

BU researchers identify extensive methane leaks under streets of Boston

May 13 2011

Earlier this year, Boston University researchers and collaborators conducted a mobile greenhouse gas audit in Boston and found hundreds of natural gas leaks under the streets and sidewalks of Greater Boston. Nathan Phillips, associate professor of geography and environment and director of BU's Center for Environmental and Energy Studies (CEES), and his research partners will present these and related findings at NOAA's Earth System Research Laboratory (ESRL) Global Monitoring Annual Conference, May 17-18 in Boulder, Colorado.

Phillips and partners Picarro, Inc., Gas Safety USA, and the Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder are currently researching the economic and environmental impacts of these leaks. Their work updates earlier findings that unaccounted-for gas amounted to eight billion cubic feet in Massachusetts, costing about \$40 million. Such gas leaks have been implicated in damage and mortality of urban and suburban street trees. Evidence from other cities indicates that the situation in Boston is likely similar to cities and towns across the nation.

In an attempt to identify major methane sources in Boston and Indianapolis, Phillips and his research partners systematically measured methane (CH₄) concentrations at street level using a vehicle-mounted cavity "ringdown" analyzer. A number of discrete sources were detected at concentration levels in excess of 15 times background levels. Background levels of methane were also measured to be 10 percent higher than the world-wide average of 1.860 ppm. Measurements of

CH₄ concentration levels along with detailed location information will be presented. In addition, chamber flux measurements of discrete sources will also be presented.

Recent measurements indicate that urban emissions are a significant source of CH₄ and in fact may be substantially higher than current inventory estimates. As such, urban emissions could contribute 7-15 percent to the global anthropogenic budget of methane. Although it is known that the per capita carbon footprint of compact cities such as New York City, Boston, and San Francisco are smaller than sprawling cities such as Houston, the strengths of individual sources within these cities are not well known. Such information is of use to government policy makers because it can be used to incentivize changes in transportation and land use patterns.

More information: www.esrl.noaa.gov/gmd/annualco2/13p?refnum=99-110418-A

Provided by Boston University

Citation: BU researchers identify extensive methane leaks under streets of Boston (2011, May 13) retrieved 20 March 2024 from <https://phys.org/news/2011-05-bu-extensive-methane-leaks-streets.html>

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