Ozone National Ambient Air Quality Standard Health Exceedances on July 11, 2023

Exceedance Locations and Levels

On Tuesday, July 11, 2023, 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 7/11/2023

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	64
Bayonne	62
Brigantine	48
Camden Spruce St	67
Chester	64
Clarksboro	71
Colliers Mills	67
Columbia	46
Flemington	61
Leonia	58
Millville	61
Monmouth University	68
Ramapo	48
Rider University	60
Rutgers University	62
Washington Crossing*	59
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 four (4) 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 7/11/2023

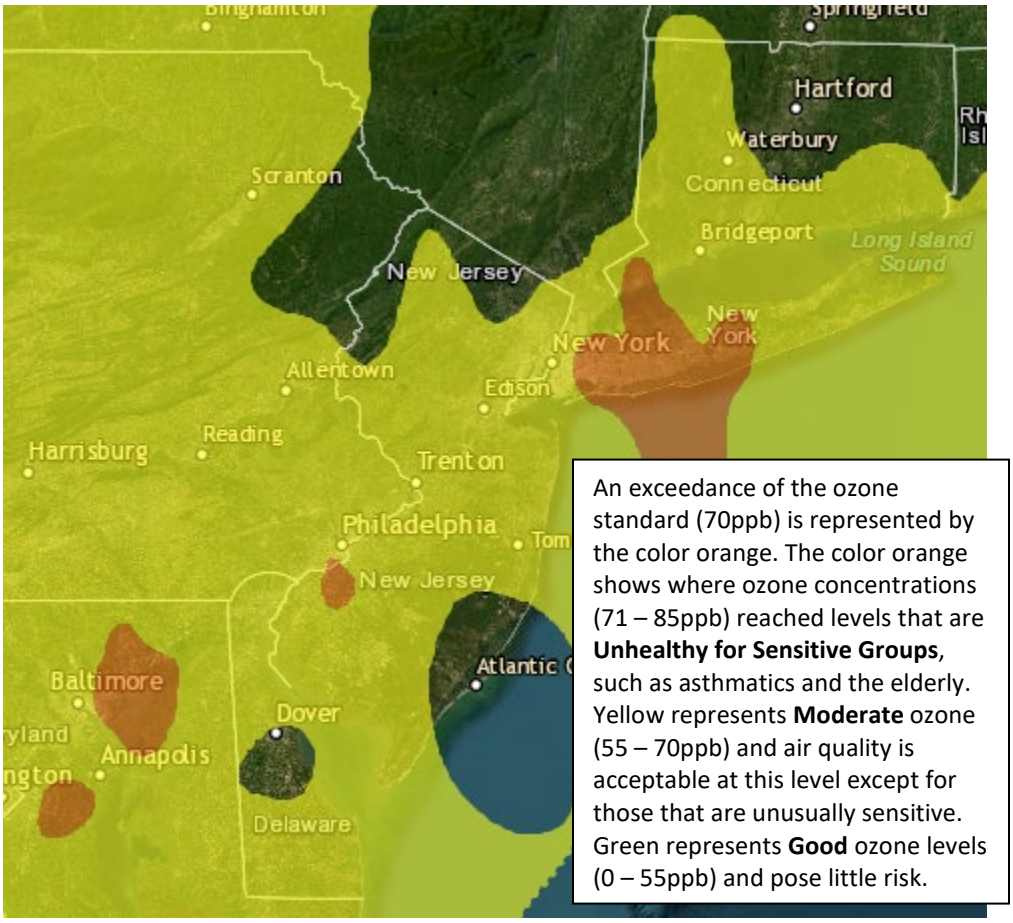
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	56
CT	Greenwich	72
CT	Madison-Beach Road	68
CT	Middletown-CVH-Shed	52
CT	New Haven	54
CT	Stratford	70
CT	Westport	68
DE	BCSP (New Castle Co.)	59
DE	BELLFNT2 (New Castle Co.)	52
DE	KILLENS (Kent Co.)	53
DE	LEWES (Sussex Co.)	55
DE	LUMS 2 (New Castle Co.)	61
DE	MLK (New Castle Co.)	61
DE	SEAFORD (Sussex Co.)	59
MD	Fair Hill	62
NY	Babylon	74
NY	Bronx - IS52	65
NY	CCNY	65
NY	Flax Pond	62
NY	Fresh Kills	61
NY	Holtsville	71
NY	Pfizer Lab	63
NY	Queens	74
NY	Riverhead	61
NY	Rockland Cty	48
NY	White Plains	54
PA	BRIS (Bucks Co.)	66
PA	CHES (Delaware Co.)	67
PA	NEWG (Chester Co.)	No Data
PA	NORR (Montgomery Co.)	66
PA	LAB (Philadelphia Co.)	60
PA	NEA (Philadelphia Co.)	59
PA	NEW (Philadelphia Co.)	65
	TOTAL EXCEEDANCES	4

The number of days in 2023 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 2023

STATE	# of Days NAAQS was Exceeded January 1 – July 11, 2023 NAAQS = 70 ppb
Connecticut	11
Delaware	4
Maryland	3
New Jersey	11
New York	10
Pennsylvania	6

Figure 1. Ozone Air Quality Index for July 11, 2023



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

Starting on Monday, July 10th, a large swath of high pressure was centered over the southeastern United States and began building into the region. As this high pressure pushed toward the northeast on Tuesday, it continued to build. Winds remained light and out of the northwest, providing comfortable dewpoints and sunny skies with temperatures in the upper 80s. Overall, a warm but pleasant day was observed throughout the nonattainment area. These observed meteorological conditions also created a favorable environment for ozone formation, causing ozone levels to steadily rise as the day progressed. Favorable conditions, along with transport of ozone from upwind states, allowed ozone levels to reach the Unhealthy for Sensitive Groups (USG) category in isolated areas in Connecticut, New Jersey, and New York.

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	Greenwich	72
NJ	Clarksboro	71
NY	Babylon	74
NY	Holtsville	71
NY	Queens	74

Figure 2. 48-hour Back Trajectories for July 11, 2023 at 10 meters

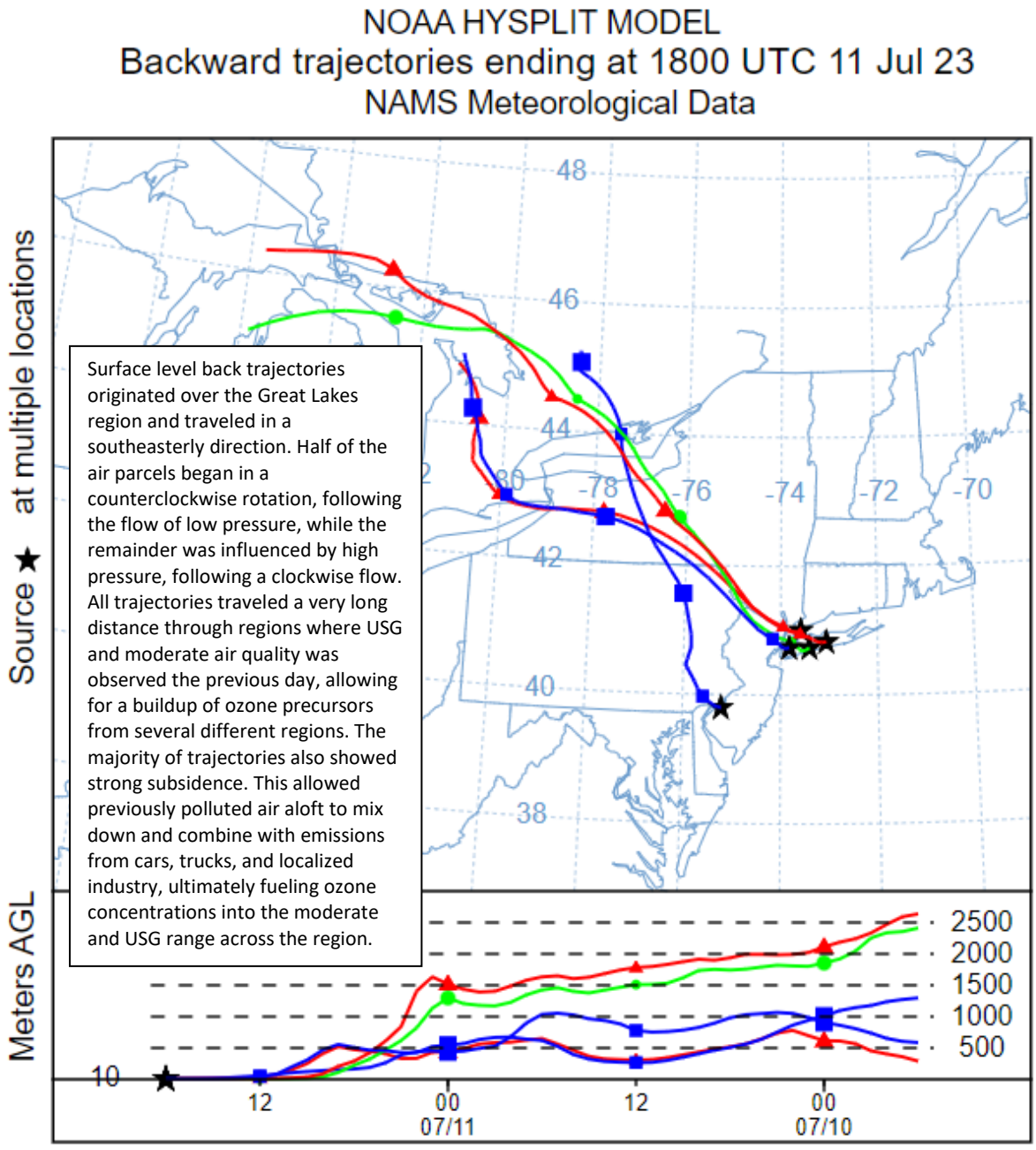


Figure 3. 48-hour Back Trajectories for July 11, 2023 at 500 meters

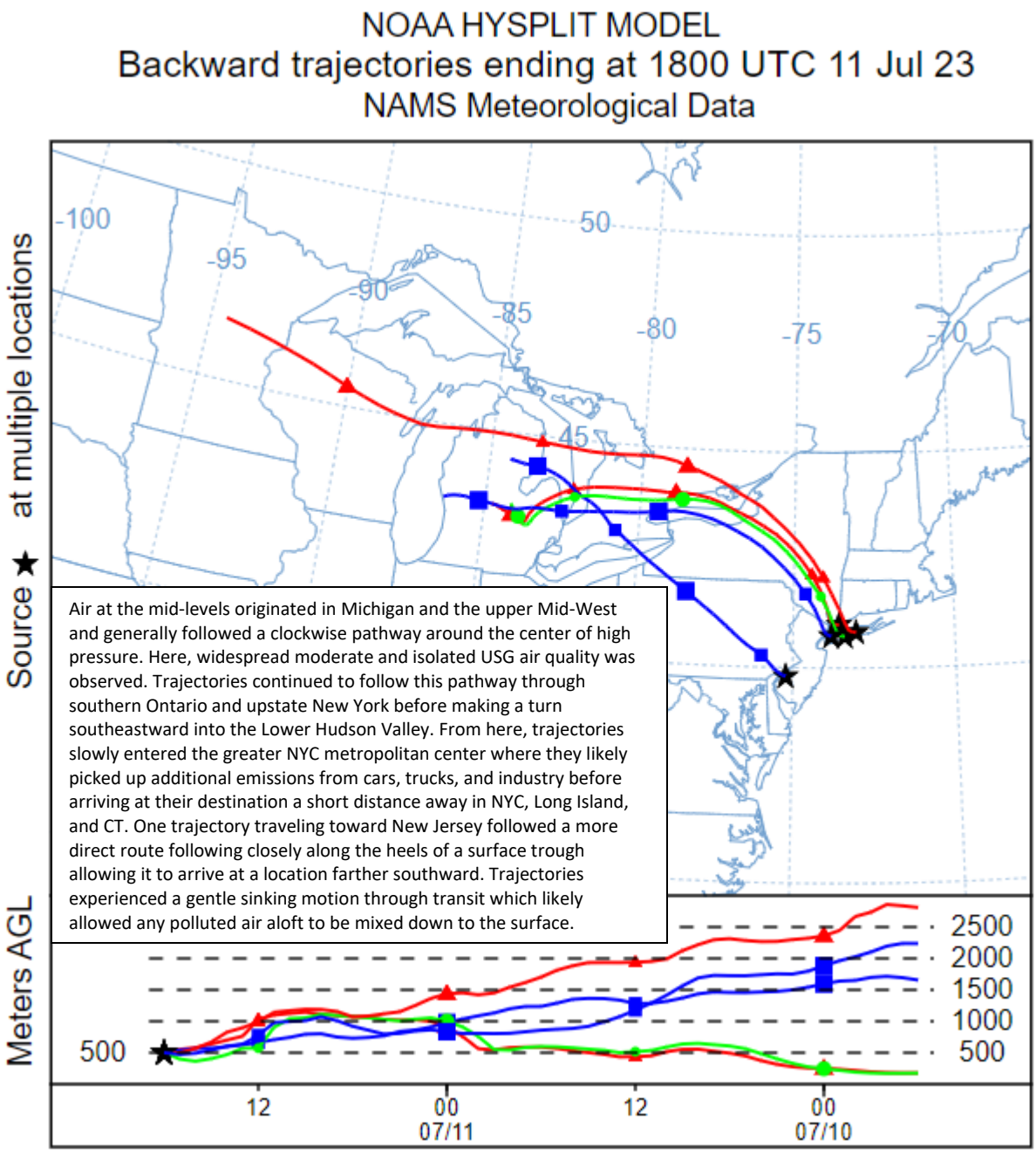


Figure 4. 48-hour Back Trajectories for July 11, 2023 at 1500 meters

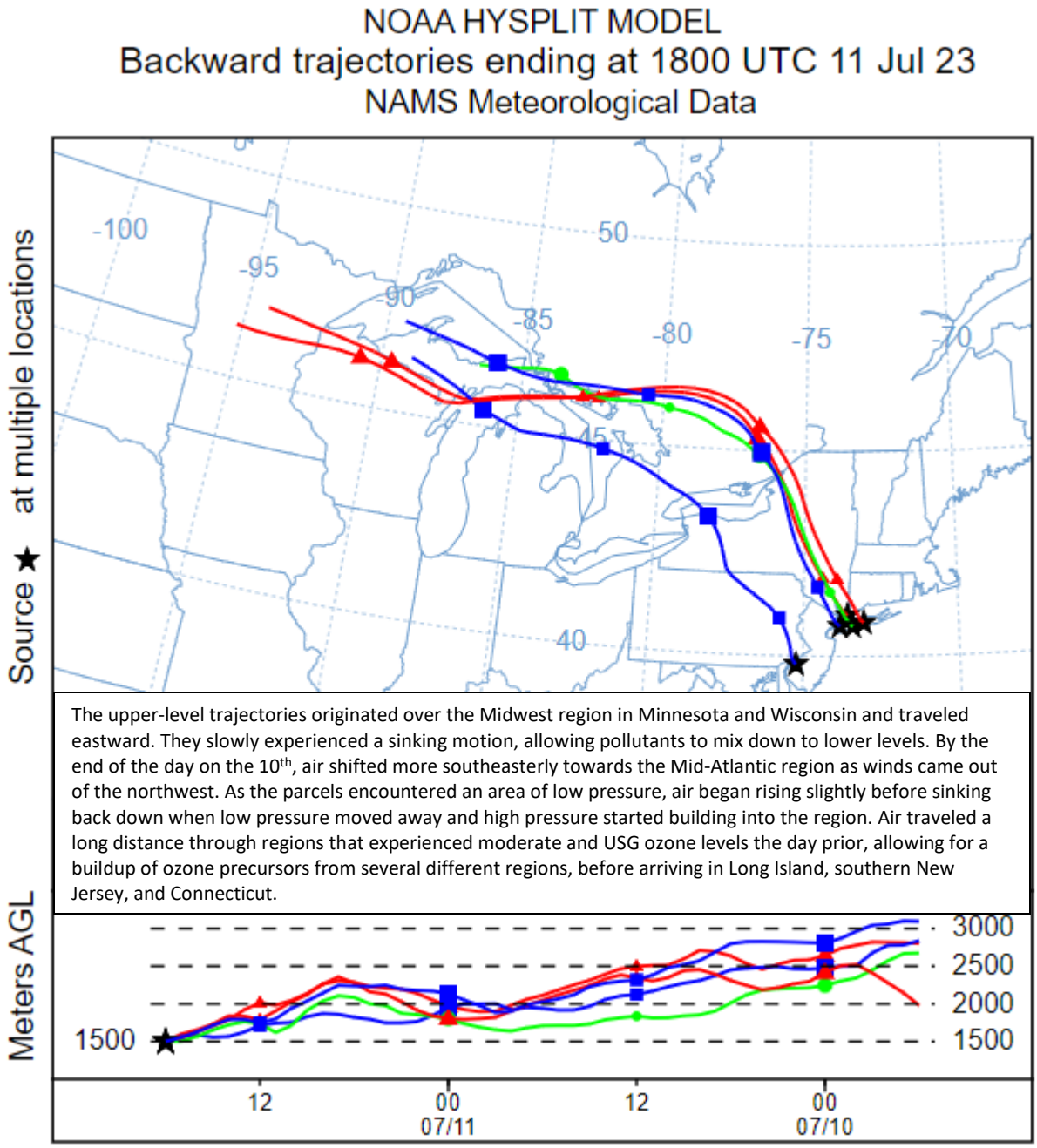
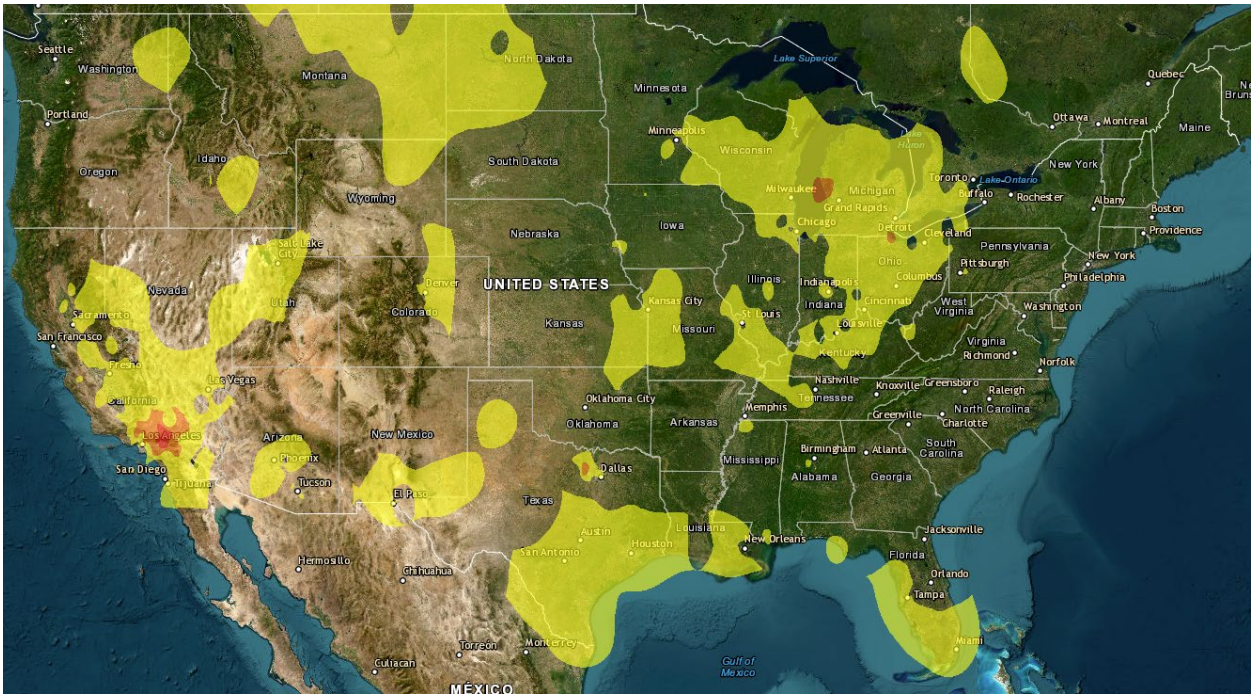


Figure 5. Air Quality Index for the United States on July 10, 2023



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 .