Seminar on Physics and Chemistry
of the Atmosphere
13.11.2020, WiSe 2020/2021, IUP Bremen

The Impact of COVID-19 Restrictions on Emissions and Ozone Episodes

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Abstract

To prevent the spread of COVID-19, travel restrictions and other regulations were enacted around the world including in the US. With an instrumented aircraft, we explored the composition of the lower atmosphere to determine emissions via mass balance, examined ratios among various pollutants, and investigated photochemistry under conditions normally conducive to ozone (LA smog) events. We also augmented a roadside monitoring site to include greenhouse gas measurements. Results indicate a substantial reduction in GHG and CO emissions and a measurable improvement in NOx. But ozone production is a highly nonlinear process and while the Baltimore/Washington region experienced a dramatic decline in ozone, the New York City region did not. Policy implications are discussed.