Ozone National Ambient Air Quality Standard Health Exceedances on July 27, 2016

Exceedance Locations and Levels

On Wednesday, July 27, 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:

Table 1: Ozone NAAQS Exceedances in New Jersey on July 27, 2016

STATION	Daily Maximum 8-Hr Average (ppb)
Camden Spruce St	78
Clarksboro	74

The highest 1-hour average ozone concentration recorded on July 27, 2016, in New Jersey was 101 ppb at the Clarksboro station, which is below the 1-hour ozone NAAQS of 120 ppb.

Wednesday marks the 19th day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 27th 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 Wednesday, July 27, 2016:

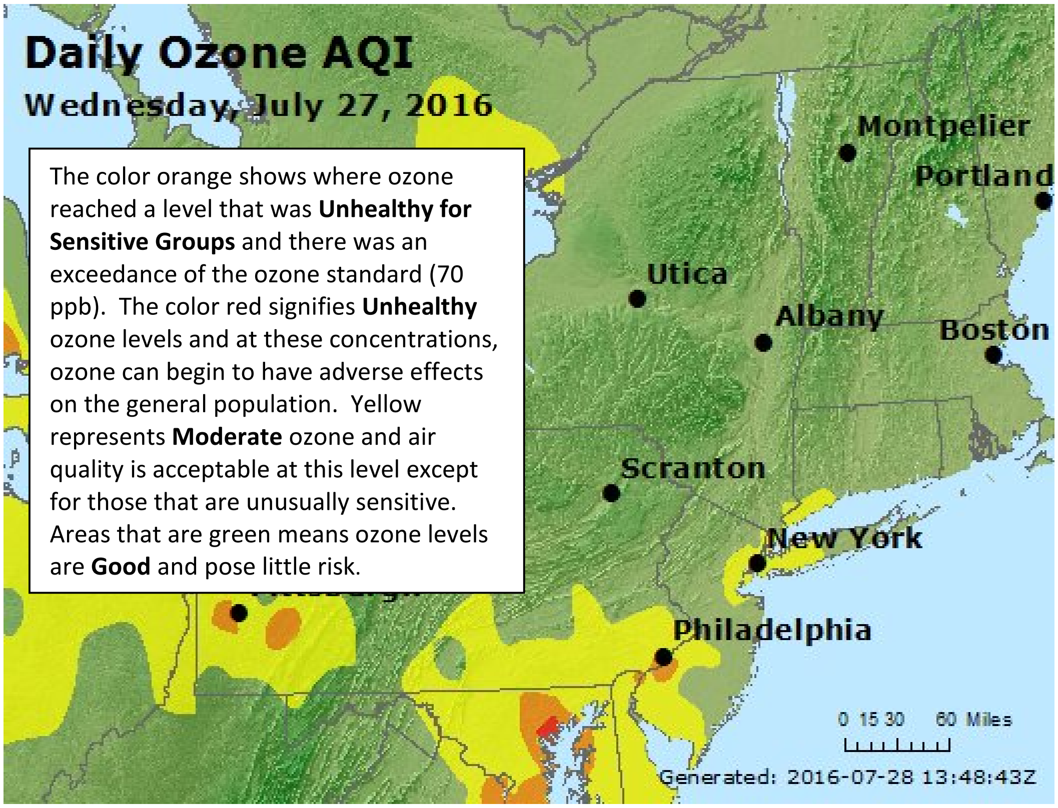
Table 2: Ozone NAAQS Exceedances at other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on July 27, 2016

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
DE	BELLFNT2 (New Castle Co.)	71

The highest 1-hour average ozone concentration recorded was 86 ppb at the Chester station in Pennsylvania, which is below the 1-hour ozone NAAQS of 120 ppb.

Wednesday marks the 7th day in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in Delaware. The number of days remains at nineteen (19) for Connecticut, fifteen (15) for New York, ten (10) for Pennsylvania, and six (6) for Maryland.

Figure 1. Ozone Air Quality Index for July 27, 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 90°F's, while winds were light and from the east/northeast. A high pressure system centered over northern Pennsylvania and western New York resulted in partly sunny skies across the region. In addition, a stationary front was draped across Maryland and Delaware, creating converging winds that allowed pollutants to pool at the boundary line. This weather feature, in combination with adequate sunlight and warm temperatures, are all meteorological conditions known to contribute to the formation of ground level ozone.

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 27, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event.

The back trajectories for the low level (Figure 2) and mid-level (Figure 3) winds illustrate similar transport pathways. Winds originated over the Great Lakes and then traveled southeast across portions of southern New York and Pennsylvania before recirculating over New Jersey and the I-95 corridor.

Recirculating winds allowed pollution picked up from cars, trucks, and industry to accumulate and then mix with local emissions along the I-95 corridor, where the exceedance monitors are located.

Higher level wind (Figure 4) also originated over the Great Lakes and traveled southeast across Pennsylvania, bringing emissions from large industrial sources and power plants to the exceedance monitors. The higher level wind, in combination with the low and mid-level recirculating winds, caused air pollution from a variety of mobile and stationary sources to accumulate and be transported to the exceedance monitors on July 27, 2016.

Figure 2. 48-hour Back Trajectories for July 27, 2016 at 10 meters

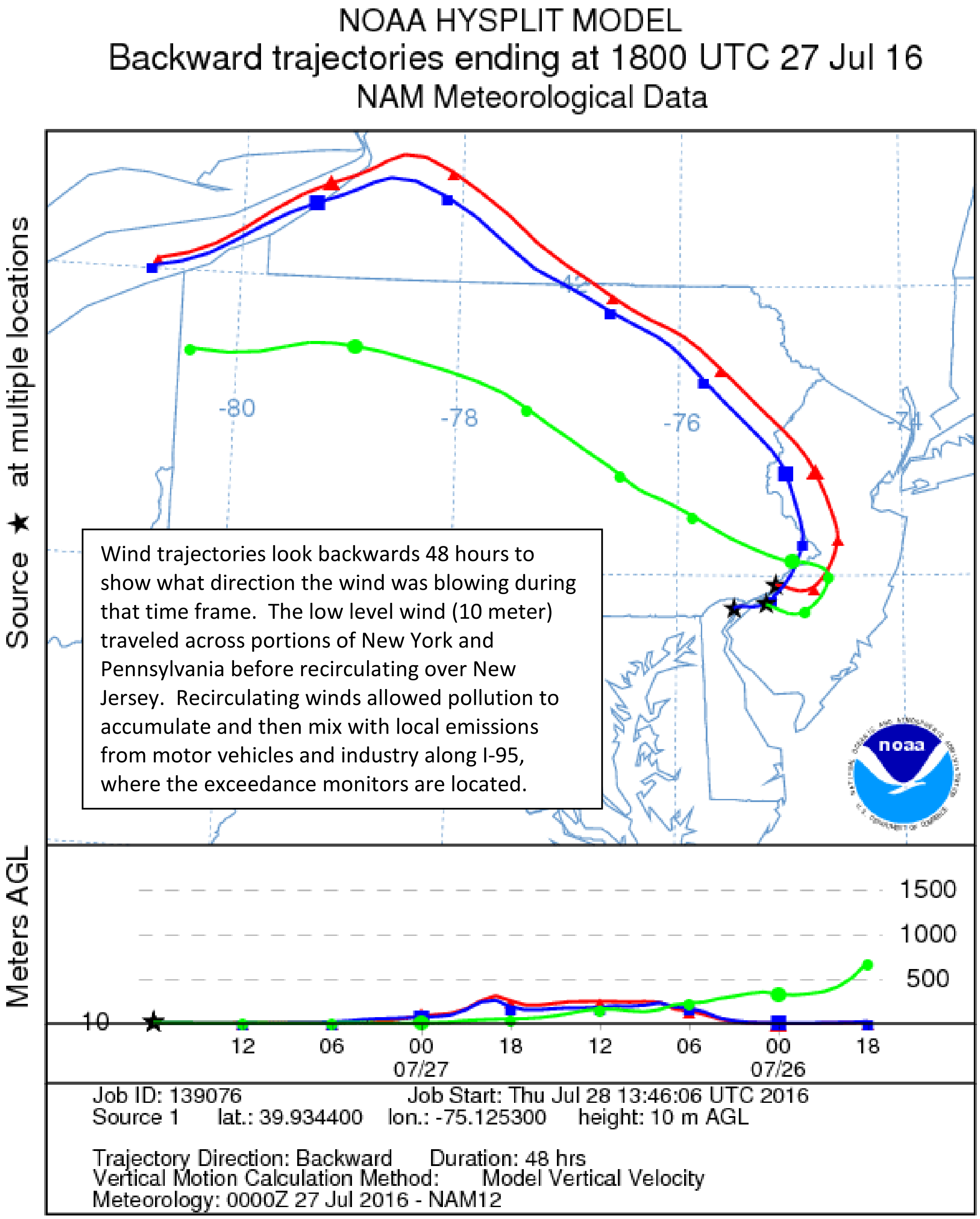


Figure 3. 48-hour Back Trajectories for July 27, 2016 at 500 meters

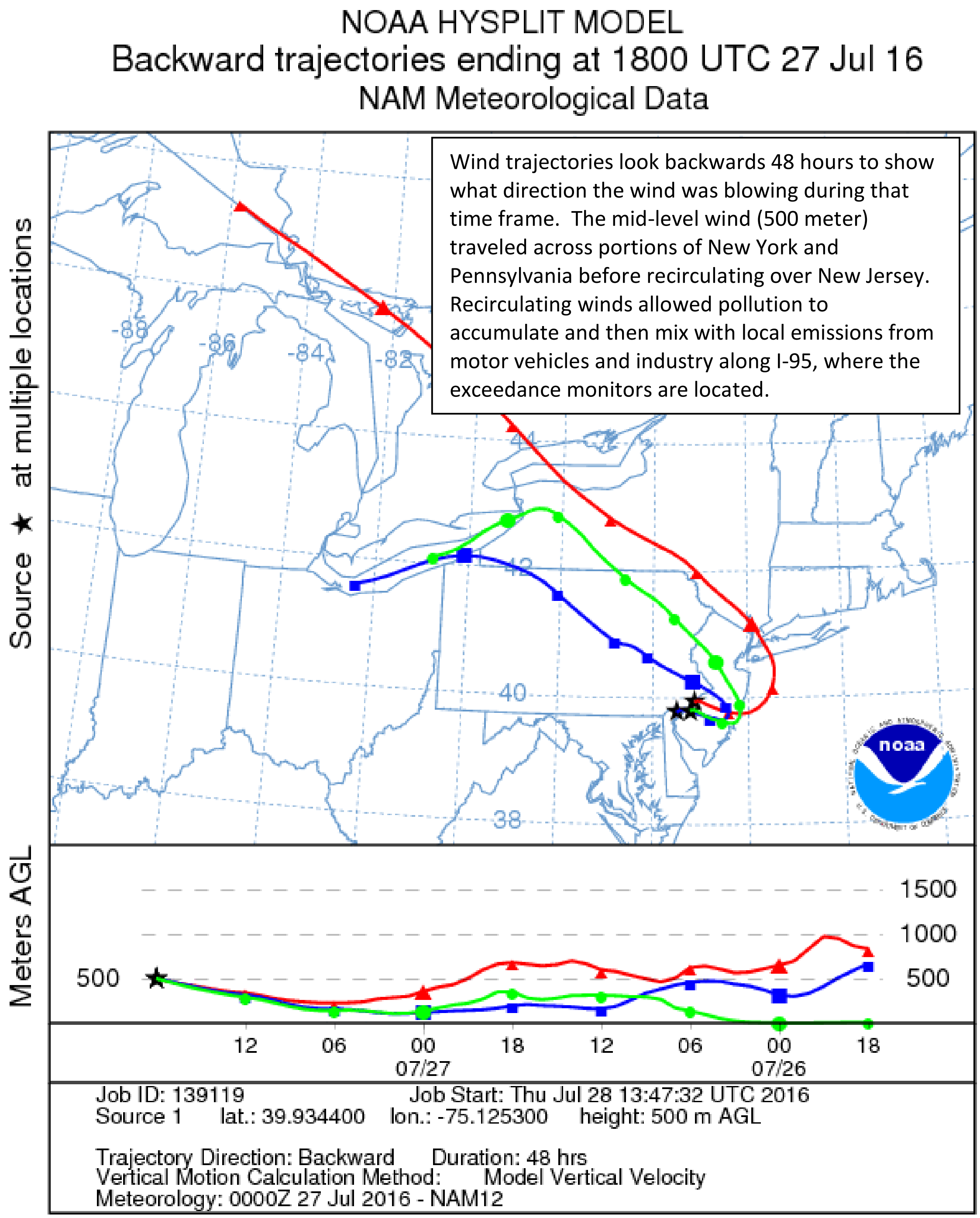
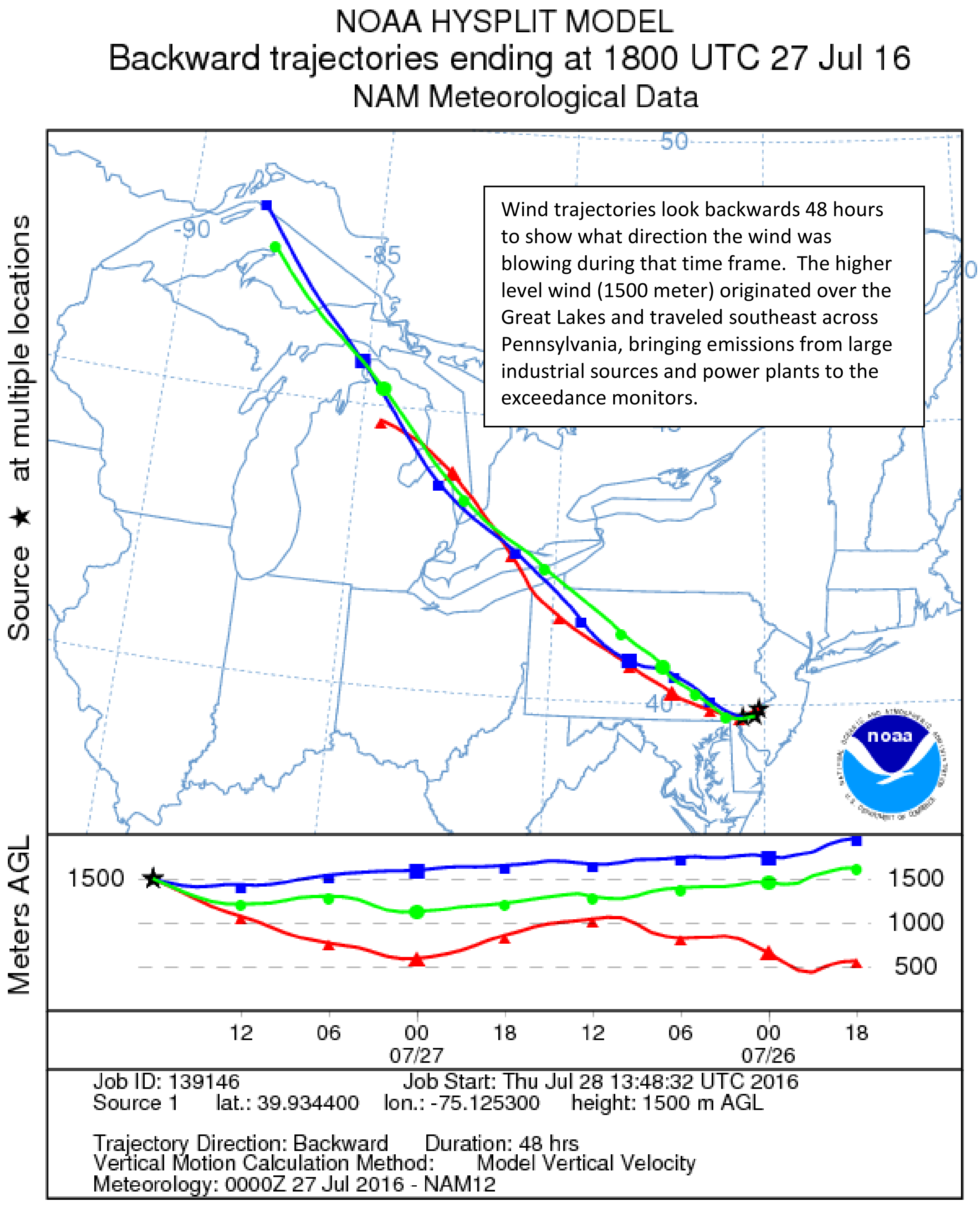


Figure 4. 48-hour Back Trajectories for July 27, 2016 at 1500 meters



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.