

Ozone National Ambient Air Quality Standard Health Exceedance on April 22, 2016

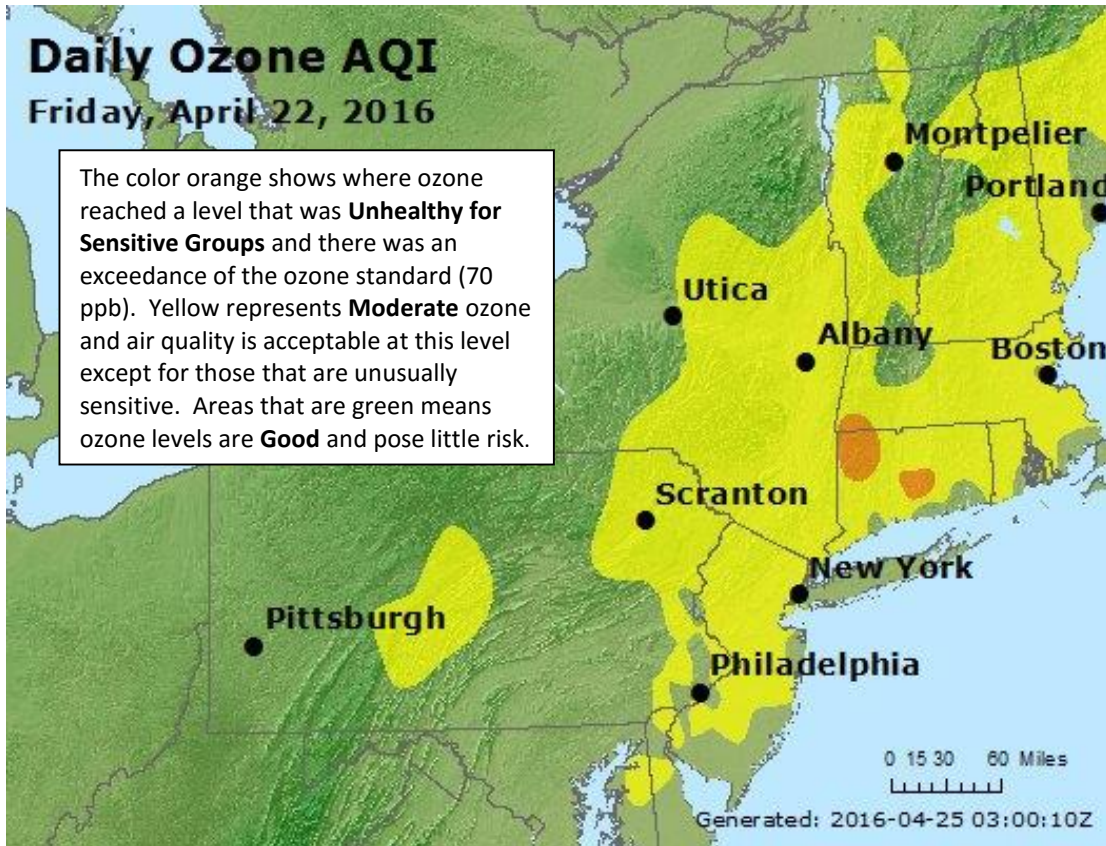
Exceedance Location and Levels

April 1st marked that start of the official ozone season in 2016 for New Jersey. As of Sunday, April 24, New Jersey has not measured any exceedances of the 8-hour ozone NAAQS, nor of the 1-hour ozone NAAQS. The 8-hour ozone NAAQS is exceeded at a concentration of 71 ppb and higher, and the 1-hour ozone NAAQS is exceeded at a concentration of 125 ppb and higher. The highest 8-hour average ozone concentration in New Jersey since the start of the 2016 ozone season was recorded at Ramapo on Friday, April 22, 2016 with a concentration of 68 ppb. The highest 1-hour average ozone concentration in New Jersey since the start of the ozone season was 73 ppb recorded on April 18 in Ancora, and on April 22 in Ramapo.

There is a group of monitoring stations in designated counties of 5 states: New York, Connecticut, Pennsylvania, Delaware and Maryland, which are included in New Jersey's ozone non-attainment areas. From this group of stations in the other neighboring states, there was one (1) exceedance of the 8-hour ozone NAAQS recorded on Friday, April 22, 2016 in Connecticut: Middletown station with a concentration of 73 ppb. Figure 1 is a map illustrating where the exceedances in Connecticut occurred on April 22, 2016. This ozone discussion focuses on the exceedance in central Connecticut. The exceedance in northwestern Connecticut is not part of New Jersey's northern ozone non-attainment area.

Friday marks the 1st day in 2016 on which an exceedance of the 8-hour ozone NAAQS was recorded in Connecticut. Pennsylvania, New York, Maryland, and Delaware have not measured any exceedances of the 8-hour ozone NAAQS.

Figure 1. Ozone Air Quality Index for April 22, 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

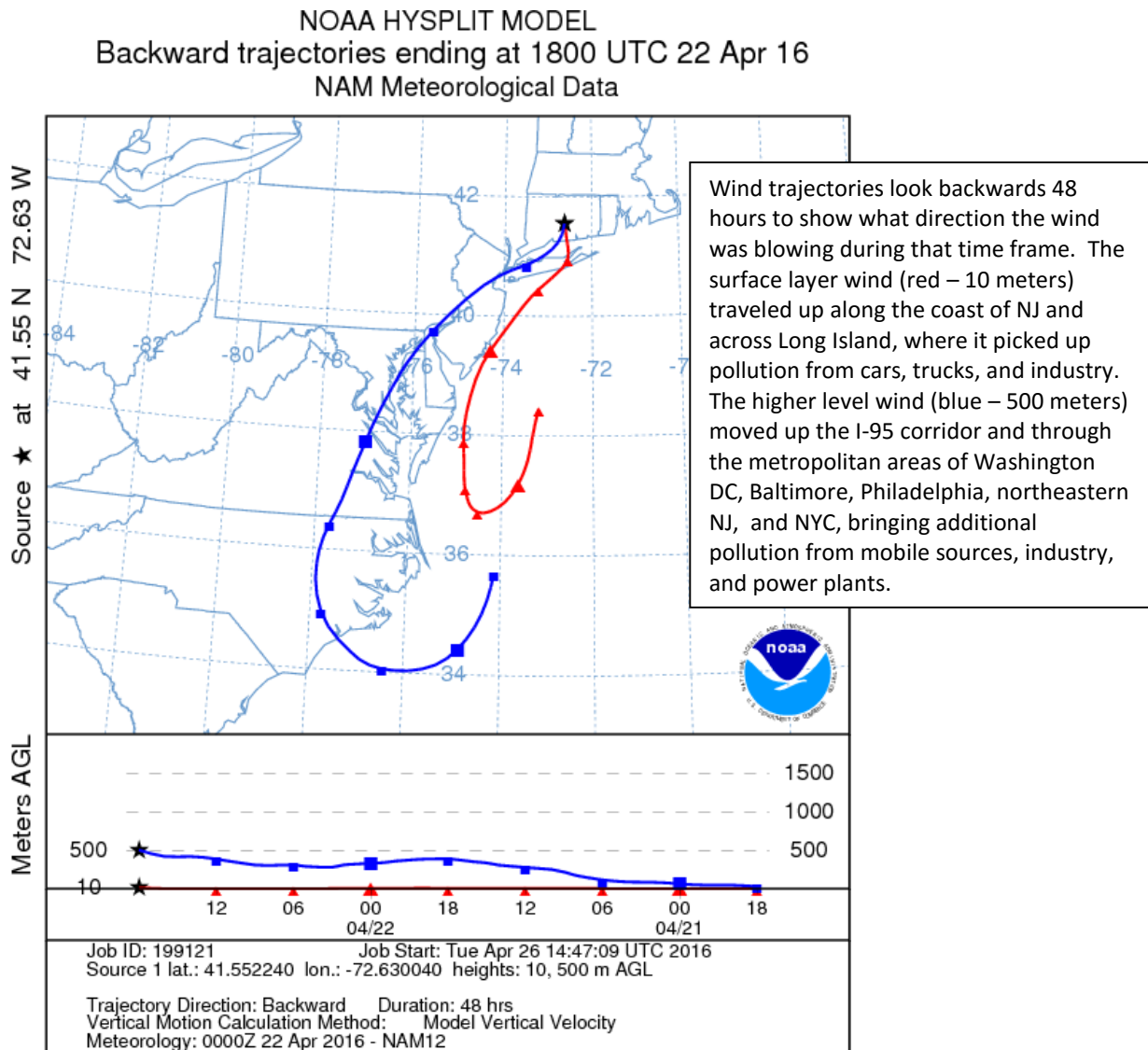
Meteorological data from Meriden Markham Municipal Airport in Connecticut shows temperatures reached 77° F. Winds were calm in the early morning hours and then shifted to a light southerly flow for the remaining period. Skies were mostly sunny during the day. Sufficient sunlight and warm temperatures are features commonly seen with an ozone exceedance. Although south 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?

Figure 2 shows the back trajectories for the monitored exceedance on April 22. Figure 2 illustrates that surface layer winds (red line) traveled up along the coast of New Jersey and through Long Island, where there are significant amounts of air contaminant emissions from cars, trucks and industry in that region of New York, before reaching Connecticut. Higher level winds (blue line) moved along the I-95 corridor and through the metropolitan areas of Washington DC, Baltimore, Philadelphia, northeastern New

Jersey, and New York City on the way to Connecticut, bringing additional pollution from motor vehicles, industry, and power plants. The wind trajectory paths and low wind speeds recorded in the 24 hour period leading up to the ozone exceedance suggest that localized emissions from mobile and stationary sources in the New York City metropolitan region were the primary sources of air pollution that caused high ozone at the Middletown, Connecticut air monitoring site on April 22.

Figure 2. 48-hour Back Trajectories for April 22, 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.