

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:

Smoke from distant wildfires

Instrument(s):

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:

Dry conditions with low humidity and high winds caused wildfires to erupt in the Texas and Oklahoma panhandles, burning hundreds of thousands of acres. A cold front associated with a low pressure system moving across the Midwest created northerly winds which carried smoke from the panhandles towards west Texas and southeast New Mexico. Steady winds at approximately 10 mph kept a haze of smoke lingering over the area, impacting aviation and public activities.

Product Impact:

Smoke moving south from the north Texas and Oklahoma fires were impacting visibilities for TAF sites in west Texas, as well as creating a public health hazard. It was difficult to forecast when the smoke would clear. By using True Color RGB imagery (Fig.1), forecasters can monitor the spatial extent and movement of the smoke (yellow dashed area) and determine where the smoke is likely to clear. Single-channel visible imagery may appear clear when actually smoke exists.

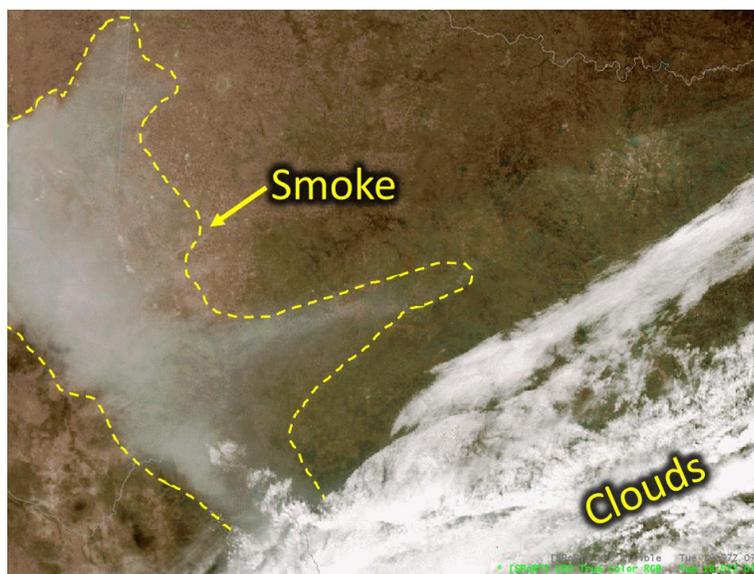


Figure 1. VIIRS True Color valid at 1857 UTC, 07 March 2017

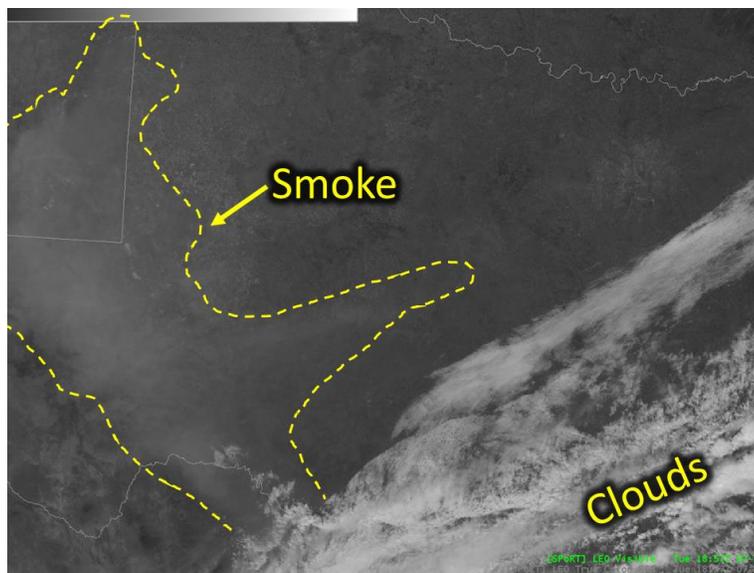


Figure 2. VIIRS Visible Channel valid at 1857 UTC, 07 March 2017

Interpretation: The True Color RGB is designed to display the image in a way that is similar to colors that we see. The same wavelengths of red, green, and blue reflected light that our eyes use are within the RGB. In the Figure 1, the smoke is easily distinguishable in a grey haze from the bright white clouds as well as green/brown land surfaces. From the visible channel in Figure 2 the smoke is identifiable, but the extent is not as readily delineated from the surface and cloud features. 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.