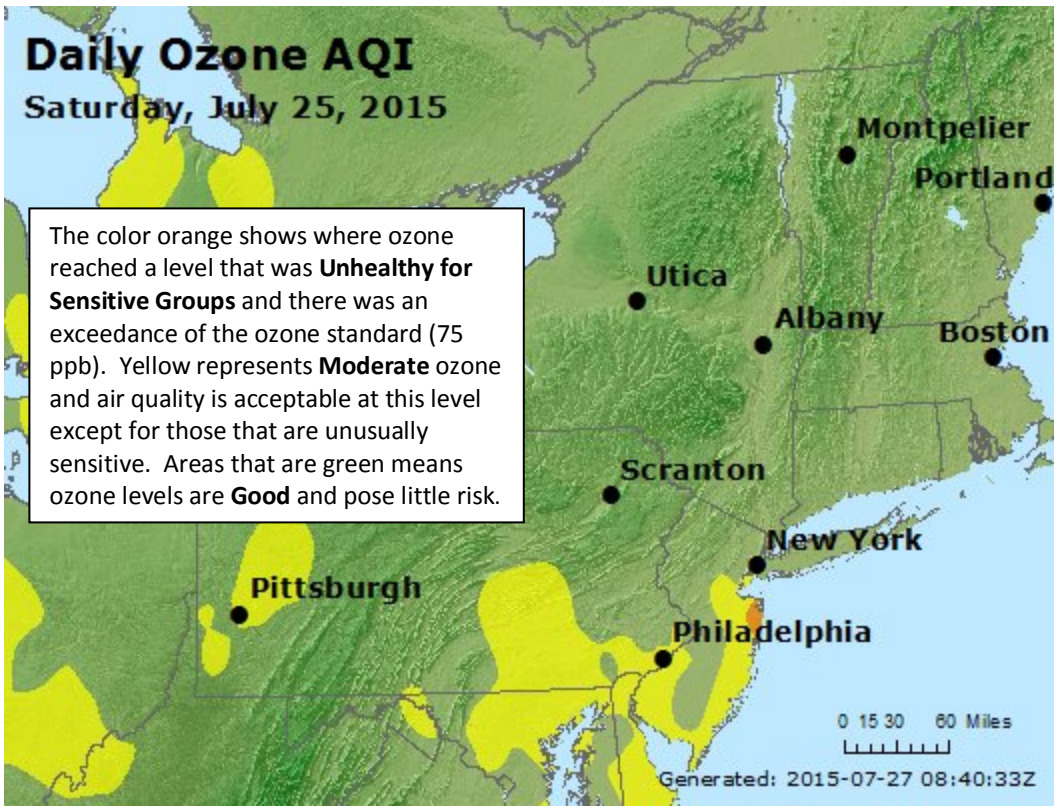
Ozone National Ambient Air Quality Standard Health Exceedance on July 25, 2015

Exceedances Locations and Levels

On Saturday, July 25, 2015, an exceedance of the 8-hour average 75 ppb NAAQS for ozone was recorded at one (1) New Jersey station: Monmouth University with a concentration of 78 ppb. The highest 1-hour average ozone concentration recorded on July 25, 2015 was 97 ppb also at Monmouth University, which is below the 1-hour NAAQS of 120 ppb. The Monmouth University, NJ 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 July 25.

Figure 1. Ozone Air Quality Index for July 25, 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

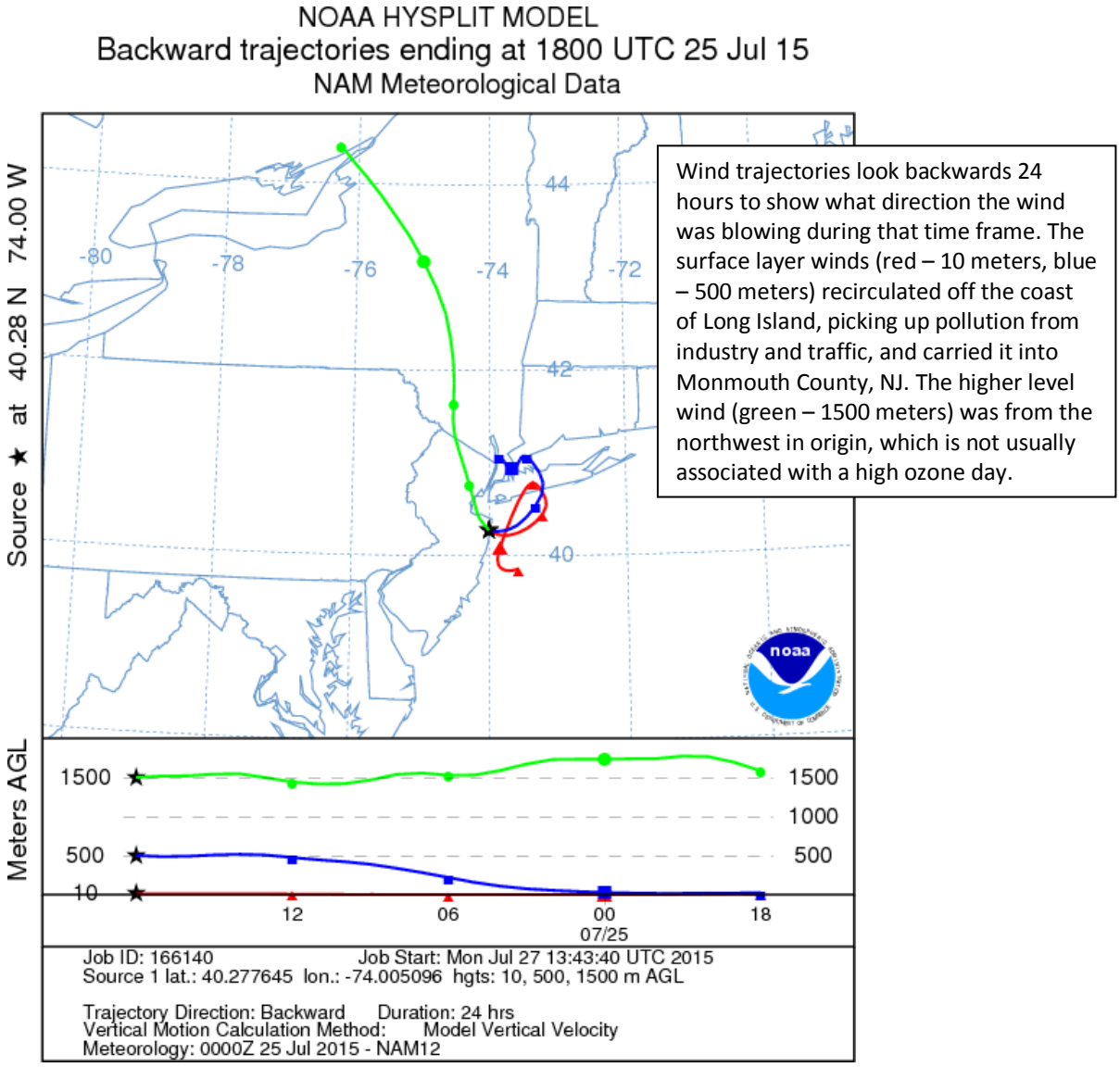
Weather

Meteorological data from Monmouth Executive Airport shows temperatures reached 82^{o} F, while winds were very light and variable. Skies were sunny across New Jersey. Sufficient sunlight, combined with warm temperatures, and light variable 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 July 25. Figure 2 shows that low and mid-level winds (red and blue lines) were very light and variable. While the 10 meter and 500 meter winds originated from different directions (10 meter from the south; 500 meter from the northwest), both traveled into Long Island, with the 500 meter wind also passing through the NYC metropolitan area, where there are significant air contaminant emissions from cars, trucks, power plants, and distributed diesel generators. The 10 meter and 500 meter winds then recirculated just off the coast of Long Island and headed towards Monmouth County, NJ. Recirculating winds allowed polluted air that was picked up from Long Island and the NYC metropolitan area to mix with local emissions from mobile and stationary sources in Monmouth County, NJ. Higher level winds (green line) show that winds were from the northwest in origin, which is not usually associated with a high ozone day.

Figure 2. 48-hour Back Trajectories for July 25, 2015



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.