This paper presents a result of carbon dioxide and methane measurements on urban roads and develops a top-down methodology to update the vehicle emission inventory.

• Many conventional passenger gasoline vehicles have been converted for the natural gas (NG) fuel supply. It is an ideal alternative fuel for reduction of carbon dioxide and air pollutant emissions for each unit of heat produced.

• Vehicle methane emissions are thought to be an insignificant methane source on the global scale. It has been shown, however, that locally, in areas with a high traffic density, they can account for a larger proportion, reaching even 30% of the total emission.

• The emissions of CH₄ are more difficult to estimate and depend strongly on technology, vehicle type and driving conditions. In comparison, CO₂ emissions from traffic can be computed accurately from fuel consumption statistics.

Objectives

• This paper presents a result of carbon dioxide and methane measurements on urban roads and develops a top-down methodology to update the vehicle emission inventory.

• This paper also quantifies the CH₄ contribution from the taxi and bus after they have been switching to natural gas as energy source.

Introduction

Schematic diagram of the observation routes. CH₄ and CO₂ concentrations were measured on Street 1, Street 3 and Street 4 showed in red.