

NOAA Agency Updates

Land Surface Imaging and Analysis- Ready Data

**NOAA National Environmental
Satellite, Data, and Information
Service (NESDIS)**

Date: 8 September 2022

Kevin Gallo
NOAA/NESDIS

Land Surface Imaging

- JSTAR Mapper (<https://www.star.nesdis.noaa.gov/jpss/mapper/index.php>)
- GOES Image Viewer (<https://www.star.nesdis.noaa.gov/GOES/index.php>)
- ProxyVis (<https://rammb2.cira.colostate.edu/research/goes-r-research/proxyvis/>)
- NOAA Weather and Climate Toolkit (<https://www.ncdc.noaa.gov/wct/>)
- NOAA Open Data Dissemination Program (<https://www.noaa.gov/nodd/datasets>)

Image products available or planned from:

- NOAA-20
- Suomi NPP
- GCOM W-2
- Sentinel 5P

Product themes:

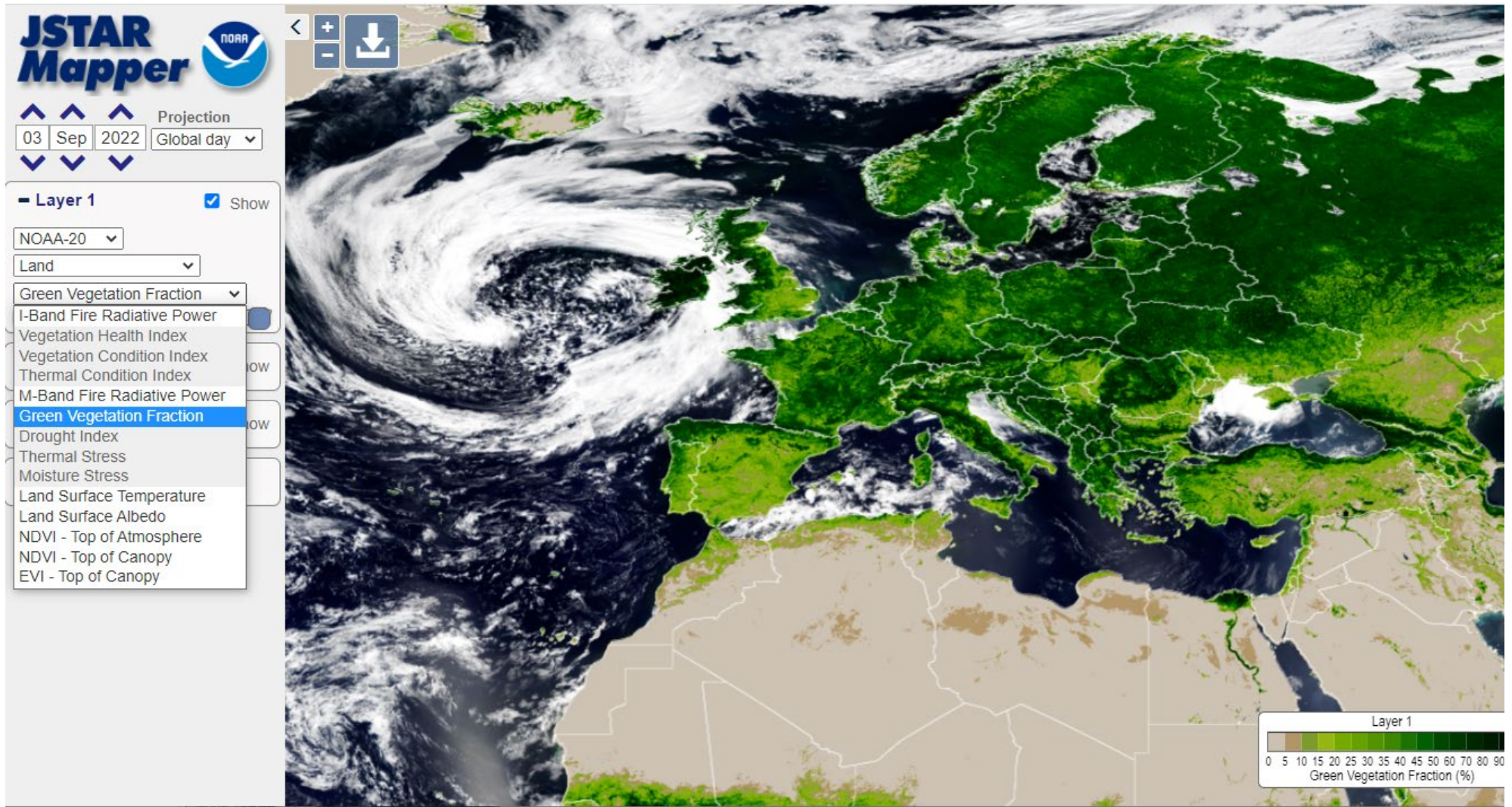
- Land
- Land**
- Aerosols
- Clouds
- NUCAPS Trace Gases
- NUCAPS Soundings
- Cryosphere
- Ocean
- MIRS
- OMPS
- VIIRS Imagery

The screenshot displays the JSTAR Mapper web application interface. At the top left, the NOAA logo and the text "JSTAR Mapper" are visible. Below this, there are controls for date selection (03 Sep 2022) and projection (Global day). The main area shows a satellite image of a cyclone over the Indian Ocean. On the left side, there is a layer control panel with "Layer 1" selected, showing "NOAA-20", "VIIRS Imagery", and "VIIRS True Color" options. Below this are "Layer 2", "Layer 3", and "Other layers" sections, each with a "Show" checkbox. A dropdown menu on the far left lists product themes: Land, Aerosols, Clouds, NUCAPS Trace Gases, NUCAPS Soundings, Cryosphere, Ocean, MIRS, OMPS, and VIIRS Imagery.



Land Product Example:

- Green Vegetation Fraction



Second layer added:

I-Band Fire Radiative Power

Next Steps:

An enhanced Environmental Mapping System is under development that will include data/product download capabilities.

Data/products currently available from NOAA CLASS:
<https://www.class.noaa.gov/>

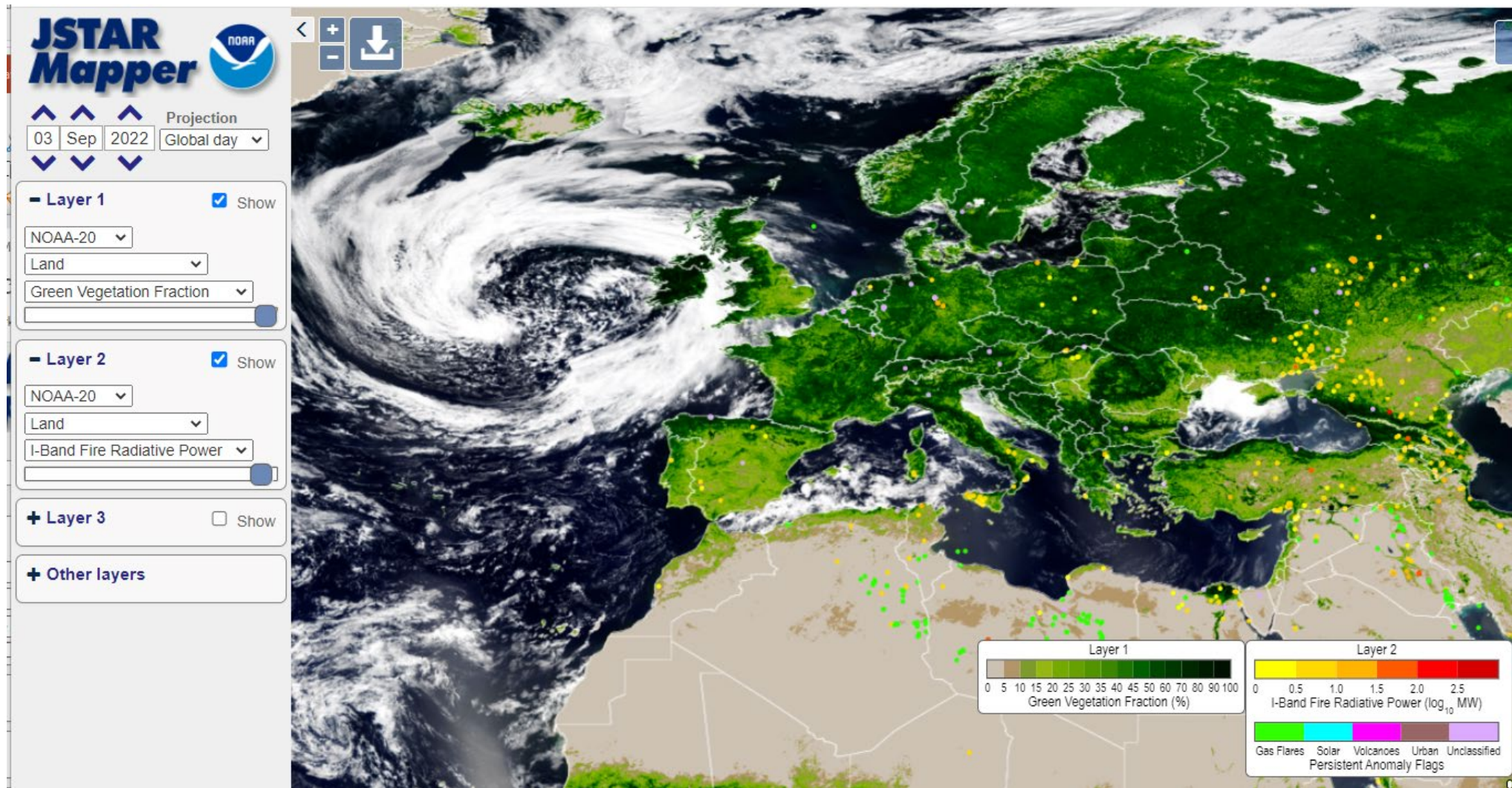


Image products available from:

- GOES-16 (GOES-East) and
- GOES-18 (GOES-West)

NOAA **GOES Image Viewer**

Home CONUS Full Disk North America Caribbean Pacific South America Mesoscale Storms Support

GOES Image Viewer

Click on a region to view images and animations for that region. Coverage area depictions are approximate.

7 Sep 2022 - 08:29 E
7 Sep 2022 - 12:29 L

Active Storms

- HU Earl
- HU Danielle
- HU Kay

GOES-West

- PACUS
- Full Disk
- Meso M1
- Meso M2
- Pacific Northwest
- Pacific Southwest
- U.S. West Coast
- Alaska
- Central Alaska
- Southeastern Alaska
- Northern Pacific Ocean
- Hawaii
- Tropical Pacific Ocean
- Southern Pacific Ocean

GOES-East

- CONUS
- Full Disk
- Meso M1
- Meso M2
- Northern Rockies
- Upper Mississippi Valley
- Great Lakes

GOES-16 view (true color daytime)

GOES-16 Interleave Testing - From 1 August - 8 Sep 2022

NOAA GOES-16

Home CONUS Full Disk North America

GOES-East - Latest Full Disk Image
Images updated every 10 minutes. GeoColor

True Color daytime, multispectral IR at night
6 Sep 2022 - 15:50 UTC

- Animation loops
- Download images
- 339 x 339 px, (JPG, 41 KB)
- 678 x 678 px, (JPG, 143 KB)
- 1808 x 1808 px, (JPG, 814 KB)
- 5424 x 5424 px, (JPG, 6.49 MB)
- 10848 x 10848 px, (JPG, 16.9 MB)
- 21696 x 21696 px, (JPG, 30.59 MB)
- GeoTIFF, (TIFF, 102.32 MB)
- Product documentation

Day Cloud Phase RGB
RGB for evaluating phase cooling cloud tops
6 Sep 2022 - 15:40 UTC

- Animation loops
- Download images
- 339 x 339 px, (JPG, 46 KB)
- 678 x 678 px, (JPG, 153 KB)
- 1808 x 1808 px, (JPG, 807 KB)
- 5424 x 5424 px, (JPG, 6.12 MB)
- 10848 x 10848 px, (JPG, 16.74 MB)
- 21696 x 21696 px, (JPG, 30.7 MB)
- Product documentation

Download image: GeoColor - 8 Sep 2022 - 15:50 UTC

06 Sep 2022 15:50Z - NOAA/NESDIS/STAR GOES-East - GEOCOLOR Composite - Day(0.47 um - Blue, 0.64 um - red, and 0.86 um - near IR)

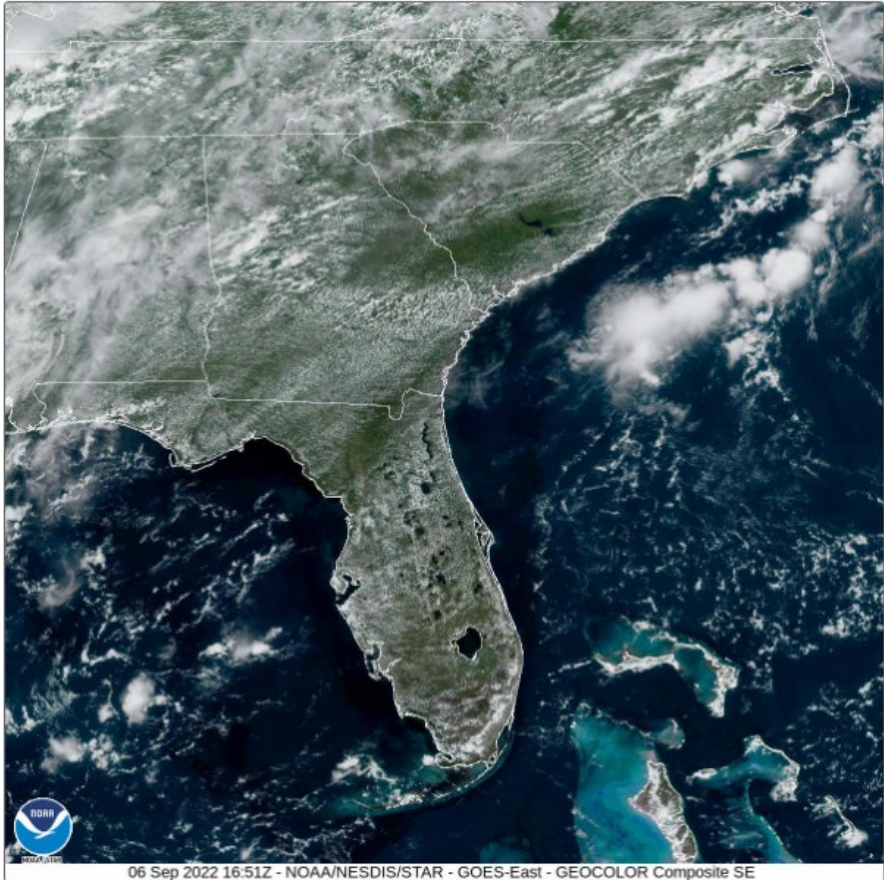


GOES-16 view (true color daytime)

GOES-East - Sector view: Southeast - GeoColor
 1 hour loop - 12 Images - 6 minute update
 To enlarge, pause animation & click the image. Hover over popups to zoom. Use slider to navigate.

Band: Loop: Size:

GeoColor - True Color daytime, multispectral IR at night - 06 Sep 2022 - 1651 UTC



06 Sep 2022 16:51Z - NOAA/NESDIS/STAR - GOES-East - GEOCOLOR Composite SE

About GeoColor
 GeoColor is a multispectral product composed of True Color (using a simulated green component) during daytime, and an Infrared product that uses bands 7 and 13 at night. During the day, the imagery looks approximately as it would when viewed with human eyes from space. At night, the blue colors represent liquid water clouds such as fog and stratus, while gray to white indicate higher ice clouds, and the city lights come from a static database derived from the VIIRS Day Night Band.

GOES-East and GOES-West
(several products and....

NOAA GOES Image Viewer

Home CONUS North America Caribbean Pacific South America Mesoscale Storms Support

GOES-East - Latest CONUS Images
Images updated every 5 minutes.

Product Name	Description	Time	Resolution	File Size
GeoColor	True Color daytime, multispectral IR at night	6 Sep 2022 - 16:56 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	43 KB, 87 KB, 281 KB, 897 KB, 2.75 MB, 8.13 MB
GLM FED3+GeoColor	Lightning flash extent density over GeoColor	6 Sep 2022 - 17:01 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px	120 KB, 264 KB, 989 KB, 3.61 MB, 12.89 MB
AirMass RGB	RGB based on data from IR & water vapor	6 Sep 2022 - 17:01 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	37 KB, 89 KB, 190 KB, 510 KB, 1.35 MB, 3.62 MB
Sandwich RGB	Blend combines IR band 13 with Visual band 3	6 Sep 2022 - 17:01 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	45 KB, 92 KB, 300 KB, 847 KB, 2.79 MB, 8.85 MB
Derived Motion Winds	Derived Motion Winds	6 Sep 2022 - 16:31 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	49 KB, 98 KB, 346 KB, 1.11 MB, 3.55 MB, 37.41 MB
Day Cloud Phase RGB	RGB for evaluating phase of cooling cloud tops	6 Sep 2022 - 16:51 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	46 KB, 90 KB, 278 KB, 854 KB, 2.61 MB, 8.86 MB
Nighttime Microphysics	RGB to distinguish clouds from fog	6 Sep 2022 - 17:01 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	40 KB, 75 KB, 210 KB, 590 KB, 1.62 MB, 4.31 MB
Fire Temperature RGB	RGB used to highlight fires	6 Sep 2022 - 17:01 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	39 KB, 74 KB, 216 KB, 621 KB, 1.72 MB, 4.62 MB
Dust RGB	RGB for identifying tropospheric dust	6 Sep 2022 - 17:01 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	41 KB, 78 KB, 231 KB, 673 KB, 1.94 MB, 5.12 MB
Band 1	0.47 μm Blue - Visible	6 Sep 2022 - 17:01 UTC	416 x 250 px, 625 x 375 px, 1250 x 750 px, 2500 x 1500 px, 5000 x 3000 px, 10000 x 6000 px	39 KB, 76 KB, 231 KB, 688 KB, 2.02 MB, 5.82 MB



... individual bands are available).



- Animation loops
- Download images
- 416 x 250 px, (JPG, 44 KB)
- 625 x 375 px, (JPG, 88 KB)
- 1250 x 750 px, (JPG, 260 KB)
- 2500 x 1500 px, (JPG, 885 KB)
- 5000 x 3000 px, (JPG, 2.84 MB)
- 10000 x 6000 px, (ZIP, 8.69 MB)
- Animated GIF, (GIF, 9.51 MB)
- KMZ, (KMZ, 6.69 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 42 KB)
- 625 x 375 px, (JPG, 84 KB)
- 1250 x 750 px, (JPG, 266 KB)
- 2500 x 1500 px, (JPG, 818 KB)
- 5000 x 3000 px, (JPG, 2.46 MB)
- 10000 x 6000 px, (ZIP, 7.02 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 38 KB)
- 625 x 375 px, (JPG, 89 KB)
- 1250 x 750 px, (JPG, 178 KB)
- 2500 x 1500 px, (JPG, 444 KB)
- 5000 x 3000 px, (JPG, 1.14 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 42 KB)
- 625 x 375 px, (JPG, 85 KB)
- 1250 x 750 px, (JPG, 266 KB)
- 2500 x 1500 px, (JPG, 815 KB)
- 5000 x 3000 px, (JPG, 2.45 MB)
- 10000 x 6000 px, (ZIP, 6.9 MB)
- Product documentation



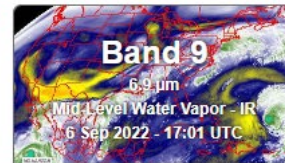
- Animation loops
- Download images
- 416 x 250 px, (JPG, 42 KB)
- 625 x 375 px, (JPG, 81 KB)
- 1250 x 750 px, (JPG, 244 KB)
- 2500 x 1500 px, (JPG, 702 KB)
- 5000 x 3000 px, (JPG, 1.95 MB)
- Product documentation



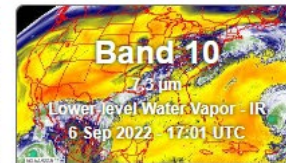
- Animation loops
- Download images
- 416 x 250 px, (JPG, 37 KB)
- 625 x 375 px, (JPG, 69 KB)
- 1250 x 750 px, (JPG, 196 KB)
- 2500 x 1500 px, (JPG, 540 KB)
- 5000 x 3000 px, (JPG, 1.51 MB)
- Animated GIF, (GIF, 9.01 MB)
- KMZ, (KMZ, 4.29 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 38 KB)
- 625 x 375 px, (JPG, 70 KB)
- 1250 x 750 px, (JPG, 194 KB)
- 2500 x 1500 px, (JPG, 523 KB)
- 5000 x 3000 px, (JPG, 1.45 MB)
- Animated GIF, (GIF, 9.39 MB)
- KMZ, (KMZ, 4.26 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 40 KB)
- 625 x 375 px, (JPG, 78 KB)
- 1250 x 750 px, (JPG, 228 KB)
- 2500 x 1500 px, (JPG, 643 KB)
- 5000 x 3000 px, (JPG, 1.85 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 45 KB)
- 625 x 375 px, (JPG, 88 KB)
- 1250 x 750 px, (JPG, 264 KB)
- 2500 x 1500 px, (JPG, 748 KB)
- 5000 x 3000 px, (JPG, 2.14 MB)
- KMZ, (KMZ, 6.53 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 39 KB)
- 625 x 375 px, (JPG, 75 KB)
- 1250 x 750 px, (JPG, 223 KB)
- 2500 x 1500 px, (JPG, 644 KB)
- 5000 x 3000 px, (JPG, 1.87 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 36 KB)
- 625 x 375 px, (JPG, 69 KB)
- 1250 x 750 px, (JPG, 207 KB)
- 2500 x 1500 px, (JPG, 597 KB)
- 5000 x 3000 px, (JPG, 1.75 MB)
- Product documentation



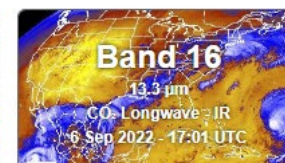
- Animation loops
- Download images
- 416 x 250 px, (JPG, 39 KB)
- 625 x 375 px, (JPG, 75 KB)
- 1250 x 750 px, (JPG, 225 KB)
- 2500 x 1500 px, (JPG, 644 KB)
- 5000 x 3000 px, (JPG, 1.86 MB)
- Animated GIF, (GIF, 8.11 MB)



- Animation loops
- Download images
- 416 x 250 px, (JPG, 39 KB)
- 625 x 375 px, (JPG, 78 KB)
- 1250 x 750 px, (JPG, 228 KB)
- 2500 x 1500 px, (JPG, 654 KB)
- 5000 x 3000 px, (JPG, 1.89 MB)
- Animated GIF, (GIF, 8.21 MB)



- Animation loops
- Download images
- 416 x 250 px, (JPG, 39 KB)
- 625 x 375 px, (JPG, 75 KB)
- 1250 x 750 px, (JPG, 224 KB)
- 2500 x 1500 px, (JPG, 642 KB)
- 5000 x 3000 px, (JPG, 1.85 MB)
- Product documentation



- Animation loops
- Download images
- 416 x 250 px, (JPG, 43 KB)
- 625 x 375 px, (JPG, 84 KB)
- 1250 x 750 px, (JPG, 256 KB)
- 2500 x 1500 px, (JPG, 747 KB)
- 5000 x 3000 px, (JPG, 2.23 MB)
- KMZ, (KMZ, 6.4 MB)

Data/products currently available from NOAA CLASS:
<https://www.class.noaa.gov/>



ProxyVis is currently an experimental product that includes full-disk GOES, Meteosat, and Himawari data adjusted to visible band imagery.

Primary use is currently within the Ocean community, Land applications are under consideration.

The screenshot shows the RAMMB website interface. At the top, the RAMMB logo is on the left, and the CIRA logo is on the right. The main navigation bar includes links for Home, Real-Time Data, Research Projects, Training/Outreach, and Resources. The page title is "Regional and Mesoscale Meteorology Branch".

The main content area is titled "GeoRing ProxyVis Imagery". It includes a description: "GeoRing ProxyVis imagery combines several IR channels to mimic visible imagery at night" and "ProxyVis imagery is generated in real-time:". Below this is a list of locations where the imagery is available:

- locally at CIRA and is available on SLIDER - <https://rammb-slider.cira.colostate.edu/> for GOES-16, GOES-17, GOES-18 (Non Operational), Himawari, Meteosat-11, and Meteosat-9
- operationally at some NWS centers via TOWR-S ISATSS
- at NRL GeolPS, available to operational users at NHC, CPHC, JTWC via ATCF

Below the text is a grid of satellite imagery. The top row shows five satellite images labeled "Meteosat-11", "Himawari", "GOES-17/18", "GOES-16", and "Meteosat-9". The bottom row shows five corresponding "ProxyVis" images. The ProxyVis images appear as visible light images, similar to the top row but with a different visual style.

On the left side of the page, there is a sidebar menu with the following sections:

- Toggle Navigation
- Tropical Cyclones
- Current Research:
 - US Navy
- Products & Data:
 - TC Real-Time
 - TC Genesis
 - Tropical RAMSDIS
 - Extended Best Track
 - IR Image Archive
 - SHIPS
 - TC-PRIMED
- Documentation:
 - Refereed Publications
 - Archive of NHRP Reports

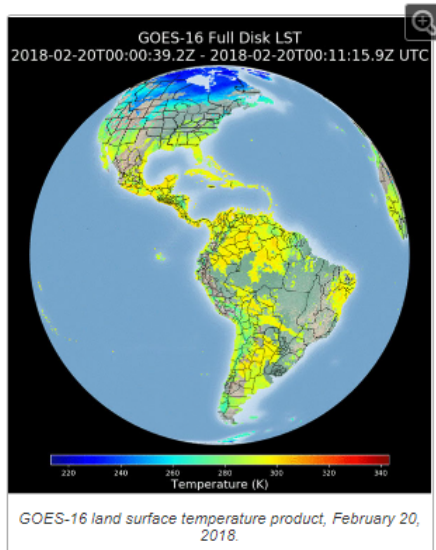
NOAA's Weather and Climate Toolkit

Imagery and data/products are currently available from GOES-16 and GOES-17. Products include most of GOES standard land products including Land Surface Albedo and Land Surface Temperature:

DATA PRODUCTS: LAND SURFACE TEMPERATURE (SKIN)

[Download product algorithm theoretical basis document \(ATBD\)](#)

The land surface temperature (LST) product is derived from GOES-R ABI longwave infrared spectral channels and is expected to be used in a number of applications in hydrology, meteorology, and climatology. Forecasters use it to forecast the occurrence of fog and frost. The land surface product is of fundamental importance to the net radiation budget at the Earth's surface and to monitoring the state of crops and vegetation. It is an important indicator of both the greenhouse effect and the energy flux between the atmosphere and ground. Furthermore, it can be assimilated into climate, atmospheric, and land surface models to estimate sensible heat flux and latent heat flux.



NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DOC > NOAA > NESDIS > NCEI

Search Field:

Search NCEI

NOAA's Weather and Climate Toolkit

Introduction

NOAA's Weather and Climate Toolkit (WCT) is free, platform independent software distributed from NOAA's National Centers for Environmental Information (NCEI). The WCT allows the visualization and data export of weather and climate data, including Radar, Satellite and Model data. The WCT also provides access to weather/climate web services provided from NCEI and other organizations.

The WCT provides tools for background maps, animations and basic filtering. The export of images and movies is provided in multiple formats. The data export feature supports conversion of data to a variety of common formats including GeoJSON, KMZ, Shapefile, Well-Known Text, GeoTIFF, ESRI Grid and Gridded NetCDF. These data export features promote the interoperability of weather and climate information with various scientific communities and common software packages such as ArcGIS, Google Earth, MatLAB, QGIS, R and many more. Advanced data export support for Google Earth enables the 2-D and 3D export of rendered data and isosurfaces.

Current data types supported:

- CF-compliant Gridded NetCDF
- Generic CF-compliant Irregularly-Spaced/Curvilinear Gridded NetCDF/HDF
- GRIB1, GRIB2, GINI, GEMPAK, HDF (CF-compliant) and more gridded formats
- GOES Satellite AREA Files
- NEXRAD Radar Data (Level-II and Level-III)
- U.S. Drought Monitor Service (from the National Drought Mitigation Center (NDMC))
- OPeNDAP support for Gridded Datasets

[Download / Launch](#)

Quick Links

[Weather and Climate Toolkit Home](#)

Data Access:

- Station
- Radar
- Satellite
- Model
- Severe Weather

Toolkit

[Download/Installation](#)
[Find Data](#)
[Image Gallery](#)
[Java Requirements](#)
[Export Formats](#)
[Batch Processing](#)
[Credits](#)
[API / Source Code](#)

Documentation

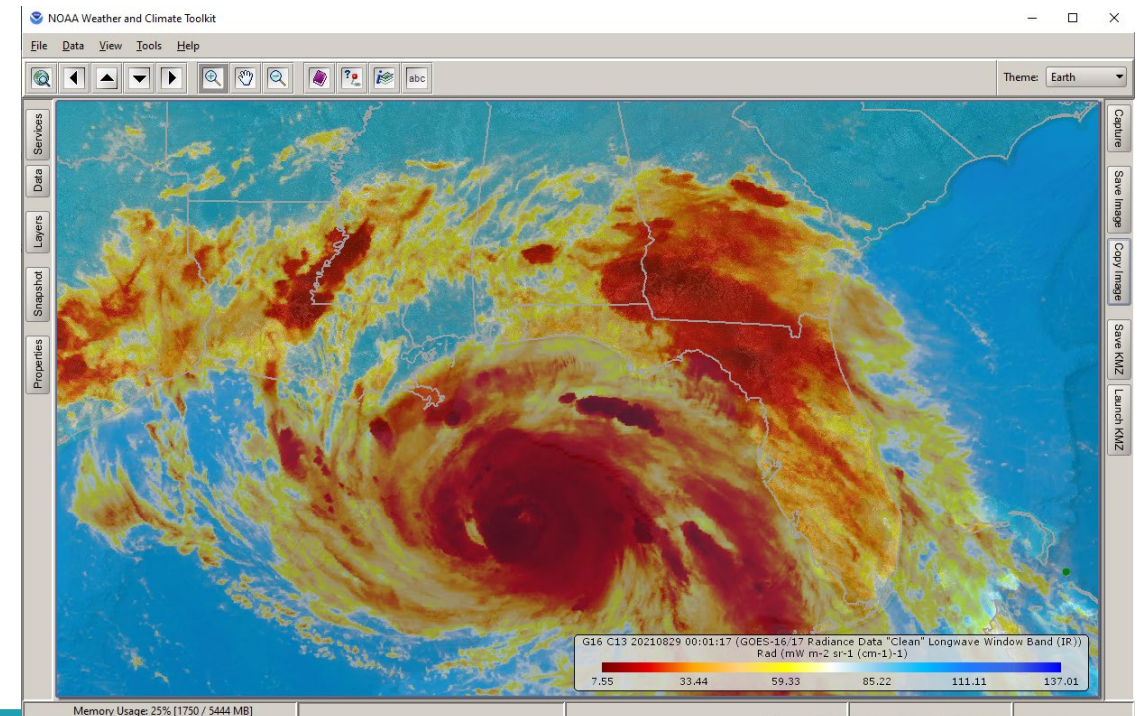
[User Guide/Tutorials](#)
[FAQ](#)
[Presentations](#)

[New Features](#) / [FAQ](#) / [Tutorials](#)

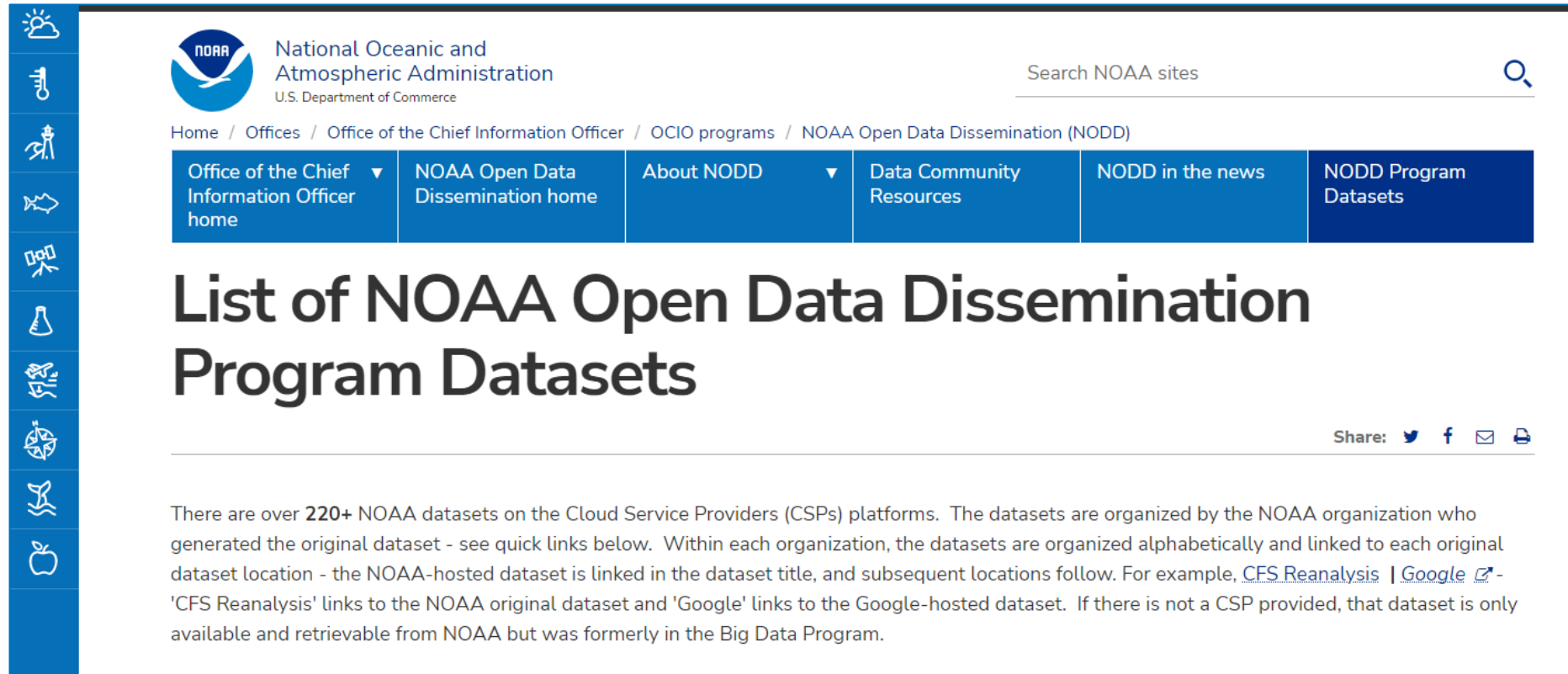


NOAA Weather and Climate Toolkit

- Software from NOAA-NCEI to visualize and transform weather and climate data into common web and GIS-ready formats.
- Desktop software that runs on Windows, Mac and Linux, including interactive maps and command-line tools allow users to automate data processing.
- Supports common formats including:
 - NetCDF, GRIB, AREA, GeoTIFF (only 32 bit float), including local or remote data.
- Direct access to GOES data on the NOAA Open Data Dissemination cloud storage, and historical GOES data from CLASS orders.



Links to NOAA satellite (and other) datasets available through cloud services are under development.

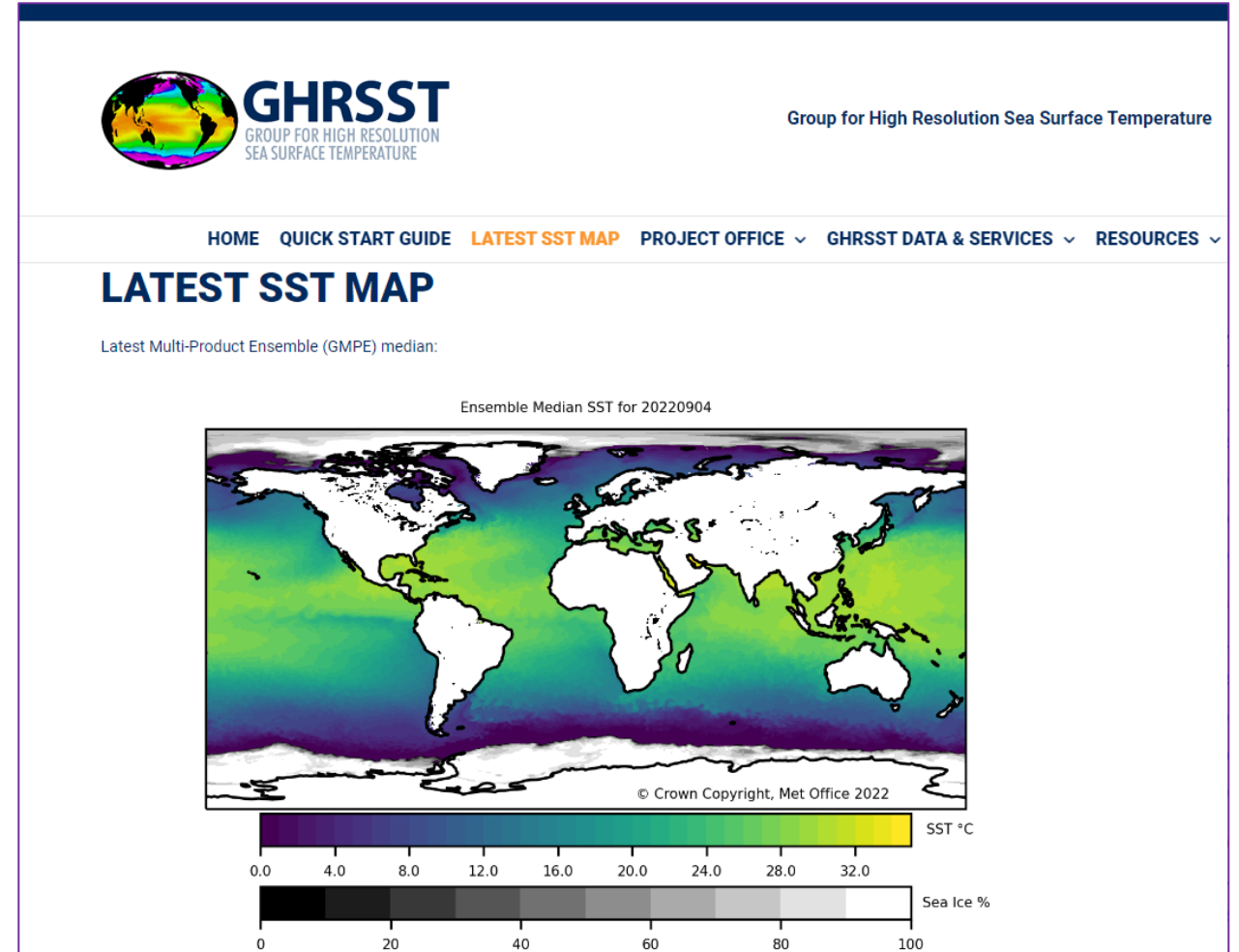


The screenshot shows the NOAA website header with the NOAA logo and 'National Oceanic and Atmospheric Administration U.S. Department of Commerce'. A search bar is located in the top right. Below the header is a navigation menu with links: 'Office of the Chief Information Officer home', 'NOAA Open Data Dissemination home', 'About NODD', 'Data Community Resources', 'NODD in the news', and 'NODD Program Datasets'. The main heading is 'List of NOAA Open Data Dissemination Program Datasets'. Below the heading is a 'Share:' section with icons for Twitter, Facebook, Email, and Print. The main text states: 'There are over 220+ NOAA datasets on the Cloud Service Providers (CSPs) platforms. The datasets are organized by the NOAA organization who generated the original dataset - see quick links below. Within each organization, the datasets are organized alphabetically and linked to each original dataset location - the NOAA-hosted dataset is linked in the dataset title, and subsequent locations follow. For example, [CFS Reanalysis](#) | [Google](#) - 'CFS Reanalysis' links to the NOAA original dataset and 'Google' links to the Google-hosted dataset. If there is not a CSP provided, that dataset is only available and retrievable from NOAA but was formerly in the Big Data Program.'



Analysis Ready Data

NOAA is a participant in the Group for High Resolution SST (GHRSSST) and SST-VC efforts that include plans to submit several datasets and associated PFS for consideration of ARD compliance. This initial participation by NOAA may help chart a path for additional NOAA product submissions in the future.



JPSS-2 Launch planned for 1 November 2022

Similar to the instruments included on Suomi NPP and NOAA-20 (JPSS-1), JPSS-2 includes:

- Advanced Technology Microwave Sounder (ATMS),
- Cross-track Infrared Sounder (CrIS),
- Visible Infrared Imaging Radiometer Suite (VIIRS), and the
- Ozone Mapping and Profiler Suite (OMPS).

Planned ECT: 1330 local time

JPSS
Joint Polar Satellite System

Data from JPSS are used by NOAA's National Weather Service to forecast weather 3 to 7 days in advance.

What is JPSS?
Every day and every night, polar-orbiting satellites circle the Earth many times, collecting data that feed weather forecasts and help us understand extreme weather and climate change. These advanced weather satellites make up NOAA's Joint Polar Satellite System, which will monitor the Earth into the 2030s.

JPSS-2, launching in 2022, will be followed by JPSS-3 and JPSS-4.

JPSS satellites help scientists across the world study our planet. Their data help scientists forecast severe weather events such as blizzards, hurricanes, tornadoes and wildfires. These weather forecasts alert us when to bring an umbrella, apply sunscreen, or prepare for a storm.

Instrument Measures and detects...

ATMS	Advanced Technology Microwave Sounder	
OMPS	Ozone Mapping and Profiler Suite	
CrIS	Cross-track Infrared Sounder	
VIIRS	Visible Infrared Imaging Radiometer Suite	

Where is JPSS Built and Launched?
JPSS satellites aren't built in just one place.

The spacecraft bus (the satellite's main body) and four instruments are built in Indiana, Colorado, and California. When all the pieces are built, they are put together and tested in Arizona. After the engineers test the satellite to make sure all the parts work properly together, it is shipped to California for launch.

JPSS-2 will launch from Vandenberg Space Force Base in California on an Atlas V rocket. The satellite needs to launch from the West Coast in order to get into the right position for a polar orbit.

How Big is JPSS?
JPSS-2 is about the size of a sedan at 14 feet by 7 feet, and it weighs 5,750 pounds.

It is powered by solar panels that harness the Sun's energy. Its length stretches to 35 feet when its solar array is deployed.

LAUNCH
Vandenberg SFB, CA

ASSEMBLY
Gilbert, AZ

ATMS
Azusa, CA

VIIRS
El Segundo, CA

OMPS
Boulder, CO

CrIS
Fort Wayne, IN

