Ozone National Ambient Air Quality Standard Health Exceedances on June 5 & June 6, 2025

Exceedance Locations and Levels

On Thursday, June 5, 2025, there were two (2) exceedances in New Jersey of the National Ambient Air Quality Standard (NAAQS) and on Friday, June 6, 2025, there was one (1) exceedance of the NAAQS for ozone (daily maximum 8-hour average of 70 ppb). See Table 1.

Table 1. New Jersey Ozone Concentrations on 6/5/2025 and 6/6/2025

	Site	8-Hr Maximum Average (ppb) 6/5/2025	8-Hr Maximum Average (ppb) 6/6/2025
1	Ancora	53	45
2	Bayonne	66	51
3	Brigantine	37	29
4	Chester	67	58
5	Clarksboro	55	43
6	Colliers Mills	55	51
7	Columbia	67	58
8	Flemington	70	56
9	Leonia	73	67
10	Millville	50	39
11	Monmouth University	48	43
12	Ramapo	70	72
13	Rider University	70	62
14	Rutgers University	62	57
15	South Camden	47	44
16	Washington Crossing*	73	60

*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 was nine (9) exceedances of the ozone NAAQS at Danbury, Greenwich, Madison, Middletown, Stratford, and Westport, CT; CCNY, Rockland City, and White Plains, NY on Thursday, June 5, 2025 and two (2) exceedances of the ozone NAAQS at Danbury, CT; Rockland City, NY. on Friday, June 6, 2025. See Table 2.

Table 2. Ozone Concentrations at Out-of-State Monitoring Stations in New Jersey's Ozone Nonattainment Areas on 6/5/2025 and 6/6/2025

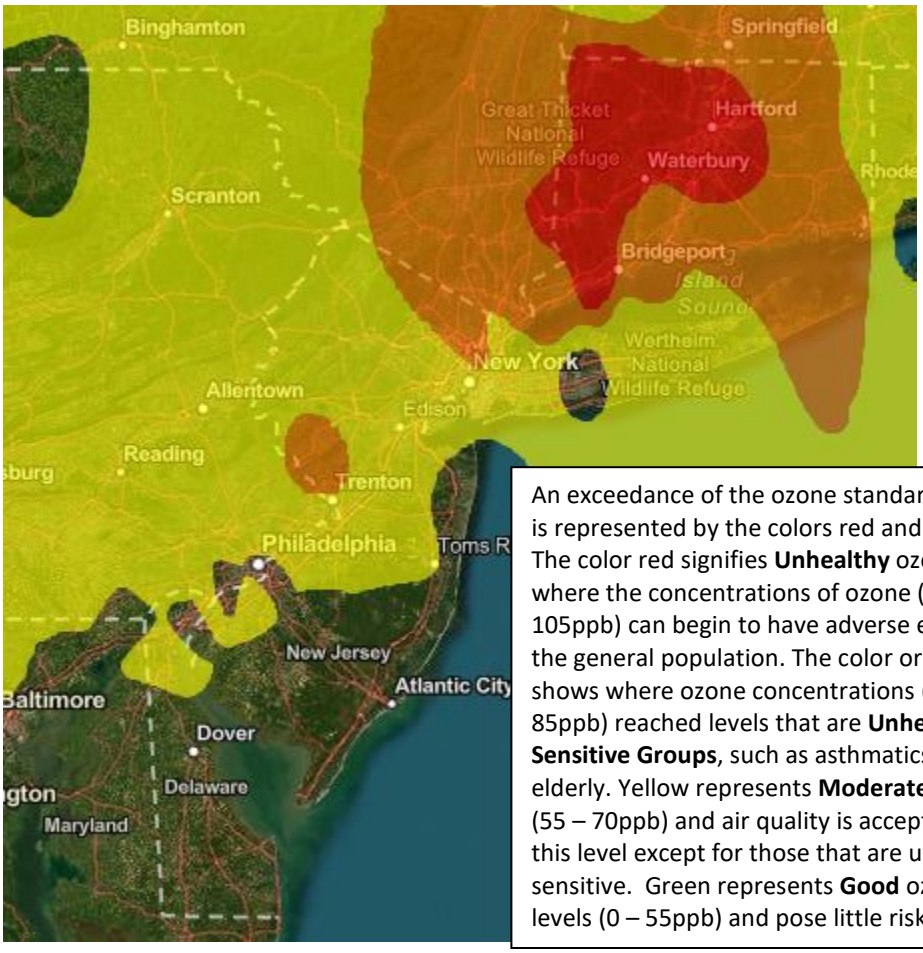
STATE	STATION	Daily Maximum 8-Hr Average (ppb) 6/5/2025	Daily Maximum 8-Hr Average (ppb) 6/6/2025
CT	Danbury	92	76
CT	Greenwich	76	63
CT	Madison-Beach Road	79	57
CT	Middletown-CVH-Shed	86	70
CT	New Haven	54	66
CT	Stratford	83	63
CT	Westport	90	65
DE	BCSP (New Castle Co.)	57	51
DE	BELLFNT2 (New Castle Co.)	56	ND
DE	KILLENS (Kent Co.)	49	37
DE	LEWES (Sussex Co.)	45	46
DE	LUMS 2 (New Castle Co.)	56	44
DE	MLK (New Castle Co.)	51	44
DE	SEAFORD (Sussex Co.)	47	35
MD	Fair Hill	53	42
NY	Babylon	53	45
NY	Bronx - IS52	67	58
NY	CCNY	72	61
NY	Flax Pond	67	44
NY	Fresh Kills	68	48
NY	Holtsville	56	48
NY	Pfizer Lab	66	63
NY	Queens	57	51
NY	Riverhead	65	52
NY	Rockland Cty	77	76
NY	White Plains	81	69
PA	BRIS (Bucks Co.)	64	59
PA	CHES (Delaware Co.)	53	44
PA	NEWG (Chester Co.)	55	44
PA	NORR (Montgomery Co.)	60	57
PA	LAB (Philadelphia Co.)	61	52
PA	NEA (Philadelphia Co.)	59	53
PA	NEW (Philadelphia Co.)	62	58
	TOTAL EXCEEDANCES	9	2

The number of days in 2025 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 2025.

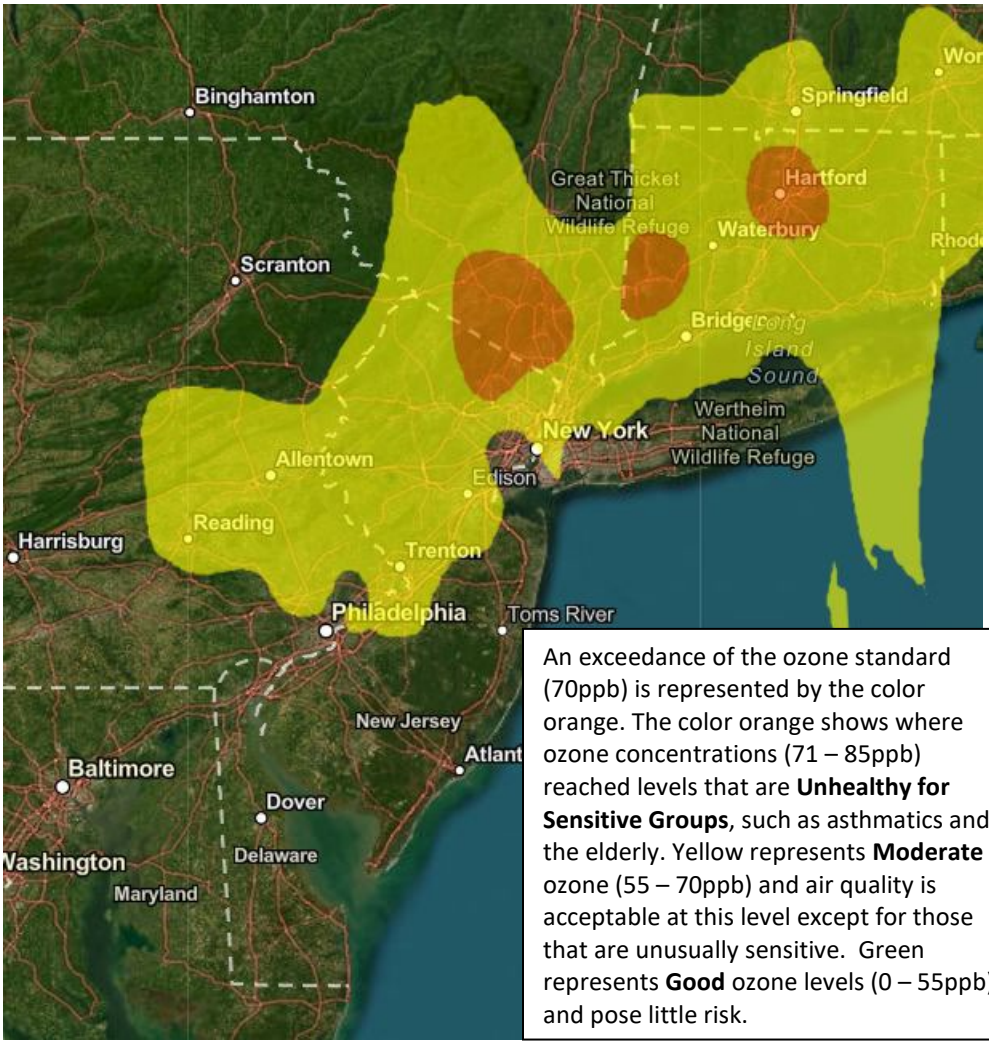
STATE	# of Days NAAQS was Exceeded January 1 – June, 2025 NAAQS = 70 ppb
Connecticut	5
Delaware	0
Maryland	0
New Jersey	3
New York	3
Pennsylvania	2

Figure 1. Ozone Air Quality Index for June 5, 2025



An exceedance of the ozone standard (70ppb) is represented by the colors red and orange. The color red signifies **Unhealthy** ozone levels where the concentrations of ozone (86 – 105ppb) can begin to have adverse effects on the general population. The color orange shows where ozone concentrations (71 – 85ppb) reached levels that are **Unhealthy for Sensitive Groups**, such as asthmatics and the elderly. Yellow represents **Moderate** ozone (55 – 70ppb) and air quality is acceptable at this level except for those that are unusually sensitive. Green represents **Good** ozone levels (0 – 55ppb) and pose little risk.

Figure 2. Ozone Air Quality Index for June 6, 2025



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 June 5th and Friday, June 6th, there were multiple ozone exceedances observed throughout the nonattainment area as a previously polluted air mass lingered over the region, marking the second and third day of a three-day exceedance event. On Thursday, June 5th, the region remained under the influence of high pressure centered offshore, bringing abundant sunshine and keeping winds out of the southwest. Temperatures were above normal, with observations in the high 80s throughout most of the nonattainment area. Canadian wildfire smoke also continued to linger in the area, potentially enhancing ozone concentrations. These conditions created a favorable environment for ozone formation, allowing multiple areas in northern New Jersey, the lower Hudson Valley, and coastal Connecticut to reach the Unhealthy for Sensitive Groups (USG) category on Thursday.

By, Friday, June 6th, a cold front began to advance from the northwest before eventually stalling across central Connecticut, the lower Hudsen Valley, and central Pennsylvania. The front slowly meandered throughout this region during the day as a weak coastal low pressure system to the south stalled any forward progress. As a result, winds continued to remain light and variable, and temperatures remained hot. Mostly sunny skies were observed throughout the nonattainment area, with the exception of southern New Jersey and Delaware, where scattered showers began to pop up along with increasing cloud cover, possibly suppressing ozone formation in these areas. These conditions, along with the presence of lingering wildfire smoke, created a favorable environment for ozone formation and resulted in exceedances in New Jersey, New York, and Connecticut.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 3, 4, and 5 show the back trajectories of different wind heights for the monitored exceedance(s) on these days. The figures illustrate where the air came from during the 72 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 days (Figure 6 & 7). 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 72-hr Back Trajectories

STATE	DATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	6/5, 6/6	Danbury	92, 76
CT	6/5	Greenwich	76
CT	6/5	Madison-Beach Road	79
CT	6/5	Stratford	83
NJ	6/5	Leonia	73
NJ	6/5	Washington Crossing	73
NJ	6/6	Ramapo	72
NY	6/5	CCNY	72
NY	6/5, 6/6	Rockland Cty	77, 76
NY	6/5	White Plains	81

Figure 3. 72-hour Back Trajectories for June 6, 2025 at 10 meters

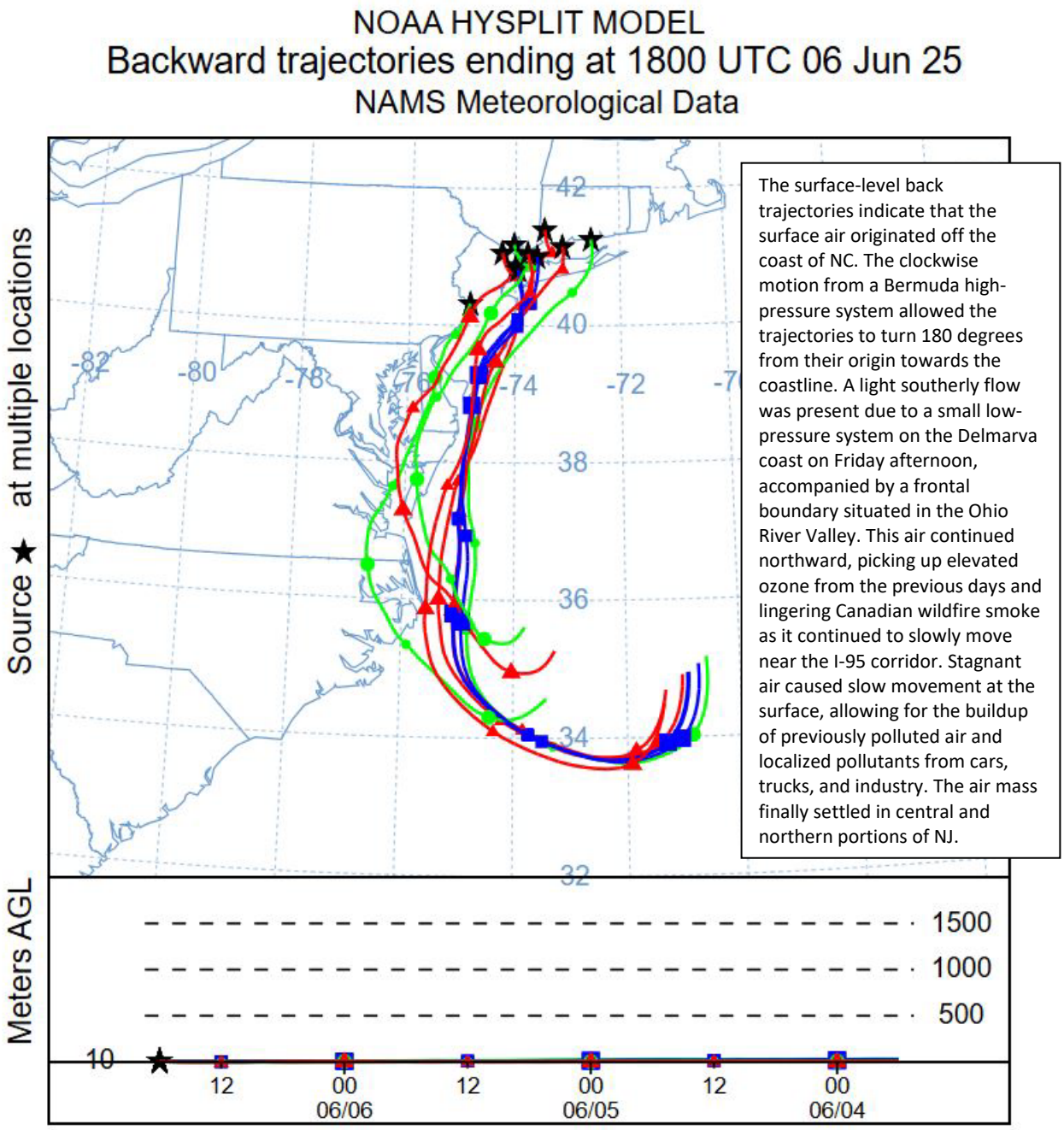
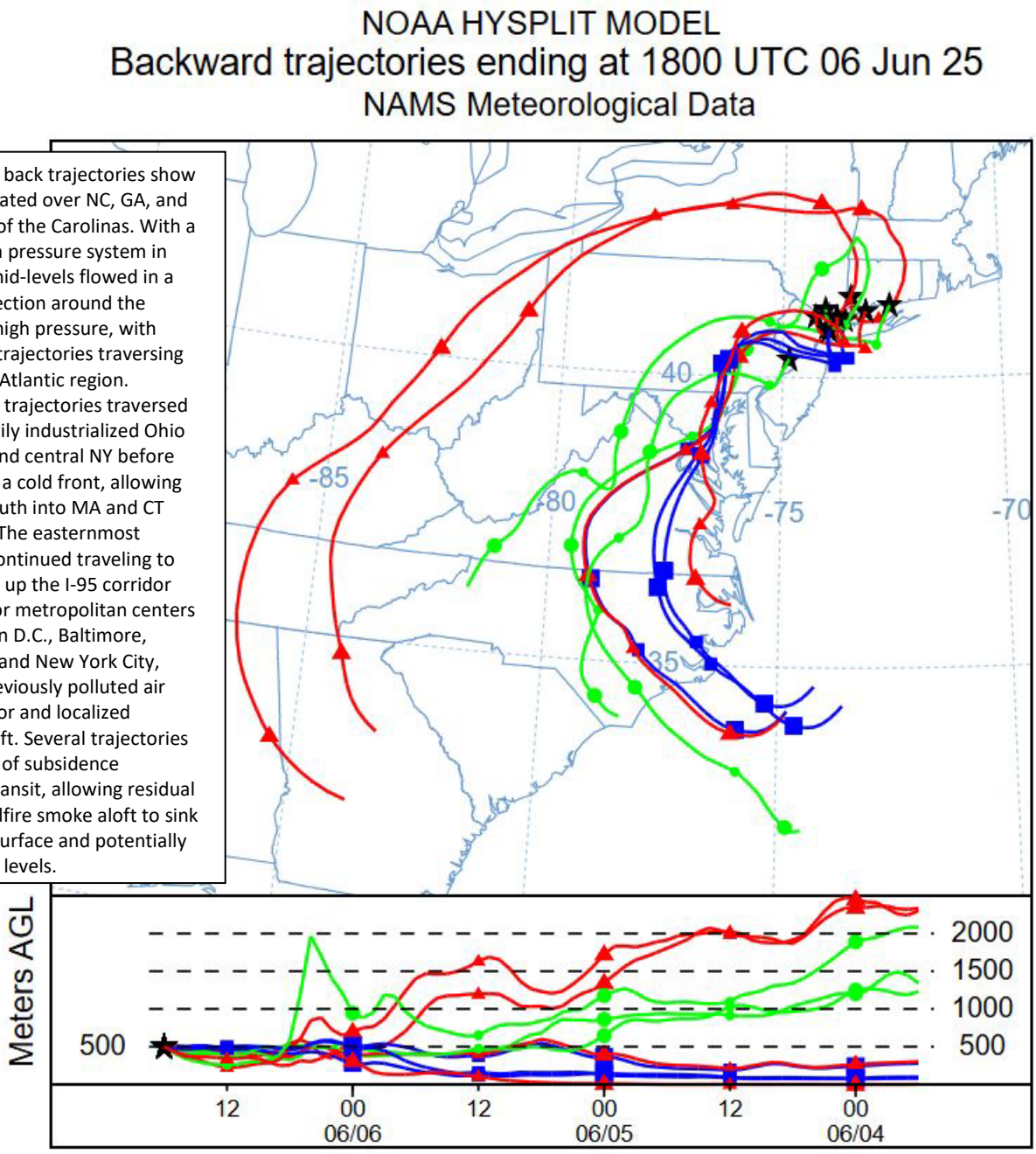


Figure 4. 72-hour Back Trajectories for June 6, 2025 at 500 meters



The mid-level back trajectories show that air originated over NC, GA, and off the coast of the Carolinas. With a Bermuda high pressure system in place, air at mid-levels flowed in a clockwise direction around the periphery of high pressure, with easternmost trajectories traversing over the mid-Atlantic region. Westernmost trajectories traversed over the heavily industrialized Ohio River Valley and central NY before encountering a cold front, allowing air to push south into MA and CT upon arrival. The easternmost trajectories continued traveling to the northeast up the I-95 corridor over the major metropolitan centers of Washington D.C., Baltimore, Philadelphia, and New York City, picking up previously polluted air from days prior and localized pollutants aloft. Several trajectories showed signs of subsidence throughout transit, allowing residual Canadian wildfire smoke aloft to sink towards the surface and potentially impact ozone levels.

Figure 5. 72-hour Back Trajectories for June 6, 2025 at 1500 meters

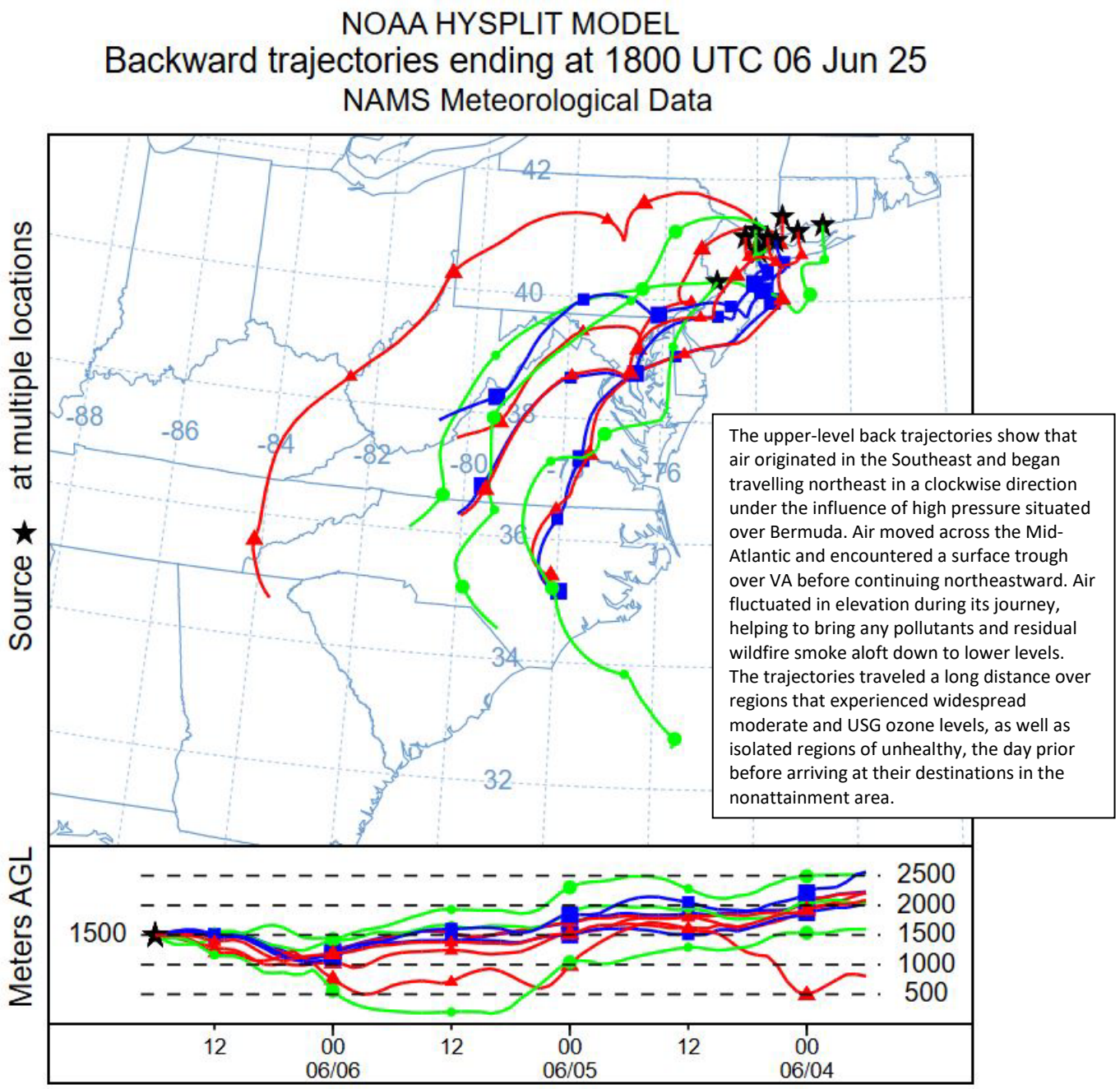


Figure 6. Air Quality Index for the United States on June 4, 2025

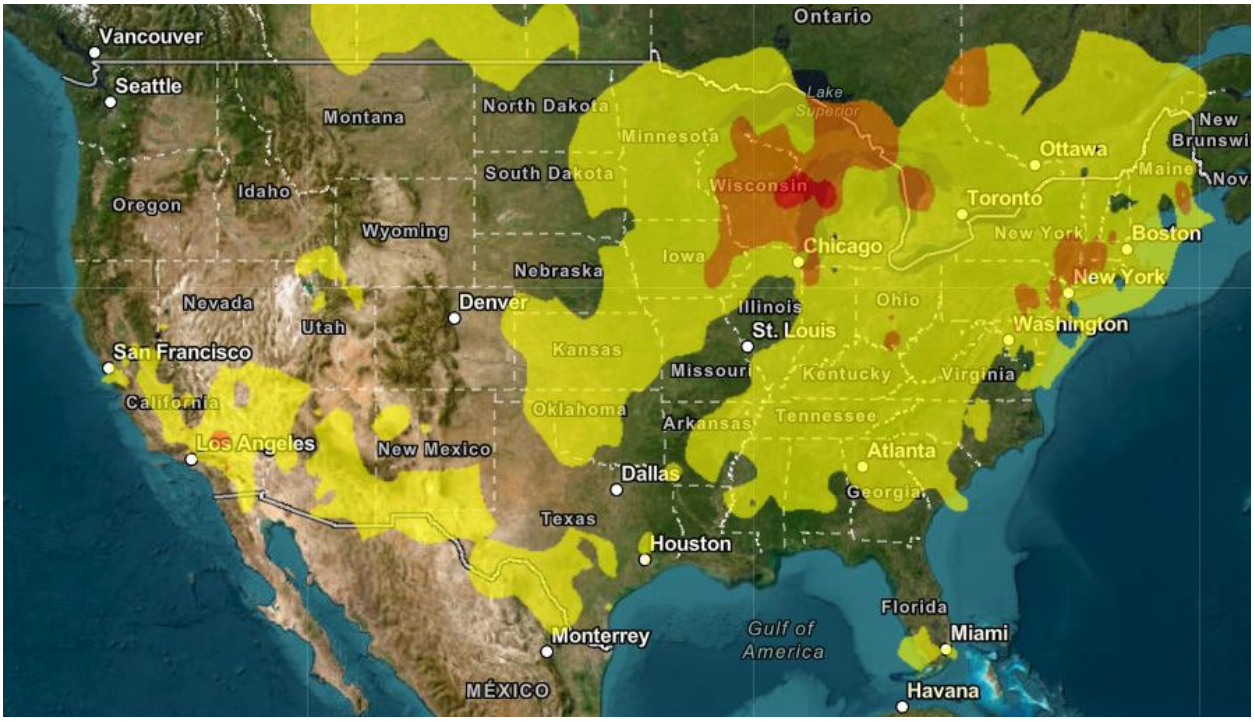
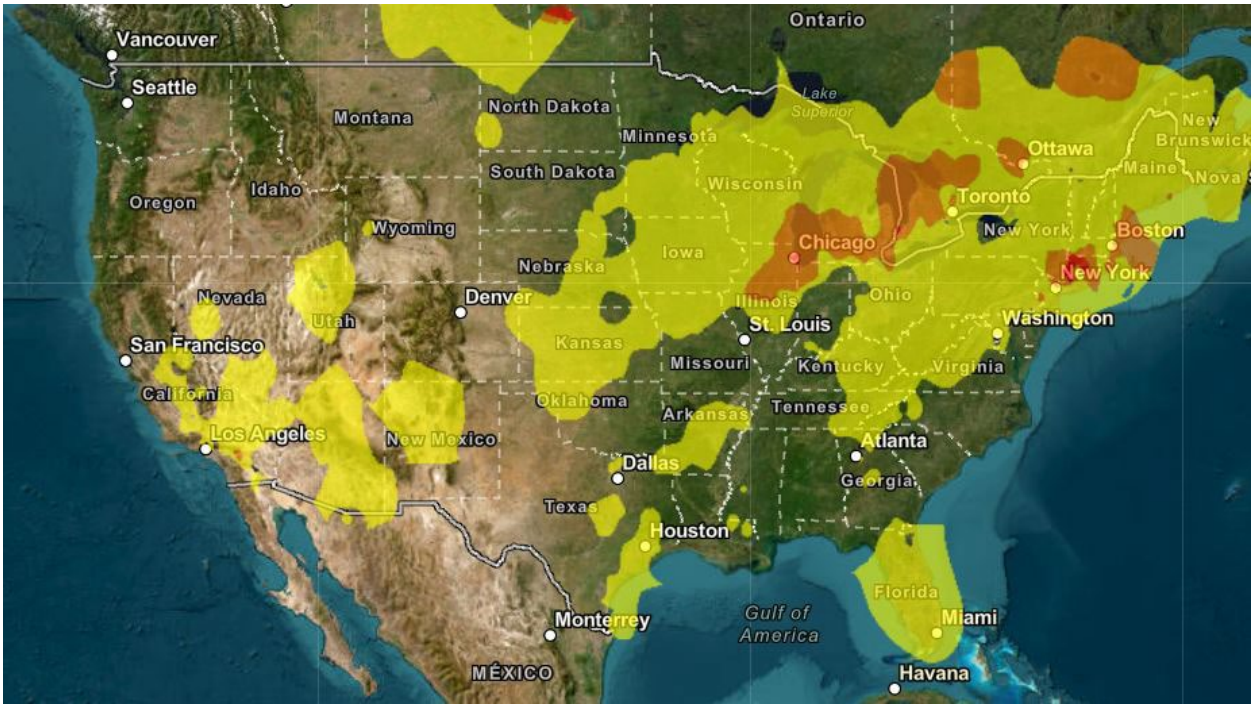


Figure 7. Air Quality Index for the United States on June 5, 2025



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://dep.nj.gov/airplanning/aqi-today/.