Ozone National Ambient Air Quality Standard Health Exceedances on July 8, 2016

Exceedance Locations and Levels

On Friday, July 8, 2016, there were two (2) exceedances 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 8, 2016

STATION	Daily Maximum 8-Hr Average (ppb)
Camden Spruce St	74
Clarksboro	76

The highest 1-hour average ozone concentration recorded on July 8, 2016 in New Jersey was 89 ppb at the Camden Spruce Street station, which is below the 1-hour ozone NAAQS of 120 ppb.

Friday marks the 14th day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 8th of July in 2015, there were a total of six (6) 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 other neighboring states, there was one (1) exceedance of the new 8-hour ozone NAAQS of 70 ppb recorded on Wednesday, July 8, 2016 (See Table 2):

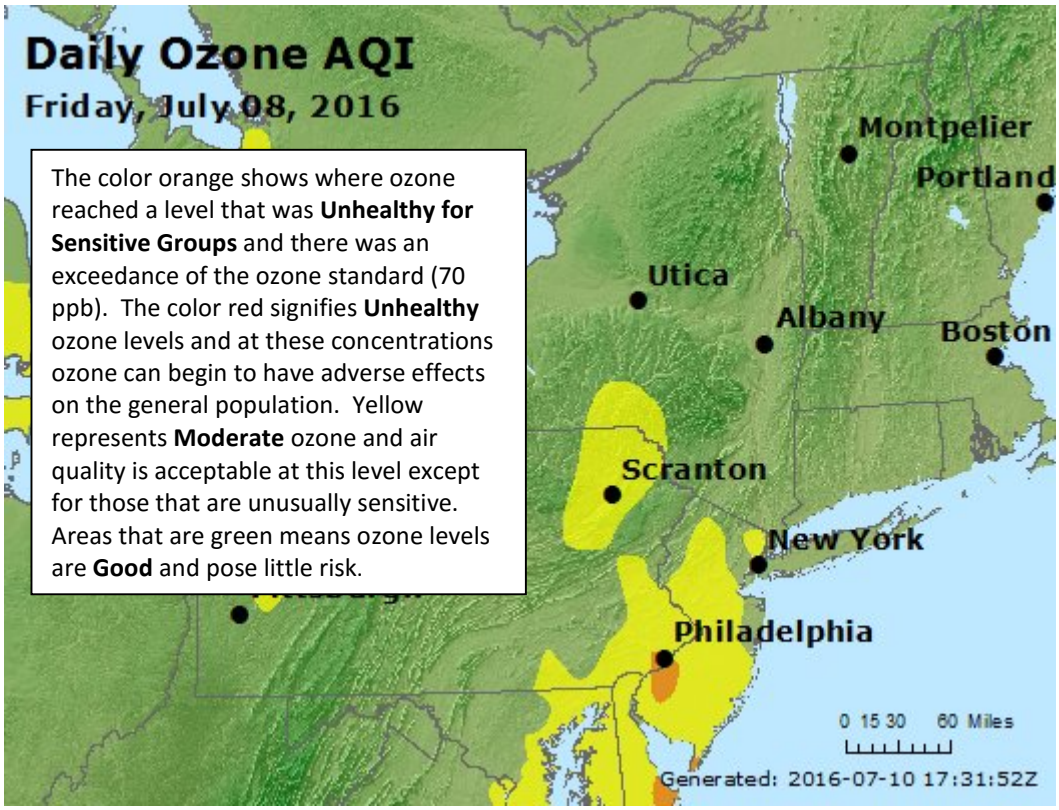
Table 2: Ozone NAAQS Exceedances at Other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on July 8, 2016

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
DE	LEWES (Sussex Co.)	77

The highest 1-hour average ozone concentration recorded was 85 ppb at the Lewes station in Delaware, which is below the 1-hour ozone NAAQS of 120 ppb.

Friday marks the 5th day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in Delaware. The number of days for Connecticut remains at thirteen (13), eleven (11) days for New York, eight (8) days for Pennsylvania, and four (4) days for Maryland.

Figure 1. Ozone Air Quality Index for July 8, 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 80°F's, while winds were light and generally from the southwest at the monitor locations that recorded ozone exceedances. A back-door cold front was located across central New Jersey moving south during the day bringing cooler air, clouds, and showers to northern New Jersey. Adequate sunlight, warm temperatures and light southwest winds, are all meteorological conditions commonly seen with an ozone exceedance.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 2, 3, and 4 show the back trajectories at different wind heights for selected monitored exceedances on July 8, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event. Three (3) monitoring stations were chosen to run back trajectories, based on the 8-hour ozone concentrations recorded and their location. The 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 Run for 48-hr Back Trajectories

Agency	Site Name	Maximum 8-hr Ozone Conc. (ppb)
DE	LEWES (Sussex Co.)	77
NJ	Camden (Spruce St.)	74
NJ	Clarksboro	76

The low level wind (Figure 2) traveled across Pennsylvania and Maryland from the Ohio River Valley, picking up air contaminant emissions from cars, trucks, and industry on the way to the exceedance monitors.

The back trajectory maps for the 500 meter (Figure 3) and 1500 meter (Figure 4) winds illustrate similar transport pathways. Winds traveling to the exceedance monitors originated over the Great Lakes region and came down through New York and Pennsylvania where they picked up pollution from motor vehicles, industry, and power plants. These winds, in combination with the low level wind, caused air pollution from a variety of mobile and stationary sources to be transported in the areas of New Jersey and Delaware that experienced high ozone on July 8, 2016.

Figure 2. 48-hour Back Trajectories for July 8, 2016 at 10 meters

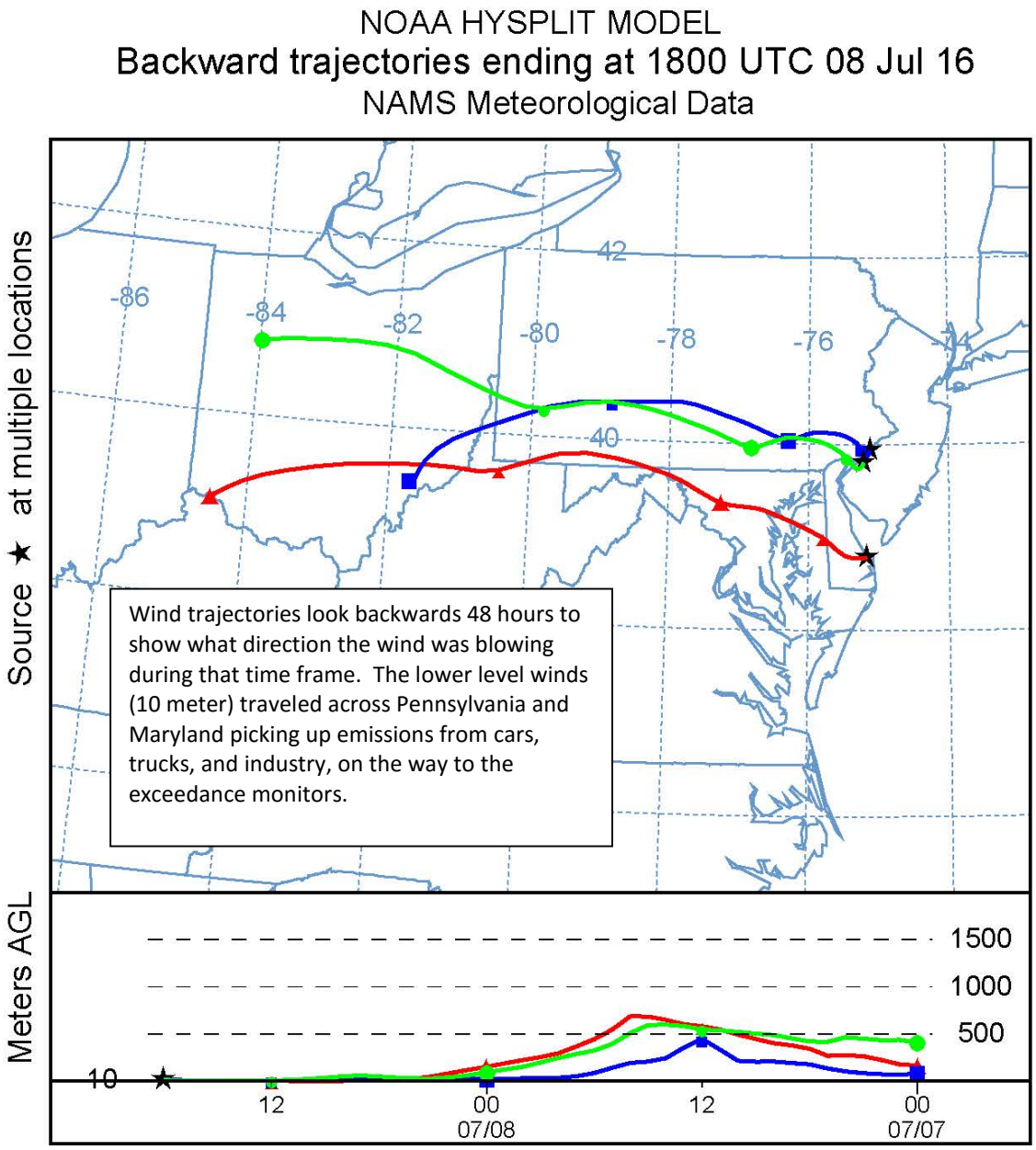


Figure 3. 48-hour Back Trajectories for July 8, 2016 at 500 meters

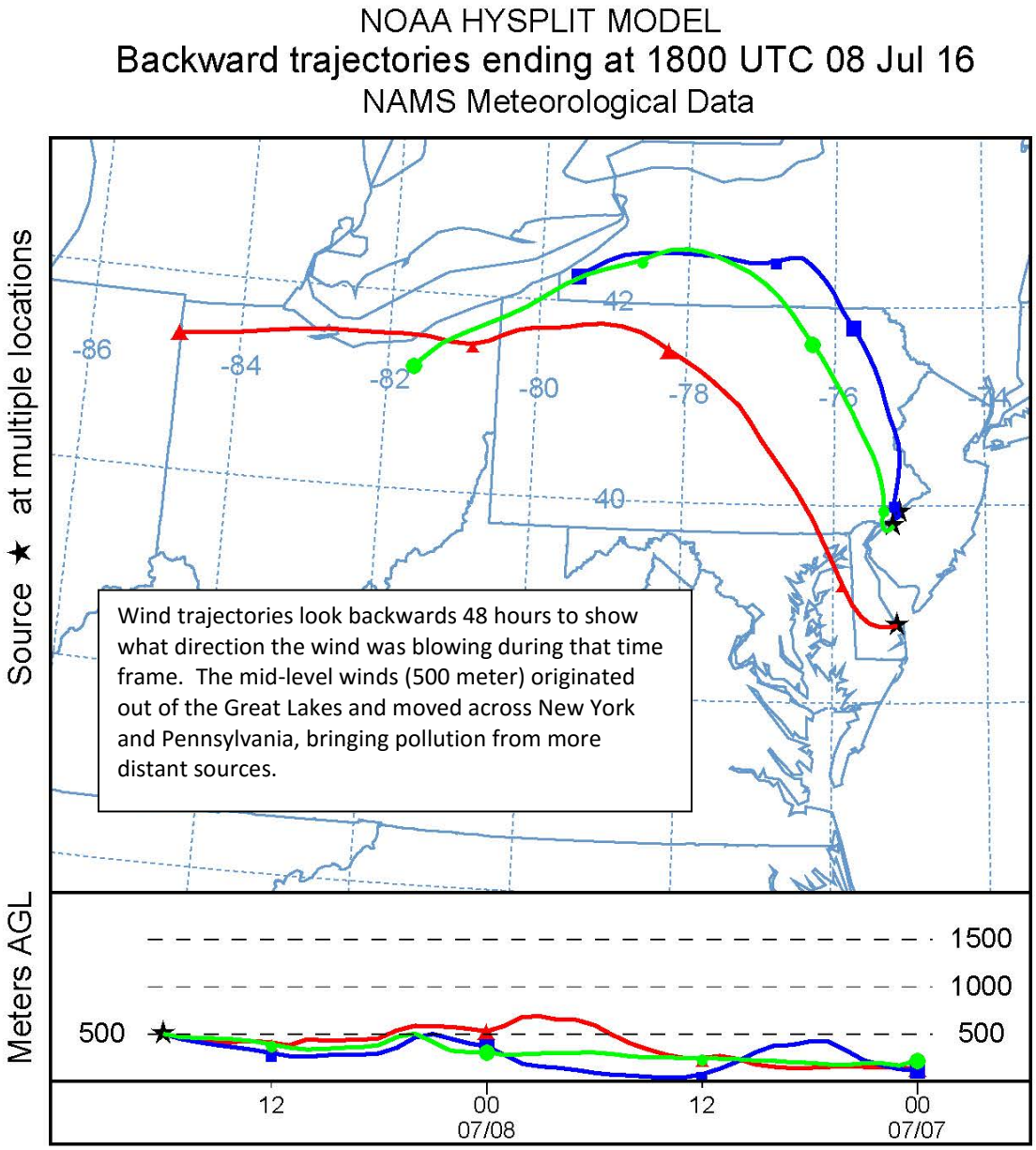
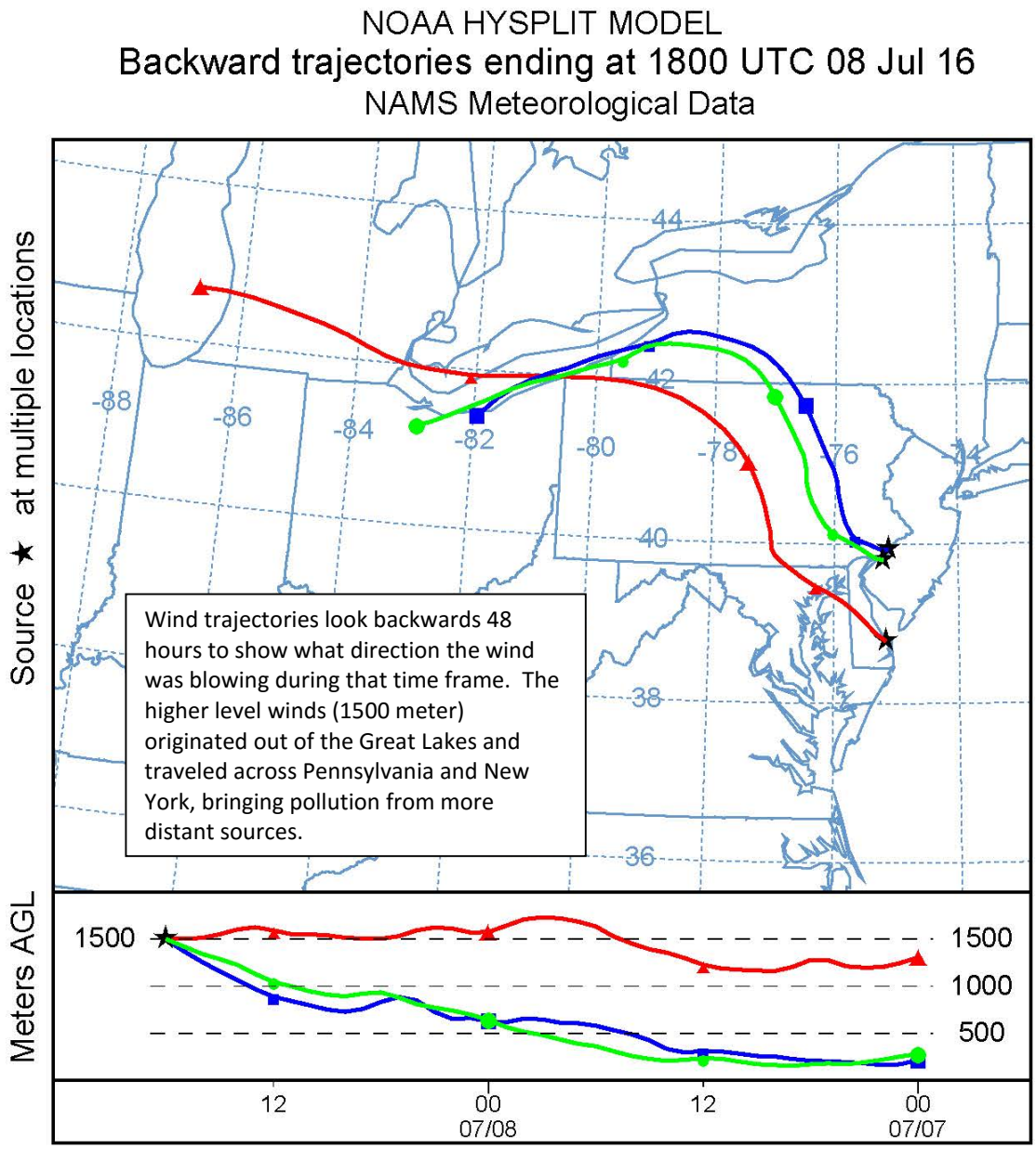


Figure 4. 48-hour Back Trajectories for July 8, 2016 at 1500 meters



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.