



NOAA GOES Data Collection System (DCS) Overview

National Environmental Satellite,
Data, and Information Service

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What is GOES DCS?

- Radio relay system for environmental data using a geostationary satellite
- Concept dates to 1965 with LandSat testing, applied in the ATS
- Geostationary Environmental Operations Satellite(s) (GOES) launched in 1975



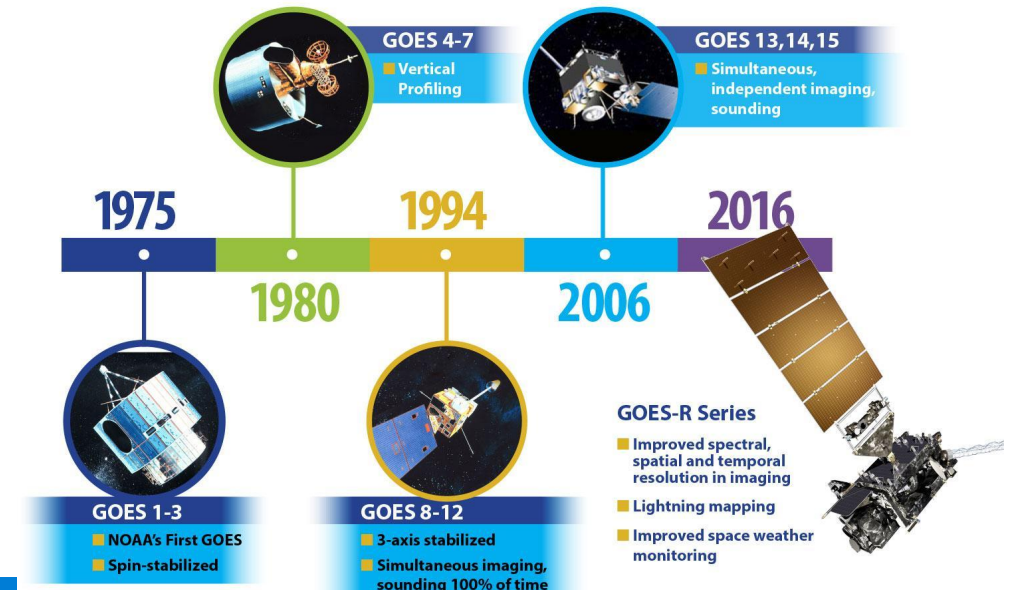
LandSat

<https://landsat.gsfc.nasa.gov/article/landsat-1/>

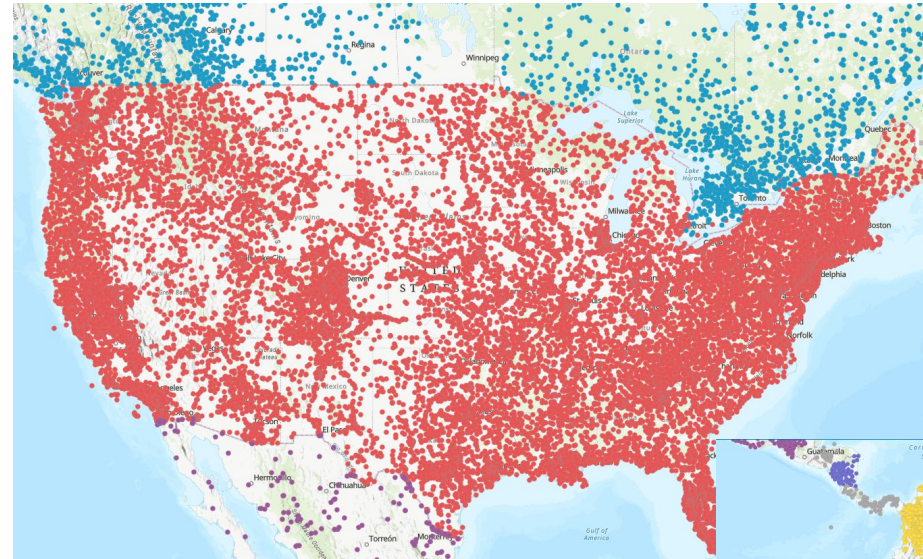
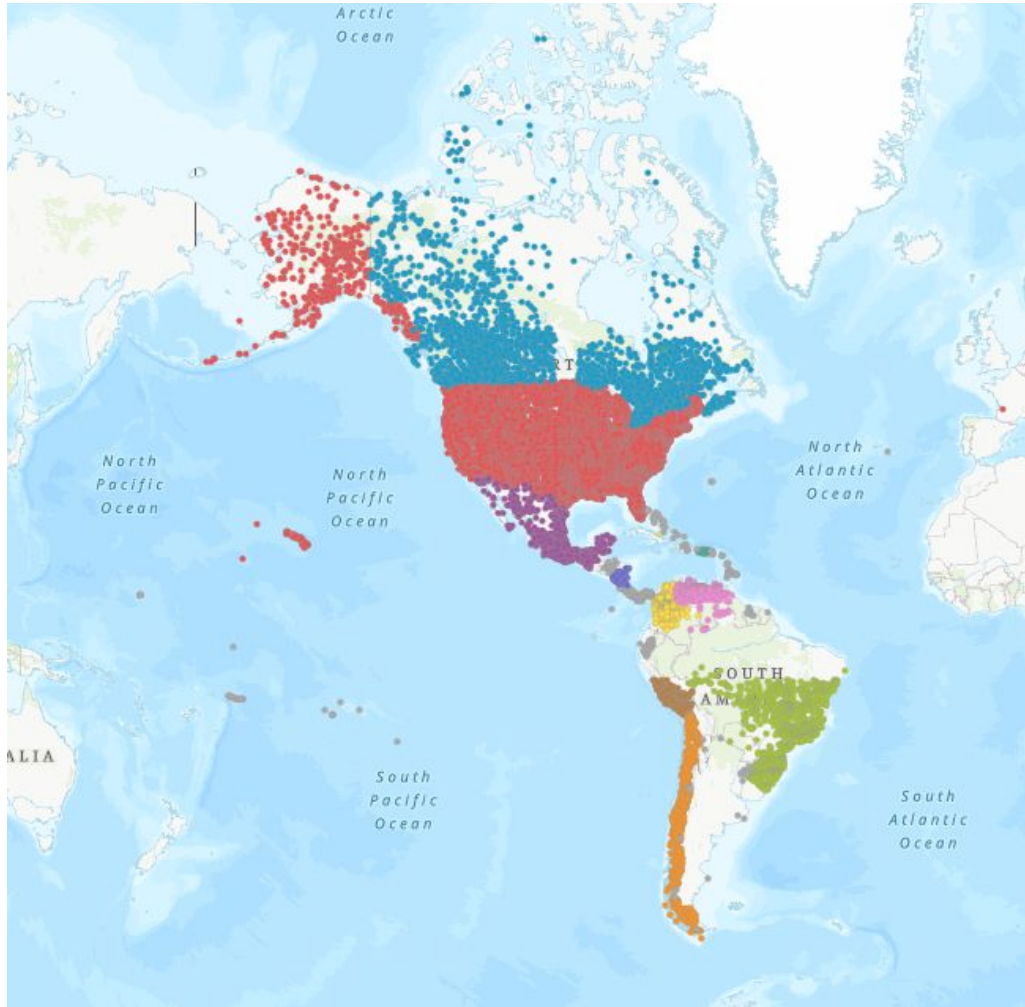


Applications Technology Satellite

<https://science.nasa.gov/mission/ats/>



What Areas Does GOES DCS Cover?





Where are Data Collection Platforms Located?

- USA 20,000+
- Canada 4500+
- Brazil 1500+
- Chile, Mexico, & Colombia 700-800
- Peru, Puerto Rico, Panama, Venezuela 100-500
- Nicaragua, Honduras, Argentina 50-100
- Dozens of other countries operate <50.

What is GOES DCS Used For?

- “Environmental” Data, as defined by 15 CFR 911
- Okay, what does that mean?

Hydro

- Streams & River
- Ocean Tides & Currents
- Navigable Waterways
- Locks & Dams
- Snow Levels
- Land Reclamation



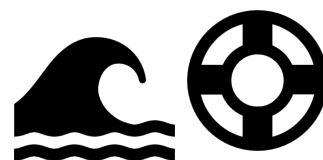
Fire

- Fire Prediction
- Fire Response



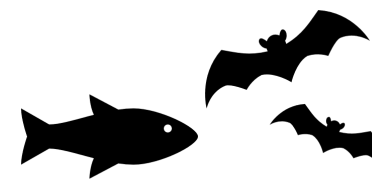
Alerts

- Earthquakes
- Tsunamis
- Avalanches
- Flooding & High Water



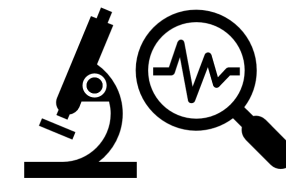
Resources

- Wildlife
- Environmental Monitoring for Industrial Applications



Research

- Climate Study
- Rainforests
- Polar
- DCP Manufacturers



What Does GOES DCS Actually Send?

- Small messages, typical time-series data or event/alert messages.
 - Scheduled Messages: Generally 10 second time window every hour (exceptions exist) at 300bps or 1200bps. (ex. 10s message 375b or 1.5kb)
 - Unscheduled/Random (due to an event) – as needed
- What it **doesn't** send – ~~pictures~~, video, etc.

August 2025
 Bill Powers, Alaska State Climate Center, sent this 17.8 kb 256x247 pixel NOAA logo image using 27, 10 second, 1200bps messages



	ADDRESS	GROUP	CHAN	BAUD	SIGNAL	NOISE	QUALITY	FREQ	CAR TIME	END TIME	TIME	ARM	SCID	TYPE	LEN	MESSAGE DATA
▲	CA308AEC	CHSCNA	93	300	37.5	2.6	99.8	0.0	24/310 19:15:50.310	24/310 19:15:54.823	4.512	G	17	CS2	139	":VR 3 #3 0.259 0.258 0.255 0.263 0.258 0.271 0.270 0.278 0.281 0.278 0.273 0.270 0.273 0.265 0.258 0.263 0.262 0.272 0.273 0.283 :BL 13.26
▲	CA55623E	STCLAF	30	300	40.3	2.6	100.0	0.9	24/310 19:15:50.650	24/310 19:15:54.267	3.614	G	18	CS2	105	43.99 13.76 43.99 13.92 43.99 13.84 44.00 14... 43.99 13.76 43.99 13.92 43.99 13.84 44.00 14.00 44.00 13.68 43.99 13.45 43.99 13.92 44.00 14.00
▲	17D22308	USGS01	153	300	37.7	2.5	100.0	1.7	24/310 19:15:50.287	24/310 19:15:54.070	3.784	G	16	CS2	111	bb10@Hj@Hj@Hj@Hj@Hj@Hj@Hj@Hi@Hi@Hh@Hh@Hi@Hh@Hi@Hi@... bb10@Hj@Hj@Hj@Hj@Hj@Hj@Hj@Hi@Hi@Hh@Hh@Hi@Hh@Hi@Hi@Tp@Tp@Tx@Tj@Ts@Tx@UF@Tz@UT@UA@T}@Ta@Tv@Ts@Ti@Ttl 21090494



Data Distribution

- Users have several options for data from NOAA:
 - NOAA's DCS Administration and Data Distribution System (DADDS)
 - NOAA's Local Readout Ground Stations (LRGS) – Open DCS
 - National Weather Service Telecommunication Gateway (NWSTG)
 - High Rate Information Transmission (HRIT) *Broadcast**
 - Direct Readout Ground System (DRGS) – hemispheric DCS *broadcast**

**Frequencies used for these broadcasts are subject to FCC planned spectrum sharing. Users that operated L-band receivers should monitor this issue.*

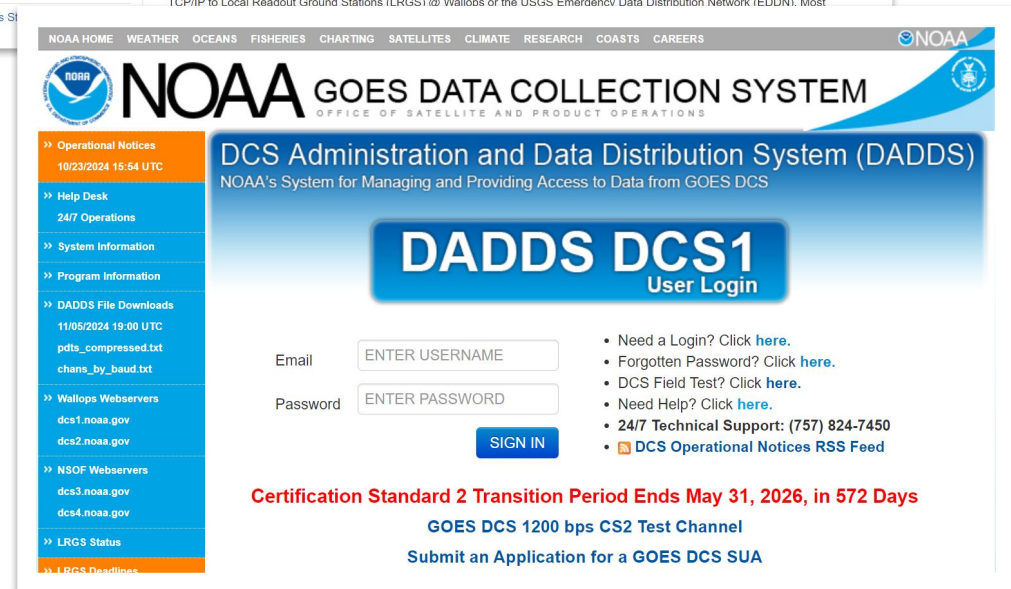


Where Do New Users Start?

- Main GOES DCS Informational Page
 - https://www.noaasis.noaa.gov/GOES/GOES_DCS/goes_dcs.html
- Main GOES DCS System Page
 - <https://dcs1.noaa.gov/>
- Contact William “Skip” Dronen or Letecia Reeves for more information
 - william.dronen@noaa.gov
 - letecia.reeves@noaa.gov



The screenshot shows the NOAA Satellite Information System homepage. At the top is the NOAA logo and the title "NOAA Satellite Information System". Below this is a navigation bar with links for HOME, GOES, POLAR, GNC-A, SARSAT, and ADDITIONAL INFO, along with a search box. A sidebar on the left contains a menu with items like GOES Overview, GVAR, GRB, HRIT, and GOES DCS. The main content area features the heading "GOES Data Collection System" and a paragraph of introductory text about the system's history and purpose.



The screenshot displays the DADDS DCS1 User Login page. The header includes the NOAA logo and the text "NOAA GOES DATA COLLECTION SYSTEM OFFICE OF SATELLITE AND PRODUCT OPERATIONS". The main heading is "DCS Administration and Data Distribution System (DADDS) NOAA's System for Managing and Providing Access to Data from GOES DCS". Below this is a large blue box with the text "DADDS DCS1 User Login". There are input fields for "Email" (ENTER USERNAME) and "Password" (ENTER PASSWORD), followed by a "SIGN IN" button. To the right of the login fields are several links: "Need a Login? Click here.", "Forgotten Password? Click here.", "DCS Field Test? Click here.", "Need Help? Click here.", "24/7 Technical Support: (757) 824-7450", and "DCS Operational Notices RSS Feed". At the bottom, there is a red banner stating "Certification Standard 2 Transition Period Ends May 31, 2026, in 572 Days" and a blue banner for "GOES DCS 1200 bps CS2 Test Channel" with a link to "Submit an Application for a GOES DCS SUA". A sidebar on the left contains a list of operational notices and other system information.





Additional Considerations

- Access to GOES DCS is *FREE*
- Users need to obtain their own equipment from a certified manufacturer
- GOES DCS access must not compete with commercial services that meet User Requirements (as defined by the user)
- System User Agreement includes stipulation that data must be shared

Project Status

- DADDS 4.0 - Replacement of current DADDS
 - Deployed and in multi-month testing/parallel operations
 - <https://dadds-dcs.data.nesdis.noaa.gov/>
 - Demo later
 - Operational cutover TBD but **no later than November 20, 2026.**
- DCS Message Statistics for Space Weather/Ionospheric Scintillation
 - Deployed to DCS DADDS Development Environment
- Future of DCS - GeoXO
 - DCS remains in baseline
 - Recent NTIA memo to FCC indicates four ground receive locations will be protected: Wallops Island, VA; Suitland, MD; Fairmont, WV; and Sioux Falls, SD.
- Compaction, Binary, and Enhanced DCP Protocols
 - Compaction & previously developed NOAA protocols at the “test” stage
 - Enhanced DCP Protocol. Firmware but more dramatic change. Specification has been refined several times and in testing.

