

Air Quality Forecast and Dispersion Outlook of Allegheny County, Pennsylvania for 4/11/2022

Air Quality Forecast: This is the daily forecasted Air Quality Index (AQI) for each area provided by the PA Department of Environmental Protection. The AQI is based on PM2.5 or Ozone, whichever is forecasted to be higher.

Forecast Period	Pittsburgh Area	Liberty-Clairton Area
Today Monday 4/11/22	PM2.5 Good 47 AQI	PM2.5 Moderate 58 AQI
Tomorrow Tuesday 4/12/22	PM2.5 Moderate 54 AQI	PM2.5 Moderate 65 AQI




Today's Forecast: Southwest: A warming trend will begin on Monday as temperatures return to more seasonable levels in the afternoon after a chilly start to the day. Highs on Monday will be in the low to mid-60s under mostly sunny skies. With a clean and dry air mass still in place, PM-2.5 concentrations will climb slightly but will remain at levels inside the good range for the day. The brisk northwesterly flow from Sunday will become lighter and more southerly as this warmer air begins to arrive during the morning hours.

Liberty-Clairton: A warming trend will begin on Monday as temperatures return to more seasonable levels in the afternoon after a chilly start to the day. Highs on Monday will be in the low to mid-60s under mostly sunny skies. A temperature inversion will develop during the overnight hours as the warm air begins to arrive aloft first before moving in at the surface Monday morning. The brisk northwesterly flow from Sunday will become lighter and more southerly as this warmer air begins to arrive. This will allow for a few hours of elevated PM-2.5 concentrations before the inversion breaks mid-morning. Concentrations on average for the day will be at levels inside the moderate range.

See Page 2 for the Air Quality Index guide

[Data provided by the PA Department of Environmental Protection](#)

ACHD Air Dispersion 36-Hour Forecast: This is the dispersion forecast for Allegheny County starting from this morning through tomorrow afternoon. The atmospheric dispersion index is a rating of the atmosphere's ability to transport pollution away from its source and is based on emissions and weather. Better atmospheric dispersion can improve air quality.

Forecast Period		Atmospheric Dispersion Index	Surface Inversion Strength	Wind (dir, mph)
Today	Morning 	Poor – 11	Strong	SE 5-6 to SW 8-9 Gust 20
	Afternoon	Poor – 11	--	SW 8-10 Gust 21-22
Tonight	Evening 	Poor – 9	--	SW 8
	Overnight	Poor – 12	--	SW 6-8 to NNW 5 Gust 20-21
Tomorrow	Morning 	Generally Poor – 16	None	NNW 3-5 to E 5
	Afternoon	Fair - 33	--	SW 5 to SSE 5

See page 2 for the Atmospheric Dispersion Index guide and the daily Surface Temperature Inversion Report.

ACHD Remarks: Rain this afternoon into tomorrow morning. Also, the sounding data from the National Weather Service was unavailable, so I had to use an alternative source.

Data provided by the National Weather Service (NWS) [Fire Weather Planning Forecast](#) and [PIT NWS Products](#)

Guide to the Air Quality Index (AQI)

Color	Description	Meaning	AQI
Red	Unhealthy	Everyone should limit exertion outdoors.	151 - 200
Orange	Unhealthy for Sensitive Groups	Sensitive people should limit exertion outdoors.	101 - 150
Yellow	Moderate	Extremely sensitive people may wish to limit outdoor exertion.	51 - 100
Green	Good	No health impacts are expected in this range.	0 - 50

Guide to the Atmospheric Dispersion Index

Very Poor	Poor	Generally Poor	Fair	Generally Good	Good	Very Good
1 - 6	7 - 12	13 - 20	21 - 40	41 - 60	61 - 100	> 100

ACHD Surface Temperature Inversion Report:

This is the 7 AM surface-based temperature inversion report for Allegheny County.

This morning's surface inversion of $\geq 5.26^{\circ}\text{C}$ with a depth of $\geq 120\text{ m}$ is estimated to break at N/A. This surface inversion can be characterized as: None / Slight / Weak / Moderate / **Strong**.

No upper inversion starting below ~1000 m is reported.

What does the Surface Temperature Inversion Report mean?

A surface temperature inversion is a weather pattern that stops mixing of the air near the ground, and pollution released into the air tends to remain at higher concentrations.

Surface temperature inversion conditions include how strong the surface inversion is (in $^{\circ}\text{C}$), how high the inversion is above the surface (in meters), and when the inversion is expected to break (in Eastern Standard Time). Also included is whether an upper-level inversion or inversions exist, starting at about 1,000 meters.

Surface Temperature Inversion Characterization

- 0-0.9 $^{\circ}\text{C}$: Slight
- 1-2.9 $^{\circ}\text{C}$: Weak
- 3-4.9 $^{\circ}\text{C}$: Moderate
- ≥ 5 $^{\circ}\text{C}$: Strong

