Ozone National Ambient Air Quality Standard Health Exceedances on June 21, 2022

Exceedance Locations and Levels

On Tuesday, June 21, 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 6/21/2022

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	58
Bayonne	53
Brigantine	54
Camden Spruce St	54
Chester	52
Clarksboro	54
Colliers Mills	56
Columbia	41
Flemington	57
Leonia	47
Millville	59
Monmouth University	61
Newark Firehouse	43
Ramapo	48
Rider University	61
Rutgers University	56
Washington Crossing*	58
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 6/21/2022

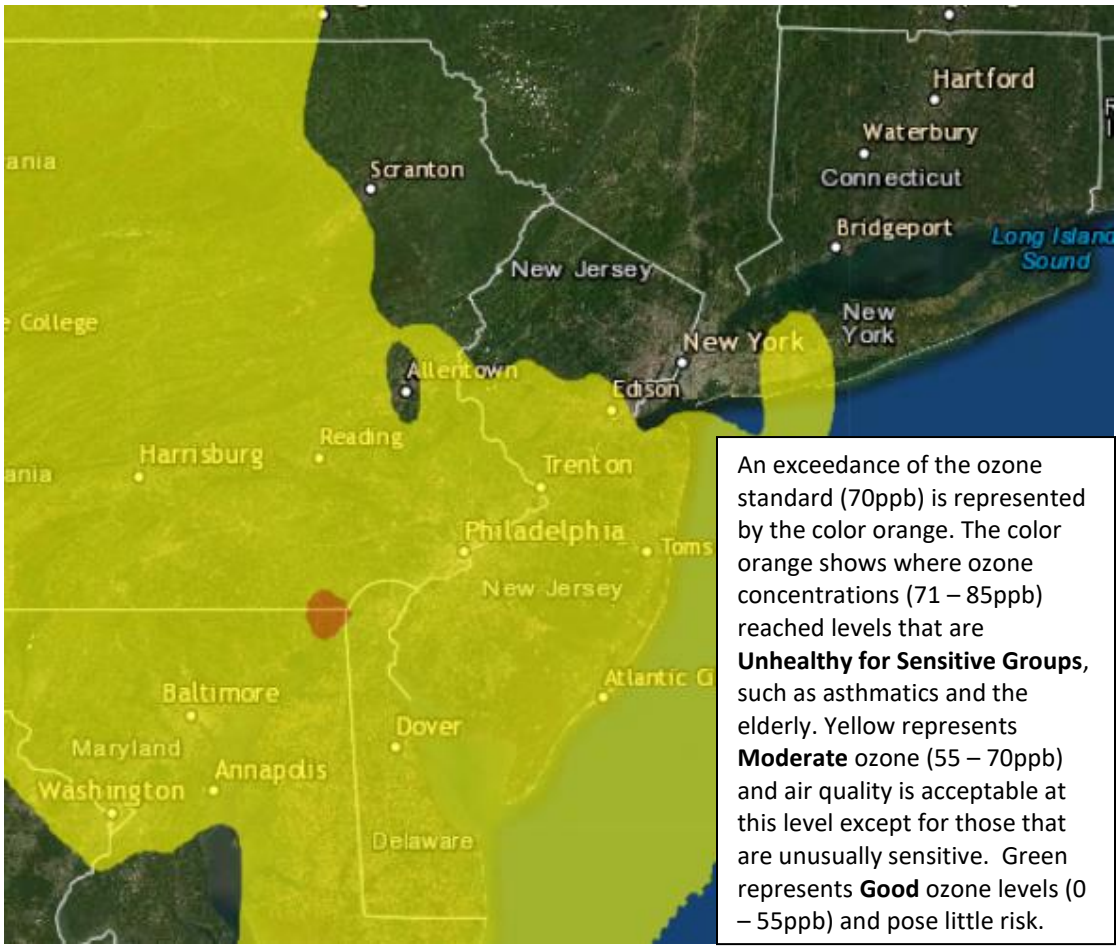
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	43
CT	Greenwich	50
CT	Madison-Beach Road	47
CT	Middletown-CVH-Shed	43
CT	New Haven	44
CT	Stratford	49
CT	Westport	46
DE	BCSP (New Castle Co.)	66
DE	BELLFNT2 (New Castle Co.)	64
DE	KILLENS (Kent Co.)	62
DE	LEWES (Sussex Co.)	61
DE	LUMS 2 (New Castle Co.)	68
DE	MLK (New Castle Co.)	67
DE	SEAFORD (Sussex Co.)	63
MD	Fair Hill	71
NY	Babylon	58
NY	Bronx - IS52	42
NY	CCNY	44
NY	Flax Pond	40
NY	Fresh Kills	53
NY	Holtsville	50
NY	Pfizer Lab	45
NY	Queens	No data
NY	Riverhead	44
NY	Rockland Cty	44
NY	White Plains	42
PA	BRIS (Bucks Co.)	58
PA	CHES (Delaware Co.)	66
PA	NEWG (Chester Co.)	59
PA	NORR (Montgomery Co.)	58
PA	LAB (Philadelphia Co.)	56
PA	NEA (Philadelphia Co.)	67
PA	NEW (Philadelphia Co.)	63
	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 – June 21, 2022 NAAQS = 70 ppb
Connecticut	1
Delaware	0
Maryland	1
New Jersey	1
New York	0
Pennsylvania	0

Figure 1. Ozone Air Quality Index for June 21, 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 large high pressure system was noted over the Southeastern United States on Tuesday June 21, 2022, as a stationary front lingered over the northern New Jersey/NYC metropolitan area and southern New England. This atmospheric setup allowed for hot temperatures, a mix of sun and clouds, and light southwesterly winds over portions of the southern nonattainment area which in turn allowed for ozone levels to rise across the region. Additionally, the broad nature of the high pressure system would have allowed for the quick transport of previously polluted air and emissions from the Great Lake region to this location, further enhancing ozone levels, and leading to the isolated exceedance in far northeastern Maryland.

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)
MD	Fair Hill	71

Figure 2. 48-hour Back Trajectories for June 21, 2022 at 10 meters

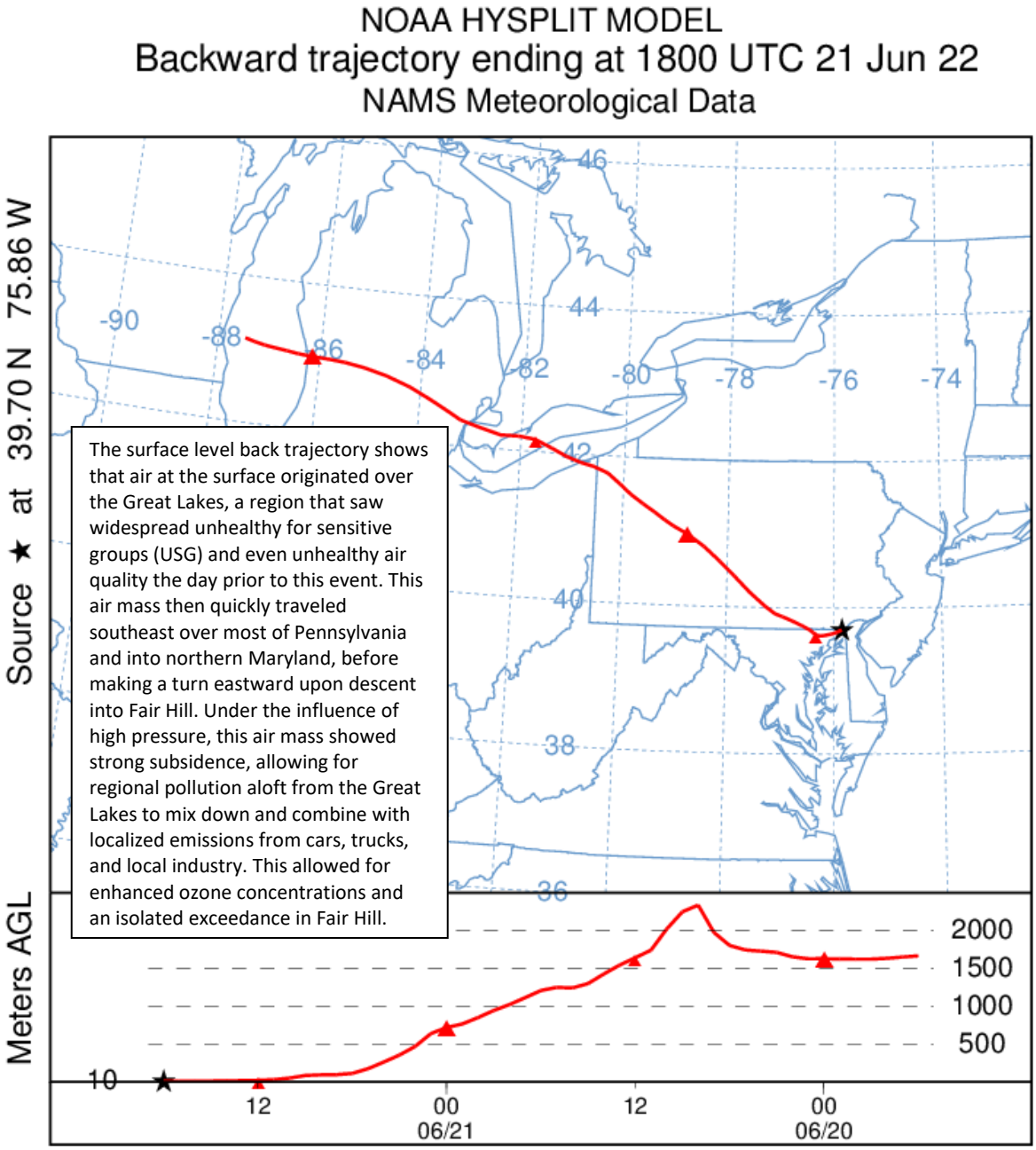


Figure 3. 48-hour Back Trajectories for June 21, 2022 at 500 meters

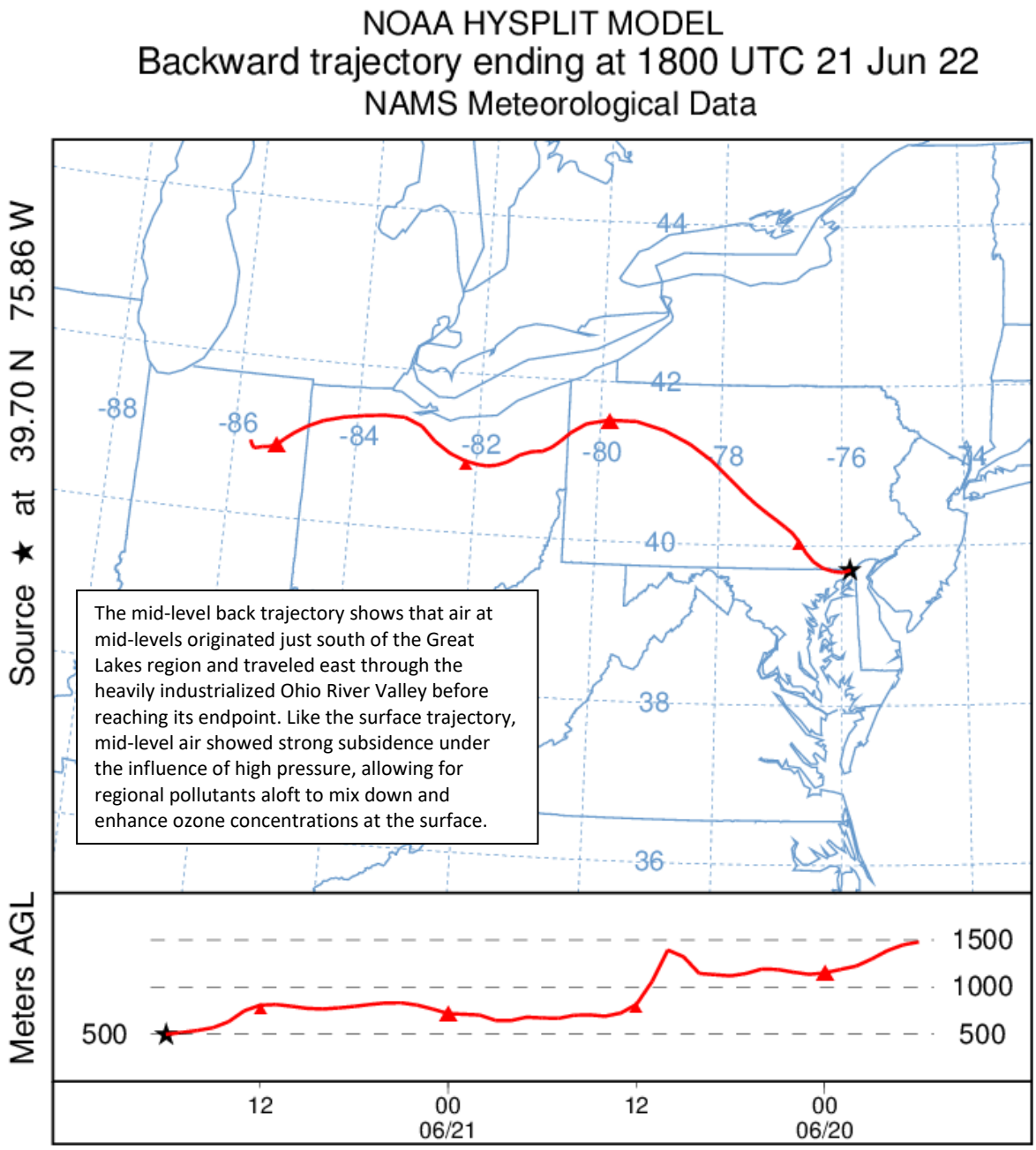


Figure 4. 48-hour Back Trajectories for June 21, 2022 at 1500 meters

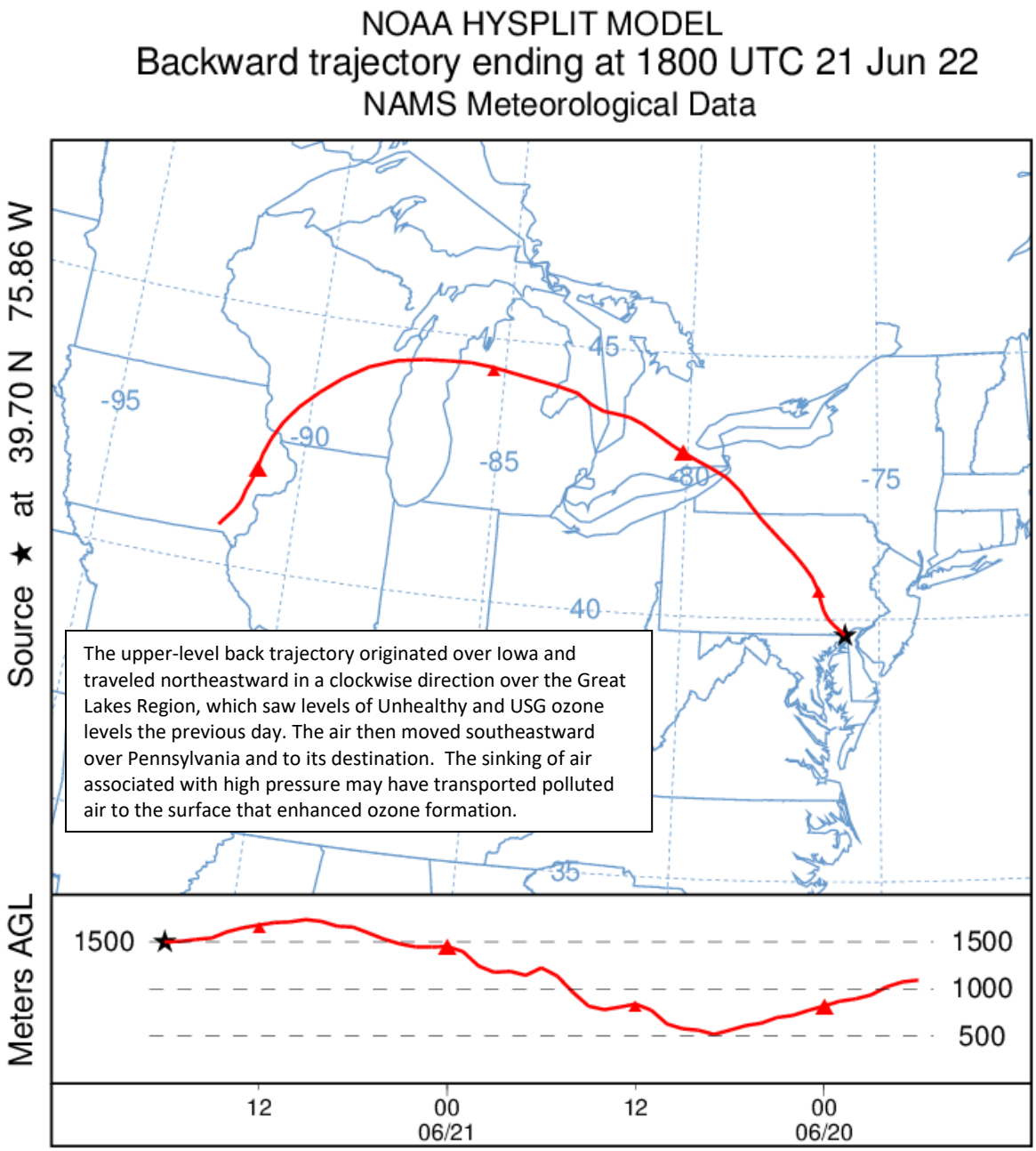
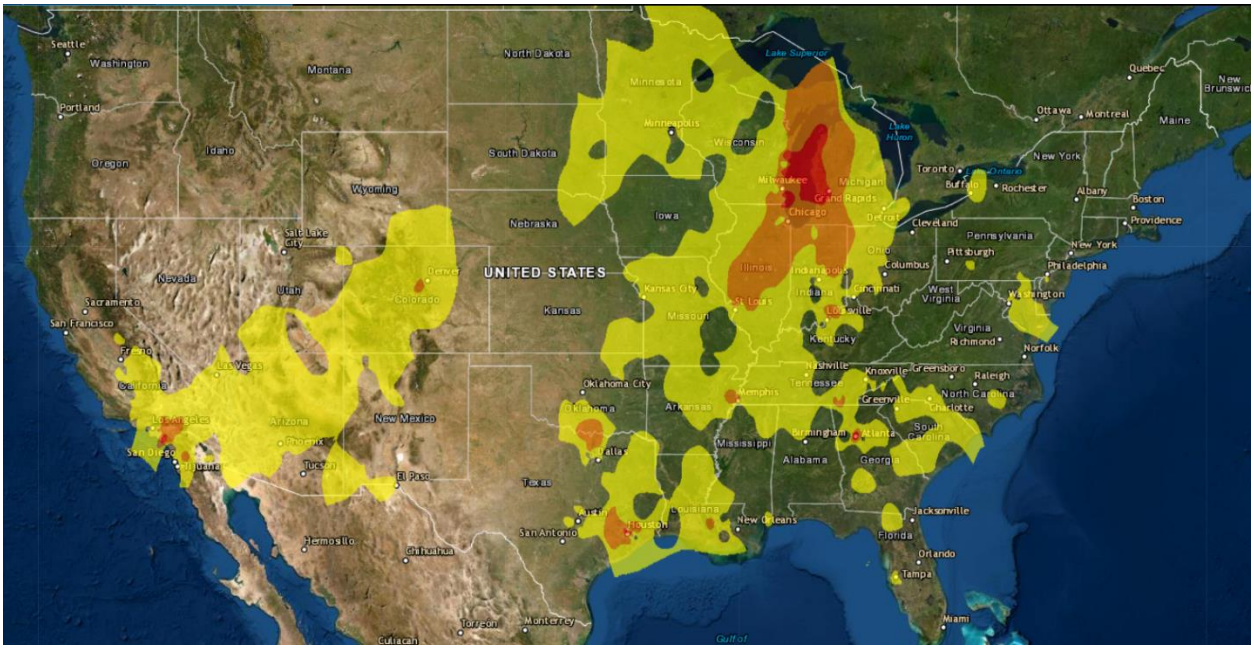


Figure 5. Air Quality Index for the United States on June 20, 2022



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 .