

Rapidly Connecting You to the World: Improving NASA's Worldview to Enhance Discovery and Access to Near Real-Time Imagery

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Abstract The world around us is constantly in motion. Storms swirl, fires rage, volcanoes erupt and icebergs calve. NASA's fleet of Earth Observing System (EOS) satellites are there to capture this. Within hours of satellite overpass, NASA's Worldview (<https://worldview.earthdata.nasa.gov>) delivers this global, near-real time imagery through an interactive web map application. Provided through NASA's Land Atmosphere Near real-time Capability for EOS (LANCE) (<https://earthdata.nasa.gov/lance>) via NASA's Global Imagery Browse Services (GIBS) (<https://earthdata.nasa.gov/gibs>), the near real-time satellite imagery provides a launching point to discover where the latest wildfires, severe storms, volcanic eruptions, and calving ice shelves are happening. This poster will explore the newest near real-time satellite imagery and soon-to-be available imagery in Worldview, including imagery from geostationary satellites - GOES-East/West and Himawari-8. The poster will cover recent and future improvements to Worldview aimed to enhance the discovery and interaction with near real-time imagery and show how it is used by people from researchers, to meteorologists to the science-minded public around the world.

Metrics and Users

Spike in response to NASAEarthdata tweet and El Universal news article about fires in Southern Mexico affecting air quality in Mexico City (13 May)

Number of Worldview users from 11 November 2018 to 11 November 2019: Google Analytics 360

Metrics at a glance

	11 Nov 2017 – 11 Nov 2018	11 Nov 2018 – 11 Nov 2019	% increase
Users	731,587	1,055,252	44.24
Sessions	1,810,252	2,375,867	31.25
Average Session Duration	00:02:01	00:02:33	26.20

Number of Worldview visits by city from 11 Nov 2018 to 11 Nov 2019: Google Analytics 360

Top 5 Countries (11 Nov 2018 – 11 Nov 2019)

- United States
- Mexico
- Canada
- Saudi Arabia
- Russia

Near real-time (NRT) imagery added in the past year

Land, Atmosphere Near real-time Capability for EOS (LANCE) imagery

- Suomi-NPP/VIIRS: Deep Blue Angstrom Exponent, Deep Blue Aerosol Optical Thickness, Clear Sky Confidence.
- Terra & Aqua/MODIS, Multi-Angle Implementation of Atmospheric Correction (MAIAC): Reflectance (BRDF-Adjusted), Aerosol Optical Depth, Columnar Water Vapor, Isotropic Kernel Parameters (RTLS Model, 8-Day).
- AIRS Level 2: Carbon Dioxide Total Column, Carbon Monoxide (500hPa), Cloud Top Height, Dust Score, Methane (400hPa), Relative Humidity (500, 700 & 850hPa), Surface Relative Humidity, Surface Air Temperature, Sulfur Dioxide Brightness Temperature Difference, Surface Skin Temperature, Temperature (500, 700 & 850hPa), Total Cloud Fraction.
- AMSRU2 Snow Water Equivalent Daily, AMSRU2 Rain.
- JPSS-1 (NOAA-20)/VIIRS: Corrected Reflectance/Band-I5.

Other Near Real-Time imagery

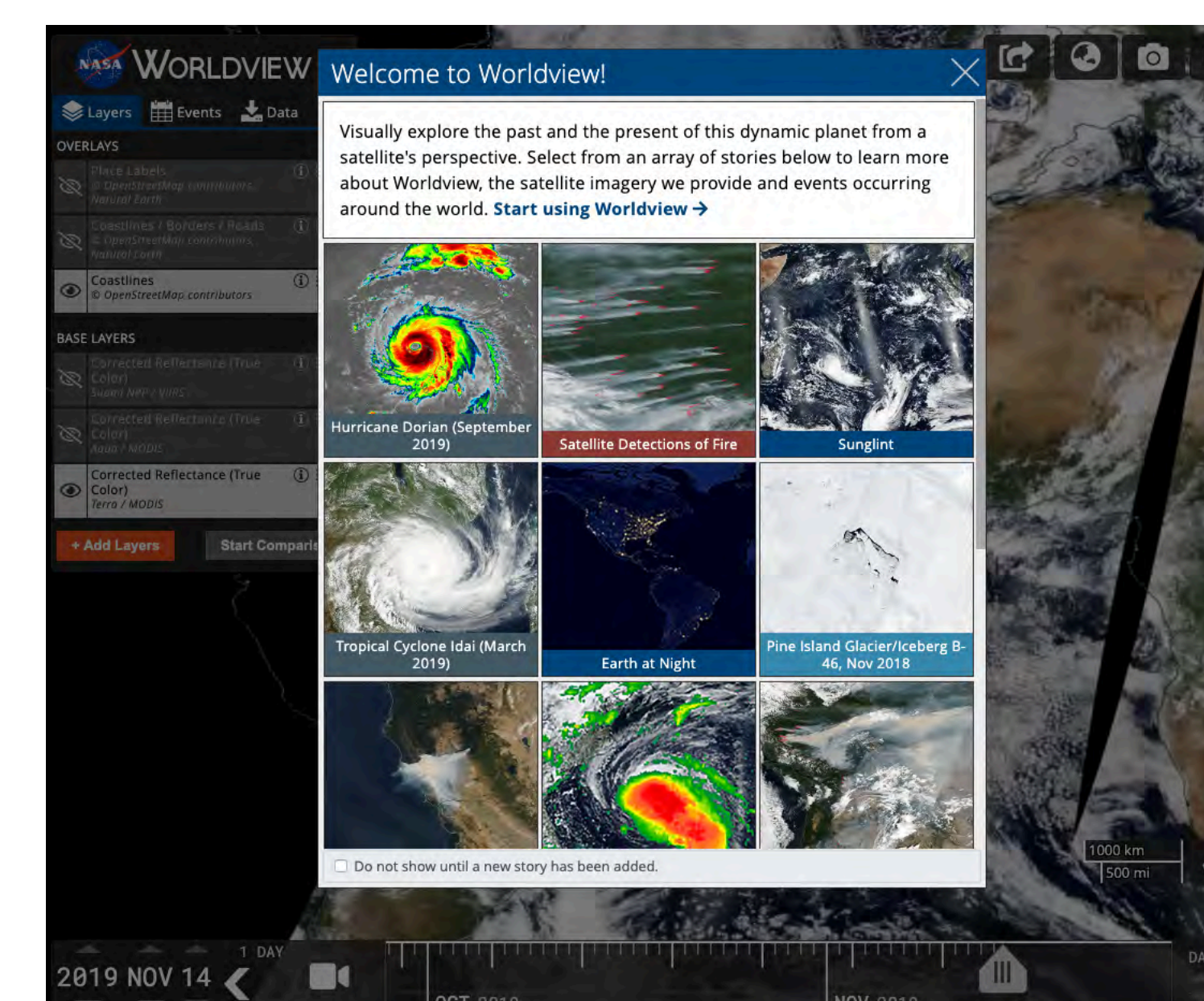
- IMERG Precipitation Rate from the Precipitation Processing System (PPS) at Goddard Space Flight Center.
- GOES-East, GOES-West (NOAA) and Himawari-8 (JAXA) Red Visible, Clean Infrared and Air Mass from the Short-term Prediction Research and Transition Center (SPoRT) at Marshall Space Flight Center.

What is NASA Worldview and GIBS?

Worldview and the Global Imagery Browse Services (GIBS) provide a **visual-first** approach to finding and using Earth observations.

- **Worldview** is a **web mapping application** - interactively browse NASA's global satellite imagery within hours of it being acquired. <http://worldview.earthdata.nasa.gov/>
- **GIBS** is a **set of services** - fast and open access to 900+ NASA imagery products for Worldview and any other applications via standards-based APIs. <https://earthdata.nasa.gov/gibs>
- Also available is **Worldview Snapshots** - a **lightweight tool** for creating image snapshots in a variety of file formats from a selection of popular NASA satellite imagery base layers and overlays. <https://wvs.earthdata.nasa.gov>

Recent Improvements



Story-based tours highlighting notable events, providing interesting information about the imagery, and showing tutorials on how to use Worldview.

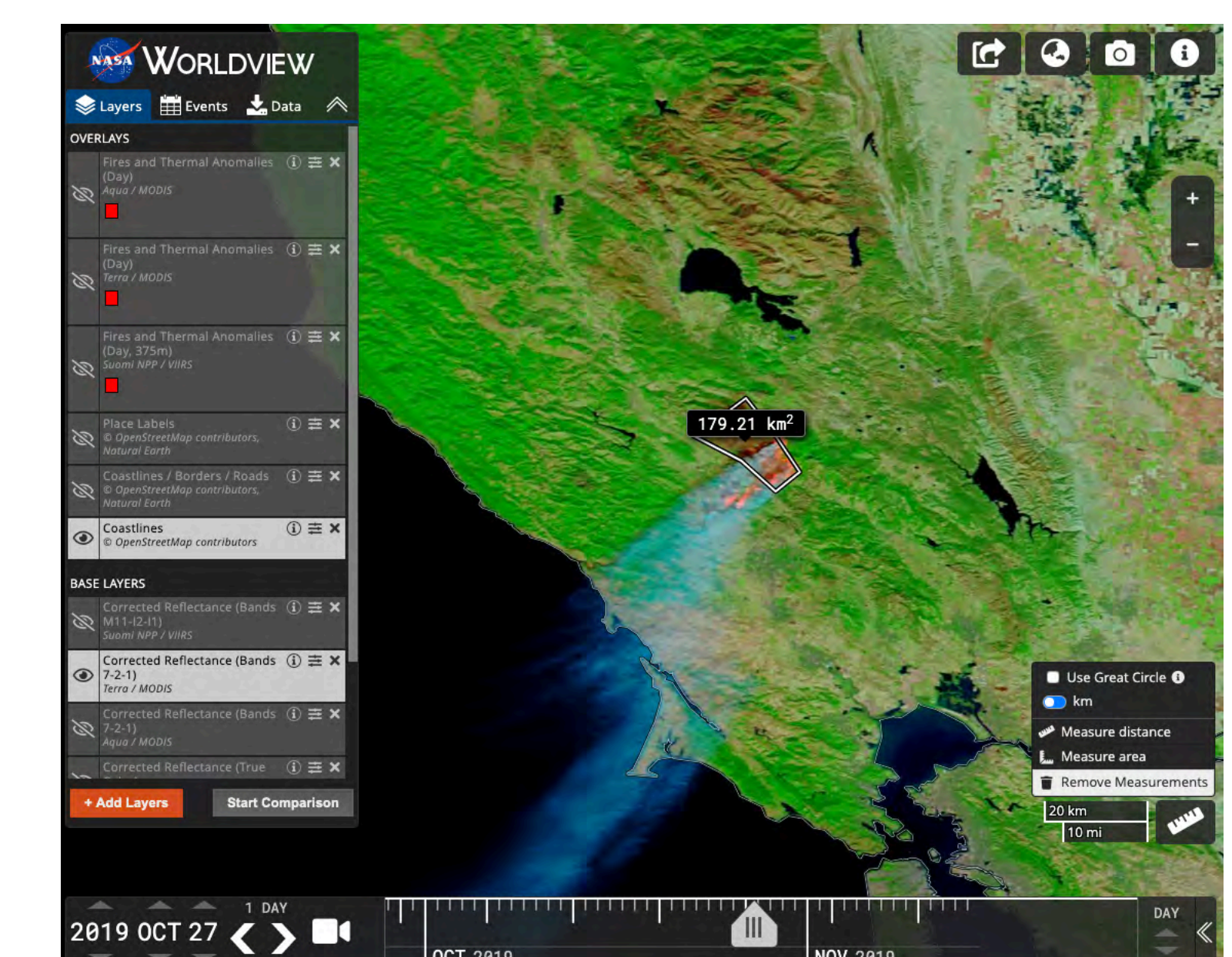


Added first batch of **vector layers**: Dams, Reservoirs and Nuclear Power Plants from SEDAC. Included enhanced capabilities for viewing vectors and provides the ability to investigate the vector layers' properties and attributes.

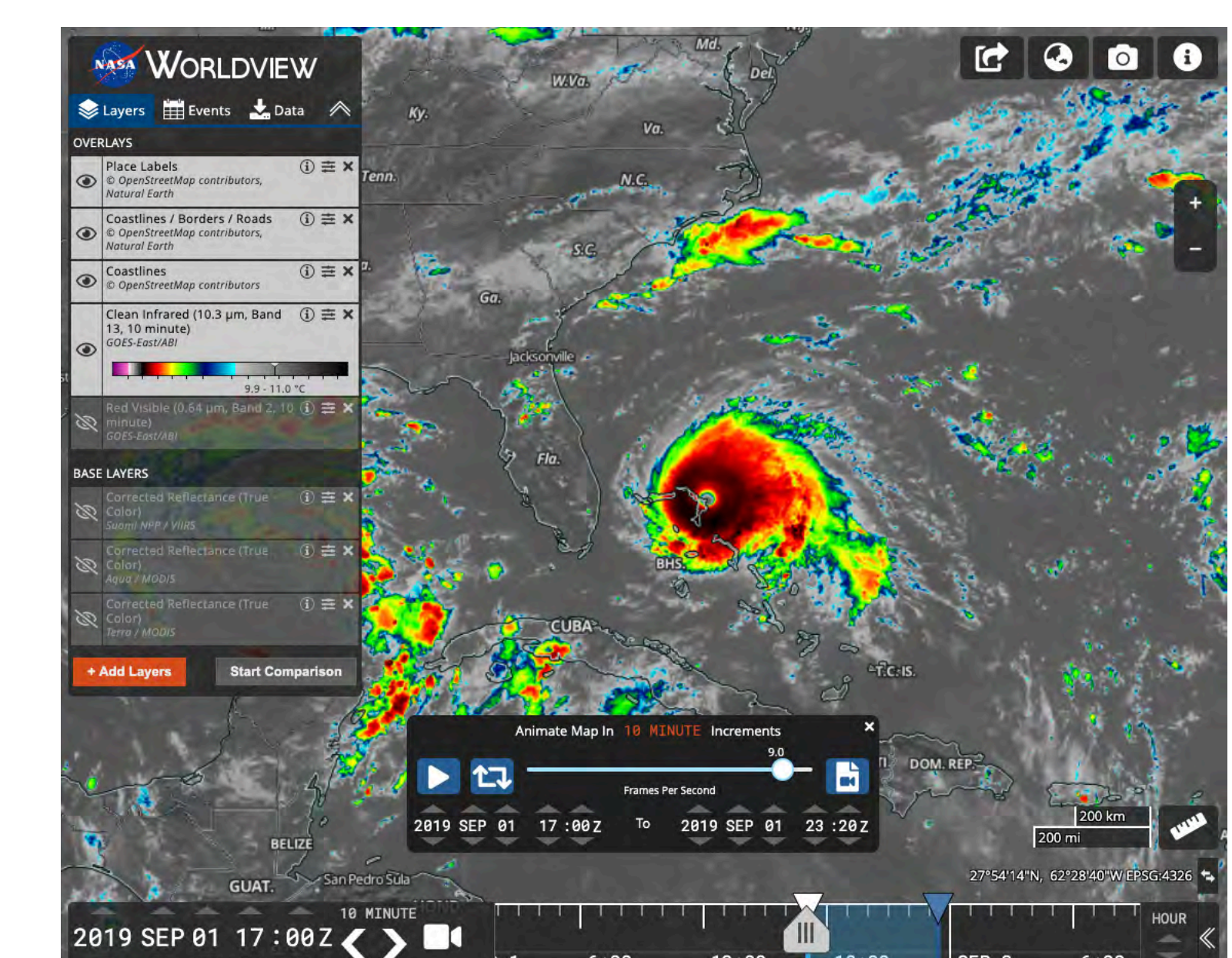
What's next?

- More vector layers with more interaction!
- Updates to the Layer Picker to enhance discoverability of over 900 imagery layers.
- Updates to the timeline to improve understanding of the temporal availability of the imagery.
- Granule/swath based imagery access.

Contact us at support@earthdata.nasa.gov for suggestions or comments!



Measurement tool - Measure distance or area, in either kilometers or miles and option to switch between normal or great circle measurements.



Geostationary imagery layers from GOES-East, GOES-West and Himawari-8 are available at ten minute increments for the last 30 days. These layers include Red Visible, which can be used for analyzing daytime clouds, fog, insolation, and winds; Clean Infrared, which provides cloud top temperature and information about precipitation; and Air Mass RGB, which enables the visualization of the differentiation between air mass types (e.g., dry air, moist air, etc.). These full disk hemispheric views allow for almost real-time viewing of changes occurring around most of the world.

worldview.earthdata.nasa.gov