

LIGHT-RAIL BASED URBAN TRACE GAS AND AEROSOL MEASUREMENT

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Air quality is an important issue that resides at the top of the minds of Salt Lake City's residents, particularly during the wintertime inversion season. A recent survey revealed that Utahns believe air quality is one of the most important issues currently facing the state (Lee 2014). However, we currently have very limited data regarding spatial patterns of urban emissions of pollutants associated with poor air quality in the Salt Lake Valley.

To address challenges in constraining emissions and air quality in an urban environment, we have installed instrumentation on a light-rail train (TRAX) to quantify the spatial distributions of trace gases and aerosols. State of the art instruments collect high frequency carbon dioxide (CO₂), methane (CH₄), particulate matter (PM_{2.5}, PM₁₀), GPS, and meteorological data as the train makes repeated transects across various routes. While still preliminary, the data has already improved our understanding of vertical trace gas and aerosol profiles, identified point source methane emissions, and provided an avenue to display real-time air quality conditions across the Salt Lake Valley.

Lee, J., 2014: Survey: Utahns most concerned about education, air quality. *Deseret News*.

