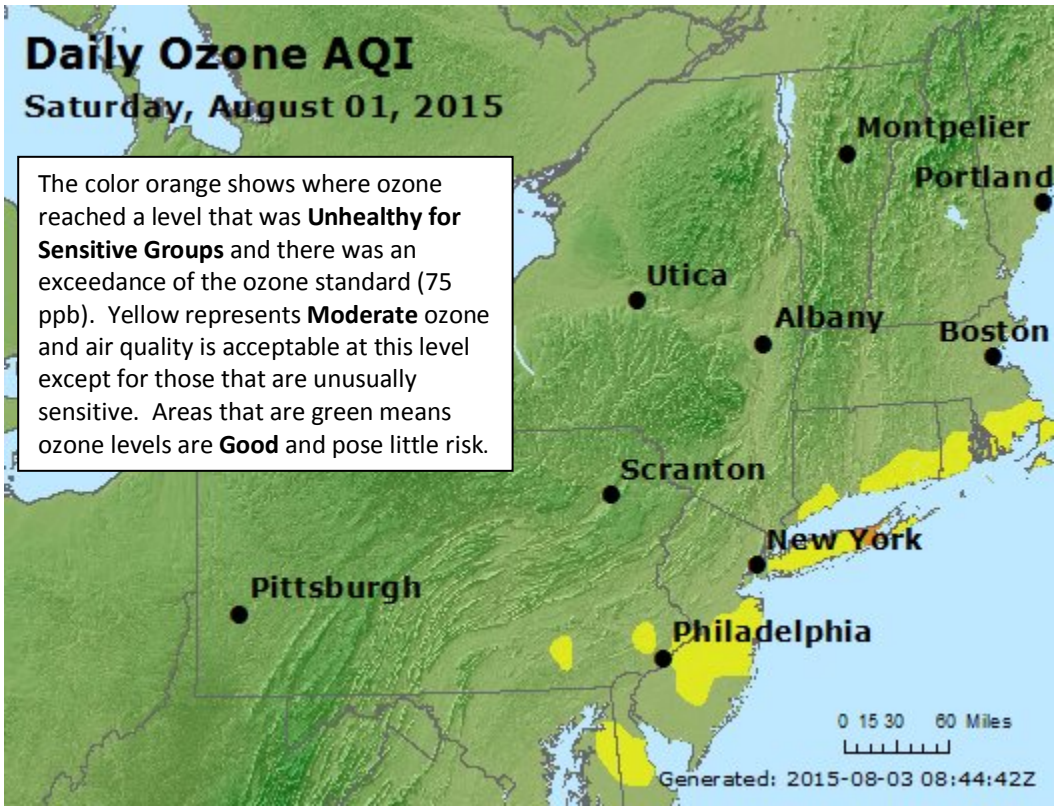
Ozone National Ambient Air Quality Standard Health Exceedance on August 1, 2015

Exceedances Locations and Levels

On Saturday, August 1, 2015, an exceedance of the 8-hour average 75 ppb NAAQS for ozone was recorded at one (1) New York station: Riverhead with a concentration of 76 ppb. The highest 1-hour average ozone concentration recorded on August 1, 2015 was 91 ppb, also at Riverhead, which is below the 1-hour NAAQS of 120 ppb. The Riverhead, NY ozone level was the only exceedance in the 5 states that make up the Air Quality Control Region that includes New Jersey. The highest 8-hour average ozone concentration recorded in New Jersey was 65 ppb at the Colliers Mills station on August 1, 2015. The highest 1-hour average ozone concentration recorded was 70 ppb, also at Colliers Mills. Figure 1 shows the ozone AQI across the region for August 1.

Figure 1. Ozone Air Quality Index for August 1, 2015



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

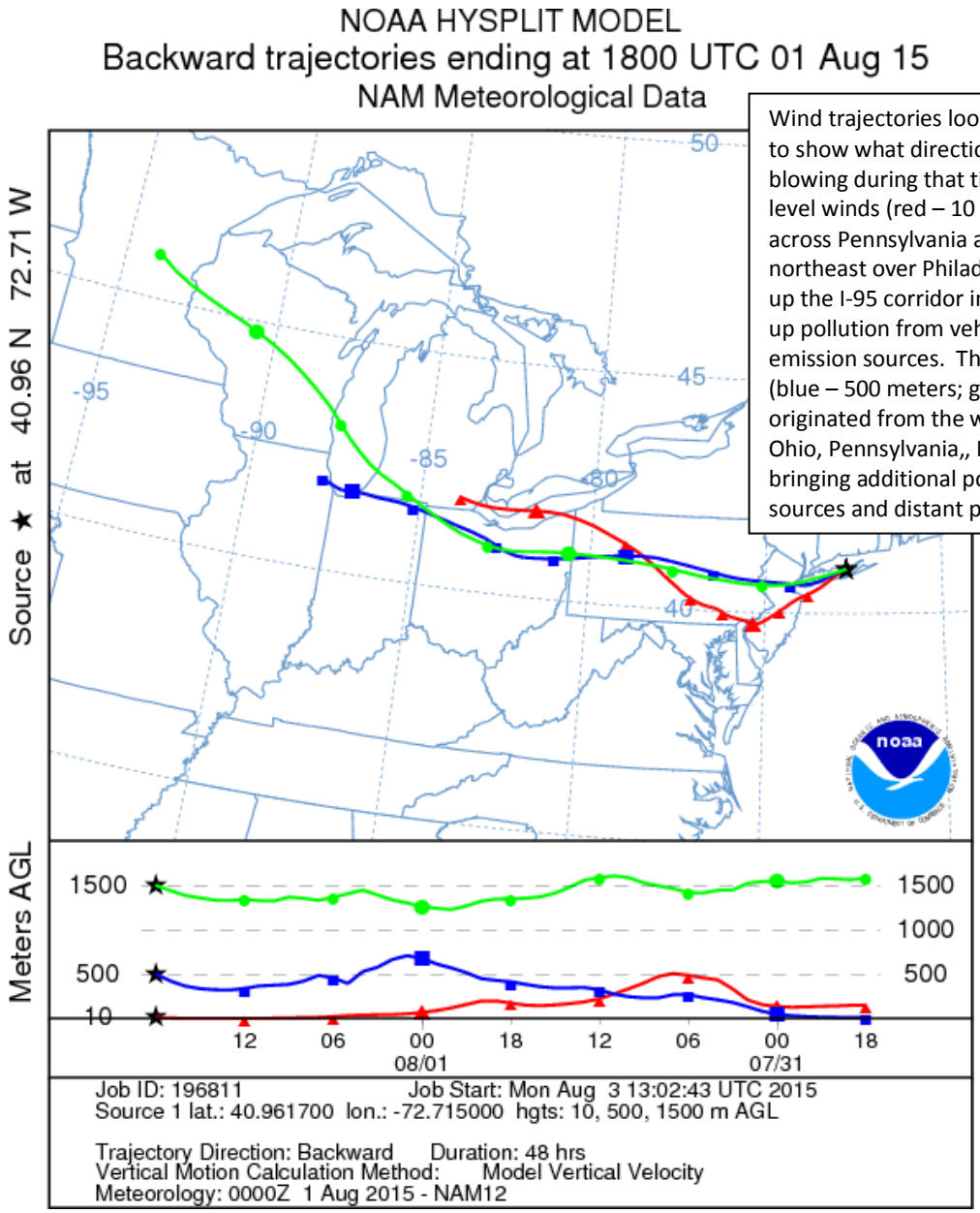
Weather

Meteorological data from Francis S. Gabreski Airport in Westhampton Beach, NY shows temperatures reached 91° F, while winds were very light and from the southwest with an average wind speed of 2 mph. Skies were mostly sunny. Sufficient sunlight, combined with warmer temperatures and light southwest winds are features commonly seen with an ozone exceedance.

Where Did the Air Pollution that Caused Ozone Come From?

Figure 2 shows the back trajectories for the monitored exceedance for August 1. Figure 2 shows that low level winds (red line) came across central Pennsylvania and Philadelphia, before shifting direction and traveling northeast, along the I-95 corridor in New Jersey, where there are significant amounts of air contaminant emissions from cars, trucks, and industry. Higher level winds (blue and green lines) originated out of the west and traveled through Ohio, Pennsylvania, northern New Jersey, and New York City, bringing additional pollution to Long Island, NY from motor vehicles and distant power plants. The combination of these winds caused air pollution from a variety of mobile and stationary sources to be transported into the area of Long Island, NY that experienced high ozone on August 1.

Figure 2. 48-hour Back Trajectories for August 1, 2015



Wind trajectories look backwards 48 hours to show what direction the wind was blowing during that time frame. The low level winds (red – 10 meters) traveled across Pennsylvania and then shifted northeast over Philadelphia and continued up the I-95 corridor in New Jersey, picking up pollution from vehicles and smaller emission sources. The higher level winds (blue – 500 meters; green – 1500 meters) originated from the west and came through Ohio, Pennsylvania,, New Jersey, and NYC, bringing additional pollution from mobile sources and distant power plants.

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.