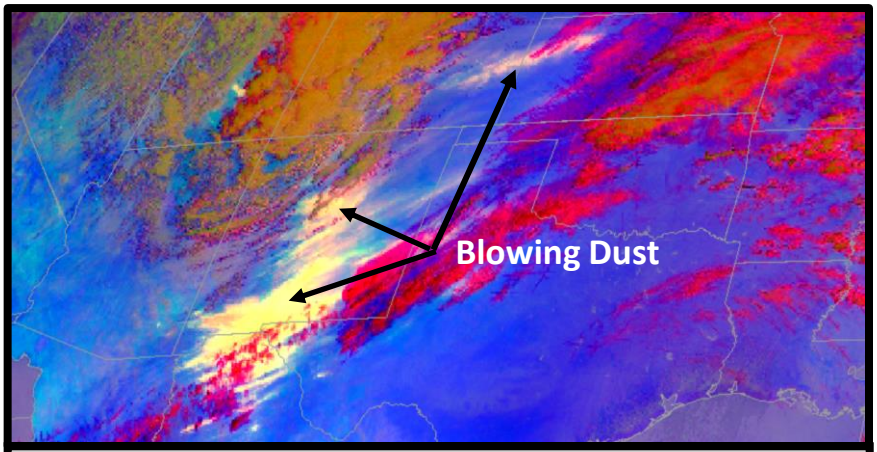
GOES Dust - CVD RGB Quick Guide

Why is the GOES Dust - CVD RGB Important?

The GOES Dust - CVD RGB incorporates longwave infrared channels to indicate regions of blowing dust during clear-sky conditions. The IR band differencing allows blowing dust to be observed during both daytime and night. The RGB follows a similar methodology to the traditional Dust RGB, but is designed with a color scheme that is more accessible to users with color vision deficiencies (CVD). Regions of blowing dust can significantly reduce visibility, posing a hazard to motorists and pilots.



GOES Dust - CVD RGB at 1950 UTC, 18 March 2025 (Daytime)

GOES Dust - CVD RGB Recipe

Color	Band (µm)	Min to Max Gamma	Small contribution indicates…	Medium contribution indicates…	Large contribution indicates…
Red	10.35 – 8.5 (Ch. 13 – Ch. 11)	6 to -0.5 °C 1.5	Clear Sky	Low Cloud	Blowing Dust, Thick High Cloud, Thin High Cloud
Green	12.3 – 10.35 (Ch. 15 – Ch. 13)	-6 to 2.5 °C 1.5	Clear Sky – Moist, Thin High Cloud	Clear Sky – Dry, Thick High Cloud, Low Cloud	Blowing Dust
Blue	10.35 (Ch. 13)	-40 to 40 °C 1.0	High Cloud	Blowing Dust, Low Cloud	Clear Sky Surface

Impact on Operations

Primary Applications

Blowing dust: Depending on plume thickness, blowing dust appears as bright green or yellow against the blue background (bare ground). Less concentrated dust may appear as lighter blue relative to the blue background. At nighttime, blowing dust may appear light pink/orange.

Clouds and surface features: Clouds will appear as bright orange (thick ice cloud), red (thin ice cloud), and medium green/cyan to gray (low cloud). Bare ground will appear as shades of blue depending on moisture:

- Darker shades indicate greater moisture
- Lighter shades indicate drier conditions

Limitations

Cloud obscuration: Cloud cover can obscure areas of blowing dust.

Smoke from wildland fires: Ash-laden smoke plumes from intense wildfires can occasionally resemble blowing dust.

Low concentration or shallow dust: Diffuse or very shallow dust may be subtle. The signal is strongest for thicker and dense plumes.

Surface/background effects: Very hot, dry desert surfaces, salt flats, or bright playas can occasionally resemble dust, particularly near local sunrise/sunset or at night when thermal contrast is small.

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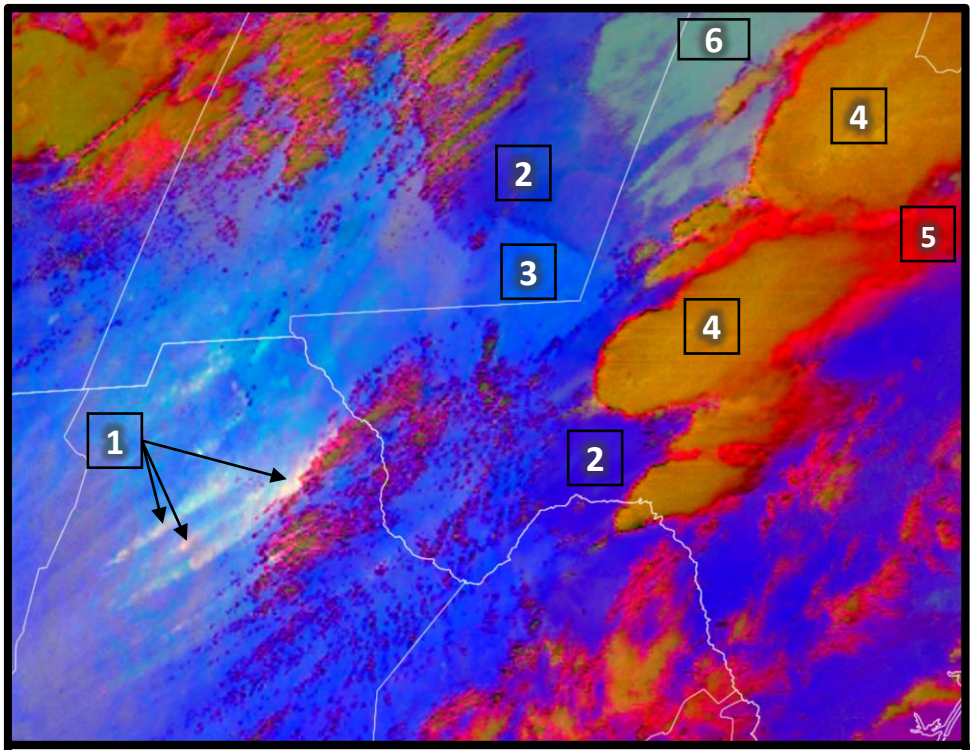
GOES Dust - CVD RGB

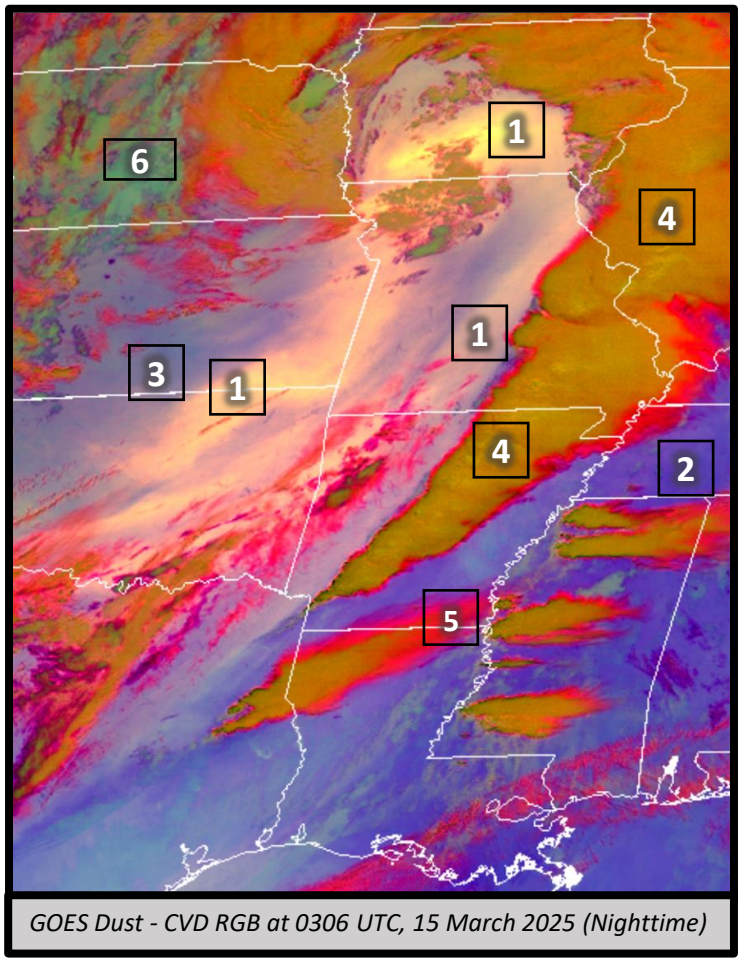
Quick Guide



GOES Dust - CVD RGB at 2200 UTC, 29 April 2025 (Daytime)

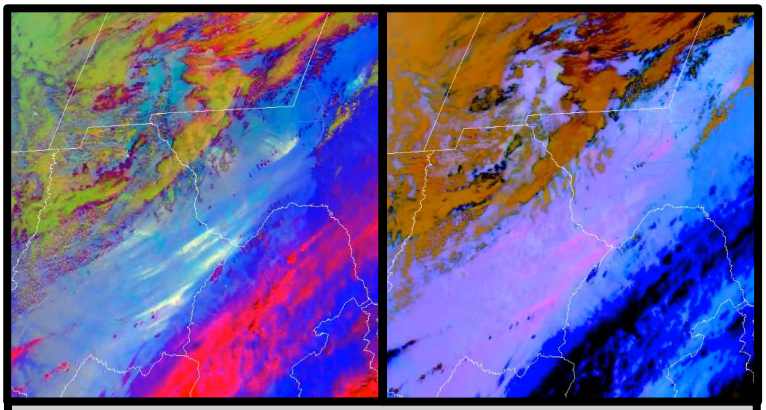
Interpretation

1	**Blowing Dust** *(yellow / bright green) – most often (lighter blue) – less concentrated dust (light pink/orange) – possible at night*
2	**Clear sky - Moist** *(dark blue)*
3	**Clear sky - Dry** *(light blue)*
4	**Thick Ice Cloud** *(orange)*
5	**Thin Ice Cloud** *(red)*
6	**Low Cloud** ***(medium green/cyan to gray)***



GOES Dust - CVD RGB at 0306 UTC, 15 March 2025 (Nighttime)

Dust RGB Comparison



GOES Dust - CVD RGB (left) and traditional Dust RGB (right) at 1830 UTC, 02 March 2023 (Daytime)

Best Practices

- Animate to confirm plume motion and source region.
- Compare with GeoColor or visible when available.
- Use METARs, webcams, and surface reports for confirmation.

Resources

CVD Dust RGB available in:
SLIDER
AWIPS

Webinars:
SBC: Bill Line
SBC: CVD & Interpreting RGBs

Blog Posts:
January 2024
March 2023