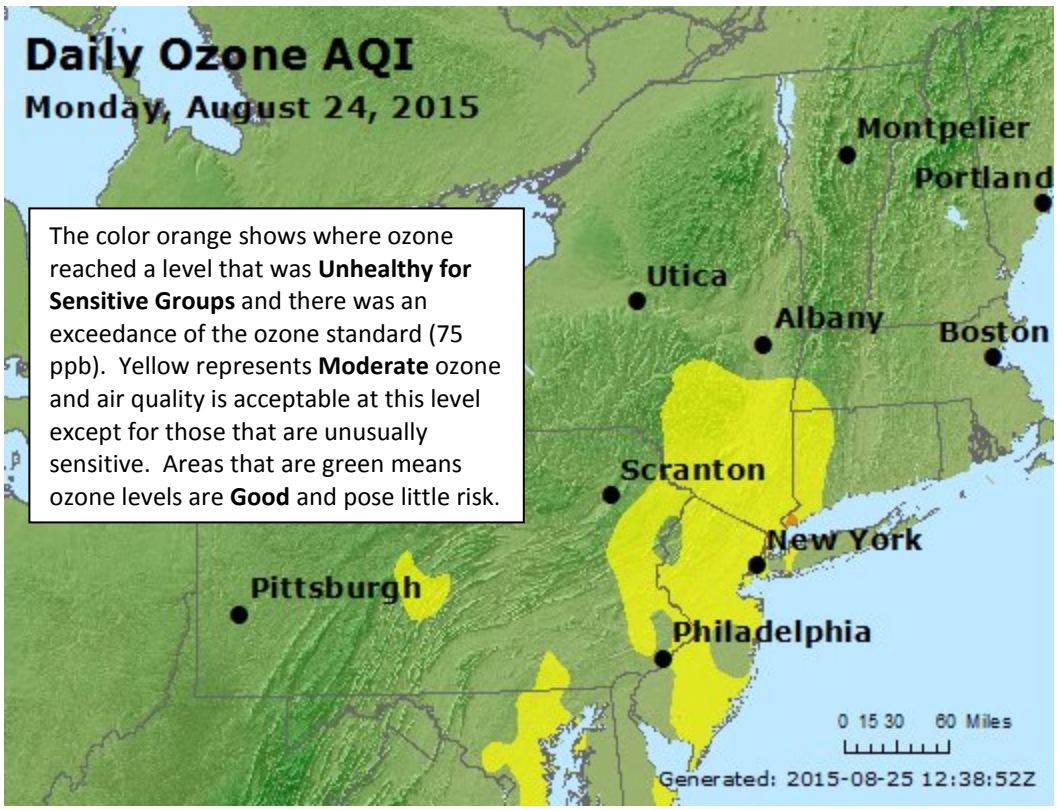
Ozone National Ambient Air Quality Standard Health Exceedance on August 24, 2015

Exceedances Locations and Levels

On Monday, August 24, 2015, an exceedance of the 8-hour average 75 ppb NAAQS for ozone was recorded at one (1) Connecticut station: Greenwich with a concentration of 76 ppb. The highest 1-hour average ozone concentration recorded on August 24, 2015 in Connecticut was 94 ppb at the Danbury station, which is below the 1-hour NAAQS of 120 ppb. The Greenwich, CT ozone level was the only exceedance in the 5 states that make up the Air Quality Control Region that includes New Jersey. Figure 1 shows the ozone AQI across the region for August 24.

Figure 1. Ozone Air Quality Index for August 24, 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

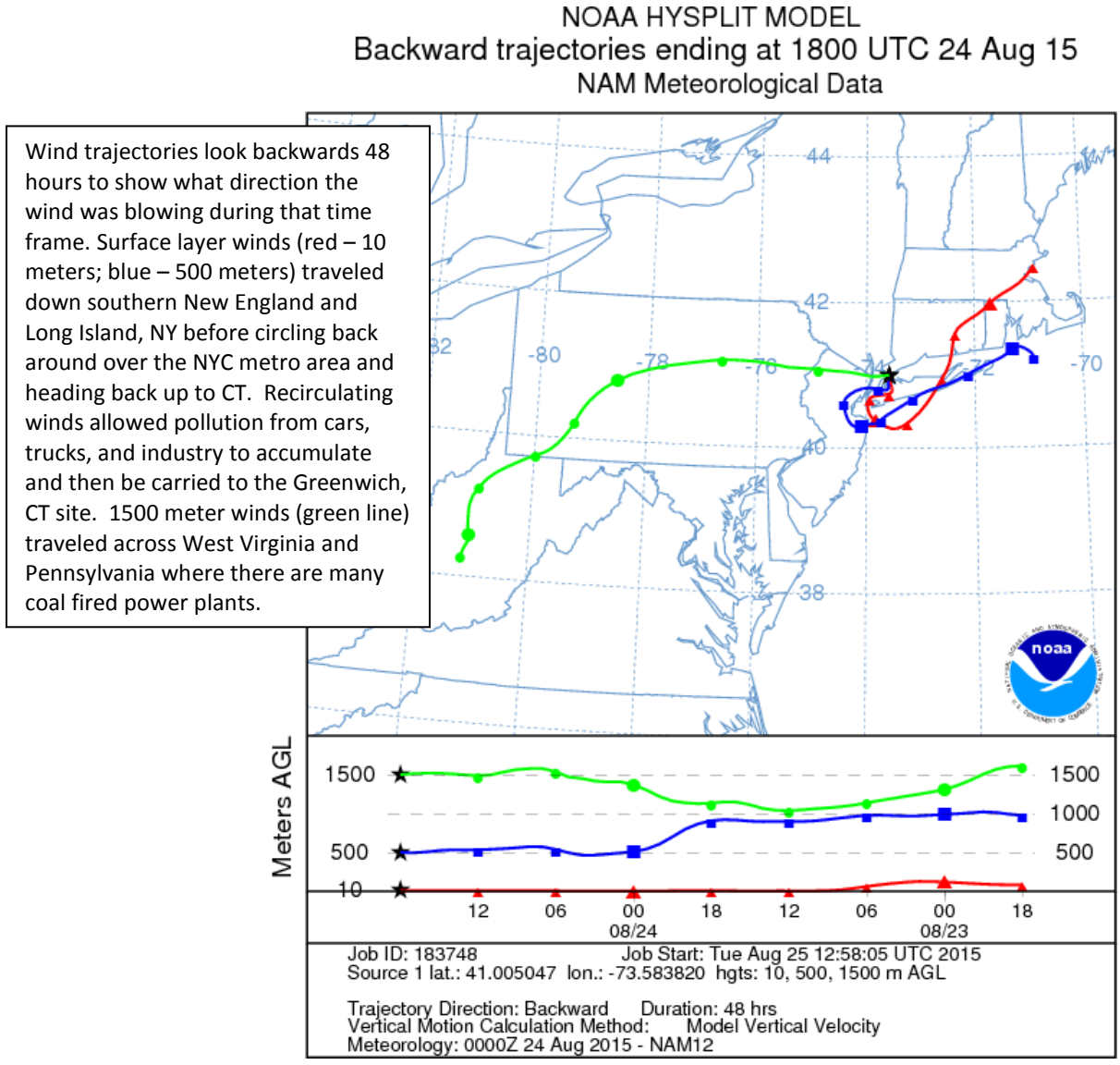
Meteorological data from Westchester County Airport in White Plains, NY (just across the border from Greenwich, CT) shows temperatures reached 86° F, while winds were very light and variable. Skies were party sunny across the area but there was enough sunshine to promote ozone formation. Sufficient sunlight, combined with warm temperatures and light variable winds, are all 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 24. Figure 2 shows that surface layer winds (red and blue lines) traveled down through southern New England and Long Island, New York before circling back around over the northern New Jersey – New York City metropolitan area and heading back up to southwestern Connecticut. Recirculating winds allowed polluted air picked up from cars, trucks, and industry the previous day to mix with local emissions from mobile and stationary sources in the northern NJ/NYC/southwestern CT metropolitan region. Higher level winds (green line) traveled across West Virginia, Pennsylvania, and the New York City metropolitan area, bringing additional pollution from motor vehicles, industry, and distant coal fired power plants. The combination of these winds caused air pollution from a variety of mobile sources, industry, and power plants to be transported into the area of southwestern, CT that experienced high ozone on August 24.

Figure 2. 48-hour Back Trajectories for August 24, 2015

Wind trajectories look backwards 48 hours to show what direction the wind was blowing during that time frame. Surface layer winds (red – 10 meters; blue – 500 meters) traveled down southern New England and Long Island, NY before circling back around over the NYC metro area and heading back up to CT. Recirculating winds allowed pollution from cars, trucks, and industry to accumulate and then be carried to the Greenwich, CT site. 1500 meter winds (green line) traveled across West Virginia and Pennsylvania where there are many coal fired 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.