Ozone National Ambient Air Quality Standard Health Exceedances on June 24, 2016

Exceedance Locations and Levels

On Friday, June 24, 2016, there were two (2) exceedances in New Jersey of the new 8-hour average ozone NAAQS of 70 ppb that became effective in December 2015 (See Table 1):

Table 1. Ozone NAAQS Exceedances in New Jersey on June 24, 2016

STATION	Daily Maximum 8-Hr Average (ppb)
Flemington	78
Washington Crossing*	74

*The Washington Crossing station is operated and maintained by EPA as part of the nationwide Clear Air Status and Trends Network (CASTNET).

The highest 1-hour average ozone concentration recorded on June 24, 2016 in New Jersey was 87 ppb at the Flemington and Washington Crossing stations, which is below the 1-hour ozone NAAQS of 120 ppb.

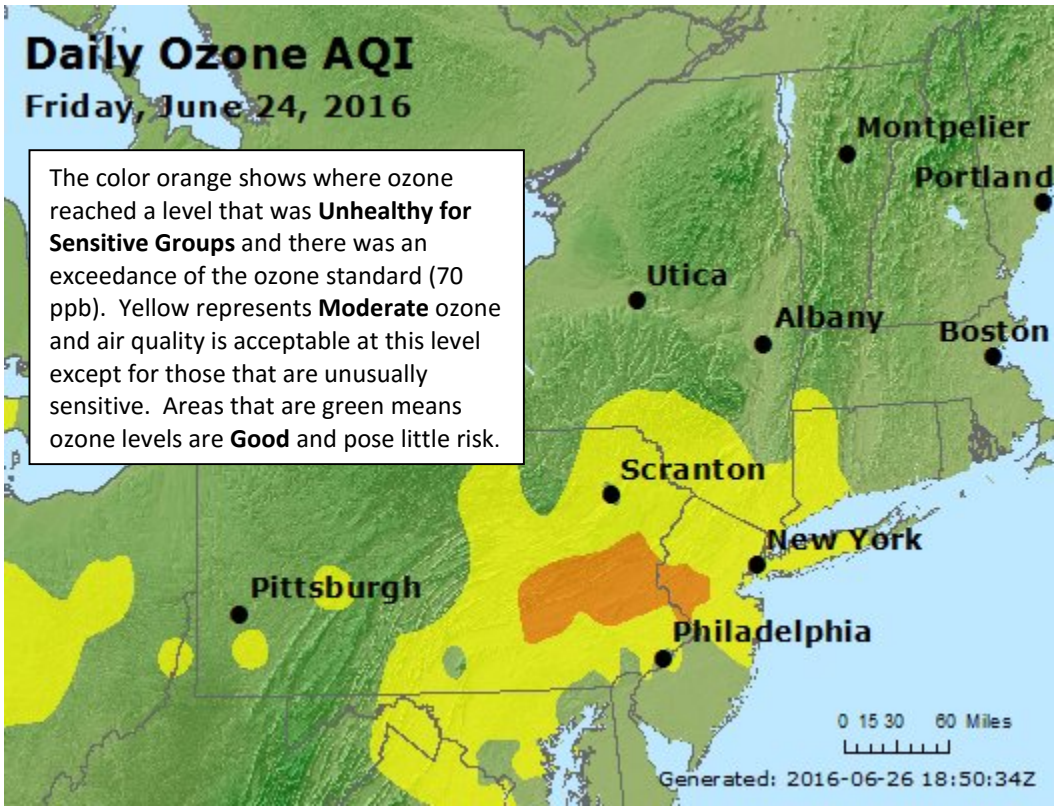
Friday marks the eleventh (11) day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 24th of June in 2015, there were a total of five (5) days on which ozone exceedances were measured in New Jersey (based on the former 75 ppb NAAQS of 2008), and there was one (1) day by this same date in 2014.

There is a group of monitoring stations in designated counties of five (5) states, New York, Connecticut, Pennsylvania, Delaware and Maryland, that are included in New Jersey's ozone nonattainment areas. From this group of stations in the other neighboring states, there were no exceedances of the new 8-hour ozone NAAQS of 70 ppb recorded on Friday, June 24, 2016:

The highest 1-hour average ozone concentration recorded was 74 ppb at the Philadelphia (NEA) station in Pennsylvania, which is below the 1-hour ozone NAAQS of 120 ppb.

The number of days in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in Connecticut remains at eleven (11), nine (9) days for New York, six (6) days for Pennsylvania, and four (4) days each for Delaware and Maryland.

Figure 1. Ozone Air Quality Index for June 24, 2016



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 the Flemington and Washington Crossing areas in New Jersey showed temperatures reached the mid to high 80°F's, while winds were light and from the east. A high pressure system was centered over New England while a stationary front was positioned just south of New Jersey, leading to partly sunny skies across most of the Garden State. Adequate sunlight, along with warm temperatures and light winds, are all meteorological conditions known to contribute to the formation of ground level ozone.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 2, 3, and 4 show the back trajectories at different wind heights for the monitored exceedances on June 24, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event.

Low level winds (Figure 1) came up the coast and then shifted west across New Jersey, picking up emissions from cars trucks and industry along the way. In central New Jersey, a wildfire out of Fort Dix had been burning for the past couple of days. The back trajectories indicate that the low level winds may have picked up smoke from the plume on the way to the Flemington and Washington Crossing monitors. Further evaluation is necessary.

The 500 meter winds (Figure 3) also originated off the coast of New Jersey and traveled northeast before recirculating over the Long Island Sound and back through New Jersey. Recirculating winds allowed polluted air picked up from the Long Island Sound area to accumulate and then mix with local emissions generated by motor vehicles, industry, and a wildfire burning in New Jersey.

The 1500 meter wind (Figure 4) came across Pennsylvania and the New York City Metropolitan region, where there are many large industrial sources and power plants, before recirculating over the Long Island Sound area and back to New Jersey. The higher level wind, in combination with the low and mid-level winds, caused air pollution from a nearby wild fire and a variety of mobile and stationary sources to accumulate and then be transported into the areas of inland New Jersey that experienced high ozone on June 24, 2016.

Figure 2. 48-hour Back Trajectories for Jun 24, 2016 at 10 meters

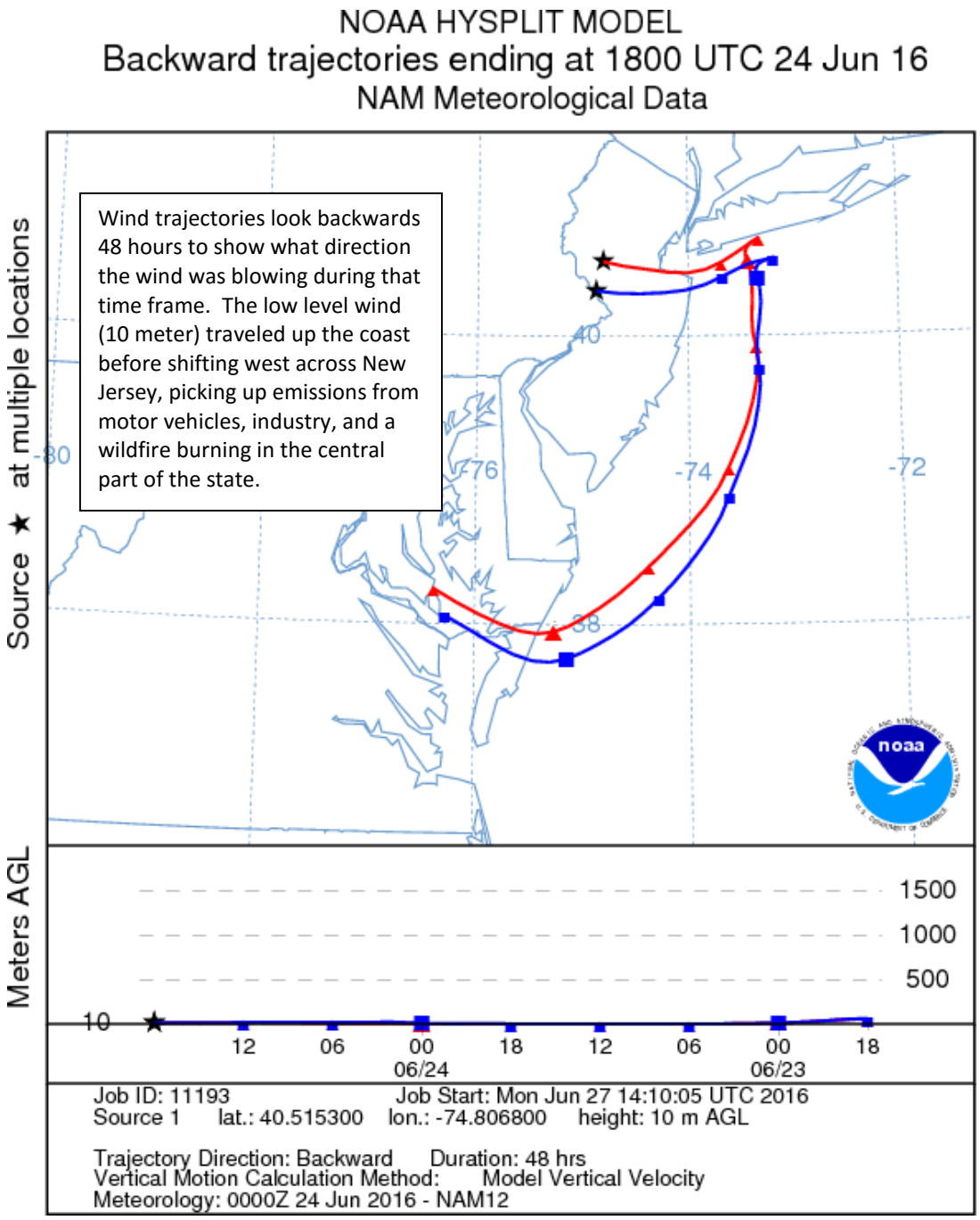


Figure 3. 48-hour Back Trajectories for June 24, 2016 at 500 meters

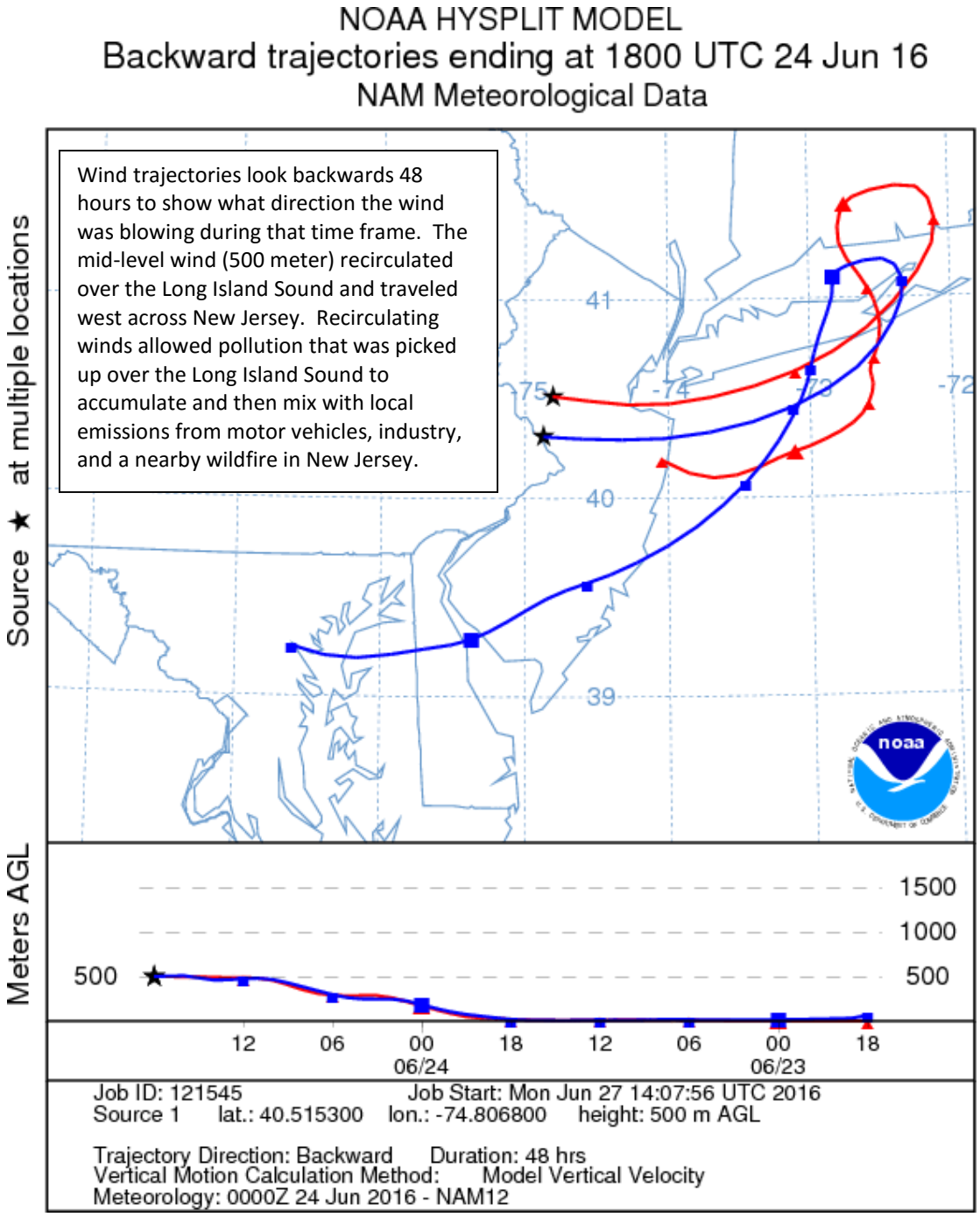
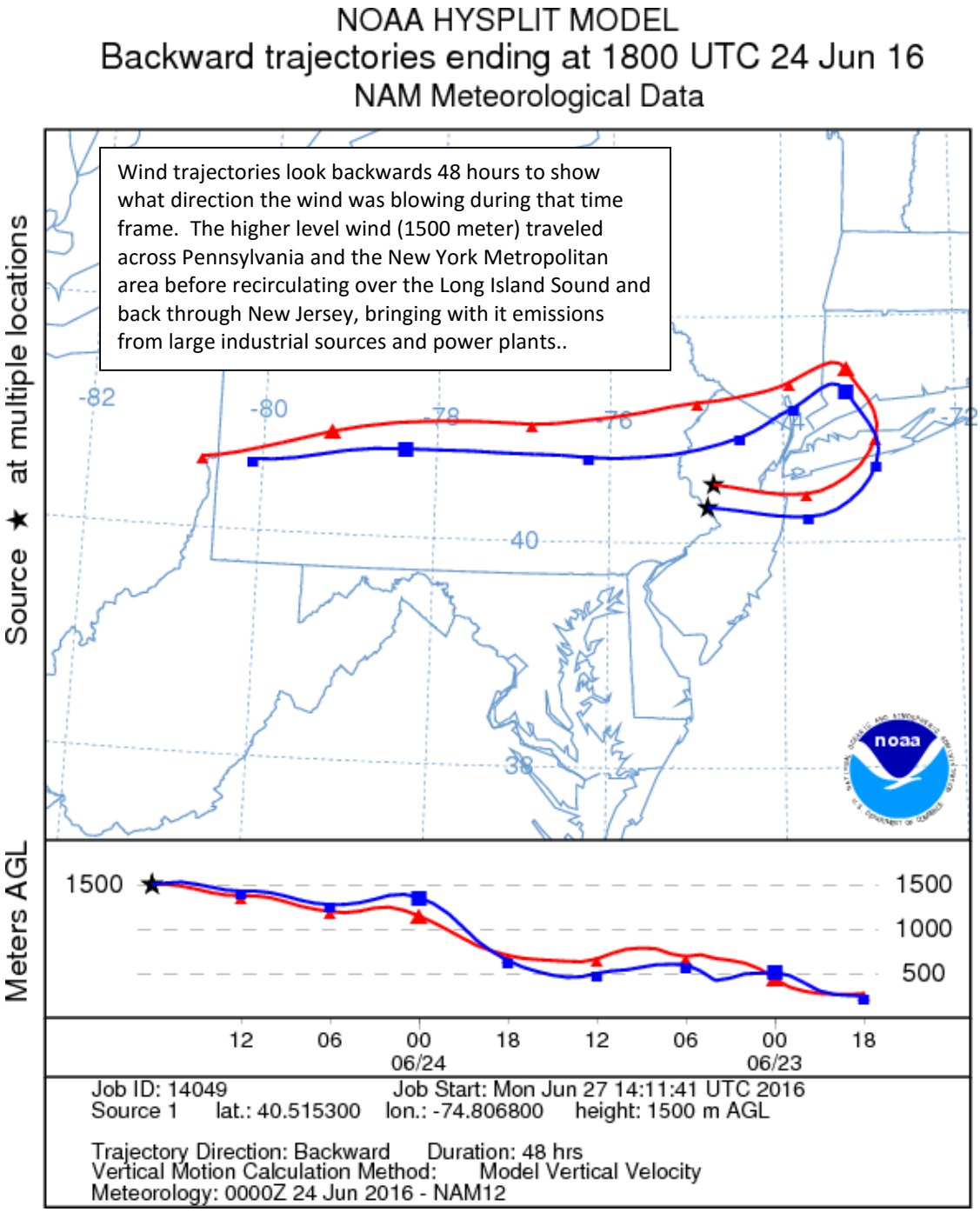


Figure 4. 48-hour Back Trajectories for June 24, 2016 at 1500 meters



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.