PM2.5 National Ambient Air Quality Standard Health Exceedances on June 2, 2023

Exceedance Locations and Levels

On Friday, June 2, 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 directly impacted the Brigantine 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 6/2/2023

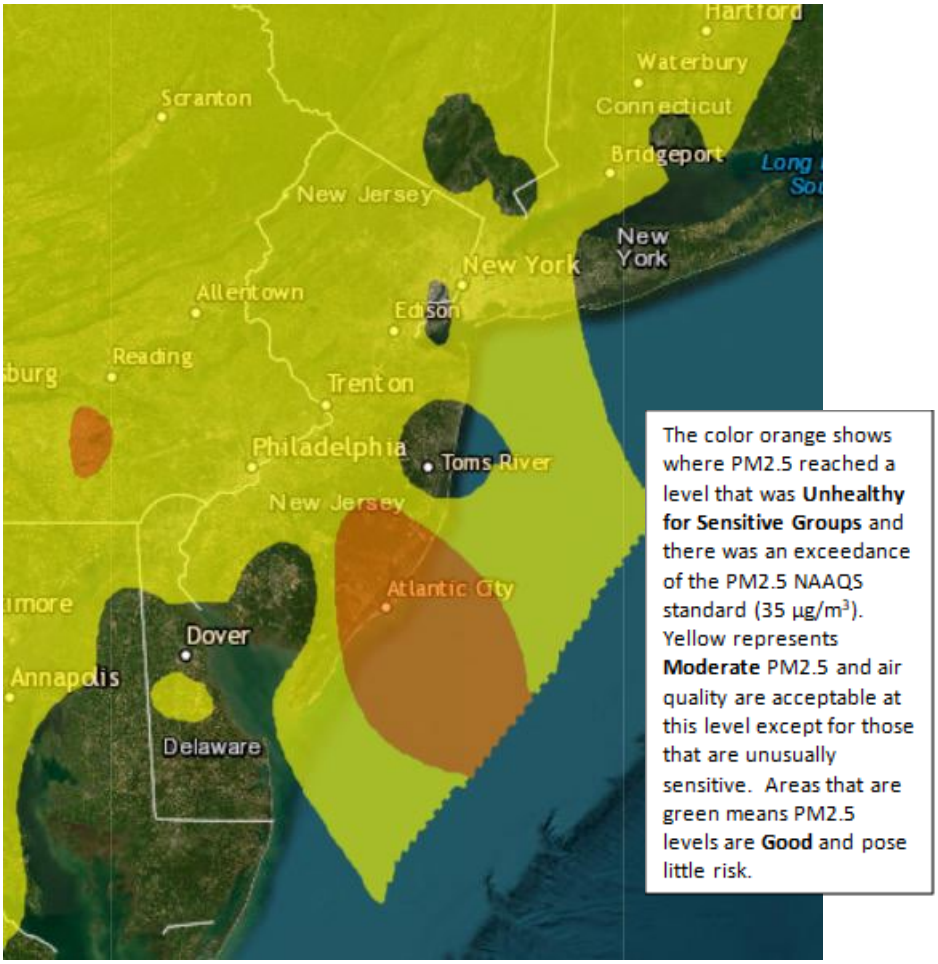
STATION	24-Hour Average (ug/m3)
Brigantine	53.1
Camden Spruce St	17.5
Columbia WMA	No Data
Elizabeth Lab	No Data
Flemington	16.3
Fort Lee Near Road	19.7
Jersey City Firehouse	15.1
Millville	10.1
Paterson	No Data
Rahway	16.7
Rider University	16.7
Rutgers University	17.6
Toms River	11.2
Trenton	18.7
Union City HS	17.3
TOTAL EXCEEDANCES	1

From the out-of-state stations adjacent to New Jersey, there were no 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 6/2/2023

STATE	STATION	24-Hour Average (ug/m3)
CT	Bridgeport	16.3
CT	Danbury	12.6
CT	New Haven - Criscuolo Park	11.9
CT	Waterbury	13.7
DE	KILLENS (Kent Co.)	12.3
DE	LUMS 2 (New Castle Co.)	17.9
DE	MLK (New Castle Co.)	18.5
DE	Rte 9 Del City	12.4
DE	SEAFORD (Sussex Co.)	10.2
MD	Fair Hill	18.7
NY	Bklyn - PS274	14.3
NY	CCNY	14.8
NY	Division Street	No Data
NY	Eisenhower Park	No Data
NY	Fresh Kills	10.7
NY	Holtsville	6.4
NY	Manhattan/IS143	19.1
NY	Maspeth	11.4
NY	Queens	15.8
NY	Queens Near-Road	12.5
NY	White Plains	11.7
PA	Allentown	16.5
PA	Chester	18.4
PA	Freemansburg	15.0
PA	Marcus Hook	17.9
PA	New Garden	22.5
PA	Norristown	21.4
PA	FAB (Philadelphia Co.)	21.1
PA	MON (Philadelphia Co.)	No Data
PA	NEW (Philadelphia Co.)	22.5
PA	RIT (Philadelphia Co.)	23.5
PA	TOR (Philadelphia Co.)	26.7
	TOTAL EXCEEDANCES	0

Figure 1. PM2.5 Air Quality Index for June 2, 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 Friday, June 2nd, widespread moderate and one PM2.5 exceedance occurred across the region due to favorable meteorological conditions in combination with residual wildfire smoke and a local wildfire in Bass River Township, Burlington County. In the days leading up to this PM2.5 exceedance event, strong high pressure had remained in control of the weather across the Northeast, allowing for light/variable winds, dry air, and increasing temperatures soaring into the low 90s by Friday. By mid-morning on Friday, a surface trough developed across the nonattainment area allowing polluted air and residual wildfire smoke from Nova Scotian wildfires to mix down to the surface and increase PM2.5 concentrations across the region into the moderate category. With a deteriorated air mass already in place from days prior, and with the addition of residual wildfire smoke at the surface, PM2.5 concentrations were able to rise into the moderate category across a large portion of the northeast. Meanwhile, the previously mentioned local wildfire continued to burn under the influence of favorable conditions for wildfire to spread.

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 continued to burn throughout the day on Friday, June 2nd with 80% containment. Residual smoke from this wildfire was transported downwind by southeast winds and directly impacted the Brigantine 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). With diffuse smoke already present in the atmosphere from Nova Scotian wildfires earlier in the week, fine particulate levels were able to quickly spike at the Brigantine monitor for several hours beginning at 4am and finally returning to normal levels around noon in southern New Jersey on this day (Figure 3).

Figure 4 below shows the National Air Quality Index on June 1st indicating a second day of regionally polluted air remained in place for most of the eastern United States. As a result, this event was likely due to the combination of a regionally polluted air mass and was exacerbated by the localized wildfire in Burlington County.

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

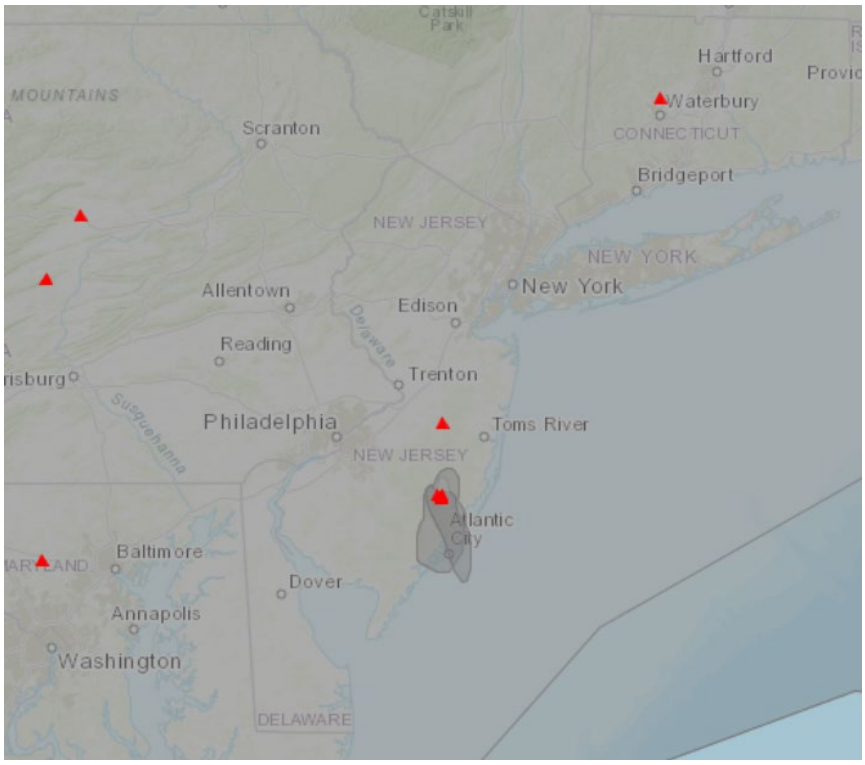


Figure 3. PM2.5 1-hr Concentrations for June 2, 2022

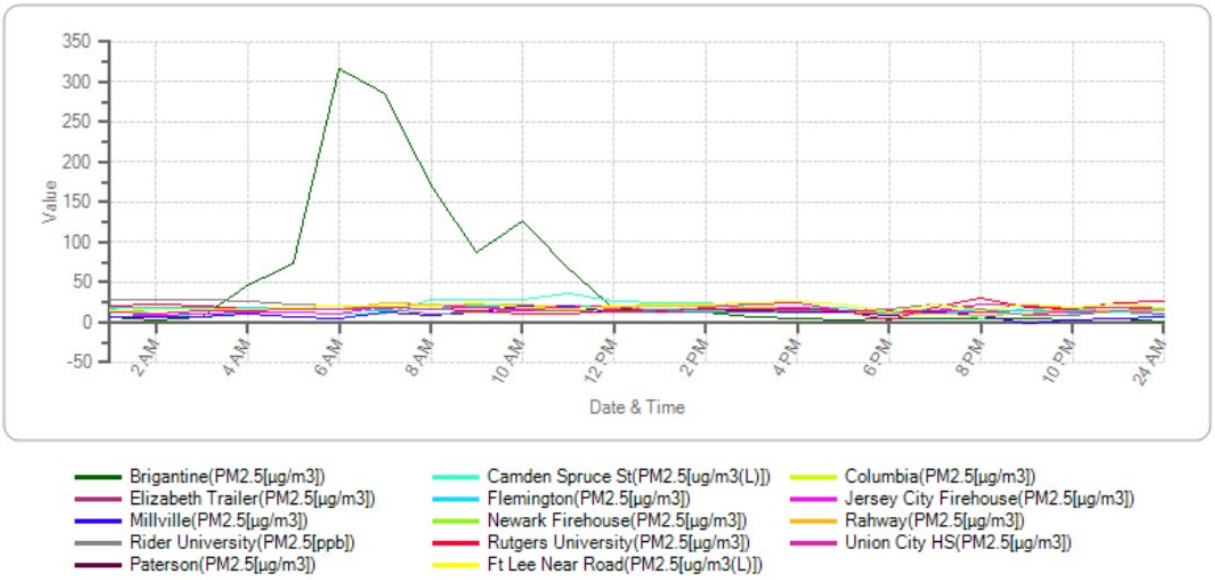
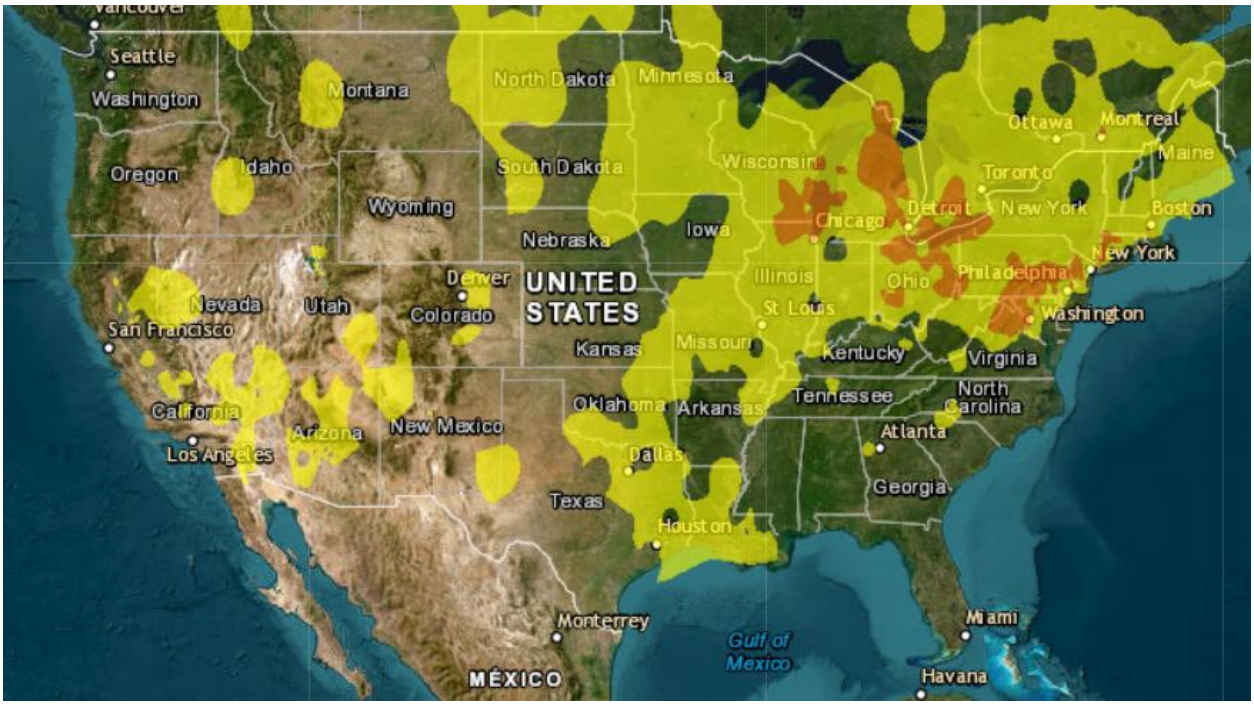


Figure 4. Air Quality Index for the United States on June 1, 2023



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 .