Connecticut Department of Energy and Environmental Protection

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

August 31, 2016 OTR and Connecticut Ozone Exceedances

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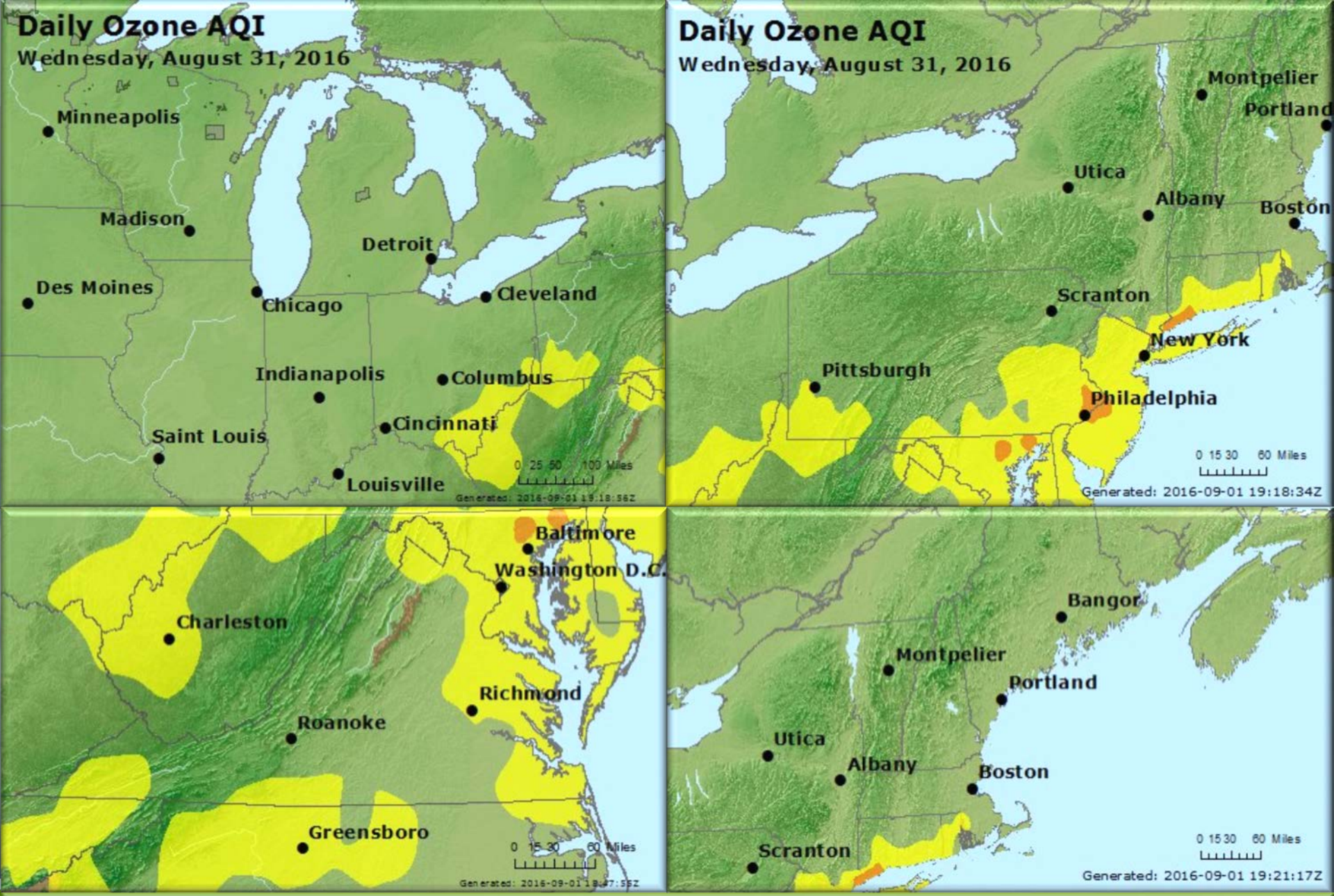
Connecticut Department of Energy and Environmental Protection

Summary

- Connecticut, Maryland Pennsylvania and New Jersey had ozone exceedances;
- MODERATE levels measured along the remainder of the I-95 corridor from Maryland through Rhode island.
  1. 10 sites above 70 ppb ozone NAAQS, 3 sites in CT
  2. 5 sites above (2008) 75 ppb ozone NAAQS, 2 sites in CT
  3. 0 sites above (1997) 84 ppb ozone NAAQS, 0 sites in CT



Regional AQI Maps

Table of OTR Monitoring Sites

- 3 sites in Connecticut exceeded the 70 ppb NAAQS. Bradley Airport had a high temperature of 82° F.

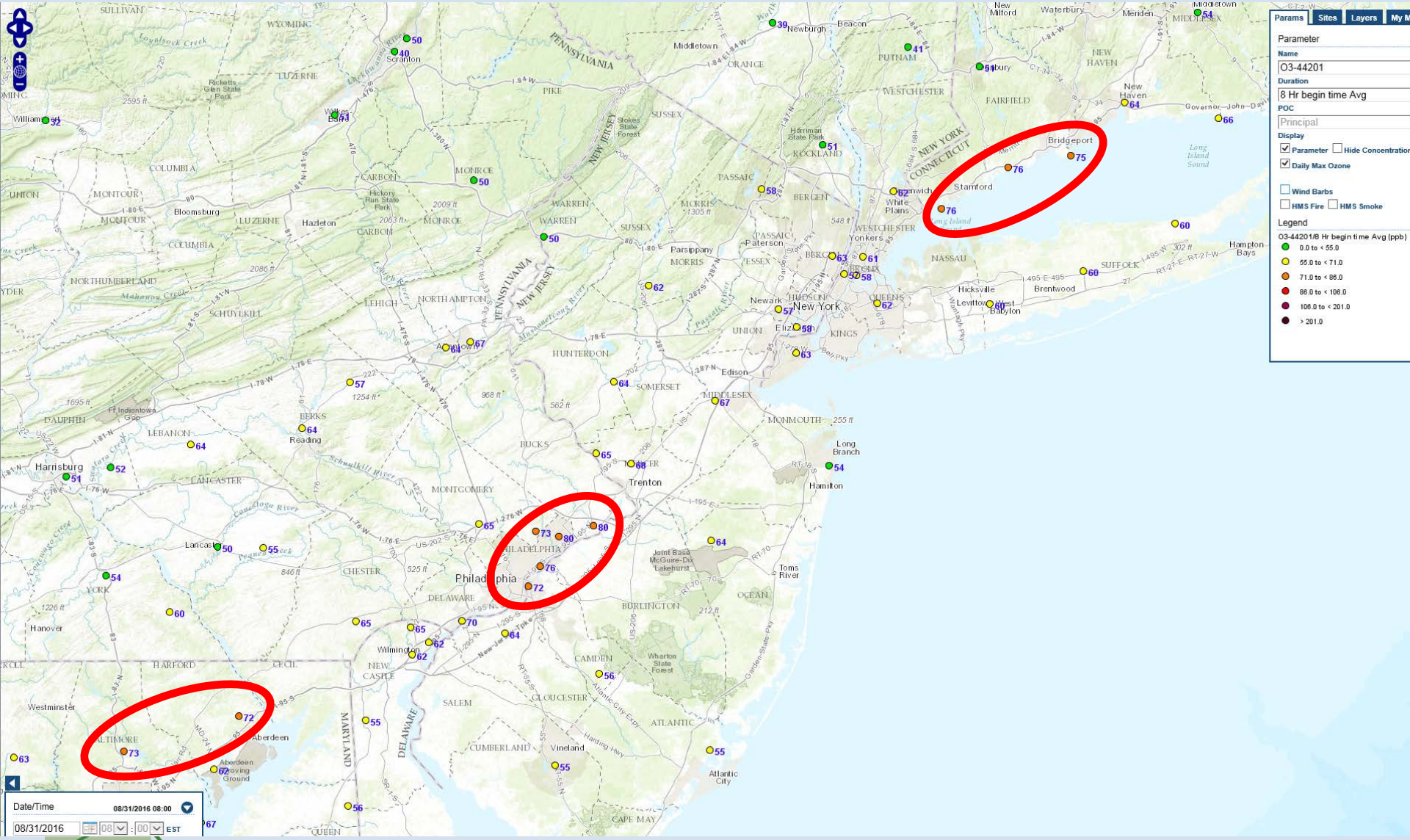
Site	Site AQS	Date (LST)	Max 8-hour Ozone
BRIS	420170012	8/31/2016	80
NEA	421010024	8/31/2016	80
Greenwich	090010017	8/31/2016	76
NEW	421010048	8/31/2016	76
Westport	090019003	8/31/2016	76
Stratford	090013007	8/31/2016	75
LAB	421010004	8/31/2016	73
Padonia	240051007	8/31/2016	73
Aldino	240259001	8/31/2016	72
Camden Spruce S	340070002	8/31/2016	72
CHES	420450002	8/31/2016	70
Rider Universit	340210005	8/31/2016	68
Essex	240053001	8/31/2016	67
FREE	420950025	8/31/2016	67
Rutgers Univers	340230011	8/31/2016	67
Madison-Beach R	090099002	8/31/2016	66
BCSP	100031010	8/31/2016	65
Frederick Airpo	240210037	8/31/2016	65
Furley	245100054	8/31/2016	65
NEWG	420290100	8/31/2016	65
NORR	420910013	8/31/2016	65
ALLE	420770004	8/31/2016	64
Clarksboro	340150002	8/31/2016	64
Colliers Mills	340290006	8/31/2016	64
Flemington	340190001	8/31/2016	64
Lebanon	420750100	8/31/2016	64
New Haven - Cri	090090027	8/31/2016	64
REA3	420110011	8/31/2016	64
Leonia	340030006	8/31/2016	63

CT Monitoring Site Design Value Update

- Connecticut has 29 exceedance days to date.
- No changes since last exceedance day.

	Site Name	To Date : 2016 DV	To Date 2016 Compliance Status x = Violating NAAQS: 2015 NAAQS	2008 NAAQS	1997 NAAQS	Next Possible NAAQS in Violation (key monitor in each NA is highlighted in RED)
SWCT Portion of NYC Area	Danbury	78	x	x		Four more 102+ ppb days violates 1997 NAAQS
	Greenwich	82	x	x		Four more 93+ ppb days violates 1997 NAAQS
	Madison	76	x	x		Four more 105+ ppb days violates 1997 NAAQS
	Middletown	79	x	x		Three more 97+ ppb days violates 1997 NAAQS
	New Haven - Criscuolo Park	76	x	x		Four more 101+ ppb days violates 2008 NAAQS
	Stratford	81	x	x		Three more 95+ ppb days violates 1997 NAAQS
	Westport	85	x	x	x	**Violates all NAAQS**
Greater CT	Cornwall	73	x			Three more 86+ ppb days violates 2008 NAAQS
	East Hartford	75	x			**One more 76+ ppb day violates 2008 NAAQS**
	Groton Fort Griswold	72	x			Three more 86+ ppb days violates 2008 NAAQS
	Stafford	73	x			Three more 79+ ppb days violates 2008 NAAQS
	Abington (CASTNET)	68				One more 76+ ppb days violates 2015 NAAQS

August 31, 2016 Peak Northeast Ozone



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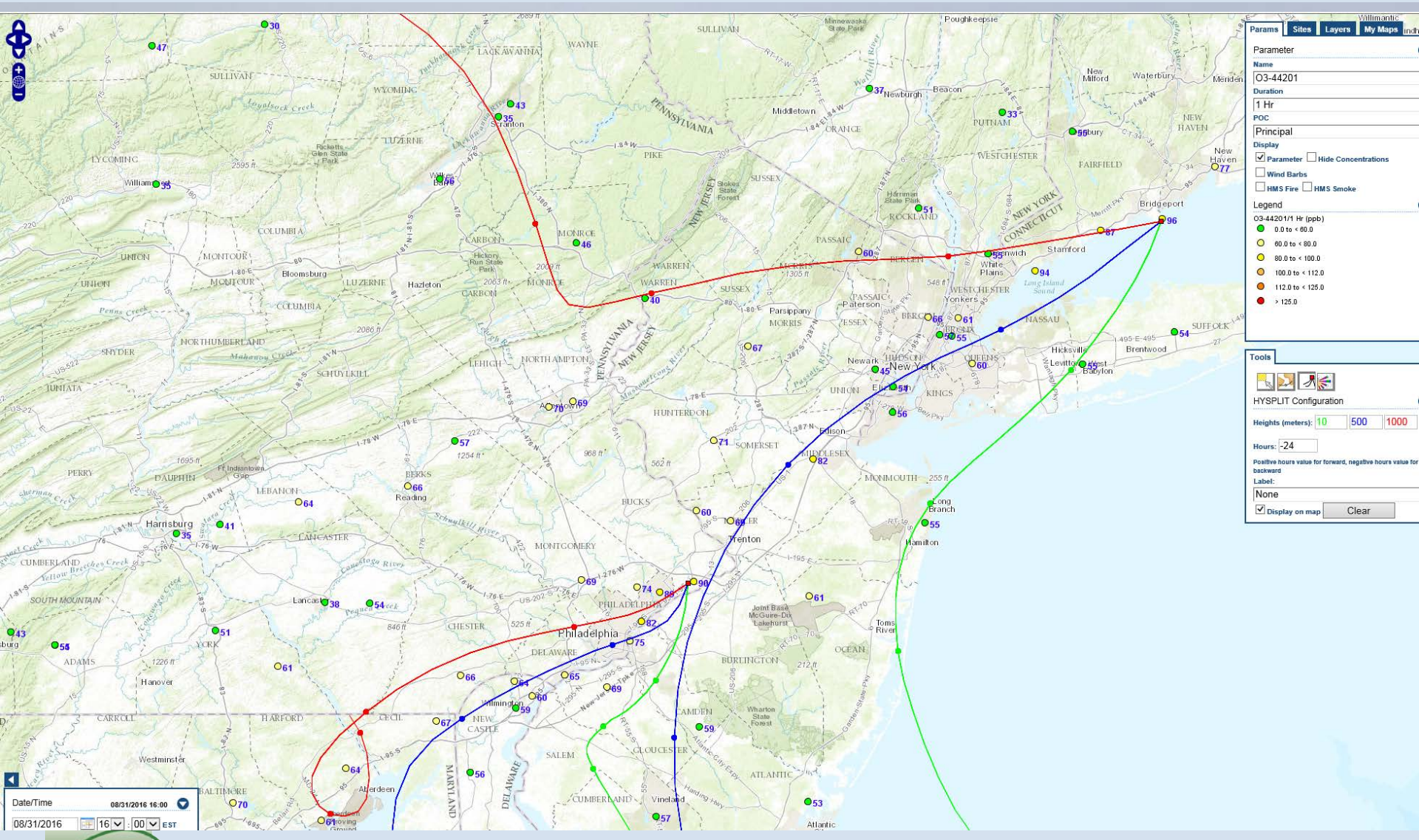
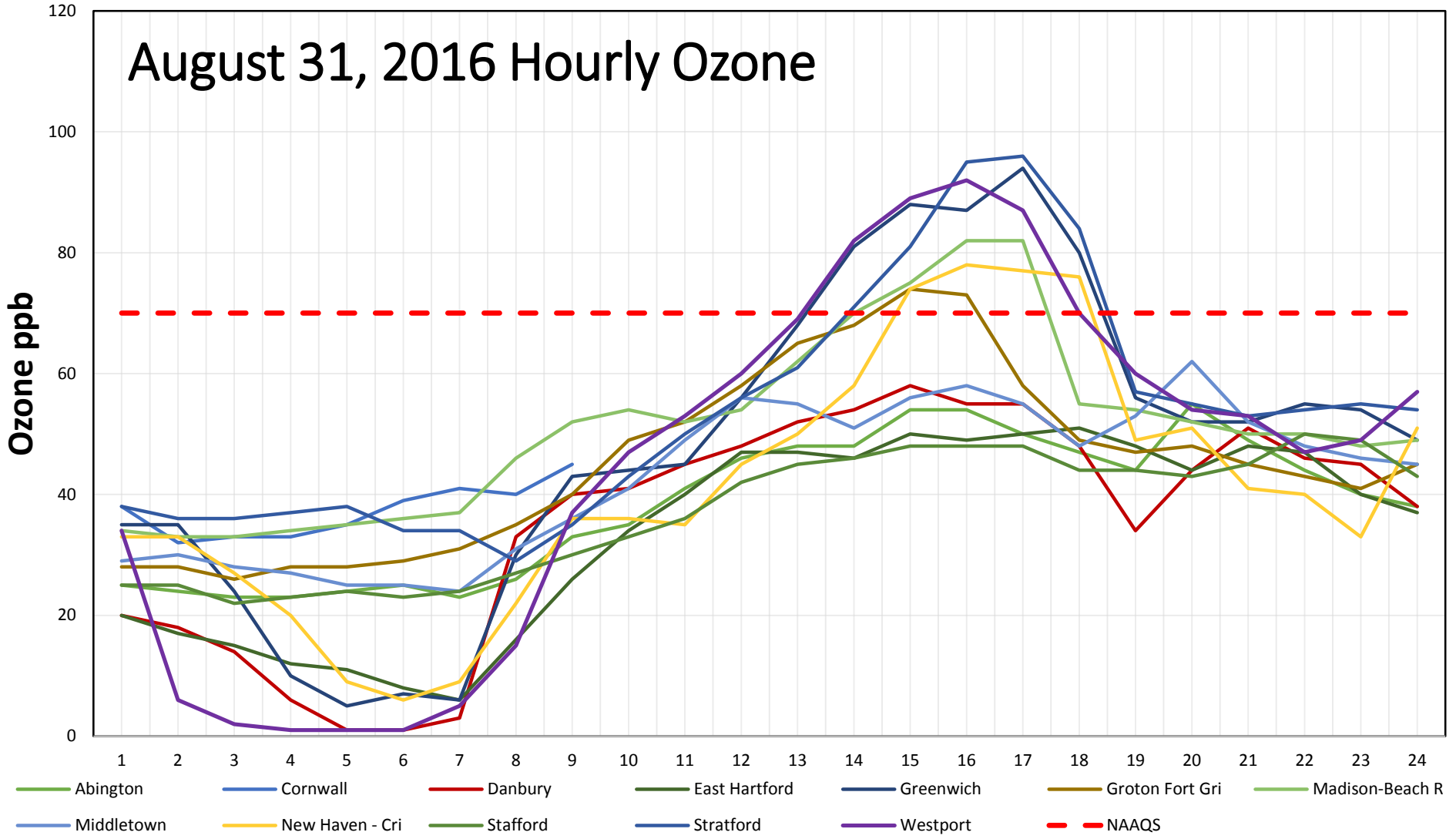
August 31, 2016 Back Trajectories 4:00 pm EST



Back Trajectory winds (100-1000 meters) were southwesterly, with the 500 meter winds passing over NYC to Stratford. The winds to the Philadelphia area were light and from the I-95 corridor.

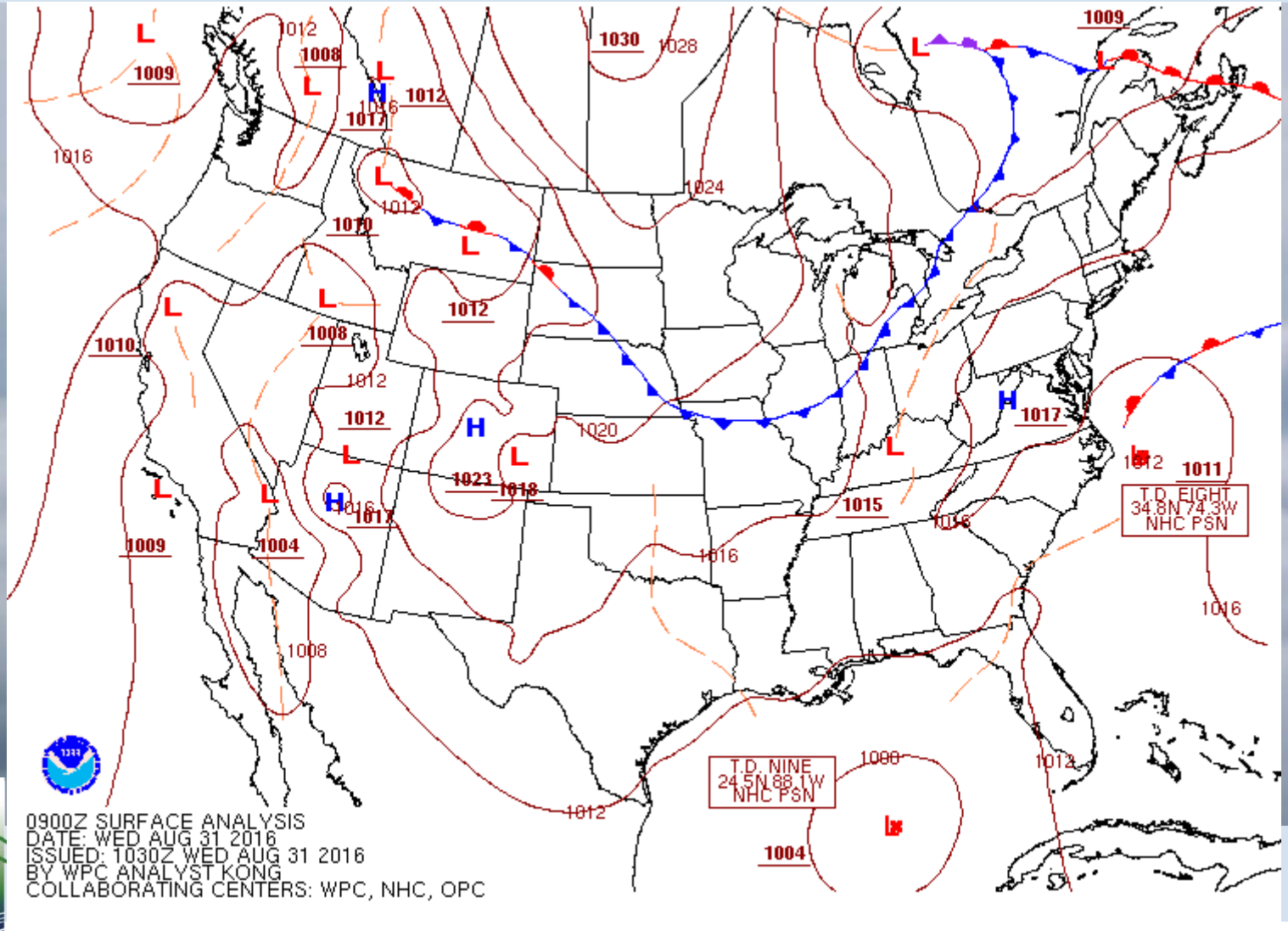
CT Ozone Monitors August 31, 2016



Elevated ozone mainly confined to monitors in Fairfield and New Haven Counties. Hourly ozone peaked at 96 ppb at Stratford.

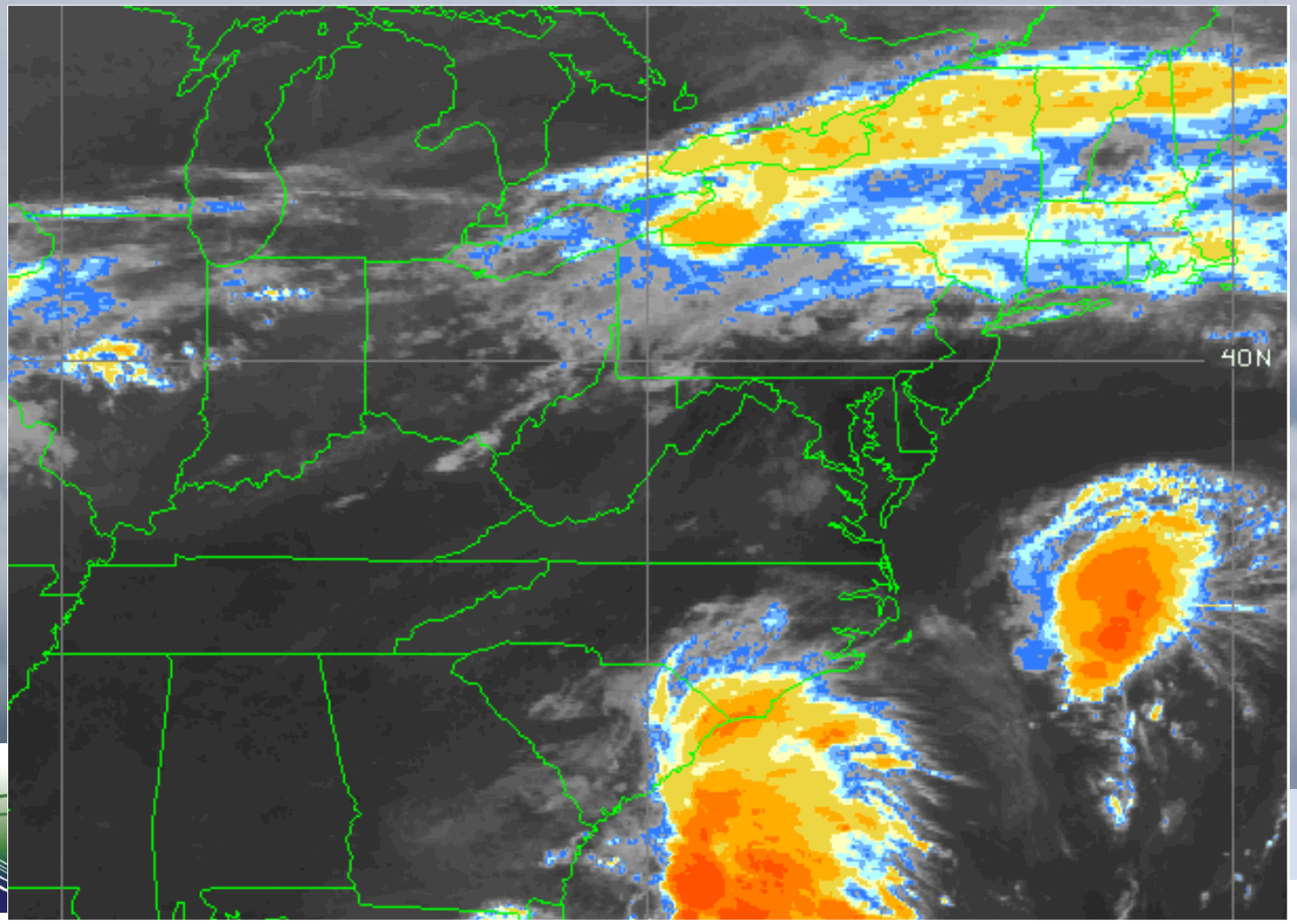
August 31, 2016 Surface Analysis Animation

- Cold front remains well west of Connecticut as pre-frontal trough develops along I-95 corridor. Cloud cover overspreads Connecticut during the morning and limits ozone production for most of the day.



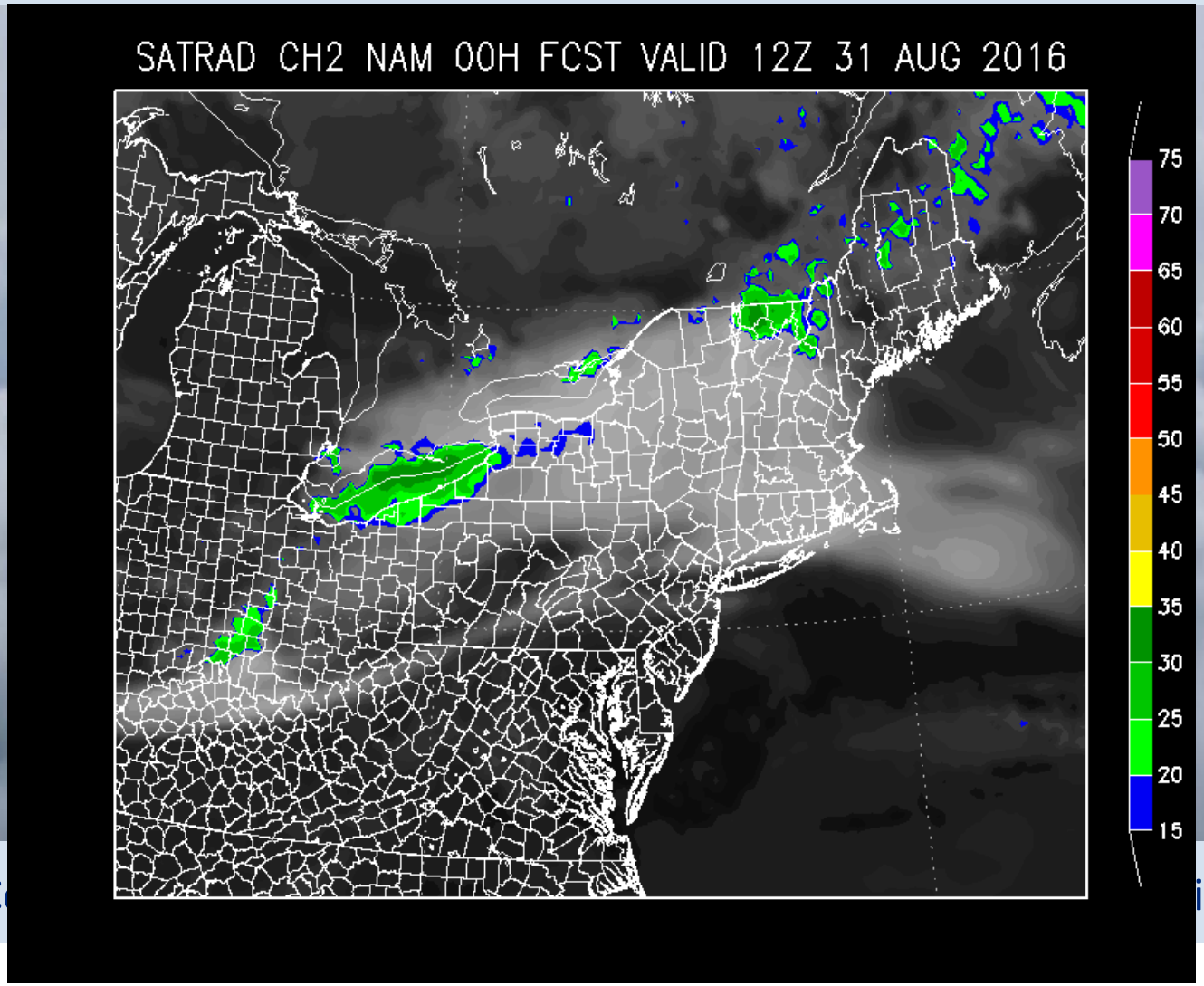
August 31, 2016 Satellite Animation

- Clouds thinned out during the afternoon along the southwest Connecticut coast, which allowed for some ozone production from the NYC area to reach coastal CT.



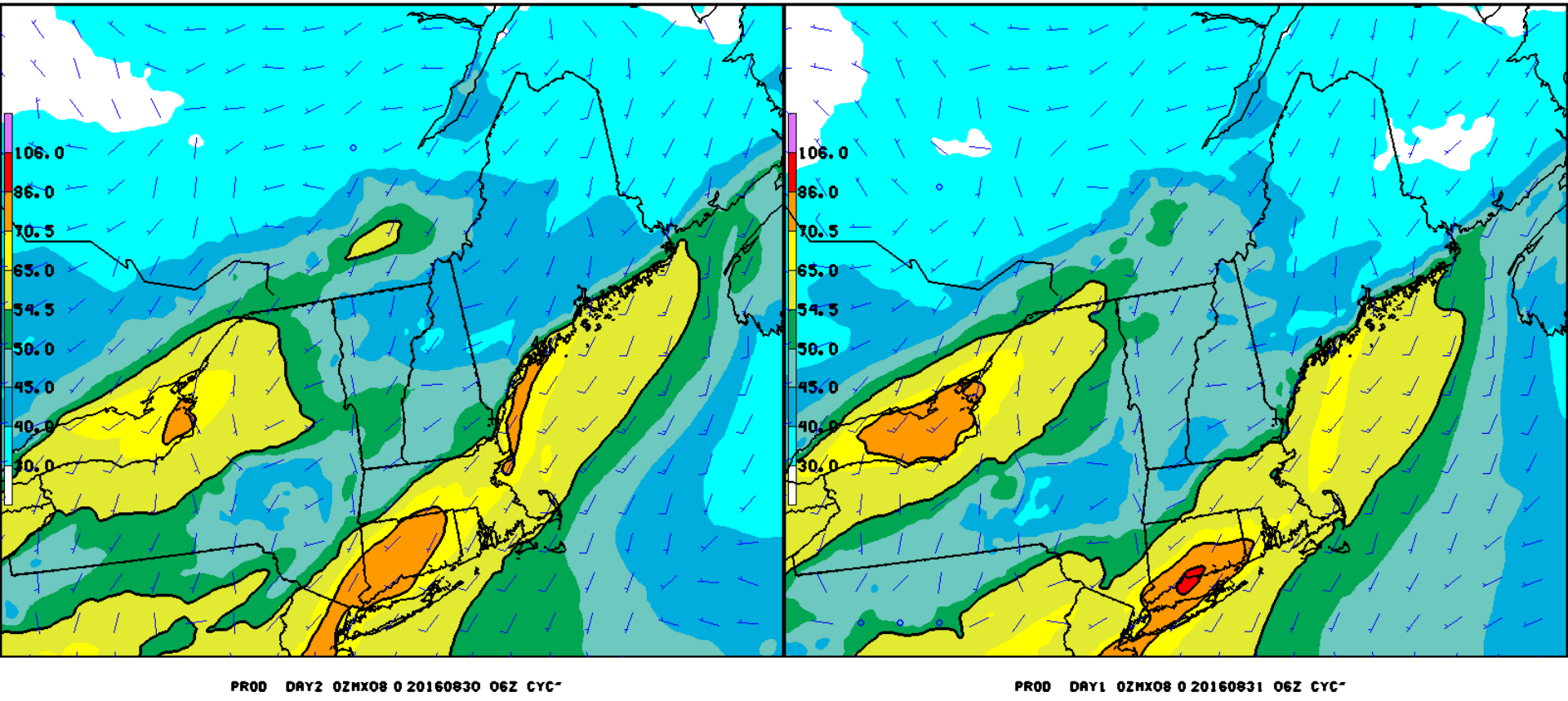
NAM Model Satellite Animation

- The NAM weather model also showed extensive cloud cover but with more sun during the afternoon along coastal Connecticut. USG ozone levels would have occurred at more monitors if the clouds had cleared out.



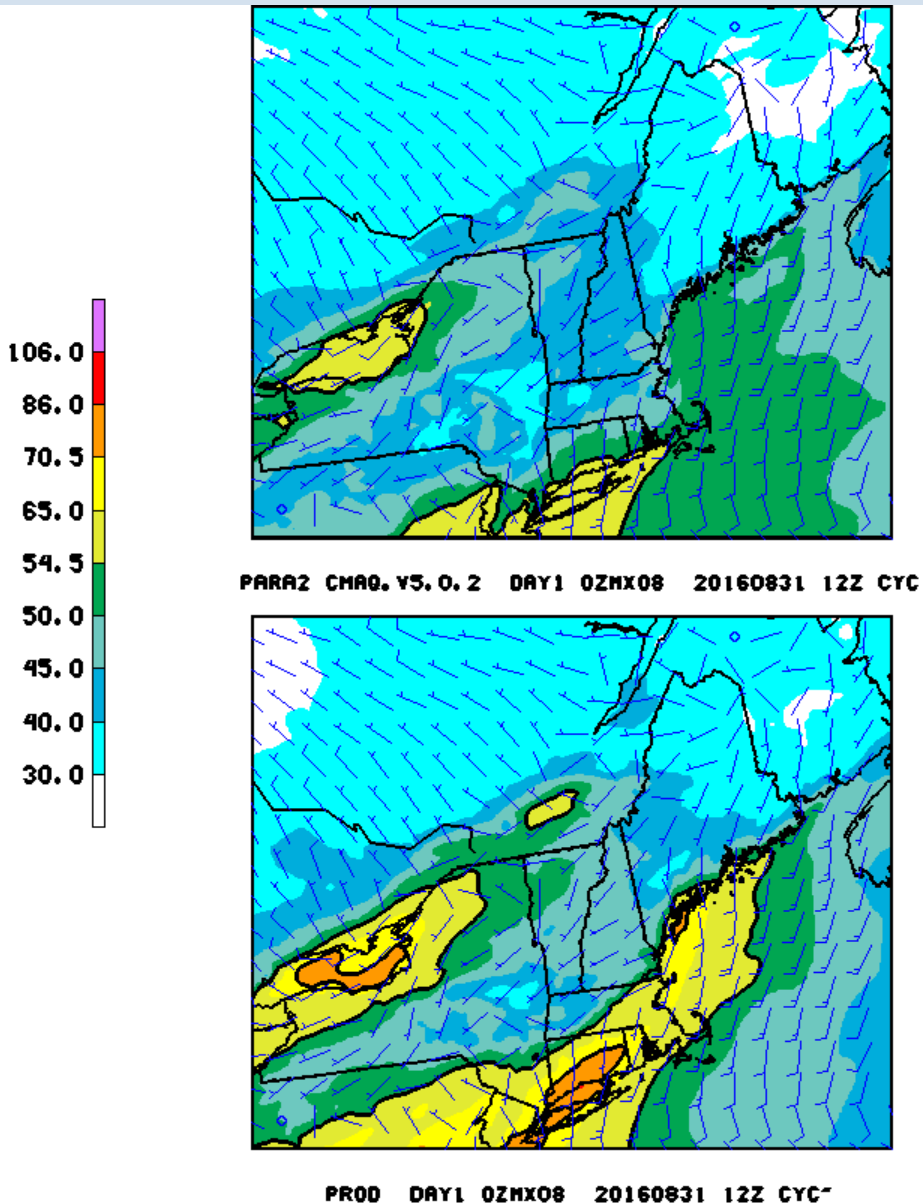
August 31, 2016 NOAA Model Performance

- Same day NOAA model (right) had shifted USG towards the coast from the day before, but was over-predicting peak levels. This was possibly due to under-predicting the cloud cover.



August 31, 2016 NOAA Model Performance

- The same day 12z model run had decreased the peak ozone concentrations, but the new experimental model run (top) was under-predicting.



Conclusion

- USG ozone event for Connecticut, New Jersey, Maryland and Pennsylvania.
- Southwest winds over NYC caused elevated ozone to form over southwestern Connecticut for several hours;
- Extensive cloud cover during the morning was not modeled the previous day, which limited ozone production away from the coast;
- Same day NOAA model did well suppressing the USG ozone plume to the coast, but still over-predicted the extent. The new experimental model run under-predicted USG ozone.