

NASA provides the capability to deliver Near Real-time JPSS data to users in order to monitor time-sensitive applications such as wildfires, floods, volcanic eruptions, tropical cyclones and extreme weather events

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Abstract

NASA's Land, Atmosphere Near real-time Capability for EOS (LANCE <https://earthdata.nasa.gov/lance>) serves near real-time (NRT) data to monitor time-sensitive applications such as monitoring wildfires, floods, volcanic eruptions, tropical cyclones and extreme weather events. It currently serves data and imagery from the Visible Infrared Imager Radiometer Suite (VIIRS) and Ozone Mapping and Profiler Suite (OMPS) S-NPP instruments and is in the process of integrating continuity data products from VIIRS and OMPS onboard the Joint Polar Satellite System (JPSS), via the JPSS data Hub, to continue to meet the needs of agencies, scientists and members of the general public.

NASA's Earth Science Division (ESD) sponsored the EOSDIS development of LANCE in 2009 to provide a central point of access to high quality NRT data products and imagery for applications users. LANCE makes data available to the public within 3 hours of satellite observation and imagery within 4-5 hours of satellite observation. Full resolution browse imagery from LANCE are provided through the Global Imagery Browse Services (GIBS) which also fuels NASA's Worldview tool so that users can interactively browse near real-time data. This data supports time-critical applications and allows users to view current natural hazards and events and animate the imagery over time.

In November of 2017, the Joint Polar Satellite System (JPSS) project started making NOAA-20 data available to the ESDIS managed Science Data Segment (SDS) through the JPSS Block 2.0 architecture via the JPSS Stored Mission Data Hub (JSH). Through the JPSS JSH to SDS interface, the Level 0 data is made available from the SDS to LANCE nominally in under 2 hours from data observation. Using this feed, LANCE will provide the NRT continuity products described in this poster to the applications community enabling them access to critical data much sooner than routine processing allows. This paper will show the data flows and systems that enable the achievement of the latency.

LANCE also provides more than 100 near real-time data products created from data collected by sensors aboard NASA's orbiting Terra, Aqua, Aura, and Suomi National Polar-orbiting Partnership (S-NPP)

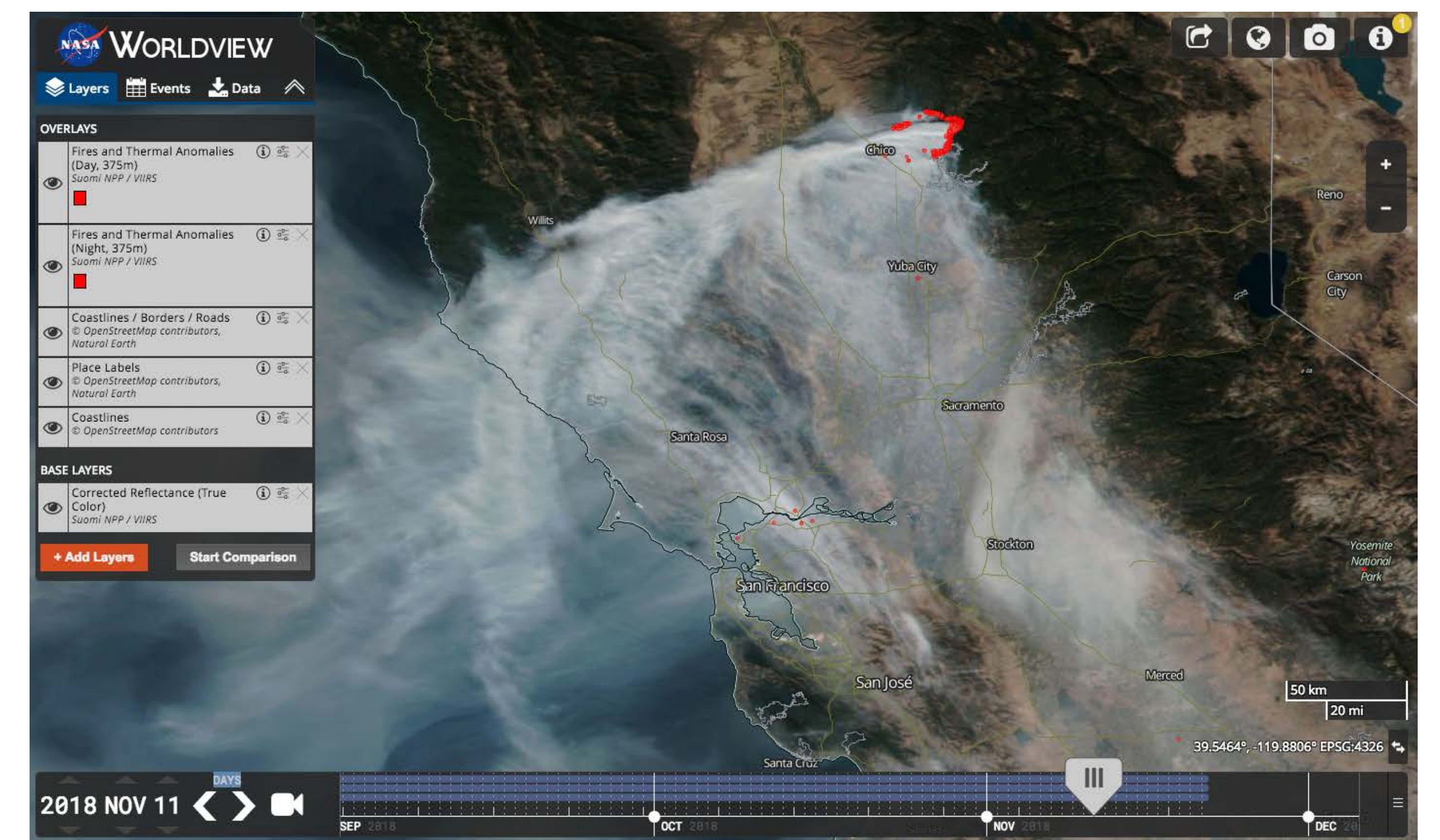
VIIRS and OMPS Continuity Products	
Ozone Mapping and Profiler Suite (OMPS)	Total Column Ozone and Aerosol Index, Sulfur Dioxide, Ozone Profile Coming Soon: Aerosol Index
Visible Infrared Imaging Radiometer Suite (VIIRS)	Active Fire (375m), Corrected Reflectance, Land Surface Reflectance, Snow, Sea Ice, Ice Surface Temperature, Land Surface Temperature, Vegetation Indices, Albedo Coming Soon: Cloud Mask, Deep Blue Aerosol

This table shows LANCE continuity products from OMPS and VIIRS SNPP and planned products from NOAA-20

Accessing LANCE NRT Data and Imagery

Imagery and data from LANCE are available through NASA's Earthdata website, GIBS, Worldview, FIRMS, Earthdata Search and the new Worldview Snapshots which is the replacement for Rapid Response Subsets.

GIBS or the Global Imagery Browse Services (GIBS) delivers global, full-resolution satellite imagery through standards-based APIs.



Screenshot of Worldview showing the Camp Fire, California. The Corrected Reflectance Image is from VIIRS (S-NPP) acquired on 11 November 2018. VIIRS 375m active fire/hotspots are shown in red.

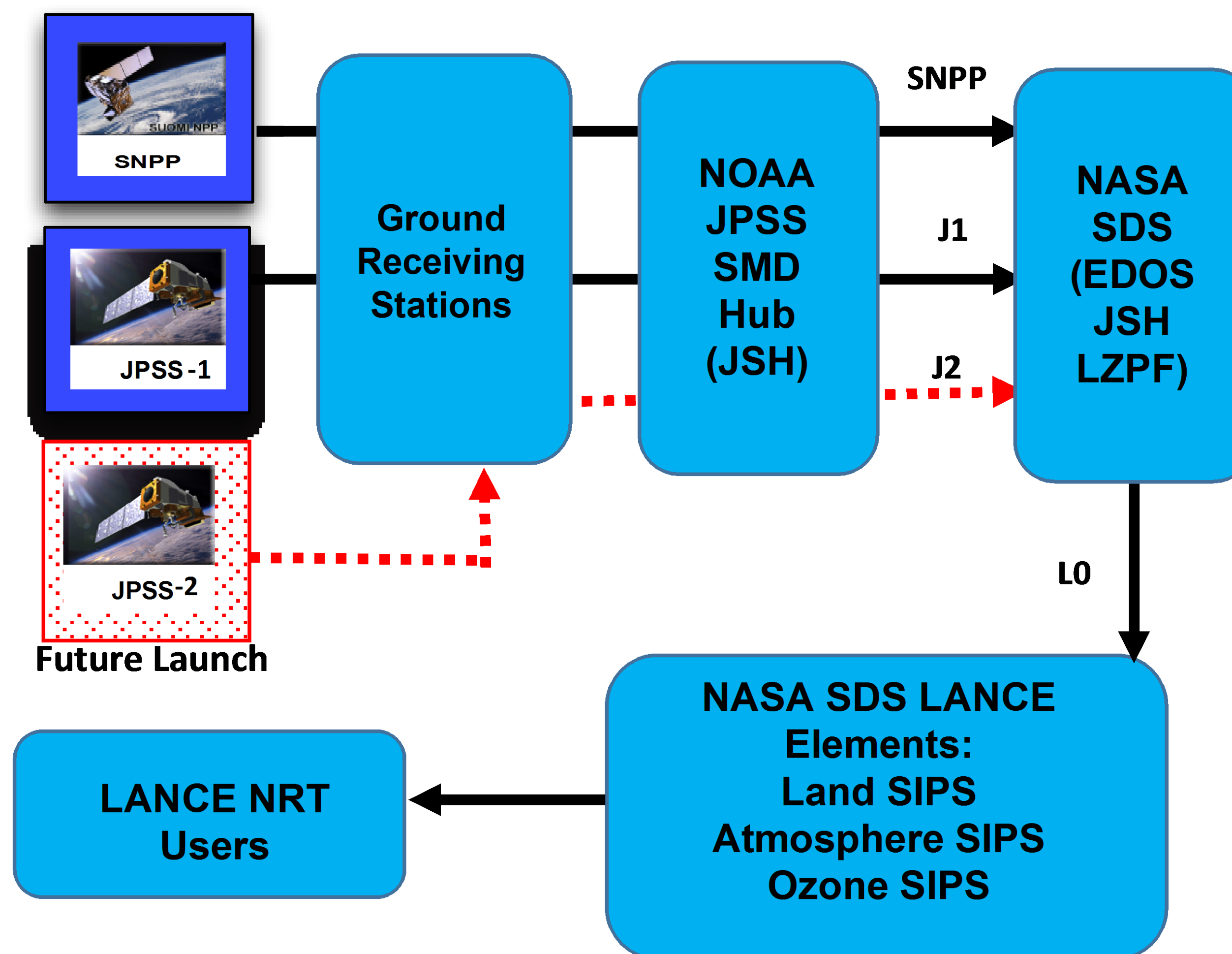
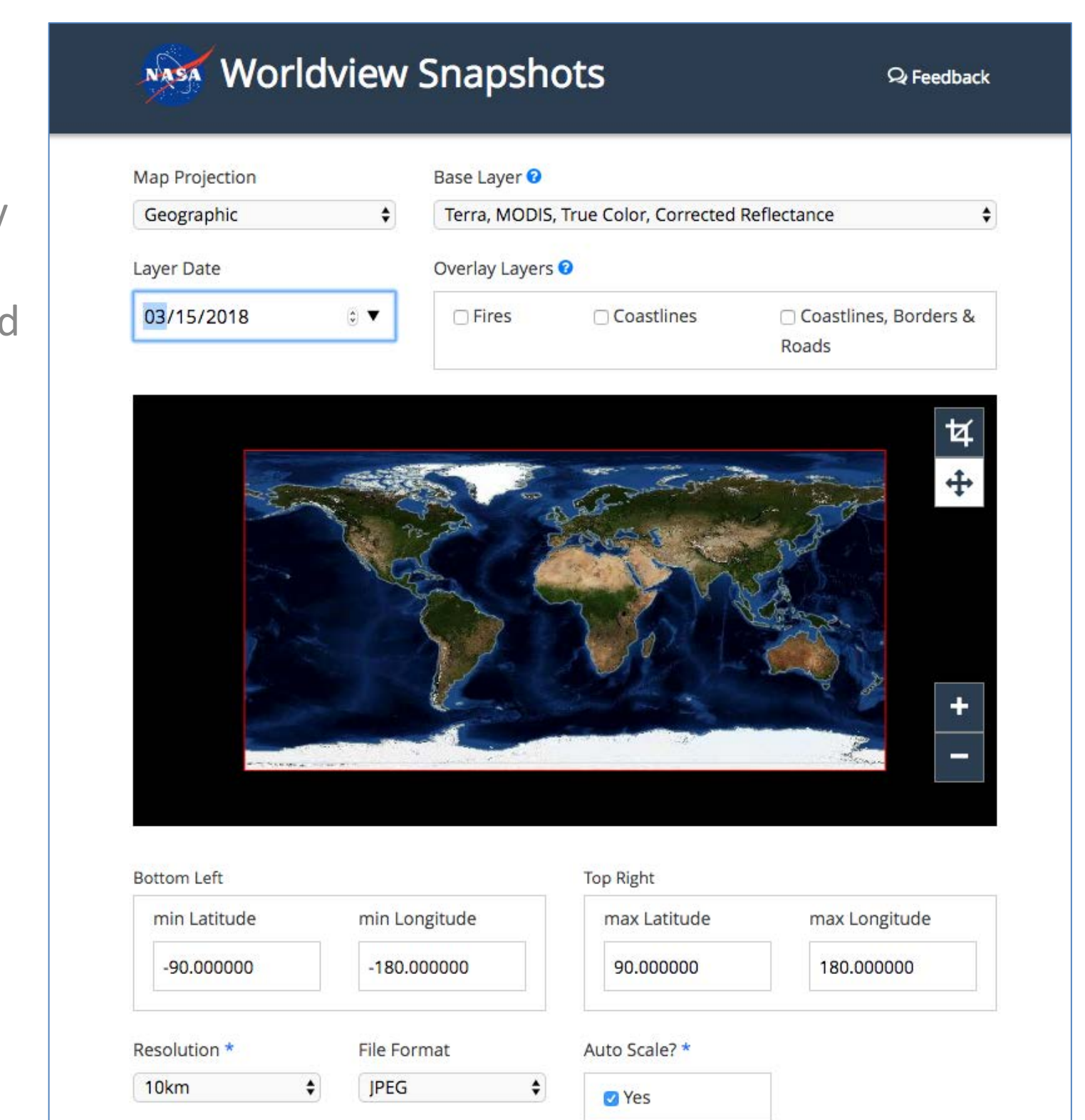
Worldview is the EOSDIS client that displays GIBS imagery. NRT imagery is generally available within four hours of observation and can be compared to previous observations from past dates using the time slider or comparison tool. Arctic and Antarctic data of several products, in suitable polar projections, are also available.

Fire Information for Resource Management System (FIRMS)

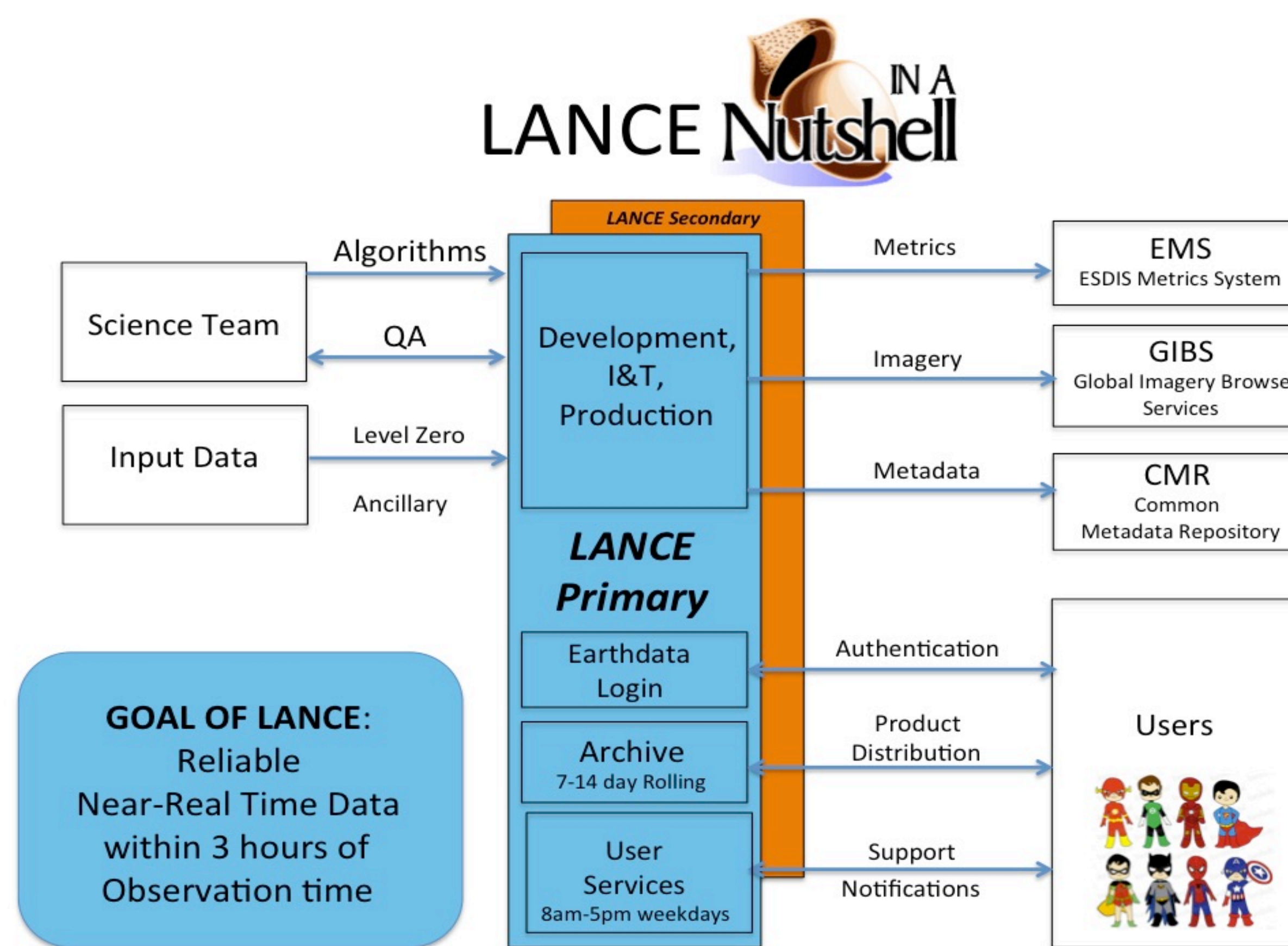
FIRMS delivers active fire data from MODIS and VIIRS. Users can view data in an online mapping tool, download the data in vector format or to subscribe to fire email alerts for their area of interest.

Worldview Snapshots

Worldview Snapshots is a new lightweight tool for creating image snapshots from a selection of popular NASA satellite imagery layers. Users can preview and download imagery in different band combinations and add overlays on the imagery of active fire detections, coastlines, borders and roads.

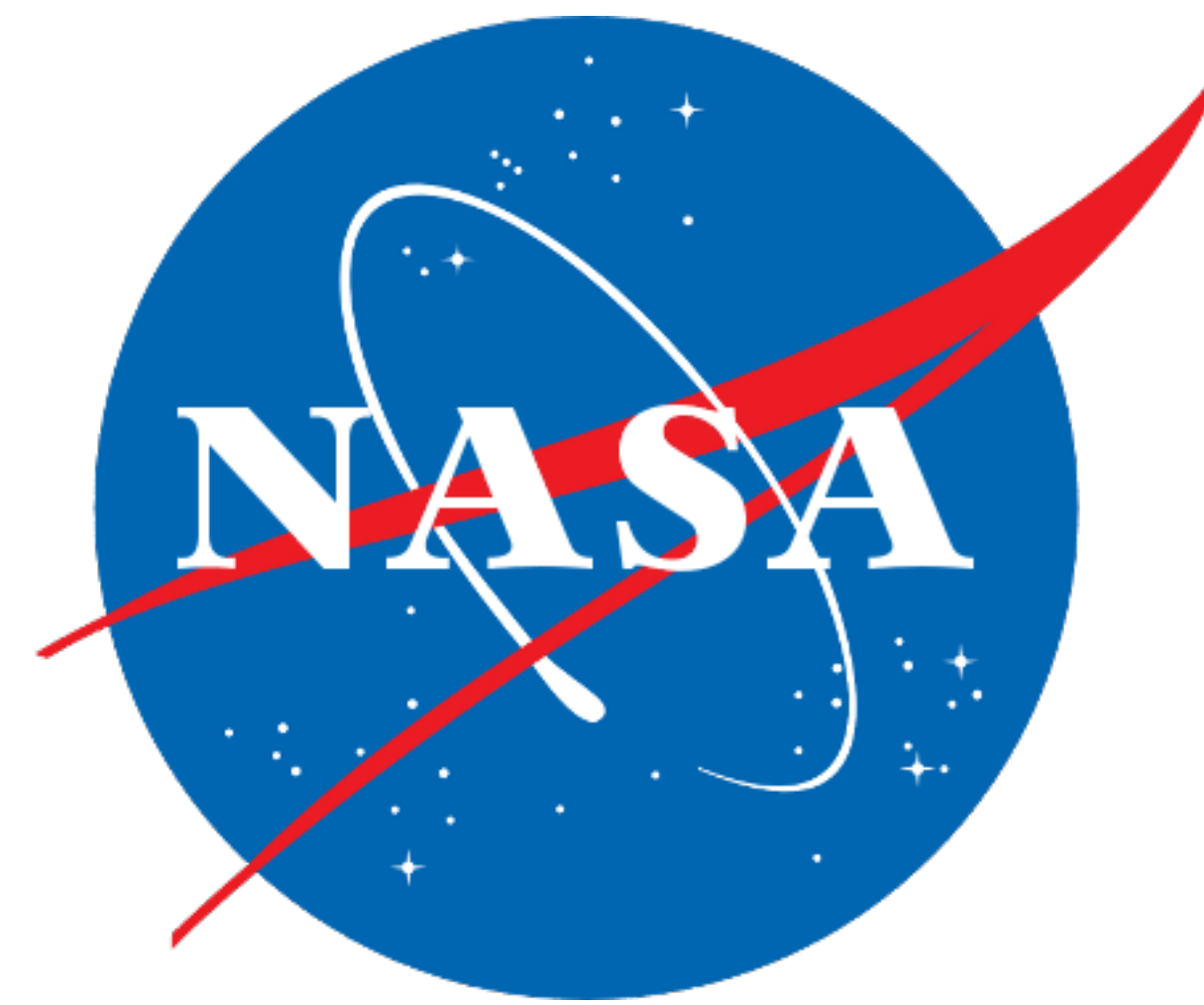
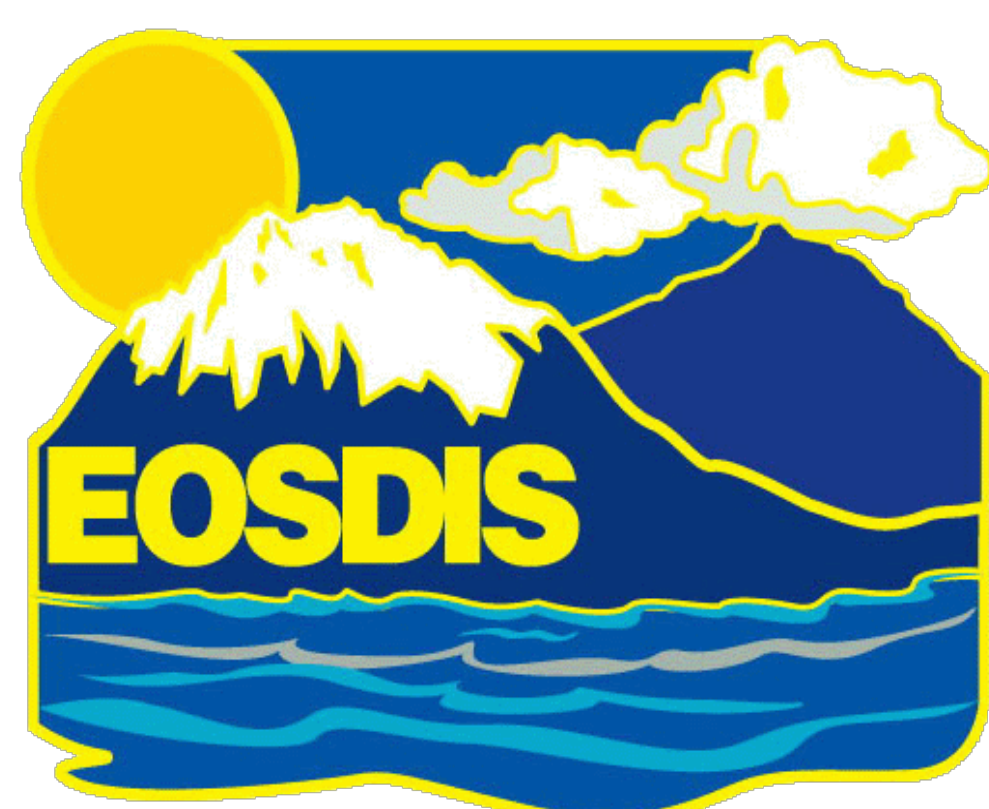


Note: In order to generate data products within 3 hours of observation time, a number of changes have been made to the standard processing approach to expedite the availability of input data sets. More information on the differences can be found at <https://earthdata.nasa.gov/earth-observation-data/near-real-time/near-real-time-versus-standard-products>



GOAL OF LANCE:
Reliable
Near-Real Time Data
within 3 hours of
Observation time

Free Clip Art:
<http://www.clipartpanda.com/categories/nutshell-20clipart>
http://www.clipartpanda.com/clipart_images/7-superhero-free-clipart-2816446



For more information:

- <https://earthdata.nasa.gov/lance>
- GIBS: <https://earthdata.nasa.gov/gibs>
- Worldview: <https://earthdata.nasa.gov/worldview>
- Earthdata Search: <https://search.earthdata.nasa.gov>
- FIRMS: <https://earthdata.nasa.gov/firms>

Contact: support@earthdata.nasa.gov

