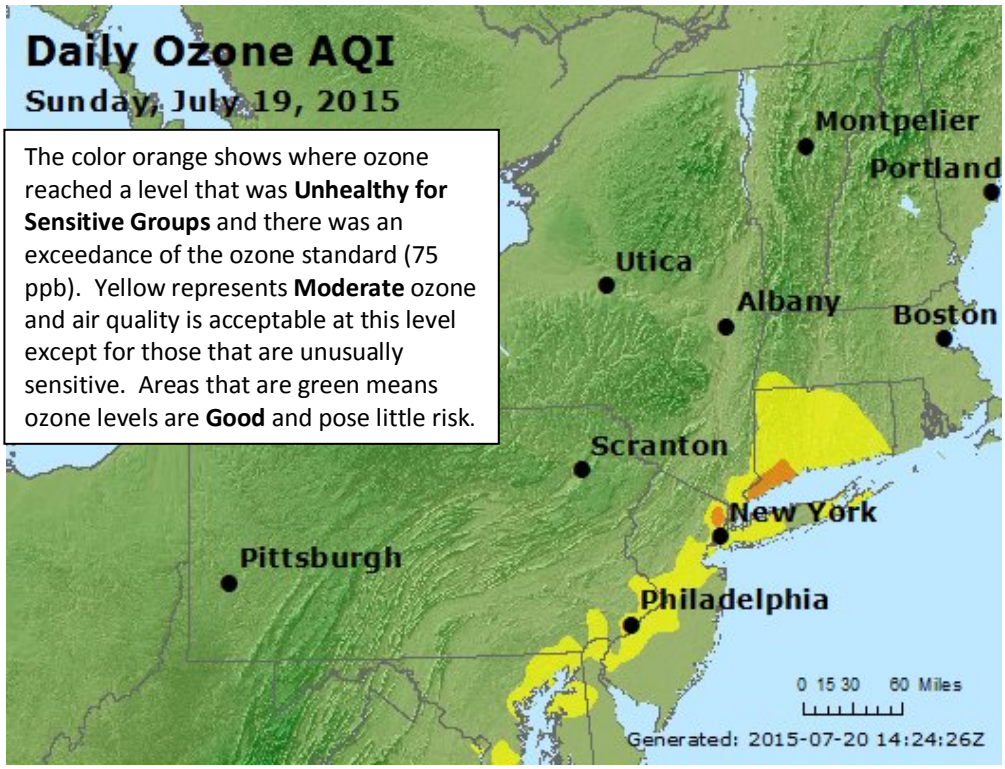
Ozone National Ambient Air Quality Standard Health Exceedance on July 19, 2015

Exceedances Locations and Levels

On Sunday, July 19, 2015, an exceedance of the 8-hour average 75 ppb NAAQS for ozone was recorded at three (3) stations in Connecticut: Westport with a concentration of 86 ppb, Stratford with a concentration of 80 ppb, and Greenwich with a concentration of 79 ppb. The highest 1-hour average ozone concentration recorded on July 19, 2015 was 106 ppb at Greenwich, which is below the 1-hour NAAQS of 120 ppb. The three Connecticut sites were the only ozone exceedances 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 72 ppb at the Camden Spruce Street station. The highest 1-hour average ozone concentration recorded in New Jersey was 78 ppb at the Bayonne station. Figure 1 shows the ozone AQI across the region for July 19, 2015.

Figure 1. Ozone Air Quality Index for July 19, 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

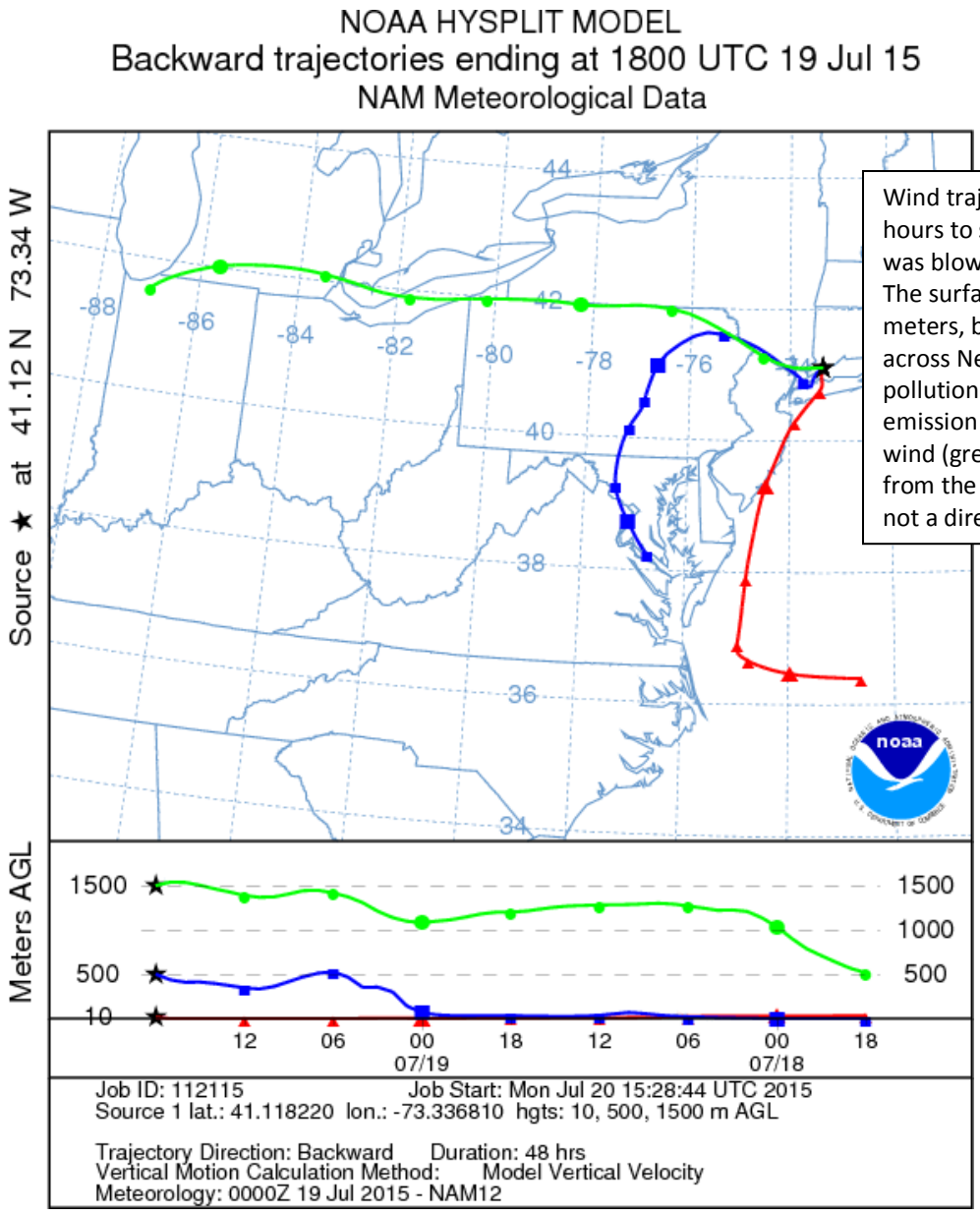
Weather

Meteorological data from Sikorsky Memorial Airport in Connecticut shows temperatures reached 91° F, while winds were light and from the southwest/west. Skies were mostly sunny. Sufficient sunlight, combined with warmer temperatures and a southwest wind component 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 July 19. Figure 2 shows that low and mid-level winds (red and blue lines) traveled over the NYC metropolitan area, where there are significant amounts of air contaminant emissions from cars, trucks and industry. Higher level winds (green line) show that winds came from the northwest across southern Ontario and along the northern Pennsylvania – New York border, which is not associated with high ozone levels. The lower level winds may have caused air pollution from vehicles and small industrial sources to be transported into the area of southwestern Connecticut that experienced high ozone on July 19.

Figure 2. 48-hour Back Trajectories for July 19, 2015



Wind trajectories look backwards 48 hours to show what direction the wind was blowing during that time frame. The surface layer winds (red – 10 meters, blue – 500 meters) travel across New York City picking up pollution from vehicles and smaller emission sources. The higher level wind (green – 1500 meters) originates from the northwest which is generally not a direction that brings high ozone.

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.