

Ozone National Ambient Air Quality Standard Health Exceedances on June 7, 2016

Exceedance Locations and Levels

On Tuesday, June 7, 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 1-hour average ozone concentration recorded on June 7, 2016 in New Jersey was 84 ppb at the Ancora station, 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 New Jersey remains at six (6). By the 7th of June in 2015, there were a total of two (2) days on which ozone exceedances were measured in New Jersey (based on the 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 5 states, New York, Connecticut, Pennsylvania, Delaware and Maryland, that are included in New Jersey's ozone non-attainment areas. From this group of stations in the other neighboring states, there were five (5) exceedances of the new 8-hour ozone NAAQS of 70 ppb recorded on Tuesday, June 7, 2016:

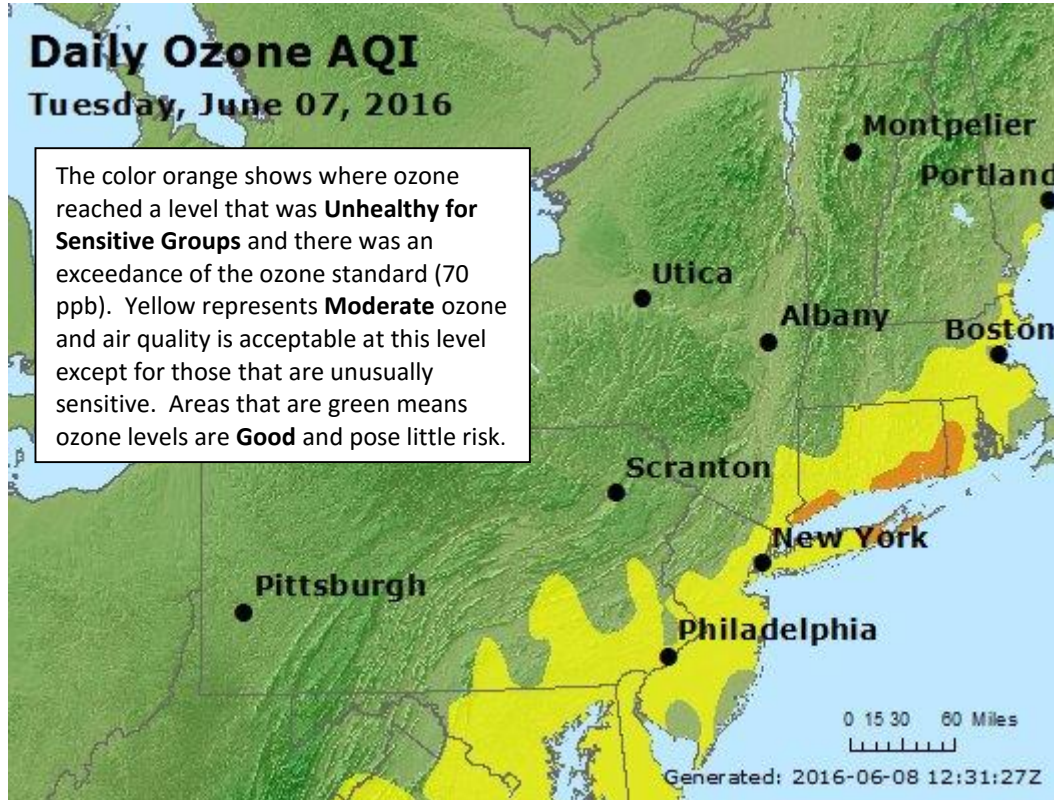
Table 1: Ozone NAAQS Exceedances at other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on June 7, 2016

STATE	STATION	Daily Maximum 8-hr Average (ppb)	Exceeds 70 ppb NAAQS	Exceeds 75 ppb NAAQS	Exceeds 84 ppb NAAQS
CT	Greenwich	73	Yes		
CT	Madison-Beach Rd.	78	Yes	Yes	
CT	Stratford	73	Yes		
CT	Westport	72	Yes		
NY	Riverhead	75	Yes		

One (1) station exceeded the 75 ppb ozone NAAQS of 2008, but none exceeded the 84 ppb ozone NAAQS of 1997. The highest 1-hour average ozone concentration recorded was 100 ppb at Greenwich, CT, which is below the 1-hour ozone NAAQS of 120 ppb.

Tuesday marks the 8th day in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in Connecticut, and the 5th day in New York. The number of days on which exceedances were recorded in Pennsylvania remains at three (3), and two (2) days each for Delaware and Maryland.

Figure 1. Ozone Air Quality Index for June 7, 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 coastal Connecticut and Long Island showed temperatures reached approximately 80°F. Winds were light and from the southwest/west with a cold front approaching the region. Skies stayed mostly sunny until the front passed through the area in the evening hours. Light southwest winds, mostly sunny skies, and warm temperatures are weather features commonly seen with ozone exceedances.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 2 and 3 show the back trajectories at different wind heights for selected monitored exceedances on June 7, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event. Three (3) monitoring stations with 8-hour ozone exceedances were chosen to run back trajectories. The selected sites and the maximum 8-hour ozone levels recorded are listed in Table 3 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)
CT	Madison Beach Rd.	78
CT	Greenwich	73
NY	Riverhead	75

Figure 2 shows that the low level wind (10 meter) traveled up the I-95 corridor and through Long Island, picking up air contaminant emissions from cars, trucks, and industry. The back trajectory map (Figure 3) for the higher level winds show the 500 meter (red lines) and 1500 meter (blue lines) winds came across the Ohio Valley, Pennsylvania, New York City metropolitan area and Long Island, bringing additional pollution from vehicles, industry, and power plants. The combination of these winds caused pollution from a variety of mobile and stationary sources to be transported into the areas of coastal Connecticut and Long Island that experience high ozone on June 7, 2016.

Figure 2. 48-hour Back Trajectories for June 7, 2016 at 10 meters

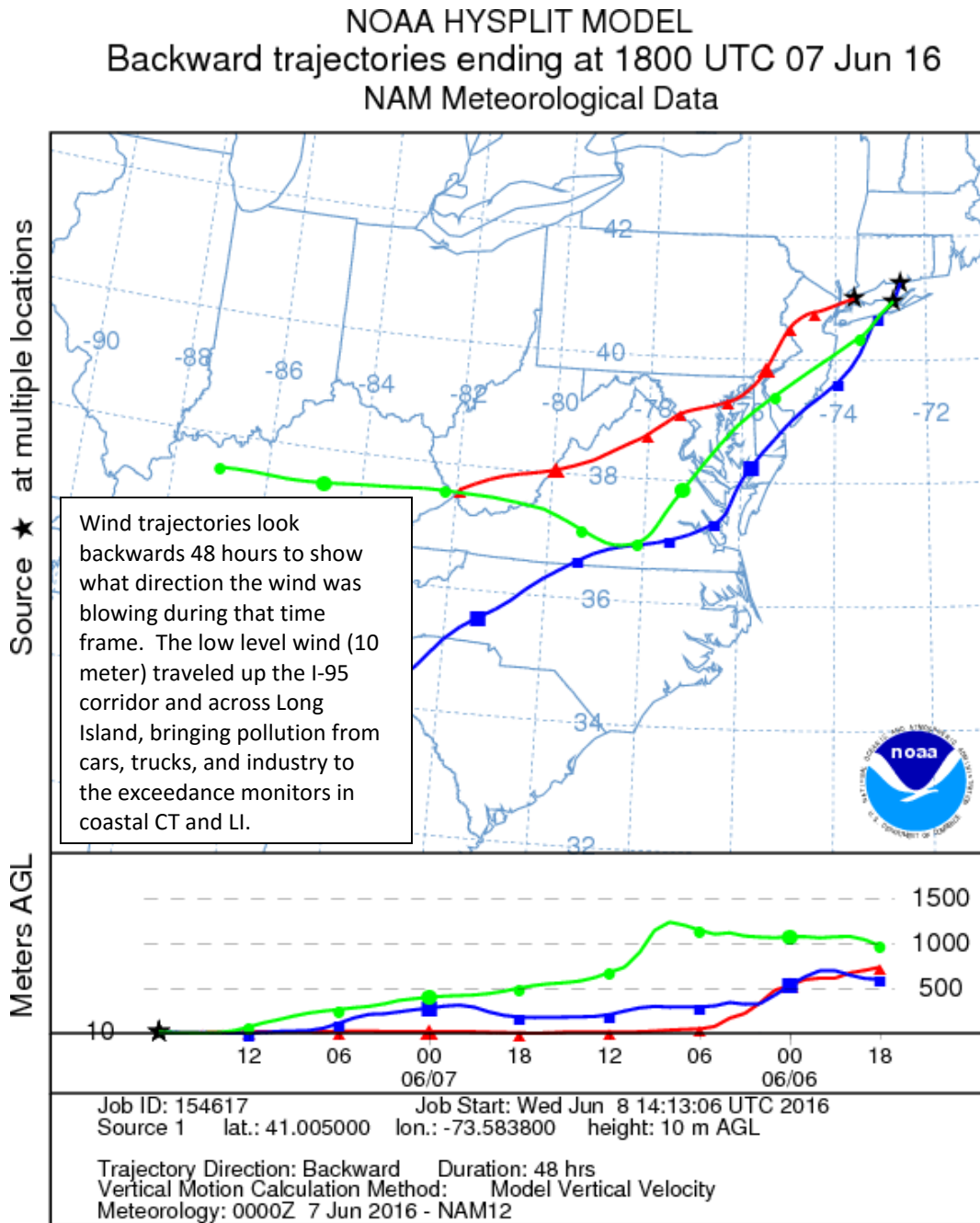
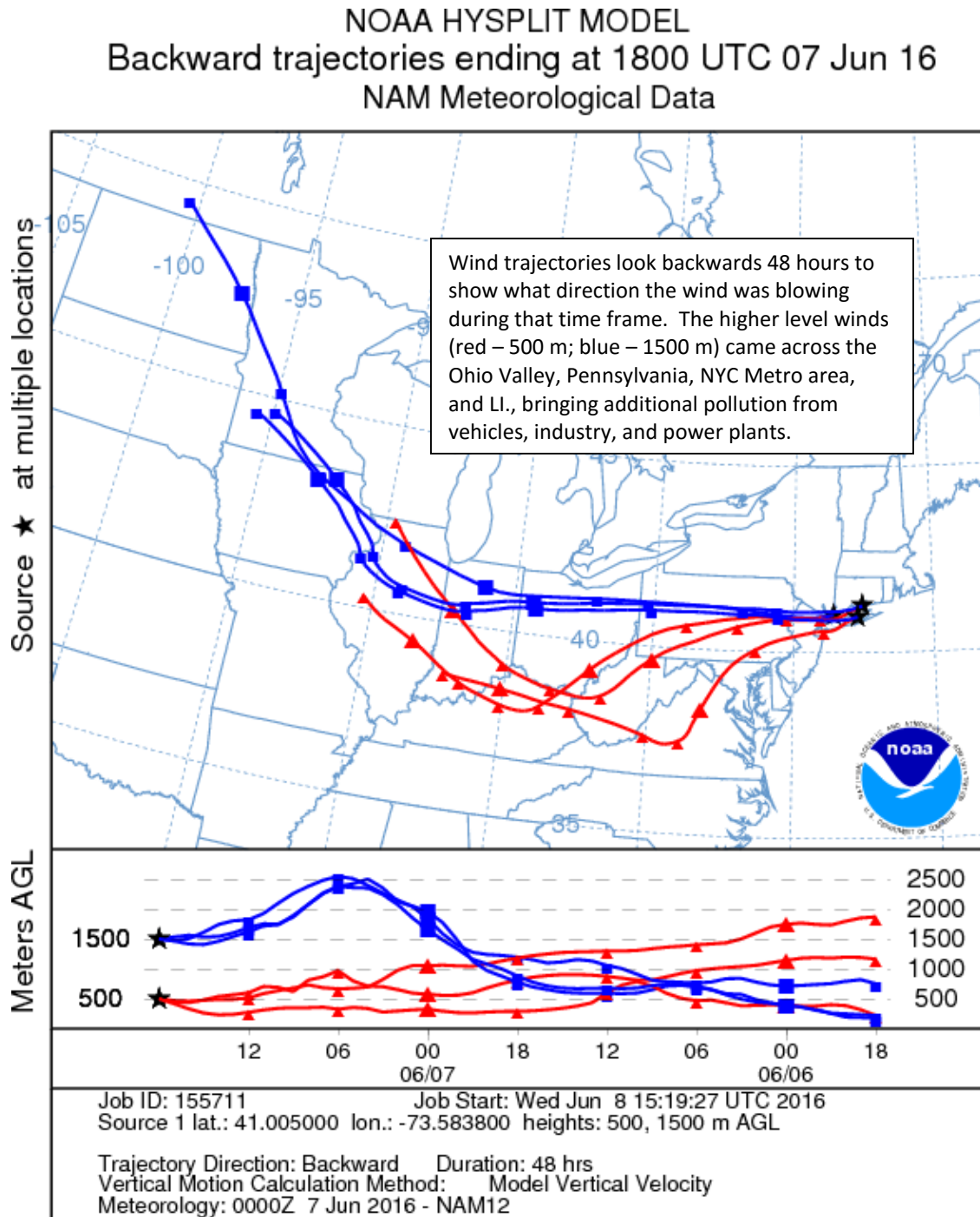


Figure 3. 48-hour Back Trajectories for June 7, 2016 at 500 and 1500 meters



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.