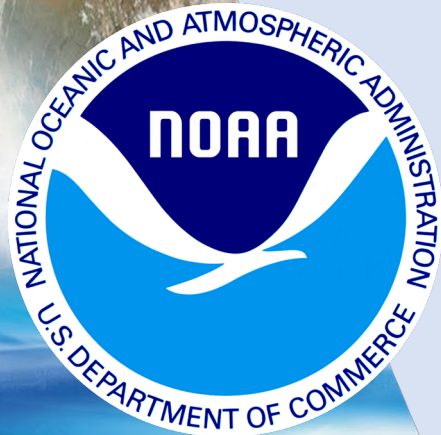


# Can Satellite Data Drive Public Policy for Fine Particulate Pollution?

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Disclaimer: The scientific results and conclusions, as well as any views or opinions expressed herein, are those of the author(s) and do not necessarily reflect those of NOAA or the Department of Commerce.

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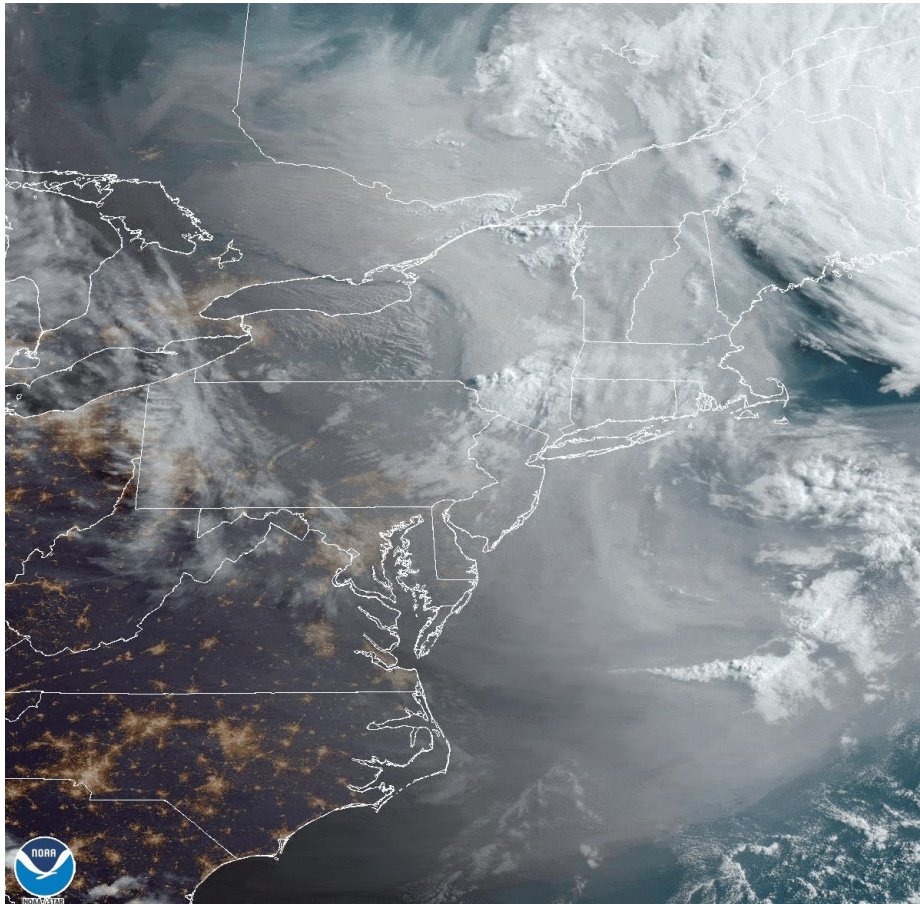
# Fine particulate pollution in the US is decreasing...

- NAAQS PM<sub>2.5</sub> standard that US counties cannot exceed:
  - **Annual average:** 12  $\mu\text{g m}^{-3}$
  - **24-hour 98<sup>th</sup> percentile over 3 years:** 35  $\mu\text{g m}^{-3}$
- Most of the US, except some counties in California is in attainment!!!

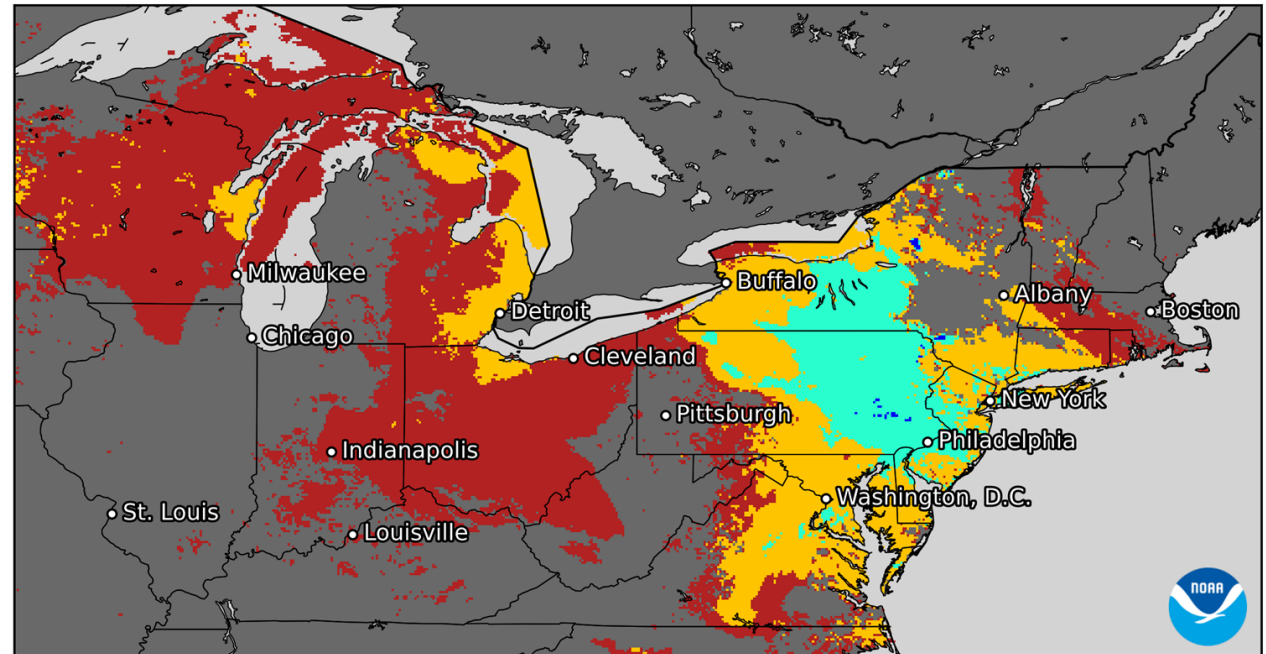


[https://www3.epa.gov/airquality/greenbook/mappm25\\_2012.html](https://www3.epa.gov/airquality/greenbook/mappm25_2012.html)

# Exceptional events like transported smoke from Canadian fires of summer 2023 can undo years of progress...



06 Jun 2023 10:56Z - NOAA/NESDIS/STAR - GOES-East - GEOCOLOR Composite - NE



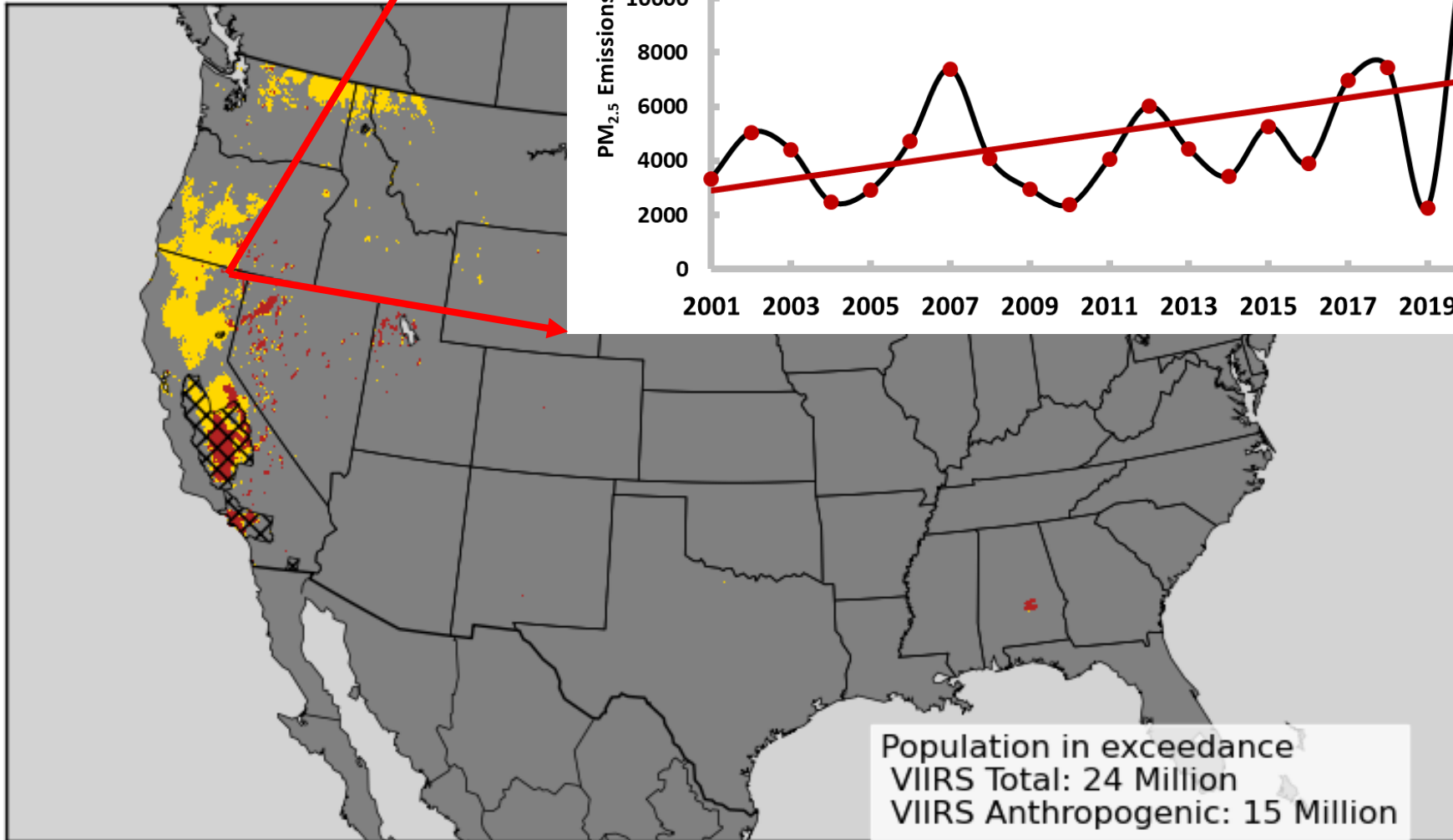
USG 32.5 M People      Unhealthy 36.5 M People      Very Unhealthy 17.1 M People      Hazardous 0.17 M People

<https://www.nesdis.noaa.gov/news/noaa-satellites-tracked-historic-levels-of-harmful-smoke-impacting-millions-the-eastern-us>

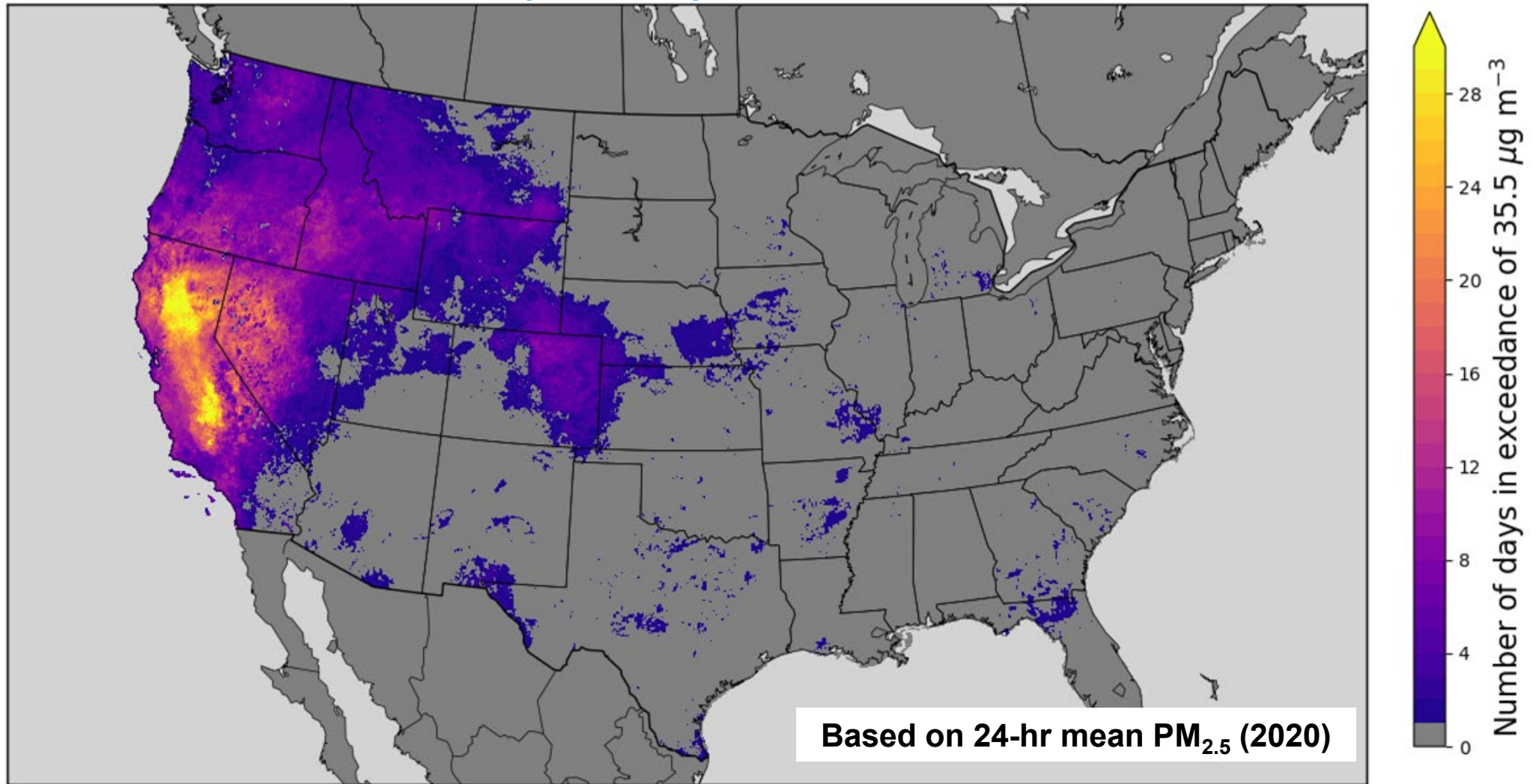


# Smoke leads to exceed health standard

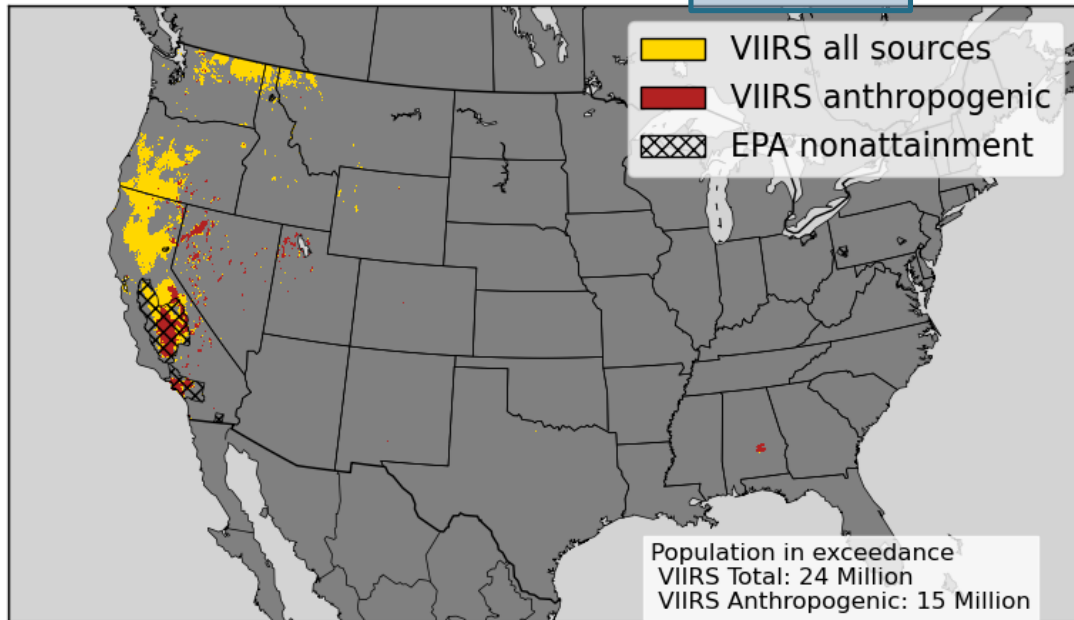
Regions in exceedance of



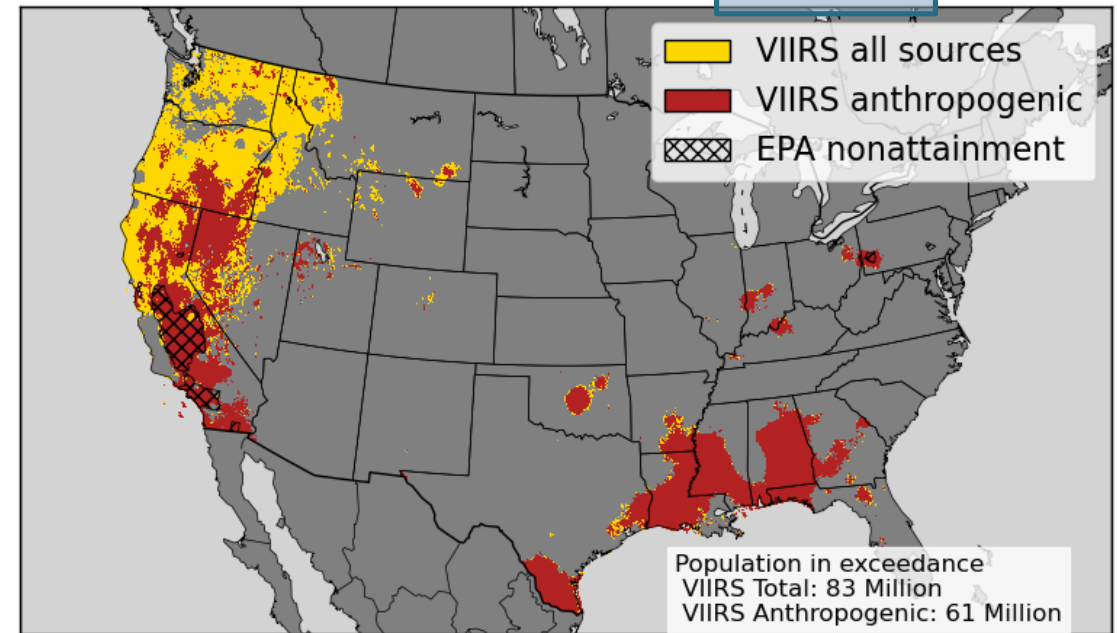
# Satellite data are already informing daily air quality alerts



Regions in exceedance of PM<sub>2.5</sub> standard [ $12 \mu\text{g m}^{-3}$ ] (2018-2020)



Regions in exceedance of PM<sub>2.5</sub> standard [ $9 \mu\text{g m}^{-3}$ ] (2018-2020)



## New EPA rulemaking has implications

### **The Plus**

- Improved air quality for many millions and better health outcomes

### **The Downside**

- Scramble to meet the new standard
- Where can the reductions come from? Energy, industry, and transport sectors have already cut the primary emissions down. Most PM<sub>2.5</sub> now is secondary aerosol. Efforts are needed to understand the gains from NO<sub>x</sub> and VOC reductions on secondary aerosol
- There is this fear that if the new standard becomes the law, states may issue fewer permits for prescribed burns. Less prescribed burns “now” means more uncontrolled “wildfires” in the future

# Quantitative Smokescreen Tool

- Use NOAA “smoke PM2.5” in the analysis leading to new rule making
- Use NOAA “smoke PM2.5” and “dust PM2.5” in Exceptional Events waiver approval process

