

Ozone National Ambient Air Quality Standard Health Exceedances on July 27, 2023

Exceedance Locations and Levels

On Thursday, July 27, 2023, 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 7/27/2023

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	51
Bayonne	56
Brigantine	38
Camden Spruce St	60
Chester	49
Clarksboro	52
Colliers Mills	56
Columbia	40
Flemington	52
Leonia	51
Millville	54
Monmouth University	56
Ramapo	41
Rider University	62
Rutgers University	62
Washington Crossing*	55
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 nonattainment areas, there were two (2) 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 7/27/2023

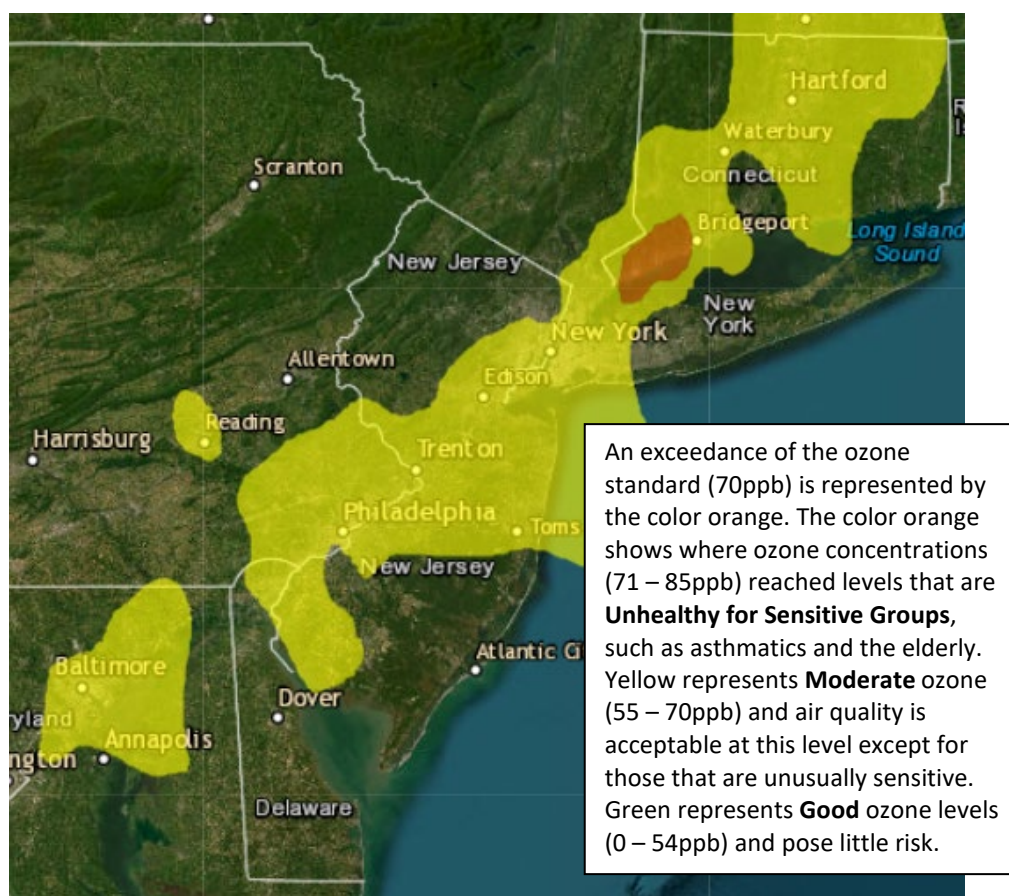
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	59
CT	Greenwich	72
CT	Madison-Beach Road	55
CT	Middletown-CVH-Shed	59
CT	New Haven	52
CT	Stratford	62
CT	Westport	74
DE	BCSP (New Castle Co.)	59
DE	BELLFNT2 (New Castle Co.)	62
DE	KILLENS (Kent Co.)	54
DE	LEWES (Sussex Co.)	52
DE	LUMS 2 (New Castle Co.)	49
DE	MLK (New Castle Co.)	61
DE	SEAFORD (Sussex Co.)	53
MD	Fair Hill	53
NY	Babylon	49
NY	Bronx - IS52	61
NY	CCNY	58
NY	Flax Pond	51
NY	Fresh Kills	No Data
NY	Holtsville	45
NY	Pfizer Lab	61
NY	Queens	66
NY	Riverhead	47
NY	Rockland Cty	49
NY	White Plains	54
PA	BRIS (Bucks Co.)	67
PA	CHES (Delaware Co.)	59
PA	NEWG (Chester Co.)	53
PA	NORR (Montgomery Co.)	57
PA	LAB (Philadelphia Co.)	54
PA	NEA (Philadelphia Co.)	66
PA	NEW (Philadelphia Co.)	64
	TOTAL EXCEEDANCES	2

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 27, 2023 NAAQS = 70 ppb
Connecticut	15
Delaware	4
Maryland	3
New Jersey	14
New York	13
Pennsylvania	10

Figure 1. Ozone Air Quality Index for July 27, 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

On Thursday July 27th, multiple USG exceedances in the northern portions of the nonattainment area occurred due to high pressure off the coast funneling in hot and humid conditions, along with a previously polluted air mass lingering over the region. With an excessive heat warning in effect, abundant sunshine dominated the area, while temperatures reached the low-to-mid 90s throughout the region, with heat indices reaching just over 100. Dew points in the low-70s aided in the development of humid conditions, which combined with the presence of lingering Canadian wildfire smoke, led to hazy conditions. Southern portions experienced breezy southwesterly winds early in the day, transporting polluted air along the I-95 corridor into the northern portions of the nonattainment area. A surface trough was noted later in the day over southwestern Connecticut, enhancing atmospheric mixing, which allowed previously polluted air to mix down to the surface, leading to exceedances in this location.

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	Westport	74
CT	Greenwich	72

Figure 2. 48-hour Back Trajectories for July 27, 2023 at 10 meters

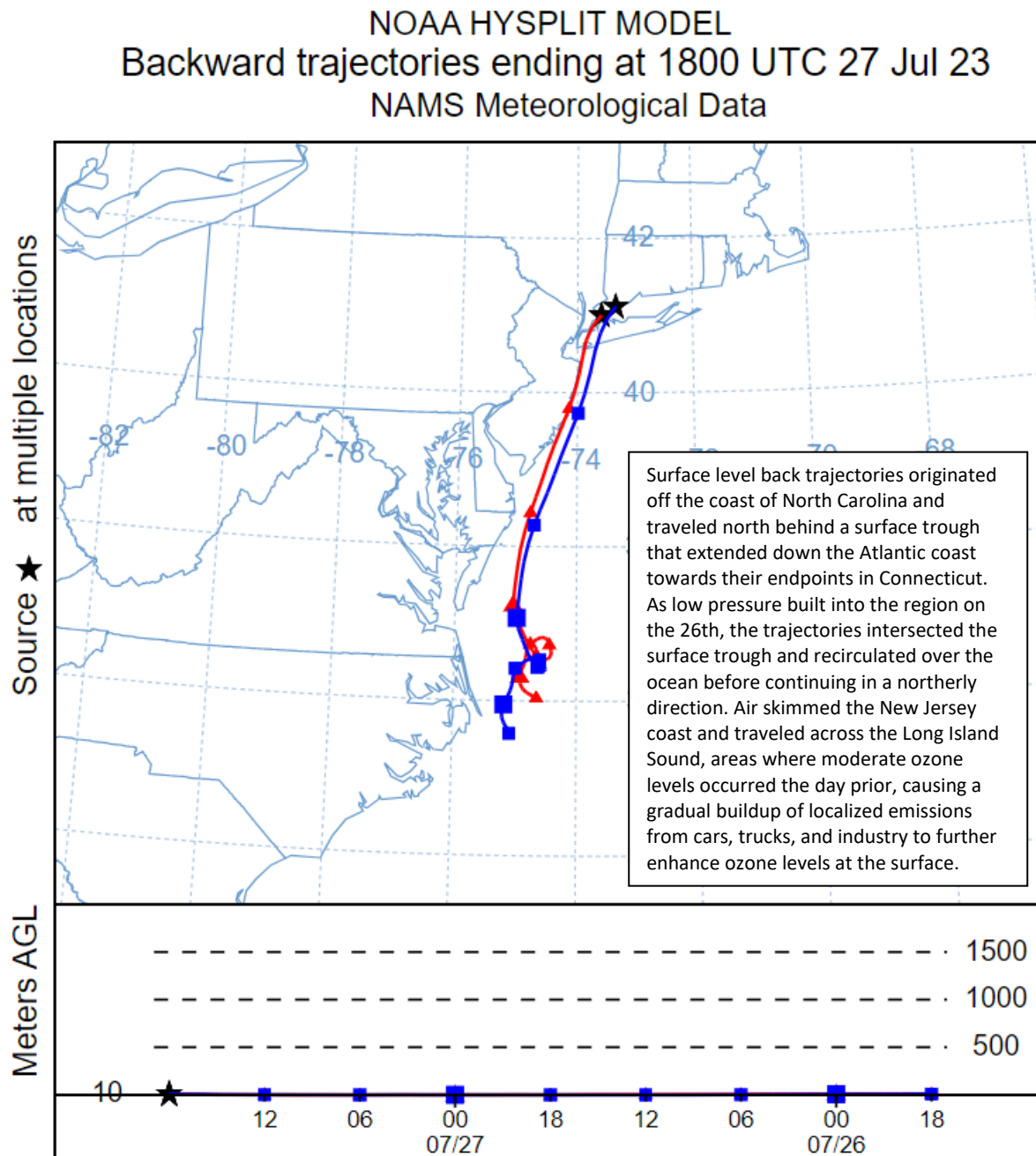


Figure 3. 48-hour Back Trajectories for July 27, 2023 at 500 meters

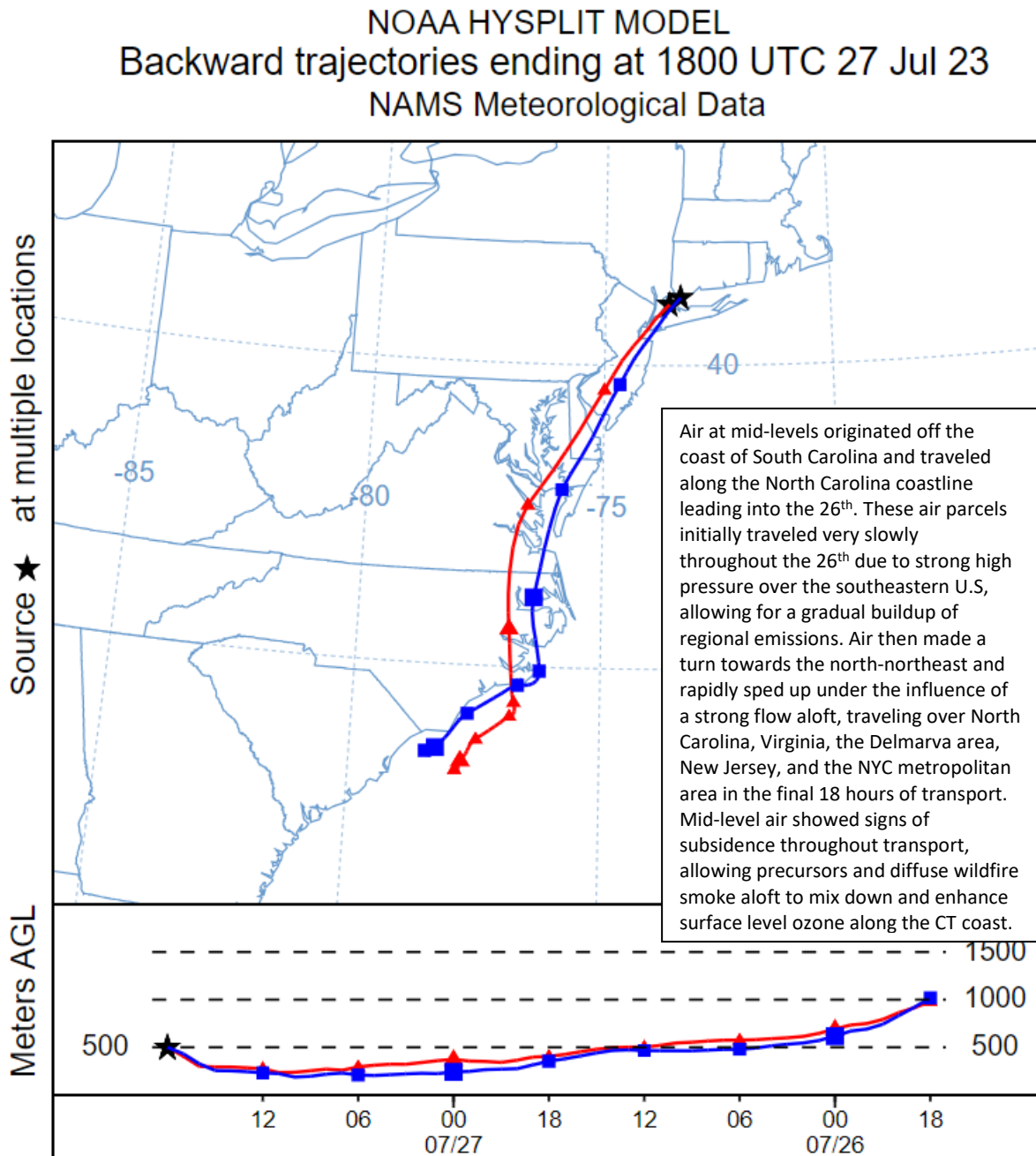


Figure 4. 48-hour Back Trajectories for July 27, 2023 at 1500 meters

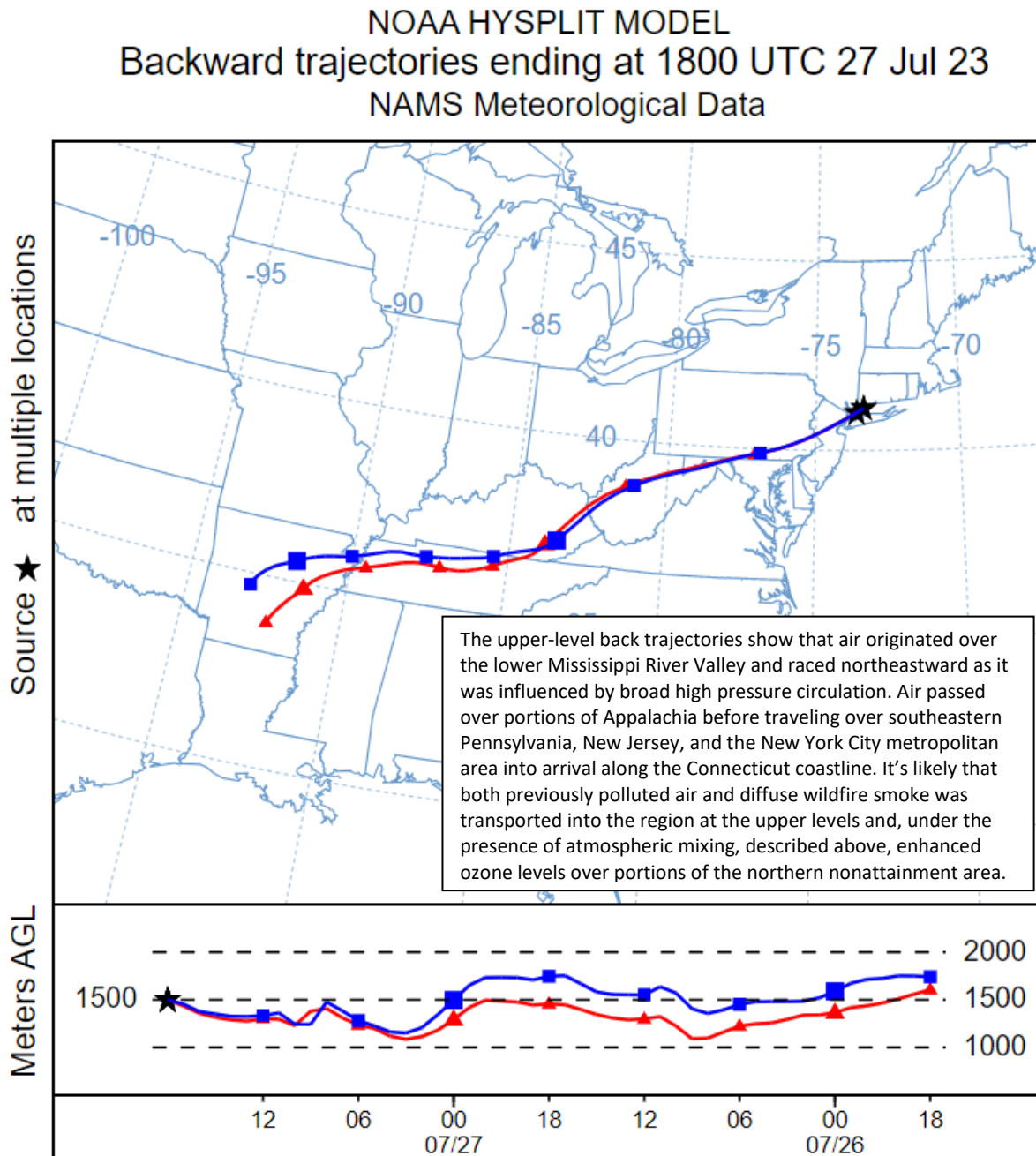
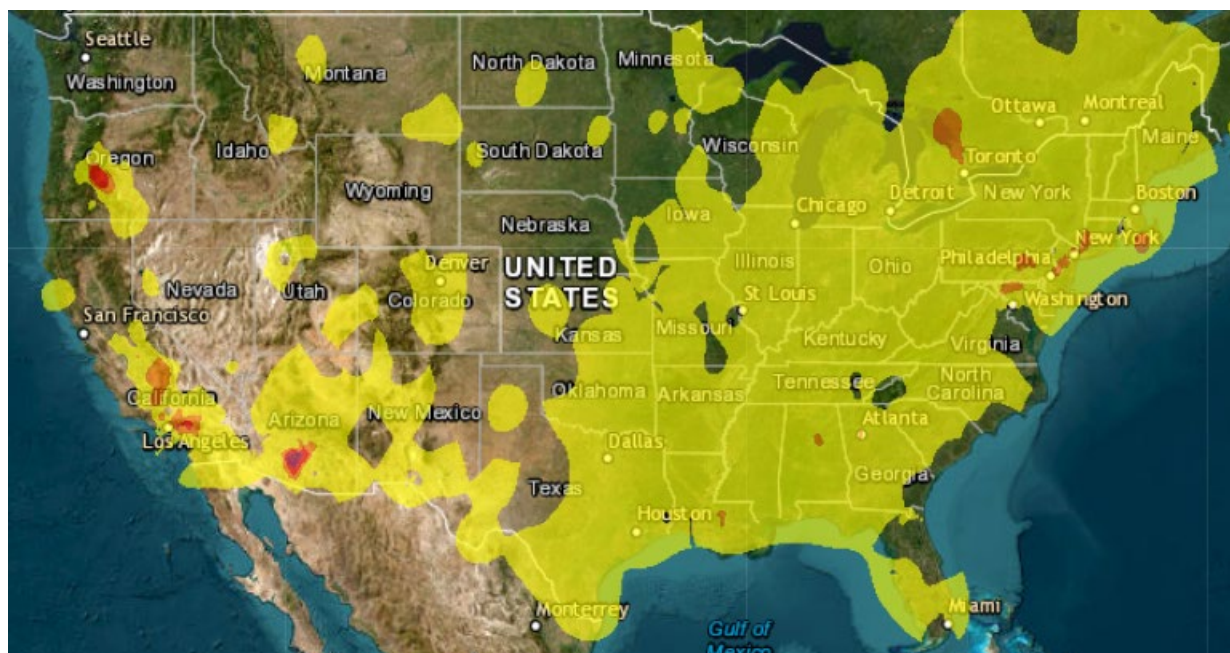


Figure 5. Air Quality Index for the United States on July 26, 2023



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 (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>.