Ozone National Ambient Air Quality Health Standard Exceedances on September 18, 2015

Exceedance Locations and Levels

On Friday, September 18, 2015, one (1) exceedance of the 8-hour average NAAQS for ozone was recorded in New Jersey: Ramapo station with a concentration of 84 ppb. The highest 1-hour average ozone concentration recorded on September 18, 2015 in New Jersey was 100 ppb, also at the Ramapo station, which is below the 1-hour NAAQS of 120 ppb.

Friday marks the 20th day in 2015 on which exceedances of the 8-hour ozone NAAQS were recorded in New Jersey. By the 18th 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.

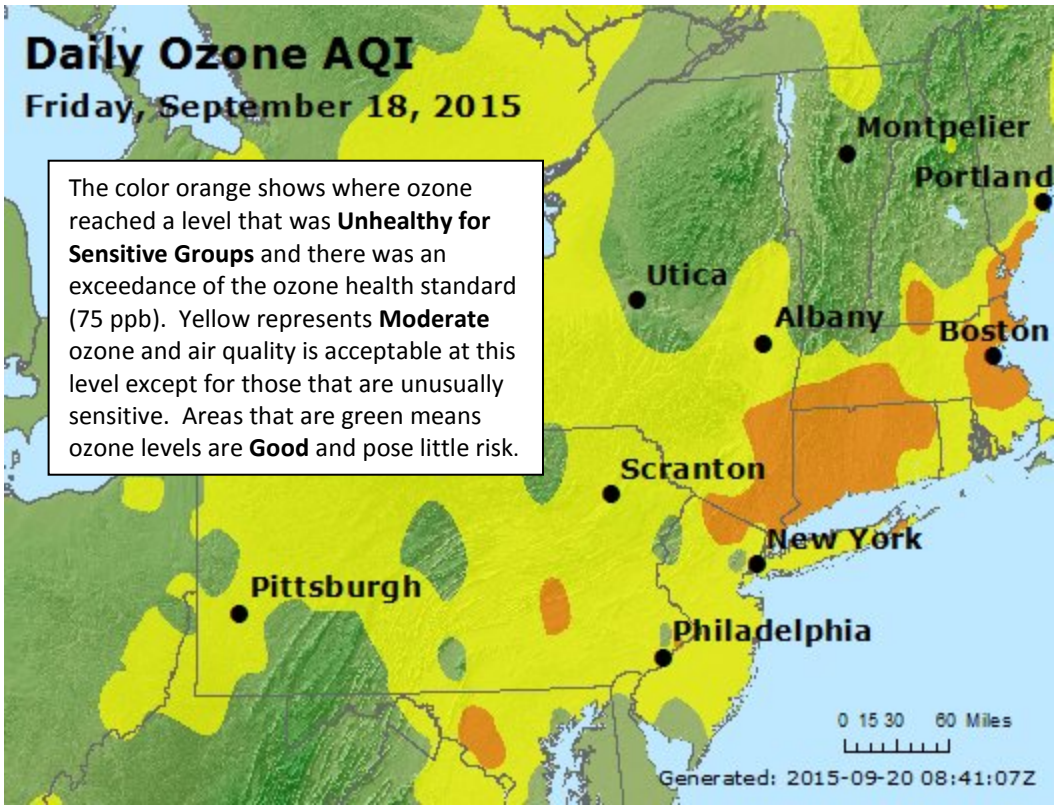
There is a group of monitoring stations in designated counties of 5 states, New York, Connecticut, Pennsylvania, Delaware, and Maryland that are included in New Jersey's ozone non-attainment areas. From this group of stations in the other neighboring states, there were ten (10) exceedances of the 8-hour ozone NAAQS recorded on Friday, September 18th. The highest 8-hour value was 88 ppb recorded at the Danbury, CT site. The highest 1-hour average ozone concentration recorded was 105 ppb, also at the Danbury, CT station, which is below the 1-hour NAAQS of 120 ppb.

Friday marks the 10th day in 2015 on which exceedances of the 8-hour ozone NAAQS were recorded in Pennsylvania. The corresponding number of days for Connecticut is twenty-one (21), thirteen (13) days for New York, three (3) days for Maryland, and two (2) days for Delaware.

List of Monitoring Sites in Region that Exceeded the Health Standard

State	Site Name	9/18/2015, Maximum 8-hour O3 Concentration, ppb
CT	Danbury	88
CT	Stratford	84
NJ	Ramapo	84
CT	Middletown	82
CT	Westport	81
NY	White Plains	80
CT	Madison Beach Road	79
CT	New Haven – Criscuolo Park	79
CT	Greenwich	78
PA	Philadelphia - NEA	78
NY	Rockland City	77

Figure 1. Ozone Air Quality Index for September 18, 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

A stationary high pressure system that had been anchored across the region for the past week began to move off of the coast allowing winds to increase from the south across the Mid-Atlantic. This allowed the stagnating conditions and associated plume of elevated ozone which had been across the Mid-Atlantic region to move north into New England. Meteorological data from across the region showed temperatures ranged from the low to mid 80s^{o} F. Skies were mostly sunny. Sufficient sunlight, combined with warm temperatures and stagnant conditions are all features commonly seen with an ozone episode.

The ozone exceedances on September 18, 2015 were part of a multi-day ozone event caused by a stationary high pressure system anchored over the eastern seaboard. Friday, September 18 marked the third and final day of the event.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 2 and 3 show the back trajectories for the 11 monitored exceedances for September 18. Figure 2 shows where the low level winds came from during the 48 hours preceding the high ozone levels at these locations. The figure indicates that the low level winds traveled along the coast into northern New Jersey, New York, and southern New England. Figure 3 shows that the higher level winds traveled from the Mid-Atlantic to New England. Together these winds moved an elevated plume of ozone caused by a multi day stagnation event into northern New Jersey, New York and New England. In addition these winds continued to pick up locally generated ozone from emissions of vehicles and industry.

Figure 2. 48-hour Back Trajectories at 10 meters

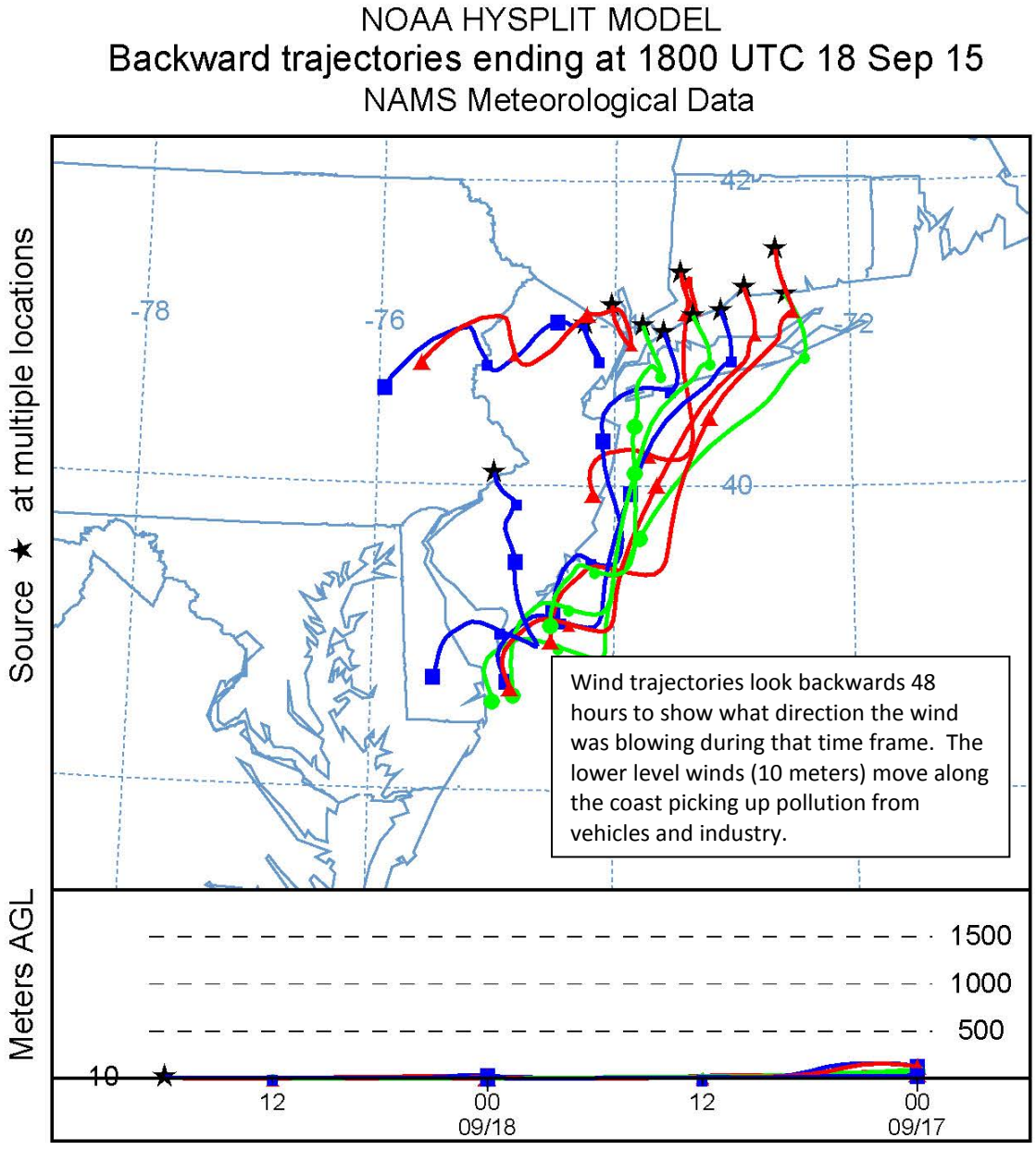
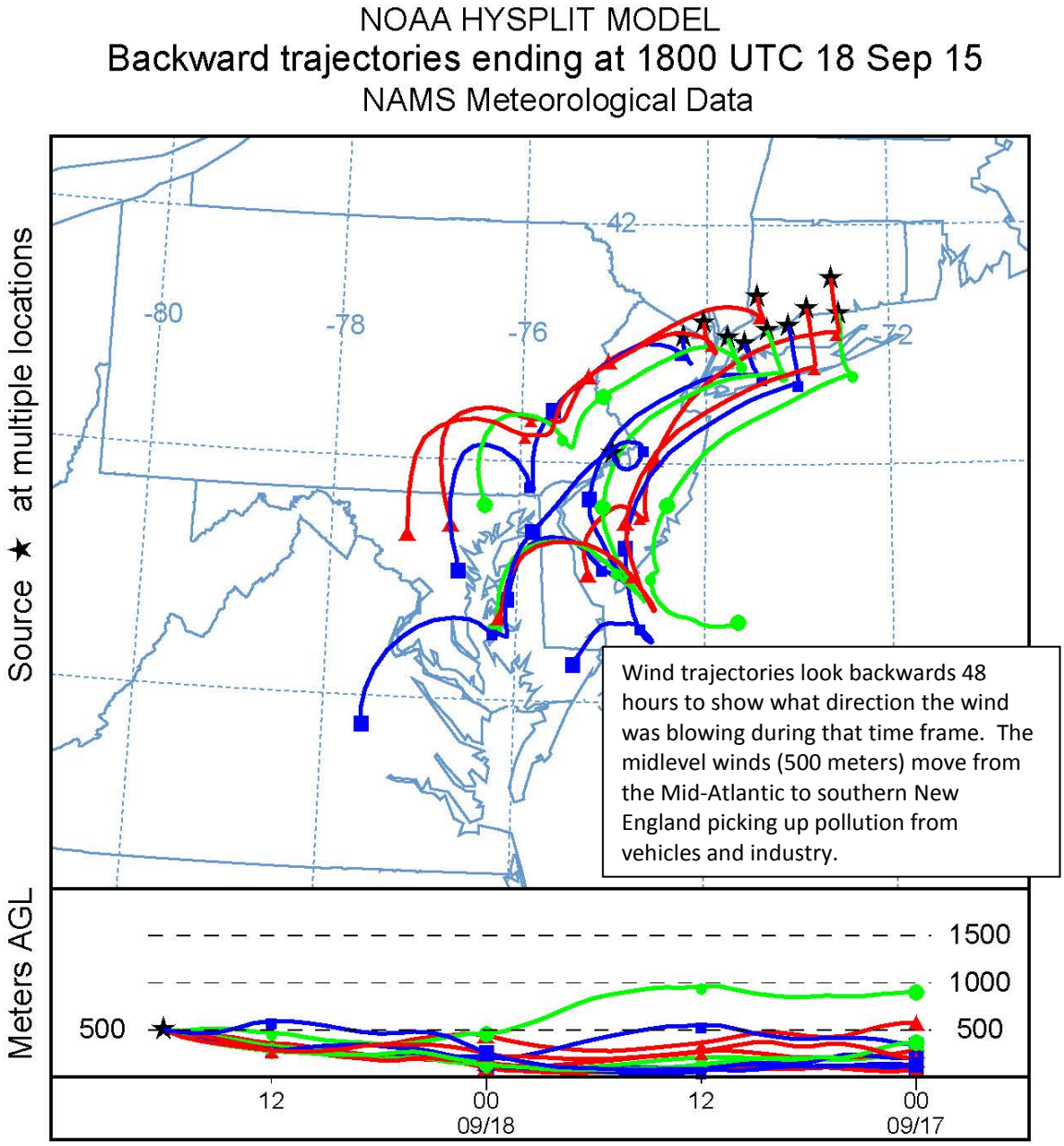


Figure 3. 48-hour Back Trajectories at 500 meters



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.