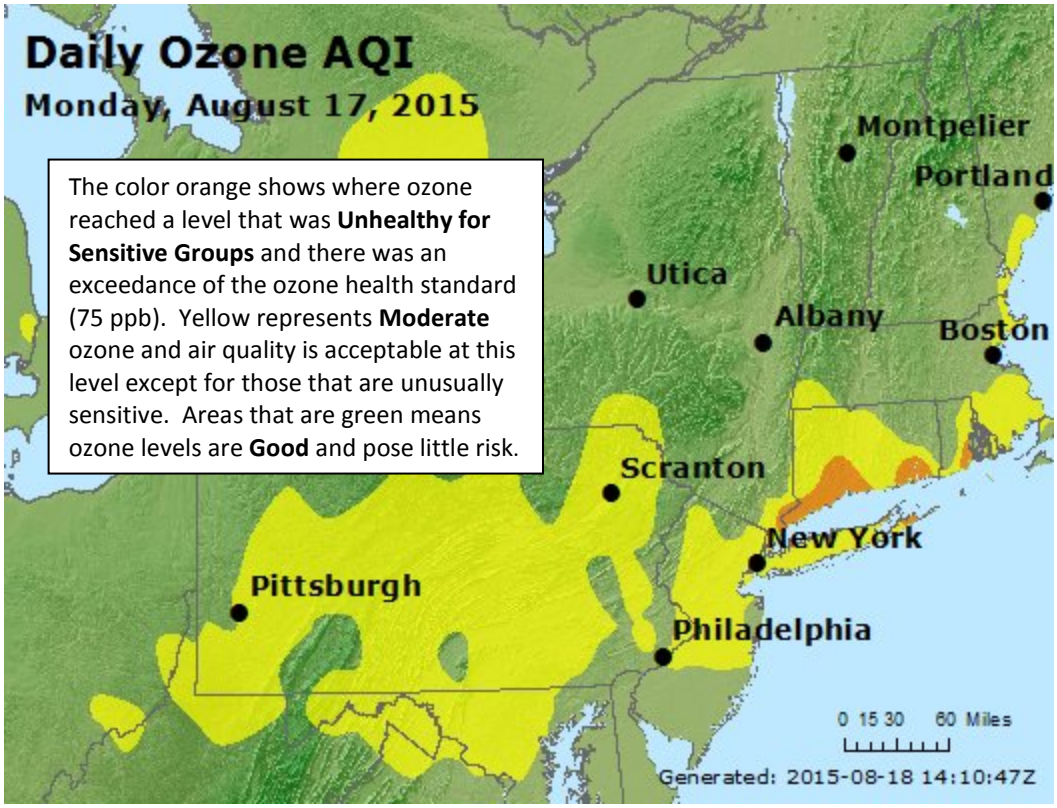
Ozone National Ambient Air Quality Health Standard Exceedances on August 17, 2015

Exceedances Locations and Levels

On Monday, August 17, 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 stations: : Bayonne with a concentration of 77 ppb. The highest 1-hour average ozone concentration recorded on August 17, 2015 was 89 ppb at the Bayonne and Leonia stations, which is below the 1-hour NAAQS of 120 ppb. This is the twelfth (12th) 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 8 days in 2013.

Elsewhere in the region, there were four (4) exceedances of the 8-hour ozone NAAQS recorded at monitoring stations in designated counties of Connecticut that are included in New Jersey's ozone non-attainment areas: Westport with a concentration of 92 ppb, Stratford with 86 ppb, Greenwich with 84 ppb and New Haven with 81 ppb. The highest 1-hour average ozone concentration recorded on Monday, August 17, 2015 was 112 ppb at the Greenwich, CT station. Figure 1 shows the ozone AQI across the region for August 17.

Figure 1. Ozone Air Quality Index for August 17, 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^{o} F with stagnating conditions. Light winds were from the southwest circulating about a high pressure ridge located off the eastern seaboard. Skies were partly cloudy across the region, but there was enough sunshine to promote ozone formation. Sufficient sunlight, combined with warmer temperatures and a southwest wind component 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 5 monitored exceedances on August 17. Figure 2 shows where the low level winds came from during the 48 hours preceding the high ozone levels at monitor locations. This indicates that the low level winds carried pollutants up the I-95 Corridor, and along the coast where there are air contaminant emissions from cars, trucks, and industry. Figure 3 shows that higher level winds originated from up-state New York and northeast Pennsylvania. The higher level winds traveled over the northern New Jersey and New York City metropolitan area, where there are emissions from mobile sources, light industry, and heavy industry, including power plants. The combination of these winds caused air pollution from both mobile sources and industry to be transported into New Jersey and other areas that experienced high ozone on August 17.

Figure 2. 48-hour Back Trajectories for Low Level Winds (10 meters)

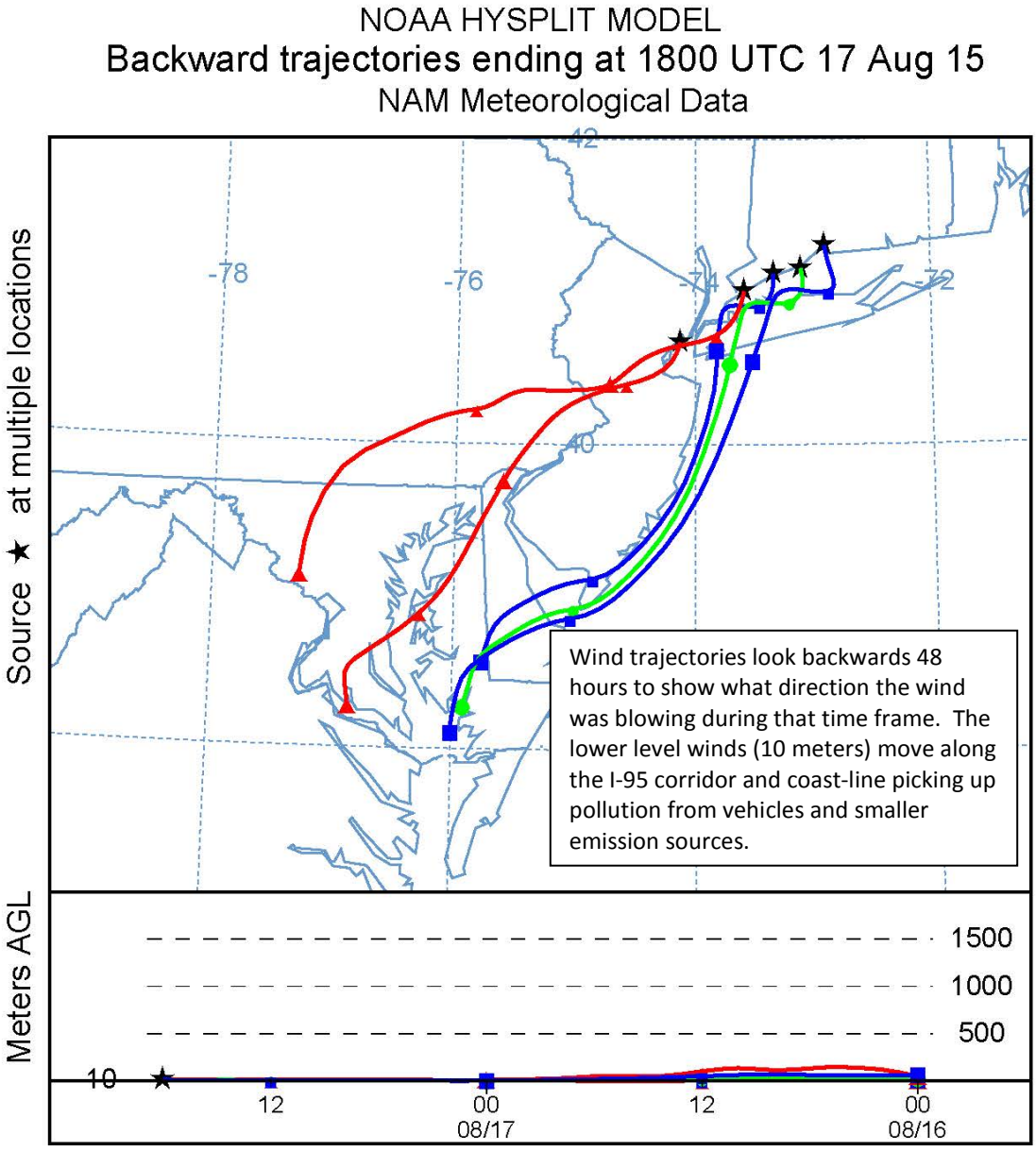
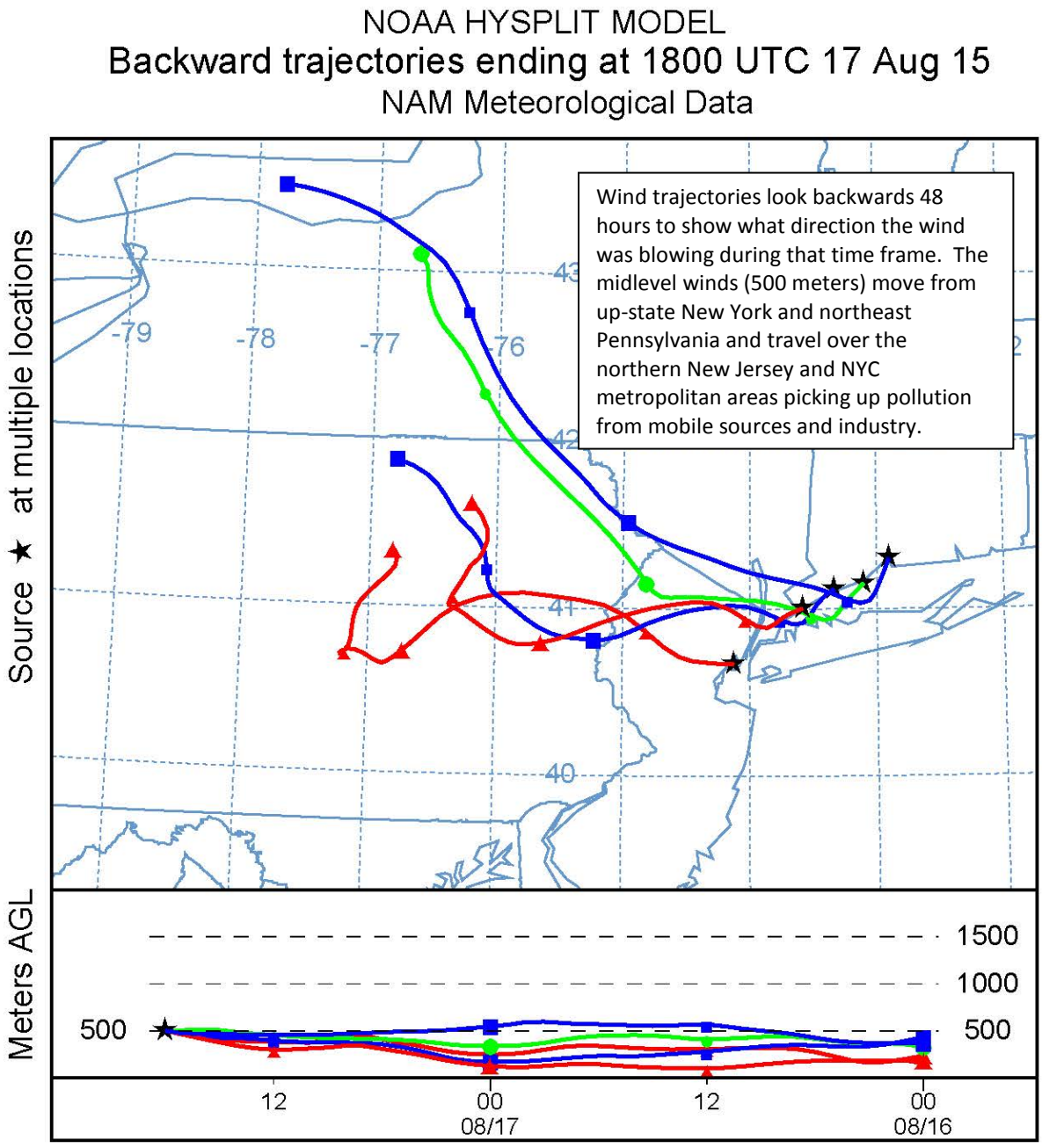


Figure 3. 48-hour Back Trajectories for Higher Level Winds (500 meters)



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.