

Ozone National Ambient Air Quality Standard Health Exceedances on July 29, 2016

Exceedance Locations and Levels

On Friday, July 29, 2016, there was one (1) exceedance in New Jersey of the new 8-hour average ozone NAAQS of 70 ppb that became effective in December 2015:

Table 1: Ozone NAAQS Exceedance in New Jersey on July 29, 2016

STATION	Daily Maximum 8-Hr Average (ppb)
Rutgers University	76

The highest 1-hour average ozone concentration recorded on July 29, 2016, in New Jersey was 85 ppb at the Rutgers University station, which is below the 1-hour ozone NAAQS of 120 ppb.

Friday marks the 21st day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey. By the 29th of July in 2015, there were a total of ten (10) days on which ozone exceedances were measured in New Jersey (based on the former 75 ppb NAAQS of 2008), and there were two (2) days 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 neighboring states, there was one (1) exceedance of the new 8-hour ozone NAAQS of 70 ppb recorded on Friday, July 29, 2016:

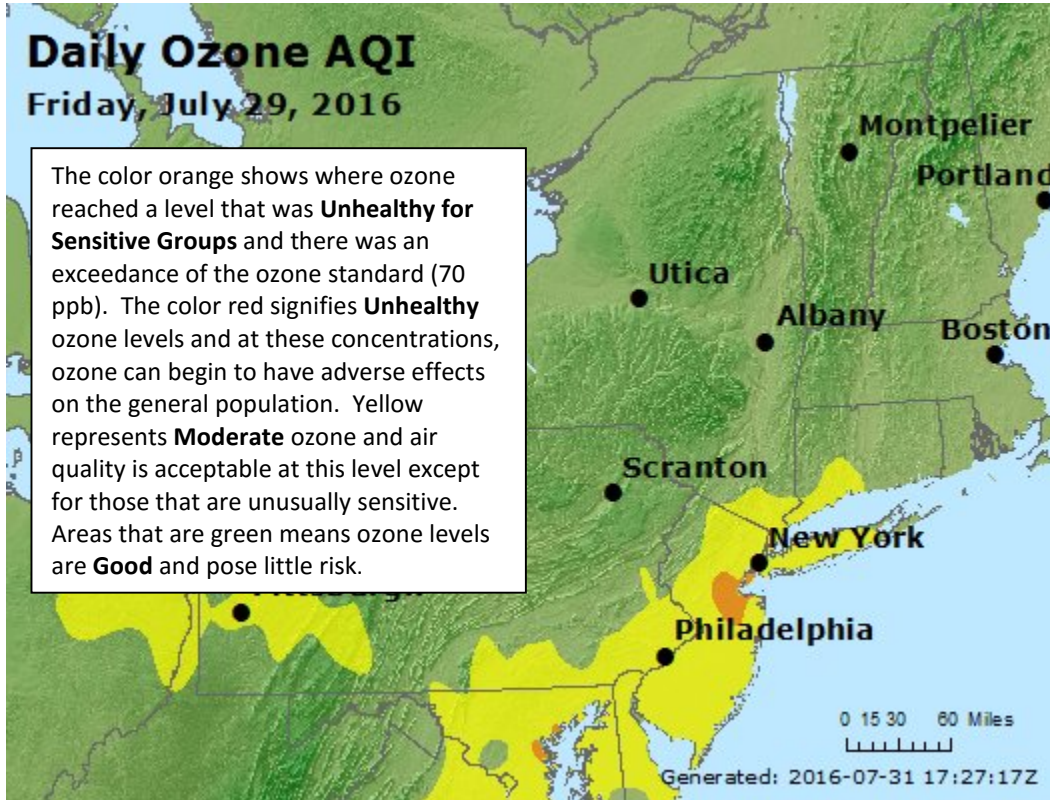
Table 2: Ozone NAAQS Exceedances at Other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on July 29, 2016

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
NY	Susan Wagner	73

The highest 1-hour average ozone concentration recorded was 82 ppb at the Susan Wagner station in New York, which is below the 1-hour ozone NAAQS of 120 ppb.

Friday marks the 17th day in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in New York. The number of days remains at nineteen (19) for Connecticut, ten (10) for Pennsylvania, seven (7) for Delaware, and six (6) for Maryland.

Figure 1. Ozone Air Quality Index for July 29, 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 across the region showed temperatures reached into the mid 80°F's, while winds were light and from the east/northeast. There were scattered clouds and showers throughout the day due to a low pressure system off the northeast Atlantic that was influencing the region. Although skies were partly cloudy, there was enough sunshine over the exceedance monitor locations to drive ozone production. A front associated with the low was also positioned just off the coast of northern New Jersey and New York, which created a mechanism to bring pollutants down to the surface. This weather feature, in combination with adequate sunlight and warm temperatures, 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 July 29, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event.

The back trajectories for the low level (Figure 2), mid-level (Figure 3), and higher level (Figure 4) winds illustrate similar transport pathways. Winds originated over Maryland and southeastern Pennsylvania and then traveled northeast along the coast of New Jersey before recirculating over the New York City

metropolitan area, which has a large number of cars, trucks, and industry. Recirculating winds allowed pollution picked up from a variety of mobile and stationary sources in the New York City metropolitan area to accumulate and then mix with local emissions along the I-95 corridor, where the exceedance monitors are located.

Figure 2. 48-hour Back Trajectories for July 29, 2016 at 10 meters

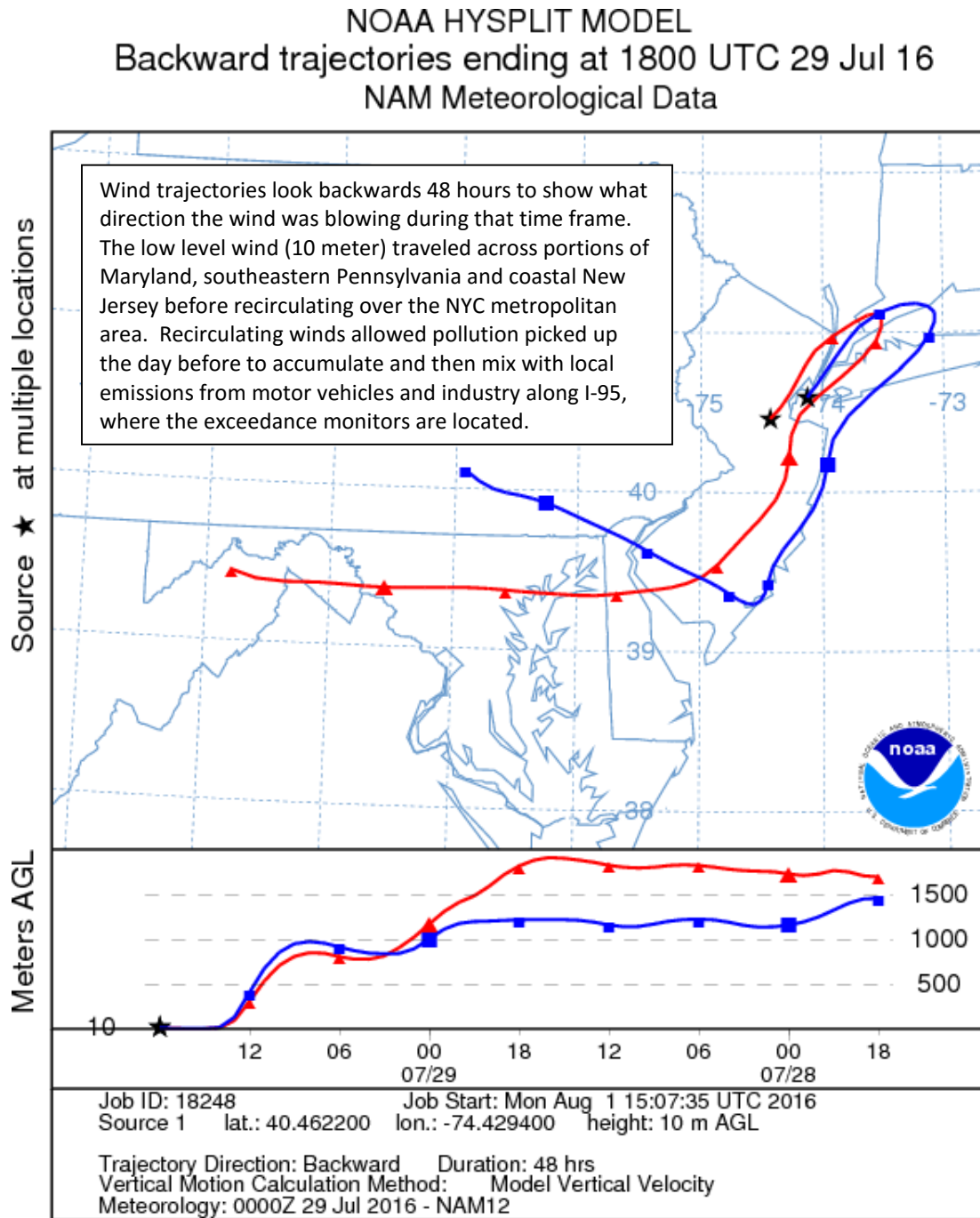


Figure 3. 48-hour Back Trajectories for July 29, 2016 at 500 meters

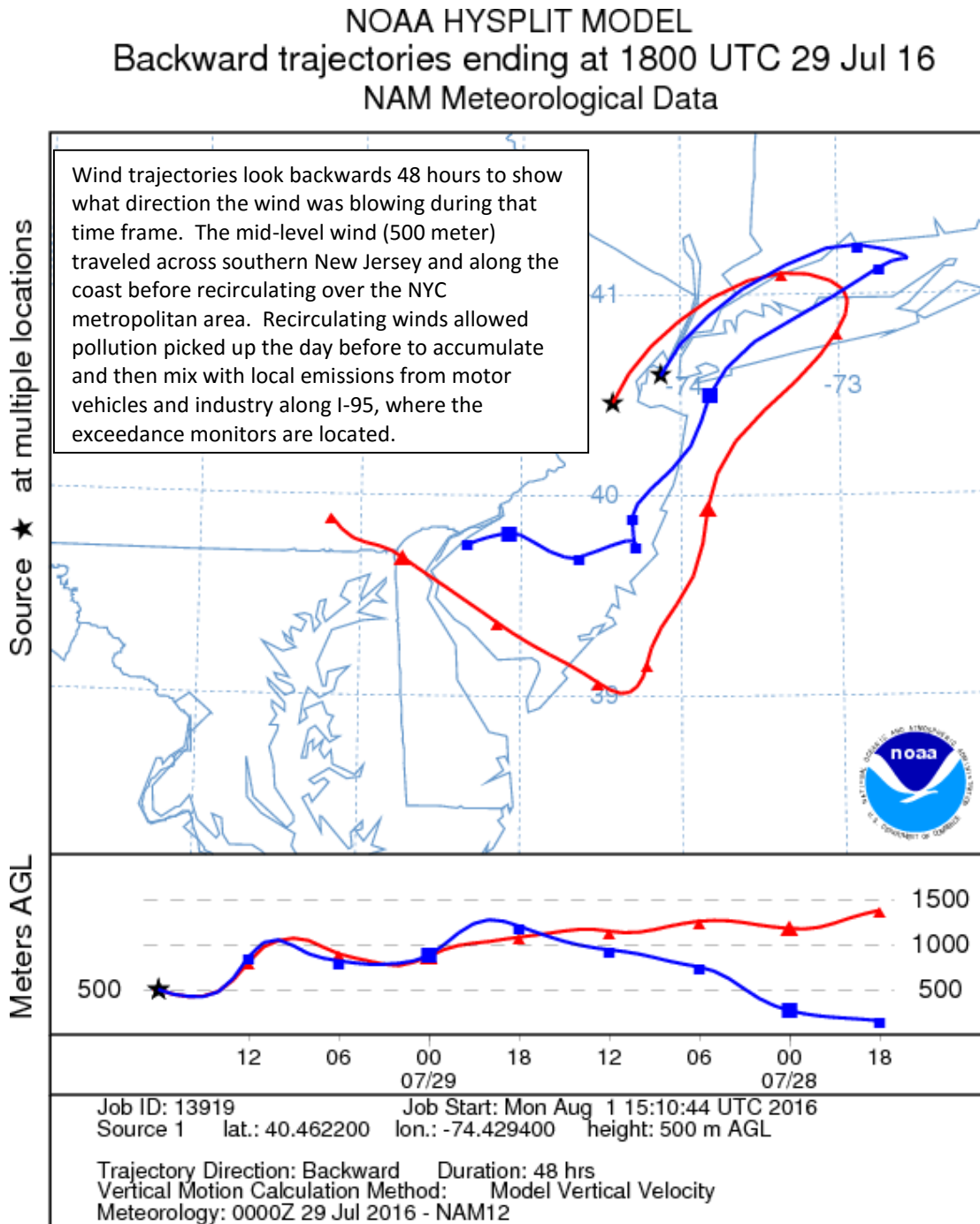
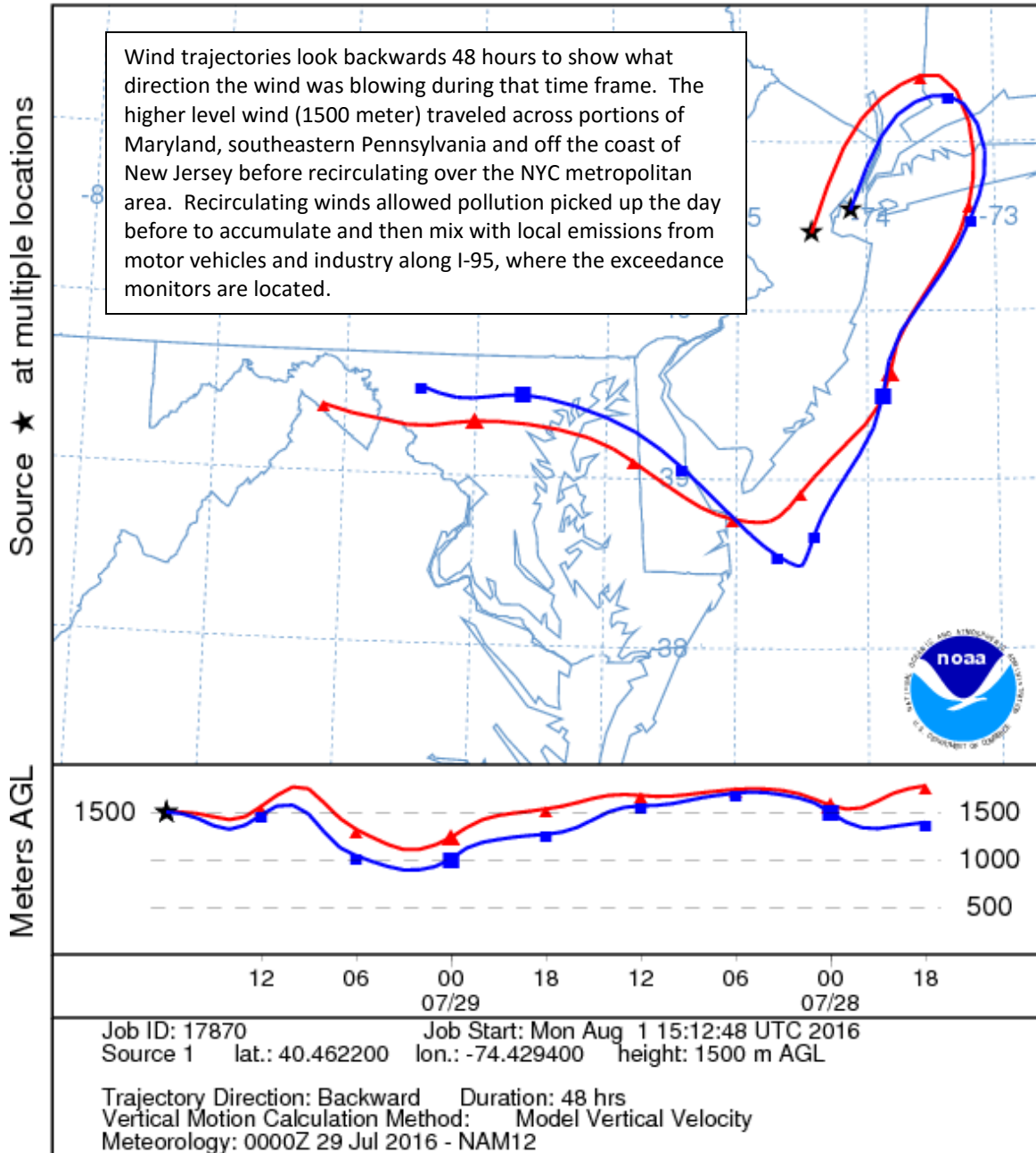


Figure 4. 48-hour Back Trajectories for July 29, 2016 at 1500 meters

NOAA HYSPLIT MODEL
 Backward trajectories ending at 1800 UTC 29 Jul 16
 NAM Meteorological Data



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.