

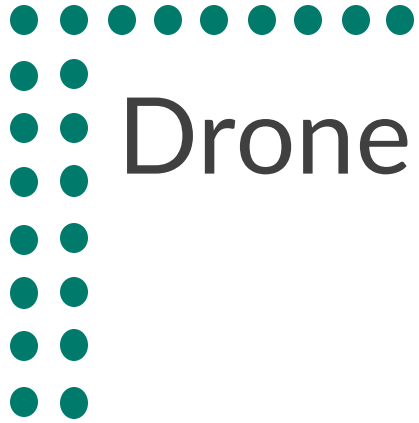


Drones in the Environment
Real Time Water Monitoring
Workshop



AltoMaxx Technologies was founded as a drone service provider in 2018, offering data acquisition, integrated solutions, and capacity building to an international client-base. Since then, AltoMaxx has emerged as an industry leader, driving the drone industry forward with its team of world-class technical experts, dedication to continuous improvement, and unwavering commitment to its clients.





Drone Benefits



Time

The unmatched mobility of a drone means surveys can be completed several factors faster than a ground-based crew



Autonomy

Autonomous and repeatable GPS flight plans allow for centimeter level accuracy for easy data comparison over time.



Data

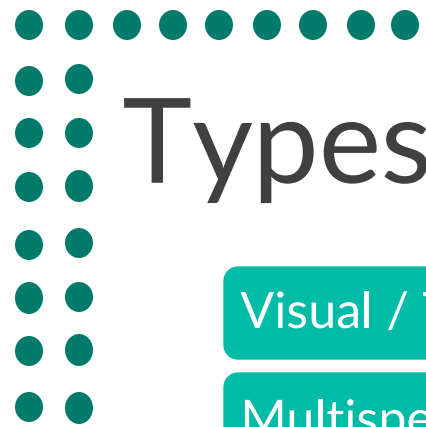
A drone's unique vantage point offers more useful data across the visual spectrum, and easy access to 3D modelling.



Safety

Removing the operator from the survey field reduces exposure to weather conditions, unstable terrain, & other safety risks.





Types of Data

Visual / Thermal

Multispectral

LiDAR / Photogrammetry

Bathymetric

Ground Penetrating Radar

Magnetometry

Fugitive Emissions

Visual

A drone platform provides easy access to points of interest while capturing high-quality visual data



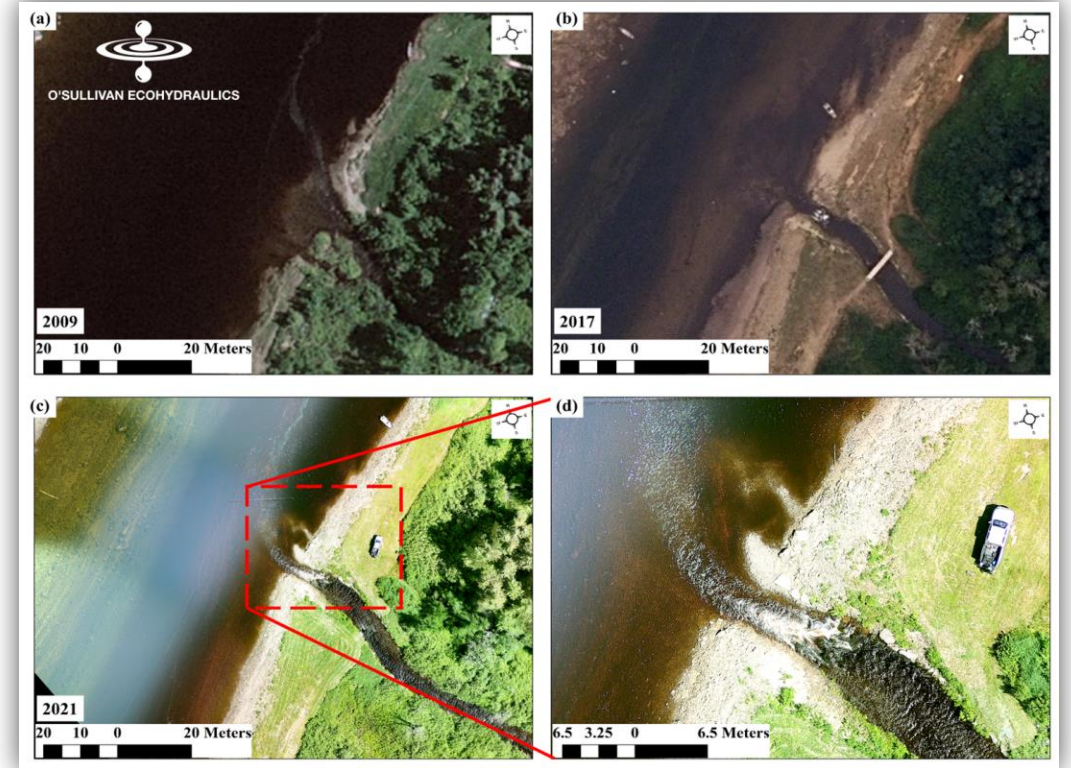
The H20T Camera has up to 23x optical zoom and 200x digital zoom, making it a great tool for inspections.



Visual

Documenting the reach and location of cyanobacteria

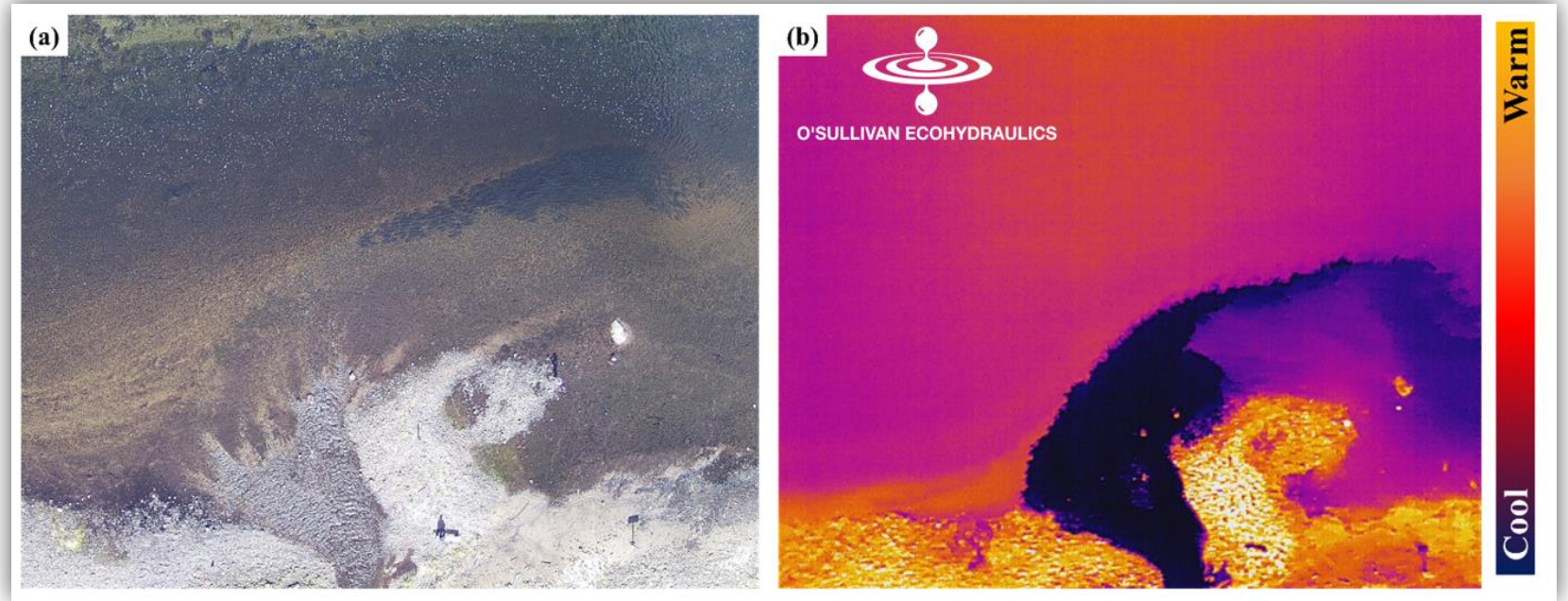
Water Resources Management Division Department
of Environment and Conservation Government of
Newfoundland and Labrador



Monitoring coastline erosion over
several years

Thermal

Acting simultaneously with an RGB spectrum camera, these cameras can capture thermal anomalies invisible to the naked eye.

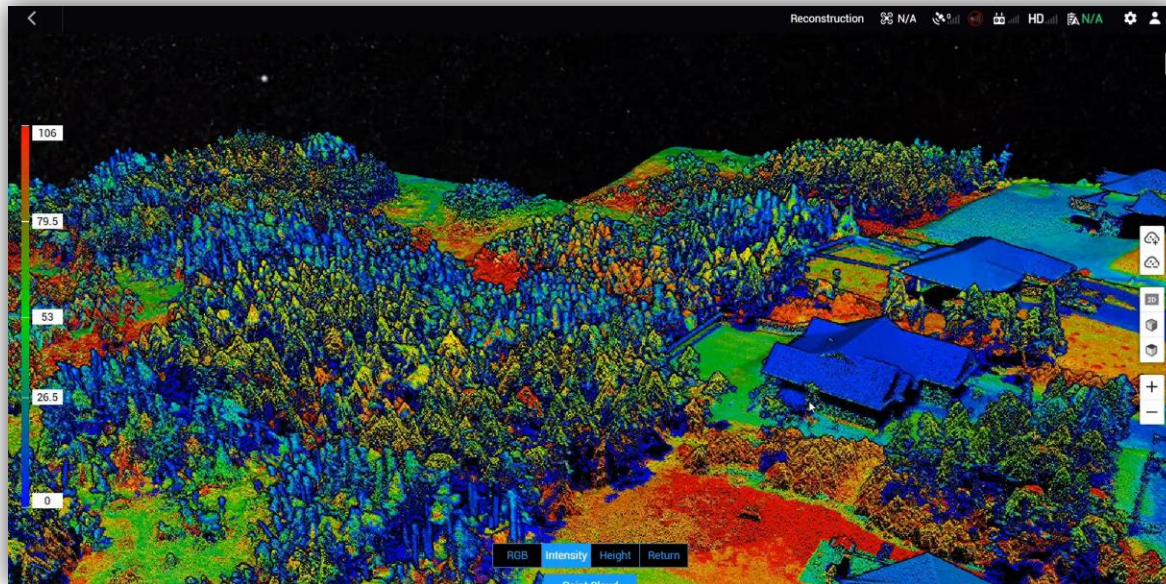


Project to increase thermal refuge for freshwater fish.



LiDAR / Photogrammetry

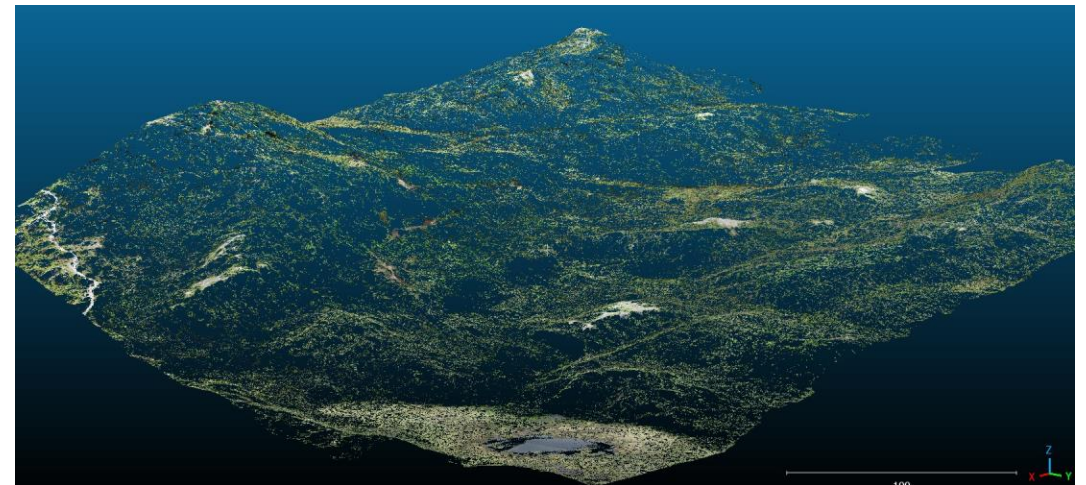
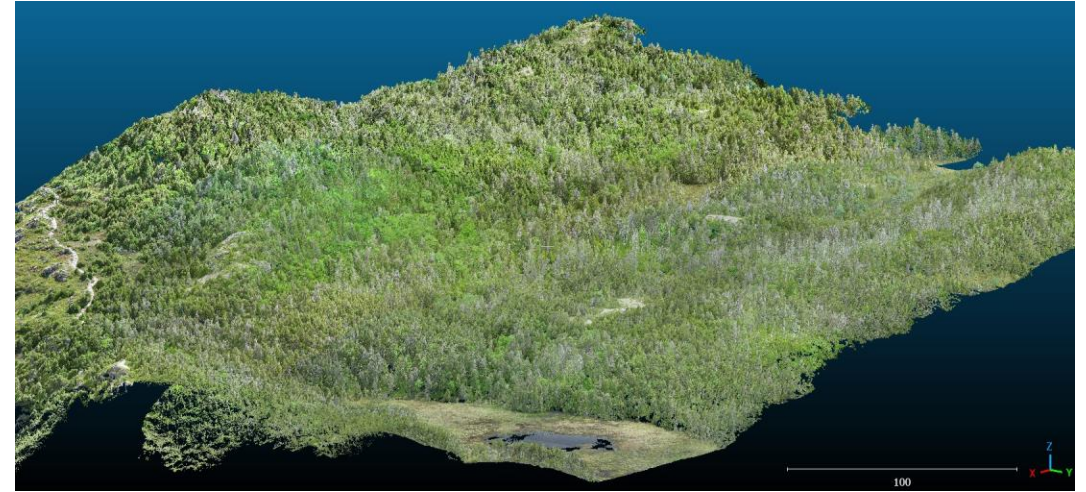
- Laser and Photography based methods of creating 3D models or digital twins.





LiDAR / Photogrammetry

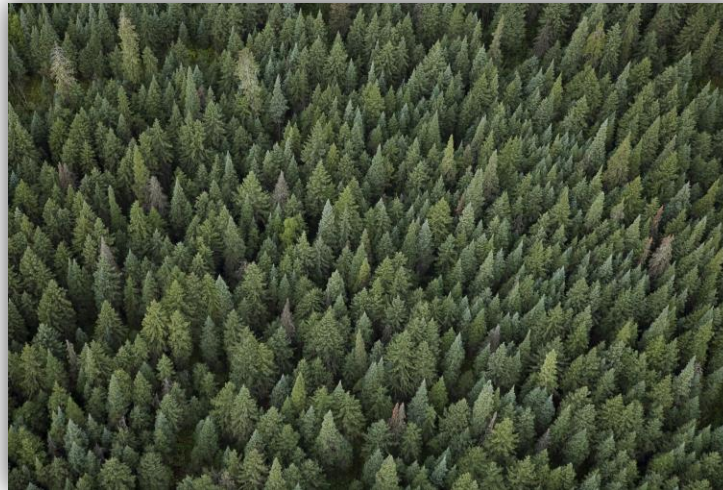
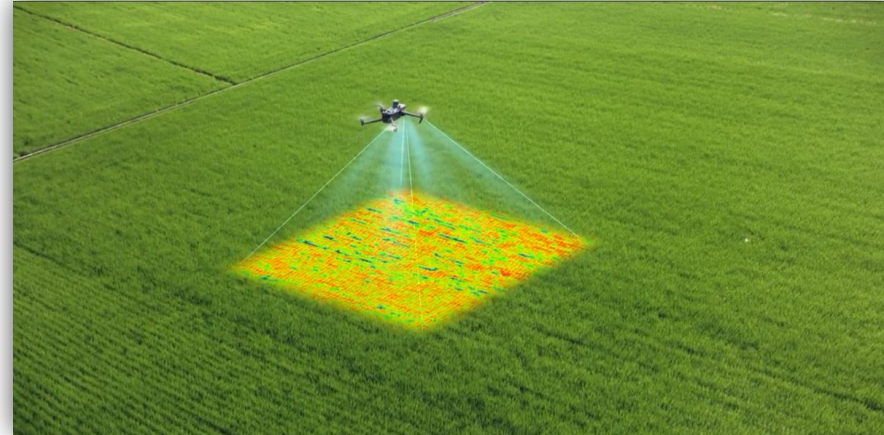
LiDAR is capable of penetrating dense foliage and modelling the terrain below





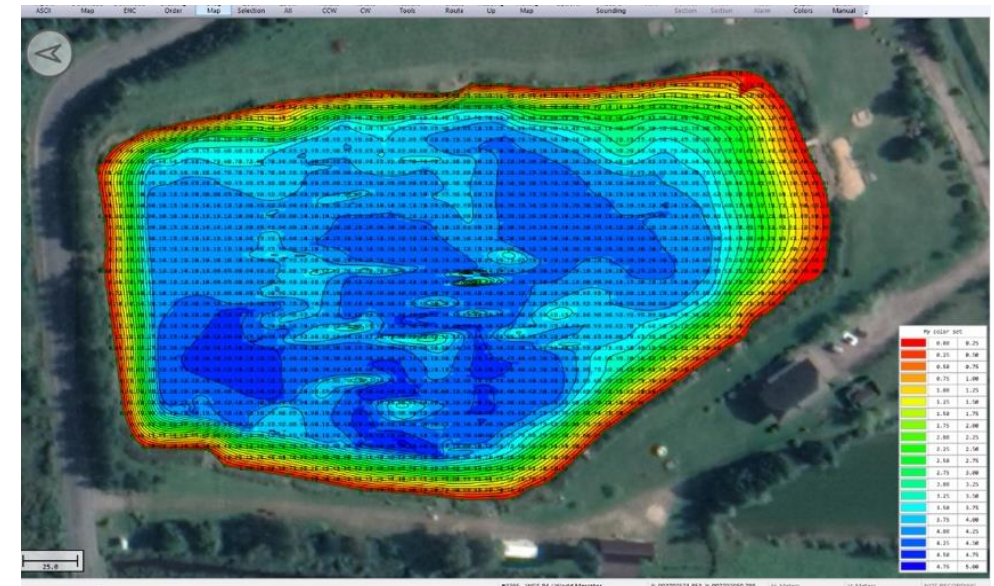
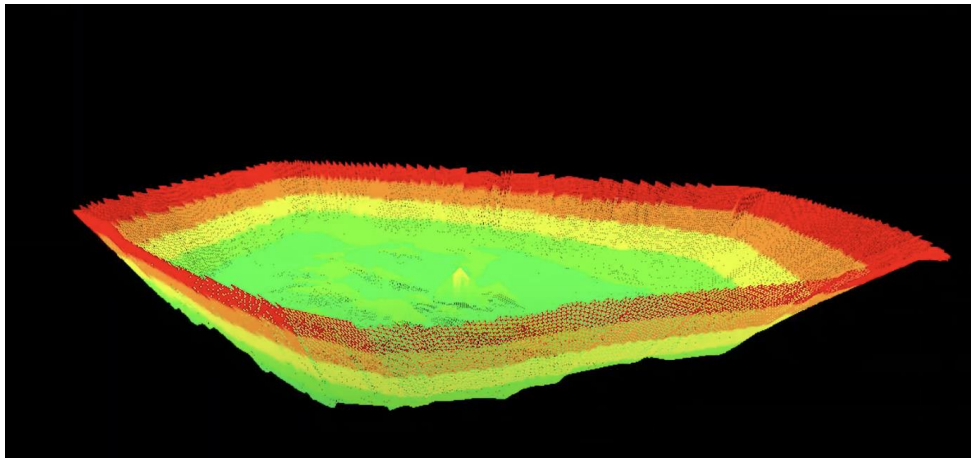
Multispectral

- Monitor the vegetative stress of farms and forest
- Identify soil composition



Bathymetry

Dual-frequency echosounder for mapping the underwater terrain of both coastal and inland bodies of water



Applications

- Mapping water depths and sediments before dredging and cleaning in shallow or seaweed ponds, lakes, rivers, and canals
- River and lake bottom profiling for environmental monitoring
- Flood inundation mapping
- Underwater inspections for engineering works (bridge or pipeline crossings)



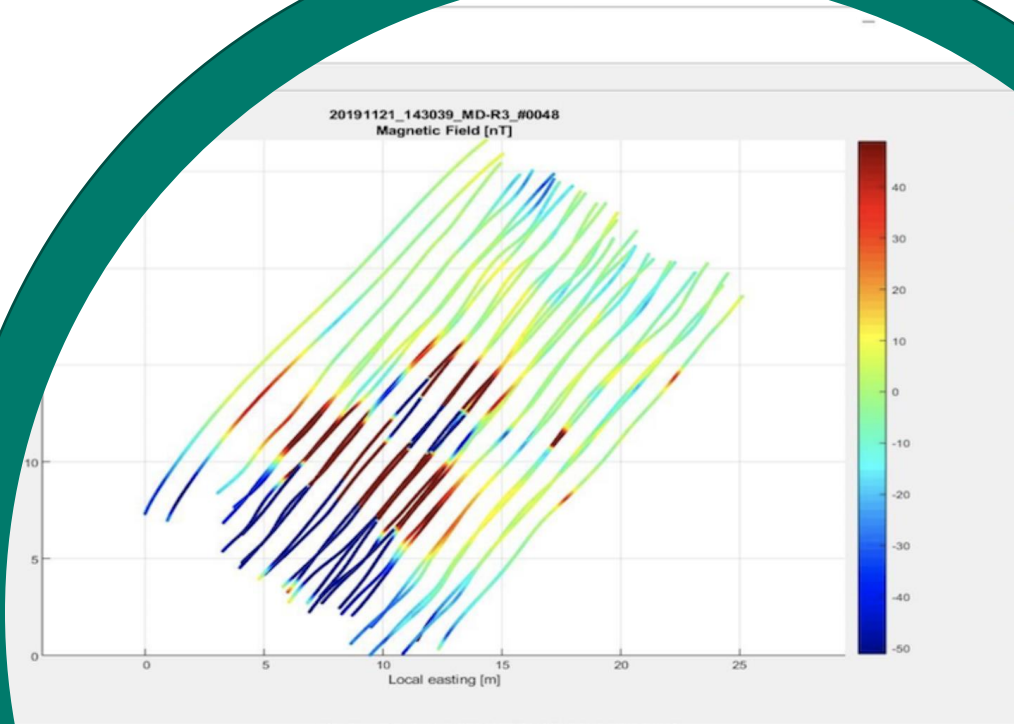


Magnetometry



APPLICATIONS

- Searching for UXO (unexploded ordnance)
- Locating buried infrastructure (metal pipes and shielded cables)
- Archaeology
- Surveying for any metal objects such as oil drums underground



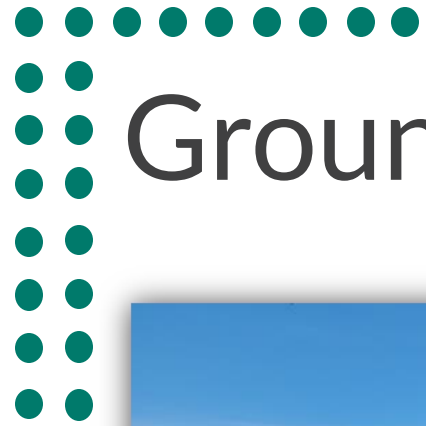


Ground Penetrating Radar

Downward facing radar system ideal for:

- Buried object detection
- Geophysical surveys
- Ice thickness measurement
- Non-destructive testing
- Infrastructure mapping



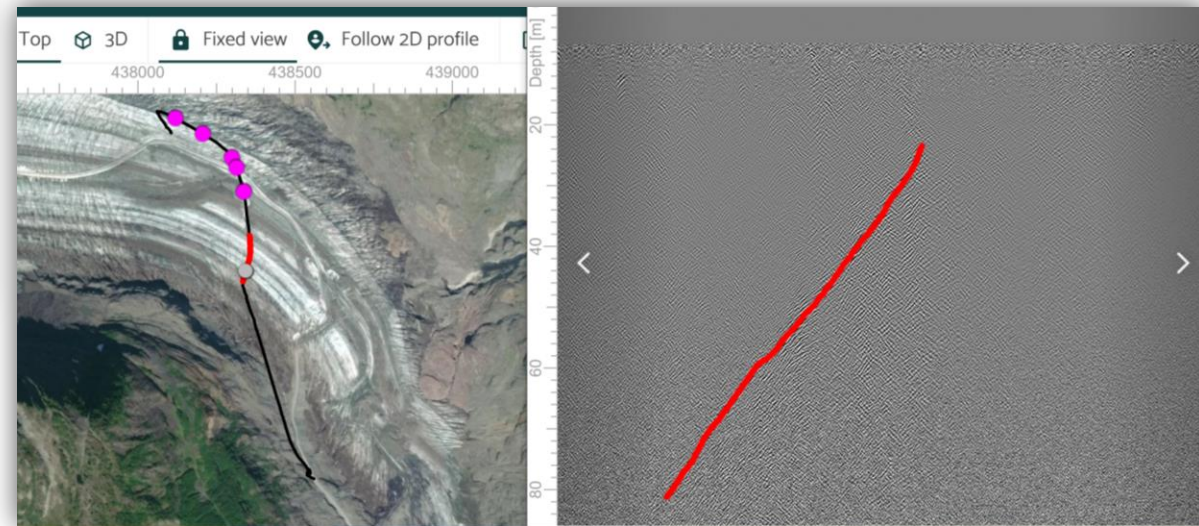


Ground Penetrating Radar



GPR project at a mining facility in British Colombia

Results from GPR data: Purple dots = Known reflection





Fugitive Emissions

Drone-based methane sensor for detecting and quantifying harmful emissions released into the air





Questions?