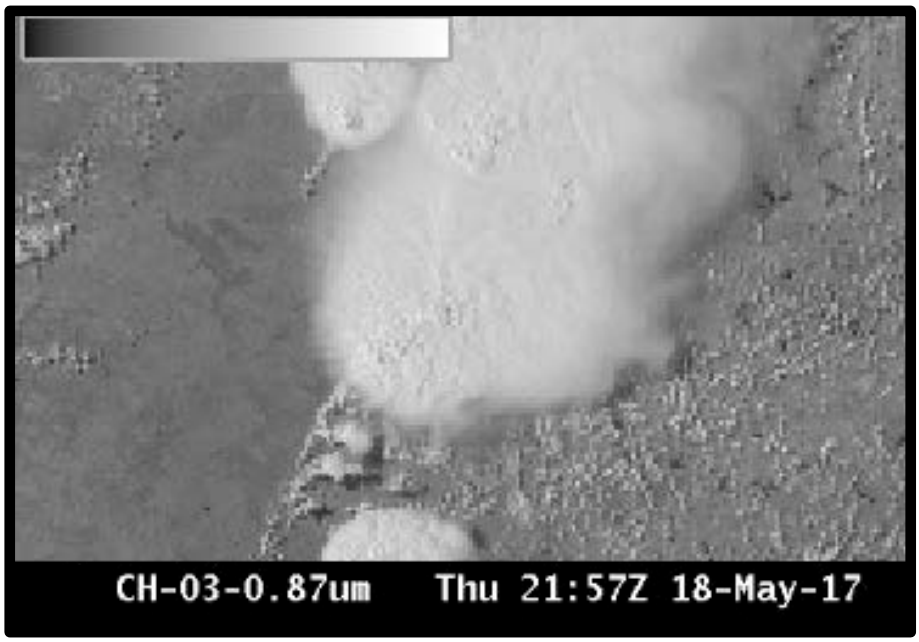
ABI Band 3 (0.86 µm) Quick Guide

Why is the "Veggie" band Important?

The 0.86 µm band (a reflective band) detects daytime clouds, fog, and aerosols and is used to compute the normalized difference vegetation index (NDVI). Its nickname is the "veggie" or "vegetation" band. The 0.86 µm band can detect burn scars and thereby show land characteristics to determine fire and run-off potential. Vegetated land, in general, shows up brighter in this band than in visible bands. Land-water contrast is also large in this band. This band is essential to simulate a "green" band needed for a true color image from the ABI.

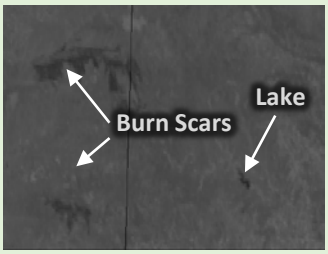


ABI Channels with strong land/water contrast

ABI Band	Central Wavelength (µm)	Band Nickname	Type	Pixel Resolution at sub-satellite point
3	**0.86**	Vegetation/Veggie	Near-Infrared	**1 km**
4	**1.37**	Cirrus	Near-Infrared	**2 km**
5	**1.61**	Snow/Ice	Near-Infrared	**1 km**
6	**2.24**	Cloud Phase	Near-Infrared	**2 km**

Impact on Operations

Primary Application: The Veggie band can detect burn scars, allowing for early identification of potential run-off issues.



Application: Land is more reflective at 0.86 than in the visible bands, so the Vegetation band is very useful for detecting islands, lakes, flooded regions and land/sea boundaries.

Application: The Vegetation band is used in the simulation of the "Green" band for simulated true color imagery.

Limitations

Daytime only application: The "Veggie" Band detects reflected solar energy and is therefore a daytime only band

Limitation: The Veggie band can be used as a stand-in for the "Green" band (for example, 0.51 µm from Himawari-8's AHI) in RGB composites, but reflectance over vegetation at 0.86 µm is much greater than for Green Light and that must be accounted for. An example of this True Color imagery is shown on the next page.

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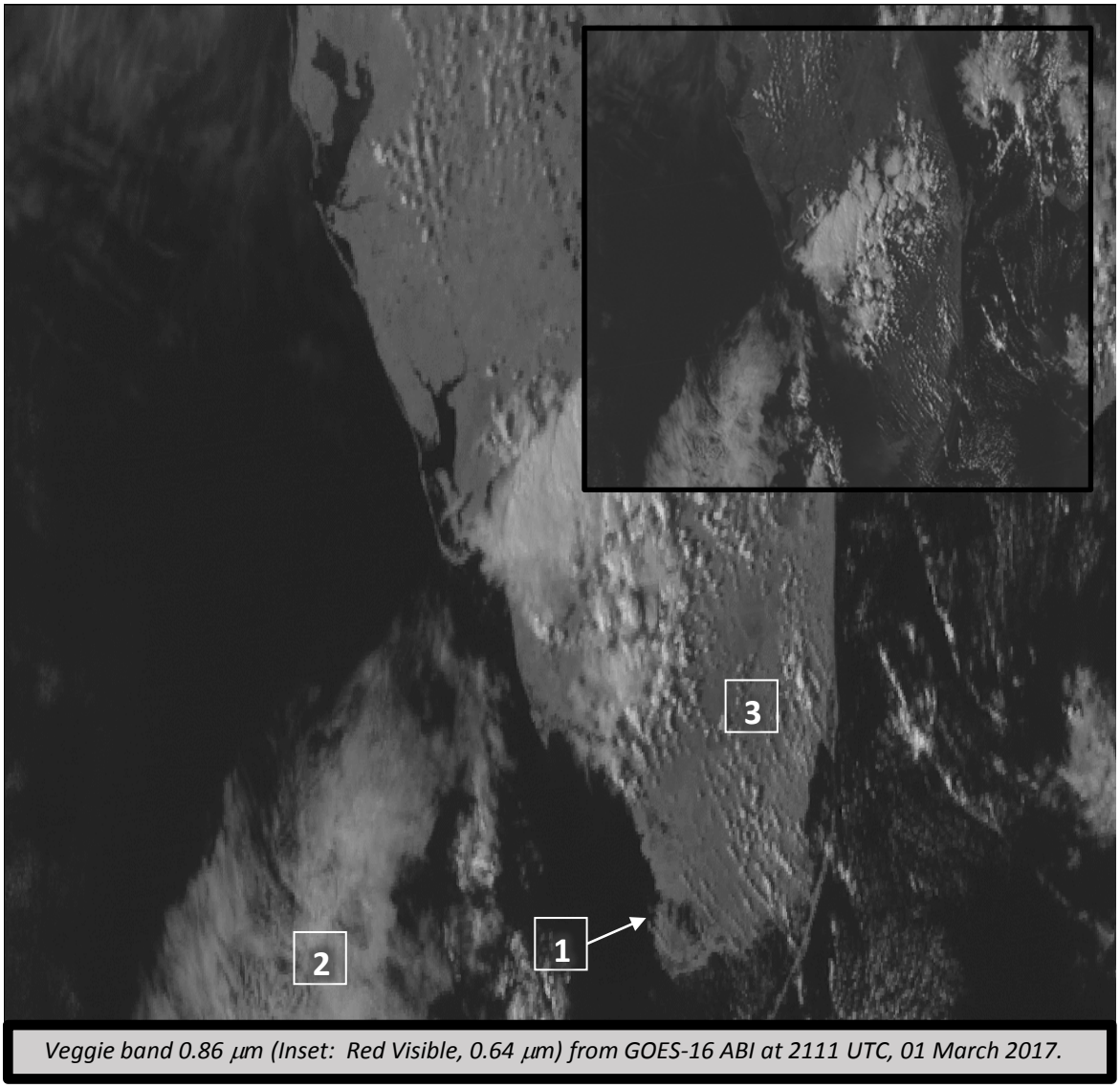
Vegetation Band

Image Interpretation

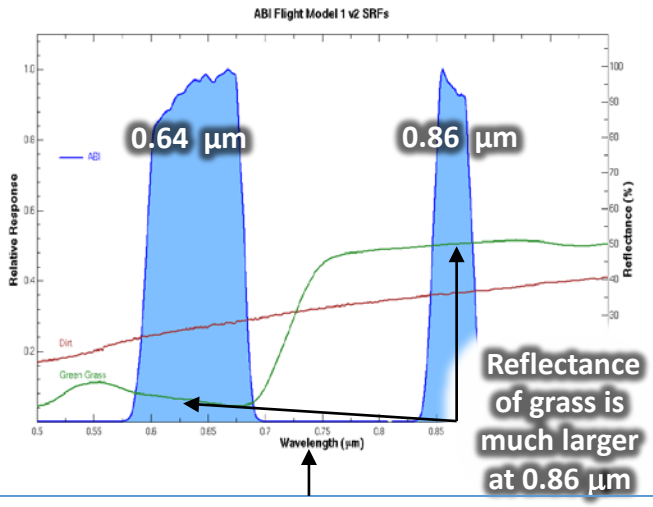
1. Land-water contrast is high: coastlines stand out
2. Cloud-Water contrast means clouds are distinct over water
3. Clouds over land are less distinct because land and clouds are both reflective in the 0.86 µm imagery

The Vegetation band is vital for the creation of True Color Imagery, below

This True Color image, from CIMSS, was made using Blue, Red and Veggie bands. The image was not corrected for Rayleigh Scattering that is present in the Blue band.



Veggie band 0.86 µm (Inset: Red Visible, 0.64 µm) from GOES-16 ABI at 2111 UTC, 01 March 2017.



Resources

BAMS Article

Schmit et al.(2017).

GOES-R.gov

Band 3 Fact Sheet

Hyperlinks do not work in AWIPS but they do in VLab

Above: ABI red visible and vegetation spectral bands (blue solid shaded area). Reflectance for grass (green) and dirt (red) are also plotted. (Credit: CIMSS and ASTER spectral library and Mat Gunshor)