Dien
Wu
Division of Geological and Planetary Sciences, California Institute of Technology
Joshua Laughner, Jet Propulsion Laboratory, California Institute of Technology
Junjie Liu, Jet Propulsion Laboratory, California Institute of Technology
Paul Wennberg, Division of Geological and Planetary Sciences, California Institute of Technology
Oral

Space-based sensors monitoring greenhouse gases and air pollutants have provided new perspectives to understanding exchanges of carbon and pollution fluxes at local to regional scales. To facilitate policymaking in a timely and systematic manner, we developed a top-down multi-tracer modeling framework and evaluated its capability in monitoring, reporting, and verifying fluxes over urban areas. Here we present results from recent analyses that detected and quantified urban emissions and their changes given perturbation in human activities. By optimizing CO2, CO, and NOx emissions from OCO-2/3 and TROPOMI, we found differences in temporal variabilities of the optimized emissions, likely suggesting specific emission sectors driving the differences.
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