Impacts of Traffic Reductions Associated With COVID-19 on Southern California Air Quality

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Scientific Achievement

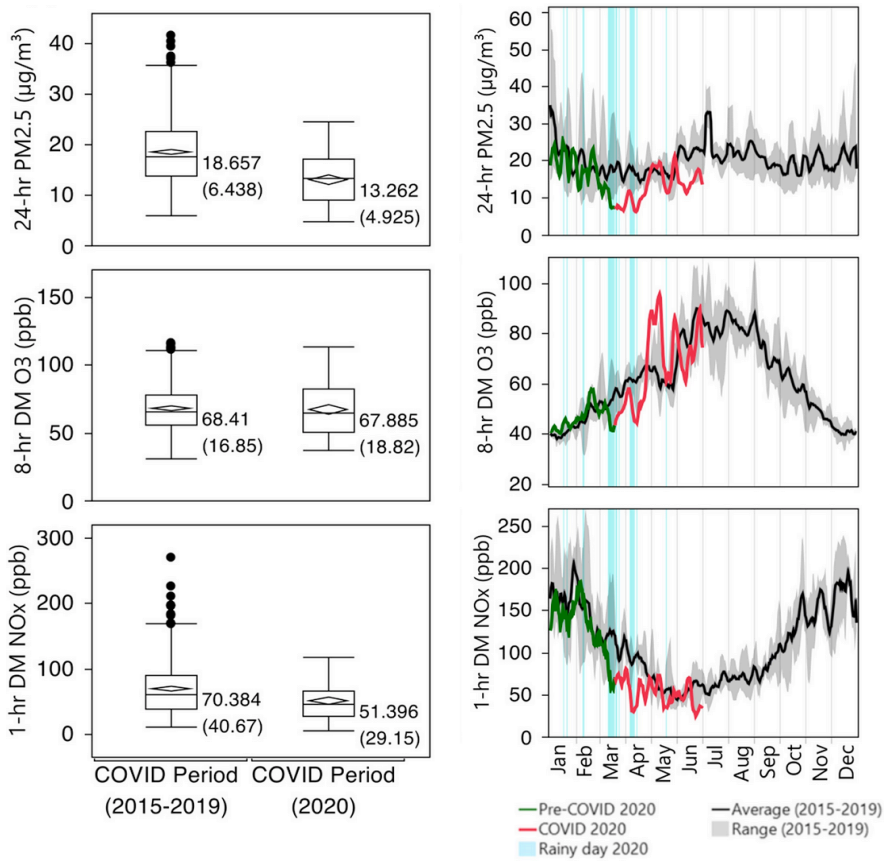
- Compared air quality during the COVID-19 Stay-At-Home order of 2020 (19 March to 30 June), a period marked by decreased vehicular traffic, with historic observations.

Significance and Impact

- Pollutant concentrations and patterns emphasize the influence of weather on air quality and suggest mitigation beyond vehicle emission reductions will be needed to meet future goals.

Technical Details

- COVID-19 restrictions coincided with precipitation at least 3 times the historical average.
- Data suggest that a broader focus on reducing VOC emissions (in combination with the current focus on NOx reductions) will be needed to attain air quality standards basin-wide.



COVID-19 restrictions altered air pollutant concentrations in LA. Unusual weather, however, also contributed significantly to the clean air observed at the beginning of the lockdown. Rainfall in the basin in Spring 2020 was well above that of the past decade, with precipitation in March and April over 3-5 times the historical average values. Rainfall affects air quality by removing pollutants such as nitric acid and $PM_{2.5}$. Additionally, rainy periods are associated with higher ventilation rates that decrease pollution buildup. Images reprinted with permission from the authors.

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