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sky wave™ at CDM Smith

Leveraging drones, remote sensing, and machine learning to solve environmental challenges.

Sky Wave™ combines drone technology and artificial intelligence to track and analyse surface changes. Our multi-disciplined team can create a custom plan integrating data collection, analysis, and delivery to provide tech-based, data-centric solutions.

Combining multiple data sets, new and historic information, for in-depth analysis.

Focusing data to deliver evidence-based solutions to unique industry problems.

Designing user-friendly products and materials for ease of communication and use.

Surveyors , engineers , geologists, scientists, drone pilots, remote sensing scientists, artificial intelligence engineers

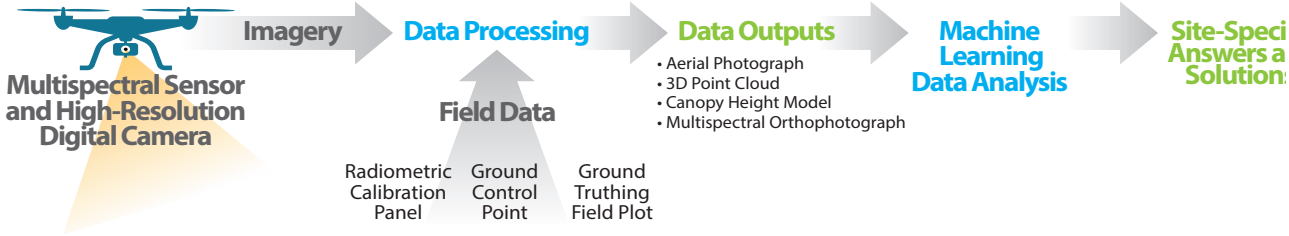
Sky Wave is your solution to project-related challenges, including:

- Incomplete site knowledge
- Time-consuming and expensive data collection
- Overwhelming data volume
- Concerns over field worker safety
- Wanting data that traditional methods can not address

You'll be led by multi-disciplinary experts who create integrated solutions to your challenges.

HOW IT WORKS: THE DIGITAL PIPELINE

We fuse data collection, management, processing, analysis, and design, in an efficient digital pipeline to support informed conclusions and decision-making. Pick a part or combination of our digital pipeline process.



listen. think. deliver.

CDM Smith

PROJECT IN FOCUS

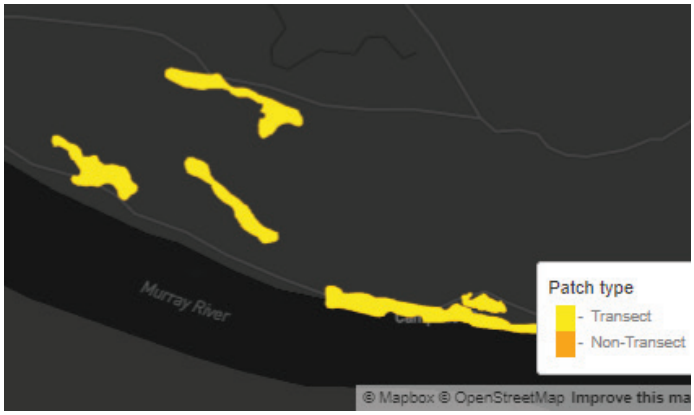
NDVI Landscape Mapping for Pike and Katarapko Floodplains

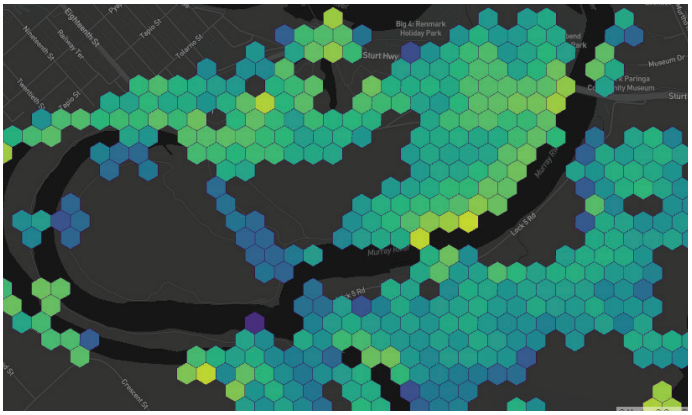
South Australia

Challenge: Demonstrate the potential use of remote sensing applications to show the forest canopy health and support the environmental watering of Pike and Katarapko Floodplains.

Solution: Normalised Difference Vegetation Index (NDVI) was used from Sentinel-2 to develop a spatial and temporal trend in forest canopy response to water availability within the floodplains. The data capture was performed using Sentinel-2 satellite multispectral imagery. Using the lidar-derived canopy height model, forest canopy patches were selected for data extraction to ensure the processed data targets the forest canopy and filters out areas such as grass, shrubby vegetation, and nonvegetated areas. Data processing, analysis and app development were undertaken using the R Programming Language (R Core Team, 2022). Results have been presented using web-based dashboards.

Two outputs were generated. The first (left) shows the temporal trends for the existing monitoring transects used for field-based monitoring. The second (right) shows the landscape level spatial and temporal trends for forest patches with the existing mapped extents of black box and river red gums.





PROJECT IN FOCUS

Groundwater Dependant Ecosystems Management Framework

Surat Basin, Australia

Challenge: Develop a feasible framework to meet the state and federal government approval conditions issued to manage environmental concerns, including those relevant to Groundwater Dependant Ecosystems (GDEs).

Solution: Several studies were conducted to develop an evidence-based program to actively monitor and manage the potential risks to GDEs, specifically groundwater-dependent terrestrial vegetation. Multiple data sources were collated from different mediums to inform the studies and reduce uncertainty, including topographical surveys with high-resolution LiDAR and digital elevation models (DEM). Surveyed cross-sections were compared against the LiDAR data.

The detailed topographic data and subsequent analysis of these data streams have enabled feasibility design components to advance further than initially anticipated. Key findings from these studies formed part of the Groundwater Dependent Ecosystem Management Plan (GDEMP) and outlined an environmental approvals pathway for the mitigation program.

FOR MORE INFORMATION, CONTACT:

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