

Clouds: NOAA GOES-19 GeoColor over the Americas

Melbourne Gregory

Orbital Network

Version 1.0 — October 13, 2026

Abstract

This document describes Clouds, an imagery layer for Orbital Network, and sets out its use cases. Unlike the network's point layers, Clouds paints no markers: it drapes the newest full-disc photograph from NOAA's GOES-19 (GOES-East) geostationary satellite — its ABI instrument's GeoColor product, served by NOAA NESDIS — over the globe as a translucent shell, so the clouds on the planet are the clouds the satellite is actually seeing. The imagery's own scan time is named in the layer's status line, and a frame more than six hours old is labeled OUTDATED. The layer refreshes every ten minutes while it is on, matching GOES-East's full-disc scan cadence. It is imagery — a picture of the sky, not measurements at points — and is described as exactly that. The layer is live as of October 2026.

What the layer shows

GOES-19 GeoColor, reprojected in the browser. When the layer is switched on, the page reads NOAA's public GOES-19 directory for the newest ABI full-disc GeoColor frame, then redraws that photograph — taken from the satellite's fixed slot above 75.2°W — onto the globe's surface in the visitor's own browser, point by point. Places beyond the satellite's horizon stay clear; near-black night pixels become transparency, so the dark half of the disc never punches a black wedge through the planet. The result is a living cloud shell distinct from the globe's own backdrop portrait: this is the current sky, dated.

Time, named and enforced. Freshness is judged against the frame's own scan time — the timestamp in NOAA's filename — never against when the page fetched it. The status line names that time and the frame's age ("about 40 min old"); past six hours it leads with "OUTDATED" and advises treating the picture as the last known sky, not the current one. While the layer is on, a new frame is read every ten minutes, GOES-East's own full-disc rhythm. If NOAA's directory or frame cannot be reached, the layer reports the feed as unreachable and plots nothing — clouds are never invented to fill a gap.

What GeoColor is. GeoColor is NOAA's composite view of the Earth from ABI's channels, made to read the way a photograph reads — clouds, land, and ocean in natural-looking color by day. It is an image product, not a measurement series: the layer shows no temperatures, no cloud-top heights, no per-point values, and a tapped globe under this layer gives the imagery's time and source, not a reading.

Use cases

Weather watchers. The day's actual cloud architecture — a hurricane's spiral, a front's long comma, a clear slot opening over a launch coast — seen as the satellite sees it, with the scan time printed on it.

Families. "Show me the clouds over Grandma's house right now" is a question this layer answers with a dated photograph rather than a forecast icon — and the date is part of the answer, taught by the status line itself.

Journalists. A storm visual whose provenance can be stated in one line — instrument, satellite, agency, scan time — instead of the unattributed satellite grabs that circulate during hurricanes.

Educators. Geostationary geometry made visible: why one satellite sees one disc, why the night side goes transparent, why the picture updates on a ten-minute heartbeat. The reprojection happening in the student's own browser is itself the lesson.

Storm and fire awareness (context). Beside the Storms layer's advisory markers, the cloud shell shows the system those advisories describe; beside the fire layer, smoke plumes can sometimes be seen in the same frame — context imagery, clearly labeled as imagery, under the sourced points.

Coverage and limitations

Coverage is the GOES-East disc: the Americas, the Atlantic, and the Caribbean, from one satellite's vantage — the Pacific, Asia, Europe, and Africa are outside this frame, and the layer claims nothing there. Resolution is the published GeoColor frame's; reprojection onto the globe resamples it, so fine cloud detail softens, especially near the disc's edge where the satellite's view grazes. GeoColor is a composite that reads like a photograph; at night the product is not a true visible-light picture, and this layer's handling of the dark side (transparency for near-black pixels) is a display choice, stated openly. The layer is imagery for awareness — forecasts, warnings, and measurements live in the network's other layers and at NOAA.

Disclosure

Manuscript prepared with AI drafting assistance; all content was reviewed and approved by the author, who takes full responsibility for it.

The Orbital Network system described in this document operates at <https://godsky.net>. The white paper "Orbital Network: A Live Broadcast System for Real-Time Planetary Awareness" (Zenodo, DOI 10.5281/zenodo.23328433) describes the parent system.