



# Regional Haze: Updates



On June 9, Ecology had an informational meeting about the upcoming Regional Haze SIP work

State must submit their Regional Haze SIP to EPA by summer of 2021

Washington will be joining the WRAP/WESTAR effort

<i>Topic</i>	<i>Presenter</i>
Welcome and Introductions.	Chris Hanlon-Meyer Anya Caudill
Introduction to Visibility.	Tom Moore (WESTAR)
Washington's National Parks and Wilderness Areas: Clearing up the Haze.	Pat Brewer & Tonnie Cummings (NPS) James Miller & Janice Peterson (USFS)
<i>Morning Break.</i>	
Regional Haze Rule Overview: New Requirements.	John Chi & Debra Suzuki (EPA R10)
WESTAR / WRAP Regional Analysis and Planning.	Tom Moore & Mary Uhl (WESTAR)
WA Regional Haze: Lessons Learned and Looking Ahead:	Alan Newman Jean-Paul Huys Open discussion
<ul style="list-style-type: none"> <li>• BART and other controls</li> <li>• Inventories</li> <li>• Timelines, Challenges &amp; Budget</li> </ul>	
<i>Lunch</i>	
Washington Smoke Management Plan Update.	Jonathan Guzzo (DNR)
Proposed New Tracking Metric: Evaluation and Implications.	Tom Moore (WESTAR) Pat Brewer (NPS)
<i>Afternoon Break.</i>	
Emission Inventories:	Farren Heron-Thorpe
<ul style="list-style-type: none"> <li>• Custom emissions inventory</li> <li>• Future projections</li> <li>• Chemical-transport modeling</li> </ul>	
Reasonable Progress Analysis:	Open discussion
<ul style="list-style-type: none"> <li>• Where can we look for reductions?</li> <li>• WA RACT and 4 factors Analysis</li> <li>• Role of Fire</li> <li>• Other</li> </ul>	
Next Steps.	Anya Caudill

# Regional Haze: Emissions

## EPA Guidance

### Regional Haze SIP Should Include:

- ❖ The AERR (Air Emissions Reporting Requirements) inventories (e.g. EIS and 2014 NEI) are the starting point
  - If better emissions data can be incorporated into the long-term strategy development, it should be.
- ❖ Need On-Road (SMOKE-MOVES), NONROAD, Point Sources, Biogenics (MEGAN or BEIS), non-point, fire, soil wind erosion
  - Since fire emissions can be a large source of emissions, the treatment of fires should be discussed with the relevant EPA Regional Office(s).
- ❖ Base and future year emissions for all sources:
  - Summary of emission levels projected to result from application of the new control strategies.
  - Estimates of how enforceable emission limitations (e.g. new rules) affect the future emissions and the projected visibility impacts.
  - Other future emissions projections (e.g. market and international)

# Regional Haze: Modeling

EPA Guidance

## Modeling Plan

- ❖ Conceptual Model First
- ❖ Consider Monitoring, Trends, Emissions, Meteorology, etc.
- ❖ Time period should reflect meteorological conditions for 20% best and 20% worst days in the Class I areas being modeled
  - This is best accomplished by modeling a full year.
- ❖ Future modeling year should be between 2025 and 2028
  - 2028 review will be based on monitored data from 2023-2027
- ❖ The modeling grid
  - Needs to be large enough to capture recirculation due to shifting wind directions.
  - Grid-cell size should be 12 km or less.
  - Class I areas should not be close to the edge of the model domain.
- ❖ Recommended to downscale global models used for boundary conditions at an intermediate grid-cell size (e.g. 36 km)

# Regional Haze: Modeling

EPA Guidance

## Meteorological Modeling

- ❖ WRF retrospective meteorology (with data assimilation)
- ❖ Need to evaluate the meteorological model
- ❖ Analysis that combines the meteorological model evaluation and the air quality model evaluation can be highly beneficial.
- ❖ EPA does not recommend that air agencies explicitly account for long-term climate change in attainment demonstrations.
  - The same meteorology can be used for the future year modeling.

## CTM Modeling Options

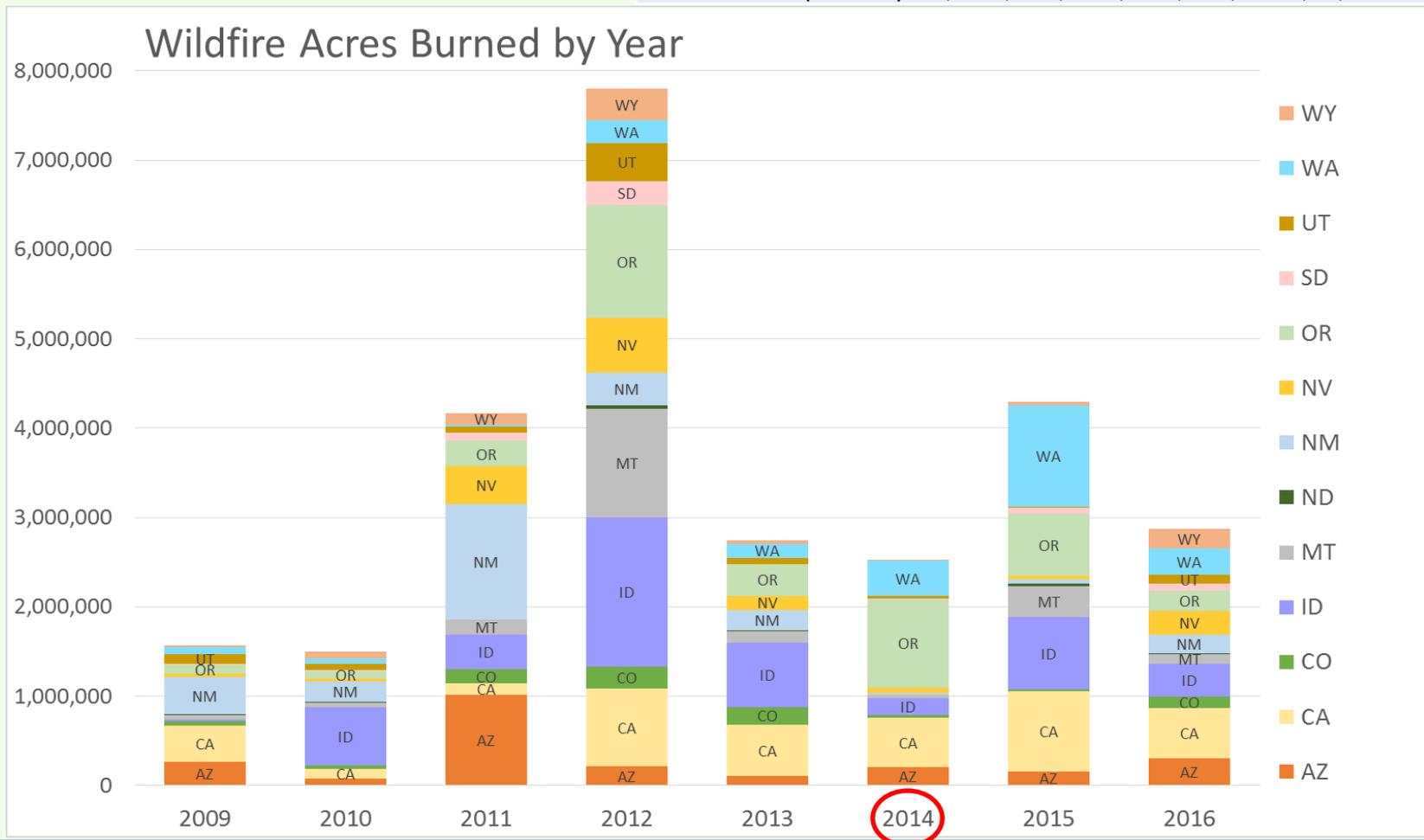
- ❖ Photochemical grid models should be the generally preferred approach for estimating source impacts on secondary PM concentrations
  - CAMx or CMAQ
- ❖ Source contribution modeling options:
  - source apportionment
  - brute force
  - direct decoupled method (sensitivity analysis)
- ❖ States planning to conduct source contribution modeling should first ask for EPA to review the modeling study plan.

# Regional Haze: Emissions

*How Should Wildfire be Characterized?*

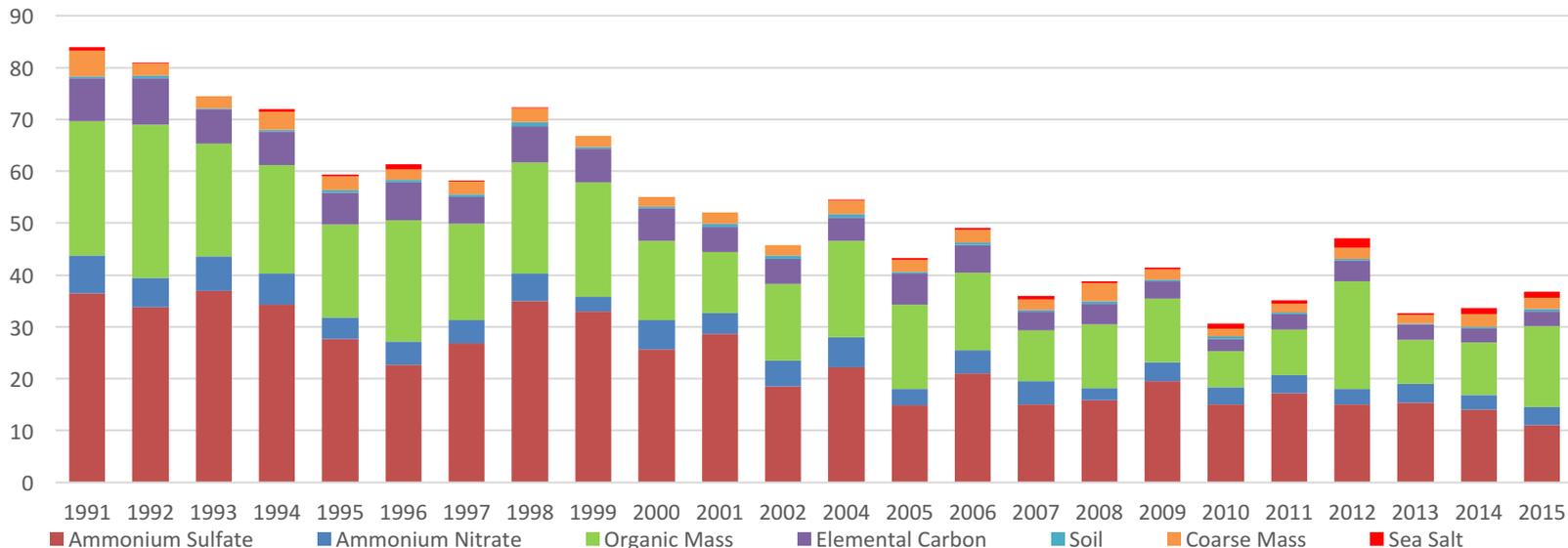
Source - [https://www.nifc.gov/fireInfo/fireInfo\\_statistics.html](https://www.nifc.gov/fireInfo/fireInfo_statistics.html)

Includes Data reported by BIA, BLM, C&L, DOD, FWS, NPS, OTHR, ST, USFS

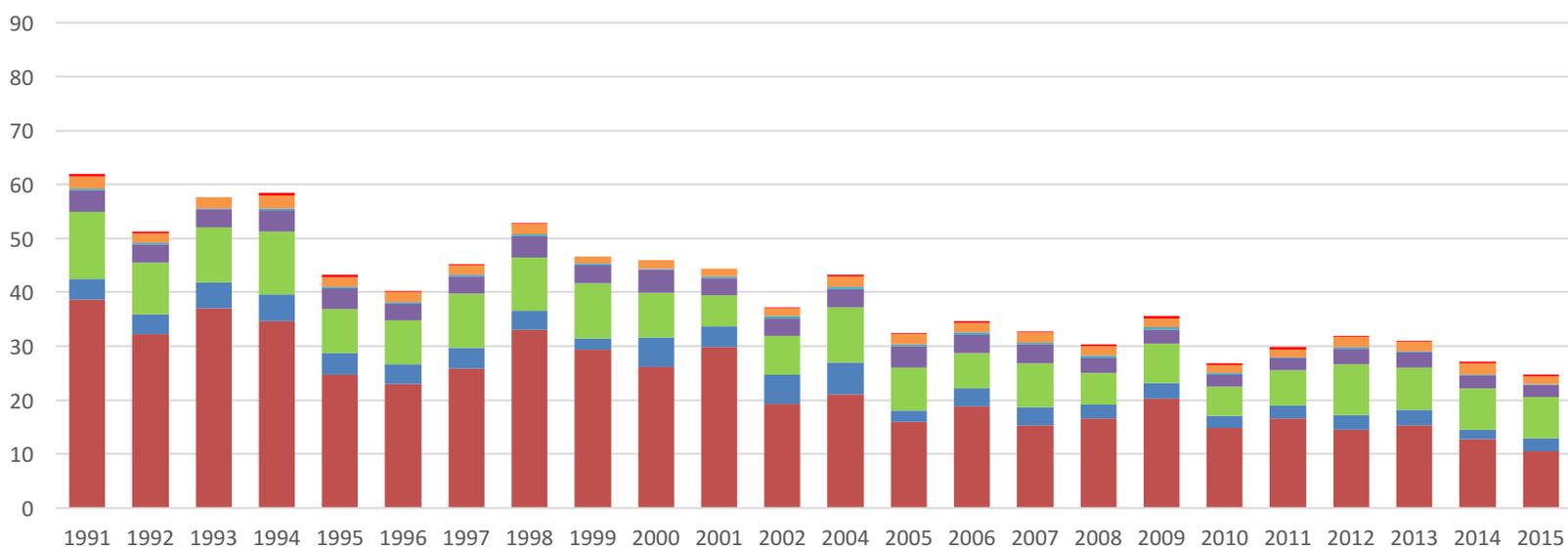




### Haziest Days - Mount Rainier NP



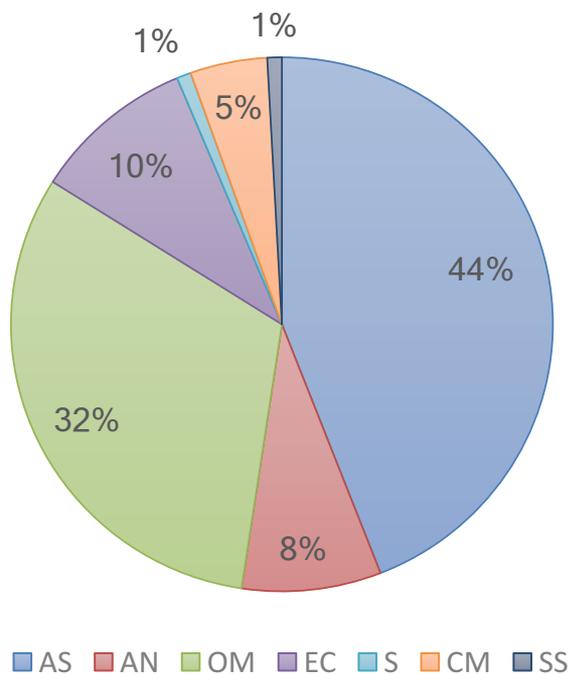
### Most Impaired Days- Mount Rainier NP



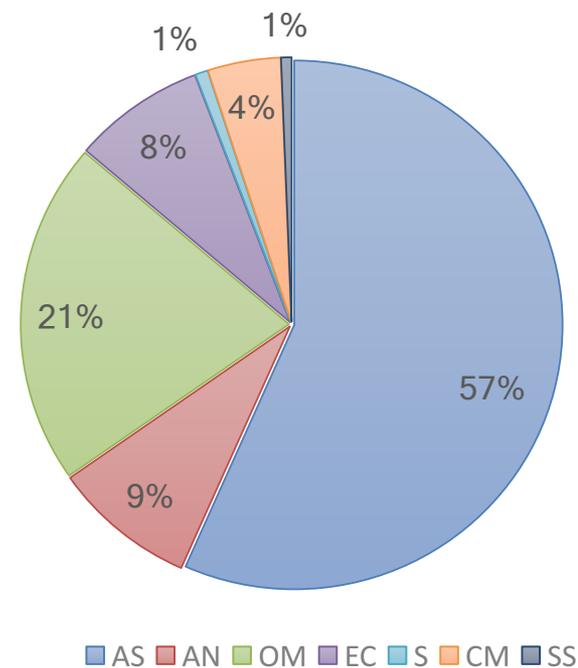


AS	Ammonium Sulfate
AN	Ammonium Nitrate
OM	Organic Mass
EC	Elemental Carbon
S	Soil
CM	Coarse Mass
SS	Sea Salt

### Haziest Days



### Most Impaired Days



# Regional Haze: Emissions

## *Acquiring Minor-Source Data from Registration Databases will Require a Large Collaborative Effort*

Minor point source data is not reported to the EPA but is collected during permitting and will need to be included in the EI.

Need data collected from:

- The State Agencies
  - The Regional State Agency Offices (not shown at right)
  - Local Clean Air Agencies
- ❖ Quality control issues?
  - ❖ Different formats?
  - ❖ Will need to fix any double counting in the EI (non-point vs point sources)
  - ❖ Different criteria for registration and permitting between agencies

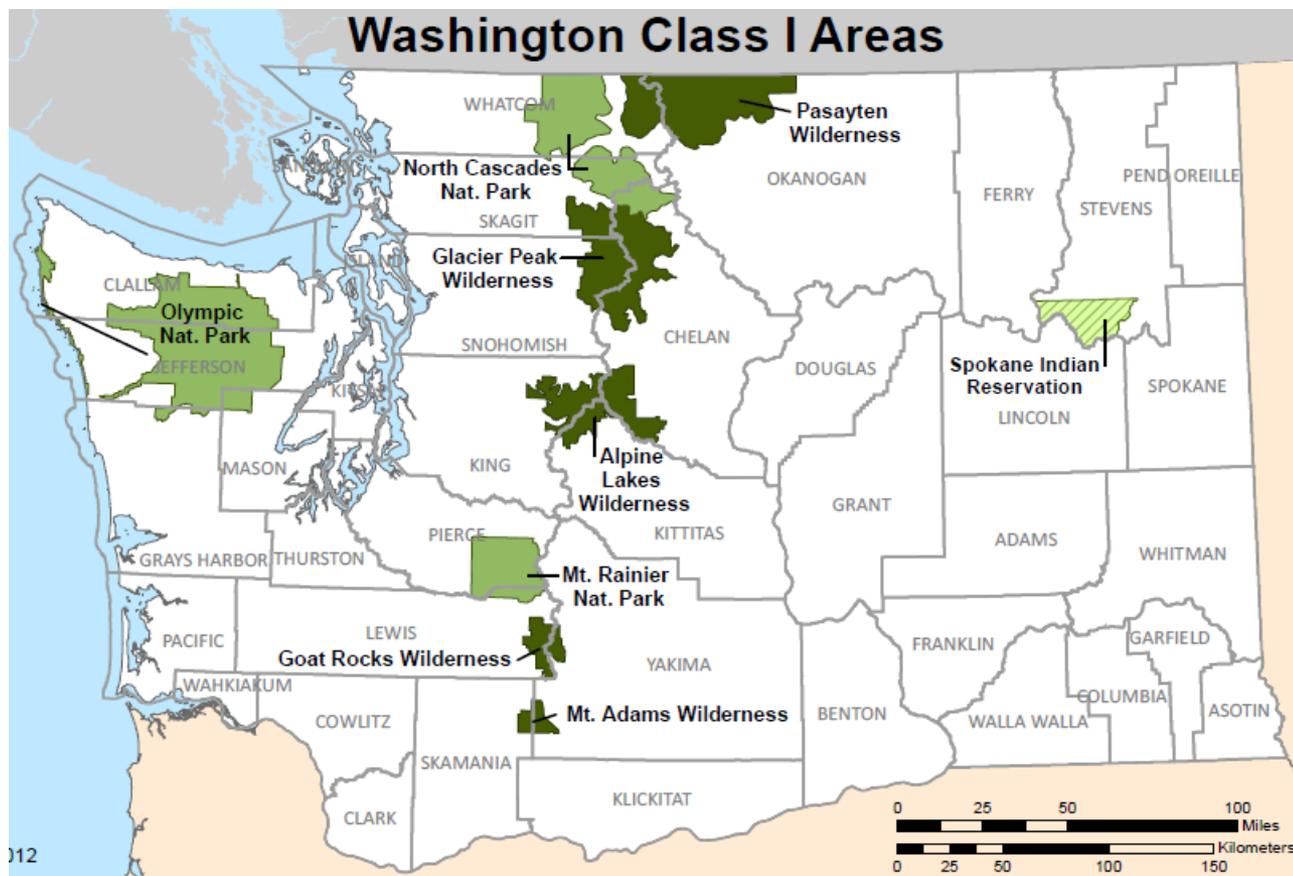
<b>State</b>	<b>Agency</b>	<b>Local Agencies</b>
Alaska	<i>Dept. of Environmental Conservation</i>	1
Arizona	<i>Dept. of Environmental Quality</i>	3
California	<i>Air Resources Board</i>	35
Colorado	<i>Dept. of Public Health and Environment</i>	6
Hawaii	<i>Dept. of Health</i>	0
Idaho	<i>Dept. of Environmental Quality</i>	0
Montana	<i>Dept. of Environmental Quality</i>	3
North Dakota	<i>Dept. of Health</i>	0
New Mexico	<i>Environment Dept.</i>	1
Nevada	<i>Division of Environmental Protection</i>	2
Oregon	<i>Dept. of Environmental Quality</i>	1
South Dakota	<i>Dept. of Environmental and Nat. Res.</i>	0
Utah	<i>Dept. of Environmental Quality</i>	0
Washington	<i>Dept. of Ecology</i>	7
Wyoming	<i>Dept. of Environmental Quality</i>	0
<b>TOTAL #</b>	<b>15</b>	<b>59</b>

Source: NACAA

<http://www.4cleanair.org/agencies>



# Questions / Discussion?



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