

Quantifying Methane Emissions in the Upper East Side and East Harlem

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Quantifying methane (CH₄) emissions in NYC is crucial to reduce greenhouse gas emissions because the Environmental Protection Agency (EPA) inventory has been underestimating methane emissions in New York City (NYC) by 2-3x. Specifically, we wanted to investigate the leak rate of methane in neighborhoods with different socioeconomic statuses to determine if there was a significant difference in methane emissions between the Upper East Side and East Harlem, and what the drivers of those differences might be, especially in the areas heated by district steam. Two trace gas analyzers were used to measure methane and ethane when conducting the drives. A sampling line was mounted at 2m on top of a car during the street-level surveys. There were 151 persistent plumes detected in the winter, and 340 in the summer. The criteria for these persistent plumes were greater than 100 parts per billion (ppb) enhancement of CH₄, seen at least three times, within ten meters of one another. We also used integrated plume measurements to quantify emissions, rather than relying on maximum peak enhancement. Results showed a strong seasonal trend, favoring summer over winter, for methane enhancements, especially in steam heated areas. These results highlight the importance of measuring natural gas leak rates and quantifying emissions in urban areas.