Ozone National Ambient Air Quality Standard Health Exceedances on June 16, 2016

Exceedance Locations and Levels

On Thursday, June 16, 2016, there were no exceedances in New Jersey of the new 8-hour average ozone NAAQS of 70 ppb that became effective in December 2015. The highest 8-hour average ozone concentration recorded on June 16, 2016 in New Jersey was 54 ppb at the Rutgers University station. The highest 1-hour average ozone concentration recorded on June 16, 2016 in New Jersey was 61 ppb, also at the Rutgers University station, which is below the 1-hour ozone NAAQS of 120 ppb.

The number of days on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey remains at eight (8). By the 16th 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 two (2) exceedances of the new 8-hour ozone NAAQS of 70 ppb recorded on Thursday, June 16, 2016 (See Table 1):

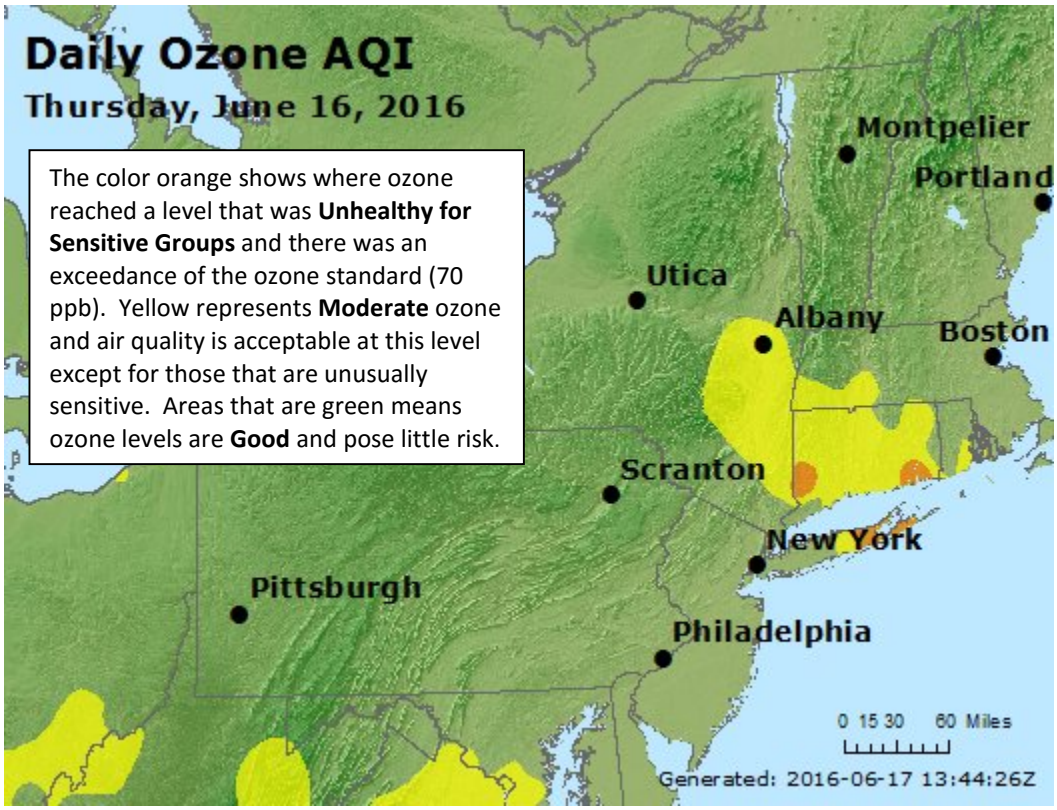
Table1: Ozone NAAQS Exceedances at Other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on June 16, 2016

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	74
NY	Riverhead	79

The highest 1-hour average ozone concentration recorded was 93 ppb at Riverhead, NY, which is below the 1-hour ozone NAAQS of 120 ppb.

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

Figure 1. Ozone Air Quality Index for June 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 the Long Island Sound area showed temperatures reached the mid to high 70°F's. Surface winds were calm in the morning hours and then shifted to a light south/southwest flow in the afternoon. A high pressure system was located over southeastern Canada while a low pressure system passed through the Mid-Atlantic states, resulting in widespread clouds and showers over New Jersey and the Mid-Atlantic region. Due to its location further north, skies stayed mostly sunny over Long Island, New York and Connecticut. Sufficient sunlight and light southwest winds are 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 the exceedance monitors in Long Island and Connecticut on June 16, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event. Low level wind (Figure 1) came up along the Atlantic coast before crossing over Long Island and into Connecticut. While the air mass over the Atlantic tends to be clean, the Long Island Sound area has air contaminant emissions from cars, trucks and industry that likely contributed to the ozone exceedances on June 16, 2016.

The 500 meter wind (Figure 2) traveled across portions of eastern Pennsylvania and central New Jersey on the way to the Long Island Sound, picking up dirty air from a region that had ozone exceedances the prior day. Figure 5 illustrates the ozone exceedances recorded in the Mid-Atlantic region on June 15, 2016, the day before the high ozone was recorded in Long Island and Connecticut.

The higher level winds (Figure 4) originated in Canada, traveled southeast through Connecticut and New York, before recirculating back around over the Long Island Sound, which may have allowed some additional pollution from power plants and industry to accumulate by the exceedance monitor locations. In summary, dirty air was transported from a region that had ozone exceedances the prior day, and mixed with local emissions from cars, trucks, and industry in the Long Island Sound area to cause the ozone exceedances in Long Island and Connecticut on June 16, 2016.

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

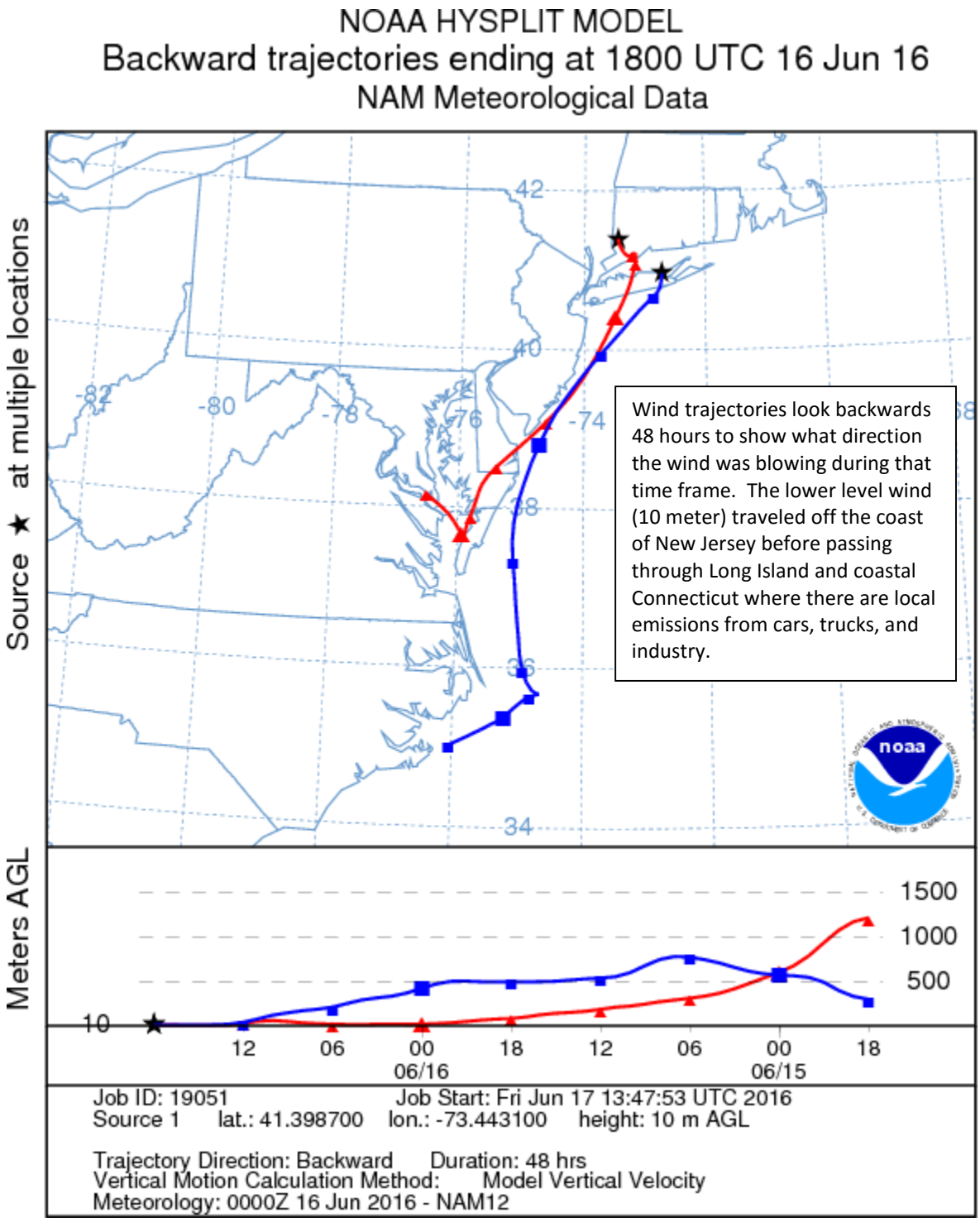


Figure 3. 48-hour Back Trajectories for June 16, 2016 at 500 meters

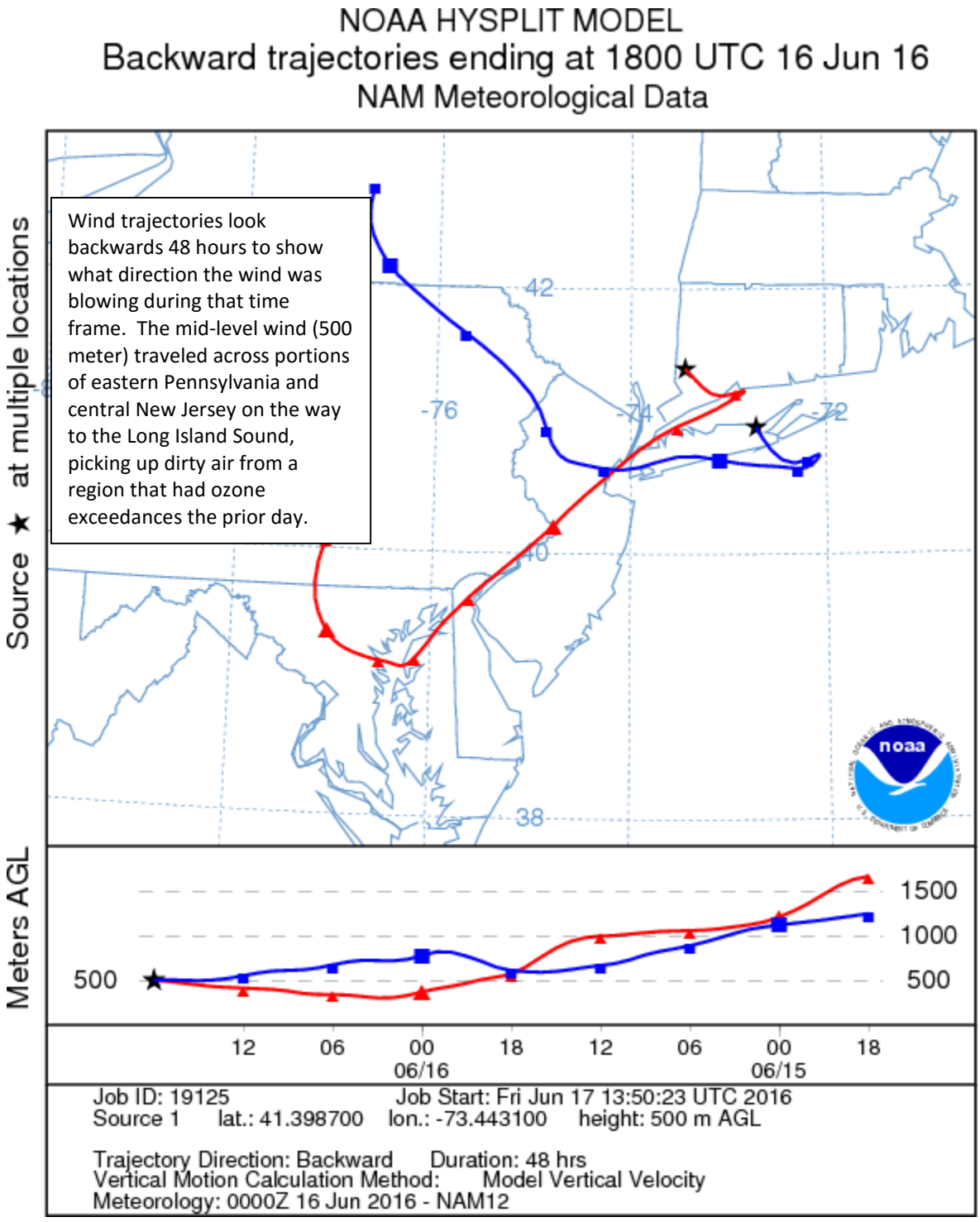


Figure 4. 48-hour Back Trajectories for June 16, 2016 at 1500 meters

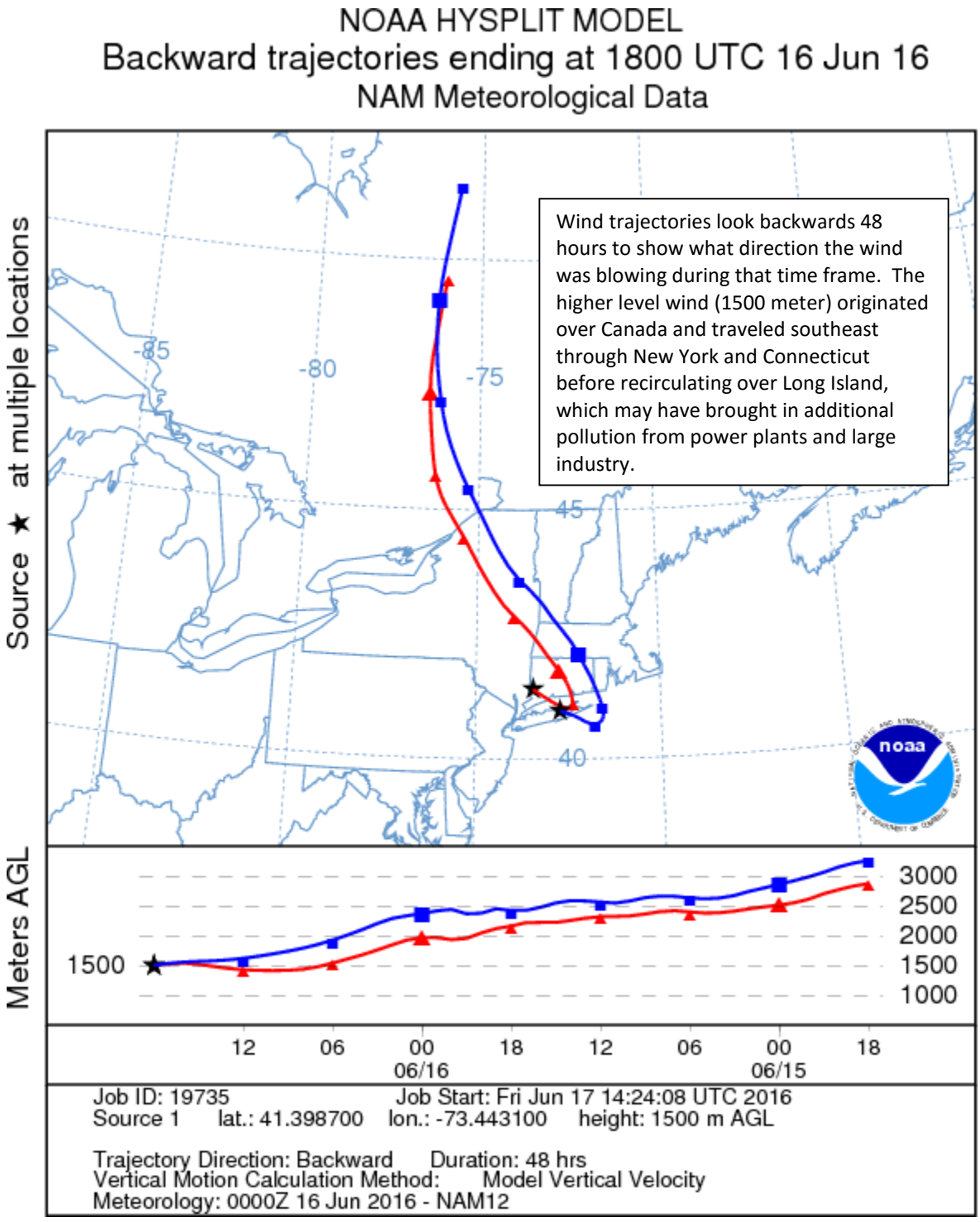
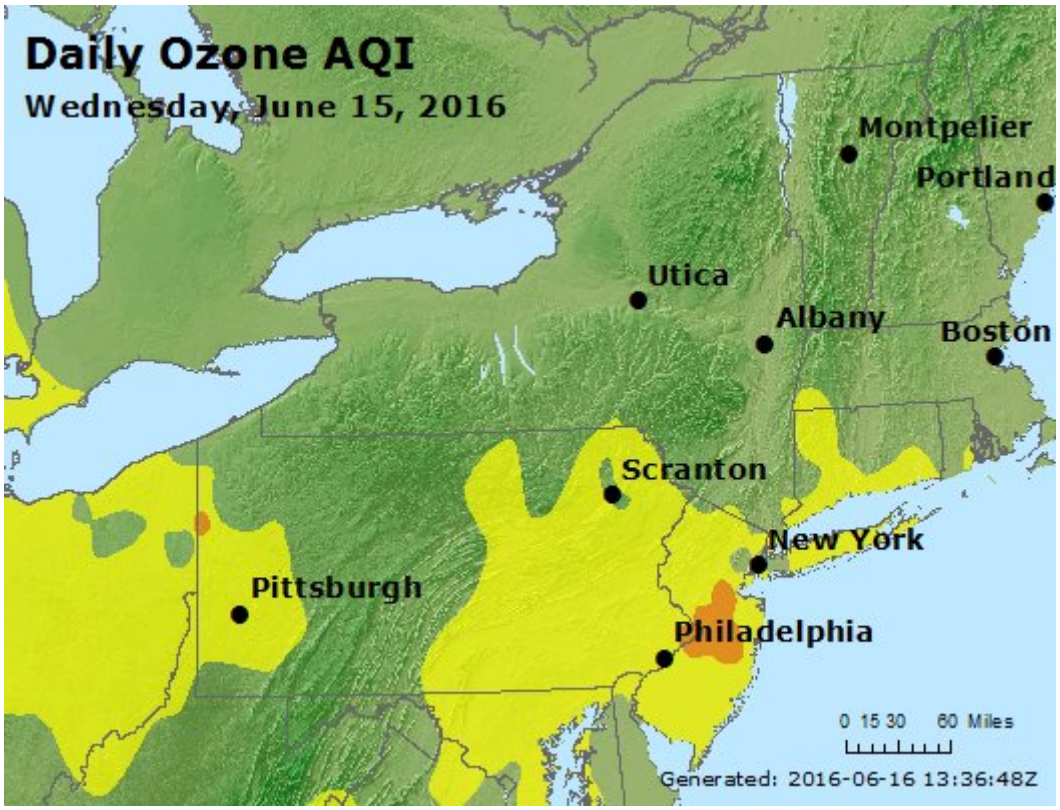


Figure 5. Ozone Exceedances in the Mid-Atlantic Region on June 15, 2016



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.