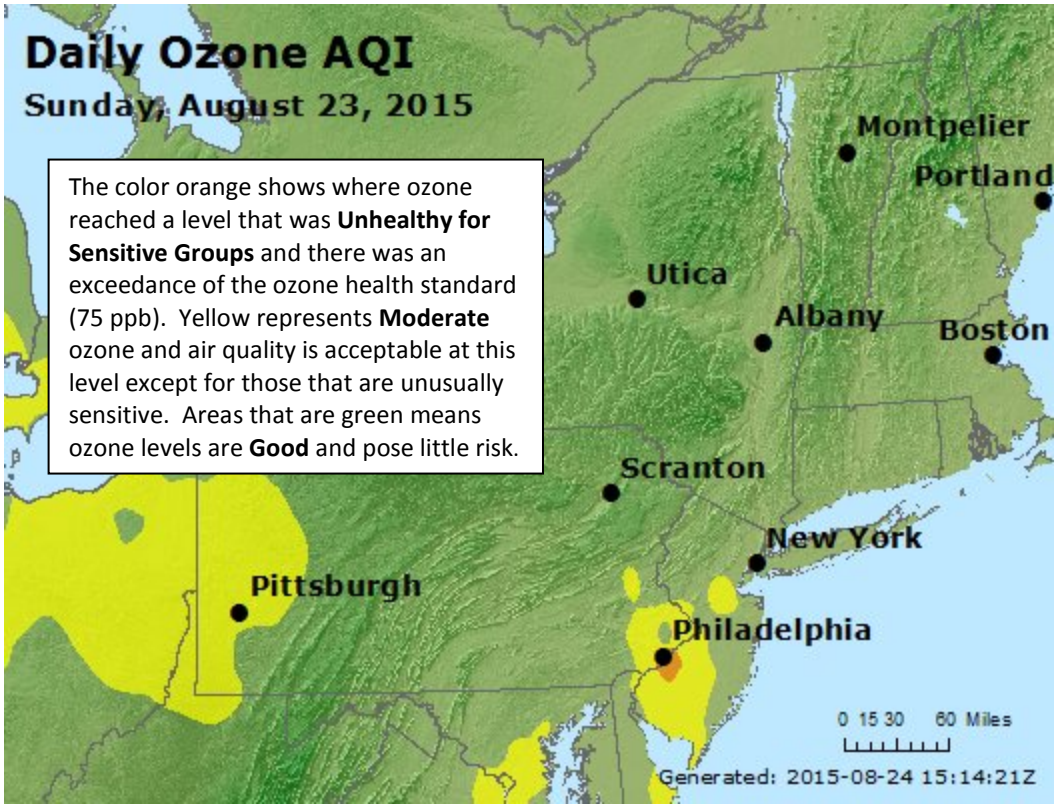
Ozone National Ambient Air Quality Health Standard Exceedances on August 23, 2015

Exceedances Locations and Levels

On Sunday, August 23, 2015, an exceedance of the 8-hour average National Ambient Air Quality Standard (NAAQS) for ozone (75 ppb) was recorded at one (1) New Jersey station: Camden Spruce Street with a concentration of 81 ppb. The highest 1-hour average ozone concentration recorded on August 23, 2015 was 91 ppb, also at the Camden Spruce Street monitor, which is below the 1-hour NAAQS of 120 ppb. This is the thirteenth (13th) day there was an exceedance of the 8-hour ozone NAAQS in 2015 for New Jersey. By this time in 2014, there were 2 days on which an ozone exceedance was measured in New Jersey, and there were 9 days in 2013.

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, on Sunday, August 23, 2015, one (1) exceedance of the 8-hour average NAAQS for ozone was recorded in Pennsylvania: Philadelphia (NEW) with a concentration of 77 ppb. The highest 1-hour average ozone concentration recorded on Sunday, August 23, 2015 was 91 ppb, also at the Philadelphia (NEW) station in Pennsylvania

Figure 1. Ozone Air Quality Index for August 23, 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

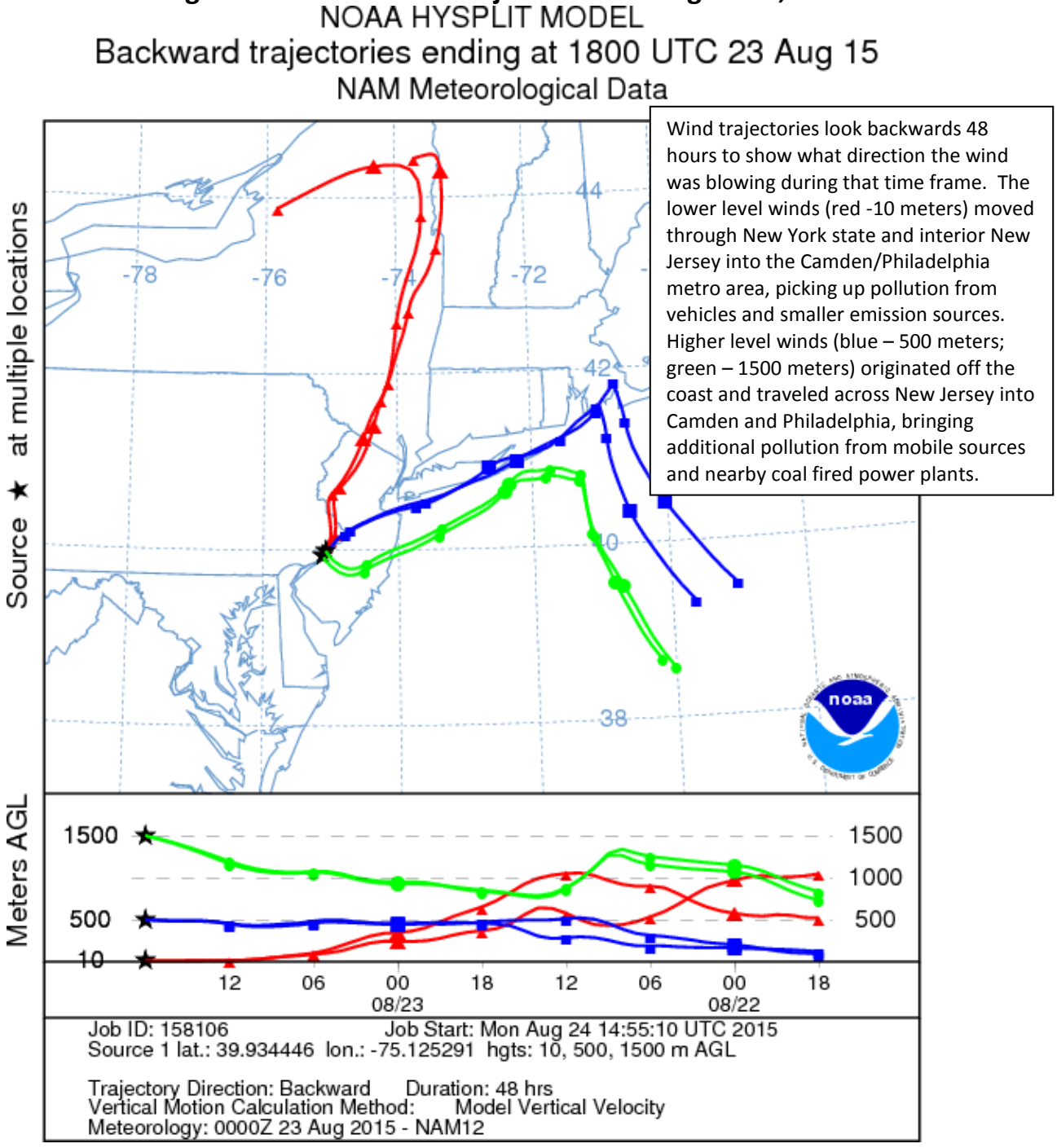
Weather

Meteorological data from Philadelphia International Airport in Philadelphia, Pennsylvania showed temperatures reached 87^{o} F with light and variable winds. Cloud cover increased over the course of the day but there was enough sunshine to promote ozone formation. Sufficient sunlight, combined with warmer temperatures and light variable winds are all features commonly seen with an ozone episode.

Where Did the Air Pollution that Caused Ozone Come From?

Figure 2 shows the back trajectories for the monitored exceedances on August 23, 2015. Figure 2 illustrates where the winds came from during the 48 hours preceding the high ozone levels at monitor locations. Low level winds (red lines) originated out of upstate New York and traveled along the western interior of New Jersey into the Camden/ Philadelphia metropolitan area, where they picked up air contaminant emissions from cars, trucks, and industry. Higher level winds (blue and green lines) originated off the coast and traveled across New Jersey into the Camden/Philadelphia metropolitan area, bringing emissions from vehicles traveling to/from the shore and nearby coal fired power plants. The combination of these winds caused air pollution from both mobile sources and industry to be transported into the Camden/Philadelphia metropolitan area that experienced high ozone on August 23.

Figure 2. 48-hour Back Trajectories for August 23, 2015



Wind trajectories look backwards 48 hours to show what direction the wind was blowing during that time frame. The lower level winds (red -10 meters) moved through New York state and interior New Jersey into the Camden/Philadelphia metro area, picking up pollution from vehicles and smaller emission sources. Higher level winds (blue – 500 meters; green – 1500 meters) originated off the coast and traveled across New Jersey into Camden and Philadelphia, bringing additional pollution from mobile sources and nearby 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.