Ozone National Ambient Air Quality Standard Health Exceedances on July 19, 2023

Exceedance Locations and Levels

On Wednesday, July 19, 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 7/19/2023

STATION	Daily Maximum 8-Hr Average (ppb)
Ancora State Hospital	41
Bayonne	56
Brigantine	46
Camden Spruce St	54
Chester	No Data
Clarksboro	47
Colliers Mills	45
Columbia	31
Flemington	52
Leonia	54
Millville	46
Monmouth University	60
Ramapo	50
Rider University	50
Rutgers University	54
Washington Crossing*	54
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 7/19/2023

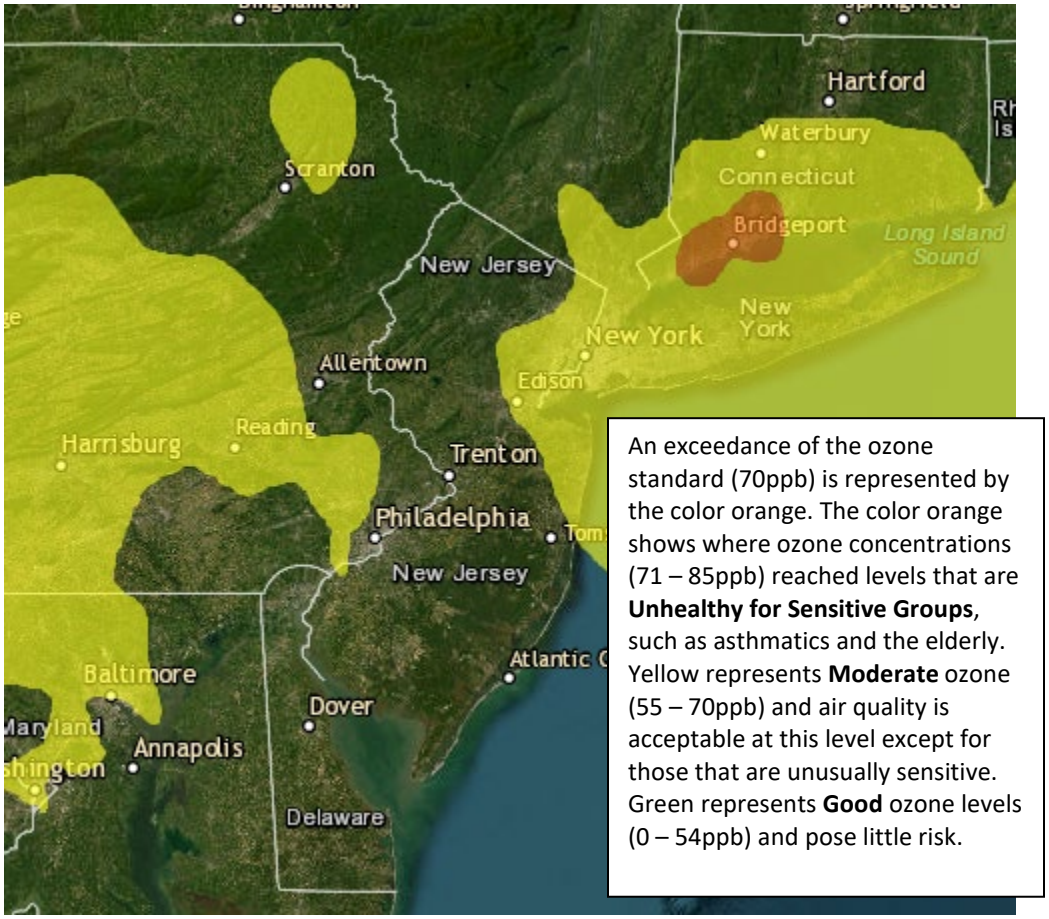
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	55
CT	Greenwich	70
CT	Madison-Beach Road	62
CT	Middletown-CVH-Shed	60
CT	New Haven	66
CT	Stratford	73
CT	Westport	74
DE	BCSP (New Castle Co.)	46
DE	BELLFNT2 (New Castle Co.)	47
DE	KILLENS (Kent Co.)	No Data
DE	LEWES (Sussex Co.)	42
DE	LUMS 2 (New Castle Co.)	50
DE	MLK (New Castle Co.)	53
DE	SEAFORD (Sussex Co.)	43
MD	Fair Hill	52
NY	Babylon	60
NY	Bronx - IS52	57
NY	CCNY	59
NY	Flax Pond	55
NY	Fresh Kills	56
NY	Holtsville	54
NY	Pfizer Lab	57
NY	Queens	61
NY	Riverhead	58
NY	Rockland Cty	55
NY	White Plains	54
PA	BRIS (Bucks Co.)	51
PA	CHES (Delaware Co.)	55
PA	NEWG (Chester Co.)	51
PA	NORR (Montgomery Co.)	59
PA	LAB (Philadelphia Co.)	48
PA	NEA (Philadelphia Co.)	53
PA	NEW (Philadelphia Co.)	51
	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 19, 2023 NAAQS = 70 ppb
Connecticut	13
Delaware	4
Maryland	3
New Jersey	12
New York	12
Pennsylvania	8

Figure 1. Ozone Air Quality Index for July 19, 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

A cold front moved through early on Wednesday, July 19th, eventually stalling over the southern region by daybreak. Low pressure also approached the area from the west, and these two surface features provided thick cloud cover and rain showers throughout the southern nonattainment area. As the morning progressed, the northern nonattainment area stayed mostly dry, but thick cloud cover overhead allowed minimal sunshine to get through. This pattern continued throughout the day, keeping ozone levels in the good and low moderate categories throughout New Jersey and the rest of the southern nonattainment area. Showers began to move into the New York City Metropolitan area in the afternoon, and rain combined with an onshore flow over New York City and Long Island likely kept ozone levels in the moderate category. As the front pushed further south in the afternoon, rain and clouds began to clear from the northern part of the region, with sunshine beginning to peak through. With southerly winds blowing ozone precursors onto the Connecticut coast, breaks in cloud cover in the afternoon, and possible enhancement from lingering wildfire smoke, ozone levels were able to rise considerably in this area, causing levels in Stratford and Westport to reach the unhealthy for sensitive groups category.

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	Stratford	73
CT	Westport	74

Figure 2. 48-hour Back Trajectories for July 19, 2023 at 10 meters

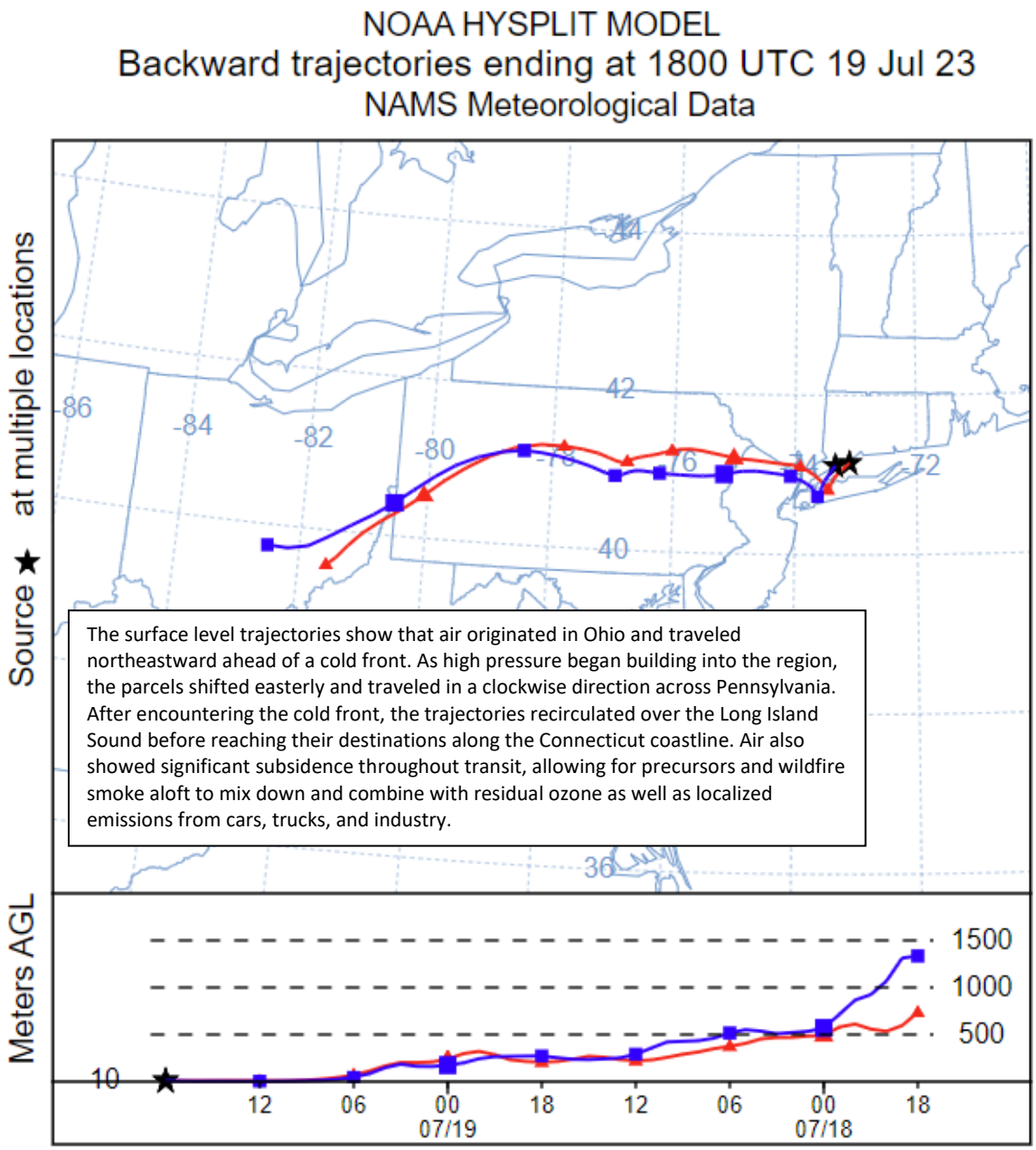


Figure 3. 48-hour Back Trajectories for July 19, 2023 at 500 meters

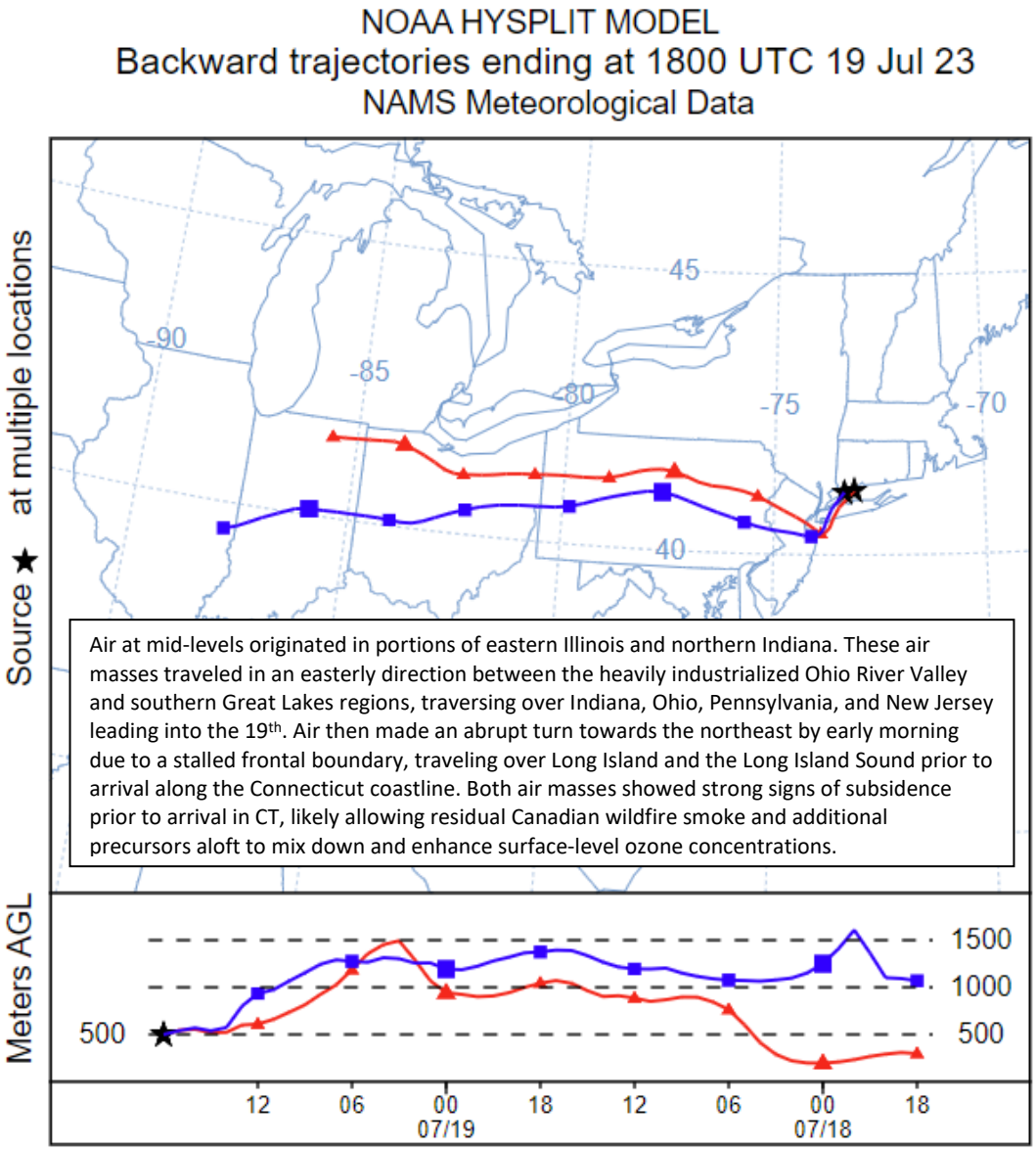


Figure 4. 48-hour Back Trajectories for July 19, 2023 at 1500 meters

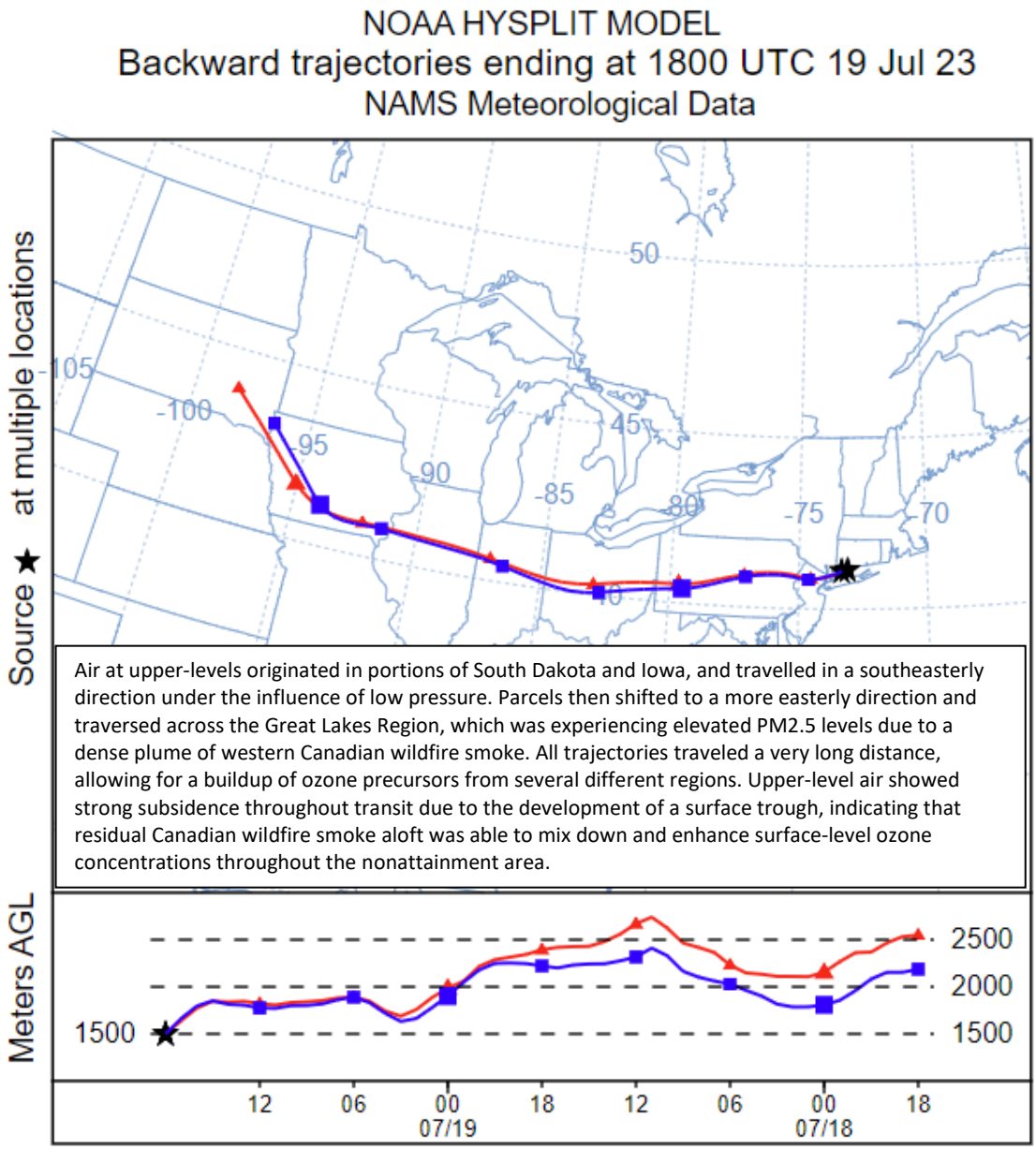
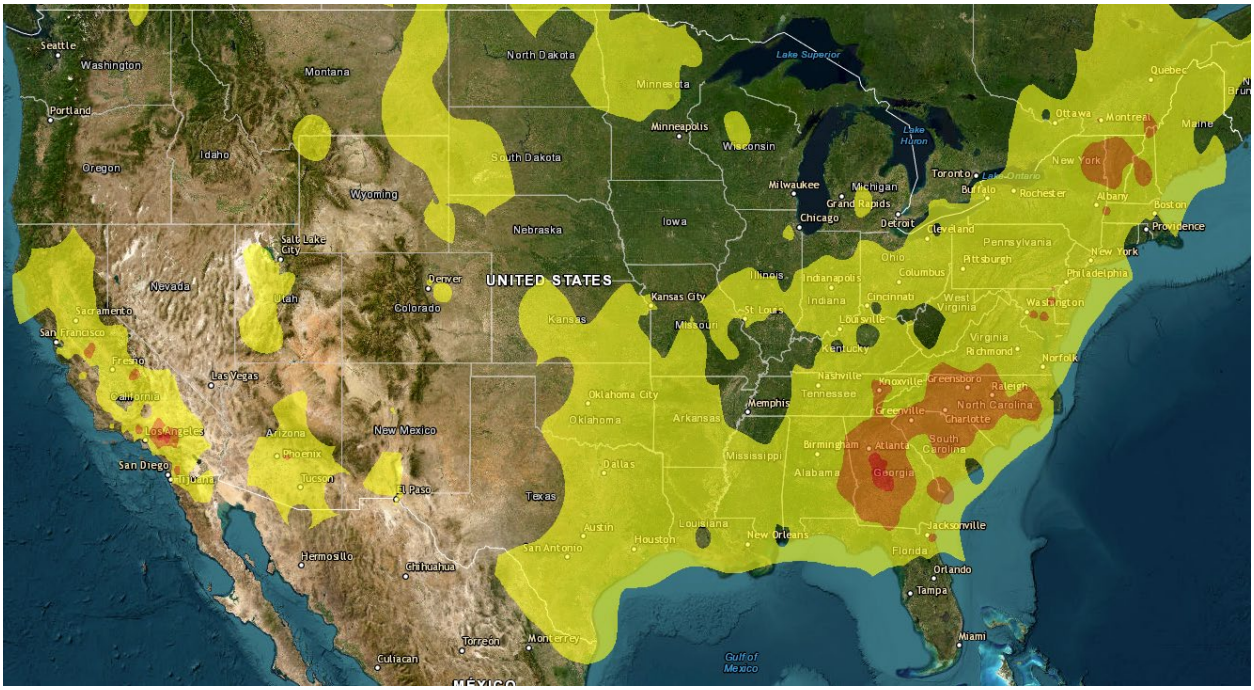


Figure 5. Air Quality Index for the United States on July 18, 2023



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 .