

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

Alex Jarnot¹, Donald Blake¹, Melissa Yang², James Flynn³, Sergio Alvarez³, Travis Griggs³, Maya Zimmerman⁴, Jordan Zachmann⁵, MacKenzie Warner⁶, Gabriela Vidad⁷, Graham Trolley⁸, Jacob Schenthal⁹, Morgan Schachterle¹⁰, Everett Rzeszowski¹¹, Dominick Ryan¹², Amanda Rodell¹³, McKenna Price-Patak¹⁴, Elena Press¹⁵, Scarlet Passer¹⁶, Nathan Pappalardo¹⁷, Joseph Palmo¹⁸, David Moore¹⁹, An Li²⁰, Jessica Kasamoto²¹, Tatiana Jimenez²², Amelia Hurst²³, Kendra Herweck²⁴, Paola Granados²⁵, Katey Dong²⁶, Walker Demel²⁷, Ariana Deegan²⁸, Mackenzie Conkling²⁹, John Carlson³⁰, Joel Been³¹, Patrick Sullivan³², Alexander MacDonald³³, Nicole Taylor³⁴, Jesse Bausell³⁵, Simone Meinardi¹, Raphael Kudela³⁵, Barbara Barletta¹, Dar Roberts³⁶, Gloria Weitz³⁷, Andreas Beyersdorf³⁸, Brent Love³⁷, Roya Bahreini³⁹, Barbara Chisholm¹, Barry Lefer³, Jack Kaye⁴⁰, Ryan Stauffer⁴¹, Joseph Bennett², Hal Maring⁴², and Emily Schaller²

¹University of California Irvine

²National Suborbital Research Center

³University of Houston

⁴Swarthmore College

⁵Saint John's University

⁶Ripon College

⁷Adelphi University

⁸Cornell University

⁹Vanderbilt University

¹⁰University of Colorado - Colorado Springs

¹¹Bowdoin College

¹²Northern Arizona University

¹³Missouri University of Science and Technology

¹⁴Tulane University

¹⁵Stanford University

¹⁶University of California - Santa Cruz

¹⁷Pomona College

¹⁸Amherst College

¹⁹University of Albany

²⁰University of Chicago

²¹Johns Hopkins University

²²Harvard University

²³Univeristy of Connecticut

²⁴Northern Kentucky University

²⁵University of Texas - Rio Grande Valley

²⁶Oregon State University

²⁷Butler University
²⁸University of Georgia
²⁹Centre College
³⁰Norwich University
³¹Colorado School of Mines
³²University of Utah
³³University of Arizona
³⁴NASA Armstrong Flight Research Center
³⁵University of California Santa Cruz
³⁶University of California Santa Barbara
³⁷University of California - Irvine
³⁸NASA Langley Research Center
³⁹University of California Riverside
⁴⁰NASA Headquarters
⁴¹USRA at NASA/GSFC
⁴²NASA-Scien Mission Directorate

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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.



