OTC Modeling Committee Update
2026 OTC/MANEVU Annual Meeting
June 2-3, 2026

OTC Modeling Committee

Chairs, Eric Zalewsky and Ruby Tian, NYS DEC
Committee Lead, Alexandra Karambelas, OTC/NESCAUM



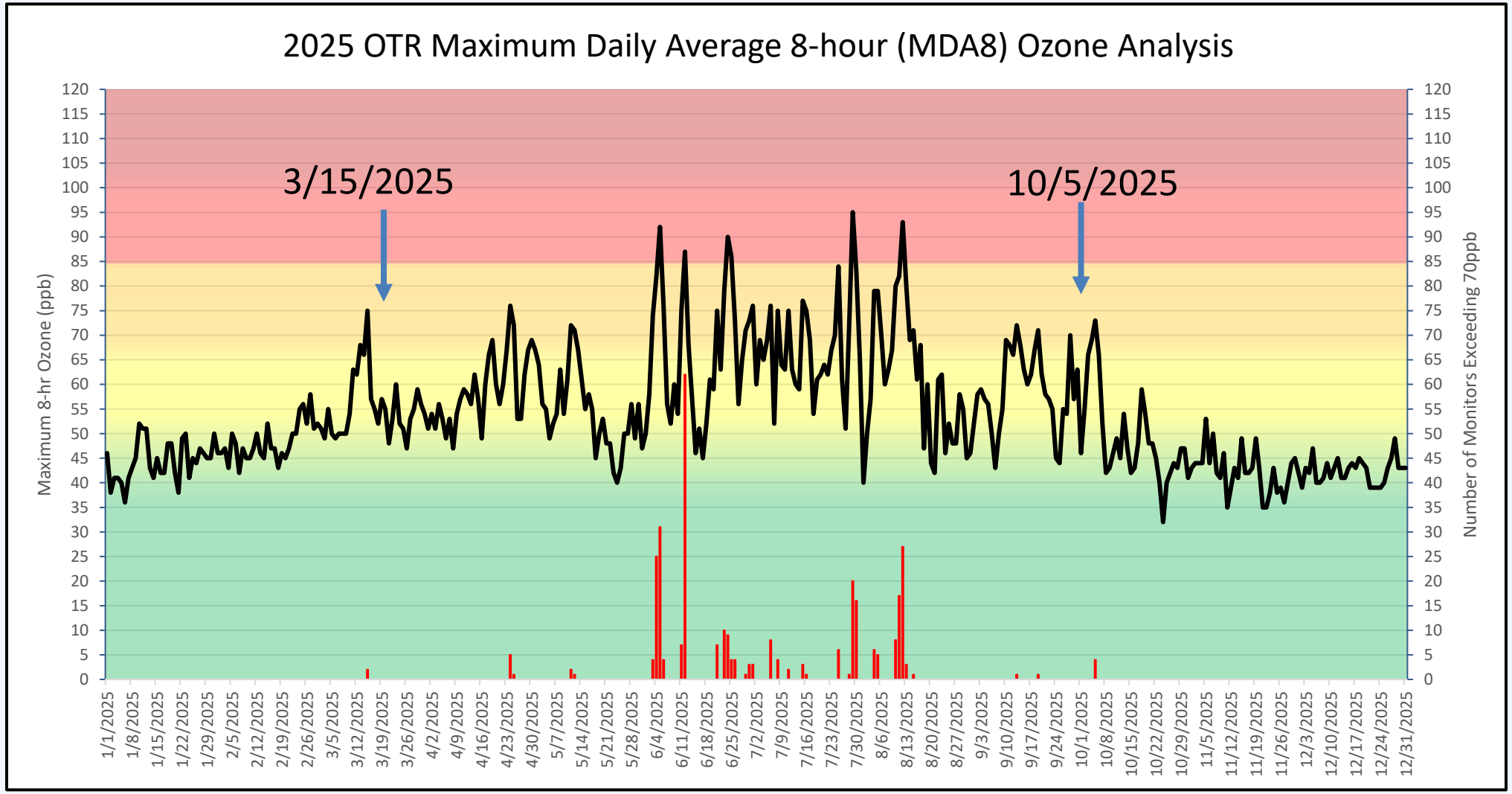


OZONE TRANSPORT COMMISSION

Announcements/Accomplishments

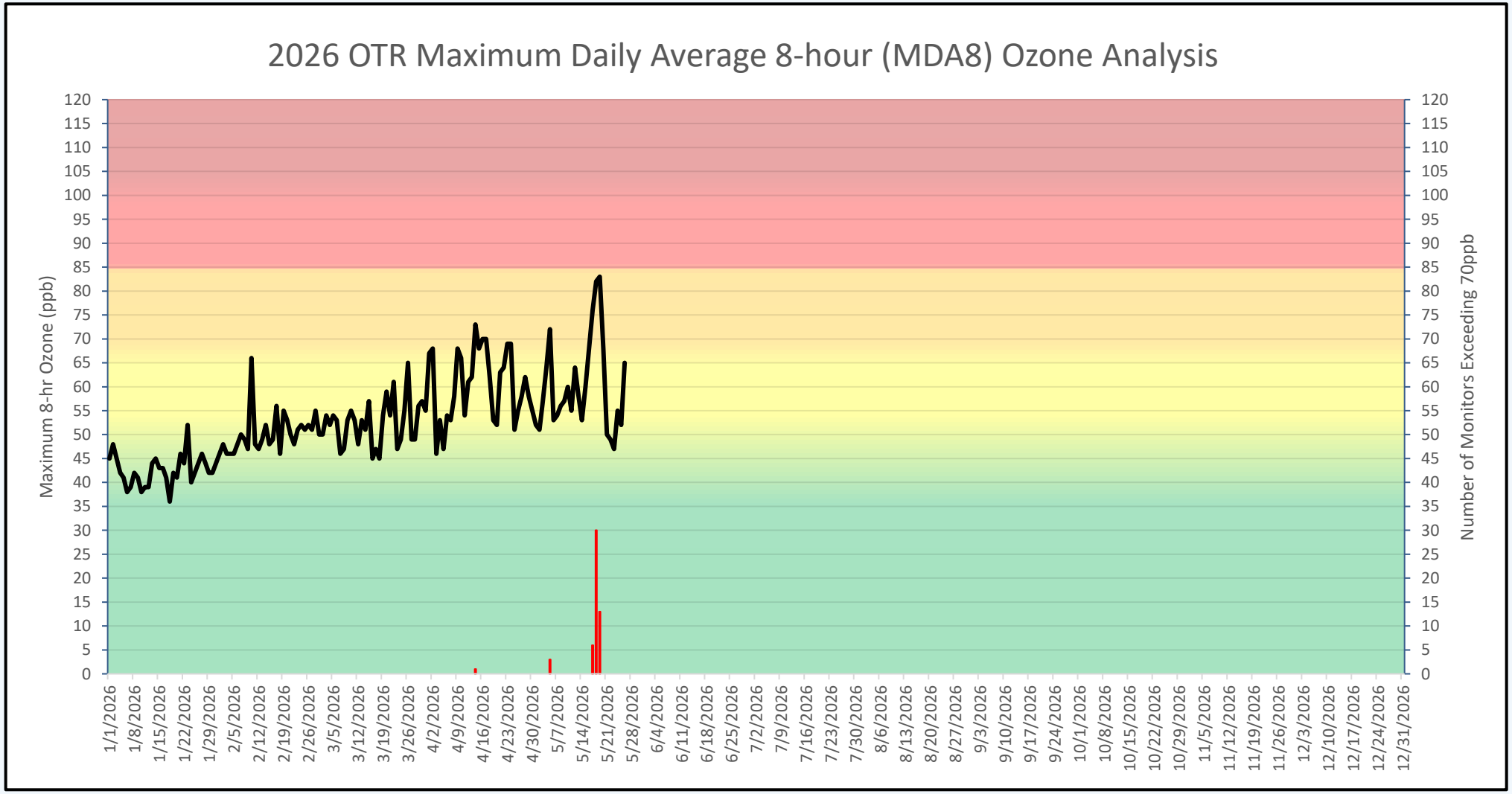
- 2026 (2022v1) DVFs are available
- Tracked current OTR O_3 levels and preliminary attainment status
- Completed study of model-projected vs observed MDA8 O_3 for 2016 platform
- Completed 2022 simulations with CMAQ using 2022v2 platform (Emissions Collaborative), with EPA EGU options
- Completed a series sensitivity tests

2025 Maximum Daily Average 8-hr Ozone in the OTR



OBS data prepared by Marcus Chase (NH DES)

2026 Maximum Daily Average 8-hr Ozone in the OTR



OBS data prepared by Marcus Chase (NH DES) – data through 05/26/2026

2025 Preliminary Monitored Ozone Design Values

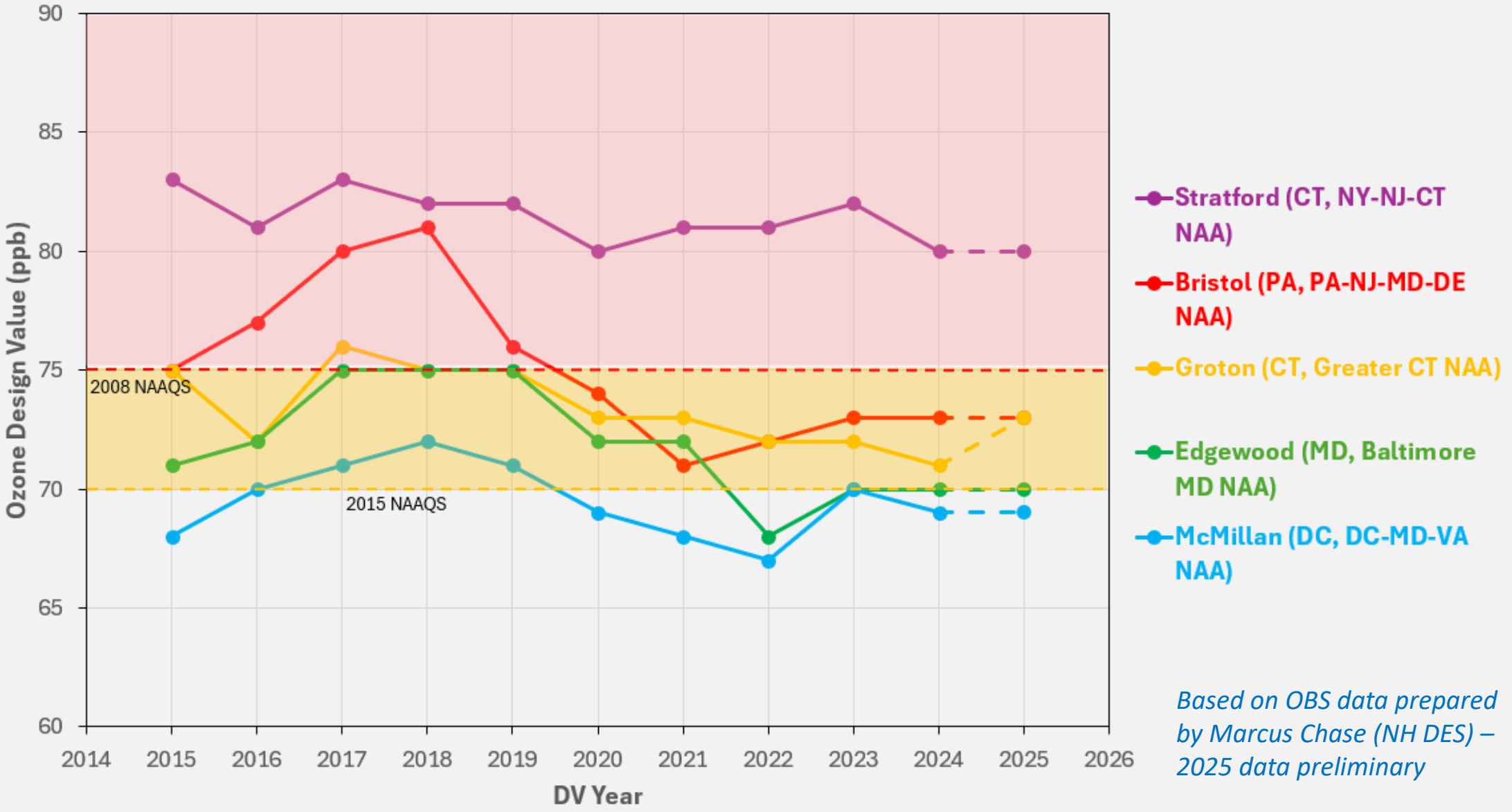
* NJ submitted Exceptional Event demonstrations for 2023 data due to wildfire smoke

** All the exceeding monitors may be impacted by Canadian Wildfires in 2023, 2024 and 2025

OBS data prepared by Marcus Chase (NH DES) – data are preliminary

Monitors w/2025 DV in Violation of 2015 NAAQS			
Agency	Site	AQS Code	2025 DV (ppb)**
CT	Greenwich	90010017	**79**
CT	Danbury	90011123	**77**
CT	Stratford	90013007	**80**
CT	Westport	90019003	**80**
CT	East Hartford	90031003	**73**
CT	Middletown	90079007	**75**
CT	New Haven (Criscuolo Park)	90090027	**71**
CT	Madison	90099002	**77**
CT	Groton (Fort Griswold)	90110124	**73**
CT	Stafford	90131001	**71**
NJ	Leonia	340030006	**73**
NJ	East Greenwich (Clarksboro)	340150002	**72***
NJ	Lawrence (Rider University)	340210005	**72**
NJ	Titusville (Wash. Crossing)	340219991	**71***
NJ	Jackson (Colliers Mills)	340290006	**71***
NY	NYC (Pfizer Lab)	360050133	**71**
NY	NYC (CCNY)	360610135	**72**
NY	NYC (Queens College)	360810124	**71**
NY	Rockland County	360870005	**72**
NY	Old Field (Flax Pond)	361030044	**72**
NY	White Plains	361192004	**73**
PA	Bristol	420170012	**73**
PA	Philadelphia (Northeast Waste)	421010048	**73**

Time Series of Monitored Ozone Design Values

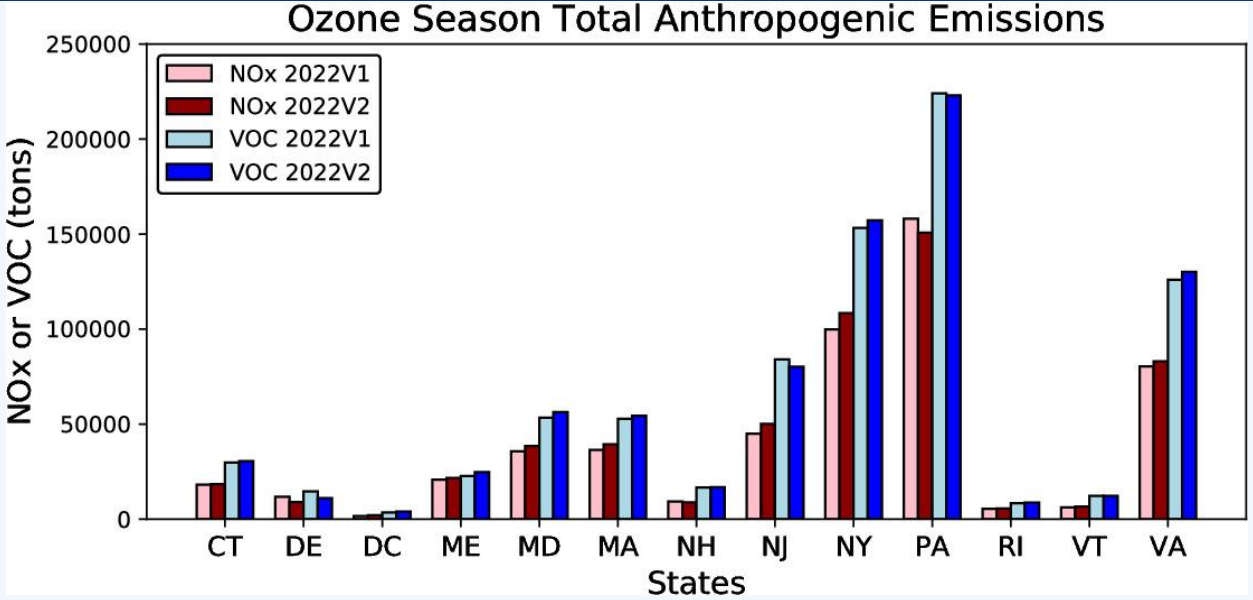


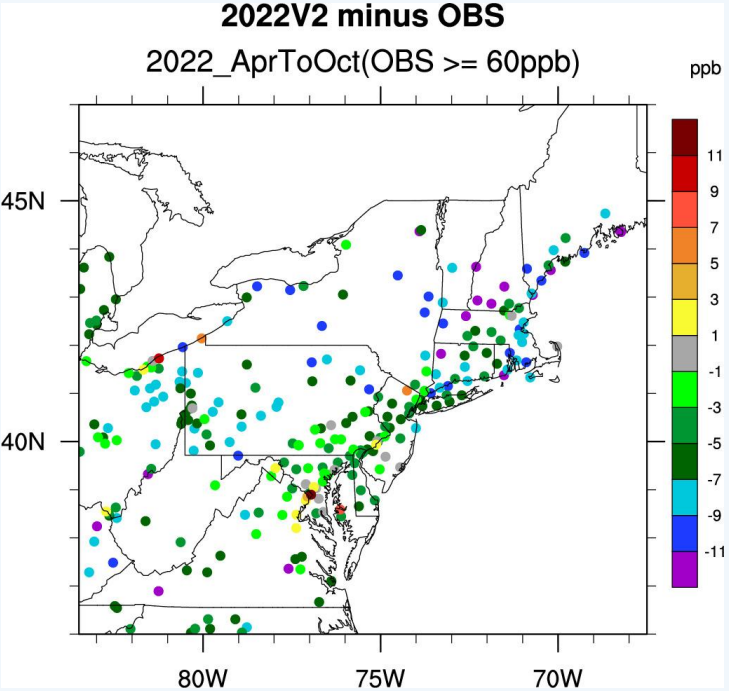
Based on OBS data prepared by Marcus Chase (NH DES) – 2025 data preliminary

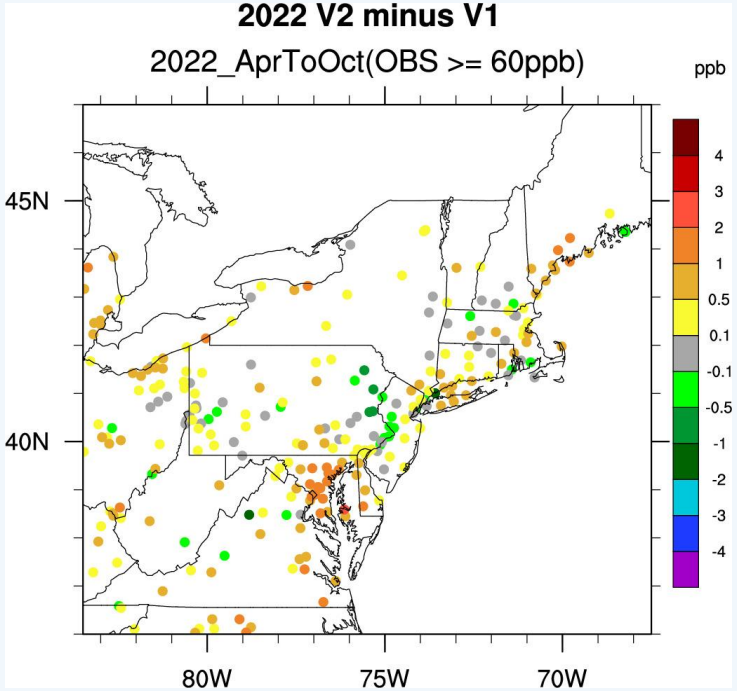
VADEQ Reflections on 2016 platform

- Retrospective comparison of model-projected vs. observed MDA8 O_3 for analytic year 2023 at monitoring locations in the 12OTC2 modeling domain.
- The number of days that the MDA8 O_3 exceeded 70 ppb was used as the parameter for comparison.
- **98% of monitors** in the modeling domain have either an **equal number or a fewer number** of model-projected exceedances than observed exceedances (i.e., model underpredicted or too optimistic)
- **Meteorology, wildfire smoke, and EGU emissions were identified as main variables impacting the underprediction of the exceedance days**

CMAQ Evaluation using 2022v2 platform with EPA EGU option







- Overall, NOx and VOC emissions in 2022v2 increased slightly when compared to 2022v1 for most of the OTR states.

- In the OTR, CMAQ underestimated O_3 on high O_3 days from both 2022v1 and 2022v2 platforms.
- The O_3 differences between 2022v2 and 2022v1 were small. On high O_3 days, 2022v2 platform improved O_3 simulations slightly in Eastern US compared to 2022v1 platform.

CT DEEP Sensitivity Tests using CMAQ

10%, 20% and 30% reductions in NOx or VOC from all anthropogenic sources in NY-NJ-CT nonattainment area for base year 2022 using 2022v1 platform:

- The model located ozone plumes reasonably well but frequently underpredicted ozone exceedances at regional monitors by 10 or more ppb.
- Modeled reductions of 30% NOx in the NY-NJ-CT nonattainment area resulted in ozone reductions up to 4.8 ppb and provided the greatest reductions of all the scenarios run.
- NOx reductions of 20% were generally more favorable than VOC reductions of 20%, though VOC reductions may be more helpful in NOx rich areas closer to NYC.
- Adding 10% VOC reductions to the 20% NOx reductions generally decreased ozone concentrations and indicates that the current strategy of favoring NOx reductions, with some VOC reductions, is a reasonable approach.

NYS DEC CMAQ Sensitivity Tests and Impacts on DVFs

30% and 35% reduction in all emissions from all anthropogenic sources in the OTR for analytic year (AY) 2026 using the 2022v1 platform:

					Modeled 2026 DVFs After Emission Reductions in the OTR			
Site ID	State	Name	2022-2024 Monitored DV [ppb]	Modeled DVFs for 2026 (3x3 No Water2, AVG) [ppb]	30% cut to all Anthro sectors in the OTR [ppb]	35% cut to all Anthro sectors in the OTR [ppb]	NOx 35% cut to all Anthro sectors in the OTR [ppb]	VOC 35% cut to all Anthro sectors in the OTR [ppb]
90013007	CT	Stratford	80	78.3	71.9	70.6	71.6	77.2
90019003	CT	Westport	80	78.1	71.8	70.6	71.5	77.0
90010017	CT	Greenwich	79	76	70.1	69.0	70.0	74.7
90099002	CT	Madison	76	75.1	69	67.9	68.6	74.3
90079007	CT	Middletown	74	71	65.1	64.0	64.4	70.6
361030002	NY	Babylon	72	71.6	66.2	65.2	66.3	70.4

* DVFs for 2026 are based on 3x3 No Water2 method

NYS DEC CMAQ Sensitivity Tests and Impacts on DVFs

Removal of emissions from various anthropogenic sectors in the OTR for AY 2026 using the 2022v1 platform:

					Sector Contributions to modeled 2026 DVFs			
Site ID	State	Name	2022-2024 Monitored DV [ppb]	Modeled DVFs for 2026 (3x3 No Water2, AVG) [ppb]	BC, biogenic, and states outside the OTR [ppb]	Onroad in the OTR [ppb]	Nonroad in the OTR [ppb]	All other sectors in the OTR [ppb]
90013007	CT	Stratford	80	78.3	**46.2**	**10.0**	**8.0**	**14.1**
90019003	CT	Westport	80	78.1	**45.6**	**10.8**	**8.4**	**13.3**
90010017	CT	Greenwich	79	76	44.1	10.8	8.2	12.9
90099002	CT	Madison	76	75.1	45.7	8.1	8.4	12.9
90079007	CT	Middletown	74	71	44.8	7.5	6.5	12.2
361030002	NY	Babylon	72	71.6	44.5	8.2	6.4	12.5

* DVFs for 2026 are based on 3x3 No Water2 method

Other Ongoing Initiatives

- Continue working with EPA, states, MJOs on 2022v2 modeling platform
- CMAQ modeling with ERTAC EGU 2022v2 Emissions Platform for base year
- CAMx modeling with EPA 2022v1 & v2 platforms for base year
- Continue evaluating updated model components/modules
- Work with other committees to accommodate modeling needs

Key Messages

- EPA 2022v2 base year emissions platform is available, and EPA has recently indicated plans to work with the EIC to develop a 2032 analytic year (AY) inventory for v2, available in 2027.
- Regional base year modeling with the 2022v2 emissions platform has been completed.
- A series of emission reduction sensitivity tests showed that it is very unlikely for the OTR to reach ozone attainment without emission reductions in mobile sources.
- Non-attainment continues to be an issue in the OTR, and we will continue our cross-committee collaboration to develop emission reduction strategies.

Thank you!

Model Committee Chairs

- Eric Zalewsky and Ruby Tian, NYSDEC

  (eric.zalewsky@dec.ny.gov and ruby.tian@dec.ny.gov)

OTC Committee Lead

- Alexandra Karambelas, OTC/NESCAUM (akarambelas@nescaum.org)

Emissions Inventory Lead

- Susan McCusker, MARAMA (smccusker@marama.org)

O_3 Season Updates

- Marcus Chase, NHDES (marcus.a.chase@des.nh.gov)