Changes in Air pollution from the COVID-19 lockdown as revealed from TRAX-based monitoring

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The COVID-19 lockdown in 2020 reduced emissions from traffic, commercial, and industrial sectors. There is evidence that the lockdown period improved air quality of cities due to widespread reduction in social mobility and economic activity.

We have deployed instruments on public transit light-rail train cars in the metropolitan Salt Lake Valley (SLV) in Utah, USA to measure the temporal and spatial variability of air pollution. We measured greenhouse gases—carbon dioxide (CO_2) and methane (CH_4), as well as the criteria pollutants—ozone (O_3) and fine particulate matter ($PM_{2.5}$).

Mobile air quality monitoring can be widely deployed to provide detailed coverage over large spatial areas, and thus supplement traditional stationary air monitoring station measurements. The mobile sensors operated during the COVID-19 lockdown period, providing a unique spatial record of atmospheric composition during an abrupt and large perturbation to emissions. Here we present preliminary results of the light rail measurements as part of this ongoing research study.