MARAMA Mid-Atlantic Regional Air Management Association, Inc.

MARAMA and Current Northeast Regional Air Quality Issues

November, 2017
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MARAMA

Topics

- What is MARAMA?
- Current Air Quality Issues in Northeast
- Interface with satellite community

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What is MARAMA?

- Mid-Atlantic Regional Air Management Association
- Voluntary association of state and local air pollution control agencies
- Formed in 1990

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MARAMA's Members

- Allegheny County, Pennsylvania
- Philadelphia, Pennsylvania
- District of Columbia

- Pennsylvania
- New Jersey
- Delaware
- Maryland
- West Virginia
- Virginia
- North Carolina

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MARAMA's Mission

- Strengthen technical knowledge and skills of the staff of member agencies through workshops and support for training, and

- Help member agencies work together to prevent and reduce air pollution in the Mid-Atlantic Region

MARAMA Major Activities

- Training of Technical Staff
- Technical projects – Especially Inventory Development
- Coordination across MARAMA agencies, with other regions and with EPA

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Types of Training Events

- Conference calls & Webinars

- Small meetings

- Workshops and conferences designed by MARAMA

- Short courses sponsored by MARAMA

- Support attendance at other events

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Technical Work
Inventory Development

- **Emissions Modeling Framework** – Used to house inventory and project NE regional emissions. Can accommodate both EPA and regional growth methodologies.
- **EGU Projections** – ERTAC EGU estimation tool. Developed by state and regional staff. States consider ERTAC EGU to be the best projection tool for SIP development.
- **2011/2017/2020/2023/2028 Inventory** – MARAMA prepared in collaboration with EPA and other regions. Best estimates for both NE local as well as national emissions.
- **New inventory using base year 2016** now in development.
  - Collaborative effort – EPA, regions and states
  - Uses?
    - West: Visibility SIP projection year of interest 2028
    - East: 2015 ozone NAAQS projection year of interest 2023

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Coordination

- **Monthly topical webinars** used for ongoing state staff training, project coordination, soliciting state feedback.
  - Northeast Regional Emissions Inventory
  - Mobile Emissions – MJO MOVEs
  - National Oil and Gas
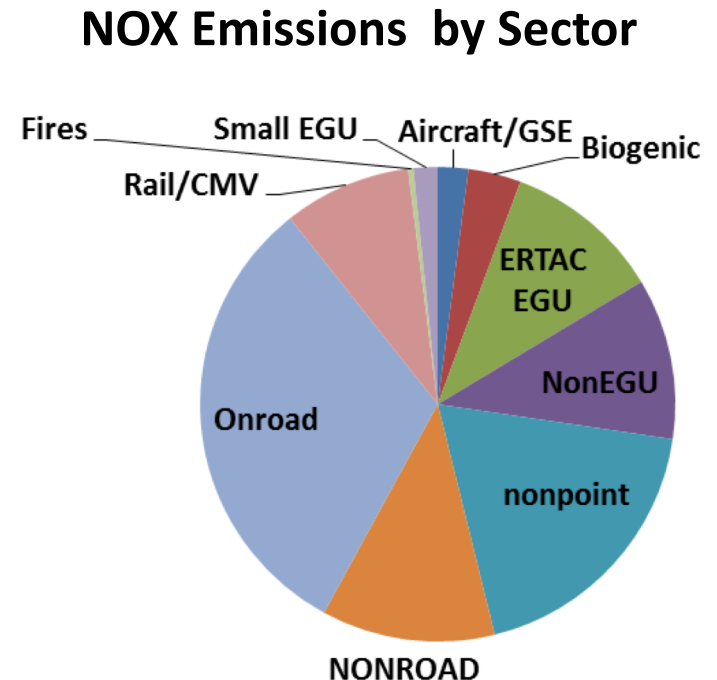- **Annual Meeting** for Monitoring

Current Air Quality Issues

- Meeting the Ozone Air Quality Standards with an uncertain modeling platform
- Addressing Exceptional Events
- 1 Hour SO2 Standards
- Responding to Citizen Concerns
  - Environmental Justice
  - New portable monitors

Ozone SIP Inventory Structure & Uncertainty

- Oil & Gas point & exploration & development (area)
- Electric Generating Units (EGU)
- Non-point
  - Residential Wood Combustion
  - Agricultural ammonia
- Large Point sources other than EGU
  - Refineries
  - Cement
- Mobile sources
- Marine
- Rail
- Fires, biogenic & meteorology

NOX Emissions by Sector

Fires, Rail/CMV, Small EGU, Aircraft/GSE, Biogenic, ERTAC EGU, NonEGU, nonpoint, NONROAD, Onroad

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Uncertain Inventories Trend Analysis

- Pollutants of interest – NOX, SO2, Ammonia, VOC
- Planning – what is working and where things are going
  - Example: Measuring Success of past emission trading programs (SO2 & NOX) and now the success of CSAPR NOX program
- Public Communication

Uncertain Inventories
Emission Variability

- Remaining ozone problems more difficult because they are more isolated
- Temporal/spatial emissions variability more critical
- Targeting effective controls
- Example: NOX and SO2 variability of remaining large point sources

Uncertain Inventories
True-up of inventories

Scales
- Total
- Spatial/Temporal resolution

Examples:
- VOC Pipeline leaks
- Agricultural ammonia emissions
- Ship Emissions
- Mobile sources
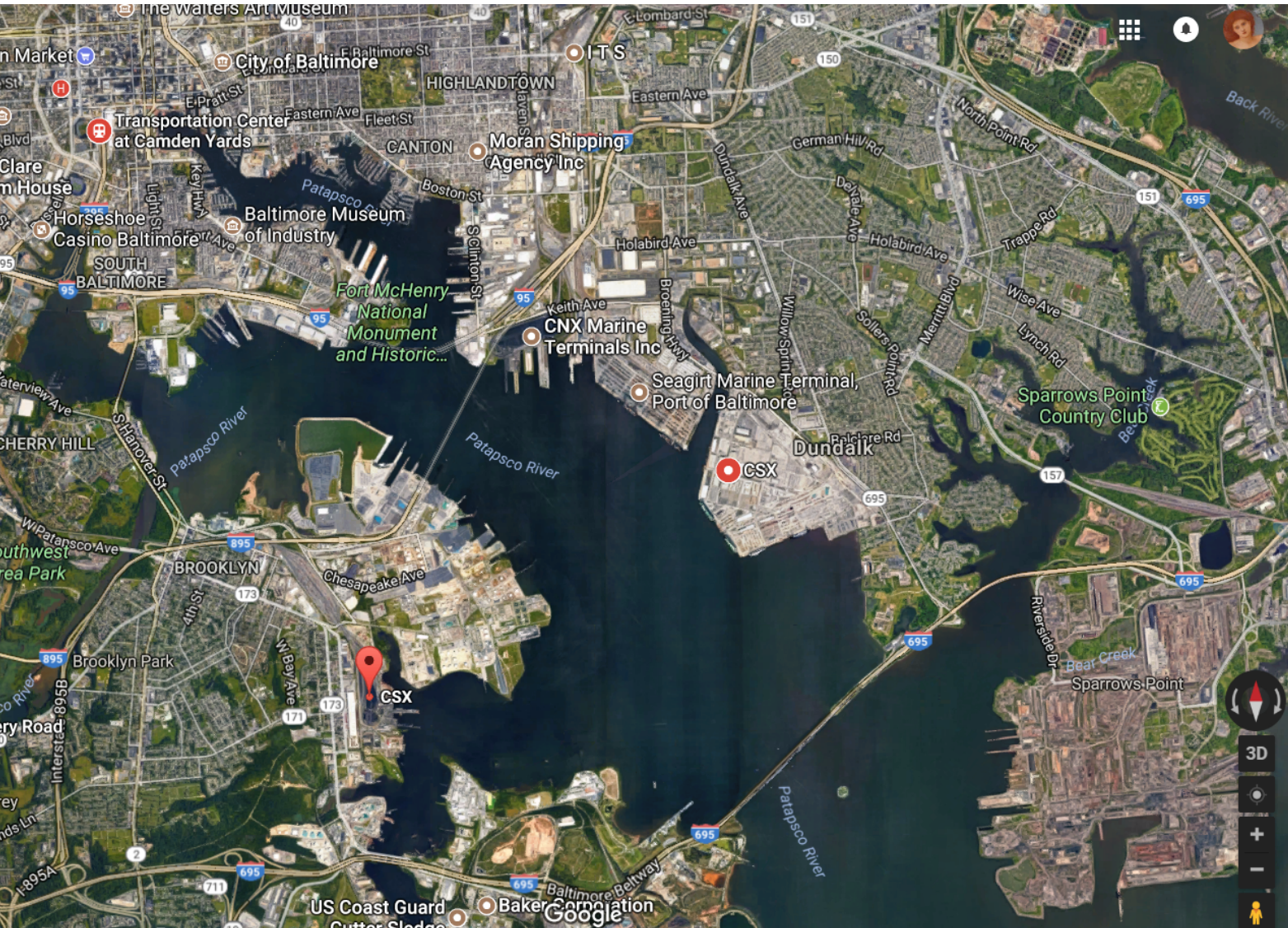- Residential wood PM2.5
- Fires

Uncertain Inventories Dispersed Sources

Locate & Quantify

- Rail yards
- Truck idling

Use of pattern recognition?

Railyards

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Actionable Inventory Studies

Ask the right questions

- Focused on outcomes
- Know motivations

Structure investigation to provide useful data

Close coordination

- Long term – with agencies
- Short term – with existing campaigns to true up results

# Addressing Exceptional Events 2016 Fort McMurray Canadian Fire

- Burned from May 1 to July 6, 2016

- 1,500,000 acres around Fort McMurray, Alberta, Canada

- 80,000 residents flee

- Destroyed 2,400 buildings

- Greatest and most expensive natural disaster in Canadian history

Courtesy of NJDEP, Bureau of Air Monitoring

Impact on New Jersey
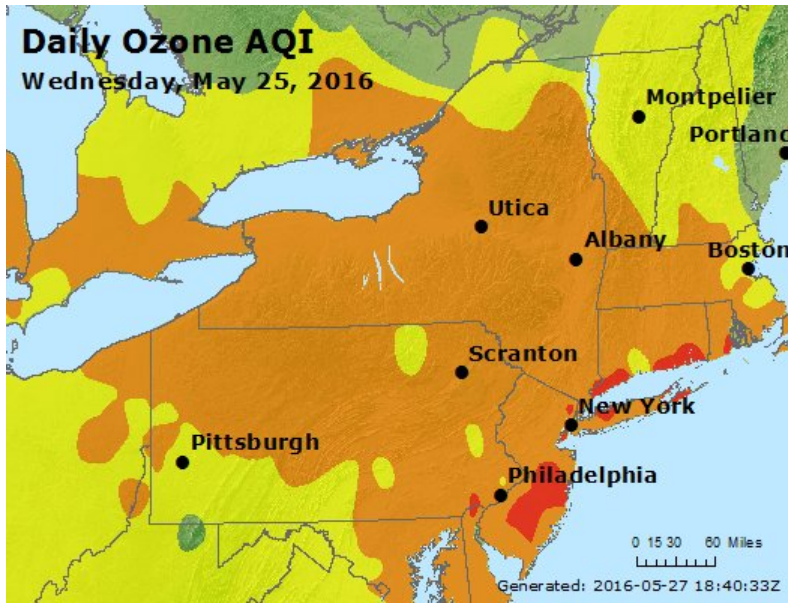
- May 25: 16 of 17 monitors exceed 70 ppb O_3 NAAQS

- May 26: 10 of 17 monitors exceed 70 ppb O_3 NAAQS

- Exceedances in CT, DE, MD, NY and PA

- Impact to O_3 Design Values if exceedances excluded

May 17-18, 2017 Smoke-Impacted O$_3$ Event
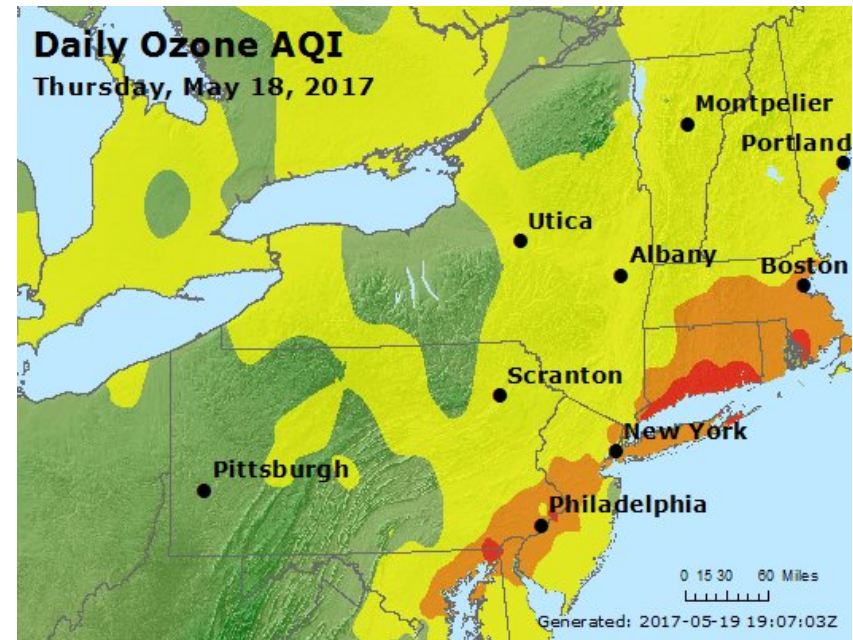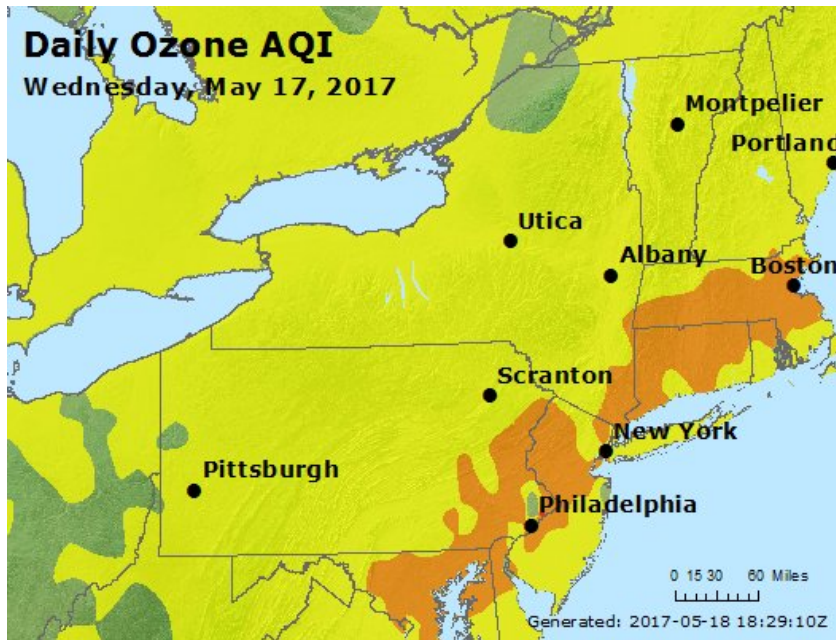
- Regional high O$_3$ event along the I-95 Corridor (Mid-Atlantic and southern New England)

- Driven by sunny, hot weather and transport of smoky air mass from Mexico/Central America

- Forecasters (e.g., PHL/DE, CT) used VIIRS AOD to help verify extent of smoky air transport

Good	0 to 50
Moderate	51 to 100
Unhealthy for Sensitive Groups	101 to 150
Unhealthy	151 to 200
Very Unhealthy	201 to 300
Hazardous	301 to 500

11/2017

Other Current Air Quality Issues

1 Hour SO2 NAAQS Standards

Emission Monitoring Plans

- Hazardous Air Pollutants
- Intensive monitoring sites - PAMS

Citizen Concerns

- Environmental justice
- New portable monitors – interpreting the results in light of traditional AQ monitoring

Conclusion

Current Air Quality Issues – Satellites well Suited

- Assessing Bottom-Up Inventories
- Exceptional Events

Other Current AQ Issues – Can Satellites help? Not sure

- 1 Hour SO2
- Emission Monitoring Plans
- Citizen Concerns

MARAMA as an interface

- Coordination
- Training
- Interpretation of issues