

Ozone National Ambient Air Quality Standard Health Exceedances on August 12, 2016

Exceedance Locations and Levels

On Friday, August 12, 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 in New Jersey on August 12, 2016 was 60 ppb at the Monmouth University station. The highest 1-hour average ozone concentration recorded on August 12, 2016, in New Jersey was 77 ppb at the Monmouth University 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 twenty-one (21). By the 12th of August in 2015, there were a total of ten (10) 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 were four (4) exceedances of the new 8-hour ozone NAAQS of 70 ppb recorded on Friday, August 12, 2016 (see Table 1):

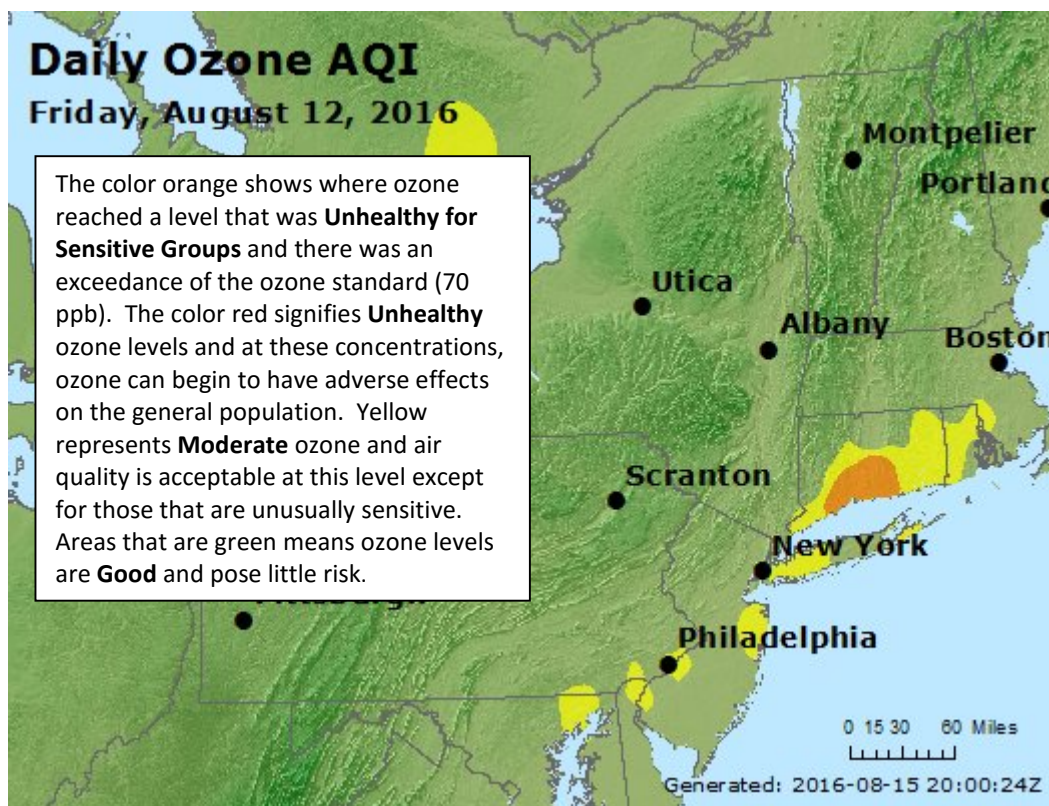
Table 1: Ozone NAAQS Exceedances at Other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on August 12, 2016

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Madison-Beach Road	75
CT	Middletown	75
CT	New Haven	73
CT	Stratford	79

The highest 1-hour average ozone concentration recorded was 118 ppb at the Stratford station in Connecticut, which is below the 1-hour ozone NAAQS of 120 ppb.

Friday marks the 21st day in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in Connecticut. The number of days remains at eighteen (18) for New York, ten (10) for Pennsylvania, seven (7) for Delaware, and six (6) for Maryland.

Figure 1. Ozone Air Quality Index for August 12, 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 from the south/southwest with a high pressure system over the Atlantic Ocean. Skies were mostly sunny over Connecticut. A low pressure surface trough was also in place along the Appalachian Mountains from West Virginia through New England. This weather feature led to increased cloud cover over New Jersey and southern New York with scattered afternoon showers and thunderstorms. Coastal Connecticut experienced mostly sunny skies allowing the local ozone concentrations to exceed the ozone standard. Abundant sunlight, southwest winds, and warm temperatures, are all meteorological conditions commonly seen on high ozone days.

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 August 12, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event.

The low level wind (Figure 2) traveled up the I-95 corridor and through the major metropolitan areas of Baltimore, Philadelphia, and New York City where it picked up emissions from cars, trucks, and industry on the way to the exceedance monitors in Connecticut. The back trajectories for the mid-level (Figure 3)

and higher level (Figure 4) winds illustrate similar transport pathways. Winds originated over the Smoky Mountains and traveled across Pennsylvania, northern New Jersey, and New York City, bringing additional emissions from motor vehicles, industry, and power plants to Connecticut. These winds, in combination with the low level wind, caused air pollution from a variety of mobile and stationary sources to be transported in the areas of coastal Connecticut that experienced high ozone on August 12, 2016.

Figure 2. 48-hour Back Trajectories for August 12, 2016 at 10 meters

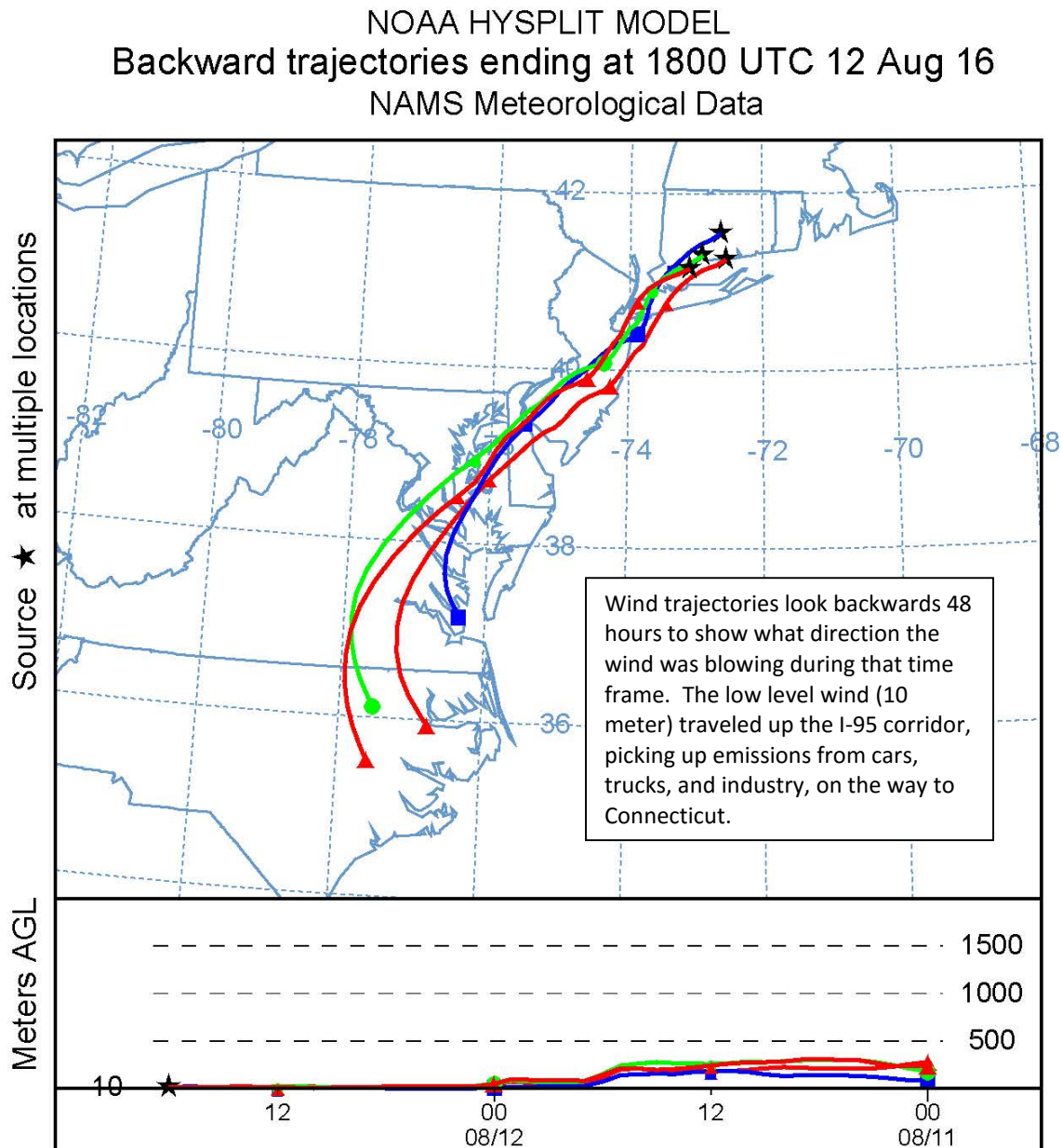


Figure 3. 48-hour Back Trajectories for August 12, 2016 at 500 meters

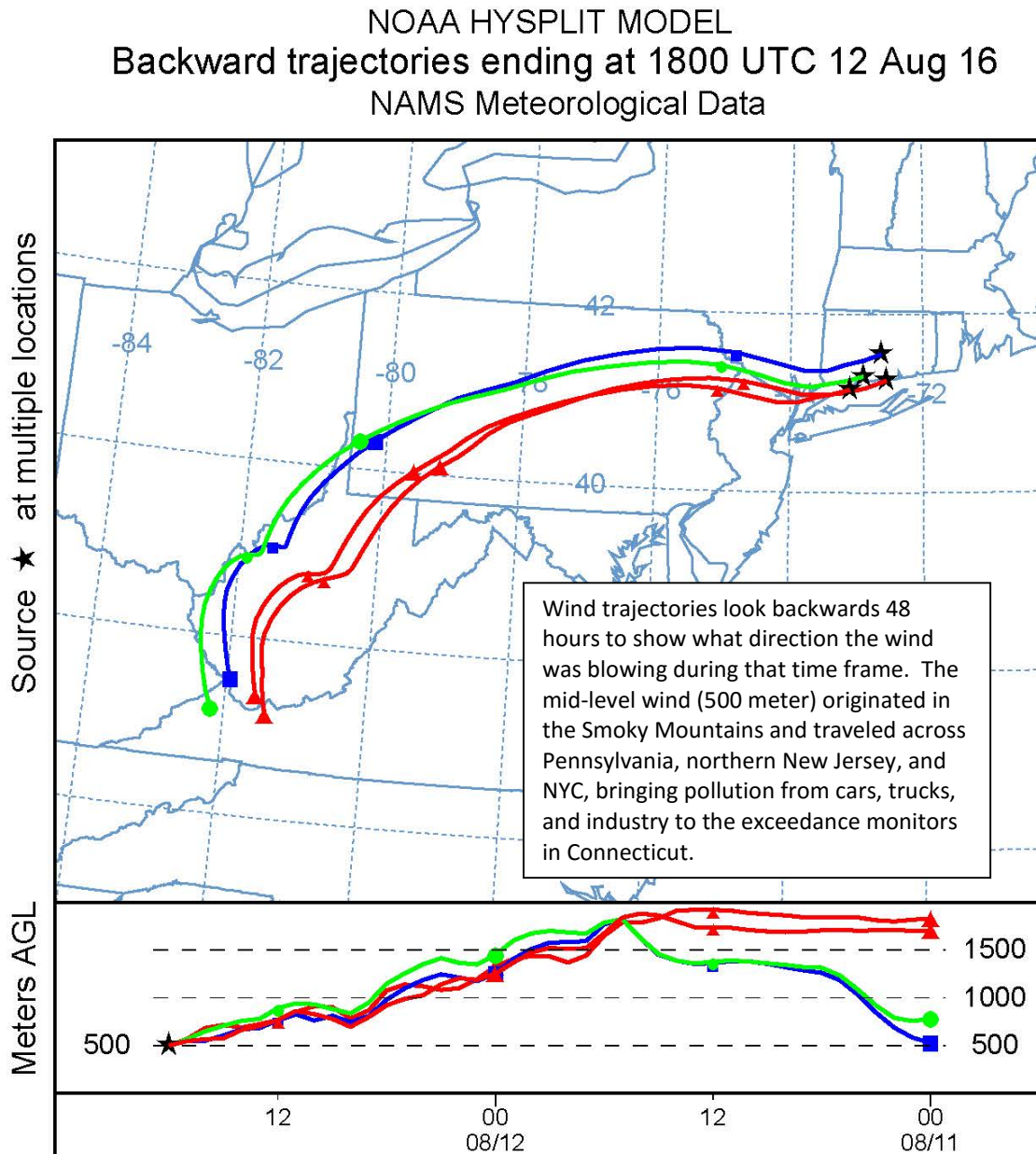
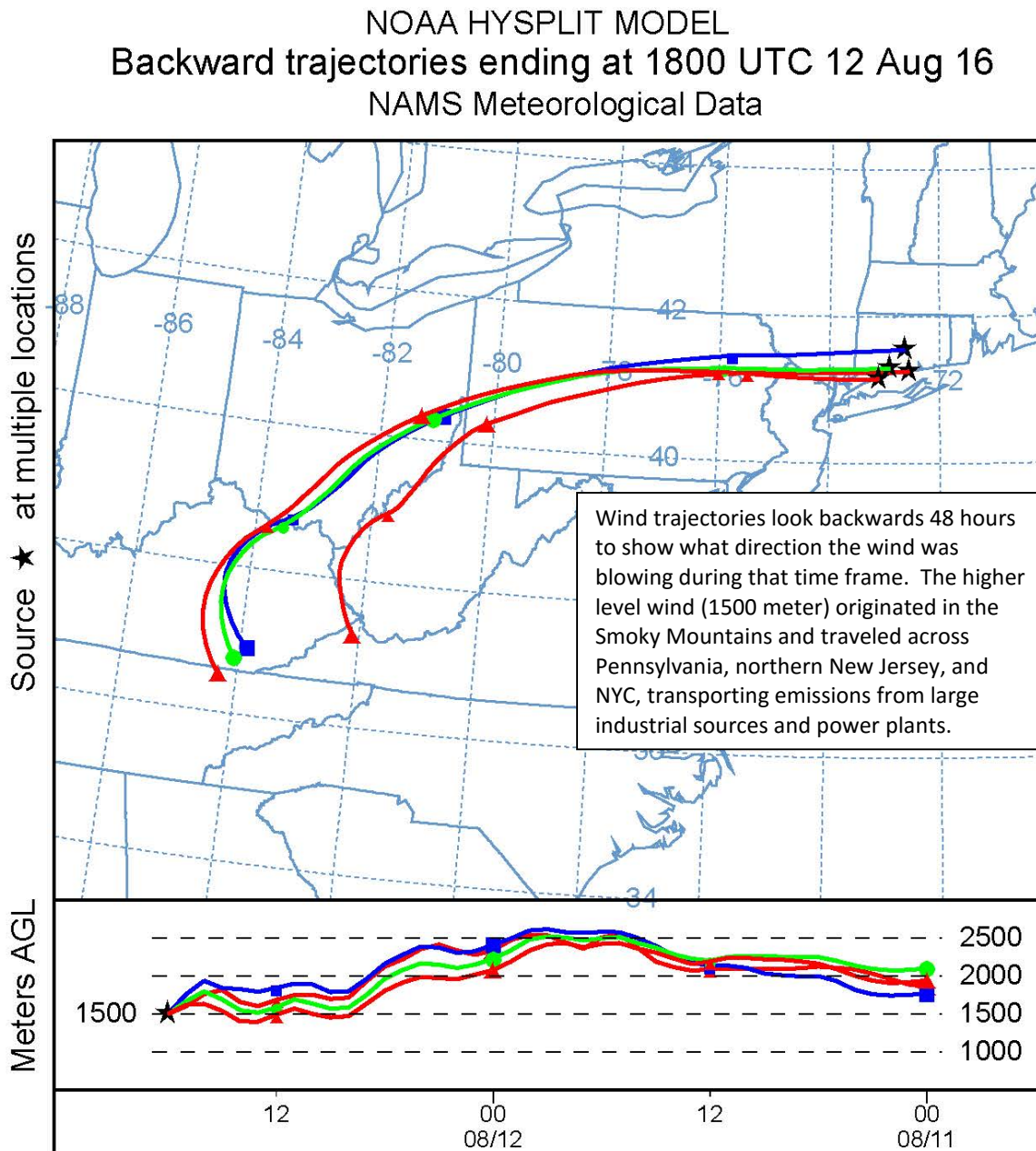


Figure 4. 48-hour Back Trajectories for August 12, 2016 at 1500 meters



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.