CURING

Ground truth curing data versus MODIS 250metre (Landgate) and MODIS 500metre (CFA) algorithms
In the Kimberley Regions (Broome, Derby and Wyndham)
• Curing is the process of most grass species life cycle where they annually dry out and die or become dormant.

• The amount of dead material in a grassland can have dramatic effect on the fire danger.
Curing data derived from MODIS

• Satellite derived curing data
  – Landgate (250m resolution) – 2 algorithms
  – CFA (500m and 6000m resolution) - 5 algorithms

• Ground truth derived curing data
  – Wyndham – East Kimberley (26 to 28 April 2016)
  – Derby – West Kimberley (5 to 8 May 2016)
  – Broome (9 May 2016)
• Landgate algorithms (from 250m MODIS)

Algorithm A = 124.71 – 121.4 x NDVI
Algorithm C = 100 - (100×(NDVI-NDVImin)/(NDVImax-NDVImin))

Where:

NDVI = 250 m resolution maximum value MODIS NDVI composite for the week of interest.
NDVI\text{max} = maximum detected NDVI value at a location since 2004.
NDVI\text{min} = minimum detected NDVI value at a location since 2004
Landgate - Algorithm A

GCI-A

- DFES Curing
- g120160420
- g120160427
- g120160504
- g120160511
- g120160518
CFA Algorithm A – not weighted to the ground data

Satellite Observations - MAP A (Wyndham)
(20160422to20160429; 20160430to20160507)
Algorithm A (Wyndham)

Landgate-A (Wyndham)

CFA A (Wyndham) – weighted to ground data
Landgate VS CFA
Algorithm A differences for the Kimberley
Additional ground truthing

• SRS (Spectral Reflectance Sensors)

  Two-band radiometers that measure either incident or reflected radiation in wavelengths appropriate for calculating the Normalised Difference Vegetation Index (NDVI)

  Consisting of 2 types of SRS-NDVI sensors
  - NDVI – Hemispherical sensor
  - NDVI – Field stop sensor

  • The field stop is designed for pointing downward to measure canopy reflected radiation in NDVI wavelengths.
  • The hemispherical sensor is designed for up looking measurements of incident radiation.
  • NDVI wavebands – 650 and 810 nm central wavelengths, with 10 nm full width half maximum band widths
Additional ground truthing

• Red Edge (by MicaSense)

Multispectral camera captures five discrete spectral bands
  – Narrow spectral bands – allow higher sensitivity than wide bands by capturing the most relevant segments of the spectral curve
  – Red edge band – sensitive to chlorophyll level
  – 8 cm/pixel at 400 ft