Satellite data reveal decreasing methane intensity from US oil/gas fields

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NASA CMS CARBON MONITORING SYSTEM

Science Question

Better understanding of methane emissions from the oil/gas industry is needed to attribute methane trends and enable climate action. A critical metric is the methane intensity, defined as the amount of methane emitted per unit of gas produced.

Analysis

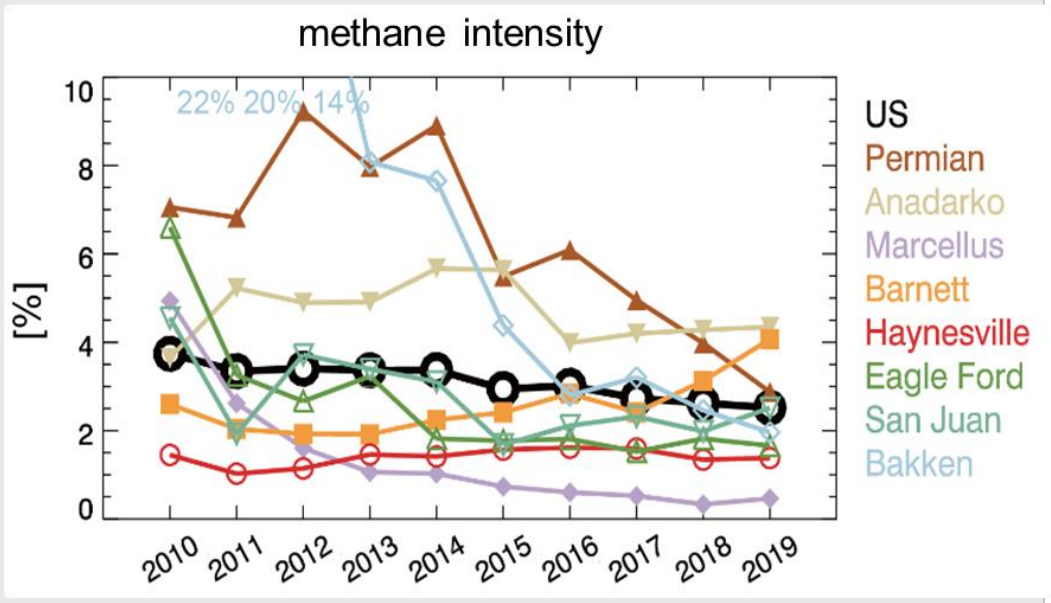
We used a joint inversion of GOSAT satellite methane data and NOAA ObsPack data for 2010-2019 to quantify annual emissions from all oil/gas fields in North America

Results

- US oil/gas methane emissions are 70% higher than EPA's inventory
- The methane intensity from US oil/gas production has been decreasing steadily from 3.7% in 2010 to 2.5% in 2019, reflecting improved gas capture
- The spread across fields has narrowed, reflecting maturation of the industry

Significance

Our results show that the US oil/gas industry has been getting cleaner with respect to methane emissions over the past decade, and that continued decrease over the next decade can make a major US contribution toward the Global Methane Pledge. We show how satellite data are a unique asset for monitoring national oil/gas emissions and their trends.



Decreasing methane intensity from US oil/gas fields over 2010-2019 as inferred from inversion of GOSAT methane satellite data and NOAA ObsPack surface data

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