METHANE EMISSION IDENTIFICATION USING DRONES

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TERRA SANA CONSUTANTS

Environmental and H&S consulting focused on innovation solution and interdisciplinary collaborations. Robots to collect data and improving safety.

ABOUT US

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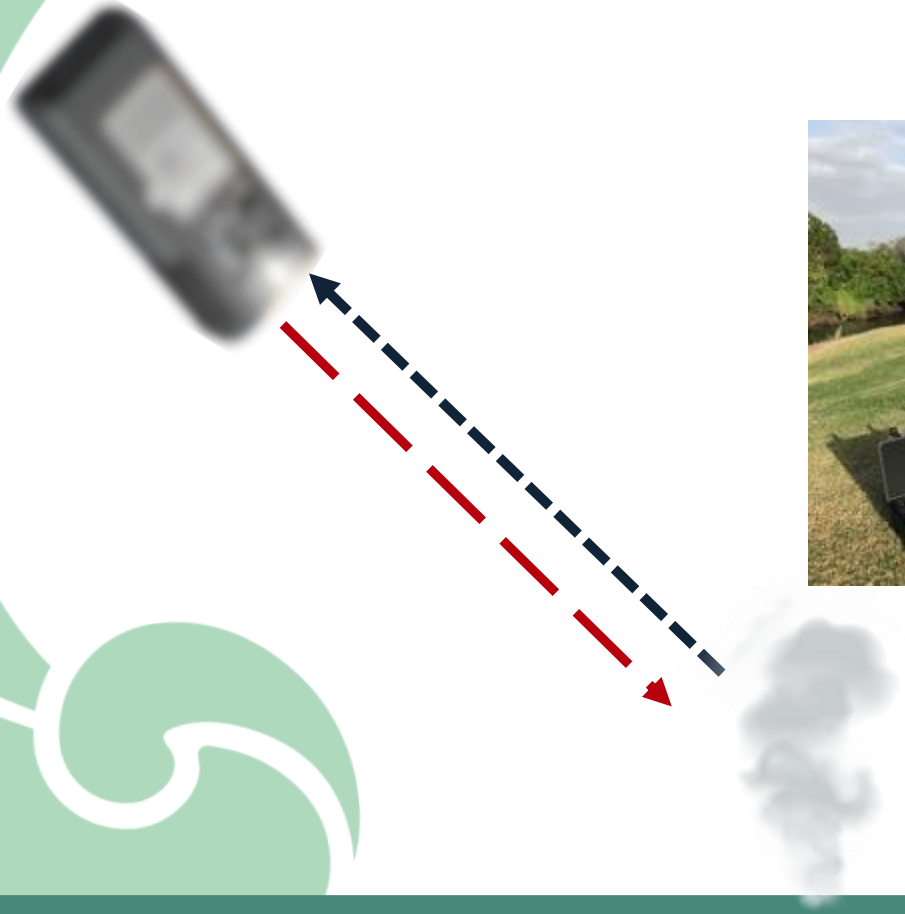
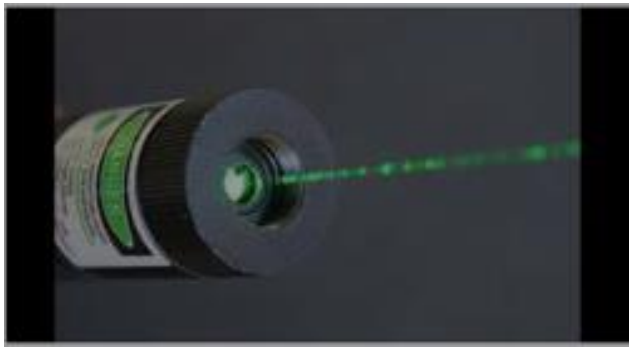
DETECTION OF METHANE FUGITIVE EMISSIONS USING DRONES

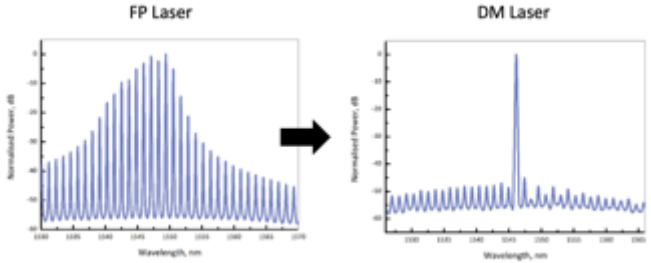
METHANE DETECTOR



TESTING- LIMITATION IDENTIFICATION

1) Laser quality

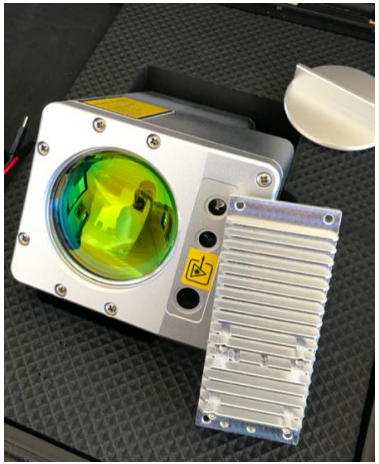




2) Laser power

<60 mW – 7.5 mW

3) Size of collection optics



DATA REPRODUCIBILITY-GEOLOCATION

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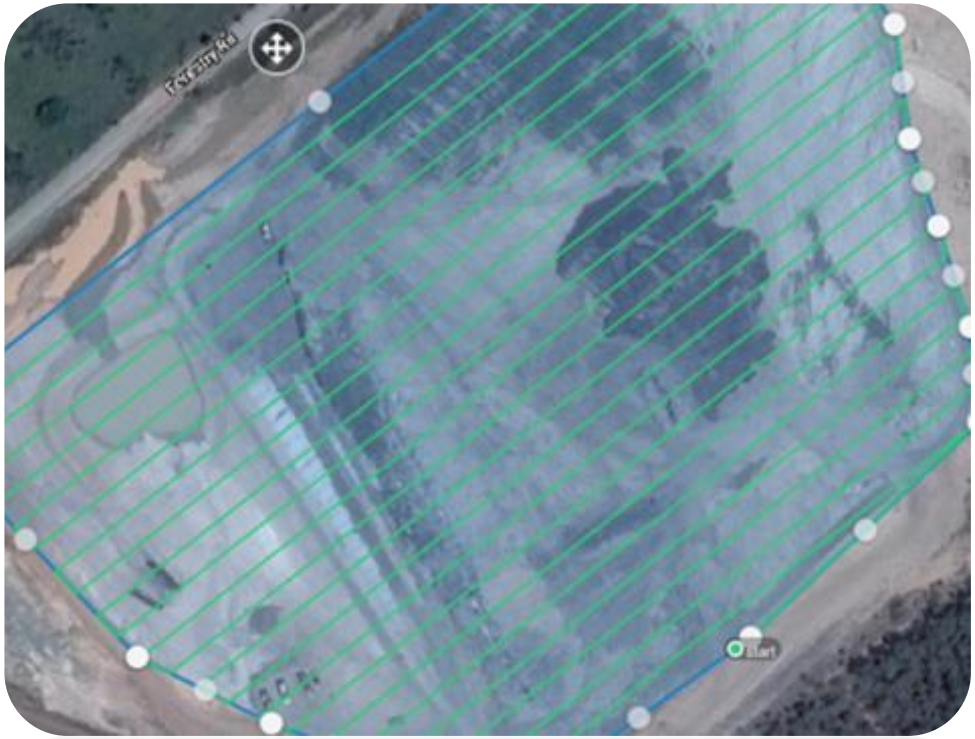
The drone follows a pre-determined flight path over the area of interest



COMPARISON BETWEEN A WALK-OVER SURVEY & A DRONE SURVEY

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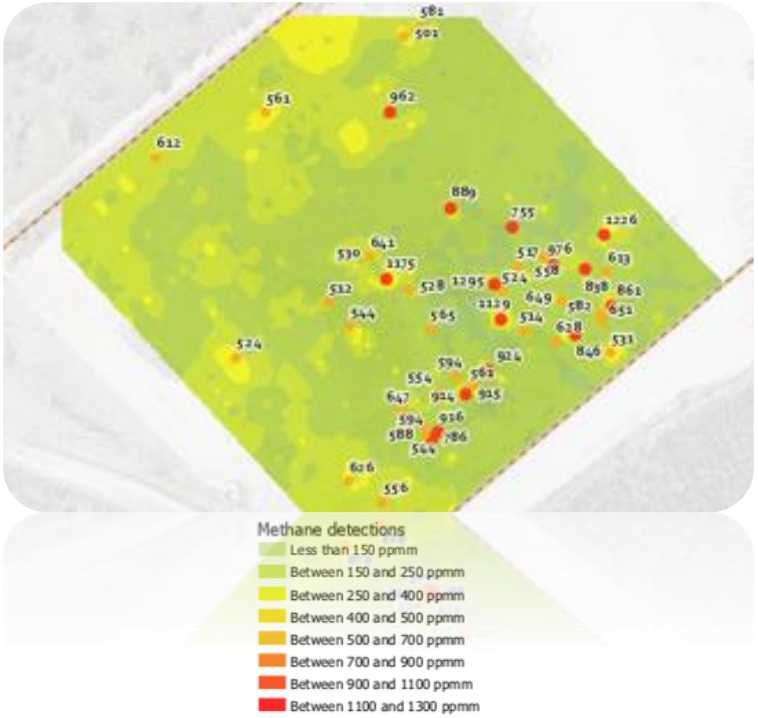
Walk-over survey

- Approx. 4 hours

Drone survey

- Approx. 1 hour



METHANE DRONE SURVEY

- In three years we have delivered more than 300 projects.

INDUSTRY APPLICATIONS

Landfills

- Compliance monitoring
- Waste-to-energy biogas infrastructure

Mining

- Underground coal mining
- Fault line inspection

Coal Seam Gas

- Detection of legacy bore and land seeps
- Infrastructure (pipeline & well heads) leak detection

COAL SEAM GAS INDUSTRY

LEGACY EXPLORATION BORES OVERLAPPING TENEMENTS

LEGACY EXPLORATION BORES

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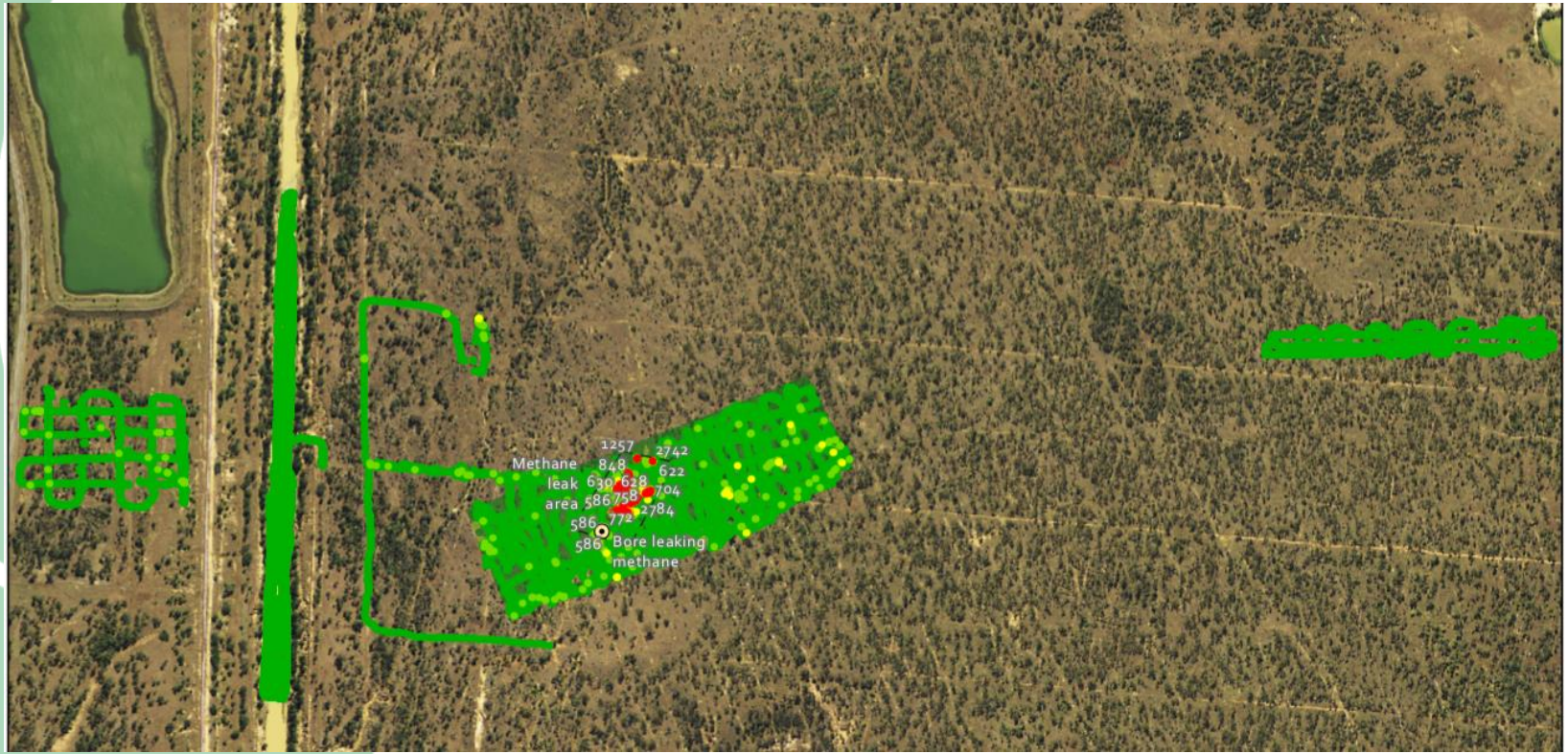
- Methane emitting legacy bores

DETECTION OF LAND EMISSIONS

- Natural occurring land seeps;
- Directional wells pre- post- drilling;
- Fraccing pre- post- activities;

UNDERGROUND MINE



INFRASTRUCTURE MONITORING
PIPELINE & WELL HEADS LEAK DETECTION

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PIPELINES SURVEY

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- Fly directly above the pipeline geolocated data;
- Part of the pipelines difficult to access are higher risk;
- Current research proposal -UQ modelling for flow rate;
- Automation of outliers;
- Machine learning;

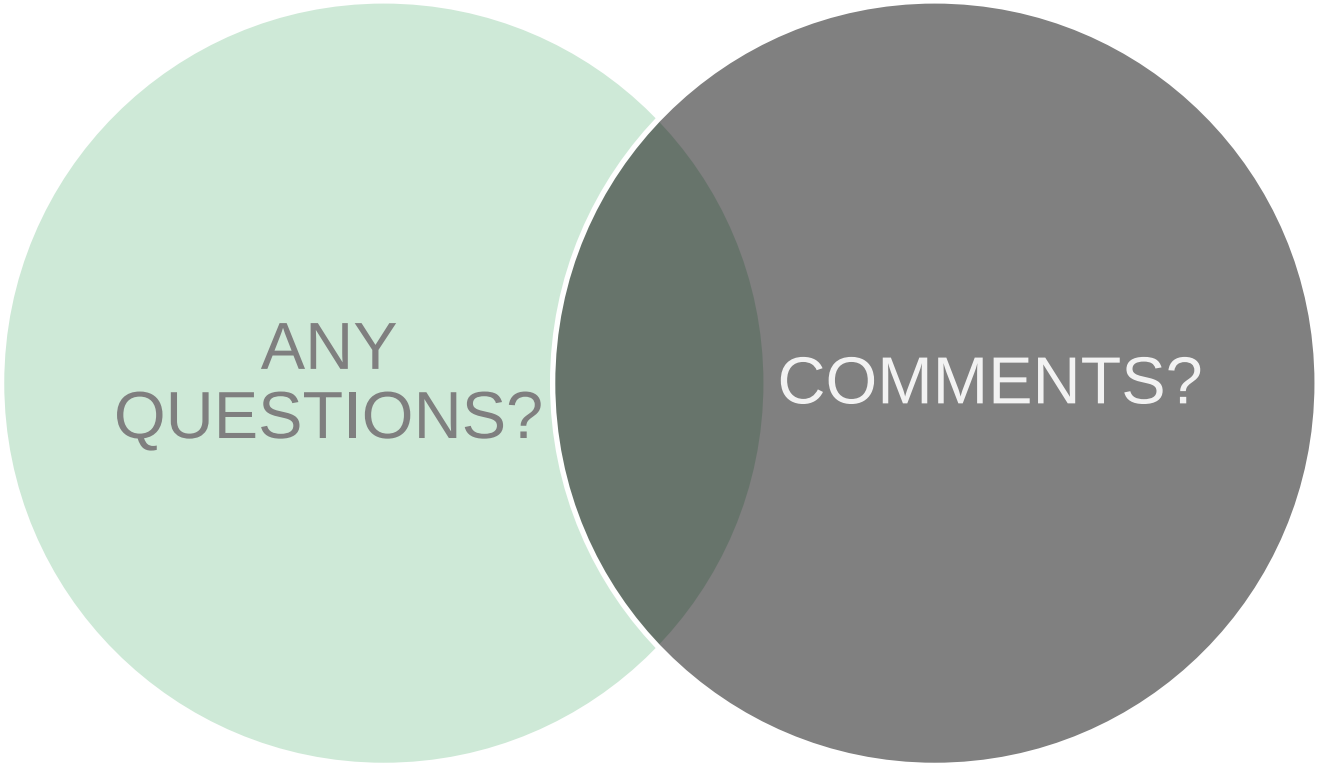
GHG EMISSIONS QUANTIFICATION

FUTURE DEVELOPMENT

FUTURE DEVELOPMENTS

- More powerful laser;
- BVLOS flights;
- Canary our UAV boat;
- Calculations of the methane flow rate from the drone.

CONCLUSION



Thank you for your attention!

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