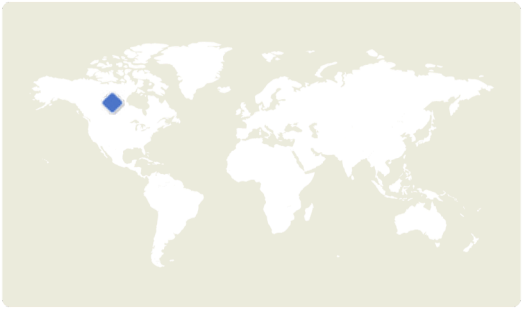
MEASURING EMISSIONS FROM CANADIAN LANDFILLS

Aircraft measurements of 21 landfills across Canada found emissions to be lower than official estimates, but within the range of expected values.



DONOR:
European Commission

BENEFITTING COUNTRIES OR REGIONS:
Canada

SECTOR:
Waste

Subsector, if applicable:
Municipal Solid Waste

STATUS:
Submitted to Journal

TIMELINE:
Measurements 2022

IMEO SCIENCE OBJECTIVE:

→ **Validation of measurement-based approaches.**

KEY FINDINGS

Modelled landfill emissions for national reporting overestimated methane emissions by 1.4 times relative to the measurements obtained for Canadian landfills.

RATIONALE

The waste sector is a significant source of methane emissions. Measurement data is needed to assess the accuracy of emissions modelling that often forms the basis of policy decisions and mitigation action. Canada has committed to developing and implementing regulations to halve methane emissions from large municipal solid waste landfills from 2019 levels by 2030.

United Nations Environment Programme | International Methane Emissions Observatory
1 rue Miollis 75015 Paris, France | www.unep.org/imeo
For more information, please contact imeo@un.org

UN environment programme

RELATED PUBLICATIONS

- Draft manuscript: *Estimating Canadian Landfill Methane Emissions from Aircraft Measurements* by Fougère *et al.*

SIGNIFICANCE FOR DECISIONMAKERS

For policymakers: This study can improve modelling of landfill emissions and understanding of mitigation opportunities.

STUDY APPROACH/ACTIVITIES

An aircraft measurement campaign was performed at 16 individual landfills across Ontario and Quebec and five in Alberta. Methane flux rates were estimated using mass balance equations for ascending loop measurements and an inverted Gaussian dispersion model for downwind transect data.

CATALYZING ACTION

The study's findings will inform modelling of landfill emissions and the identification of mitigation opportunities.

OTHER SUPPORTERS/STAKEHOLDERS

Government of Canada

Principal Investigator:
St Francis University, Canada

Revision History: **18 August 2025**

© Flickr: JulieN2

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.

United Nations Environment Programme | International Methane Emissions Observatory
1 rue Miollis 75015 Paris, France | www.unep.org/imeo
For more information, please contact imeo@un.org

UN environment programme