Ozone National Ambient Air Quality Health Standard Exceedances on September 16, 2015

Exceedance Locations and Levels

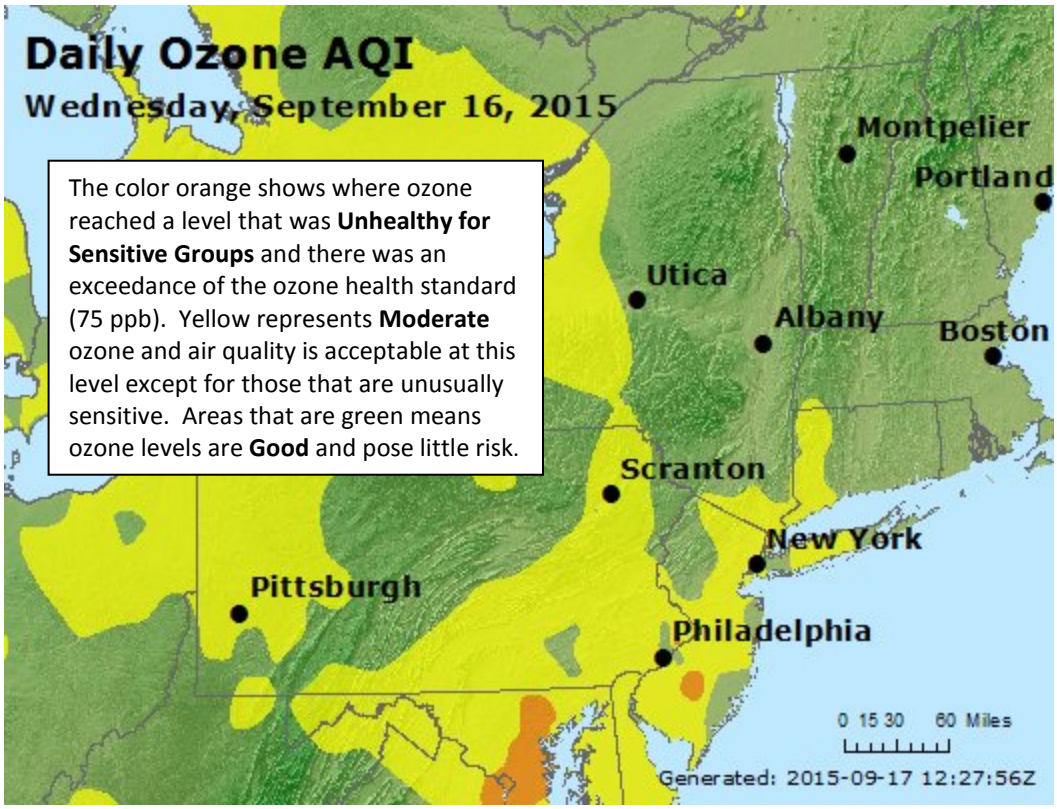
On Wednesday, September 16, 2015, two (2) exceedances of the 8-hour average NAAQS for ozone were recorded in New Jersey: Camden Spruce Street station with a concentration of 77 ppb and Ancora station with a concentration of 76 ppb. The highest 1-hour average ozone concentration recorded on September 16, 2015 in New Jersey was 95 ppb at the Camden Spruce Street station, which is below the 1-hour NAAQS of 120 ppb.

Tuesday marks the 18th day in 2015 on which exceedances of the 8-hour ozone NAAQS were recorded in New Jersey. By the 16th of September in 2014, there were a total of 3 days on which ozone exceedances were measured in New Jersey, and there were 10 days by this same date in 2013.

There is a group of monitoring stations in designated counties of 5 states, New York, Connecticut, Pennsylvania, Delaware and Maryland, that are included in New Jersey's ozone non-attainment areas. From this group of stations in the other neighboring states, there was one (1) exceedance of the 8-hour ozone NAAQS recorded on Wednesday, September 16, 2015 in Pennsylvania: Philadelphia (NEA) station with a concentration of 76 ppb. The highest 1-hour average ozone concentration recorded was 91 ppb also at the Philadelphia (NEA) station, which is below the 1-hour NAAQS of 120 ppb.

Tuesday marks the 8th day in 2015 on which exceedances of the 8-hour ozone NAAQS were recorded in Pennsylvania. The corresponding number of days for Connecticut remains at nineteen (19), eleven (11) days for New York, two (2) days for Maryland, and one (1) day for Delaware.

Figure 1. Ozone Air Quality Index for September 16, 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

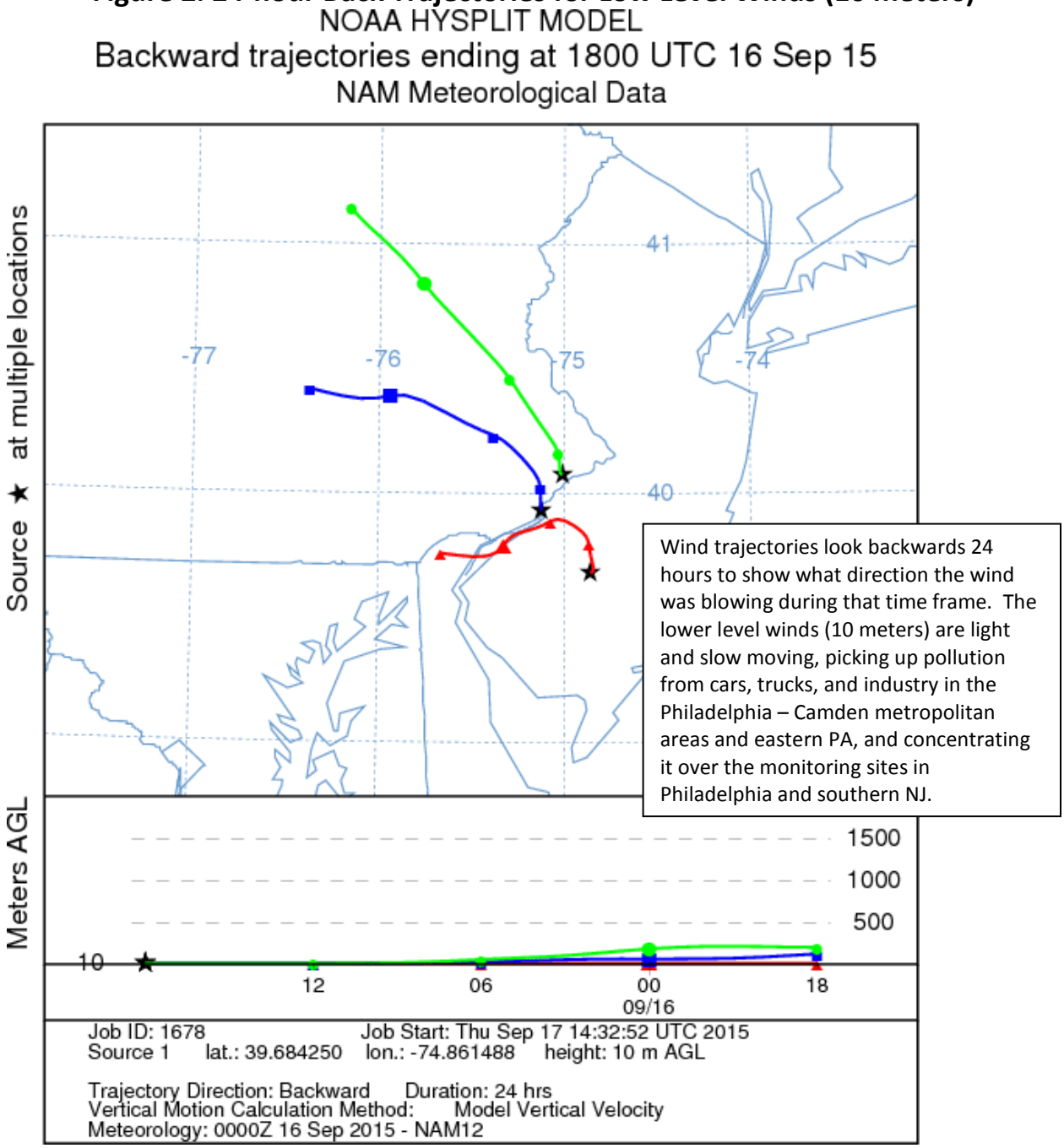
Weather

Meteorological data from across the region showed temperatures reached into the high 80s^{o} F, while winds were very light and variable with a high pressure system located over the area. Skies were mostly sunny. Sufficient sunlight, combined with warmer temperatures and stagnant conditions are all features commonly seen with an ozone episode.

Where Did the Air Pollution that Caused Ozone Come From?

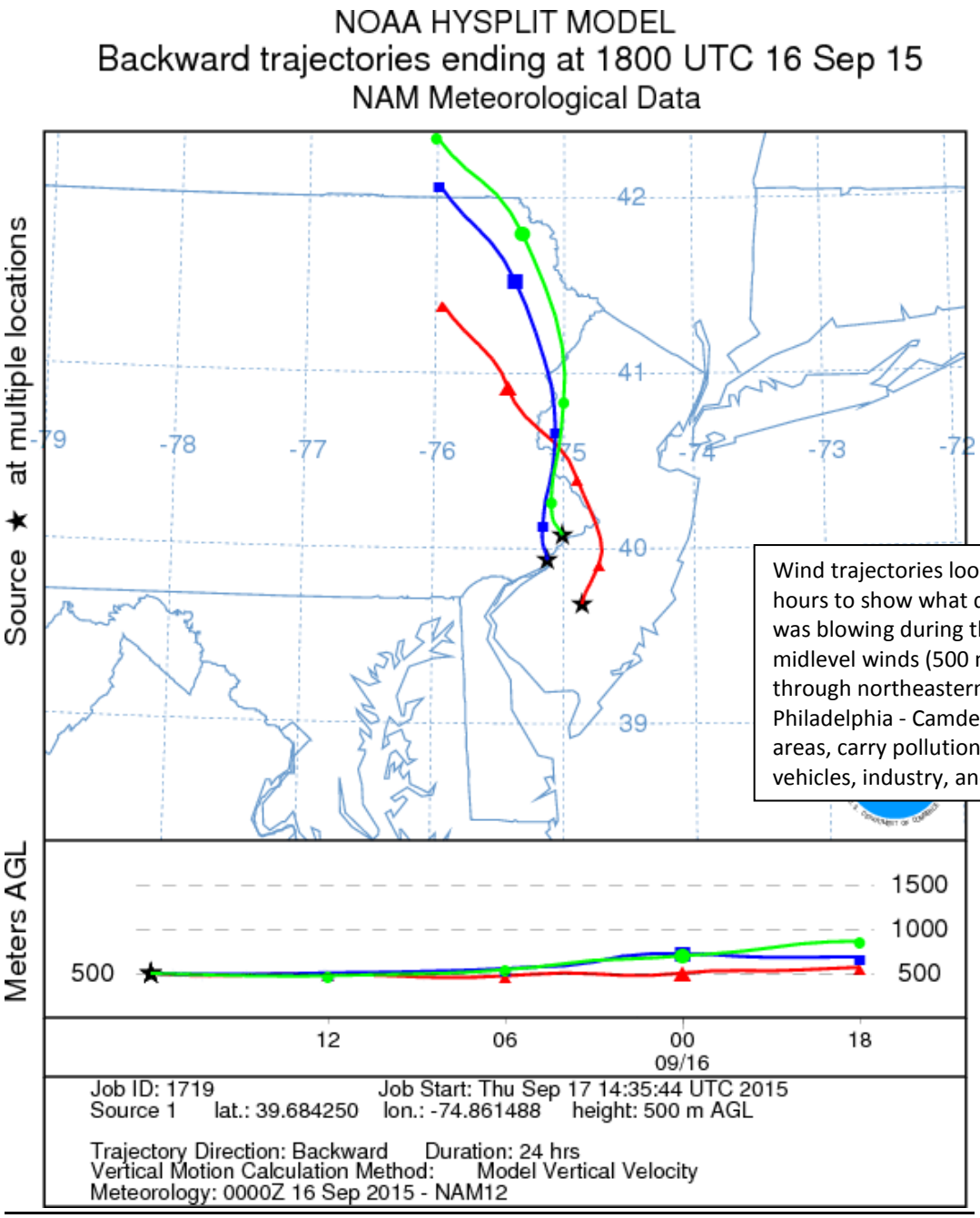
Figures 2 and 3 show the back trajectories for the 3 monitored exceedances for September 16. Figure 2 shows that low level winds were light and slow moving during the 24 hours preceding the high ozone levels at various locations. This indicates that ozone exceedances were due to local emissions generated from cars, trucks, and industry in the Philadelphia – Camden metropolitan areas and eastern Pennsylvania, rather than from transport from distant emission sources in neighboring states. Higher level winds paint a similar picture. The main contributors to the exceedances at the Ancora, Camden, and Philadelphia sites are local emissions from mobile and industrial sources in the Philadelphia – Camden metropolitan areas, as well as some possible transport from power plants and industry in northeastern Pennsylvania.

Figure 2. 24-hour Back Trajectories for Low Level Winds (10 meters)



Wind trajectories look backwards 24 hours to show what direction the wind was blowing during that time frame. The lower level winds (10 meters) are light and slow moving, picking up pollution from cars, trucks, and industry in the Philadelphia – Camden metropolitan areas and eastern PA, and concentrating it over the monitoring sites in Philadelphia and southern NJ.

Figure 3. 14-hour Back Trajectories for Higher Level Winds (500 meters)



Wind trajectories look backwards 24 hours to show what direction the wind was blowing during that time frame. The midlevel winds (500 meters) travel down through northeastern PA into the Philadelphia - Camden metropolitan areas, carry pollution from motor vehicles, industry, and 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.