

AERIAL MEASUREMENTS OF EMISSIONS IN OMAN

First multi-sector measurement study of methane emission sources in the Arabian peninsula.



DONOR:
European Commission



**BENEFITTING COUNTRIES
OR REGIONS:**
Oman



SECTOR:
Multisector



Subsector, if applicable:
Oil & Gas, Waste

STATUS:
Manuscript drafting

TIMELINE:
Measurements 2023 to 2024



**IMEO SCIENCE
OBJECTIVE:**

→ **Advance science studies in
support of countries targeting
methane mitigation.**



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KEY FINDINGS

The study will assess oil and gas site-level emissions and source-level distribution via aerial and ground-based methane surveys.

RATIONALE

There has been a lack of independent data on methane emissions from oil and gas infrastructure on the Arabian Peninsula, limiting the ability to effectively target mitigation efforts. This study aims to address that gap by generating robust, measurement-based insights at the facility and basin level. To build a more comprehensive picture of regional emissions and identify key sources across sectors, a waste sector component has also been integrated into the broader oil and gas measurement campaign.



RELATED PUBLICATIONS

In progress



SIGNIFICANCE FOR DECISIONMAKERS

For operators: Measuring methane emissions is important to improve understanding of source distributions and to confirm that all major sources are included in inventory reporting. This study showcases practical methods that operators can use to detect, quantify, and verify their emissions. By applying these approaches, operators are better equipped to identify key sources and take targeted action to effectively reduce emissions.

For policymakers: Measurement-based estimates of methane emissions from the Arabian peninsula have been limited to insights from satellite data. Aerial and ground-based data provide a specificity and overview of sectoral emissions that are not otherwise available. The results will provide first-of-their-kind insights into the intensity of methane emissions in the region. This allows stakeholders to better understand emissions performance and prioritize mitigation solutions.



STUDY APPROACH/ACTIVITIES

The primary measurement campaign was conducted during November-December 2023, covering oil and gas production sites and a landfill in Oman. Airborne measurements were carried out from a specially designed platform suspended beneath a helicopter, called the HELiPOD. The HELiPOD measurements provided total site-level and regional-level emission estimates. To complement these, a ground-based team conducted drive-by surveys to build up statistics of detectable methane emissions from specific sources. Further exploratory drone-based measurements were conducted at the landfill in March 2024.



CATALYZING ACTION

The study was planned and conducted in close collaboration with the oil and gas and landfill operators. Throughout the campaign, measurement findings were shared with local representatives of the operators to enable rapid identification of leaks and enhance their understanding of the study, as well as necessary considerations for performing measurements to quantify site-level emissions.

OTHER SUPPORTERS/STAKEHOLDERS

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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.