

Ozone National Ambient Air Quality Standard Health Exceedances on July 11, 2022

Exceedance Locations and Levels

On Monday, July 11, 2022, 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 7/11/2022

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	41
Bayonne	48
Brigantine	30
Camden Spruce St	51
Chester	58
Clarksboro	51
Colliers Mills	41
Columbia	60
Flemington	63
Leonia	59
Millville	39
Monmouth University	33
Newark Firehouse	54
Ramapo	53
Rider University	71
Rutgers University	66
Washington Crossing*	68
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 no 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 7/11/2022

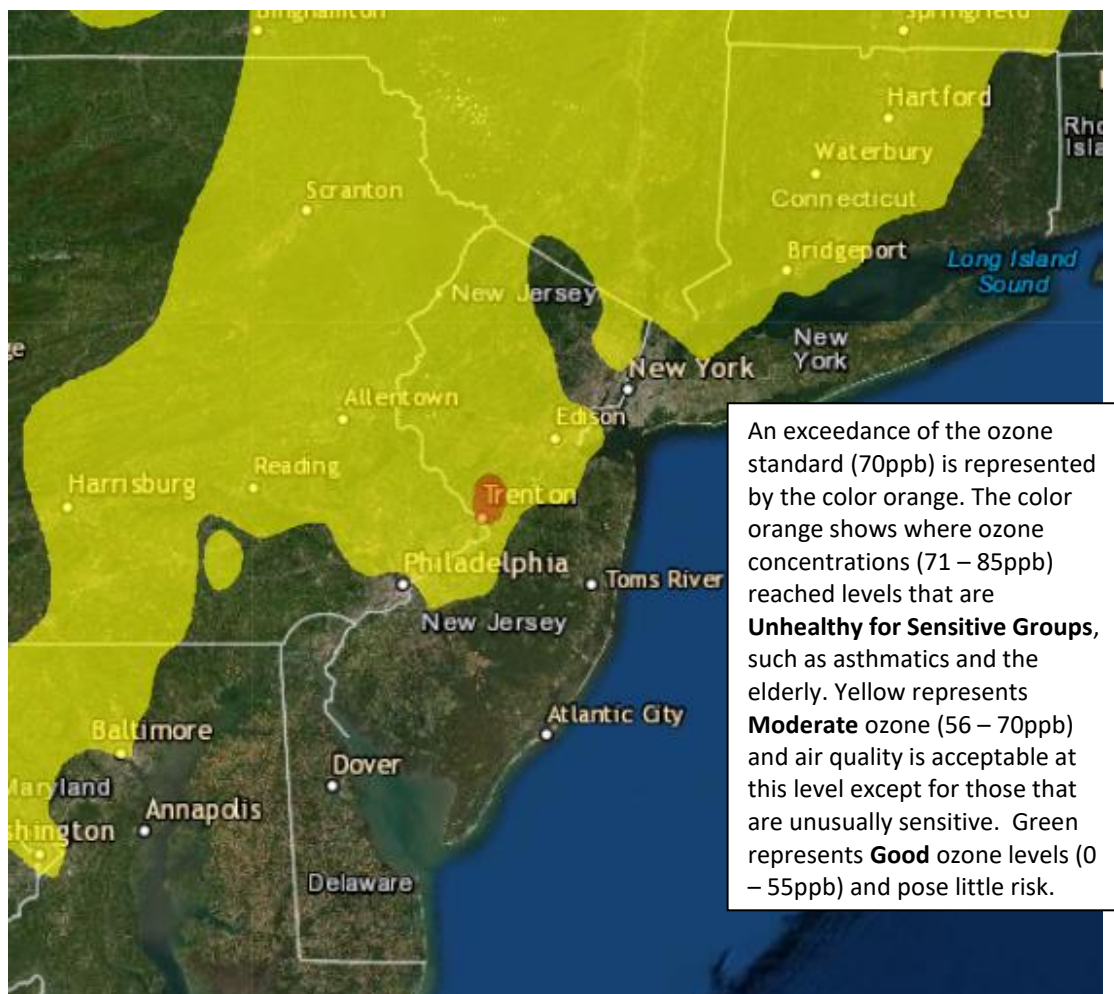
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	68
CT	Greenwich	62
CT	Madison-Beach Road	51
CT	Middletown-CVH-Shed	65
CT	New Haven	55
CT	Stratford	55
CT	Westport	58
DE	BCSP (New Castle Co.)	51
DE	BELLFNT2 (New Castle Co.)	48
DE	KILLENS (Kent Co.)	37
DE	LEWES (Sussex Co.)	33
DE	LUMS 2 (New Castle Co.)	44
DE	MLK (New Castle Co.)	51
DE	SEAFORD (Sussex Co.)	43
MD	Fair Hill	48
NY	Babylon	41
NY	Bronx - IS52	50
NY	CCNY	52
NY	Flax Pond	47
NY	Fresh Kills	55
NY	Holtsville	41
NY	Pfizer Lab	52
NY	Queens	43
NY	Riverhead	42
NY	Rockland Cty	58
NY	White Plains	59
PA	BRIS (Bucks Co.)	62
PA	CHES (Delaware Co.)	53
PA	NEWG (Chester Co.)	48
PA	NORR (Montgomery Co.)	55
PA	LAB (Philadelphia Co.)	55
PA	NEA (Philadelphia Co.)	68
PA	NEW (Philadelphia Co.)	59
	TOTAL EXCEEDANCES	0

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 – July 11, 2022 NAAQS = 70 ppb
Connecticut	6
Delaware	0
Maryland	1
New Jersey	3
New York	2
Pennsylvania	1

Figure 1. Ozone Air Quality Index for July 11, 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

High pressure established itself over the northeast region of the United States, providing seasonable temperatures and pleasant weather conditions for Monday, July 11, 2022. The region saw mostly sunny conditions, where abundant sunshine in the morning and early afternoon hours allowed for temperatures to rise into the mid-80s. South-southwesterly winds were present throughout much of the nonattainment area, which further increased ozone formation. A light, onshore flow, was observed in coastal regions, keeping those regions in the nonattainment area clean. Concurrently, a previously developed surface trough exiting the region caused any ozone precursors aloft to mix down and combine with localized emissions. These conditions, along with a previously polluted airmass and transportation of pollutants from upwind states and the Philadelphia Metropolitan Area, allowed for exceedances to occur at the Rider monitor.

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	Rider University	71

Figure 2. 48-hour Back Trajectories for July 11, 2022 at 10 meters

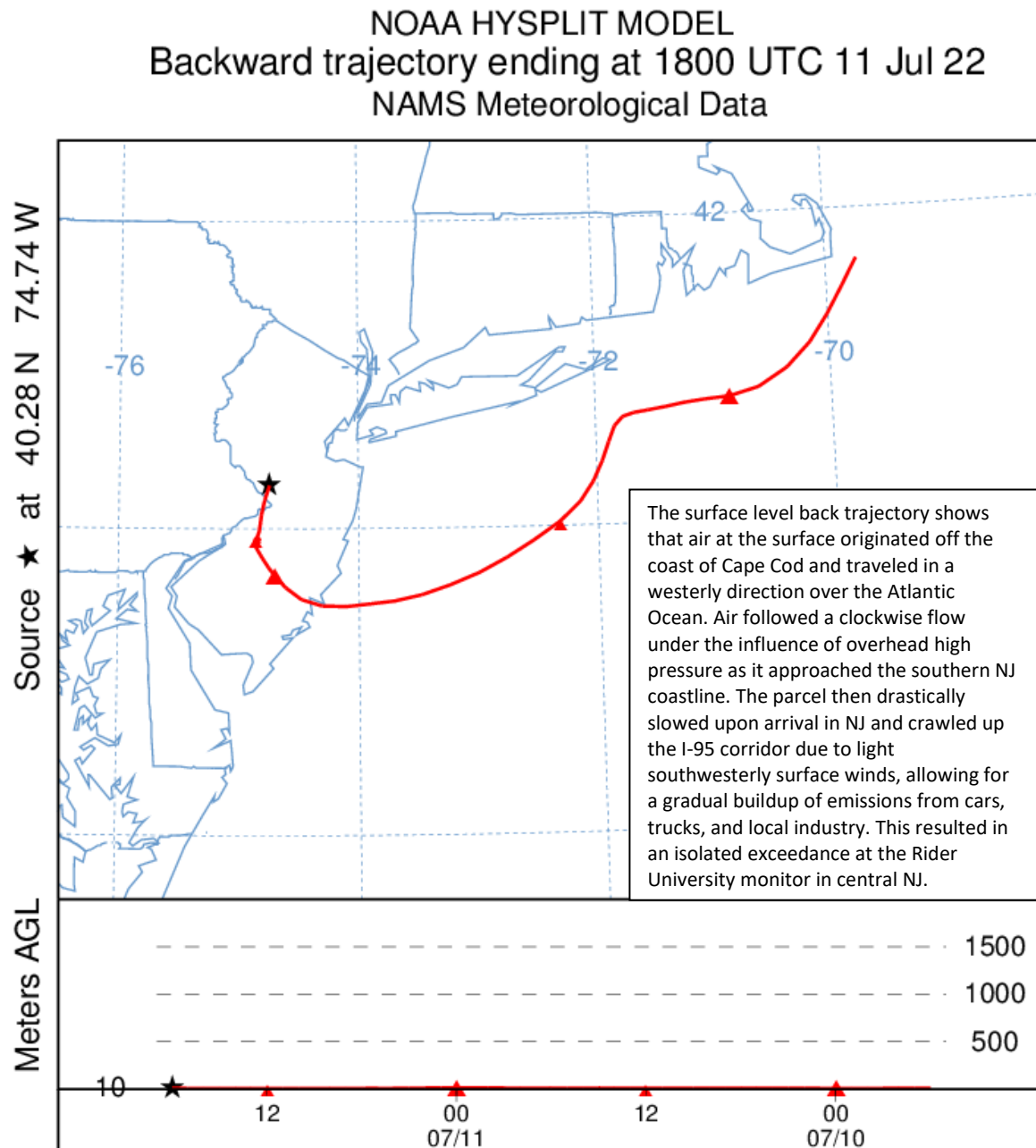


Figure 3. 48-hour Back Trajectories for July 11, 2022 at 500 meters

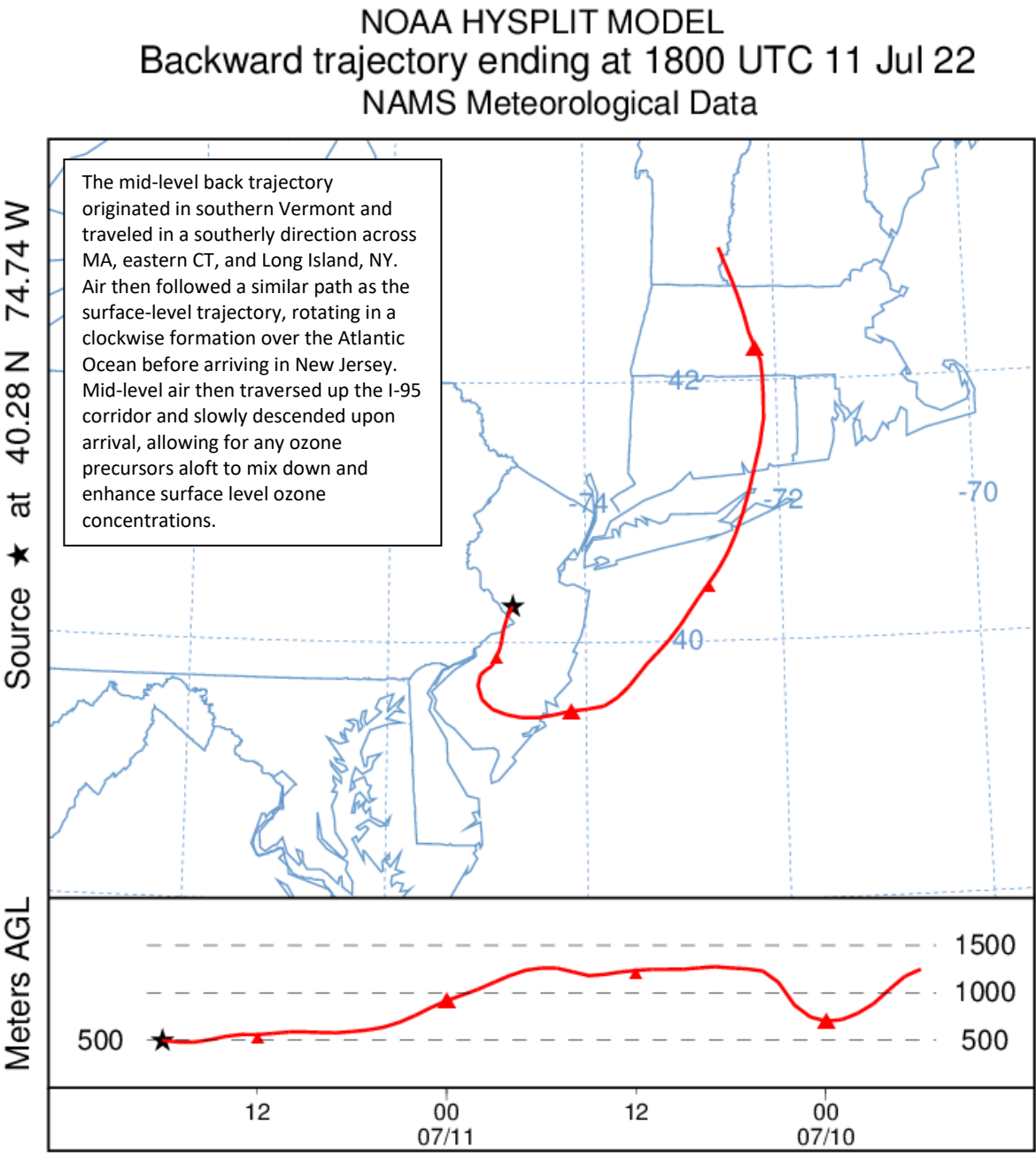


Figure 4. 48-hour Back Trajectories for July 11, 2022 at 1500 meters

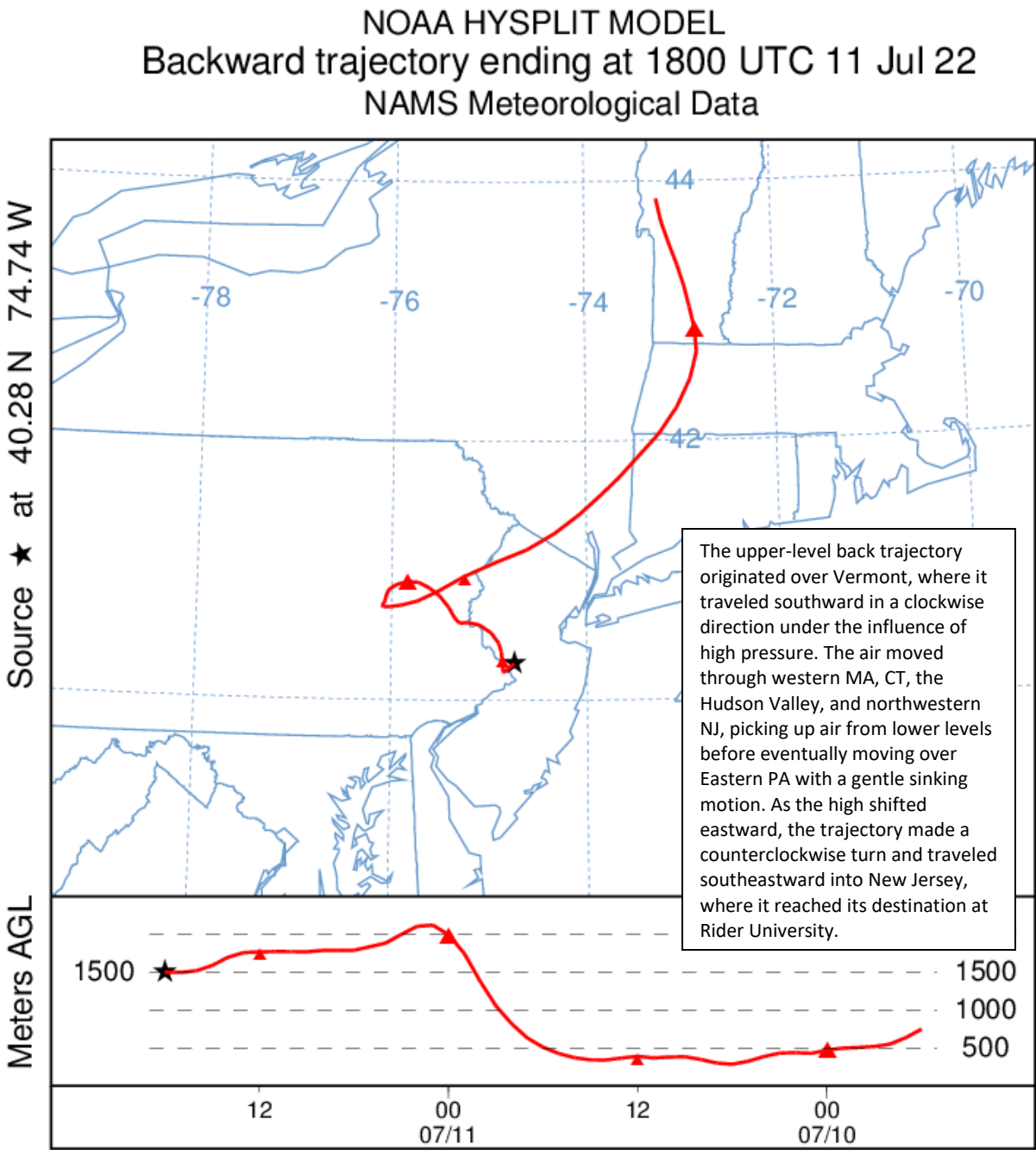
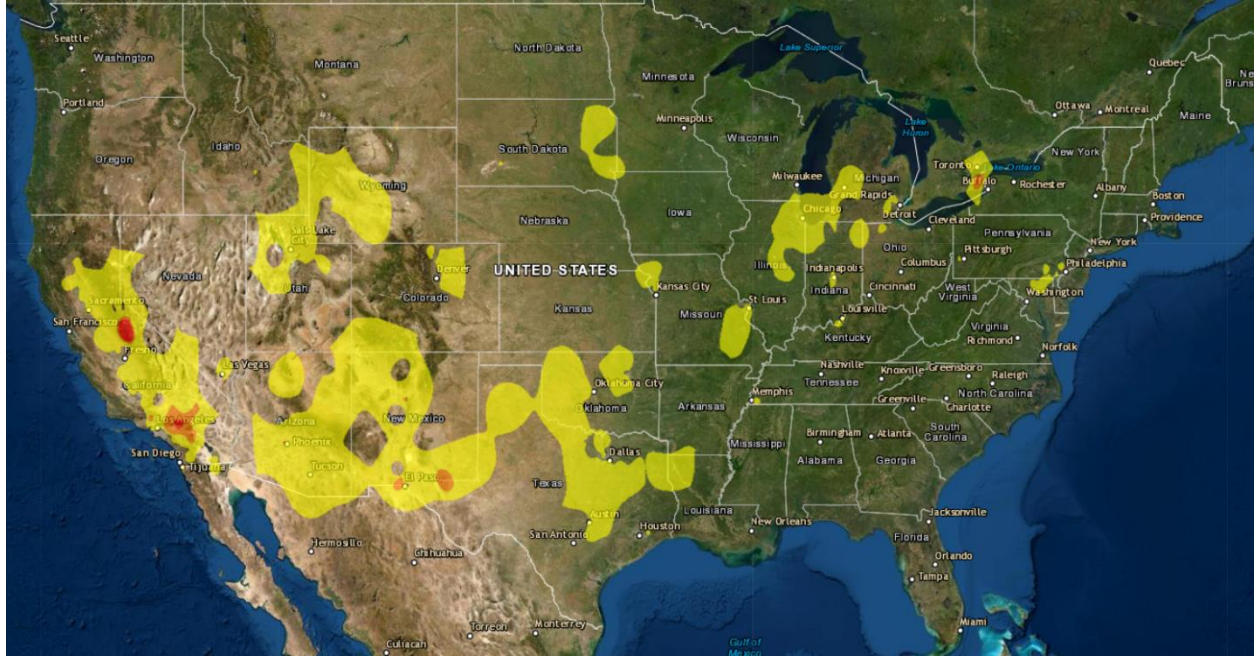


Figure 5. Air Quality Index for the United States on July 10, 2022



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 (NO_x) 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>.