Ozone National Ambient Air Quality Standard Health Exceedances on June 4, 2024

Exceedance Locations and Levels

On Tuesday, June 4, 2024, there were three (3) 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 6/4/2024

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	61
Bayonne	59
Brigantine	48
Camden Spruce St	57
Chester	72
Clarksboro	61
Colliers Mills	63
Columbia	73
Flemington	67
Leonia	67
Millville	54
Monmouth University	61
Ramapo	76
Rider University	62
Rutgers University	58
Washington Crossing*	65
TOTAL EXCEEDANCES	3

*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 two (2) 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 6/4/2024

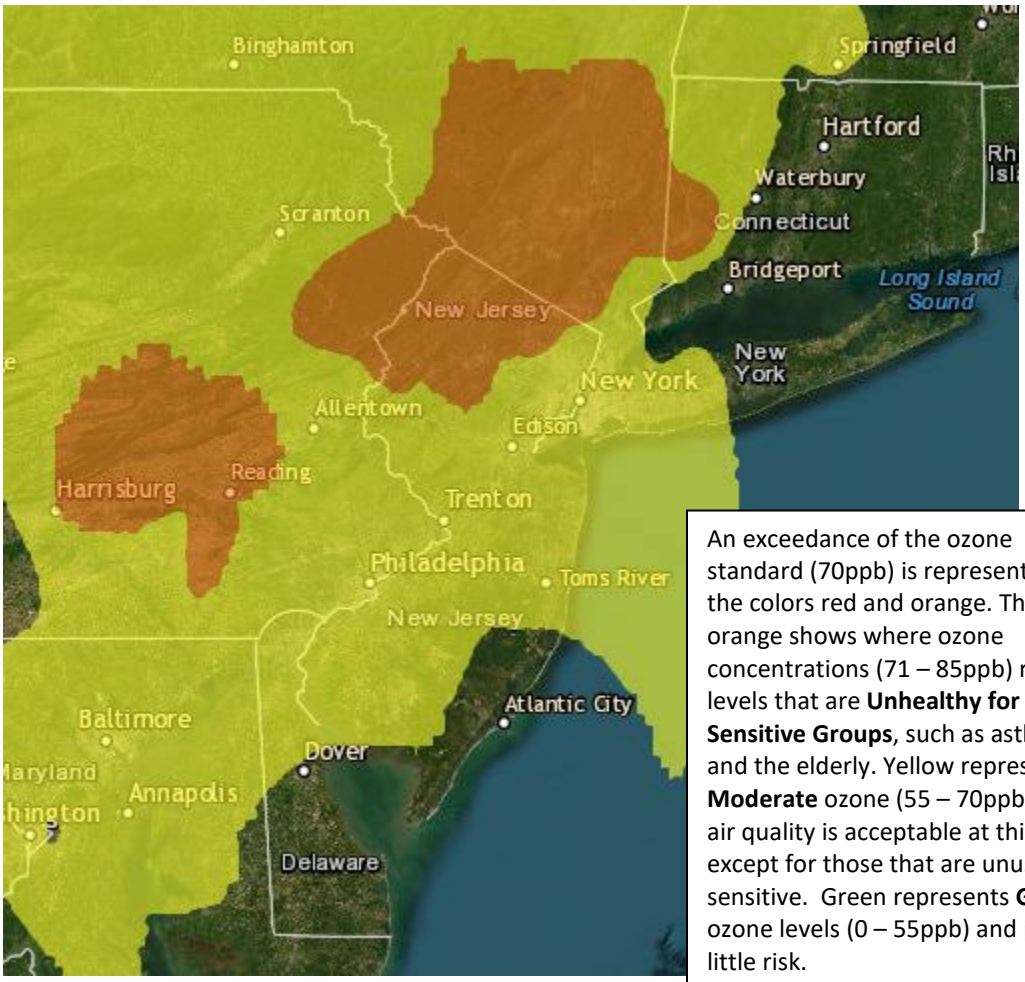
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	75
CT	Greenwich	48
CT	Madison-Beach Road	41
CT	Middletown-CVH-Shed	49
CT	New Haven	50
CT	Stratford	42
CT	Westport	51
DE	BCSP (New Castle Co.)	55
DE	BELLFNT2 (New Castle Co.)	59
DE	KILLENS (Kent Co.)	53
DE	LEWES (Sussex Co.)	49
DE	LUMS 2 (New Castle Co.)	55
DE	MLK (New Castle Co.)	60
DE	SEAFORD (Sussex Co.)	52
MD	Fair Hill	66
NY	Babylon	60
NY	Bronx - IS52	62
NY	CCNY	65
NY	Flax Pond	48
NY	Fresh Kills	55
NY	Holtsville	48
NY	Pfizer Lab	64
NY	Queens	67
NY	Riverhead	43
NY	Rockland Cty	85
NY	White Plains	68
PA	BRIS (Bucks Co.)	62
PA	CHES (Delaware Co.)	58
PA	NEWG (Chester Co.)	63
PA	NORR (Montgomery Co.)	64
PA	LAB (Philadelphia Co.)	61
PA	NEA (Philadelphia Co.)	58
PA	NEW (Philadelphia Co.)	58
	TOTAL EXCEEDANCES	2

The number of days in 2024 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 2024

STATE	# of Days NAAQS was Exceeded January 1 – June 4, 2024 NAAQS = 70 ppb
Connecticut	3
Delaware	2
Maryland	0
New Jersey	4
New York	3
Pennsylvania	1

Figure 1. Ozone Air Quality Index for June 4, 2024



An exceedance of the ozone standard (70ppb) is represented by the colors red and orange. The color orange shows where ozone concentrations (71 – 85ppb) reached levels that are **Unhealthy for Sensitive Groups**, such as asthmatics and the elderly. Yellow represents **Moderate** ozone (55 – 70ppb) and air quality is acceptable at this level except for those that are unusually sensitive. Green represents **Good** ozone levels (0 – 55ppb) and pose little risk.

Source: www.airnow.gov

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

Weather

On Tuesday June 4th, multiple USG exceedances in the northern portions of the nonattainment area occurred as a previously polluted air mass lingered over the region, marking the second day of a multi-day exceedance event. As high pressure remained off the East Coast and a surface trough developed over the I-95 corridor on Monday, this atmospheric setup provided the region with warm temperatures, mostly sunny skies, and light west-northwest winds. This led to numerous ozone exceedances on Monday in the USG category with an isolated area of Unhealthy ozone levels. By Tuesday morning, a backdoor cold front crossed the region which allowed air to recirculate along the coast before traveling back to our region. This recirculation of a deteriorated air mass along with favorable meteorological conditions of sunny skies, calm winds, and temperatures in the mid-80s allowed ozone concentrations to rapidly spike into USG territory by mid-morning. As a result, ozone exceedances were observed in northern New Jersey, New York, and Connecticut.

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)
NY	Rockland City	85
NJ	Ramapo	76
NJ	Columbia	73
NJ	Chester	72
CT	Danbury	75

Figure 2. 48-hour Back Trajectories for June 4, 2024 at 10 meters

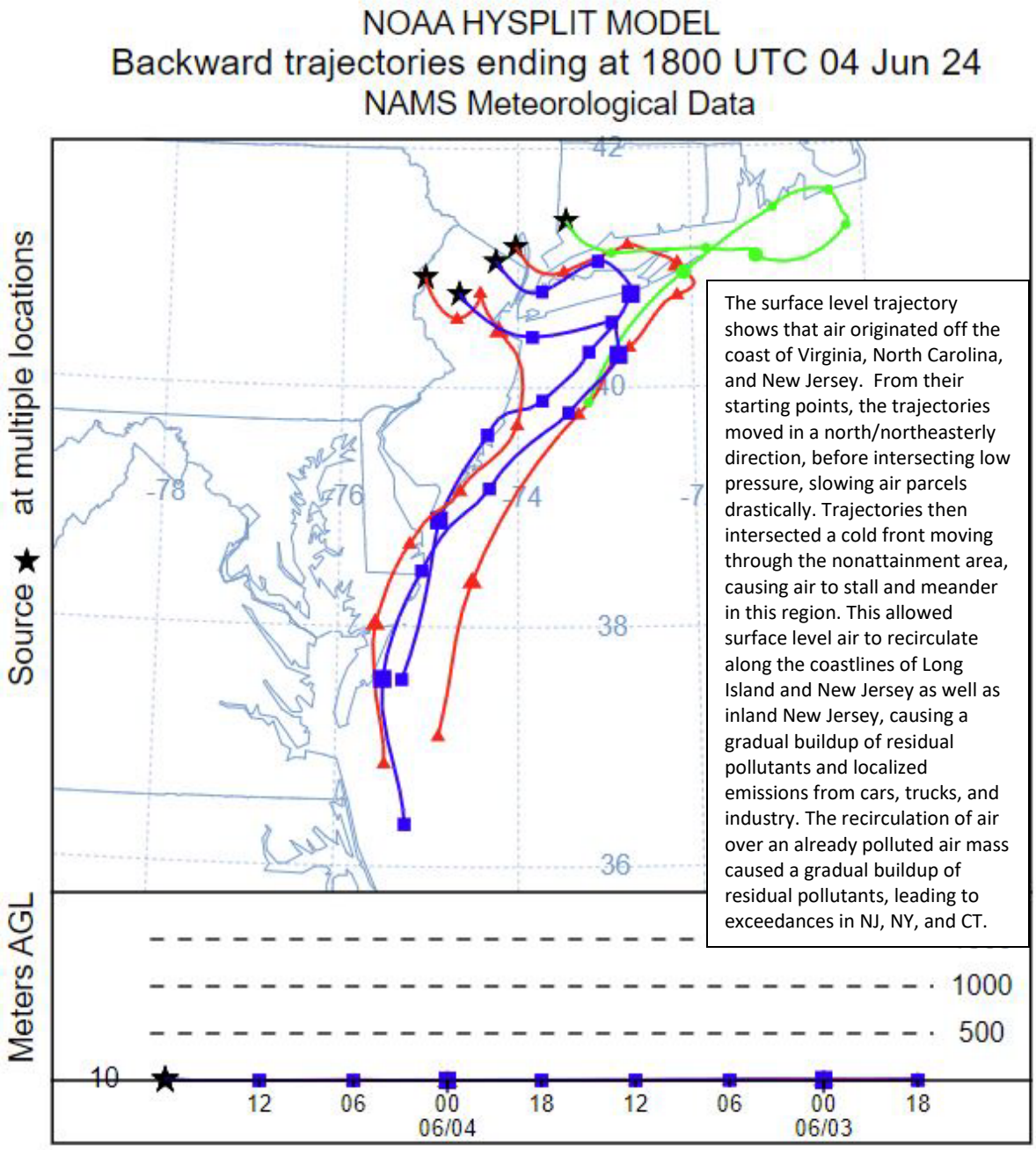


Figure 3. 48-hour Back Trajectories for June 4, 2024 at 500 meters

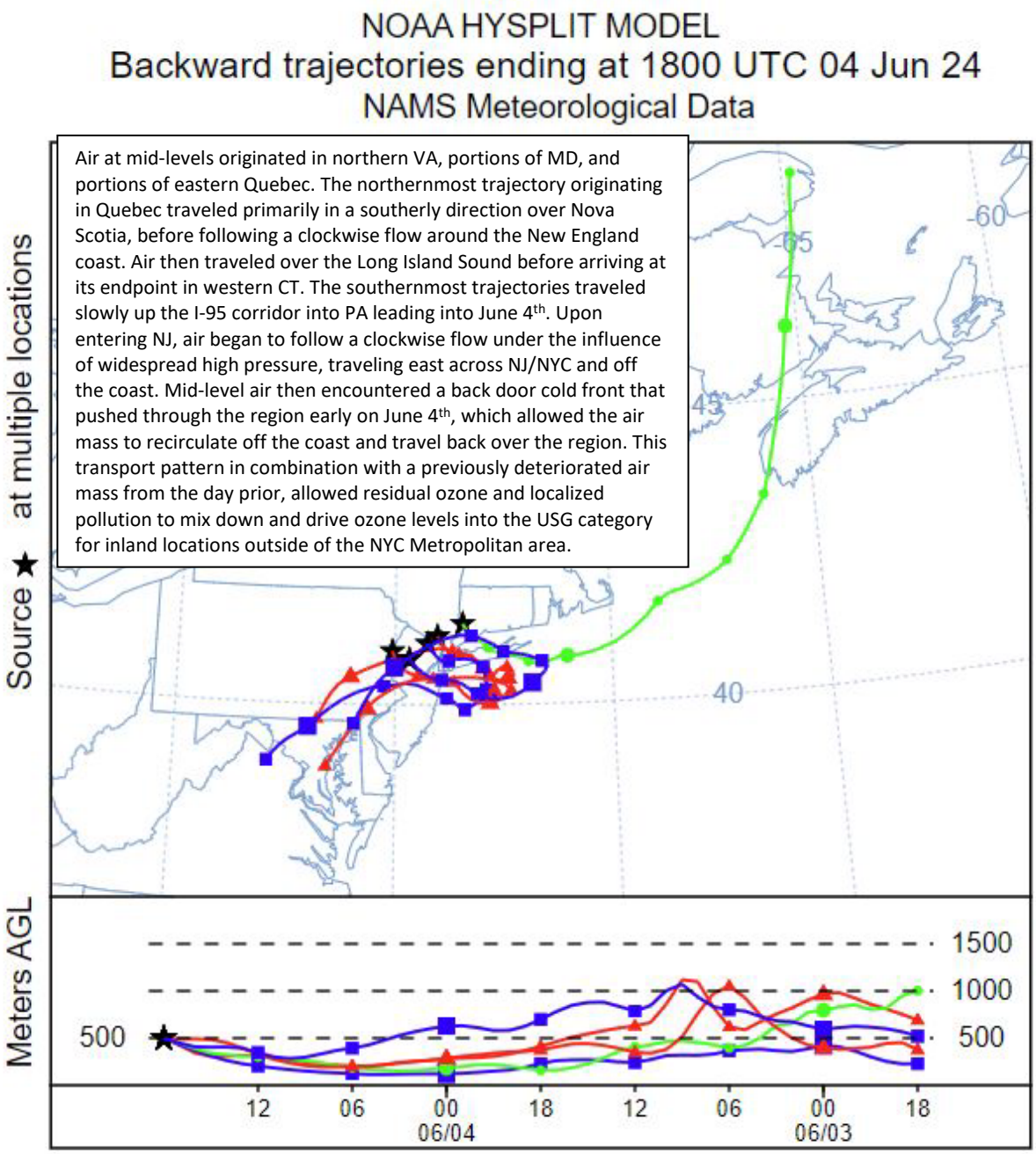


Figure 4. 48-hour Back Trajectories for June 4, 2024 at 1500 meters

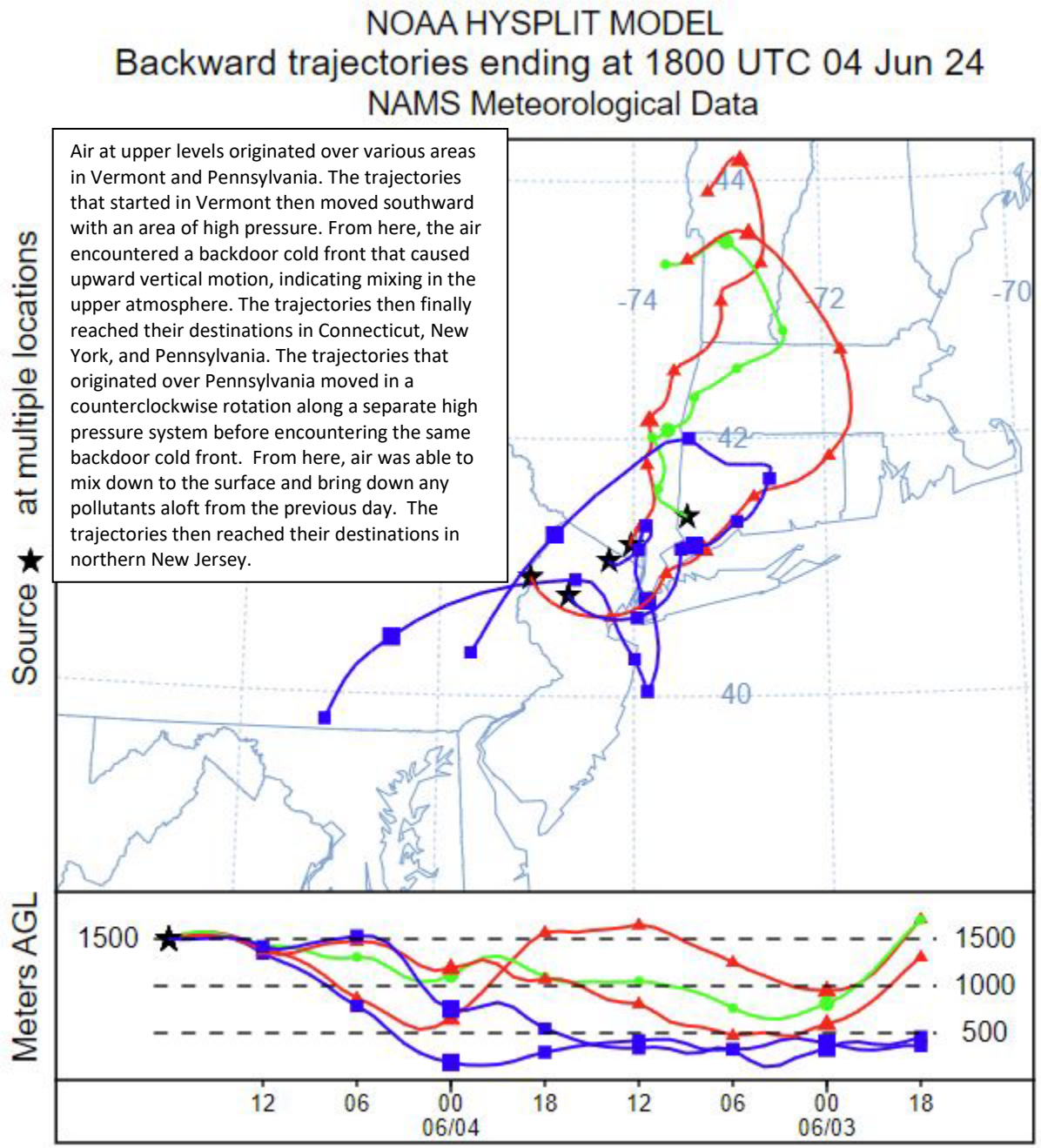
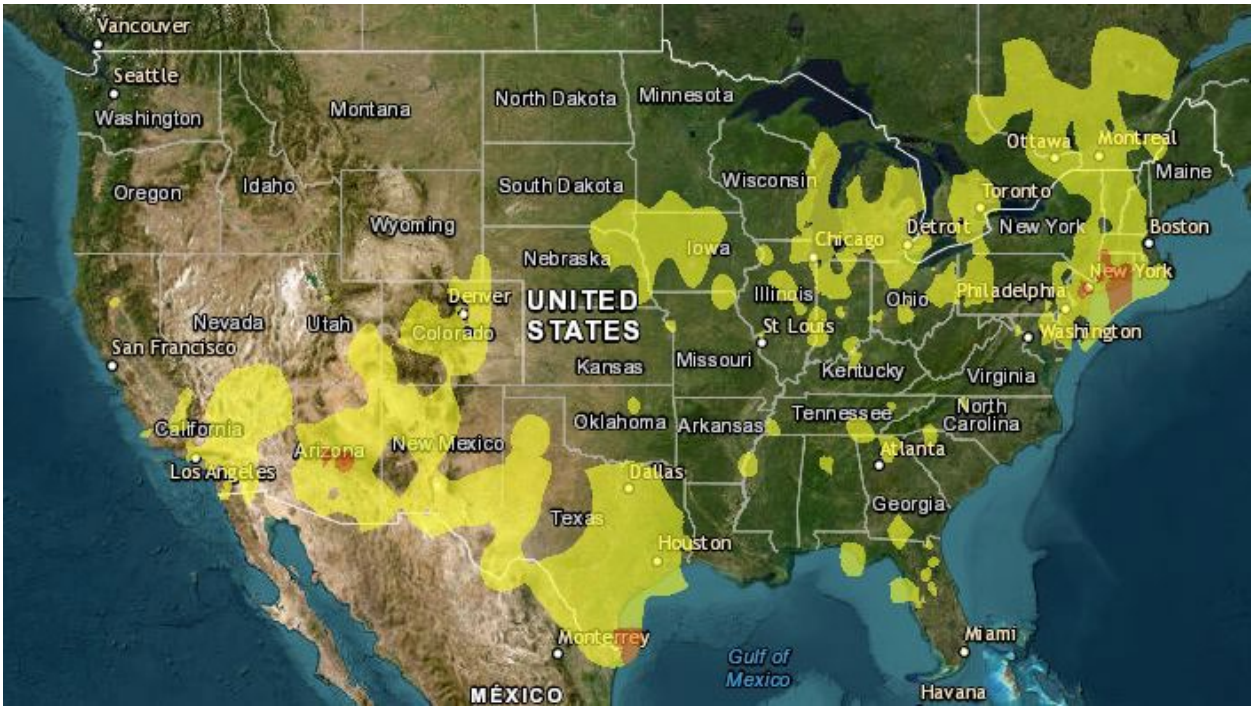


Figure 5. Air Quality Index for the United States on June 3, 2024



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://dep.nj.gov/airplanning/aqi-today/.