Ozone National Ambient Air Quality Standard Health Exceedances on June 22, 2024

Exceedance Locations and Levels

On Saturday, June 22, 2024, there was one (1) exceedance 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 6/22/2024

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	52
Bayonne	64
Brigantine	35
Camden Spruce St	62
Chester	59
Clarksboro	61
Colliers Mills	61
Columbia	54
Flemington	57
Leonia	72
Millville	54
Monmouth University	49
Ramapo	55
Rider University	63
Rutgers University	55
Washington Crossing*	60
TOTAL EXCEEDANCES	1

*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 five (5) 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 6/22/2024

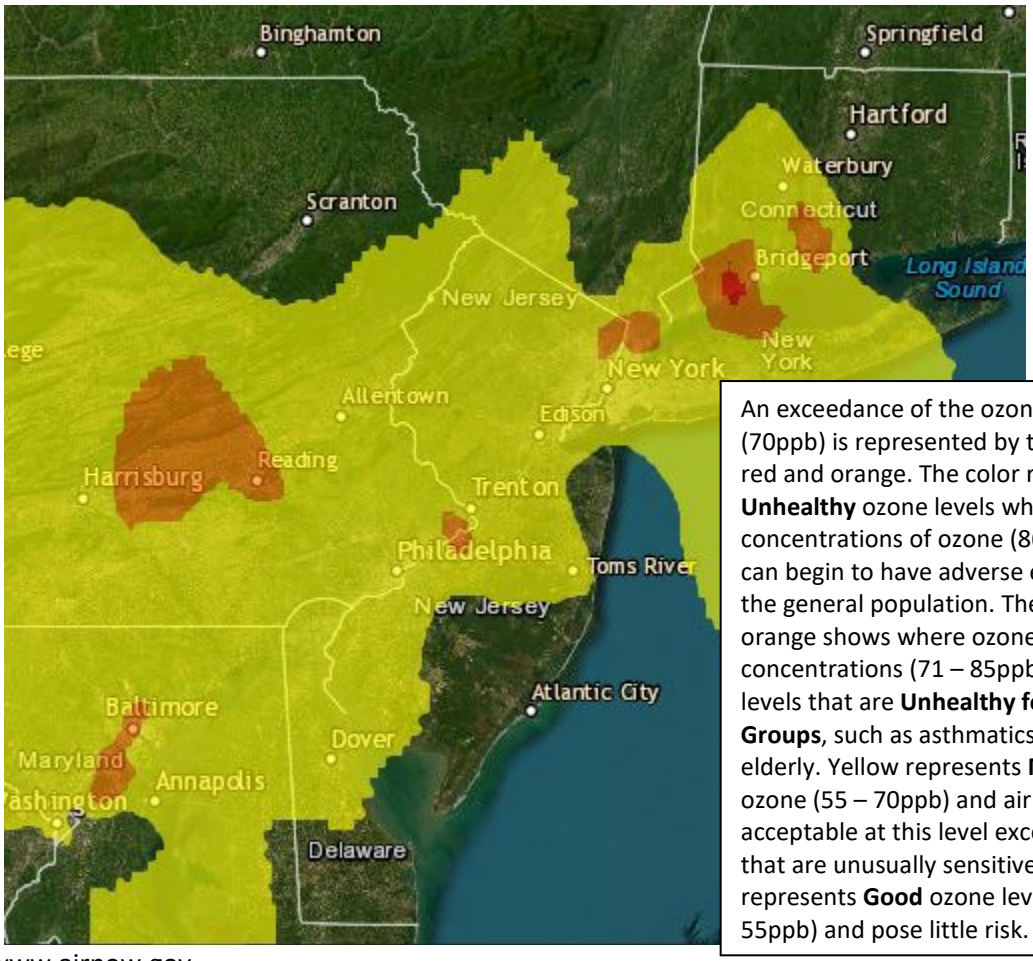
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	62
CT	Greenwich	69
CT	Madison-Beach Road	51
CT	Middletown-CVH-Shed	50
CT	New Haven	71
CT	Stratford	65
CT	Westport	86
DE	BCSP (New Castle Co.)	57
DE	BELLFNT2 (New Castle Co.)	62
DE	KILLENS (Kent Co.)	55
DE	LEWES (Sussex Co.)	53
DE	LUMS 2 (New Castle Co.)	56
DE	MLK (New Castle Co.)	62
DE	SEAFORD (Sussex Co.)	52
MD	Fair Hill	62
NY	Babylon	56
NY	Bronx - IS52	67
NY	CCNY	69
NY	Flax Pond	72
NY	Fresh Kills	57
NY	Holtsville	58
NY	Pfizer Lab	73
NY	Queens	69
NY	Riverhead	62
NY	Rockland Cty	52
NY	White Plains	70
PA	BRIS (Bucks Co.)	72
PA	CHES (Delaware Co.)	60
PA	NEWG (Chester Co.)	62
PA	NORR (Montgomery Co.)	54
PA	LAB (Philadelphia Co.)	57
PA	NEA (Philadelphia Co.)	63
PA	NEW (Philadelphia Co.)	69
	TOTAL EXCEEDANCES	5

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 22, 2024 NAAQS = 70 ppb
Connecticut	9
Delaware	2
Maryland	0
New Jersey	7
New York	8
Pennsylvania	4

Figure 1. Ozone Air Quality Index for June 22, 2024



An exceedance of the ozone standard (70ppb) is represented by the colors red and orange. The color red signifies **Unhealthy** ozone levels where the concentrations of ozone (86 – 105ppb) can begin to have adverse effects on the general population. 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 Saturday June 22nd, widespread ozone exceedances were observed throughout the nonattainment area, marking the third and final day of a three-day exceedance event. With an excessive heat watch and heat advisory in effect, above seasonal temperatures ranged throughout the 90s, with isolated areas reaching 100 degrees. Heat indices rose to the triple digits, with dew points reaching the low-70s, causing air to feel heavy and humid. Muggy conditions were also a result of light and variable winds, produced by a stalled frontal boundary dominating the region. Despite favorable conditions for ozone formation, there were a number of factors that may have limited ozone production to urban locations on this day including excessive heat, humidity, and isolated showers and thunderstorms popping up throughout the day. Ozone formation was still able to reach USG and Unhealthy levels in portions of PA, northeastern NJ, NY and CT due to ample sunshine and a previously polluted air mass lingering over the region.

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)
NJ	Leonia	72
CT	New Haven	71
CT	Westport	86
NY	Pfizer Lab	73
NY	Flax Pond	72
PA	BRIS (Bucks Co.)	72

Figure 2. 48-hour Back Trajectories for June 22, 2024 at 10 meters

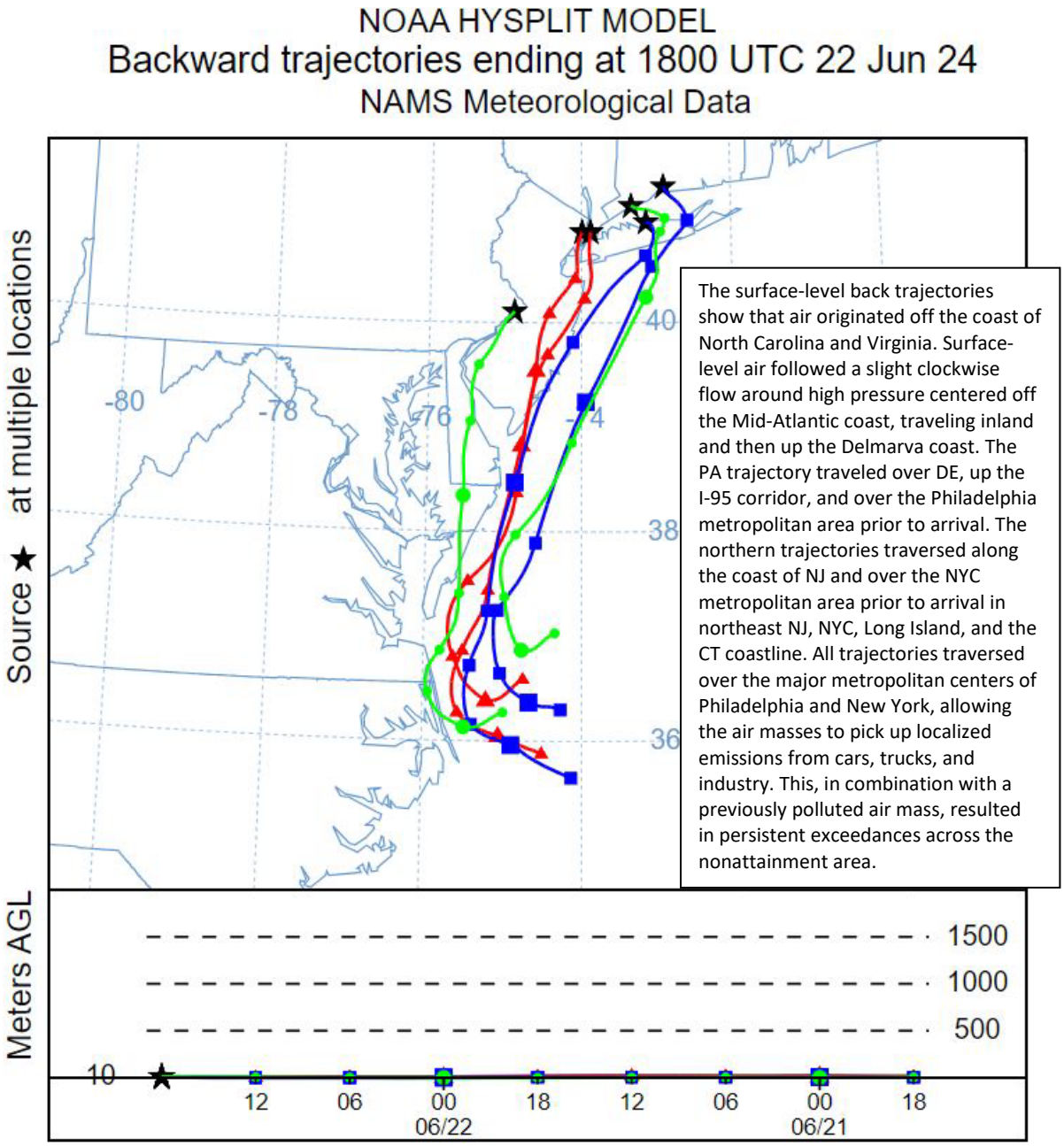


Figure 3. 48-hour Back Trajectories for June 22, 2024 at 500 meters

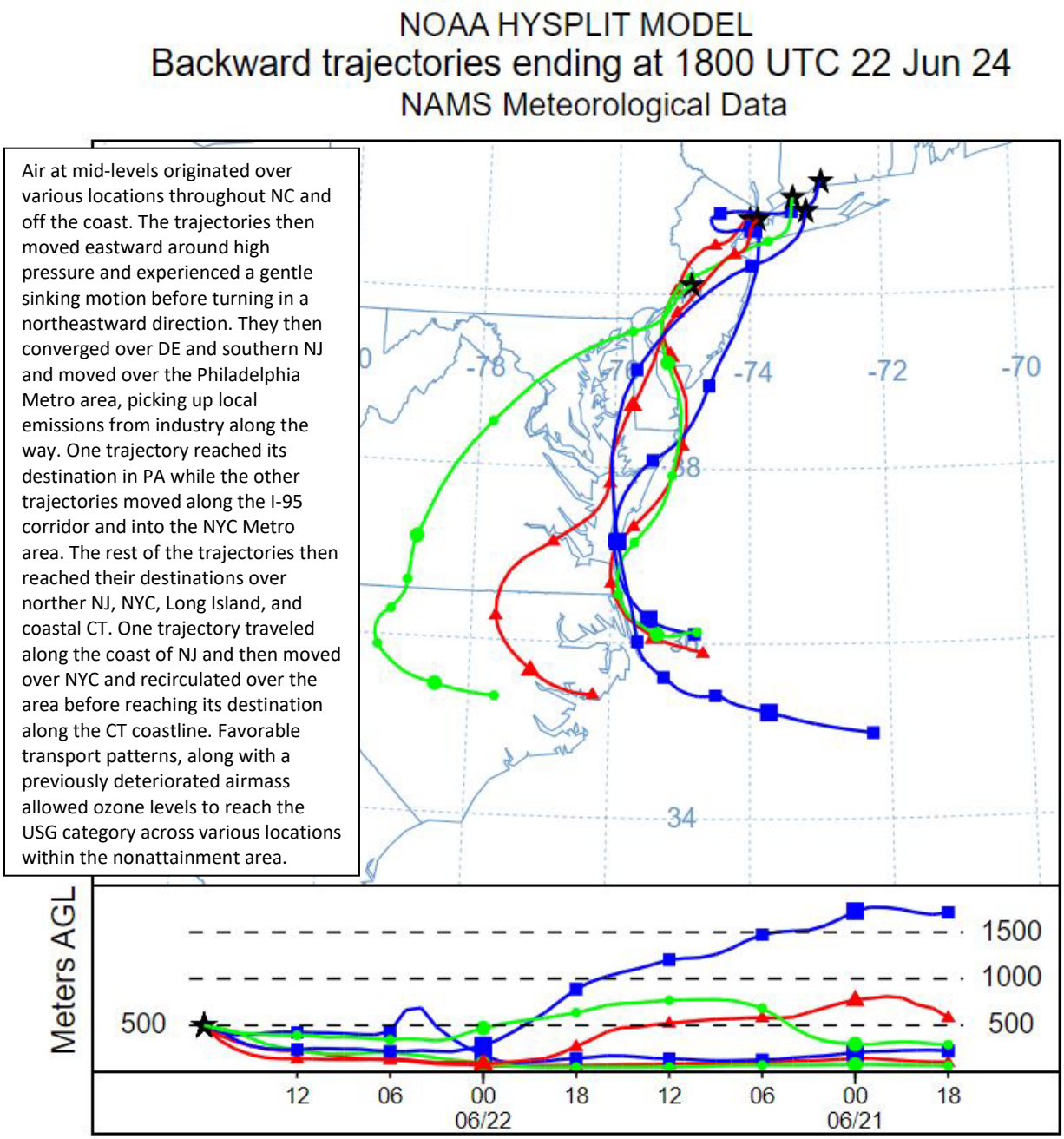


Figure 4. 48-hour Back Trajectories for June 22, 2024 at 1500 meters

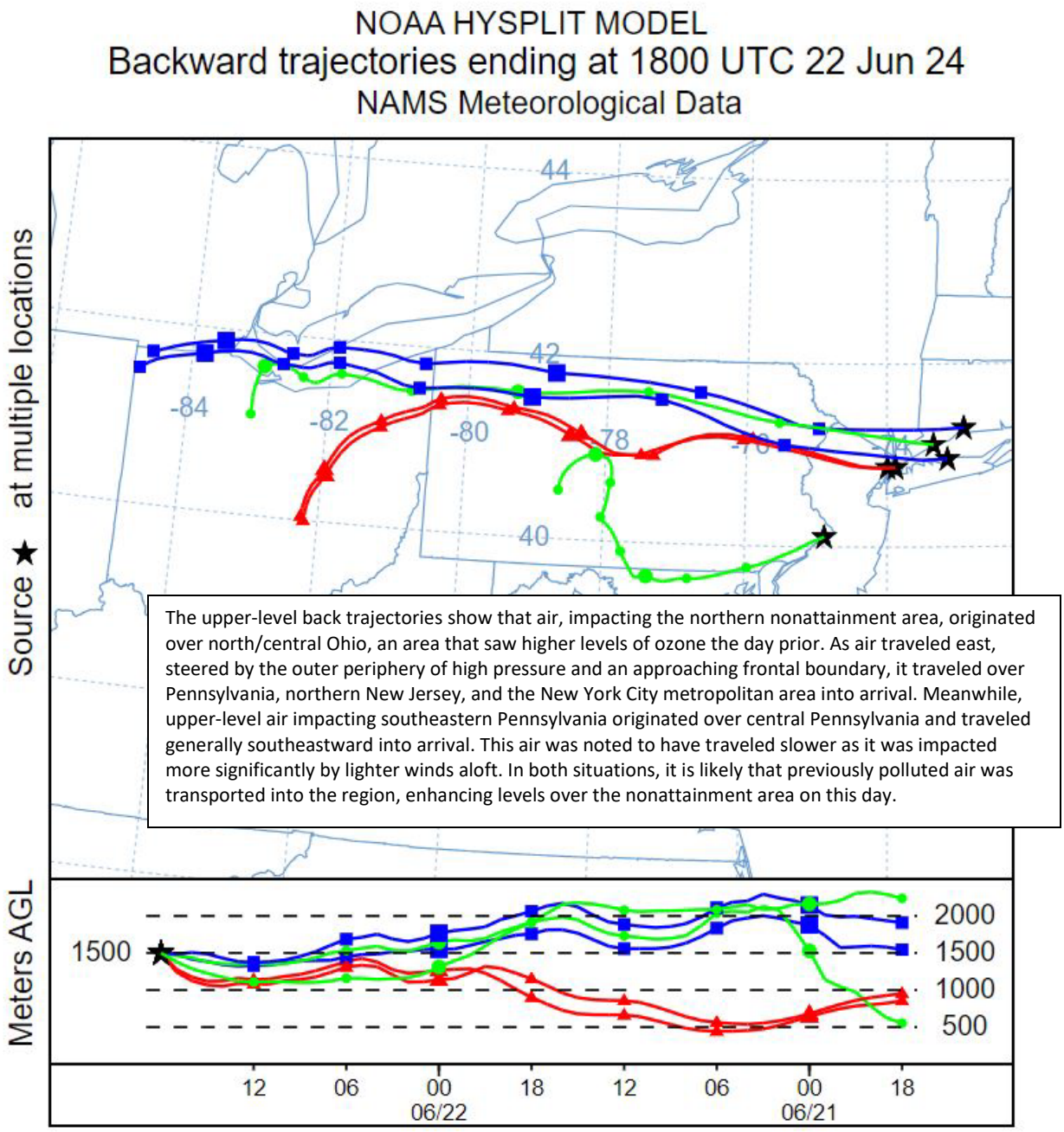
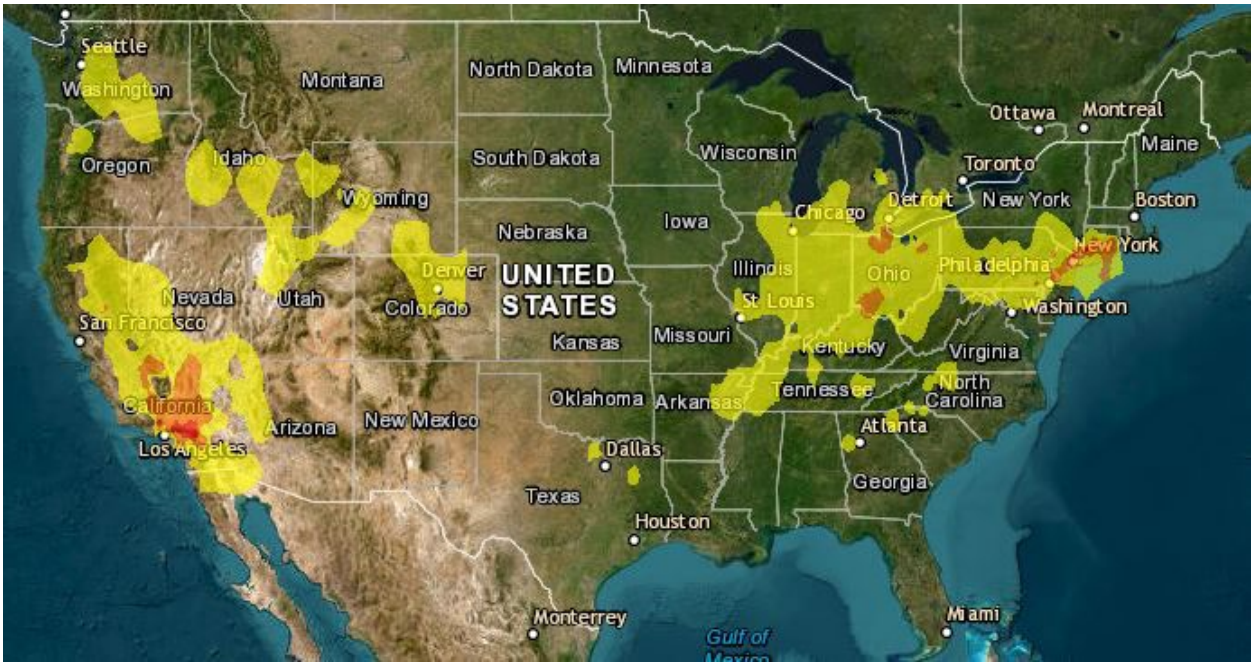


Figure 5. Air Quality Index for the United States on June 21, 2024



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/.