Applications of Unmanned Air Vehicle (UAV) Systems for Remediation Projects

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Presentation Overview

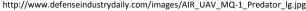
- Why use a UAV?
- Current UAV systems
- Applications
 - Colour imagery
 - Three dimensional model
 - Near Infrared imagery / Vegetation Index
- Considerations for implementation
- Future developments



What is a UAV?

- Unmanned Aerial Vehicle
- Any fixed or rotary winged aircraft which does not carry any human cargo
- Traditionally only used in the military







Why Use a UAV?

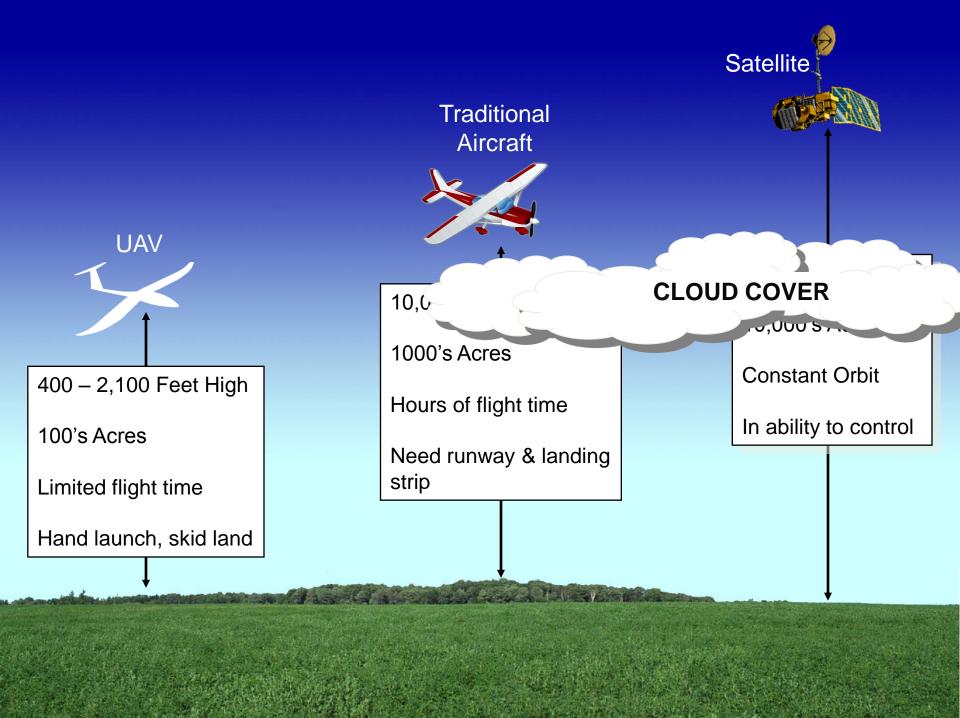
• Quick and flexible data collection

• High resolution georeferenced imagery

• Custom sensors

• Accurate, timely imagery = better decisions





UAV Imagery (12.5 cm)







Current Platforms



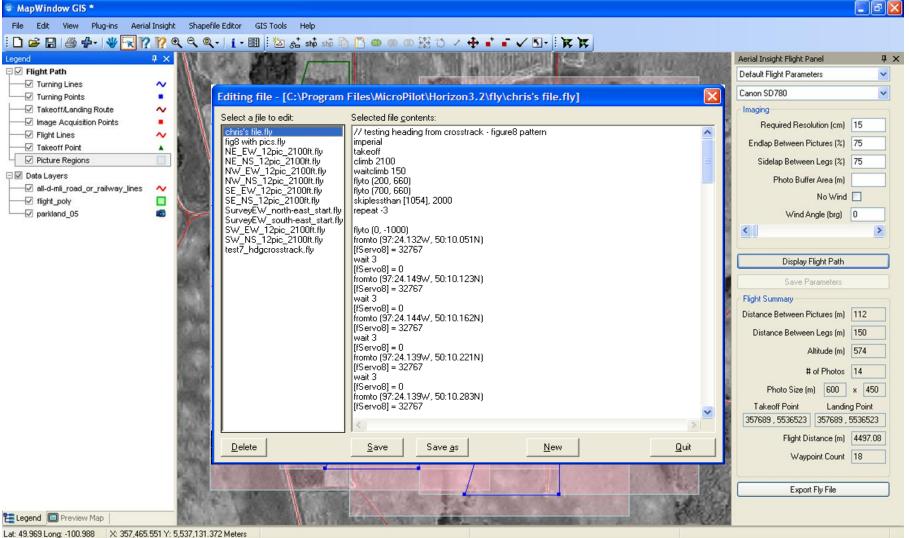


Fixed Wing

Rotatory Wing



Flight Management

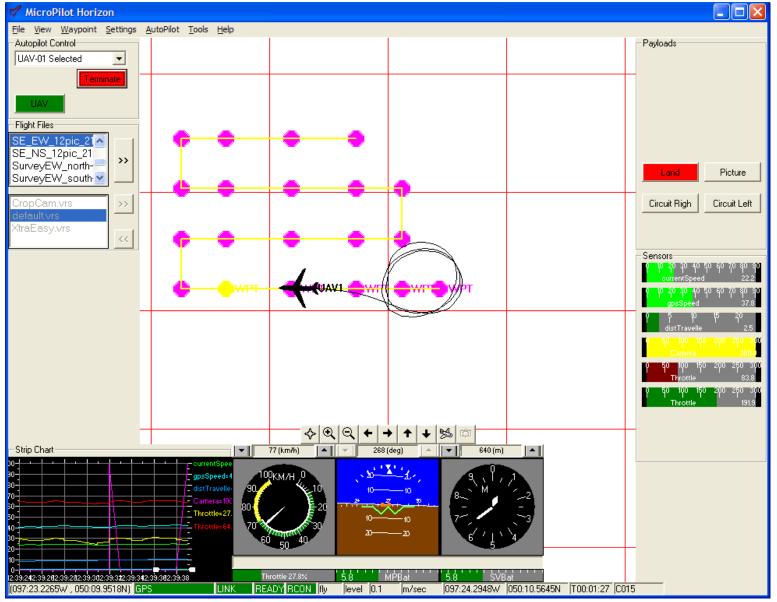


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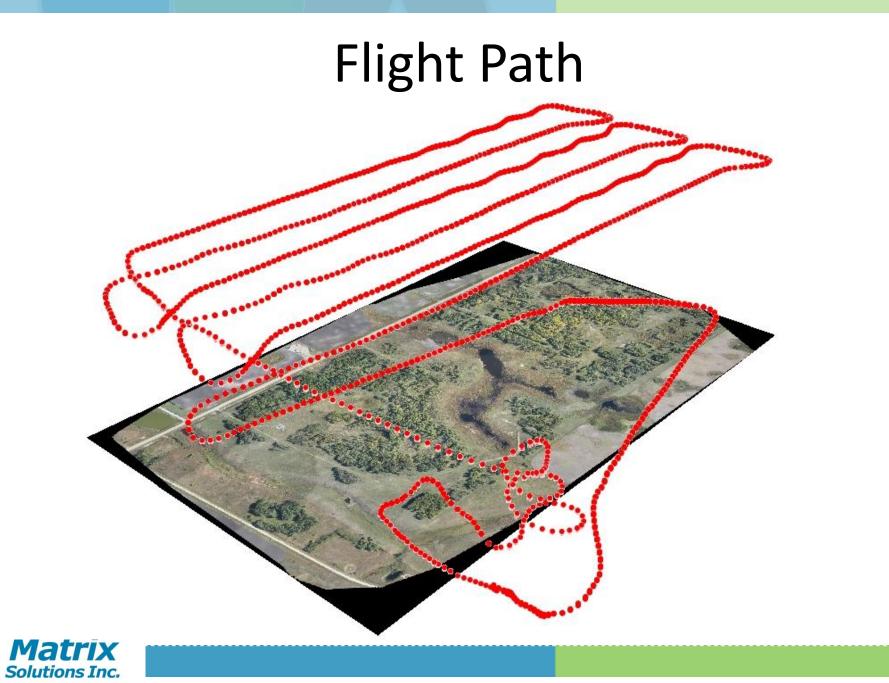


Ground Control









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Image Processing

 Images from camera and log file of flight from autopilot are matched

Allows for the automated creation of a seamless georeferenced image mosaic

• Creation of a high resolution 3D digital model



 Aerial 	Insight 1.0) - test 🕻	uploaded]
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Project Georeference Process Help Cloud processing Add GCP Edit GCP



Project summary

nokia maps

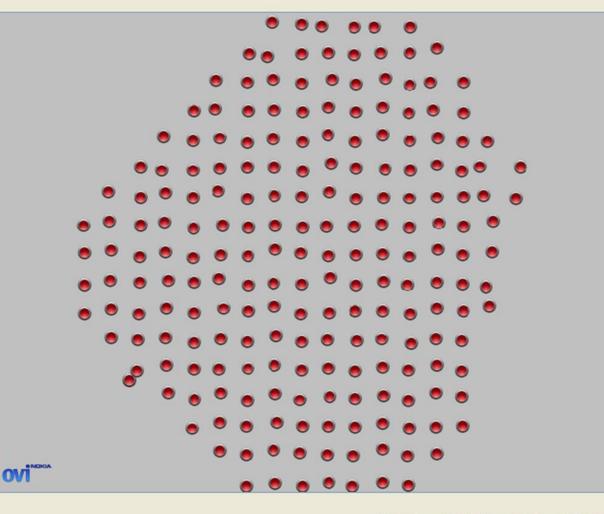
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Project :

Name : test Datum : World Geodetic System 1984 Coordinate system : WGS 84

Images :

Number selected images : 220 Datum : World Geodetic System 1984 Coordinate system : WGS 84



Latitude = 46.1603418, Longitude = -72.720834

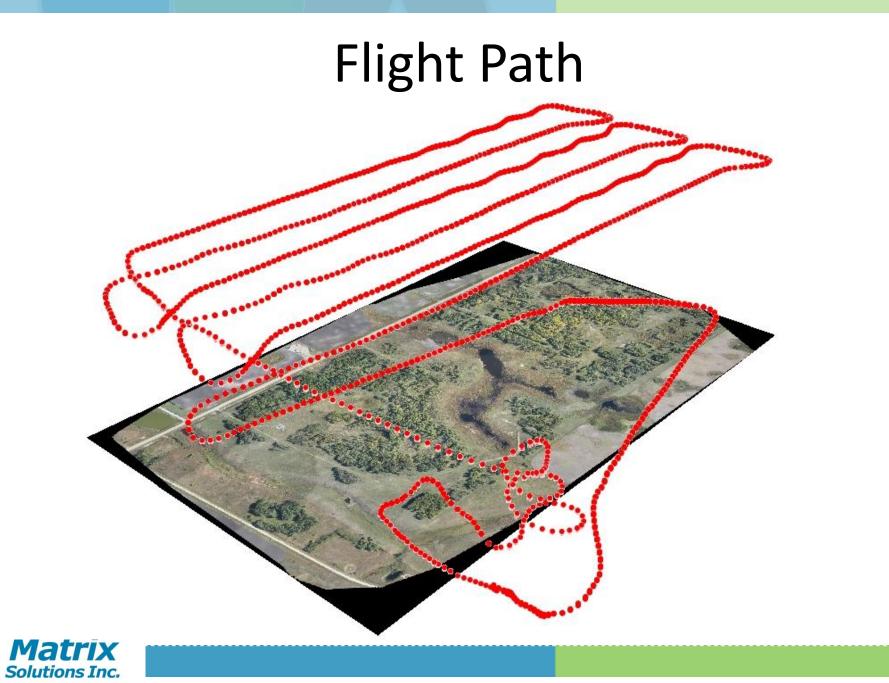


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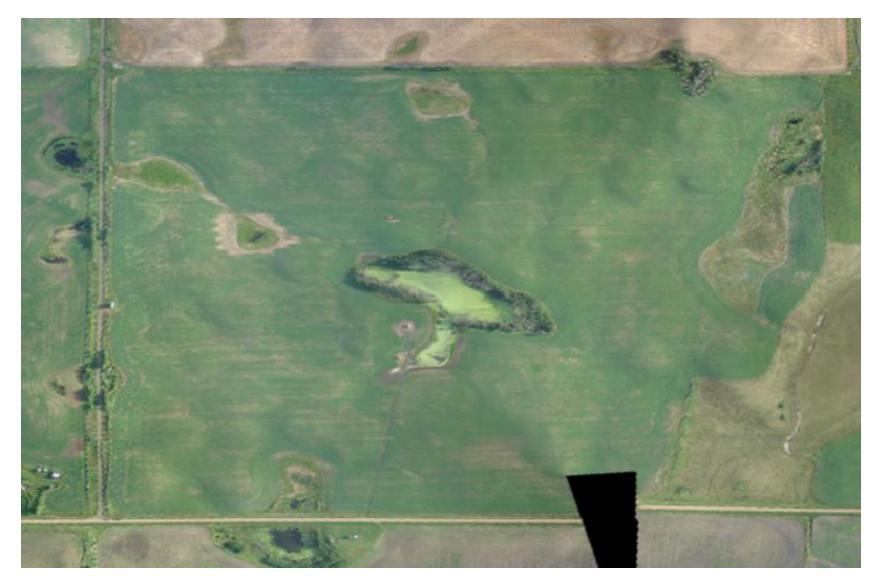


Near Infrared / NDVI

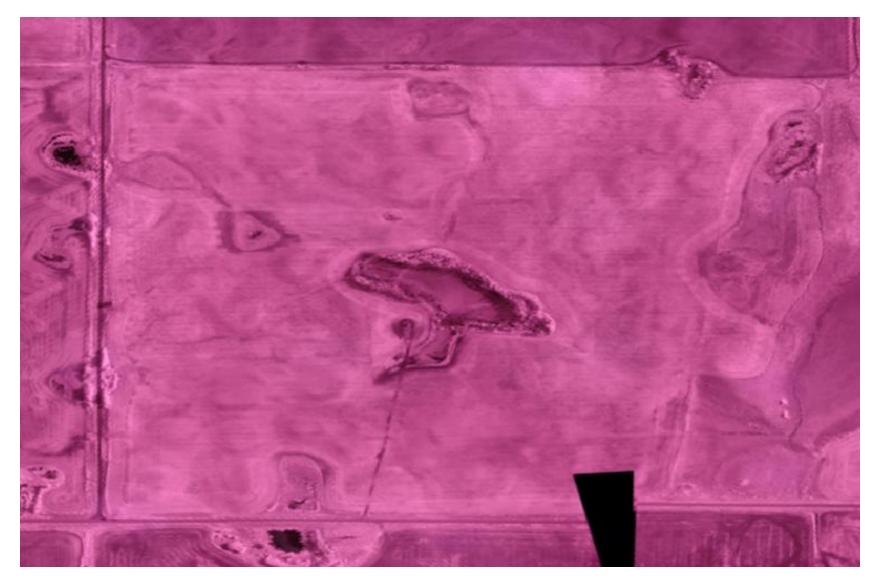
• Near infrared is highly reflected by biomass

 NDVI – biomass index that is normalized to reduce variation in the reflectance in the imagery

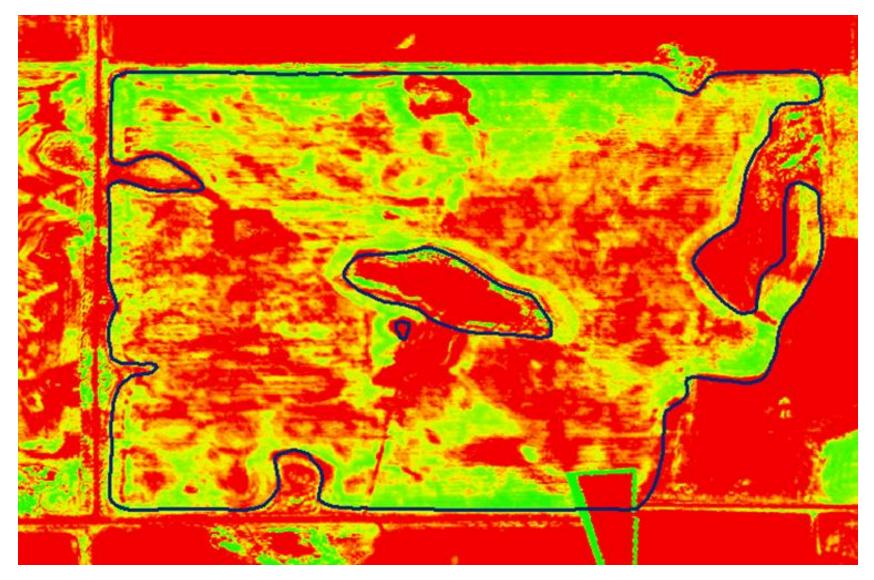














Considerations

Size of the area to be flown, must be scale appropriate

• Transport Canada requirements (SFOC)

• Training of personal to operate



Future Developments

 Developing a stabilized "geoenabled" camera pod

New payloads to specific wavelengths and applications

Continue refinement of 3D modeling and validation of accuracy

