Ozone National Ambient Air Quality Standard Health Exceedances on August 4, 2022

On Thursday, August 4, 2022, there were no exceedances in New Jersey of the National Ambient Air Quality Standard (NAAQS) for ozone (daily maximum 8-hour average of 70 ppb). See Table 1.

Table 1. New Jersey Ozone Concentrations on 8/4/2022

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	48
Bayonne	58
Brigantine	47
Camden Spruce St	50
Chester	55
Clarksboro	48
Colliers Mills	50
Columbia	60
Flemington	60
Leonia	62
Millville	51
Monmouth University	46
Newark Firehouse	54
Ramapo	54
Rider University	68
Rutgers University	69
Washington Crossing*	59
TOTAL EXCEEDANCES	0

*The Washington Crossing station is operated and maintained by EPA as part of the nationwide Clean Air Status and Trends Network (CASTNET).

From the out-of-state stations within New Jersey's ozone nonattainment areas, there were seven (7) exceedances of the ozone NAAQS. See Table 2.

Table 2. Ozone Concentrations at Out-of-State Monitoring Stations in New Jersey's Ozone Nonattainment Areas on 8/4/2022

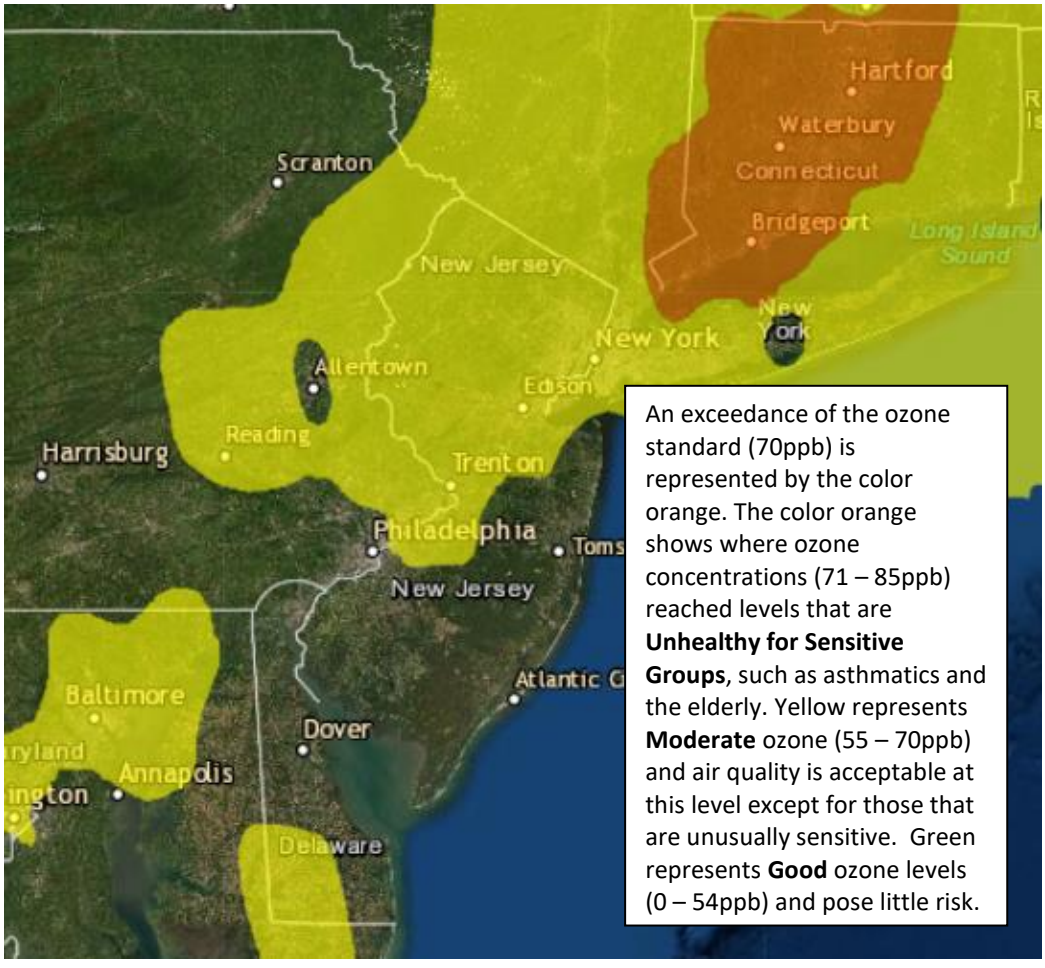
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	76
CT	Greenwich	79
CT	Madison-Beach Road	68
CT	Middletown-CVH-Shed	84
CT	New Haven	77
CT	Stratford	81
CT	Westport	81
DE	BCSP (New Castle Co.)	53
DE	BELLFNT2 (New Castle Co.)	51
DE	KILLENS (Kent Co.)	50
DE	LEWES (Sussex Co.)	52
DE	LUMS 2 (New Castle Co.)	48
DE	MLK (New Castle Co.)	51
DE	SEAFORD (Sussex Co.)	57
MD	Fair Hill	51
NY	Babylon	54
NY	Bronx - IS52	60
NY	CCNY	62
NY	Flax Pond	71
NY	Fresh Kills	59
NY	Holtsville	53
NY	Pfizer Lab	64
NY	Queens	59
NY	Riverhead	58
NY	Rockland Cty	62
NY	White Plains	70
PA	BRIS (Bucks Co.)	61
PA	CHES (Delaware Co.)	No Data
PA	NEWG (Chester Co.)	49
PA	NORR (Montgomery Co.)	No Data
PA	LAB (Philadelphia Co.)	51
PA	NEA (Philadelphia Co.)	62
PA	NEW (Philadelphia Co.)	59
	TOTAL EXCEEDANCES	7

The number of days in 2022 on which exceedances of the ozone NAAQS were recorded for all the states within New Jersey's ozone nonattainment areas is summarized in Table 3.

Table 3. Number of Days Ozone NAAQS was Exceeded in NJ's Nonattainment Areas in 2022

STATE	# of Days NAAQS was Exceeded January 1 – August 4, 2022 NAAQS = 70 ppb
Connecticut	17
Delaware	0
Maryland	1
New Jersey	8
New York	8
Pennsylvania	3

Figure 1. Ozone Air Quality Index for August 4, 2022



Source: www.airnow.gov

For ozone terminology definitions see NJDEP Air Quality Planning's Glossary and Acronyms webpage: http://nj.gov/dep/baqp/glossary.html

Weather

Persistent southwesterly winds, hot temperatures, and mostly sunny skies allowed for widespread ozone exceedances across Connecticut and portions of Long Island, NY on Thursday, August 4, 2022. A Bermuda high pressure setup was in place across the eastern United States for multiple days leading up to Thursday, which allowed for a persistent southwesterly flow that funneled warm air into the northeast. With clear skies across the region, temperatures quickly spiked into the low-upper 90s by late morning. Southerly winds also developed along the coastlines of New Jersey, Long Island, and Connecticut while winds inland remained out of the southwest. For New Jersey and most of Long Island, the onshore flow pushed inland by mid-afternoon, helping to suppress rapidly rising ozone levels. However, in Connecticut, the onshore flow helped to transport ozone precursors lingering over the Long Island Sound into Connecticut and further enhance ozone concentrations. Combined with transport inland up the I-95 corridor and favorable weather features, ozone levels were able to reach well into the USG category across the majority of Connecticut and isolated portions of northern Long Island.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 2, 3, and 4 show the back trajectories of different wind heights for the monitored exceedance(s) on this day. The figures illustrate where the air came from during the 48 hours preceding the 8-hour ozone standard exceedances. A transport analysis is provided with each figure shown below along with a map of the National Air Quality Index for the previous day (Figure 5). The monitoring station(s) that were chosen to model back trajectories are listed in Table 4.

Table 4. Monitoring Stations with an 8-hr Ozone Exceedance that were selected to Run 48-hr Back Trajectories

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	76
CT	Greenwich	79
CT	Middleton-CVH-Shed	84
CT	New Haven	77
CT	Stratford	81
CT	Westport	81
NY	Flax Pond	71

Figure 2. 48-hour Back Trajectories for August 4, 2022 at 10 meters

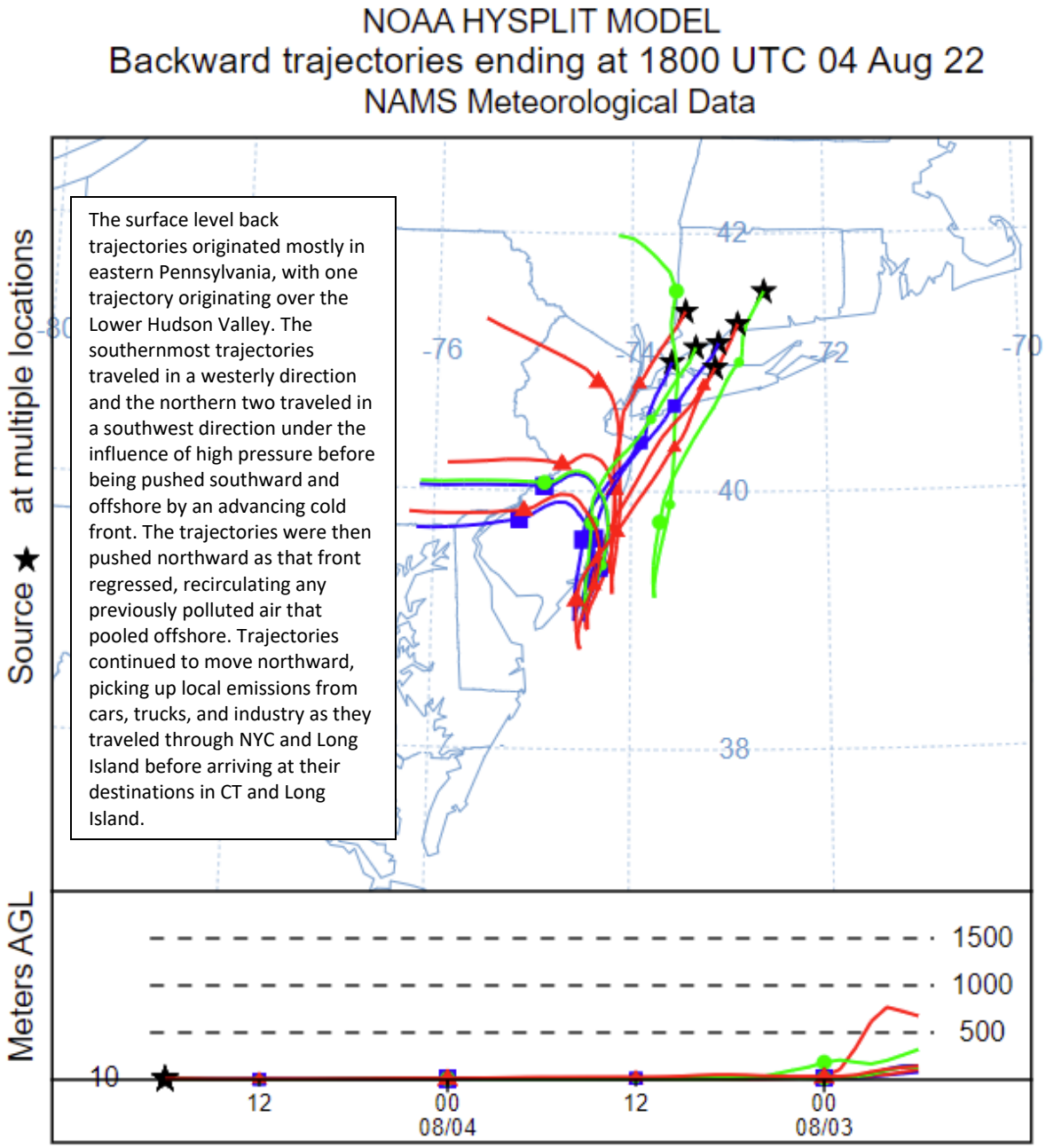


Figure 3. 48-hour Back Trajectories for August 4, 2022 at 500 meters

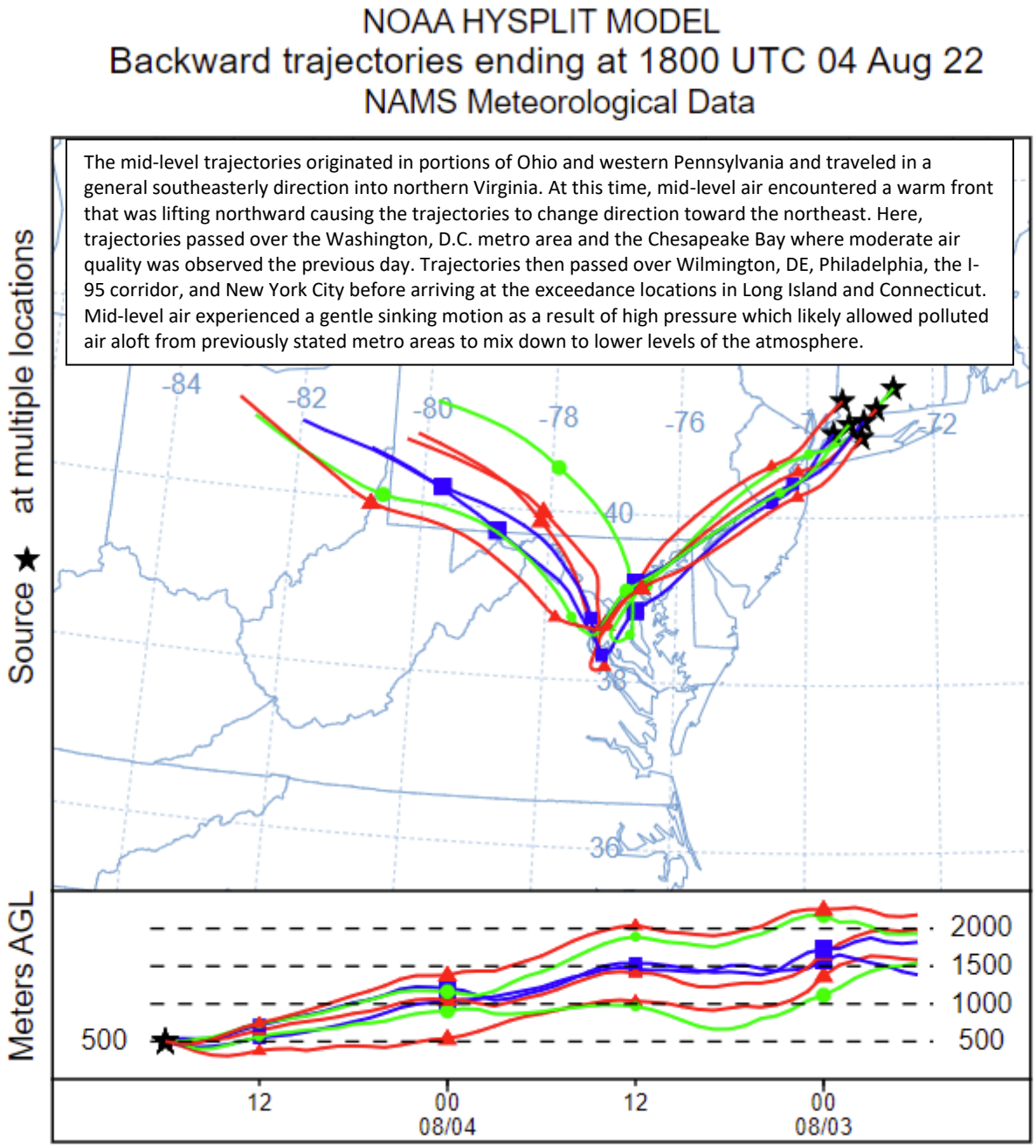


Figure 4. 48-hour Back Trajectories for August 4, 2022 at 1500 meters

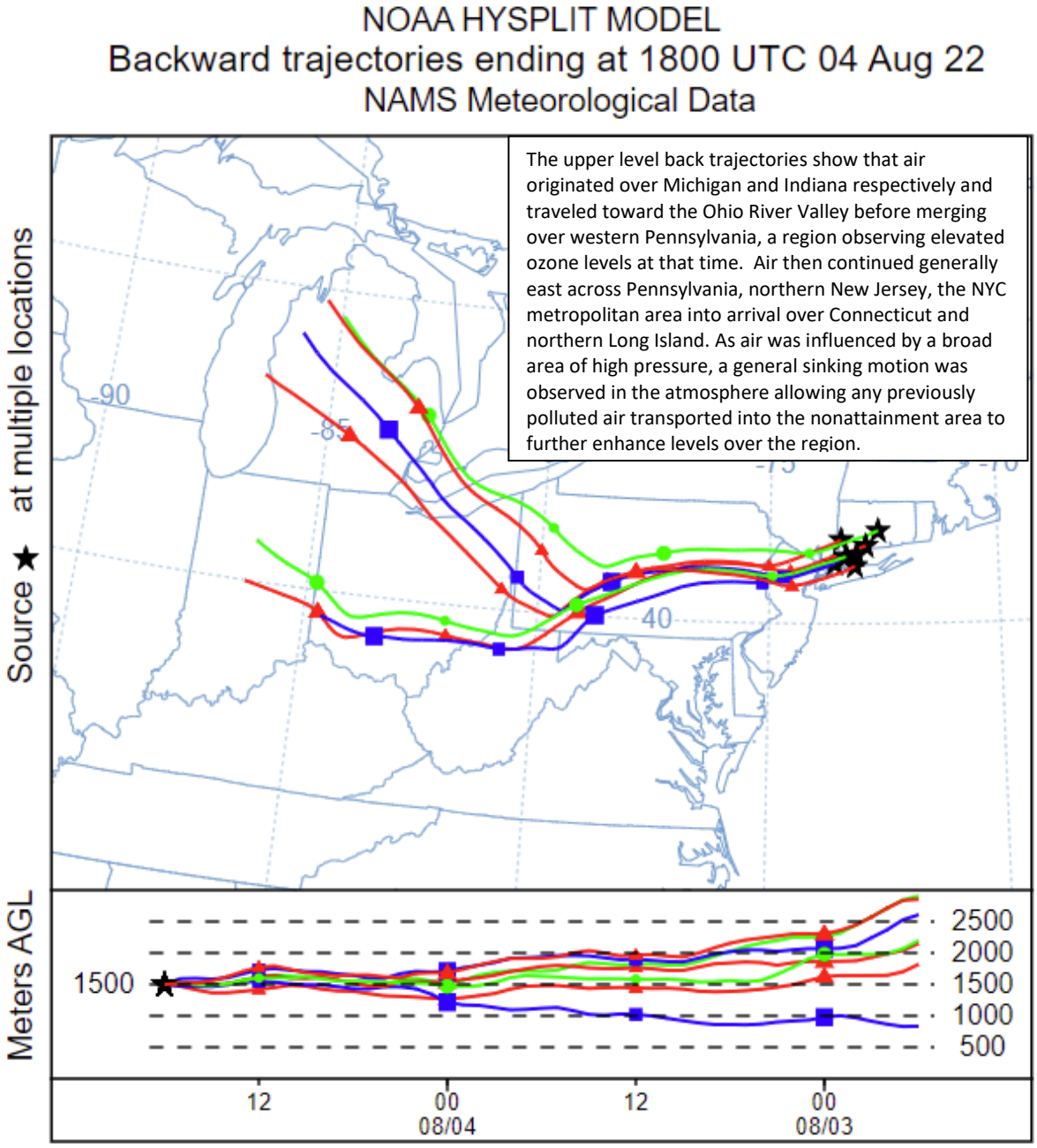
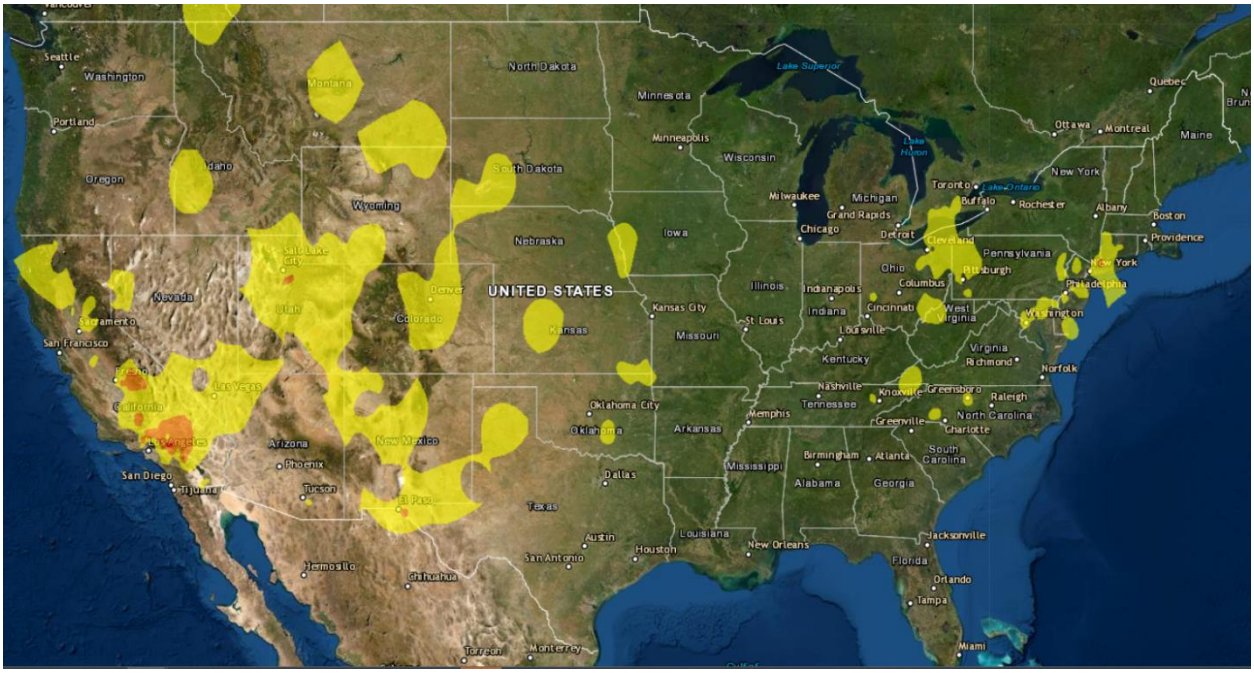


Figure 5. Air Quality Index for the United States on August 3, 2022



Source: www.airnow.gov

How is Ozone Created?

Ground-level ozone is an air pollutant known to cause several health effects and negatively impact air quality and the environment in New Jersey. Ozone is formed when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight. Ozone can irritate any person's lungs, but the effect may be more pronounced for those with existing lung-related deficiencies, and therefore, one should take extra precautions on bad ozone days.

Find Out About Air Quality Every Day

Learn more about your local ozone air quality forecast by visiting the "What's Your Air Quality Today?" page at https://www.nj.gov/dep/baqp/aqitoday.html .