



Quantifying Landfill Methane Emissions: Fusion strategy

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Advanced In-cab camera
Front-facing camera
Hopper camera



Enhanced GPS



Expanded On Board Unit



Telematics sensor



Integrated Hub

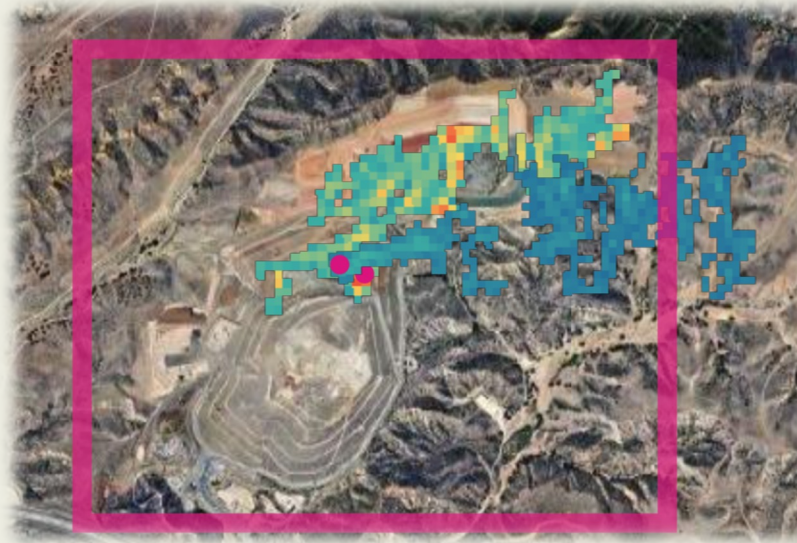
Objectives

- ❖ Quantify landfill emissions accurately: Reporting
- ❖ High resolution emission rate/Ch4 concentration profile
- ❖ Compare data sources: strength and limitation
- ❖ Data Fusion

Airplane/drone scan



Satellite observation



Ground-based

Current state

1. Satellite data/tools:

GHGSat, Sentinel-1, EMIT,
Carbon Mapper

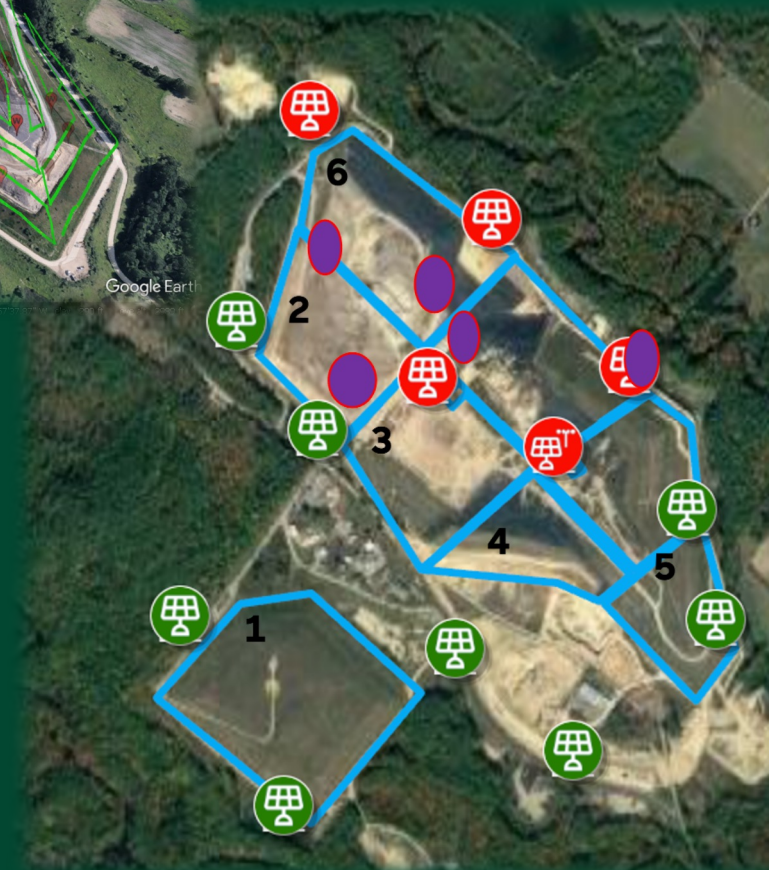
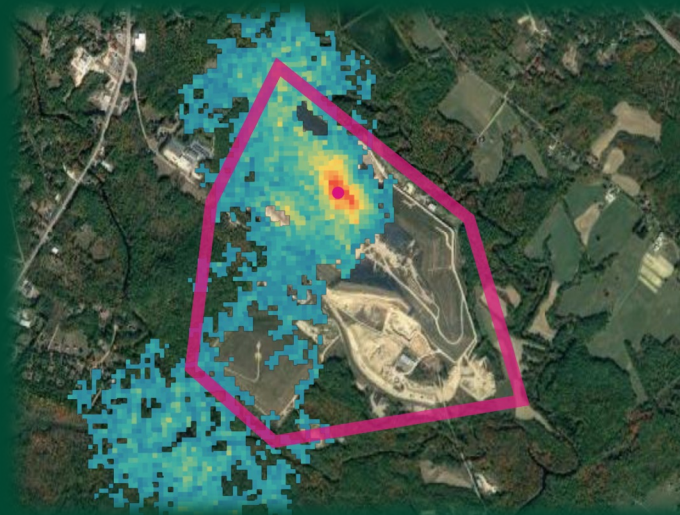
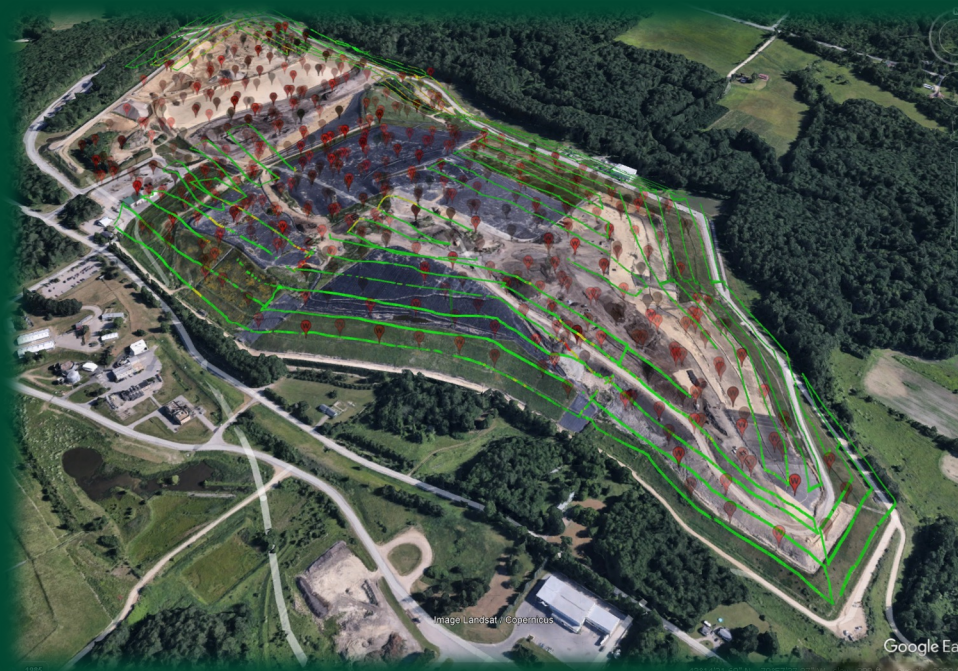
2. ground based:

SEM, CH4 stationary sensors

3. Drone/Airplane:

4. Modeling

BLS, FLS, Gaussian



Limitation

- ❖ Point vs area source.
- ❖ Accuracy of data/model.
- ❖ Air Column data. Sensor | Drone| Satellite
- ❖ Concentration to emission rate Methodology for landfill

Goal

- ❖ Early products on alarm system for emission thresholds
- ❖ Sustainable emission reporting system.
- ❖ Data fusion: High Spatio-temporal resolution low uncertainty data.

Thank you.

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