COVID-19 and Ambient Air Quality Monitoring

National Ambient Air Monitoring Conference (NAAMC)

Pittsburgh, PA
August 23, 2022
COVID-related Effects on the U.S. Ambient Air Monitoring Program

**March 13, 2020**
President declares COVID-19 a National Emergency

**March 19, 2020**
California is first state to issue a Statewide stay-at-home order

**March 31, 2020**
Monitor tracking began. Total of 4789* monitors tracked.

*2020 Monitor Total

**June – Dec, 2020**
Percentage of network monitors drifted down to 1.4% before increasing again to 3.7% in mid-December

**June, 2021**
About 0.1% of monitors were down

**EPA memo: “Ambient Air Monitoring Programs Continuity of Operations Associated with the COVID-19 Response”**

**March 18, 2020**

**EPA memo: “EPA Input on Ambient Air Monitoring Priorities in the Absence of Monitor Agency Priorities During COVID-19 Response”**

**March 30, 2020**

**Peak number of monitors down were 6.5% of all monitors of which 5.1% were filter-based manual methods**

**April, 2021**
Monitor Tracking Suspended
The graph shows the COVID Impact on Monitoring Site Operations, with data tracking from April 2020 to March 2021.

- **Total Percentage** is represented by blue dots.
- **Percentage Filter Based** is represented by orange dots.
- **Percentage Continuous** is represented by grey dots.

The data indicates an uptick, particularly in the last few data points, which is noted as being due to new restrictions in a few states.
Tracking of Sites and Affected Measurements

- Calls with EPA Regional staff and compiling data on affected sites, measurements, and labs.
  - Weekly
  - Bi-weekly after first few months
  - Eventually part of regular monthly calls
- Weekly reports prepared and sent to EPA Air Program senior management.
- Best practices, responses to questions from monitoring agencies, and flexibilities on QA/QC were also prepared and distributed.
- Primary reasons for the loss of data were:
  - Inability to access sites such as closed school campuses
  - Labs down or not shipping samples
  - Staff not available (e.g., quarantining)
SMART NEWS

Air Pollution May Make COVID–19 Symptoms Worse

Research linking air pollution to elevated death rates remains preliminary but scientists hope the pandemic spurs tighter air quality regulations

Alex Fox
Correspondent
May 7, 2020

Maps show drastic drop in China’s air pollution after coronavirus quarantine

Restricting travel means less tailpipe emissions

By Justino Calma | @justicalma | Mar 2, 2020, 12:00pm EST
Daily Air Quality Tracker

https://www.epa.gov/outdoor-air-quality-data

Air Data: Air Quality Data Collected at Outdoor Monitors Across the US

Daily Air Quality Tracker
The new daily air quality tracker lets you compare recent AQI values with historical data.

This website provides access to outdoor air quality data collected from state, local and tribal monitoring agencies across the United States.
Daily Air Quality Tracker
https://www.epa.gov/outdoor-air-quality-data

PM2.5 Daily AQI Values
Riverside-San Bernardino-Ontario, CA

Cumulative Number of Good PM2.5 AQI Days (AQI<50)
Riverside-San Bernardino-Ontario, CA
Air Data: Air Quality Data Collected at Outdoor Monitors Across the US

Visualize Trends

The multiyear tile plot shows long-term changes in air quality.

This website provides access to outdoor air quality data collected from state, local and tribal monitoring agencies across the United States.

https://www.epa.gov/outdoor-air-quality-data
Multiyear Tile Plot
https://www.epa.gov/outdoor-air-quality-data

New York PM$_{2.5}$
2010-2022

Los Angeles O$_3$
2010-2022
Starting in mid-March 2020, many areas across the United States implemented stay-at-home restrictions in response to the COVID-19 pandemic that closed schools, workplaces, and businesses. As a result, vehicle travel significantly dropped, and we saw lower ambient concentrations of several pollutants including nitrogen dioxide (NO2) and ozone (O3). This graph shows the daily concentrations of NO2 and O3 in the spring of 2020 compared with historical values from 2010-2019.
Air Quality Impacts from the COVID-19 Restrictions Across the United States

by Brett Gantt, Joe Mangino, David Mintz, and Liz Naess

An overview of the impacts on air quality data as a result of the U.S. government-mandated restrictions imposed during the height of the COVID-19 pandemic.
• Pollutants directly affected by vehicular emissions (NO₂, CO) had widespread lower concentrations.

• Pollutants of greater regulatory significance (O₃ and PM₂.₅) had concentration impacts that were a function of meteorology and atmospheric chemistry in addition to emission changes.

• Locational (urban vs. rural) and geographic setting played a large role in the magnitude of the impact from the restrictions.
  • The largest urban areas in the U.S. tended to experience small O₃ impacts and modest PM₂.₅ reductions.
  • Rural areas experienced larger O₃ reductions and little change to PM₂.₅.