Ozone National Ambient Air Quality Standard Health Exceedances on July 8, 2022

Exceedance Locations and Levels

On Friday, July 8, 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 7/8/2022

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	43
Bayonne	41
Brigantine	37
Camden Spruce St	59
Chester	44
Clarksboro	57
Colliers Mills	51
Columbia	37
Flemington	51
Leonia	47
Millville	39
Monmouth University	36
Newark Firehouse	47
Ramapo	42
Rider University	62
Rutgers University	57
Washington Crossing*	51
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 non-attainment areas, there was one (1) exceedance of the ozone NAAQS. See Table 2.

Table 2. Ozone Concentrations at Out-of-State Monitoring Stations in New Jersey's Ozone Non-Attainment Areas on 7/8/2022

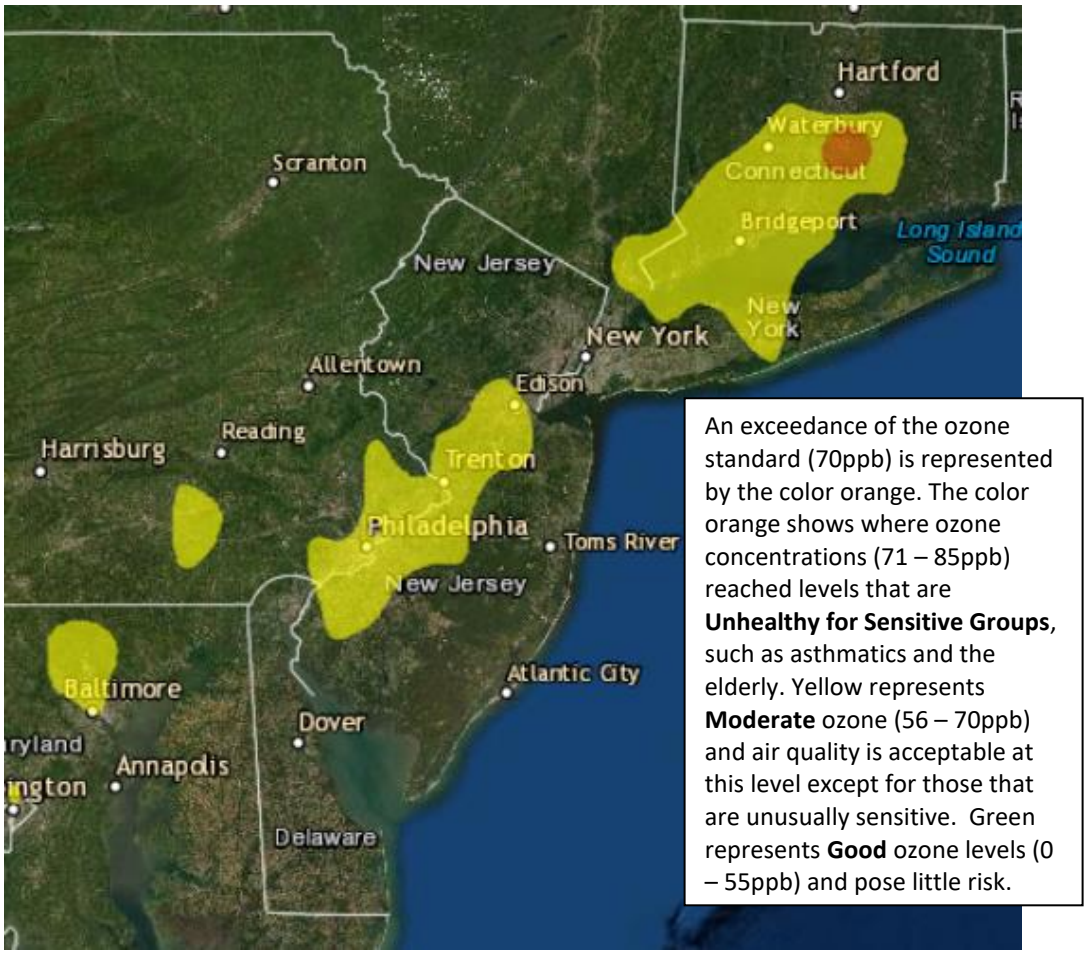
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	54
CT	Greenwich	57
CT	Madison-Beach Road	53
CT	Middletown-CVH-Shed	71
CT	New Haven	67
CT	Stratford	66
CT	Westport	62
DE	BCSP (New Castle Co.)	50
DE	BELLFNT2 (New Castle Co.)	52
DE	KILLENS (Kent Co.)	39
DE	LEWES (Sussex Co.)	41
DE	LUMS 2 (New Castle Co.)	43
DE	MLK (New Castle Co.)	53
DE	SEAFORD (Sussex Co.)	43
MD	Fair Hill	48
NY	Babylon	45
NY	Bronx - IS52	42
NY	CCNY	41
NY	Flax Pond	56
NY	Fresh Kills	49
NY	Holtsville	43
NY	Pfizer Lab	45
NY	Queens	43
NY	Riverhead	45
NY	Rockland Cty	51
NY	White Plains	55
PA	BRIS (Bucks Co.)	70
PA	CHES (Delaware Co.)	59
PA	NEWG (Chester Co.)	40
PA	NORR (Montgomery Co.)	49
PA	LAB (Philadelphia Co.)	51
PA	NEA (Philadelphia Co.)	61
PA	NEW (Philadelphia Co.)	66
	TOTAL EXCEEDANCES	1

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

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

STATE	# of Days NAAQS was Exceeded January 1 – July 8, 2022 NAAQS = 70 ppb
Connecticut	6
Delaware	0
Maryland	1
New Jersey	2
New York	2
Pennsylvania	1

Figure 1. Ozone Air Quality Index for July 8, 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

A broad swath of high pressure was in control of the eastern seaboard on Friday, July 8th. Calm/variable winds in the early morning hours began to tend out of the southwest along with partly sunny skies, allowing for temperatures to rise to the low-mid 80's across the nonattainment zone. As the day progressed, a cold front from the Great Lakes region approached from the west, bringing enhanced cloud cover and an overall suppression of ozone in New Jersey. Meanwhile, a surface trough developed and remained anchored over central Connecticut, causing any ozone precursors aloft to mix down and combine with localized emissions. This paired with prolonged sunshine and southerly coastal winds resulted in an isolated ozone exceedance in Middletown, CT.

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	Middletown-CVH-Shed	71

Figure 2. 48-hour Back Trajectories for July 8, 2022 at 10 meters

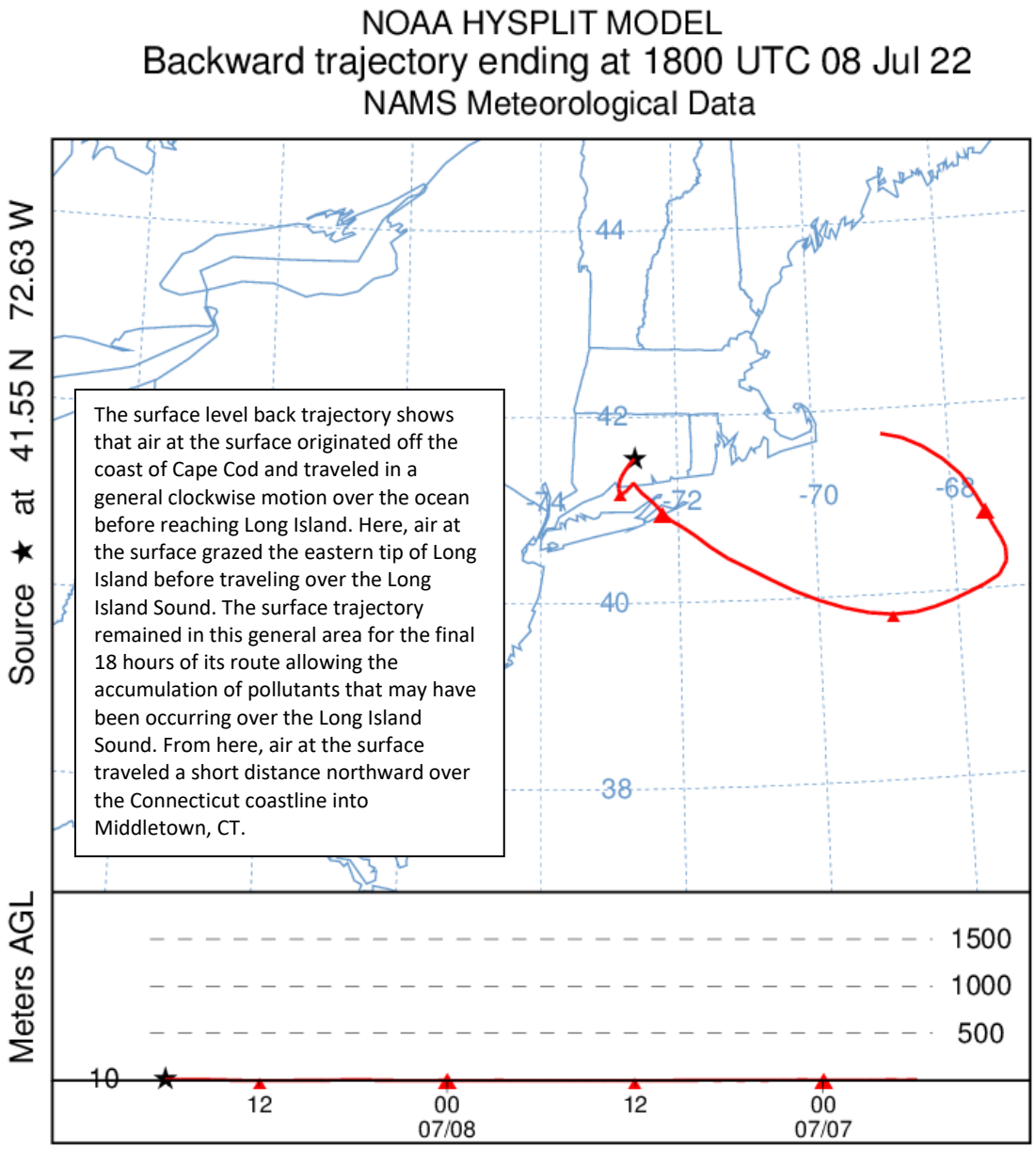


Figure 3. 48-hour Back Trajectories for July 8, 2022 at 500 meters

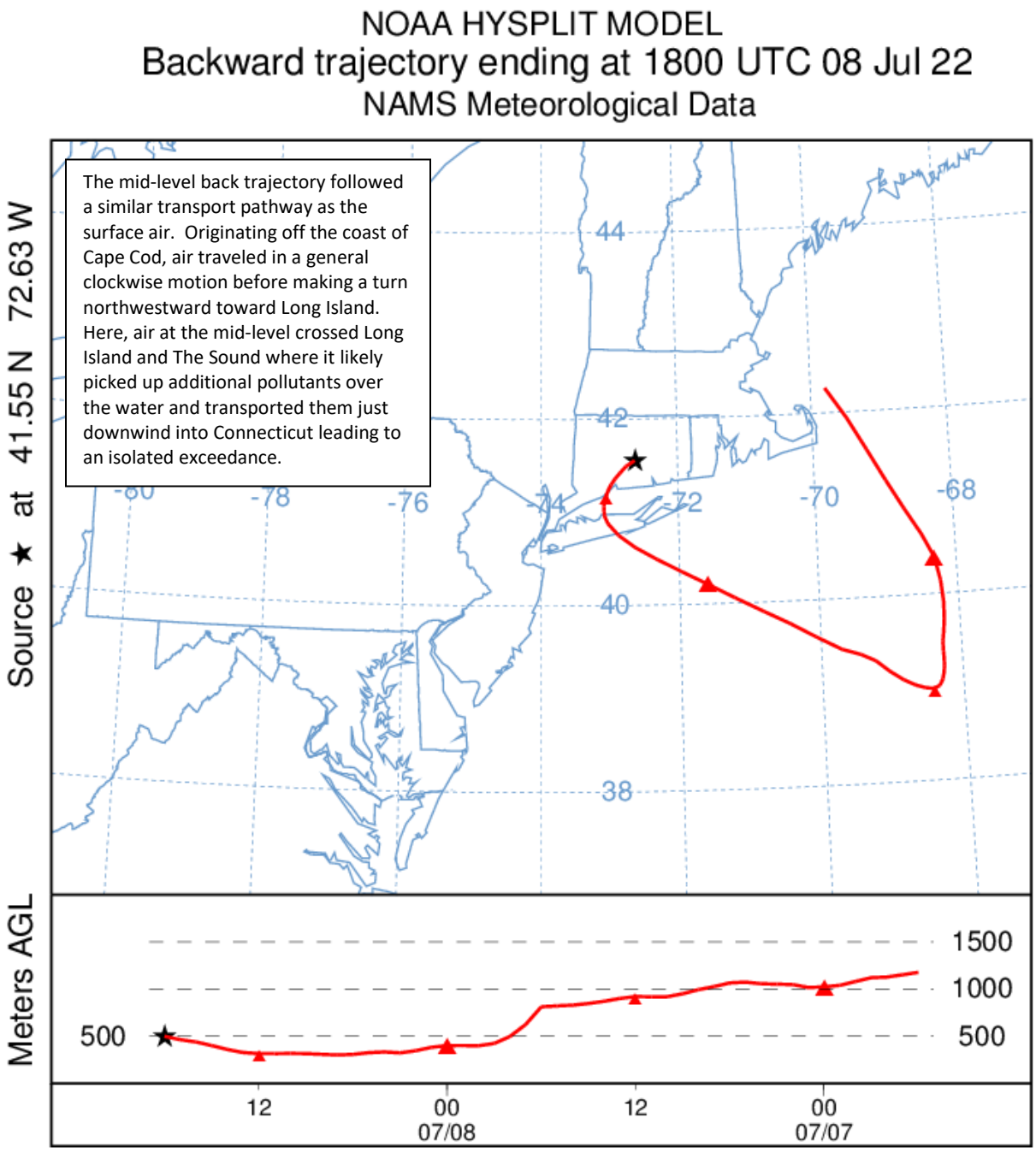


Figure 4. 48-hour Back Trajectories for July 8, 2022 at 1500 meters

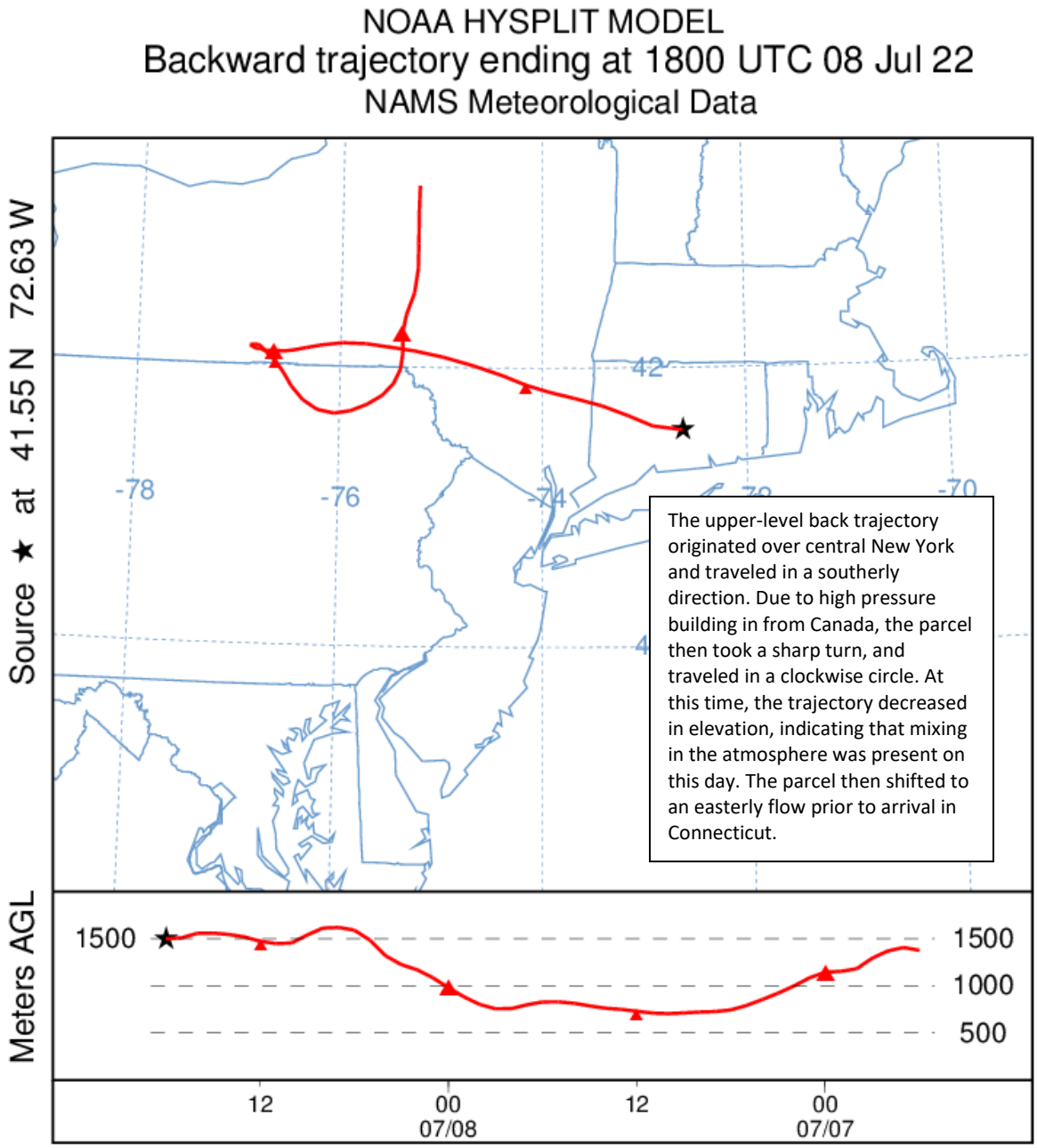
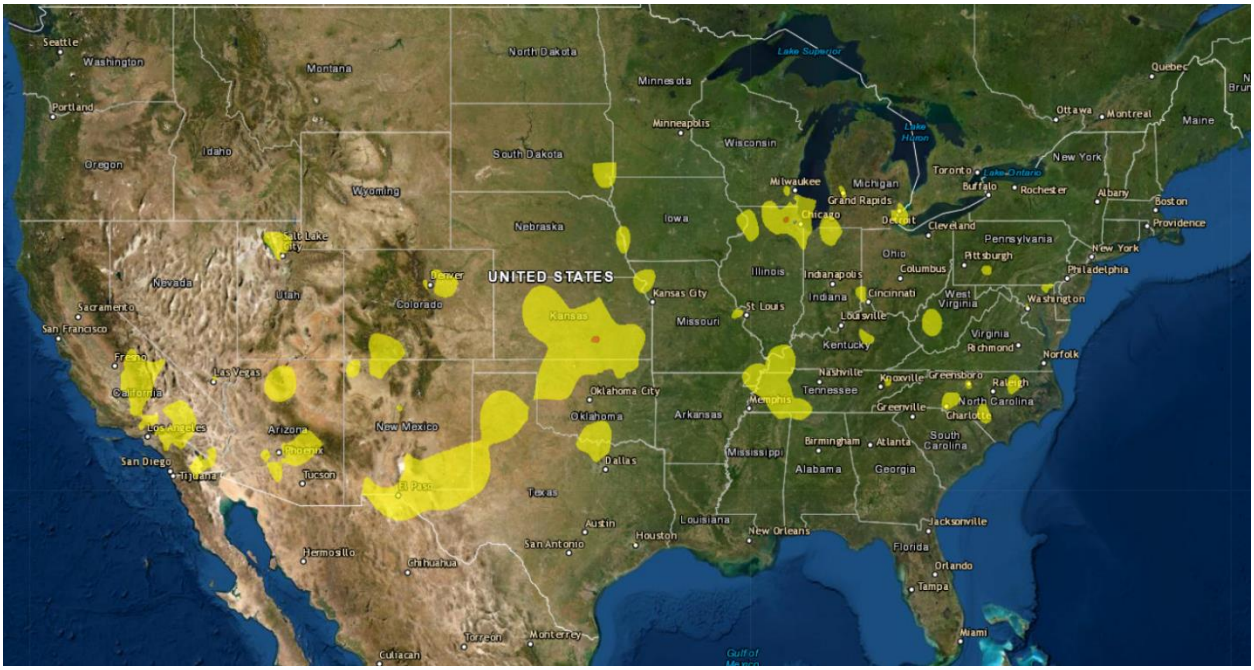


Figure 5. Air Quality Index for the United States on July 7, 2022



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 .