Ozone National Ambient Air Quality Standard Health Exceedances on June 19, 2016

Exceedance Locations and Levels

On Sunday, June 19, 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 June 19, 2016

STATION	Daily Maximum 8-Hr Average (ppb)
Leonia	74
Rutgers University	73

The highest 1-hour average ozone concentration recorded on June 19, 2016 in New Jersey was 93 ppb at the Rutgers University station, which is below the 1-hour ozone NAAQS of 120 ppb.

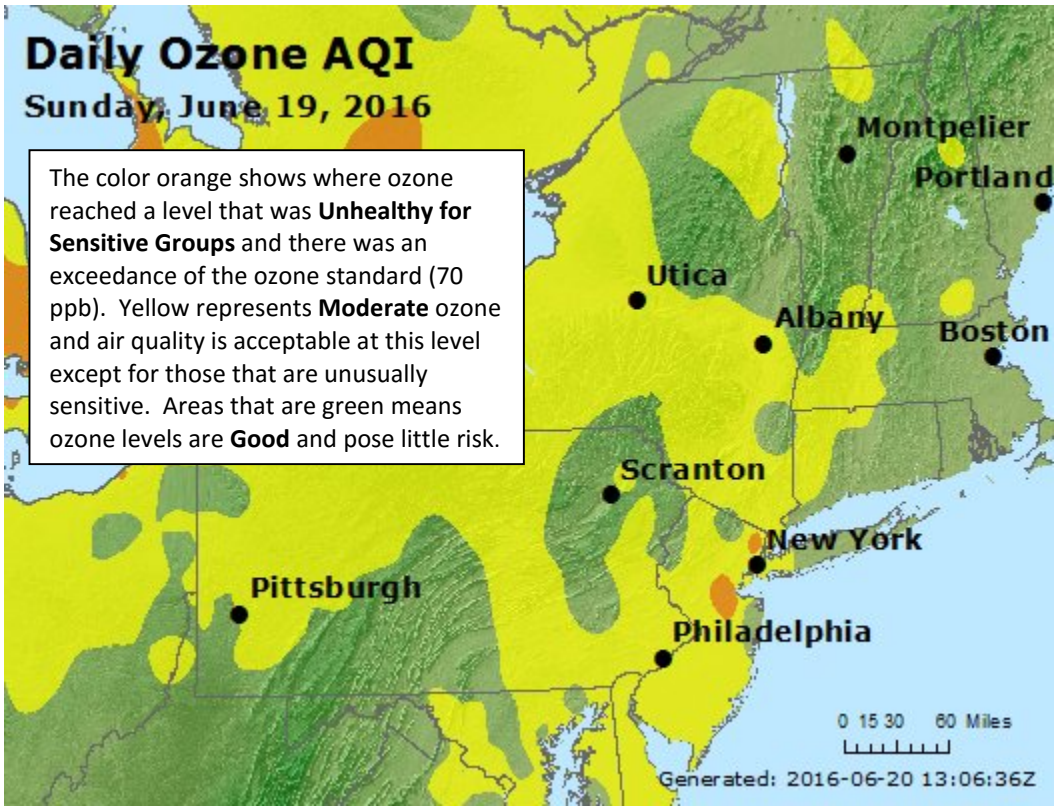
Sunday marks the 9th day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 19th of June in 2015, there were a total of five (5) days on which ozone exceedances were measured in New Jersey (based on the former 75 ppb NAAQS of 2008), and there was 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 were no exceedances of the new 8-hour ozone NAAQS of 70 ppb recorded on Sunday, June 19, 2016.

The highest 1-hour average ozone concentration recorded was 92 ppb at the Susan Wagner station in New York, which is below the 1-hour ozone NAAQS of 120 ppb.

The number of days in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in Connecticut remains at nine (9), seven (7) days for New York, five (5) days for Pennsylvania, and three (3) days for Delaware and Maryland.

Figure 1. Ozone Air Quality Index for June 19, 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 New Jersey showed temperatures reached into the high 80°F's. Surface winds were calm in the morning hours and then shifted to a light southeast flow in the afternoon. A high pressure system was located over the Smoky Mountains, leading to mostly sunny skies. Sufficient sunlight and warm temperatures are weather features commonly seen with ozone exceedances. Although southeast winds are not usually associated with high ozone days, very light winds are, as they allow pollutants to accumulate at the surface.

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 exceedance monitors in New Jersey on June 19, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event. The low level wind (Figure 2) originated off the coast of New Jersey and then traveled through portions of the Philadelphia and New York City metropolitan areas, where it picked up air contaminant emissions from cars, trucks, and industry. The 500 meter wind (Figure 3) traveled west across portions of southern New Jersey and Maryland before recirculating over Pennsylvania and heading back to New Jersey, bringing additional pollution from motor vehicles and industry to the exceedance monitor locations.

The higher level winds (Figure 4) originated in Canada and then traveled southeast through New York and northern New Jersey. This air mass was relatively clean leading up to this ozone exceedance event and winds from this direction usually are not associated with high ozone days.

The back trajectories for the ozone exceedances at the Rutgers University and Leonia monitors indicate that the exceedances were due to winds that recirculated around the Philadelphia metropolitan area and traveled up along the I-95 corridor and through New York City. These areas have a wide variety and large number of mobile and stationary sources that contributed to the high ozone values recorded in New Jersey on June 19, 2016.

Figure 2. 48-hour Back Trajectories for Jun 19, 2016 at 10 meters

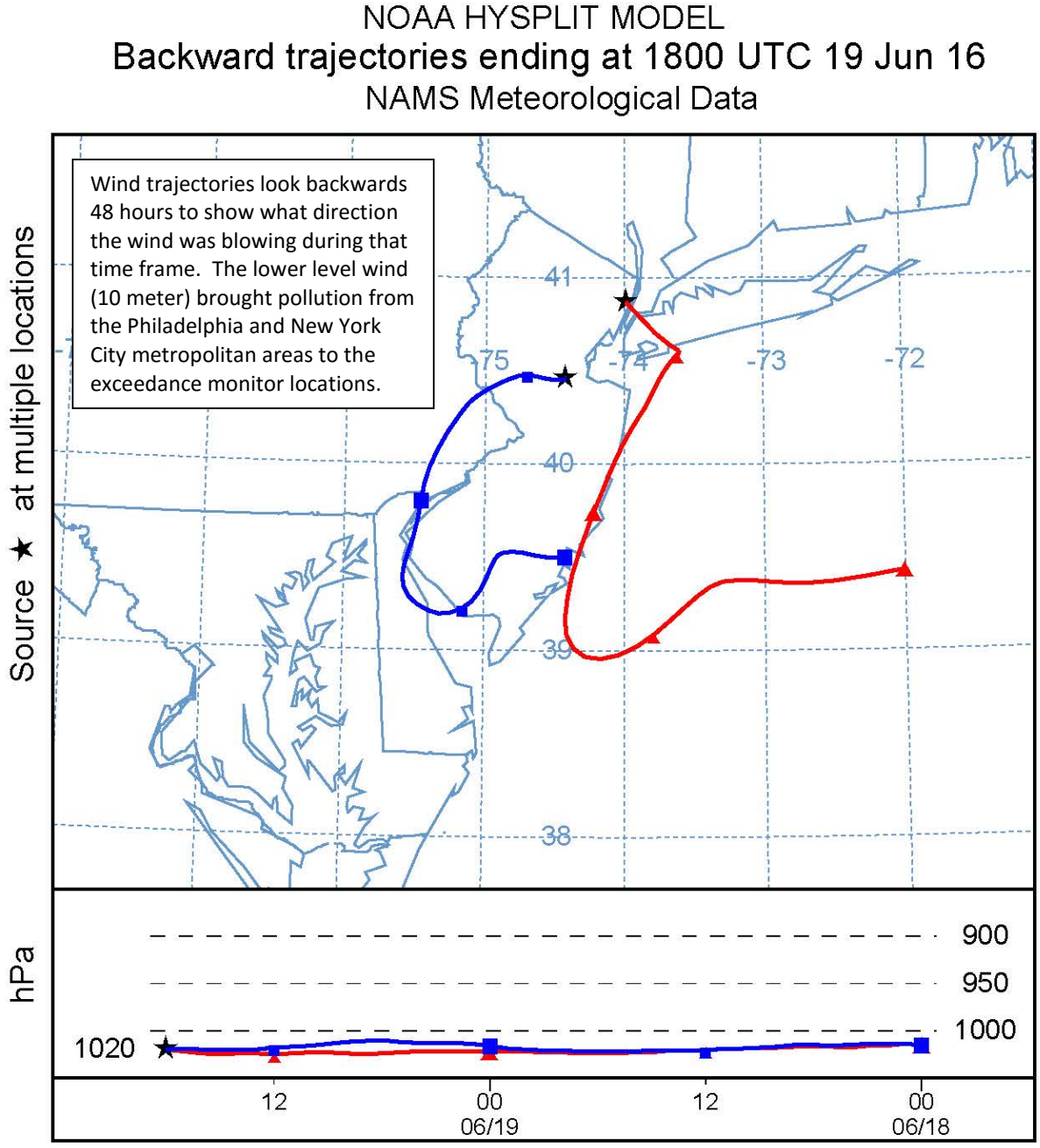


Figure 3. 48-hour Back Trajectories for June 19, 2016 at 500 meters

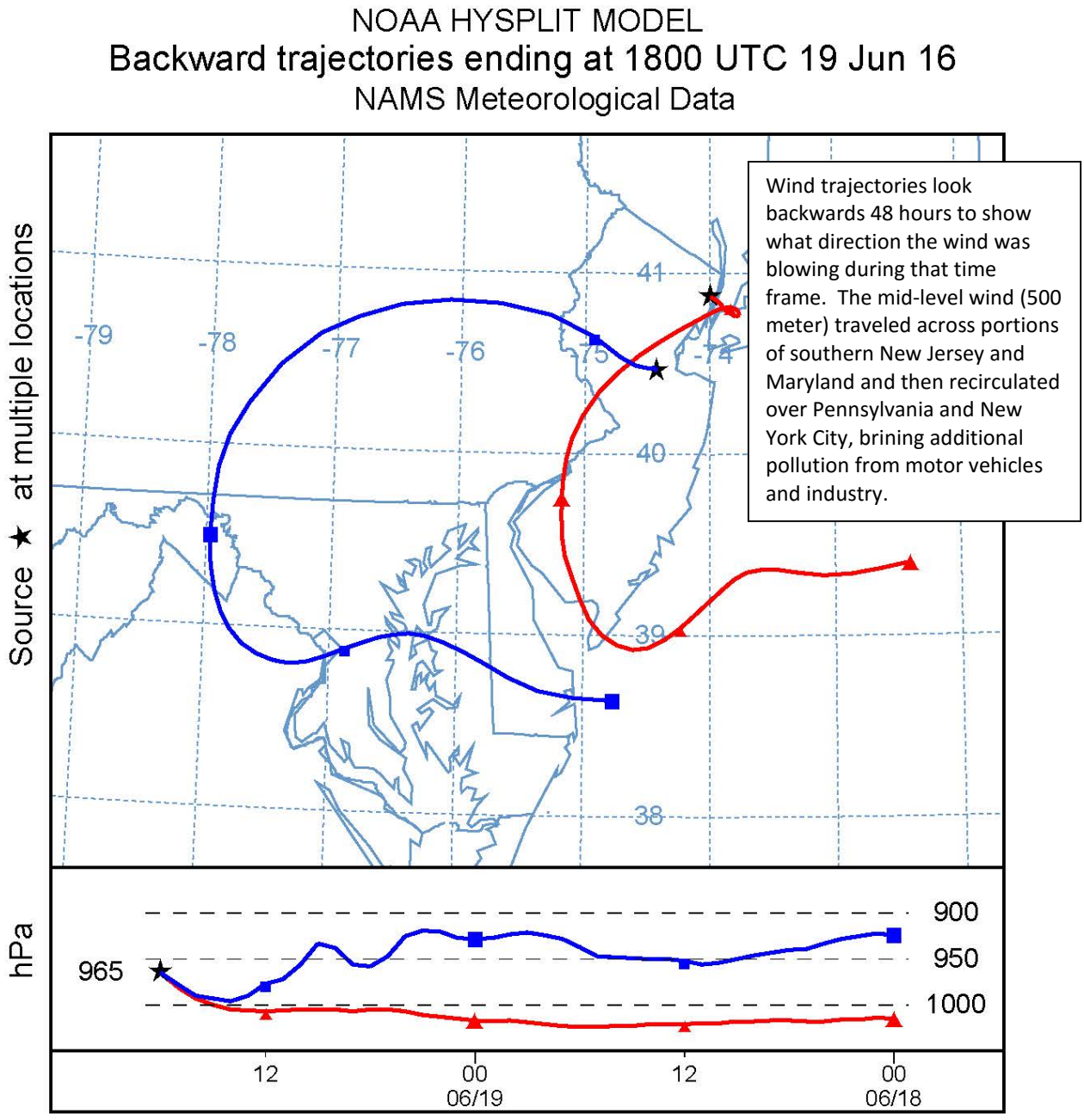
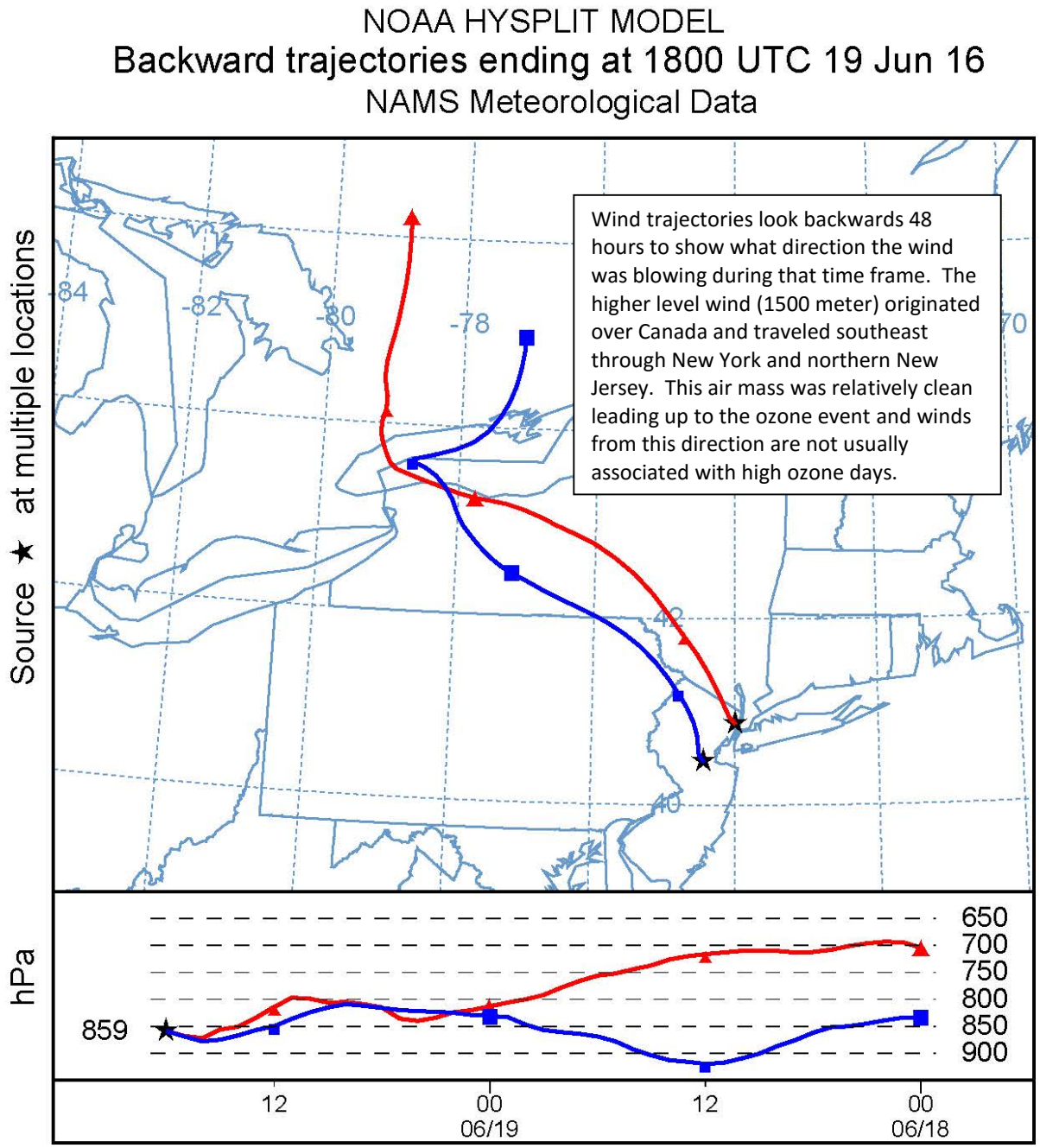


Figure 4. 48-hour Back Trajectories for June 19, 2016 at 1500 meters



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.