Geoimage Pty Ltd

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Geoimage is an independent reseller of satellite data based in Australia. We were established in 1988 and since then we have been processing and performing analytics on imagery for the mining and exploration industries, government agencies, research institutions and environmental management organisations.

We specialise in optical, multispectral, SAR and InSAR processing and interpretation and are a proud Gold tier reseller of Airbus products and services.

AIRBUS

USE CASE

Geoimage maps the change in the distribution of mangroves within a protected area

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Application: Environmental Protection
Location: Western Australia, Australia
Products: Pleiades Neo

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Challenge

- Burrup has mangrove habitats with 2 dominant species
- Industrial development was approved in 2016 on condition that mangrove habitats would not be adversely impacted
- Monitoring with satellites every 2 years is used to assess impact of industrial activity
- Mangrove habitats are difficult to access due to sensitive nature of the root system and tidal environment

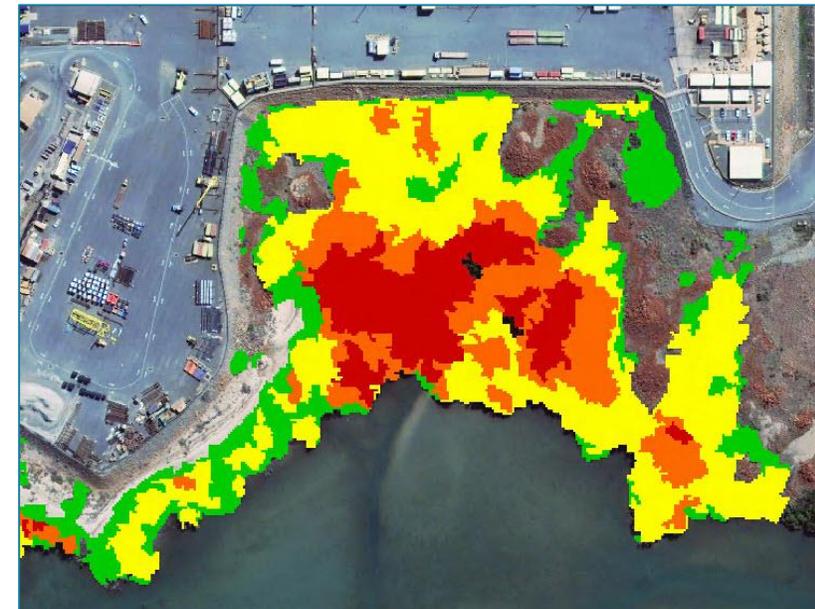Could 6-Band Pléiades Neo be used to map the extent of the 2 mangrove species?

Solution & Results

- 8-Band 50cm sensor had been used previously for mapping mangroves
- Pléiades Neo was captured over the same area
- ML was used on both datasets using the same parameters to classify the mangroves into 4 classes
- A, B & C show Pléiades Neo classification is spatially more accurate than 50cm classification
- Pléiades Neo NIR band was used to accurately map areas where both mangrove species were intermixed
- Overall results showed mangrove habtiats are stable in extent and distribution

Species	Area (Ha) 2020	Area (Ha) 2022	Loss/Gain (Ha)
A. marina	2.004	2.087	+0.083
Mixed A. marina & R. stylosa	0.354	0.846	+0.492
R. stylosa	1.004	0.639	-0.365
Scattered A. marina	0.862	1.051	+0.189

Neo – orange outline
50cm – white outline

6-Band 30cm Neo

Mangrove Classification

- Rhisophora stylosa
- Mix of Rhisophora & Avicennia
- Avicennia marina
- Scattered Avicennia

✓ Benefits

Scattered *A. marina*

- Pléiades Neo is a credible tool for highly accurate mapping of common mangrove species *A. marina* and *R. stylosa*
- Pléiades Neo is better suited to mapping small clusters of mangroves that may have only 1- 2 trees
- More accurate mapping of mangroves enables more nuanced evaluation of smaller changes to the mangrove habitat
- 6-Band can be used rather than 8-Band for classifiying area of mixed *A. marina* and *R. stylosa*