PM2.5 National Ambient Air Quality Standard Health Exceedances on June 1, 2023

Exceedance Locations and Levels

On Thursday, June 1, 2023, there was one (1) exceedance in New Jersey of the National Ambient Air Quality Standard (NAAQS) for PM2.5 (24-hour average of 35 micrograms/cubic meter, ug/m3). A PM2.5 exceedance of the 24-hour NAAQS is measured when the concentration is 35.5 ug/m3 or greater.

Smoke from the Allen Road Wildfire in Bass River Township, Burlington County that ignited on 5/31/23 was transported by northeast winds and directly impacted the Millville PM2.5 monitor. See Table 1.

Note, all of NJ is in attainment for the PM2.5 annual and 24-hour NAAQS and there are no downwind nonattainment areas from NJ.

Table 1. New Jersey PM2.5 Concentrations on 6/1/2023

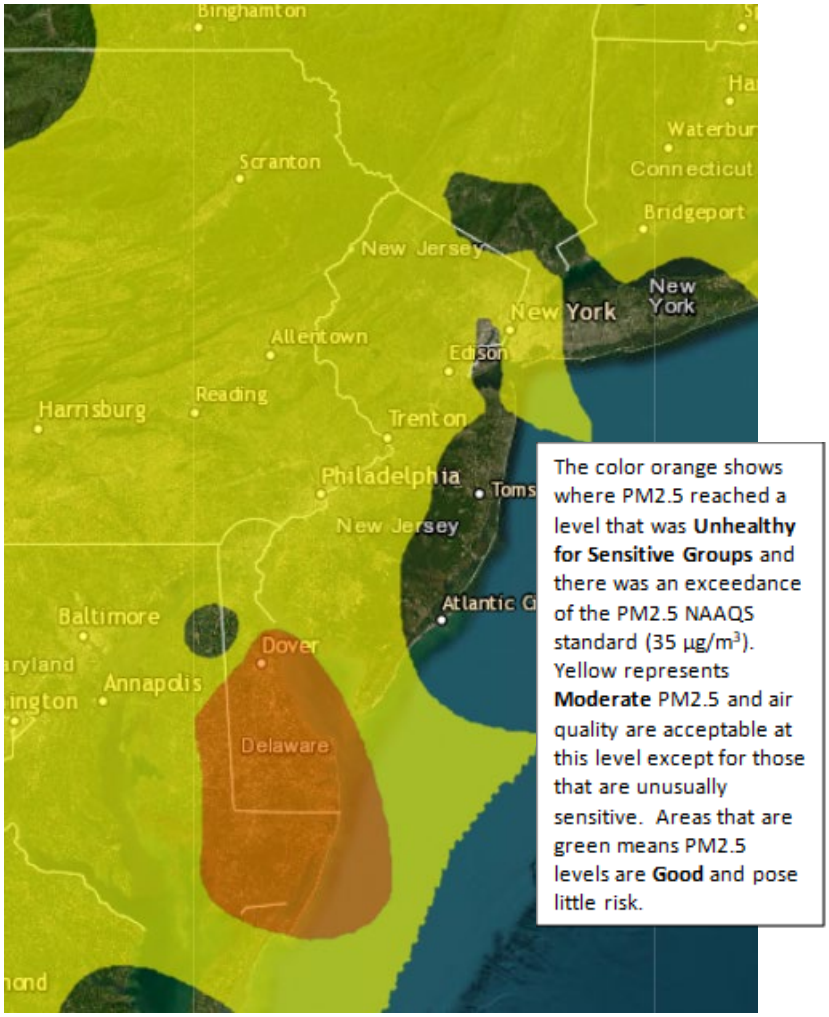
STATION	24-Hour Average (ug/m3)
Brigantine	6.6
Camden Spruce St	14.2
Columbia WMA	No Data
Elizabeth Lab	No Data
Flemington	18.8
Fort Lee Near Road	16.0
Jersey City Firehouse	13.4
Millville	49.8
Paterson	No Data
Rahway	13.8
Rider University	13.5
Rutgers University	14.7
Toms River	7.5
Trenton	15.2
Union City HS	14.0
TOTAL EXCEEDANCES	1

From the out-of-state stations adjacent to New Jersey, there were two (2) exceedances of the PM2.5 NAAQS. See Table 2.

Table 2. PM2.5 Concentrations at Out-of-State Monitoring Stations Adjacent to New Jersey on 6/1/2023

STATE	STATION	24-Hour Average (ug/m3)
CT	Bridgeport	24.5
CT	Danbury	15.8
CT	New Haven - Criscuolo Park	16.3
CT	Waterbury	16.8
DE	KILLENS (Kent Co.)	48.4
DE	LUMS 2 (New Castle Co.)	19.3
DE	MLK (New Castle Co.)	14.1
DE	Rte 9 Del City	12.7
DE	SEAFORD (Sussex Co.)	43.3
MD	Fair Hill	15.9
NY	Bklyn - PS274	15.7
NY	CCNY	12.2
NY	Division Street	No Data
NY	Eisenhower Park	5.9
NY	Fresh Kills	10.5
NY	Holtsville	6.4
NY	Manhattan/IS143	14.1
NY	Maspeth	11.8
NY	Queens	16.6
NY	Queens Near-Road	12.8
NY	White Plains	11.5
PA	Allentown	19.4
PA	Chester	17.7
PA	Freemansburg	19.2
PA	Marcus Hook	18.0
PA	New Garden	19.3
PA	Norristown	19.8
PA	FAB (Philadelphia Co.)	19.5
PA	MON (Philadelphia Co.)	No Data
PA	NEW (Philadelphia Co.)	21.8
PA	RIT (Philadelphia Co.)	22.8
PA	TOR (Philadelphia Co.)	25.4
	TOTAL EXCEEDANCES	2

Figure 1. PM2.5 Air Quality Index for June 1, 2023



Source: www.airnow.gov

For ozone terminology definitions see NJDEP Air Quality Planning's Glossary and Acronyms webpage: https://www.nj.gov/dep/airmon/glossary.html

Weather

On Thursday June 1st, three PM2.5 exceedances occurred throughout the region due to favorable meteorological conditions, residual wildfire smoke and a local wildfire in Burlington County. For multiple days leading up to this PM2.5 exceedance event, high pressure had positioned itself over the Northeast, allowing for light variable winds, gradually increasing temperatures, and a dry air mass across the region. On Thursday, calm winds in the morning eventually became variable as the day progressed, along with rapidly increasing temperatures in the mid-upper 80s and sunny skies. Residual diffuse wildfire smoke from Nova Scotian wildfires was also still present aloft in the atmosphere, which was able to mix down to the surface under the influence of a surface through and increase PM2.5 concentrations.

Where Did the Air Pollution that Caused PM2.5 Come From?

Smoke from the Allen Road Wildfire in Bass River Township, Burlington County that ignited on 5/31/23 was transported by northeast winds and directly impacted the Millville PM2.5 monitor. Strong high pressure in place throughout the week, warm temperatures, and dewpoints in the low-mid 40s allowed for ideal conditions for the ignition and rapid spread of the Allen Road Wildfire in southeastern Burlington County (Figure 2). Light northeasterly winds along the coast on Thursday allowed smoke from the Allen Road Wildfire to transport south and impact particulate levels in far southern New Jersey and Delaware. With diffuse smoke already present in the atmosphere from Nova Scotian wildfires earlier in the week, fine particulate levels were able to quickly rise into the unhealthy for sensitive groups category. Combined with localized wildfire smoke from the Allen Road Wildfire, multiple PM2.5 exceedances were able to occur in southern New Jersey and large portions of Delaware on Thursday June 1st, 2023.

Figure 3 below shows 1-hr average concentrations of PM2.5 at the Millville monitor on June 1st. Elevated levels at the Millville monitor were measured for much of the daytime hours before dropping off in the early evening. Figure 4 below shows the National Air Quality Index for the previous day on May 31st indicating widespread moderate air quality was observed for much of the eastern United States allowing PM2.5 levels to rise even higher at the Millville and Delaware monitors the following day on June 1st.

Figure 2. AirNow Fire and Smoke Map, Smoke Plume for June 1, 2023

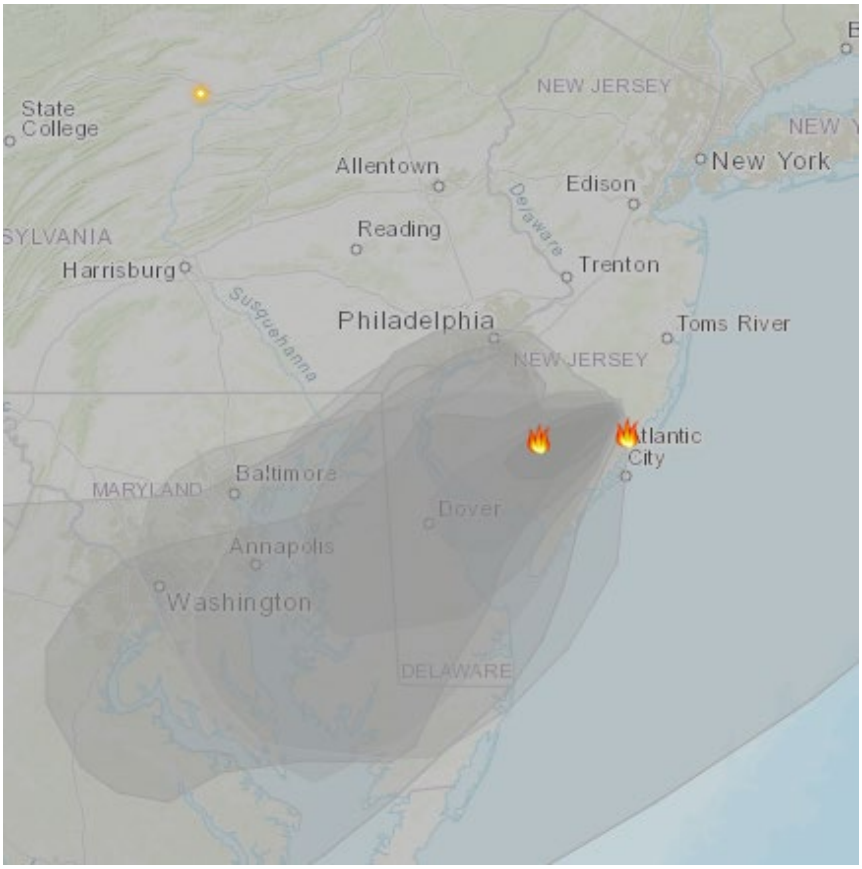


Figure 3. PM2.5 1-hr Concentrations for June 2, 2022

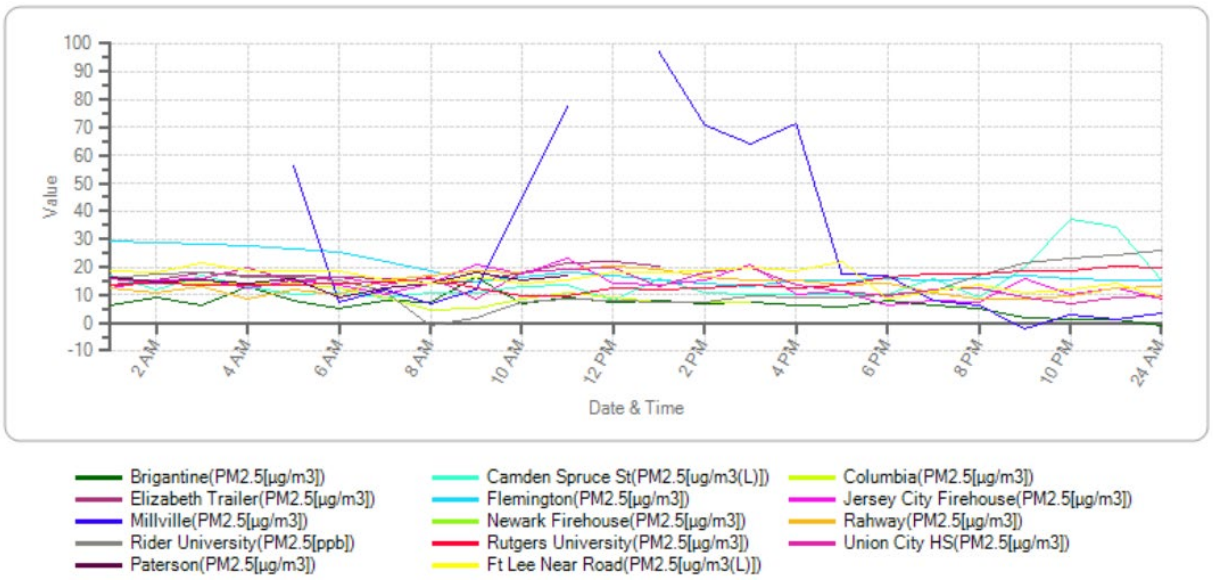
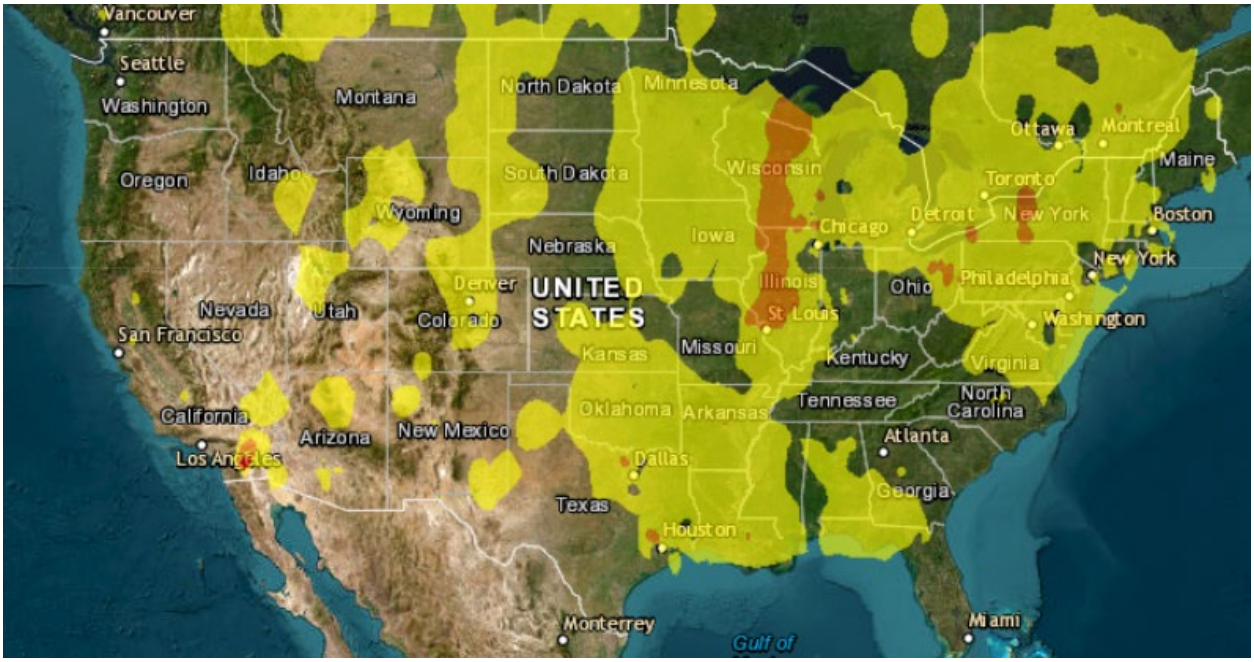


Figure 4. Air Quality Index for the United States on May 31, 2023



Source: www.airnow.gov

Find Out About Air Quality Every Day

Learn more about your local ozone air quality forecast by visiting the "What's Your Air Quality Today?" page at https://www.nj.gov/dep/baqp/aqitoday.html .