

# Methane emissions estimate from airborne measurements over a western United States natural gas field

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## Abstract

[1] Methane (CH<sub>4</sub>) emissions from natural gas production are not well quantified and have the potential to offset the climate benefits of natural gas over other fossil fuels. We use atmospheric measurements in a mass balance approach to estimate CH<sub>4</sub> emissions of  $55 \pm 15 \times 10^3 \text{ kg h}^{-1}$  from a natural gas and oil production field in Uintah County, Utah, on 1 day: 3 February 2012. This emission rate corresponds to 6.2%–11.7% ( $1\sigma$ ) of average hourly natural gas production in Uintah County in the month of February. This study demonstrates the mass balance technique as a valuable tool for estimating emissions from oil and gas production regions and illustrates the need for further atmospheric measurements to determine the representativeness of our single-day estimate and to better assess inventories of CH<sub>4</sub> emissions.

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