

# A Comparison of Trace Gas Trends in Urban Areas Collected via Whole Air Sampling during the COVID-19 Pandemic

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## Abstract

COVID-19's impact on society and our daily habits has been unprecedented. With a decrease in vehicular traffic and industrial production, a decrease in local emissions was expected to occur. In order to capture any trends in ambient trace gas concentrations, approximately one thousand whole air samples were collected in intervals across the United States from April to July 2020 as part of the NASA Student Airborne Research Program (SARP). These samples were then analyzed by the UCI Rowland-Blake Lab using multi-column gas chromatography for over one hundred unique trace gases, including methane, non-methane hydrocarbons, and halocarbons, as described in Colman et al. (2001) and Barletta et al. (2002). Initial samples collected in April coincided with the peak of stay-at-home/social distancing orders in most states while samples collected later in the spring and early summer reflect the easing of these measures and initial state reopenings. Overall trends in emissions over time in select metropolitan areas will be discussed and compared to trends observed across the entire United States.



