



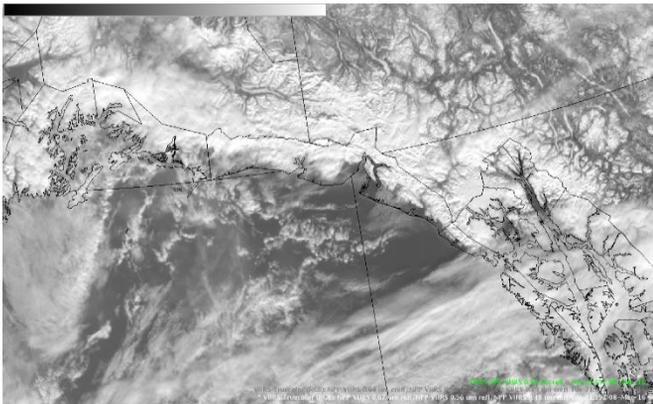
Alaskan Satellite Band Quick Guides

The $.56\mu\text{m}$ “Green Visible” Band

Overview

The $0.56\ \mu\text{m}$, or “green” band, is one of the visible light channels on the VIIRS Imager. This band provides daytime observations related to the land, clouds and aerosols. This green band, combined with the “blue” ($0.49\ \mu\text{m}$) and “red” ($0.64\ \mu\text{m}$) is essential for a natural “true color” Red-Green-Blue (RGB) composite.

Measurements in the green band can be used for air pollution studies, atmospheric aerosol products, and solar insolation estimates. This band is also helpful for identifying ocean characteristics such as sediment, phytoplankton communities, and coastal sea floor depths.



It's not easy being green

Not all plants reflect strongly in the green band. Grasslands tend to be less with greater reflectances in the yellow to red wavelengths. Forests are typically dark. Land used for agriculture is often much brighter in the green than natural vegetation. Also the amount of green emissions depends on the season. Spring vegetation tends to be less than dense summer vegetation.



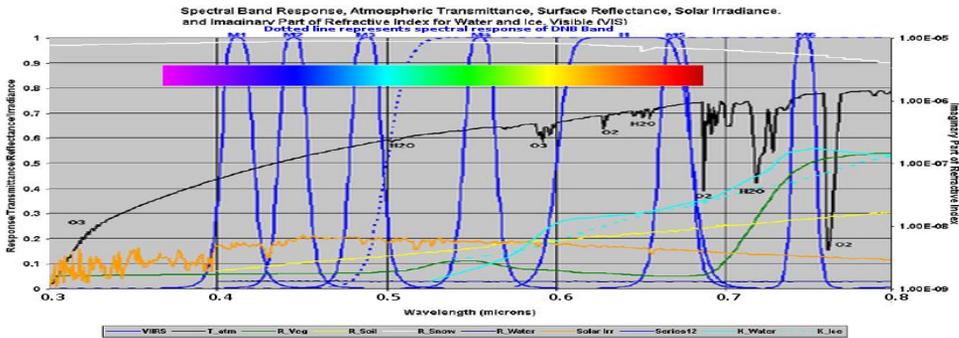
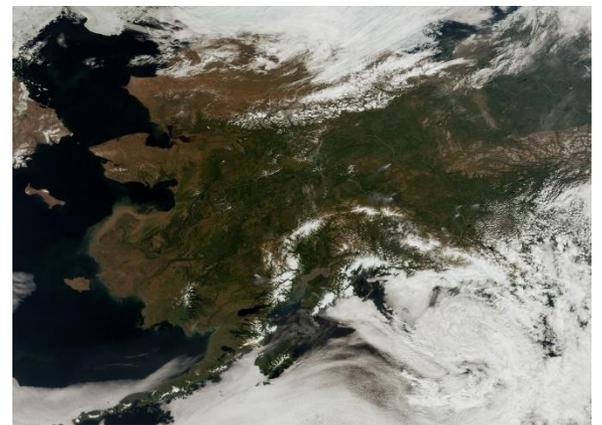
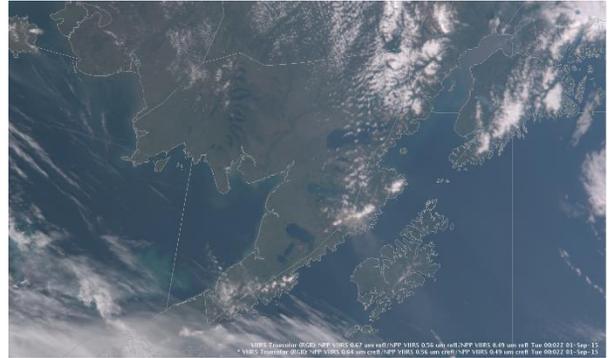
Volcanic Ash or Wildfire Smoke?

Re-suspended ash originating from the 1912 Katmai eruption is visible in the Truecolor RGB (left) blowing off the Alaska Peninsula with more of a brownish coloring. This is because the larger ash particles scatter energy at slightly larger visible wavelengths than the blue band, thus bringing more contribution from the green and red colors.

It's not easy being green

There is less atmospheric scattering in the green visible band than the blue band, however larger aerosols, such as dust, will be scattered more effectively at this wavelength. For this reason a comparison of shorter visible wavelengths can provide information about the characteristics of atmospheric pollution

Water selectively scatters and absorbs certain wavelengths of visible light. Although deep ocean water has low reflectances, the shorter visible wavelengths reflect from greater depths, which is why the ocean water appears dark blue most of the time. Coastal areas with shallow bottoms and more sediment scatter light at higher visible wavelengths which is why sea water close to shore may appear more green or brown. In the bottom right image, notice the ocean color variation in Cook Inlet and portions of the Bering Sea.



Satellite(s)	Instrument	Band Name	Wavelength	Resolution at NADIR
Suomi NPP	VIIRS	M4	0.56μm	750m
Terra and Aqua	MODIS	4	0.56μm	500m
Himawari	AHI	2	0.51μm	500m

This table shows a comparison between VIIRS and MODIS for the “Blue” visible band.

Additional References

- Quick guides to channels on the GOES-R Advanced Baseline Imager (ABI). ABI Band 14 is centered at 11.2μm <http://www.goes-r.gov/education/ABI-bands-quick-info.html>
- For more information contact Eric Stevens eric@gina.alaska.edu or Carl Dierking cfdierking@alaska.edu

