Ozone National Ambient Air Quality Standard Health Exceedances on July 25, 2016

Exceedance Locations and Levels

On Monday, July 25, 2016, there was one (1) exceedance in New Jersey of the new 8-hour average ozone NAAQS of 70 ppb that became effective in December 2015 (see Table 1):

Table 1: Ozone NAAQS Exceedances in New Jersey on July 25, 2016

STATION	Daily Maximum 8-Hr Average (ppb)
Camden Spruce St	71

The highest 1-hour average ozone concentration recorded on July 25, 2016, in New Jersey was 95 ppb at the Leonia station, which is below the 1-hour ozone NAAQS of 120 ppb.

Monday marks the 18th day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 25th of July in 2015, there were a total of eight (8) days on which ozone exceedances were measured in New Jersey (based on the former 75 ppb NAAQS of 2008), and there were two (2) days by this same date in 2014.

There is a group of monitoring stations in designated counties of five (5) states, New York, Connecticut, Pennsylvania, Delaware and Maryland, that are included in New Jersey's ozone nonattainment areas. From this group of stations in the neighboring states, there was one (1) exceedance of the new 8-hour ozone NAAQS of 70 ppb recorded on Monday, July 25, 2016 (see Table 2):

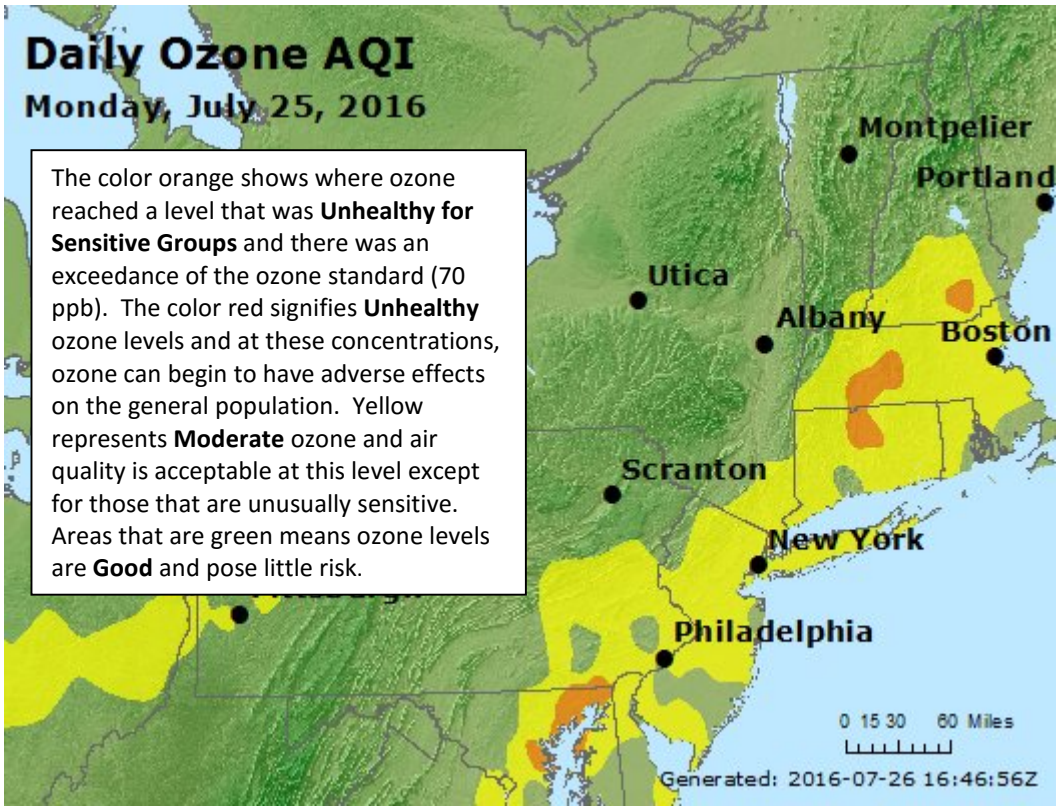
Table 2: Ozone NAAQS Exceedances at Other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on July 25, 2016

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
MD	Fair Hill	74

The highest 1-hour average ozone concentration recorded was 123 ppb at the White Plains station in New York state, which is below the 1-hour ozone NAAQS of 120 ppb (the data rounding convention for the 1-hour ozone NAAQS is concentrations of 125 ppb and higher are exceedances, while concentrations of 124 ppb and lower are not exceedances).

Friday marks the 6th day in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in Maryland. The number of days remains at nineteen (19) for Connecticut, fifteen (15) for New York, ten (10) for Pennsylvania, and six (6) for Delaware.

Figure 1. Ozone Air Quality Index for July 25, 2016



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

Meteorological data from across the region showed temperatures reached into the mid to upper 90°F, while winds were from the southwest. High pressure systems over the eastern seaboard and Smokey Mountains resulted in partly sunny skies across the region. In addition, a low pressure surface trough was in place just west of the I-95 corridor from Maryland to New York, which provided afternoon clouds, showers, and thunderstorms. These clouds and showers kept ozone levels in the moderate range across most of the region. The isolated ozone exceedances occurred where the sunshine lasted the longest.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 2, 3, and 4 show the back trajectories at different wind heights for the monitored exceedances on July 25, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event. The two (2) monitoring stations were chosen to run back trajectories. The selected sites and the maximum 8-hr ozone levels recorded are listed in Table 3 below.

Table 3. Monitoring Stations with 8-hr Ozone Exceedances that Were Selected to Run 48-hr Back Trajectories

Agency	Site Name	Maximum 8-hr Ozone Conc. (ppb)
MD	Fairhill	74
NJ	Camden Spruce St.	71

The low level winds (Figure 2) circulated over Maryland and New Jersey. These winds picked up local air contaminant emissions generated by cars, trucks, and industry.

Mid-level wind (Figure 3) originating in the Ohio River valley traveled across Ohio and Pennsylvania to the Camden monitor. Mid-level winds originating over West Virginia circulated through Virginia and traveled across Maryland to the Fairhill monitor. These winds mixed with local emissions from cars, trucks, and industry.

Higher level wind (Figure 4) traveled from the Midwest across Ohio, Pennsylvania, and Maryland bringing emissions from large industrial sources and power plants to the exceedance monitors. The higher level winds, in combination with the low and mid-level winds, caused air pollution from a variety of mobile and stationary sources to be transported to the exceedance monitors.

Figure 2. 48-hour Back Trajectories for July 25, 2016 at 10 meters

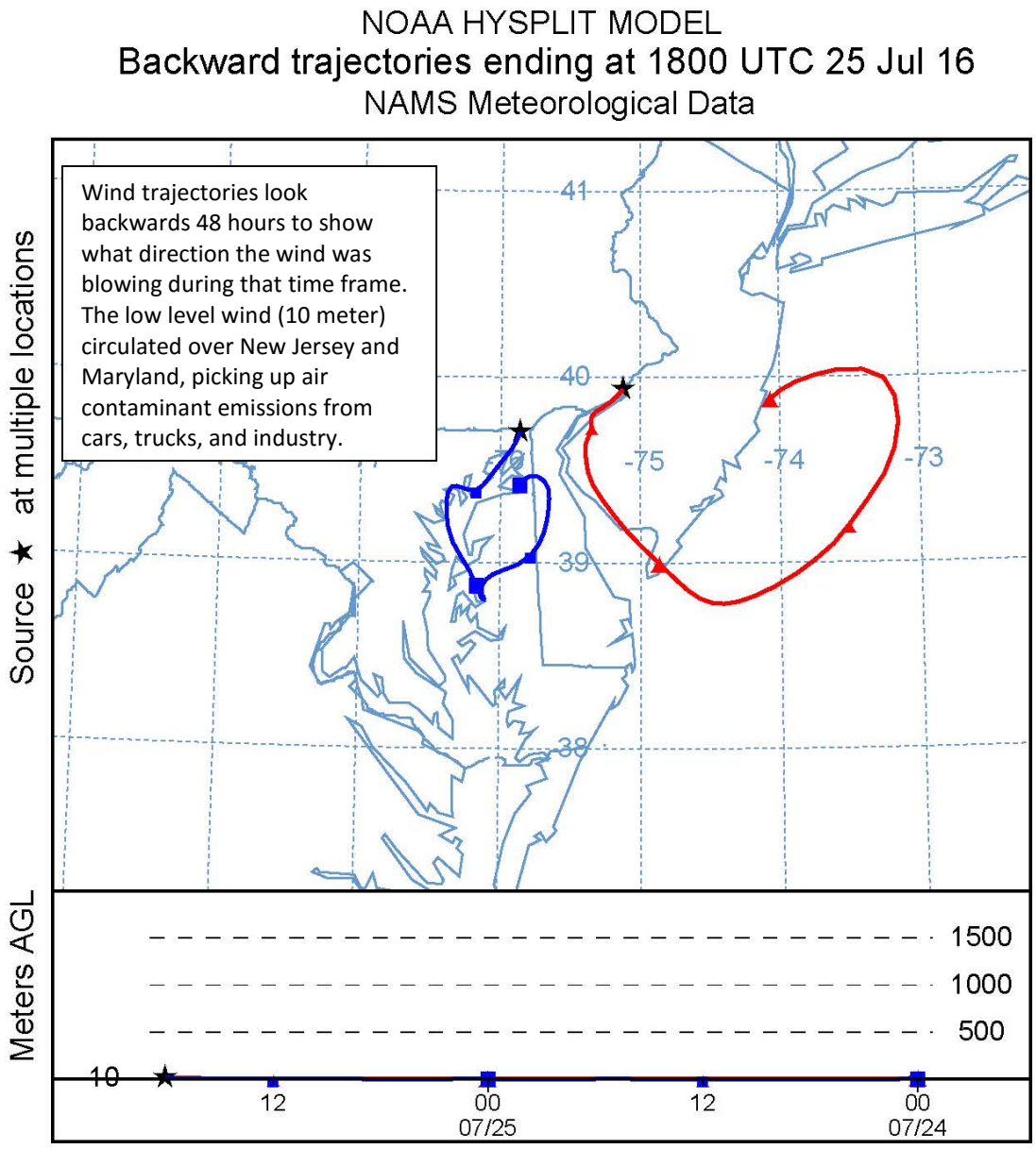


Figure 3. 48-hour Back Trajectories for July 25, 2016 at 500 meters

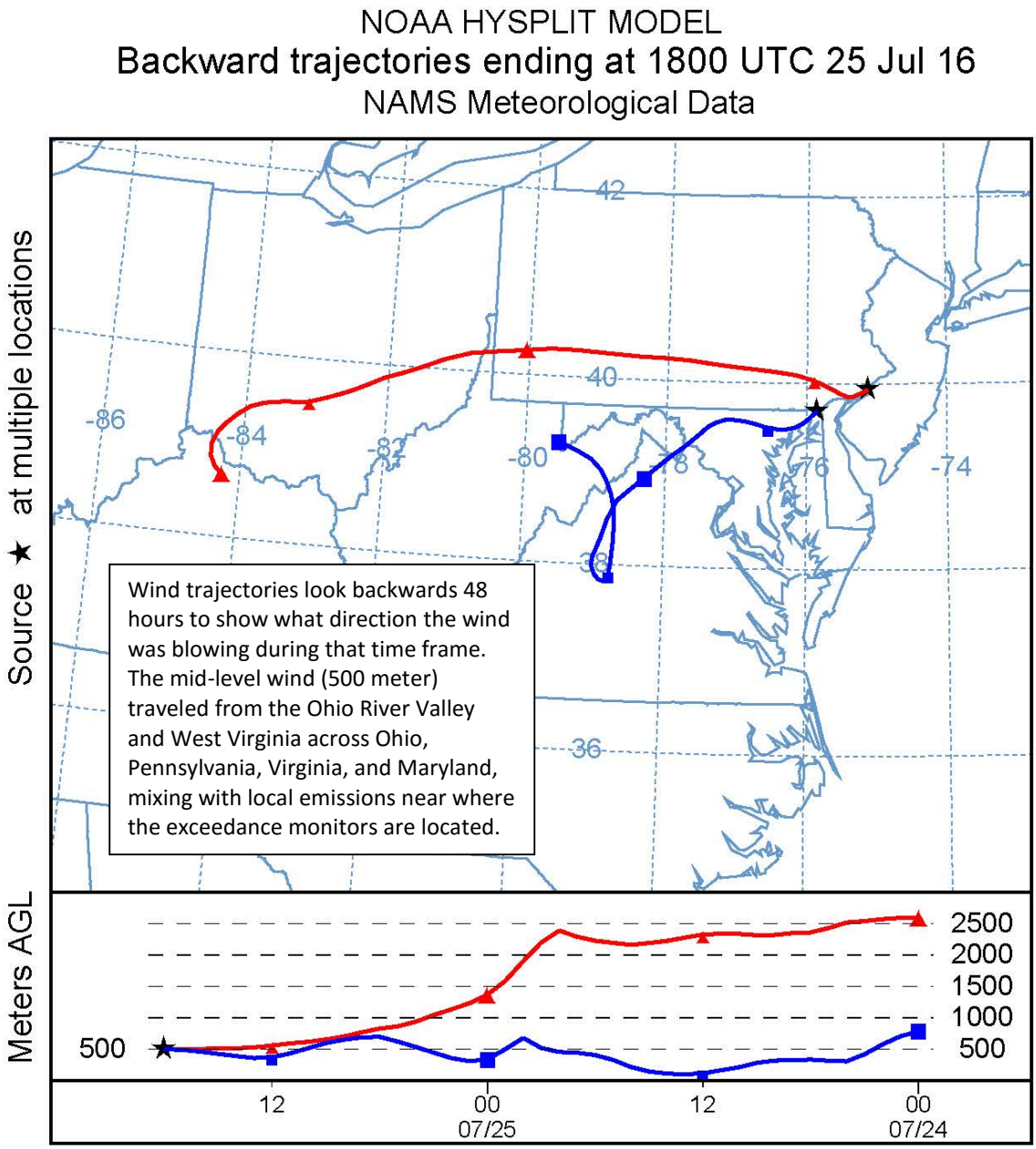
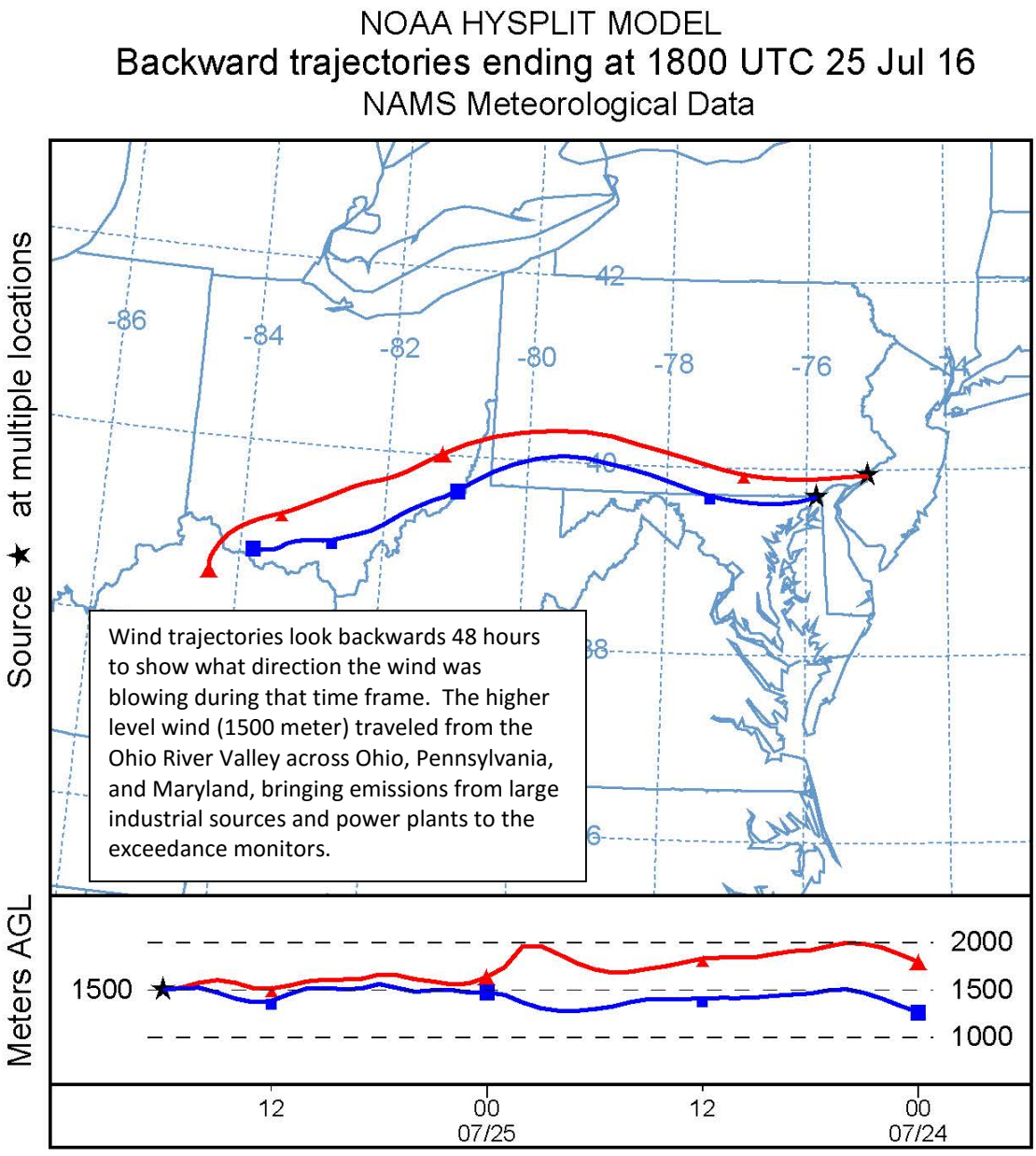


Figure 4. 48-hour Back Trajectories for July 25, 2016 at 1500 meters



How is Smog Created?

Ground-level ozone, also known as smog, is an air pollutant known to cause a number of health effects and negatively impact air quality and the environment in the state of New Jersey. Smog is formed when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight. Smog can irritate any set of lungs, but those with lung-related deficiencies should take extra precautions on bad ozone days.

Find Out About Air Quality Every Day

The "What's Your Air Quality Today?" page at http://www.nj.gov/dep/cleanairnj/ tells you how to sign up to receive notifications and find out when your local air has reached unhealthy ozone levels.