National Aeronautics and Space Administration

EARTHDATA

NASA’s Worldview, GIBS, and LANCE - Supporting Time Critical Monitoring

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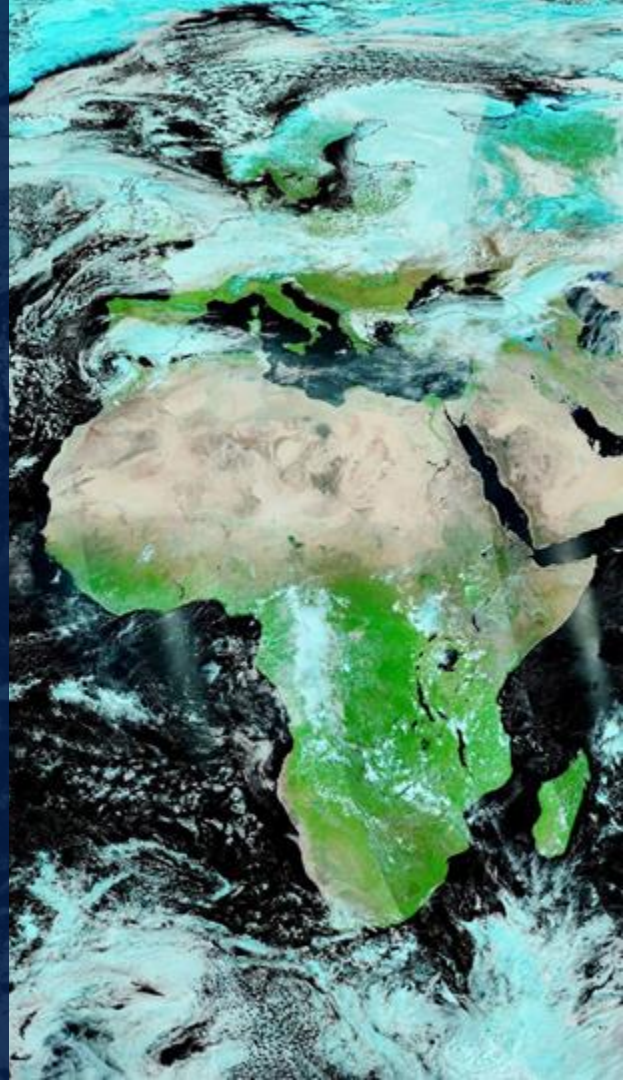
Topics

- What is Worldview, GIBS, and LANCE?
- What makes us unique
- Worldview Demos and Examples
- Future Plans

Worldview, GIBS and LANCE

How the three work together to bring you the latest imagery visualizations!



Land, Atmosphere Near real-time Capability for Earth observations (LANCE)

- Virtual system supports users monitoring a variety of natural and human-created phenomena using near real-time (NRT) data and imagery; available much quicker than routine processing allows.
- Provides NRT data within 3 hours of satellite observation; imagery generally available 3-5 hours after observation through Worldview and GIBS.
- Provides NRT data and imagery from 11 sensors on 10 satellites: AIRS, AMSR2, ATLAS (ICESat-2), MLS, MODIS, MOPITT, OMI, OMPS, SMAP, and VIIRS.

earthdata.nasa.gov/lance

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Global Imagery Browse Services (GIBS)

Standardized web services that provide fast and open access to 1000+ global, full-resolution visualizations of NASA Earth Science observations, many products (~200) are available within 3-5 hours after being observed.

- Access via Web Map Tile Service (WMTS), Tiled Web Map Service (TWMS), Web Map Service (WMS), Geospatial Data Abstraction Library (GDAL)
- Imagery in 4 projections: Geographic/Equirectangular (EPSG:4326), Web Mercator (EPSG: 3857), Arctic Polar Stereographic (EPSG:3413), Antarctic Polar Stereographic (EPSG: 3031)

earthdata.nasa.gov/gibs

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Worldview

Open source web mapping application for users to interactively browse 1000+ NASA's global satellite imagery visualizations within hours of it being acquired, as well as imagery from the past few decades.
Provides linkages to download data products via Earthdata Search.

worldview.earthdata.nasa.gov

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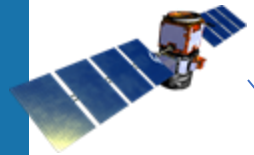
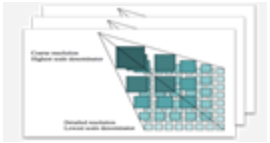
A part of NASA's Earth Science Data and Information System (ESDIS)

ESDIS is responsible for processing, archiving and disseminating NASA's vast collection of data from Earth observing satellite, airborne, and ground based missions, as well as socio-economic data - over 100 petabytes!



Data

Imagery



ESDIS (DAACs, SIPS, NRT through **LANCE**)

earthdata.nasa.gov

GIBS

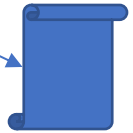
Archive/ API

Worldview

Web & mobile clients

FIRMS

GIS Clients



Scripts/Utilities

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What makes Worldview and GIBS unique

- Responsive: Fast maps enable highly interactive usage through time and space (<50ms per request)
- Scalable: 100K daily GIBS users with minimal infrastructure
- Quality and quantity of products:
  - Large catalog (1000+) which can be viewed within the same interface
  - Many available in near real-time through LANCE
  - Imagery providers take care to craft product for end users
- Easy-to-use interface including storytelling capabilities
- Software stack is open source

Worldview and GIBS provide data visualizations, not the original / full-precision data.

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Worldview Demos

- Basics of Worldview
- Examples
  - Floods
  - Volcanoes
  - Fires
  - Air Quality

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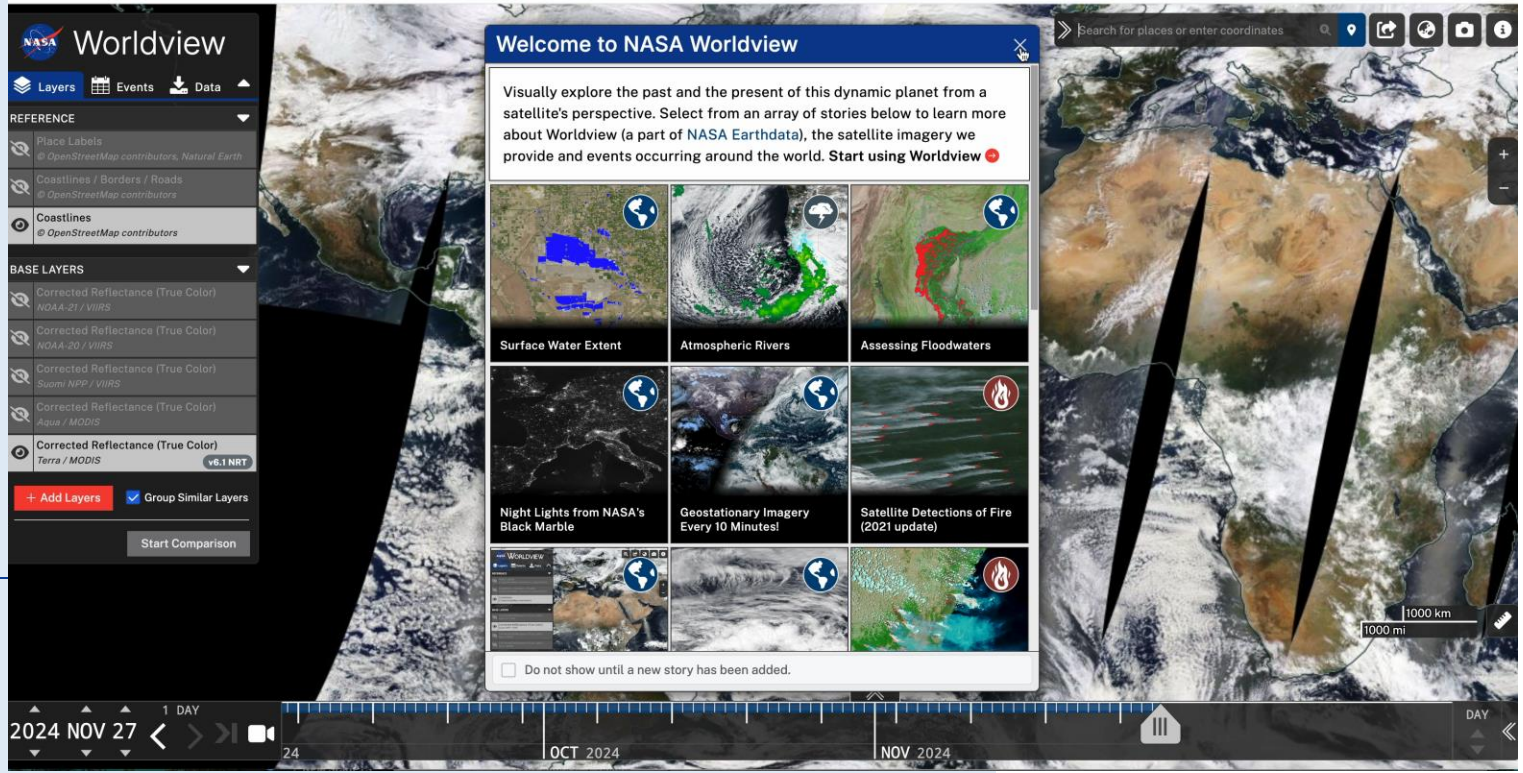
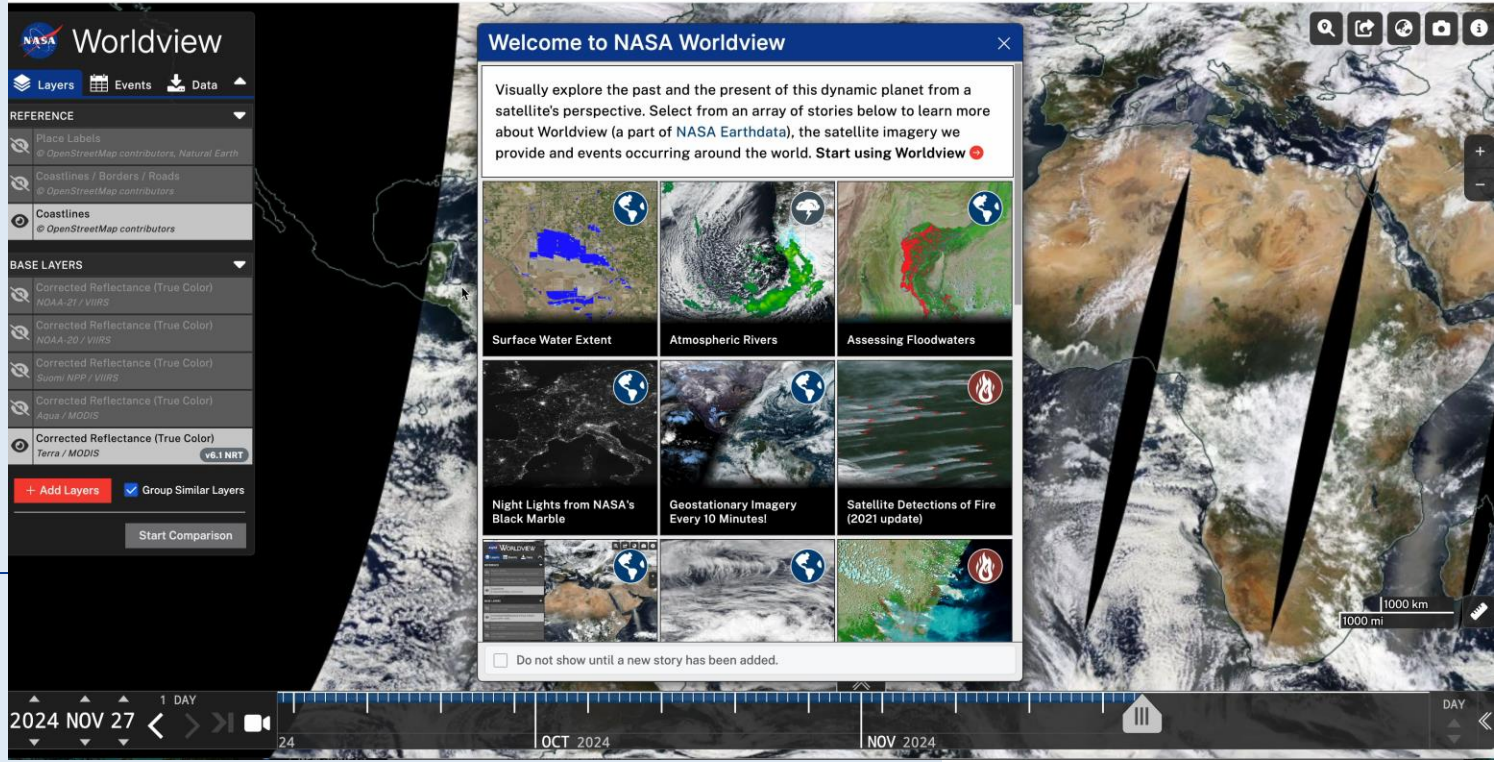
https://worldview.earthdata.nasa.gov

Basics of Worldview



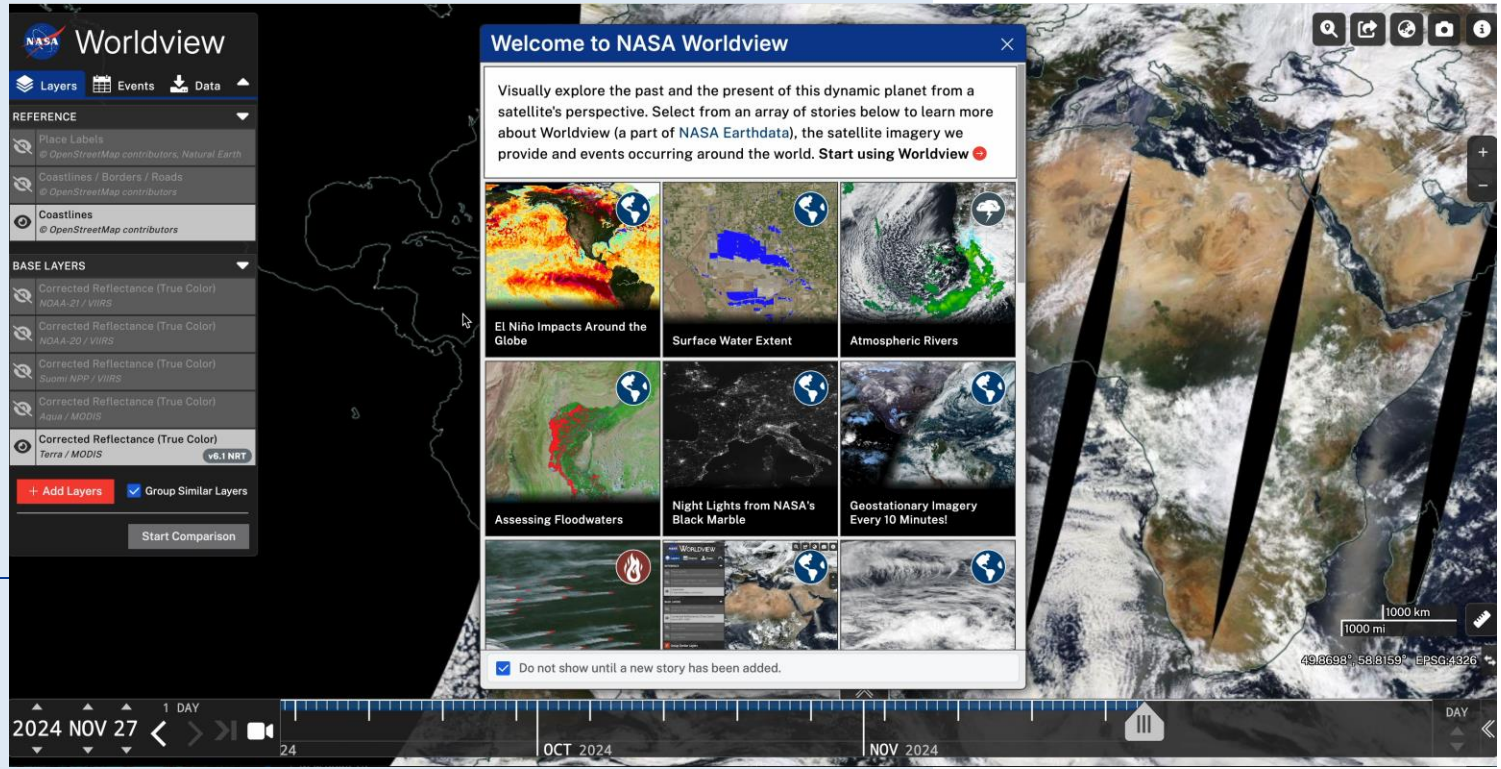
https://worldview.earthdata.nasa.gov

Basics: Natural Events



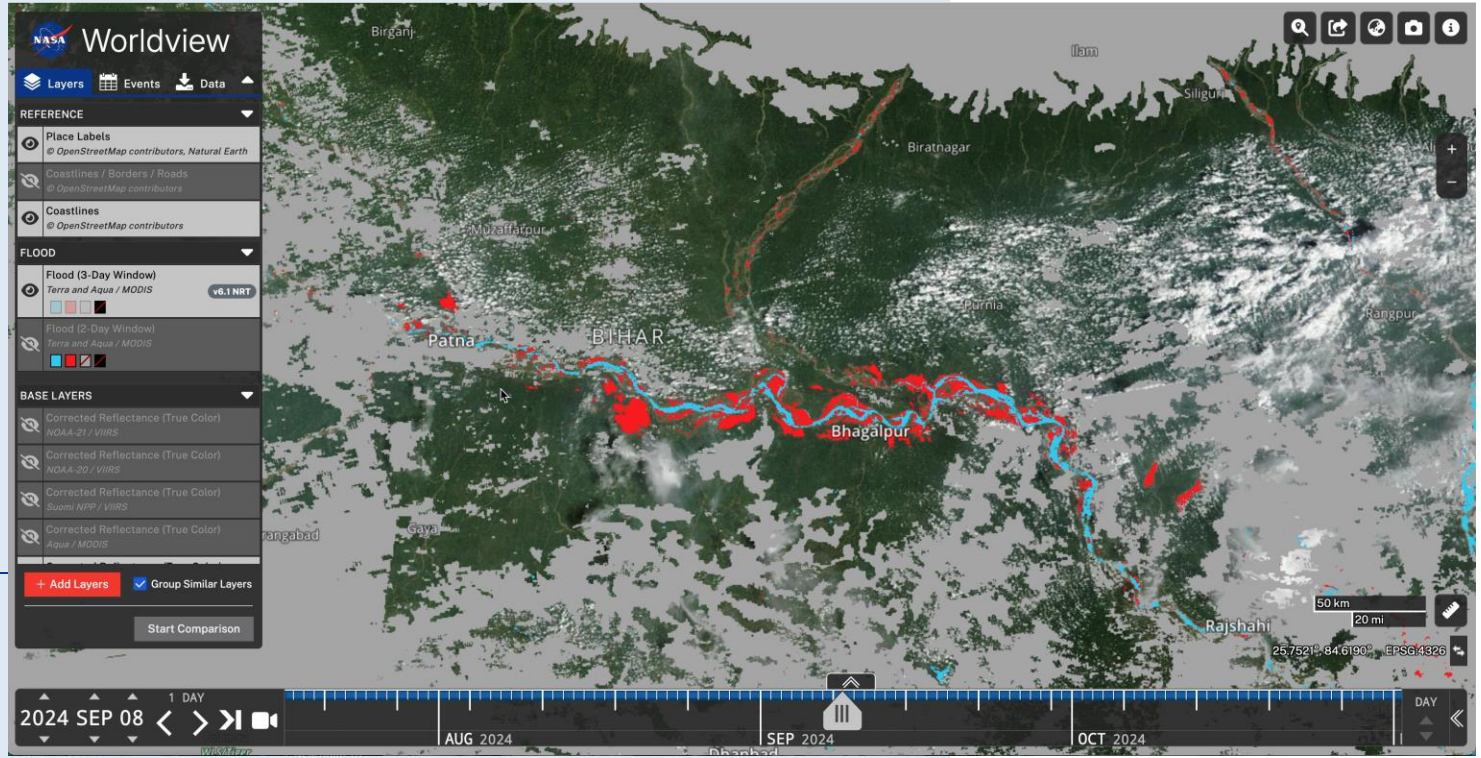
https://worldview.earthdata.nasa.gov

Basics: Tour Stories and Data Download



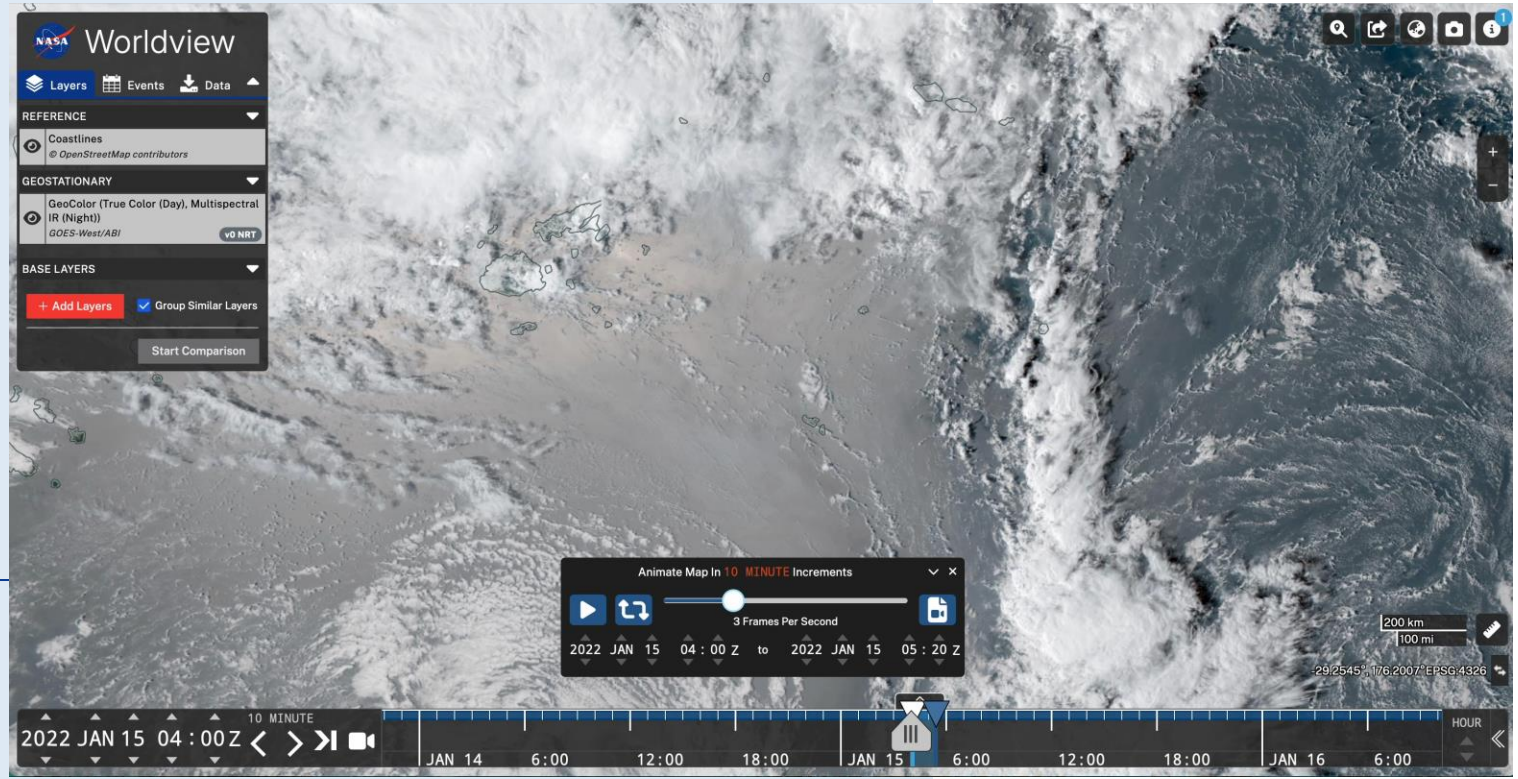
https://worldview.earthdata.nasa.gov

Floods



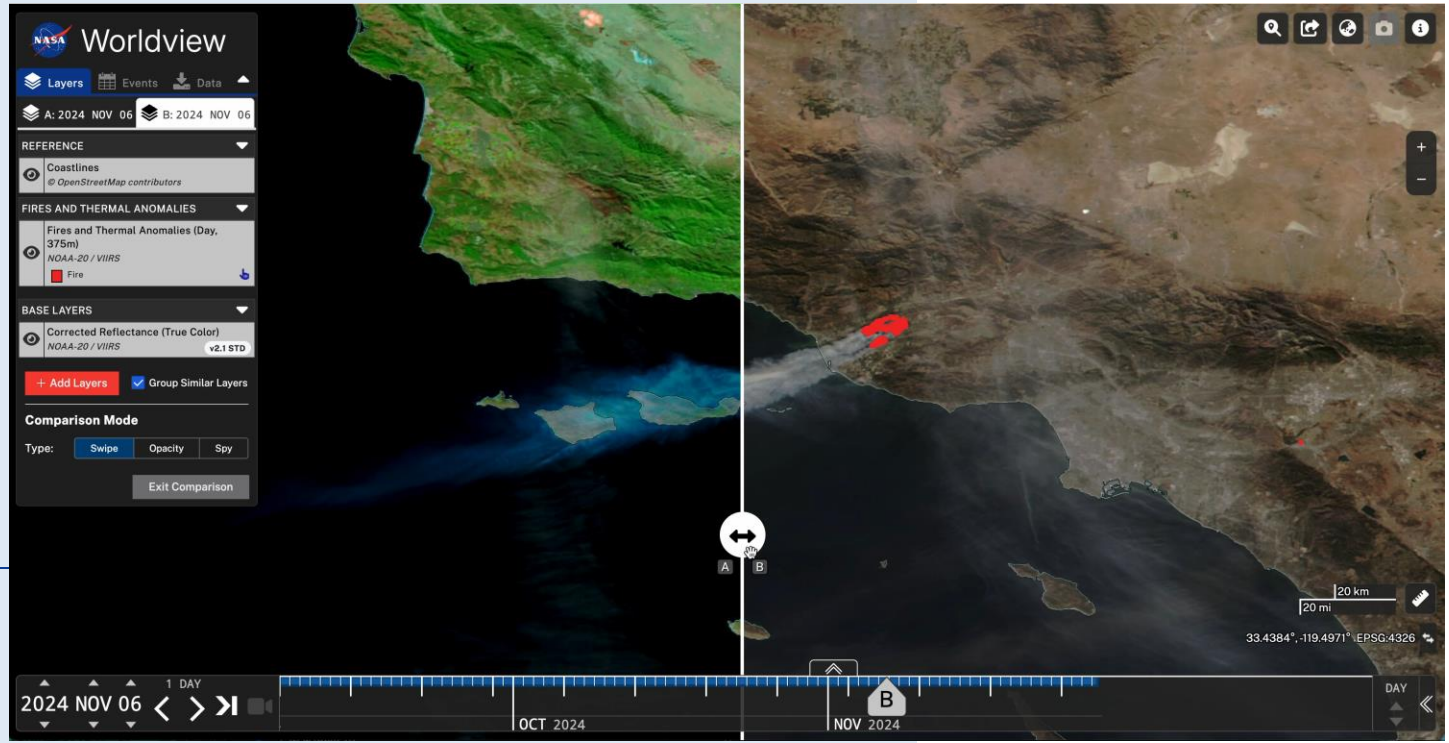
Seasonal flooding along the Ganges River in Bihar, India, September 2024, identified in NASA's MODIS NRT Global Flood Product. https://go.nasa.gov/416zhlu

Volcanoes



Eruption of Hunga Tonga - Hunga Ha'apai Volcano https://go.nasa.gov/3pHf0Ff

Fires



Mountain Fire, Ventura County, California. Image captured on Nov 6, 2024, by the VIIRS instrument aboard the NOAA-20 satellite. https://go.nasa.gov/3ZpA7i9

Air Quality

EARTHDATA Data Topics Learn Centers Engage About News & Events

Home / News / Worldview Image of The Week / Smog Over Pakistan

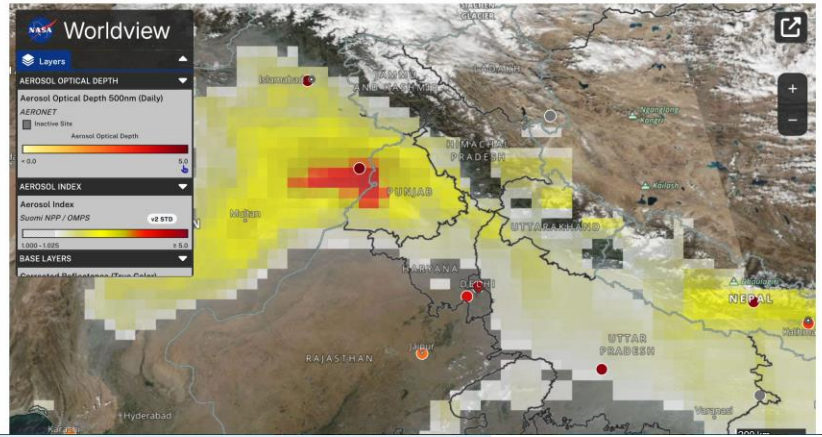
Smog over Pakistan

Base corrected reflectance image acquired on Nov 12, 2024, with aerosol index overlaid with ground-based aerosol optical depth measurements.

2 MIN READ

NOV 14, 2024

WORLDVIEW IMAGE OF THE WEEK



Embedded Worldview showing smog over Pakistan on November 12, 2024
https://earthdata.nasa.gov/news/worldview-image-archive/smog-over-pakistan

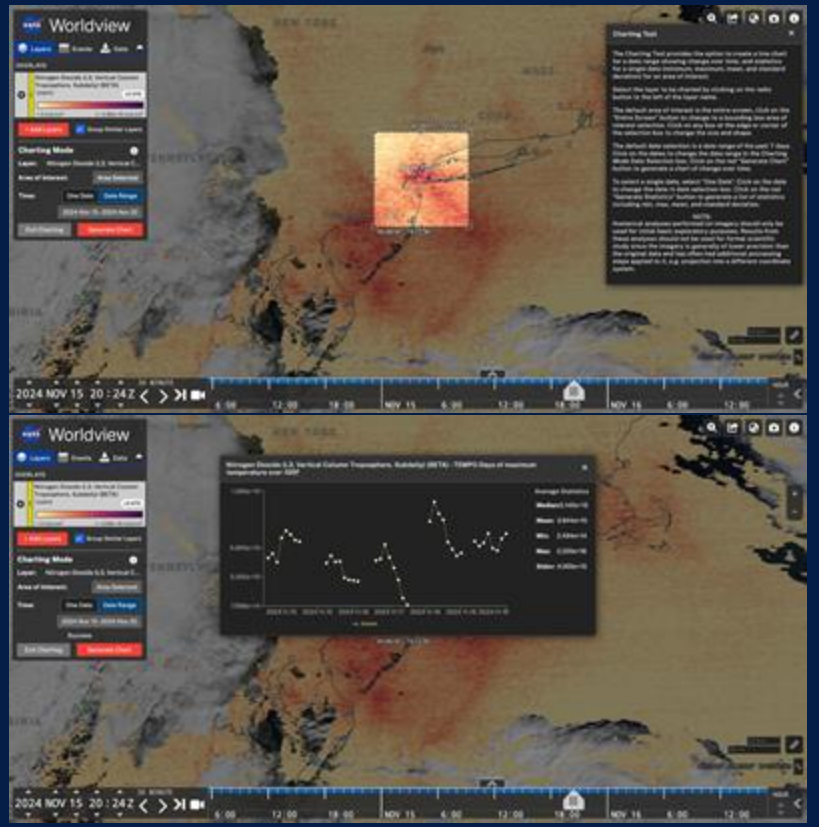
Future Plans

- Charting Tool
- Vector Flow Visualizations

Near term: Charting Tool

Allows users to perform initial, basic exploration of imagery visualization values (for palette visualization layers) via two options:

- Showing change over time with a line chart for a date range for an area of interest and basic average statistics (minimum, maximum, mean, and standard deviation)
- Basic statistics for a single date for an area of interest.



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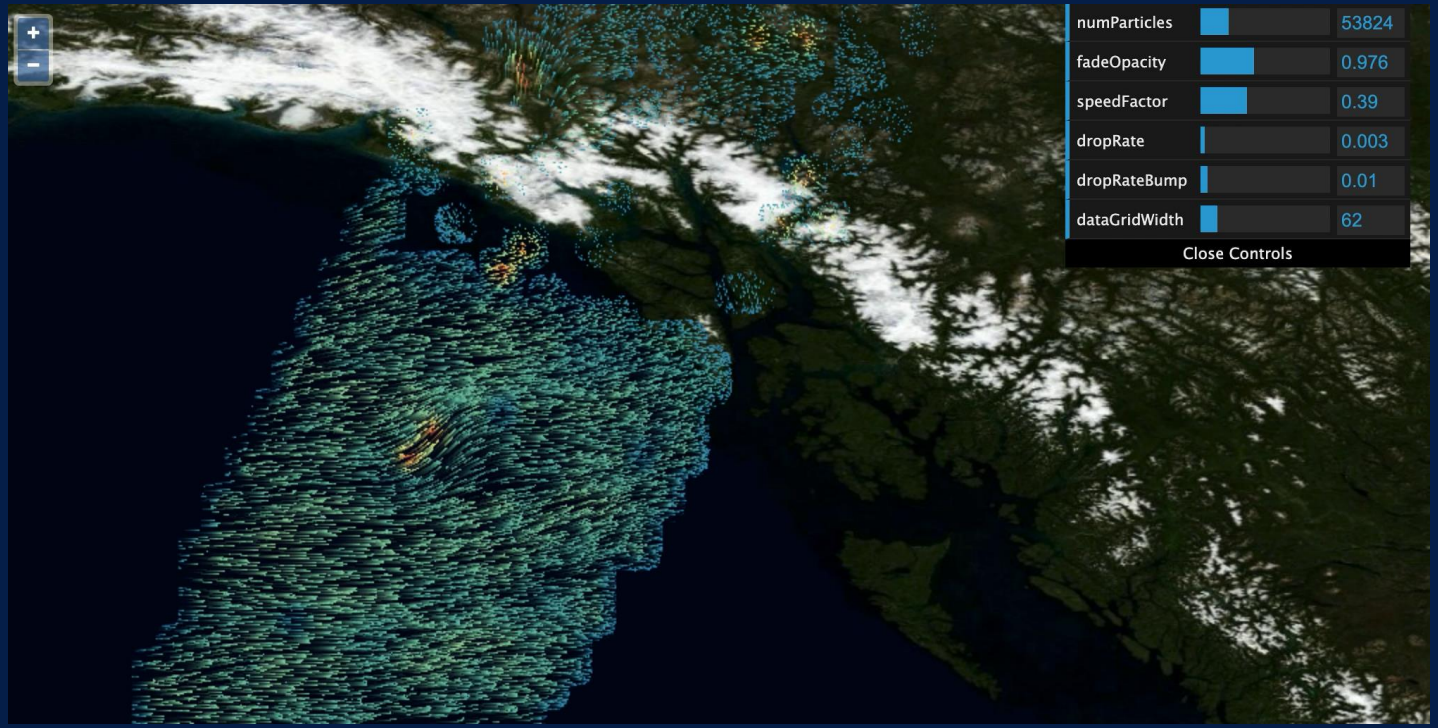
Mid-term: Vector Flow Visualizations



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Visit Us!

Visit: worldview.earthdata.nasa.gov
Contribute: github.com/nasa-gibs/worldview
Bring imagery into your own web application or GIS client: earthdata.nasa.gov/gibs
Learn more about near-real data: earthdata.nasa.gov/lance

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Backup

- Notable Features of Worldview
- Metrics
  - Unique User IPs accessing Worldview FY 2024
  - Most Requested Layers from Worldview in FY 2024

Notable Features of Worldview

Tour Stories: Learn how to use Worldview, how to visualize certain imagery layers, and explore interesting past natural events.

Layer Picker: Pick layers of interest from over 1000 imagery layers

Animation: Ability to create animations and export to animated GIFs

Comparison: Allows users to compare imagery side by side

Share and Embed: Allows users to embed Worldview onto their own webpage

Events: Provides a curated listing of events provided through the Earth Observatory Natural Event Tracker (EONET)

Data Download: Download source data via Earthdata Search

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Worldview Metrics

- Unique User IPs accessing Worldview FY 2024
- Most Requested Layers from Worldview in FY 2024

Image caption text goes here.

Metrics - Unique User IPs accessing Worldview FY2024

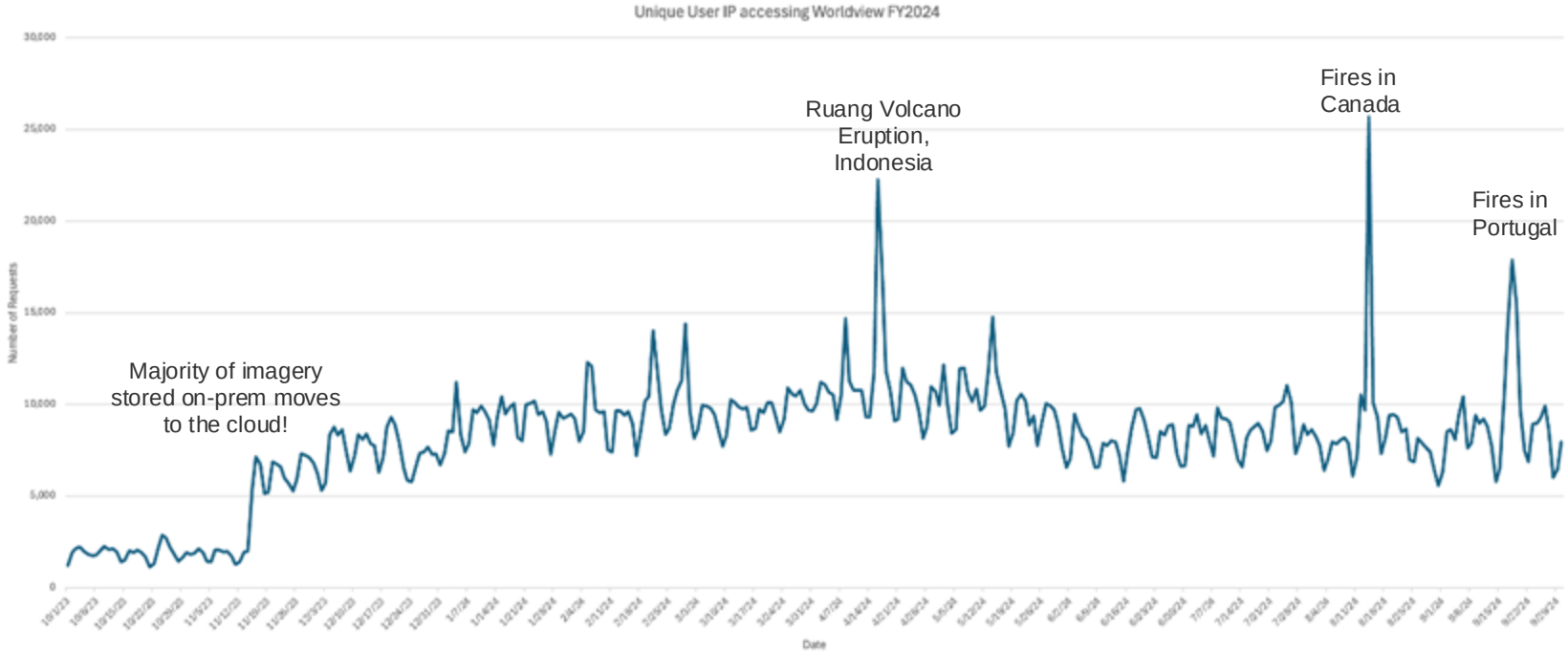

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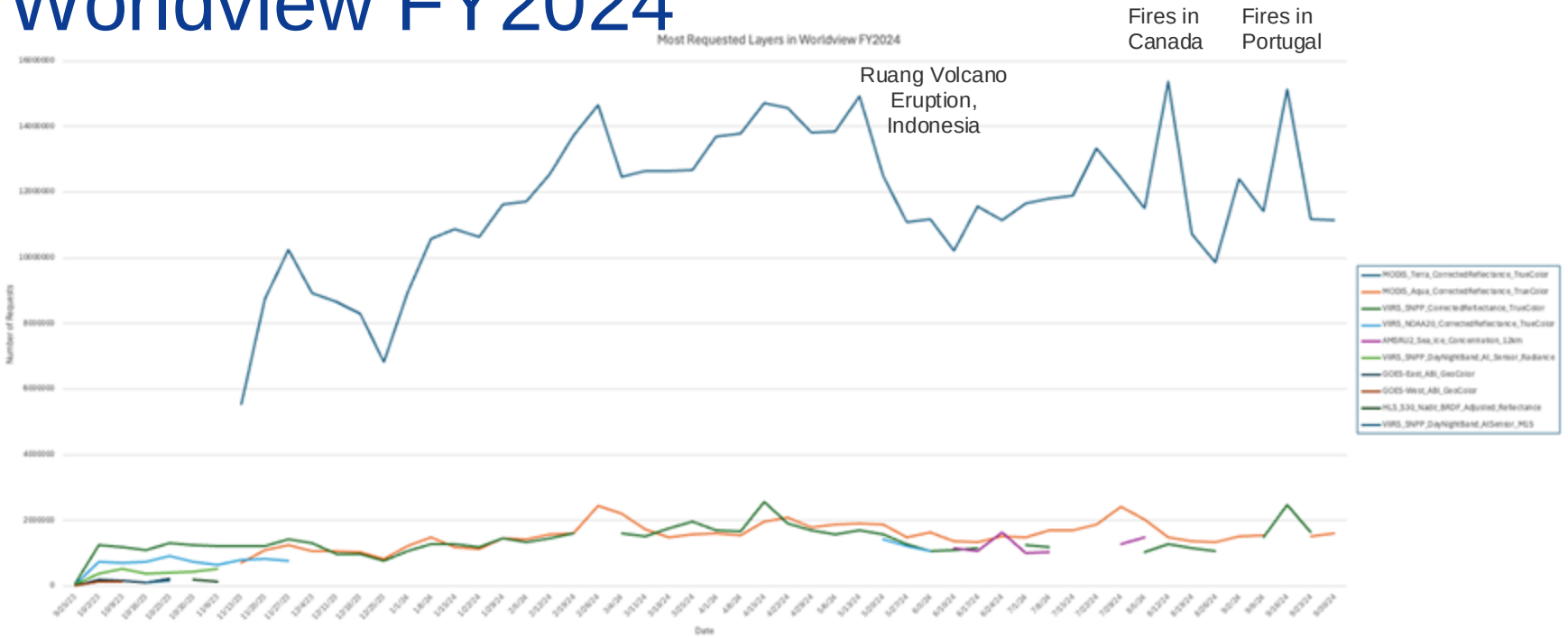
Chart from metrics.earthdata.nasa.gov

Metrics - Most Requested Layers in Worldview FY2024



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