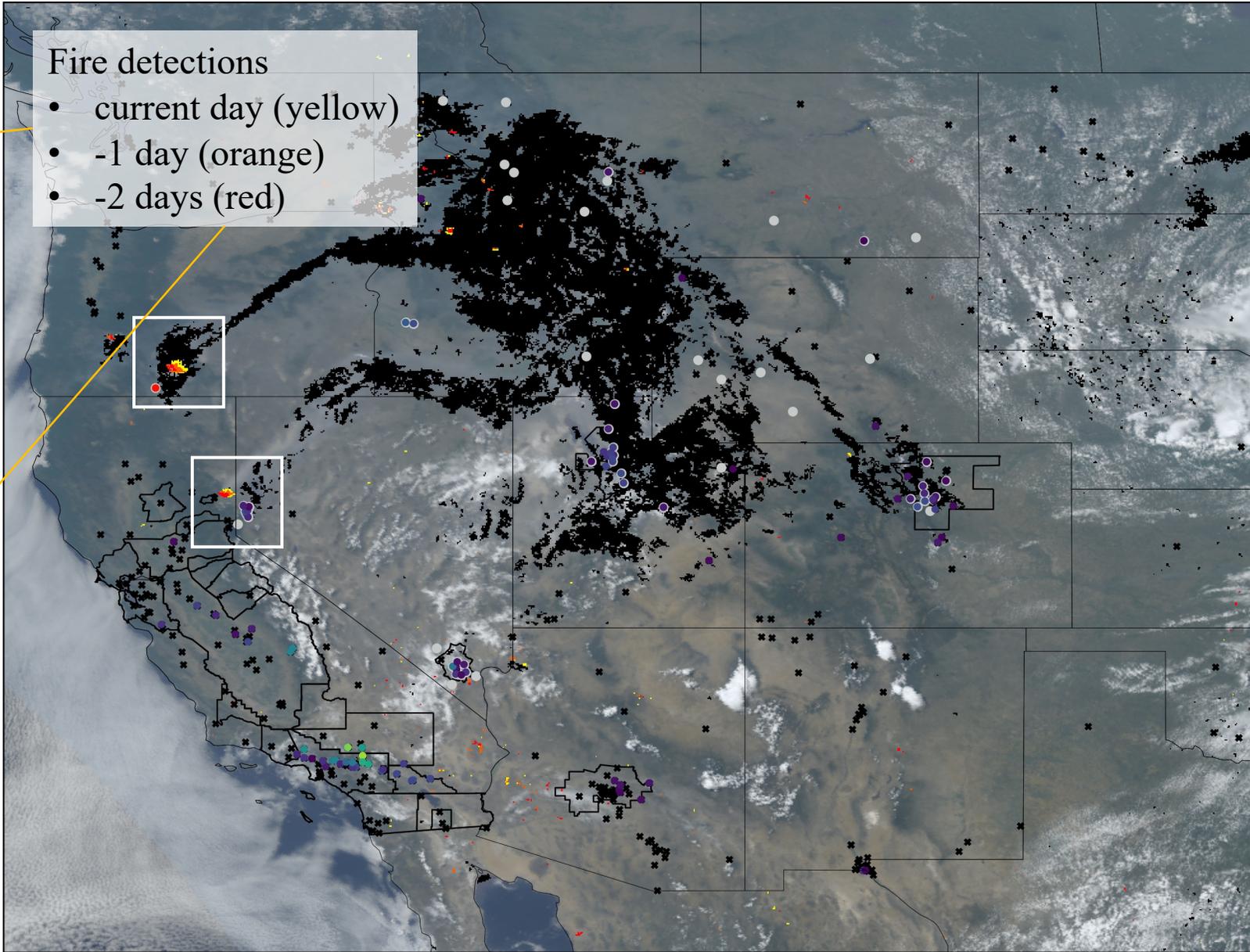
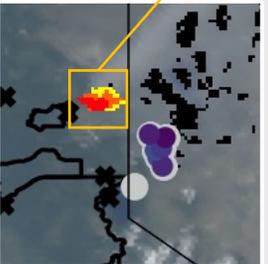
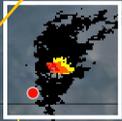
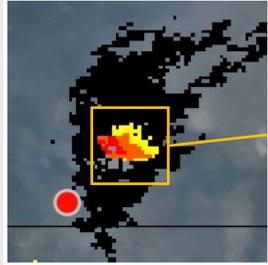
Flagged monitor, no [valid] data in AQS



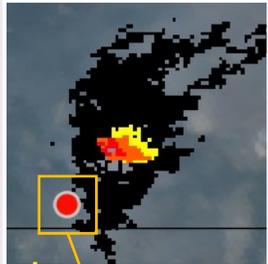
GOES ADP Smoke Product 2021-07-10

Fire detections

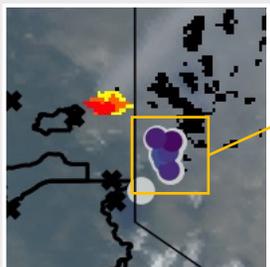
- current day (yellow)
- -1 day (orange)
- -2 days (red)



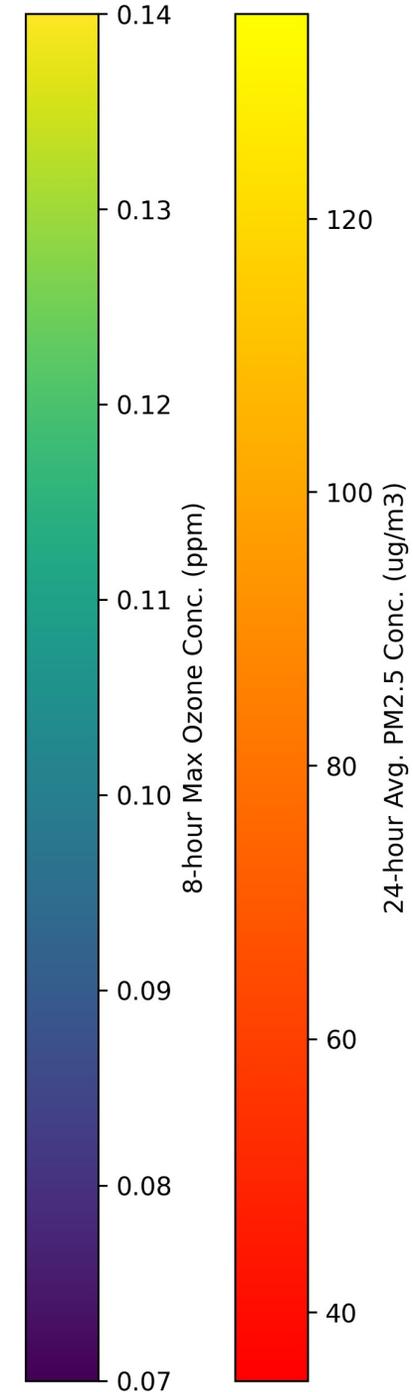
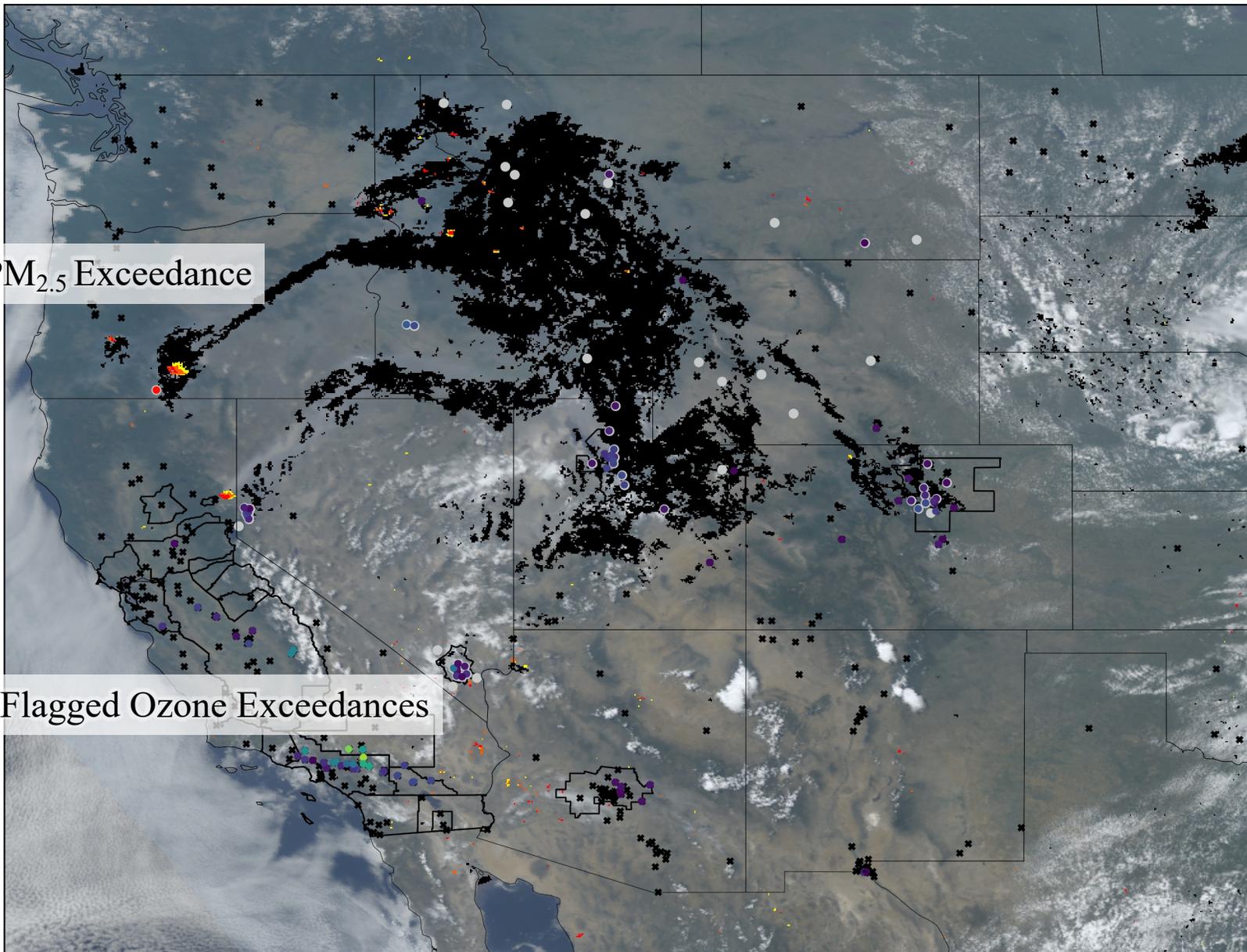
GOES ADP Smoke Product 2021-07-10



Flagged PM_{2.5} Exceedance



Flagged Ozone Exceedances



2021 Data Collection Results Summary

Total
monitor
days
impacted

5,319

PM_{2.5}
Monitor
Days

2,832

Ozone
Monitor
Days

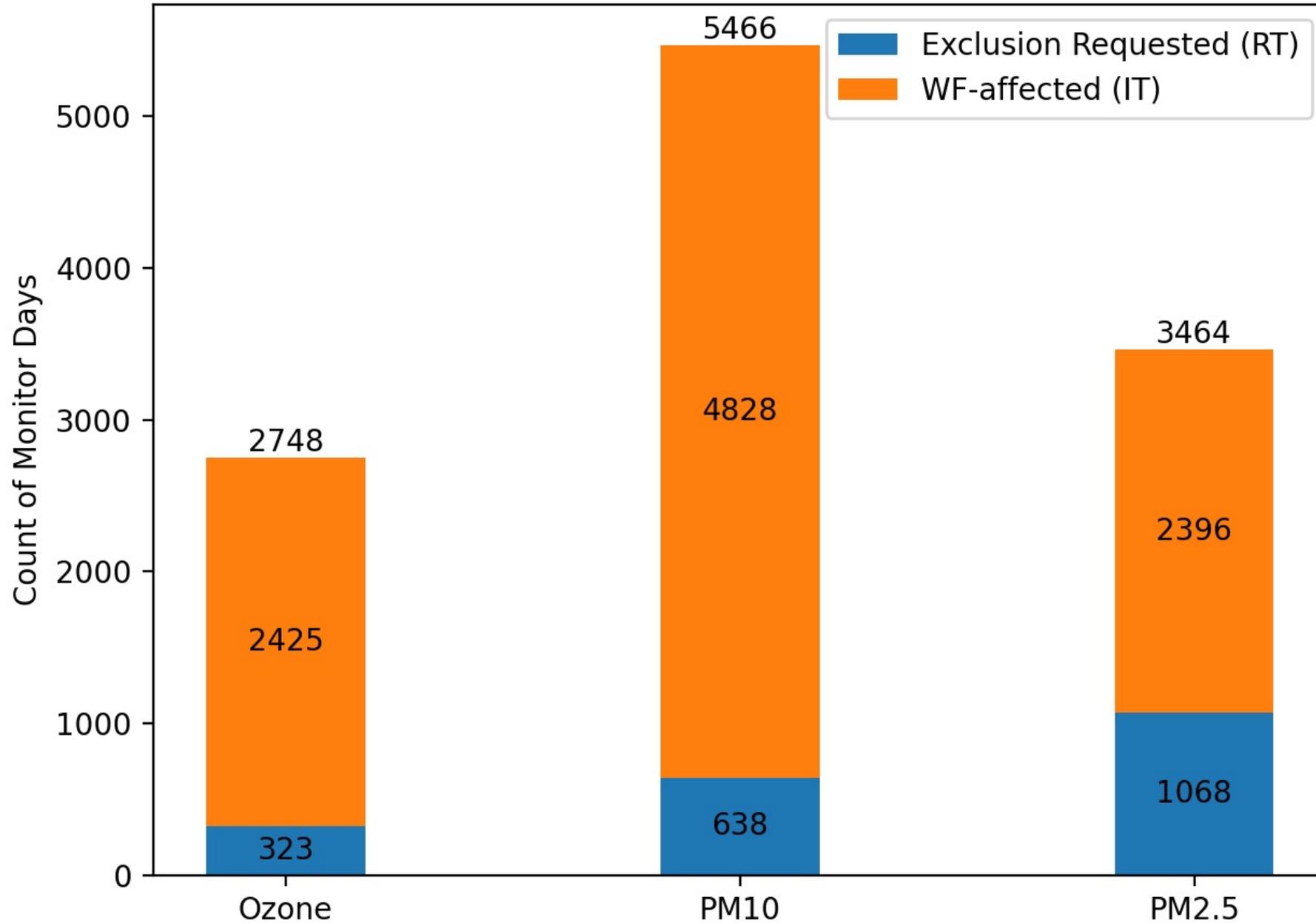
1,820

PM₁₀
Monitor
Days

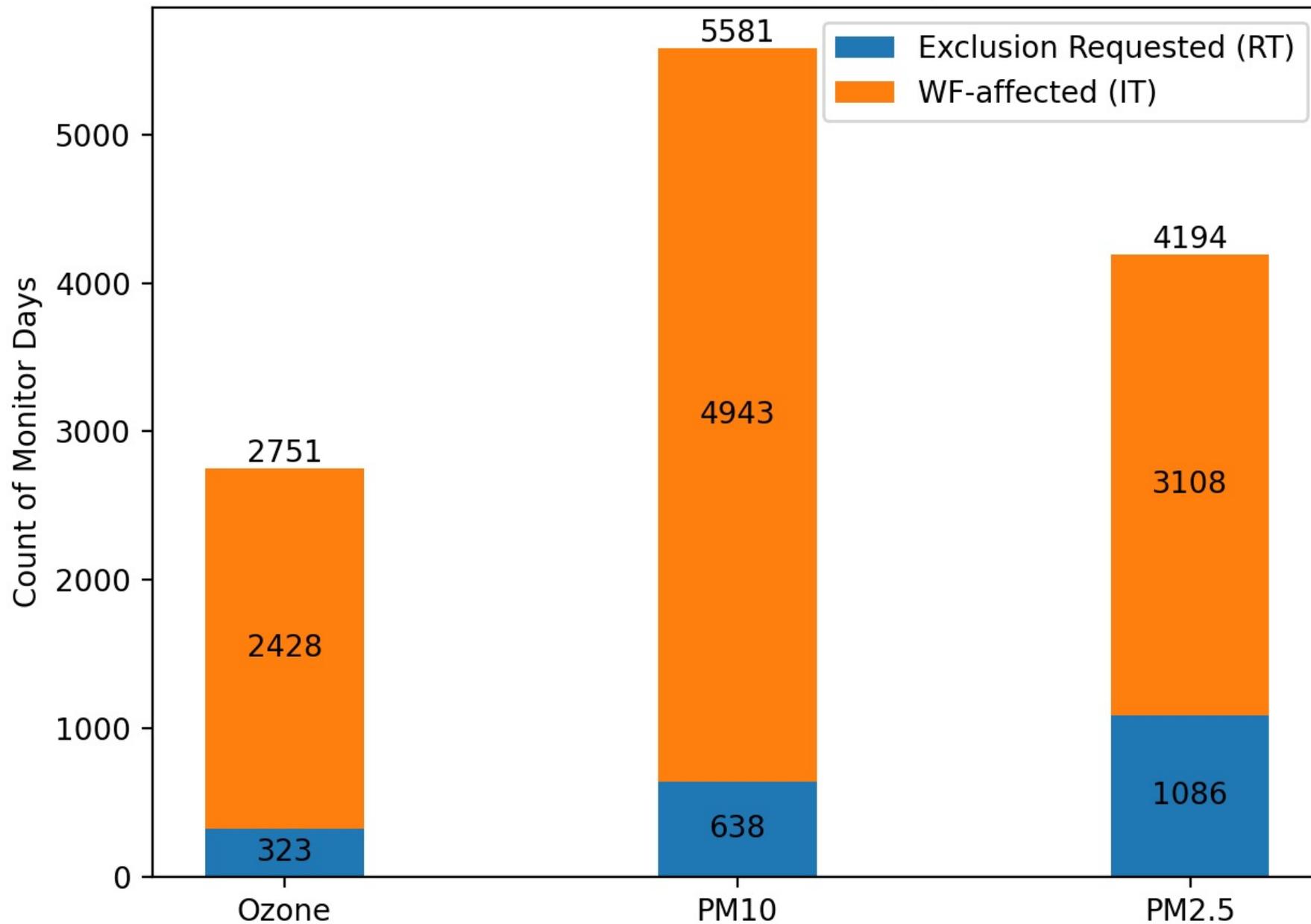
667

Count of Wildfire-Affected Monitor Days Flagged in AQS - WRAP States

2021



Count of Wildfire-Affected Monitor Days Flagged in AQS - All States



2021

Next Steps

- Requesting feedback from WESTAR/WRAP members:
 - General questions about exceptional events and your agency/organization
 - Questions regarding supporting 2021 Exceptional Events demonstrations
 - Are you preparing EE demonstrations for any smoke events from 2021? How many?
 - What effect will stricter NAAQS have on the number of regulatorily significant days?
 - What 2021 data would be helpful for exceptional events analysis?
 - What ongoing supporting data for EE development would be most helpful?
 - Would a conceptual model of regional wildfire smoke impacts be helpful?



Questions?

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