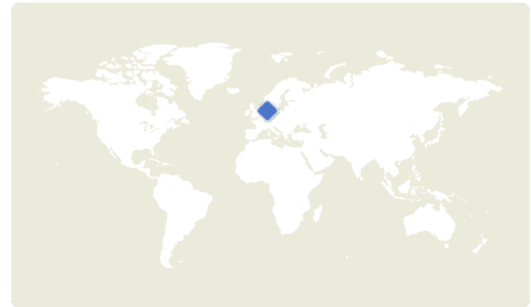


UPSCALING METHANE MEASUREMENTS AND VERIFYING EMISSIONS INVENTORIES IN THE NETHERLANDS



Integrating existing data and atmospheric measurements to estimate Dutch methane emissions across sectors.



DONOR:
Global Methane Hub and Bezos Earth Fund, with co-funding from the Netherlands



BENEFITTING COUNTRIES OR REGIONS:
All, The Netherlands



SECTOR:
Multisector



Subsector, if applicable:
—

STATUS: Project initiation

TIMELINE: Implementation started 2024



IMEO SCIENCE OBJECTIVE:

→ Advance reconciliation and data integration approaches for multi-scale emissions data.

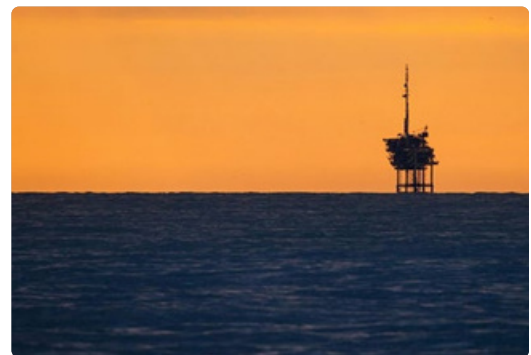


Photo Attribution: Jeremy Weener / Thinkr



KEY FINDINGS

This study will upscale existing measurements, compare them to atmospheric observations, and provide a national baseline of emissions across sources in the Netherlands.

RATIONALE

A wide range of scientific measurements across methane emission sources exists in the Netherlands. This provides a valuable opportunity to synthesize existing data for a more complete picture of emissions nationally and across sources. The results can inform inventory efforts, identify the most essential measurements for reliable emissions' quantification, and provide a benchmark for other efforts to baseline emissions in other countries – especially developing nations with scarcer methane measurement data available.



RELATED PUBLICATIONS

In progress



SIGNIFICANCE FOR DECISIONMAKERS

This study will verify national inventory estimates of methane with atmospheric observations. Decisionmakers can use these findings to target improvements to the national inventory and mitigation actions. Importantly, this project may thereby serve as a demonstration and benchmark for country baselining for other countries thanks to the already existing rich dataset of atmospheric measurements in the Netherlands.



STUDY APPROACH/ACTIVITIES

The research team will conduct an overview of methane measurement data in the Netherlands and derive emissions from it. Specifically, the research team will gather and homogenize separate data sets, including data collection from grey literature, stakeholder-owned sources, neighbouring countries (using data from the Integrated Carbon Observatory System), relevant satellite data and, where necessary, use simple analysis (e.g., Gaussian plume analysis) to derive emission rates of methane from measurements of atmospheric concentrations. This will generate a unique data set with all available methane emissions in the Netherlands inferred from observations. Furthermore, the research team will develop new upscaling methods, considering temporal and spatial variability and the influence of environmental and meteorological factors.



CATALYZING ACTION

This study will demonstrate how national inventory of methane emission can be improved by atmospheric measurements. It will serve as benchmark for national methane baselining of other countries, which is especially useful for developing nations where atmospheric measurement data is usually scarce.

OTHER SUPPORTERS/STAKEHOLDERS

Principal Investigator: **Utrecht University**

National Institute for Public Health and the Environment (RIVM), Wageningen University and Research, University of Groningen, Vrije Universiteit Amsterdam, Netherlands Organisation for Applied Scientific Research (TNO)

Revision History: **28 October 2024**

The UN Environment Programme's International Methane Emissions Observatory (IMEO) exists to provide open, reliable, and actionable data to the individuals with the agency to reduce methane emissions. IMEO does this by integrating and reconciling data across sources, including its global methane science studies. IMEO supports measurement and research studies around the world to close the knowledge gap on methane emissions and provide policy-relevant insights to decisionmakers.