

Contributed by:

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Region:

CONUS West/Southwest

Office:

NASA/SPoRT

Date:

07 March 2017

Product(s):

True Color RGB

Application Area:

Aerosols/Air Quality
Aviation
Fire
Public Health

Feature:

Burn Scars, Smoke

Instrument(s):

GOES-16, VIIRS, MODIS

Works well with:

Visible Channels
Day Land Cloud RGB

Related Links:

[SPoRT/CIRA: True Color RGB Quick Guide](#)

[CIRA: Simulated True Color Imagery](#)

Event Description: Warm, dry conditions and strong winds caused wildfires to erupt in the Texas and Oklahoma panhandles, burning hundreds of thousands of acres. Red Flag and High Wind Warnings were issued for several days throughout the region due to dangerous Fire Weather conditions.

Product Impact: The active fires can be monitored using True Color RGB and Visible (0.64 μm) imagery to analyze the location and extent of the event. From Figure 2 before the event, to Figure 1 during active wildfires, the location and magnitude of the impact can be assessed. By using true color imagery, forecasters can monitor the spatial movement of the smoke over time more easily than using visible imagery alone (compare smoke areas circled in yellow dotted lines in Fig. 1). The contrast between smoke and the surface in the True Color RGB aids the forecaster to efficiently determine the smoke's spatial extent; whereas in the visible imagery, areas of thin smoke look similar to cloud-free land. However, by using higher resolution visible imagery (0.5 km) of GOES-16 (Figure 3) forecasters are able to monitor burn scars on an even finer spatial scale than the 1 km True Color RGB.

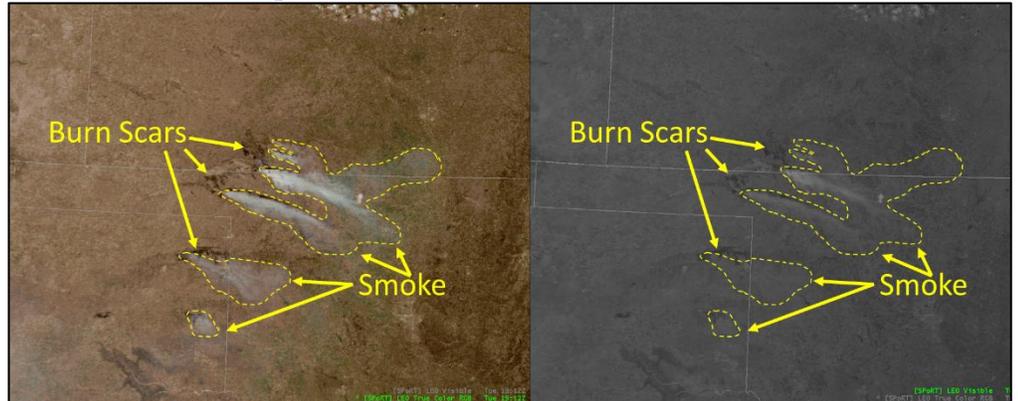


Figure 1. VIIRS True Color compared to Visible Channel valid at 1857 UTC, 07 March 2017

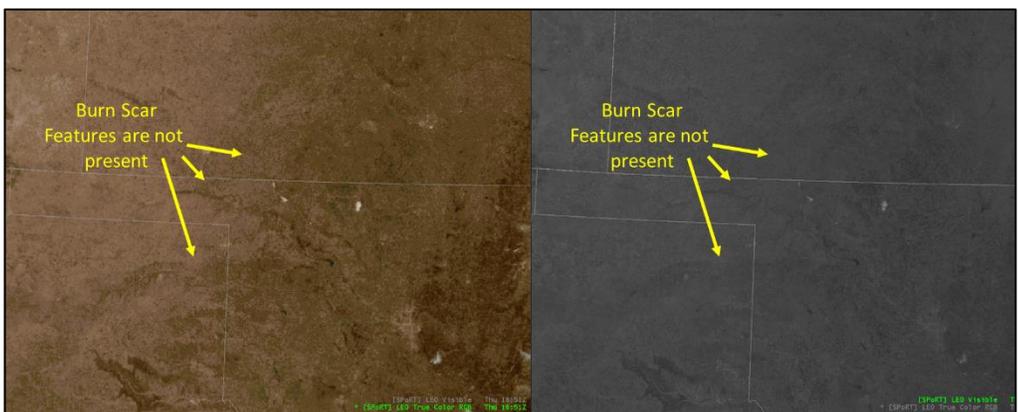
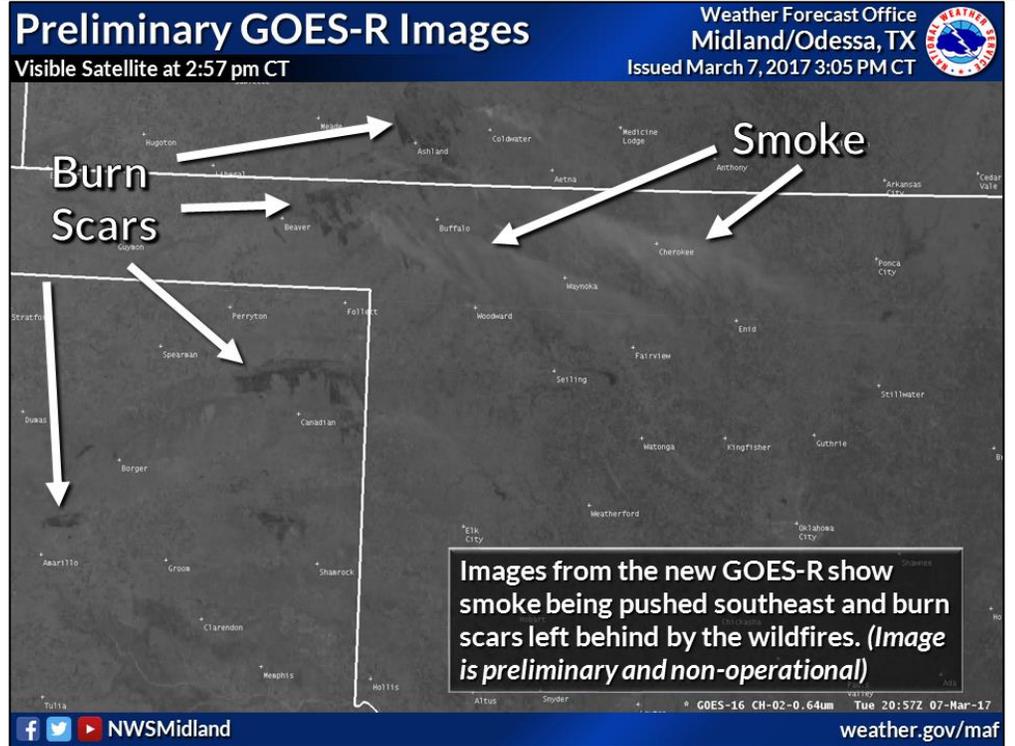


Figure 2. VIIRS True Color compared to Visible Channel 5 days before the event, valid at 1851 UTC, 02 March 2017



Interpretation: The True Color RGB is designed to display the image in a way that is similar to colors that we see with our eyes. The same wavelengths of red, green, and blue reflected light that our eyes use are within the RGB. In Figure 1 the smoke and dark burn scars from the wildfires are readily discernible from the lighter brown and green surrounding land surfaces. From the visible channel in Figure 2 these items are noticeable but they are not as quickly delineated from other surface and atmospheric features due to the use of only the red reflectance channel. Note that a True Color RGB from GOES-16 will require a derived “synthetic green” channel because the imager only has channels for the red and blue reflectance wavelengths.