Ozone National Ambient Air Quality Standard Health Exceedances on June 15, 2016

Exceedance Locations and Levels

On Wednesday, June 15, 2016, three (3) exceedances were recorded 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 June 15, 2016

STATION	Daily Maximum 8-Hr Average (ppb)
Rider University	71
Colliers Mills	71
Rutgers University	71

The highest 1-hour average ozone concentration recorded on June 15, 2016 in New Jersey was 90 ppb at the Rutgers University station, which is below the 1-hour ozone NAAQS of 120 ppb.

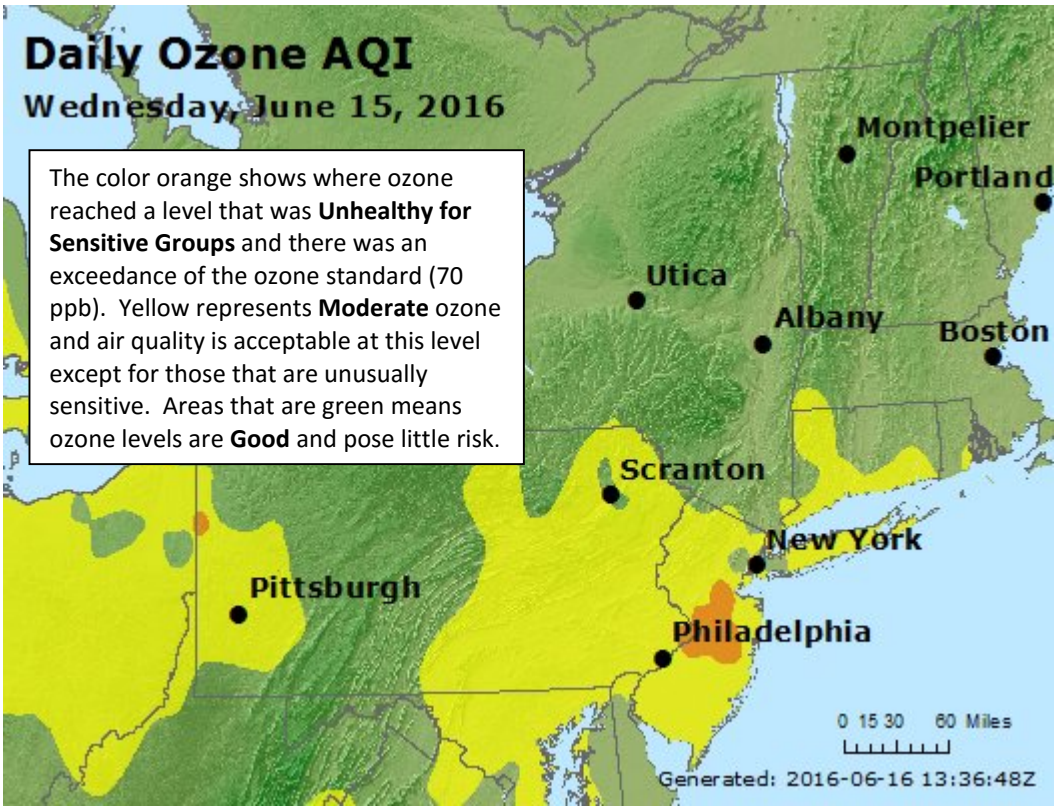
Wednesday marks the 8th day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 15th of June in 2015, there were a total of five (5) days on which ozone exceedances were measured in New Jersey (based on the former 75 ppb NAAQS of 2008), and there was one (1) day 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, June 15, 2016 in Pennsylvania: Bristol station with a concentration of 75 ppb.

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

Wednesday marks the 5th day in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in Pennsylvania. The number of days on which exceedances were recorded in Connecticut remains at eight (8), six (6) days for New York, and three (3) days for Delaware and Maryland.

Figure 1. Ozone Air Quality Index for June 15, 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 the mid to high 80°F's, while surface winds were light and from the west/southwest. A low-pressure system was located off eastern Canada and a stationary front over West Virginia and Virginia. Skies between the low-pressure system and front were mostly sunny and dry. Sunny skies, in combination with warm temperatures and light southwest winds, are all weather features commonly seen with ozone exceedances.

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 June 15, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event. Three (3) monitoring stations with 8-hr ozone exceedances were chosen to run back trajectories. The selected sites and the maximum 8-hr ozone levels recorded are listed in Table 2 below.

Table 2. 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)
NJ	Rutgers University	71
NJ	Colliers Mills	71
PA	BRIS	75

The back trajectory maps (Figures 2 and 3) for the low level (10 meter) and mid-level (500 meter) winds illustrate similar transport pathways to the exceedance monitors. Winds originated in southern Canada, traveled down through New York and Pennsylvania, before shifting northeast and traveling up the I-95 corridor, where there is air contaminant emissions from motor vehicles and industry. The 1500 meter wind (Figure 4) also came down from Canada and then turned east, traveling through Pennsylvania, where there are emissions from coal fired power plants. The back trajectories for all three wind heights originated out of the north where the air mass was quite clean in the days leading up to the ozone exceedances in New Jersey and southeastern Pennsylvania. This indicates that local emissions from cars, trucks, and industry along the I-95 corridor and pollution from power plants in Pennsylvania were the primary contributors to the ozone exceedances on June 15, 2016.

Figure 2. 48-hour Back Trajectories for Jun 15, 2016 at 10 meters

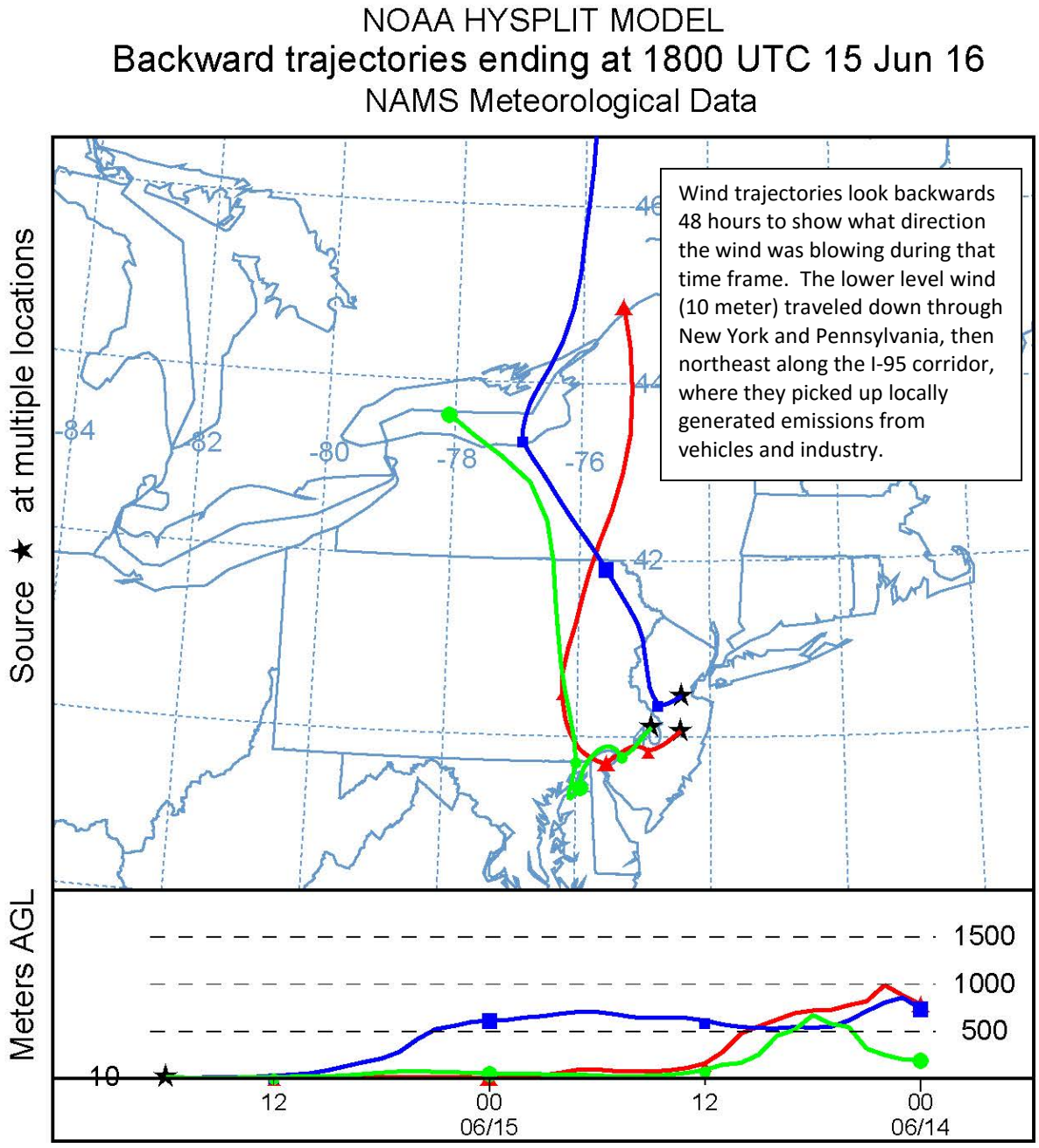


Figure 3. 48-hour Back Trajectories for June 15, 2016 at 500 meters

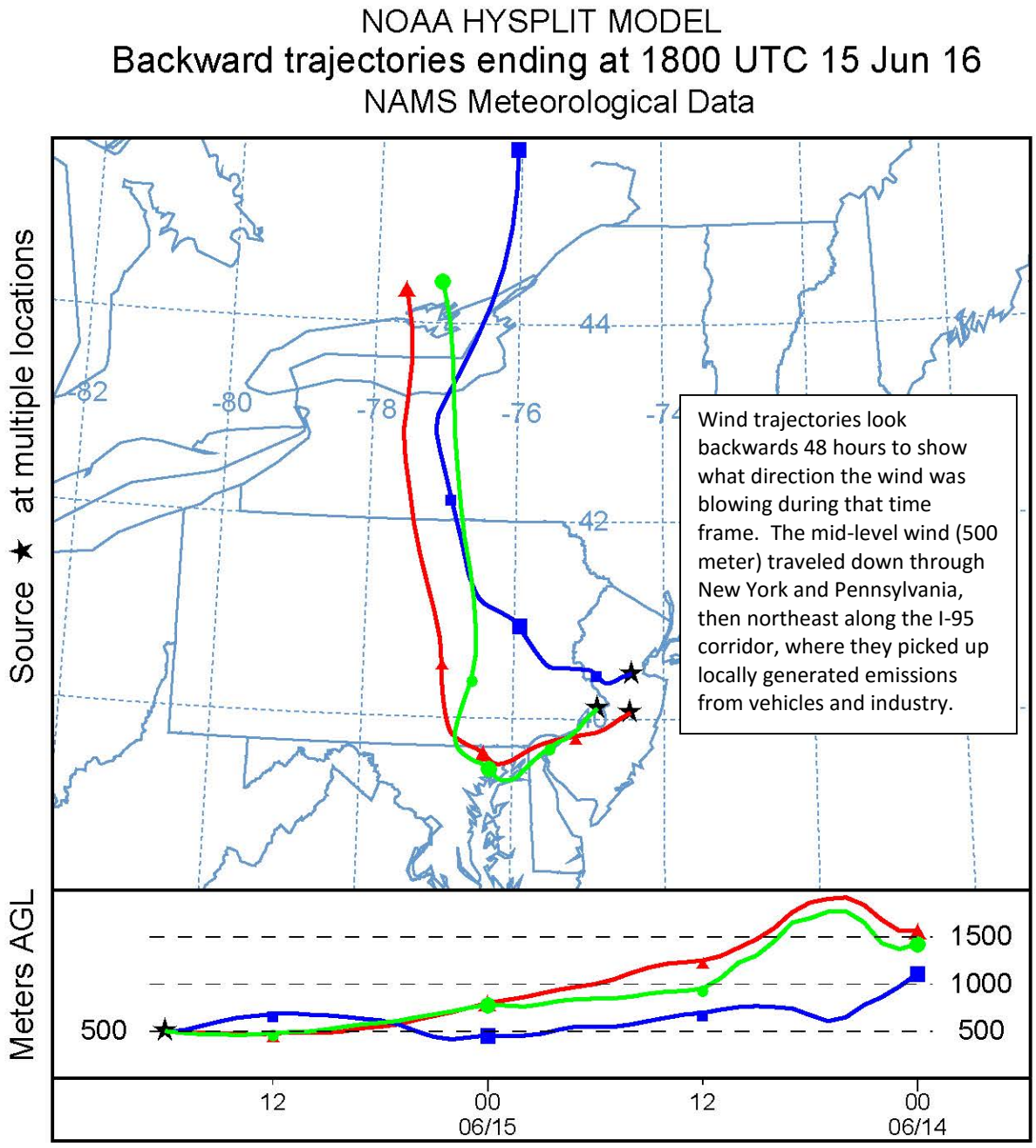
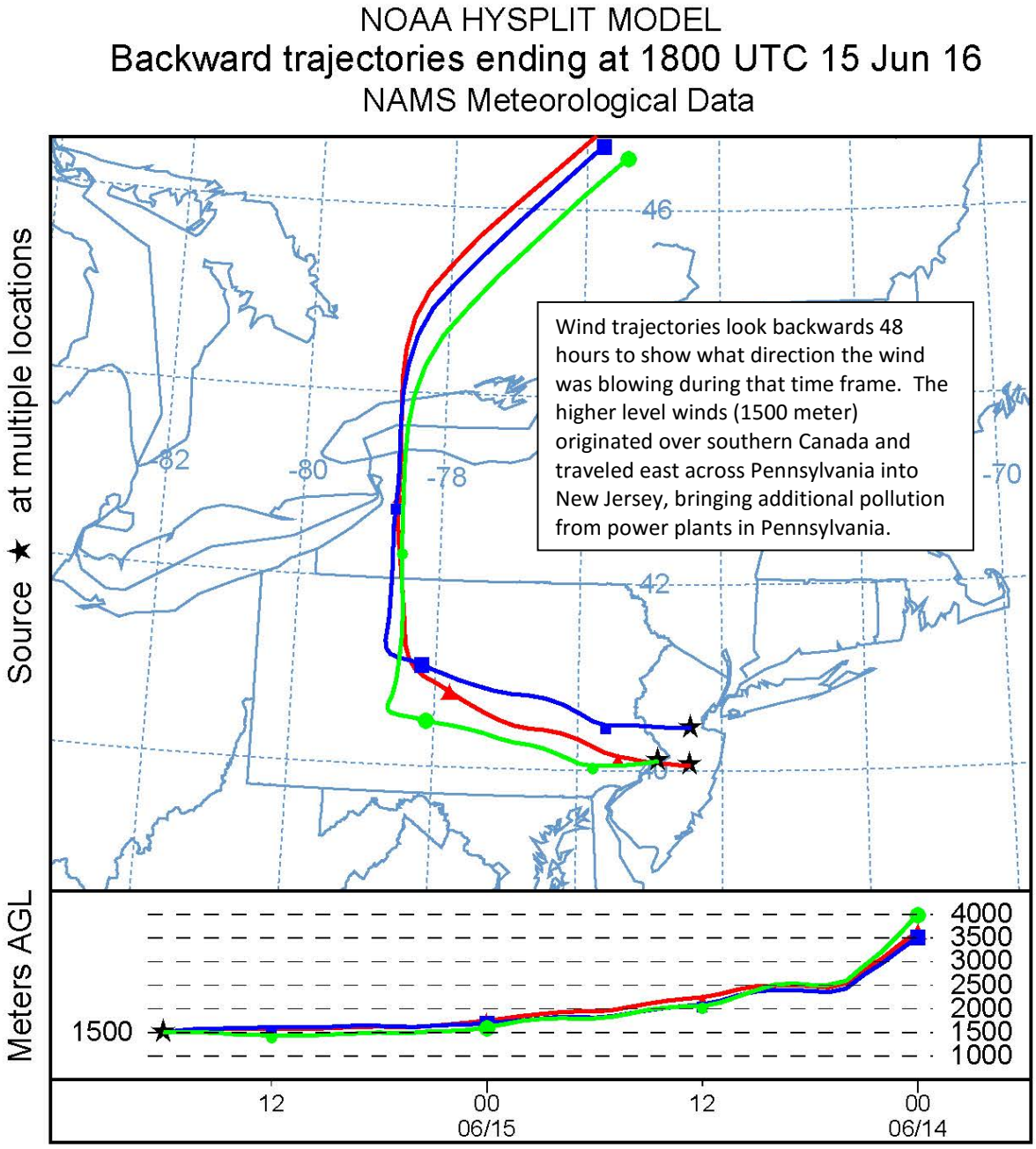


Figure 4. 48-hour Back Trajectories for June 15, 2016 at 1500 meters



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.