



An overview of key emissions sources and ambient pollution characteristics from major cities in North America

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Many urban anthropogenic emission sources are difficult to characterize. They can be distributed across a spatial scale that precludes specific vector sampling. Others are difficult to identify a specific point of emissions. Novel emissions quantification methods, including fuel-based emission indices and tracer flux ratio, are described and evaluated for a variety of urban pollution sources. These techniques can be used to quantify emissions for a large range of species including methane and carbon dioxide isotopes, formaldehyde and other toxic volatile organic carbon compounds, nitrogen oxides, carbon monoxide and black carbon particulate matter. Results from urban emissions source case-studies using a mobile laboratory either alone or in conjunction with tracer-release will be described. These include on road light duty and heavy duty vehicle emissions, in-use aircraft engine emissions at airports, and industrial emission sources.