Ozone National Ambient Air Quality Standard Health Exceedance on July 16, 2016

Exceedance Location and Levels

On Saturday, July 16, 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: Leonia with a concentration of 73 ppb.

The highest 1-hour average ozone concentration recorded on July 16, 2016 in New Jersey was 91 ppb at the Leonia station, which is below the 1-hour ozone NAAQS of 120 ppb.

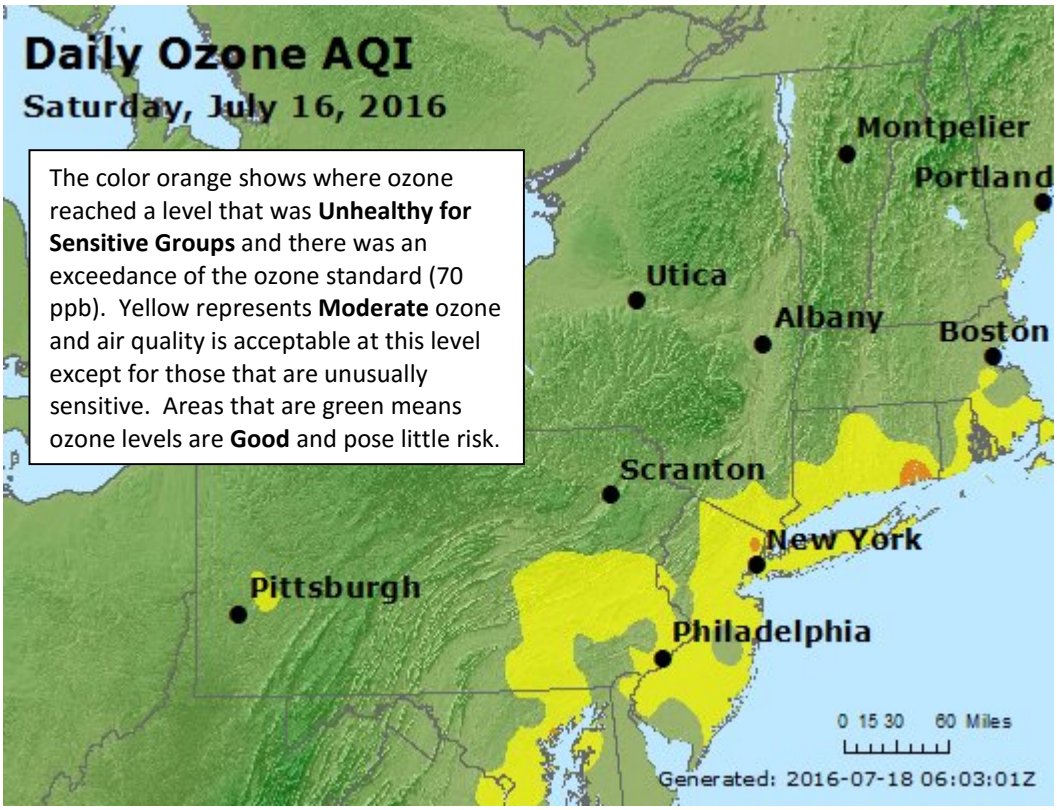
Saturday marks the 15th of day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 16th of July in 2015, there were a total of seven (7) days on which ozone exceedances were measured in New Jersey (based on the former 75 ppb NAAQS of 2008), and there 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 were no exceedances of the new 8-hour ozone NAAQS of 70 ppb recorded on Saturday, July 16, 2016:

The highest 1-hour average ozone concentration recorded was 88 ppb at the Holtsville station in New York, which is below the 1-hour ozone NAAQS of 120 ppb.

The number of days in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in Connecticut remains at fifteen (15), twelve (12) days for New York, eight (8) days for Pennsylvania, five (5) days for Delaware, and four (4) days for Maryland.

Figure 1. Ozone Air Quality Index for July 16, 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 Teterboro airport in Bergen County, New Jersey showed temperatures reached the low 90°F's, while winds were from the south and skies were mostly sunny. A stationary front was draped across the northeast and a wave of low pressure formed just south of the stalled boundary over the I-95 corridor and the Leonia air monitoring station in New Jersey. The low pressure surface trough over I-95 provided a mechanism that allowed polluted air aloft to mix down to the surface. 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 and 3 show the back trajectories at different wind heights for the monitored exceedance on July 16, 2016. The figures illustrates where the winds came from during the 48 hours preceding the high ozone event.

The 10 meter wind (Figure 2) traveled across Pennsylvania and northern New Jersey before recirculating over Long Island and New York City, where there were ozone exceedances the prior day (see Figure 4), and heading back to the Leonia exceedance monitor. Recirculating winds allowed dirty air picked up

from the Long Island and New York City areas to accumulate and then mix with local emissions from cars, trucks, and industry close to the Leonia air monitoring station.

Figure 3 shows the back trajectories for the mid-level (500 meter) and higher level (1500 meter) winds. The mid-level wind illustrates a similar recirculating transport pathway as the low level wind at 10 meters. The higher level wind came across the Ohio River Valley and Pennsylvania, where there are emissions from many coal fired power plants. The higher level wind, in combination with the low and mid-level recirculating winds, allowed pollution to accumulate and be transported to the Leonia monitoring site that experienced high ozone on July 16, 2016.

Figure 2. 48-hour Back Trajectories for July 16, 2016 at 10 meters

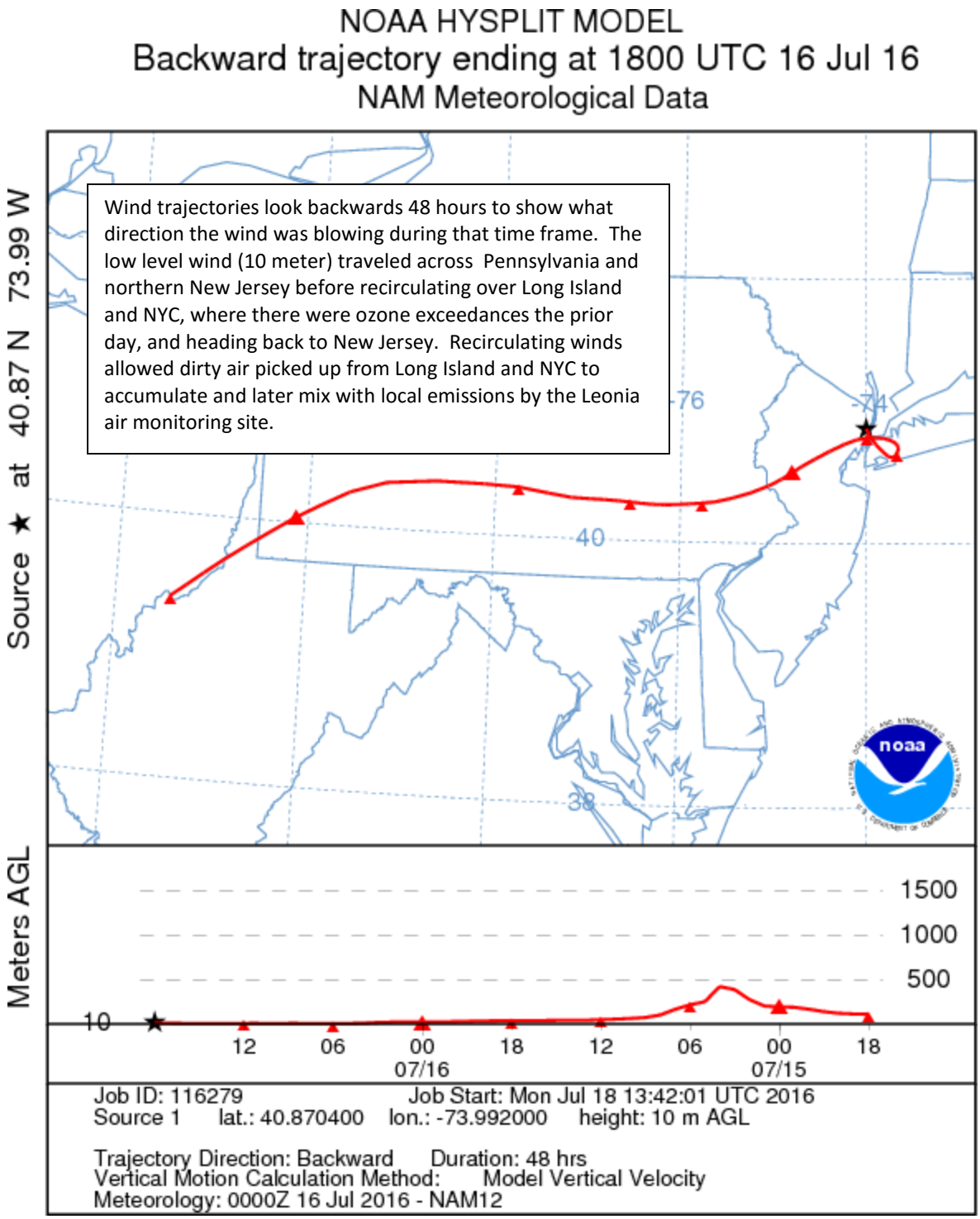


Figure 3. 48-hour Back Trajectories for July 16, 2016 at 500 and 1500 meters

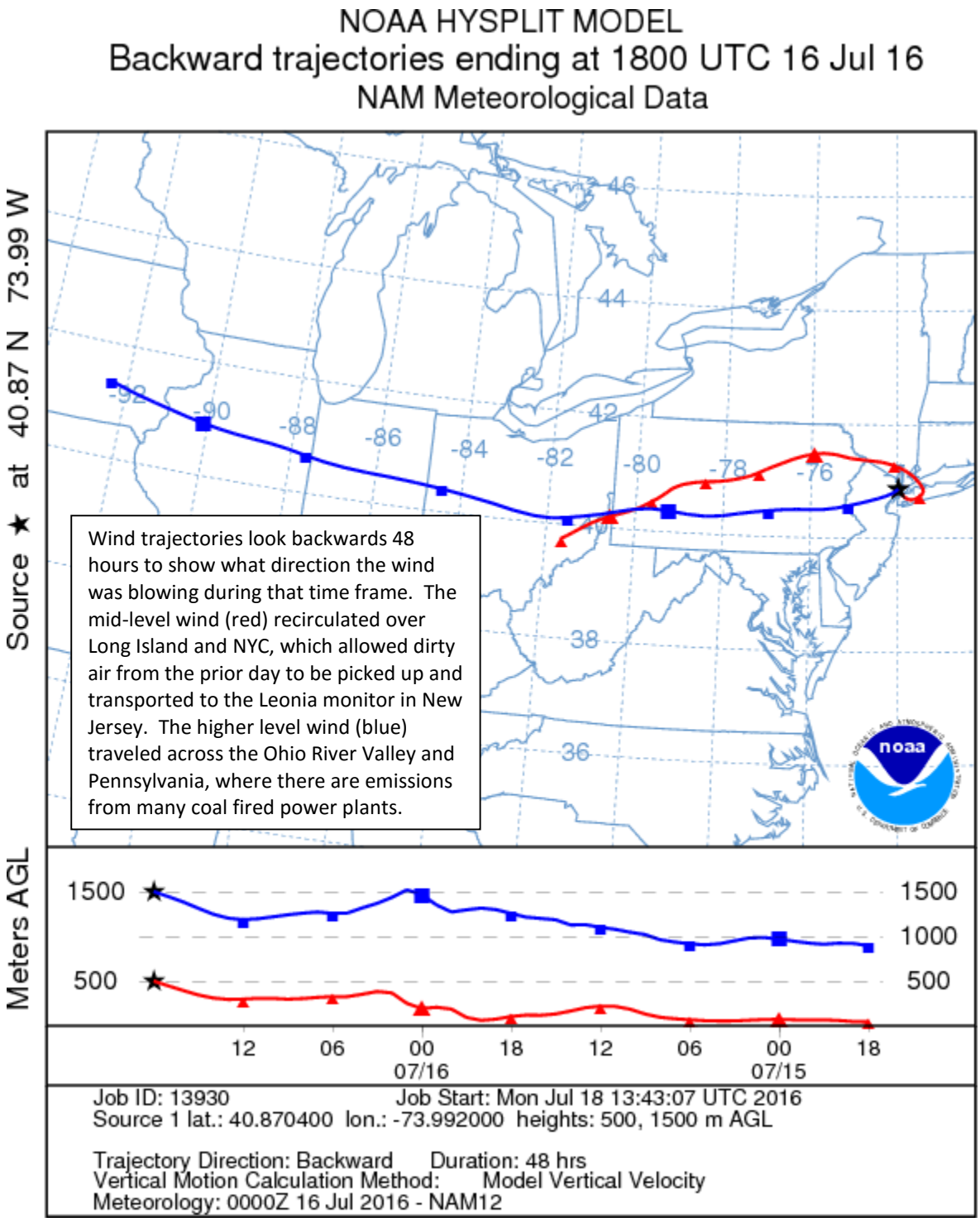
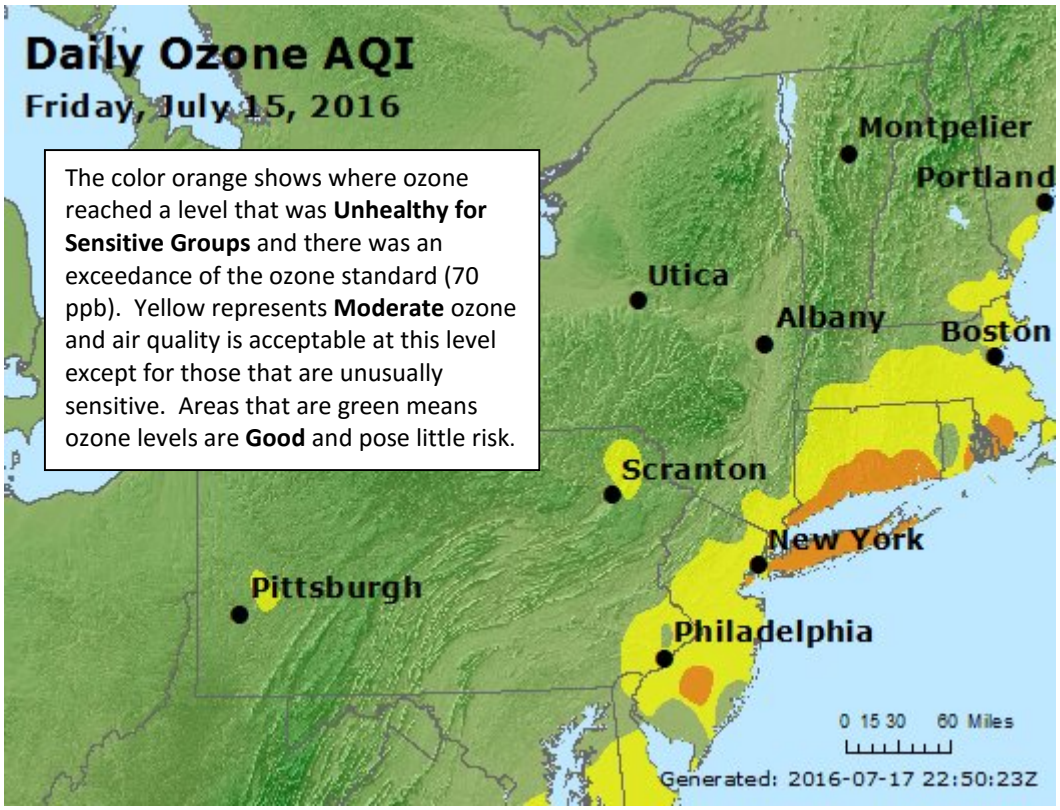


Figure 4. Ozone Air Quality Index for the Mid-Atlantic and Northeast Regions on July 15, 2016



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.