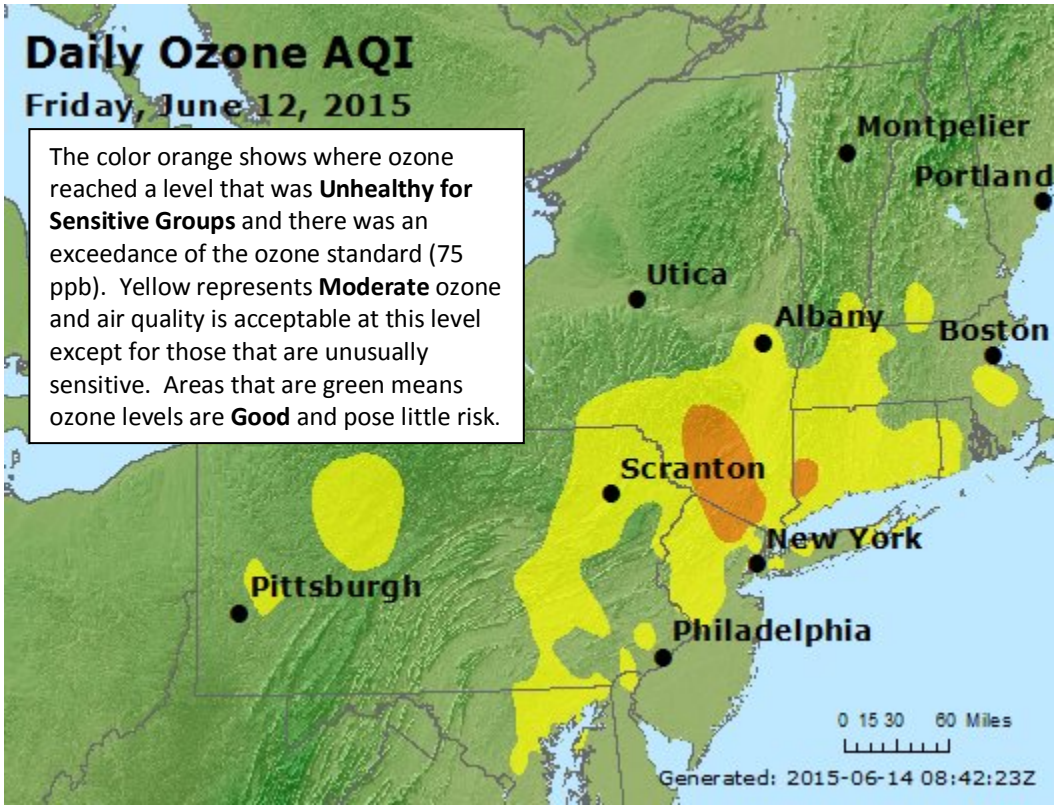
Ozone National Ambient Air Quality Standard Health Exceedances on June 12, 2015

Exceedances Locations and Levels

On Friday, June 12, 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: Ramapo with a concentration of 81 ppb. The highest 1-hour average ozone concentration recorded on June 12, 2015 was 95 ppb (also at Ramapo), which is below the 1-hour NAAQS of 120 ppb.

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 were exceedances of the 8-hour ozone NAAQS recorded on Friday, June 12, 2015 at two (2) stations: Danbury, CT and Rockland County, NY. The highest 8-hour average ozone concentration recorded was 83 ppb at the Rockland County station in New York. The highest 1-hour average ozone concentration recorded was 108 ppb also at Rockland County. Figure 1 shows the ozone AQI across the region for June 12.

Figure 1. Ozone Air Quality Index for June 12, 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

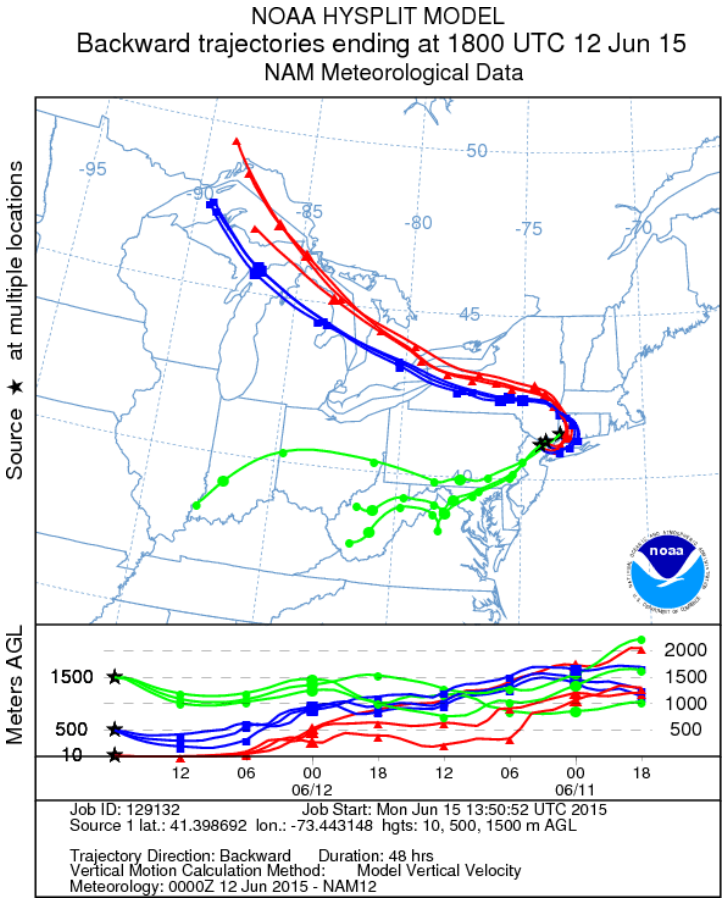
Weather

Meteorological data from across the region showed temperatures reached into the low 90s° F. Winds shifted to the south across the southern two thirds of New Jersey as a warm front moved north into New York bringing cleaner marine air south of the front. North of the warm front, light recirculating winds allowed polluted air from the previous day to mix with local emissions from northern New Jersey/New York City and the Hudson Valley. Skies were partly cloudy across the region, but there was enough sunshine to promote ozone formation. Sufficient sunlight, combined with warmer temperatures are features commonly seen with ozone exceedances.

Where Did the Air Pollution that Caused Ozone Come From?

Figure 2 shows the back trajectories for the 3 monitored exceedances for June 12. Figure 2 shows that low and mid-level winds (red and blue lines) recirculated over the NYC metropolitan area, where there are significant amounts of air contaminant emissions from cars, trucks and industry. Higher level winds (green) lines show that winds came from the southwest across the Ohio River Valley, where there are many coal fired power plants. The combination of these winds caused air pollution from both mobile sources and distant power plants to be transported into northern New Jersey and the Hudson River Valley that experienced high ozone on June 12.

Figure 2. 48-hour Back Trajectories for June 12, 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) recirculate over New York City picking up pollution from vehicles and smaller emission sources. The higher level wind (green – 1500 meters) originates from the west/southwest and carries power plant and large industrial source emissions with higher stacks to the region.

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.