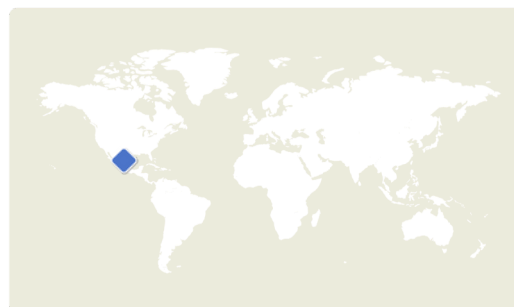


EMISSIONS FROM ONSHORE & OFFSHORE PRODUCTION IN MEXICO



Current inventories significantly overestimate emissions from offshore production and underestimate emissions from onshore production.



DONOR:
Oil and Gas Climate Initiative



BENEFITTING COUNTRIES OR REGIONS:
Mexico



SECTOR:
Oil & Gas



Subsector, if applicable:
—

STATUS:
Published

TIMELINE:
Measurements 2018 to 2019; Latest publication 2021



IMEO SCIENCE OBJECTIVE:

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



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KEY FINDINGS

This study integrated airborne-based measurements with remote sensing data (TROPOMI and VIIRS night-time flare data) and found large discrepancies (more than an order of magnitude) in emission estimates, with offshore production being overestimated and onshore production being underestimated in current inventories. One single facility, an onshore gas processing facility, was responsible for greater emissions than the entirety of the largest offshore production region.

RATIONALE

Prior to UNEP IMEO studies of offshore emissions, there was little available information characterizing the difference between onshore and offshore emission – including for Mexico, which is a major oil and gas production country that relies on simple emission factors for its emissions inventories. This study integrates satellite and airborne monitoring to characterize emissions from these sources.



RELATED PUBLICATIONS

*Integrated airborne-based & remote sensing
(Zavala-Araiza et al., 2021)*



SIGNIFICANCE FOR DECISIONMAKERS

The study uncovered significant gaps in national and operator emissions inventories and provides a more accurate basis for effectively targeting mitigation resources where they will be most effective.



STUDY APPROACH/ACTIVITIES

Researchers selected an offshore study region accounting for roughly 67 per cent of national oil production and 46 per cent of natural gas production and an onshore study region that accounted for 9 per cent of national oil production and 11 per cent of national gas production. Aircraft based measurements were used to provide a top-down measurement at a regional and facility level scale. Satellite data was subsequently used to provide emissions estimates over a 2-year period. The onshore aerial measurements used a concentric circuit approach at multiple altitudes and the offshore aerial approach used a traditional mass balance method. Satellite data was captured using the TROPOMI satellite and supplemented with VIRS data.



CATALYZING ACTION

The findings from the study were used as a basis for further refinements in satellite detection of offshore methane (Irakulis-Loitxate et al. 2022). The study authors have engaged with key stakeholders in Mexico to raise awareness of the importance of methane emissions reductions.

OTHER SUPPORTERS/STAKEHOLDERS

Principal Investigator: **Environmental Defense Fund, US**

Revision History: **29 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.