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Editorial

Pandemic: An Opportunity to Reduce Air Pollution

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EDITORIAL

The pandemic of COVID-19 was more than a shock to the human immune system. It was also a shock to the Earth system, causing significant changes in air quality in cities all over the world. Countries around the world placed immediate shutdowns as they worked to control the epidemic. Scientists are now sifting through satellite and ground data to see what this pause in human activity might teach us about the atmospheric cocktail that causes pollution in cities.

It was already understood that people's movements had been curtailed to the point that greenhouse gas emissions and seismic noises had been drastically reduced. However, the quiet time did not last, and by the summer, carbon dioxide emissions had begun to rise again. This sudden halt in many human activities especially commuter traffic also provided scientists with an unparalleled opportunity to study the complex chemistry of urban pollutants. The shutdowns helped scientists better understand another long-standing affliction for human health: poor air quality in many cities, by altering the normal mix of pollutants lingering over cities.

There is now a wealth of data from cities all over the world on how the pandemic affected regional or local concentrations of ozone precursors, a key component of smog. Nitrogen oxides and volatile organic compounds, both formed by traffic, as well as methane, produced by the oil and gas industry, are among the precursors. With satellites, scientists are able to monitor how pollutant levels have changed across the world. Although the shutdowns were more strict in the spring, the researchers discovered that summertime nitrogen dioxide reductions were the most closely linked to the city's change in ozone levels. Since heat and sunlight react with precursor gases in the atmosphere, such as nitrogen dioxide, in the summer, a toxic cocktail is created.

However, ozone levels in Denver were inconsistent, likely due to the fact that wildfires were raging across the United States by the end of the summer. The fires emit nitrogen oxides, carbon monoxide, and small particles, all of which contribute to the rise in ground-level ozone. There are different trends in different cities, and there are a lot of variables to consider and a lot of work to be done, according to a study.

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