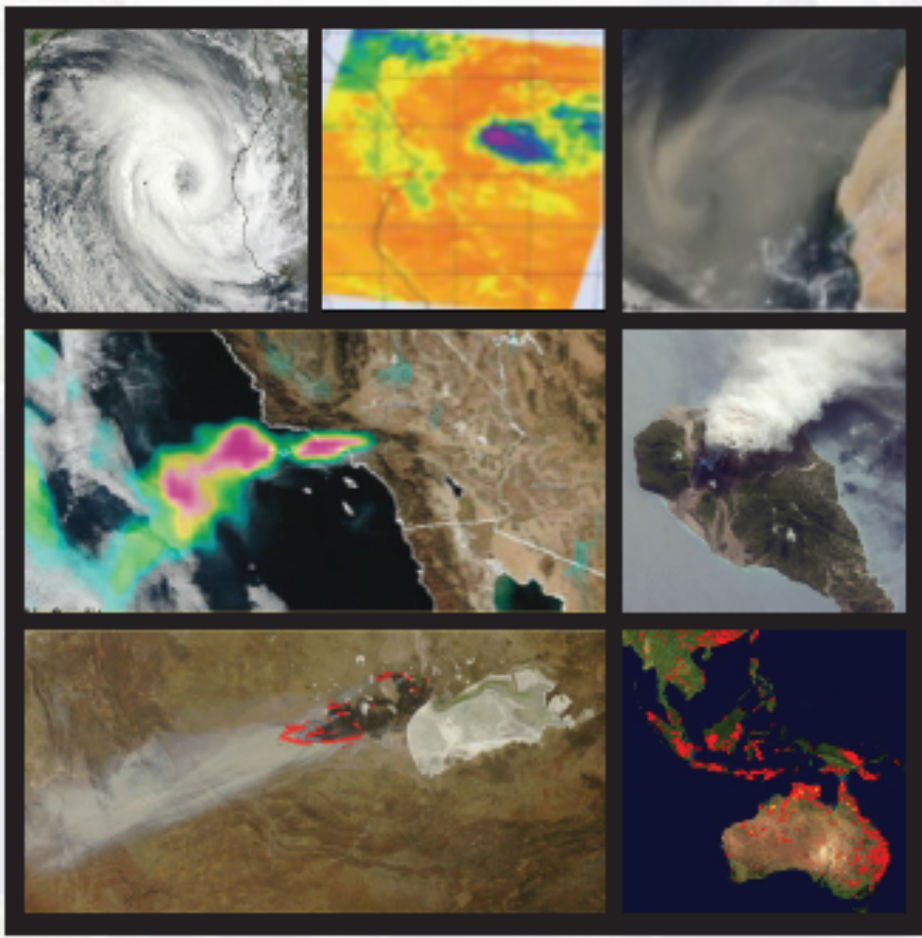


# LANCE: Land Atmosphere Near Real-Time Capability for EOS



ICAP Meeting  
Tuesday 21<sup>st</sup> October 2014

Diane Davies  
LANCE Operations Manager  
[diane.k.davies@nasa.gov](mailto:diane.k.davies@nasa.gov)

# LANCE provides global Imagery and Data for near real-time Applications

from AIRS, MLS, MODIS and OMI



Air Quality - Dust storms – Fires – Vegetation for agricultural monitoring – Floods – Ash Plumes – Drought – Smoke Plumes – Sea Ice for shipping – Severe Storms

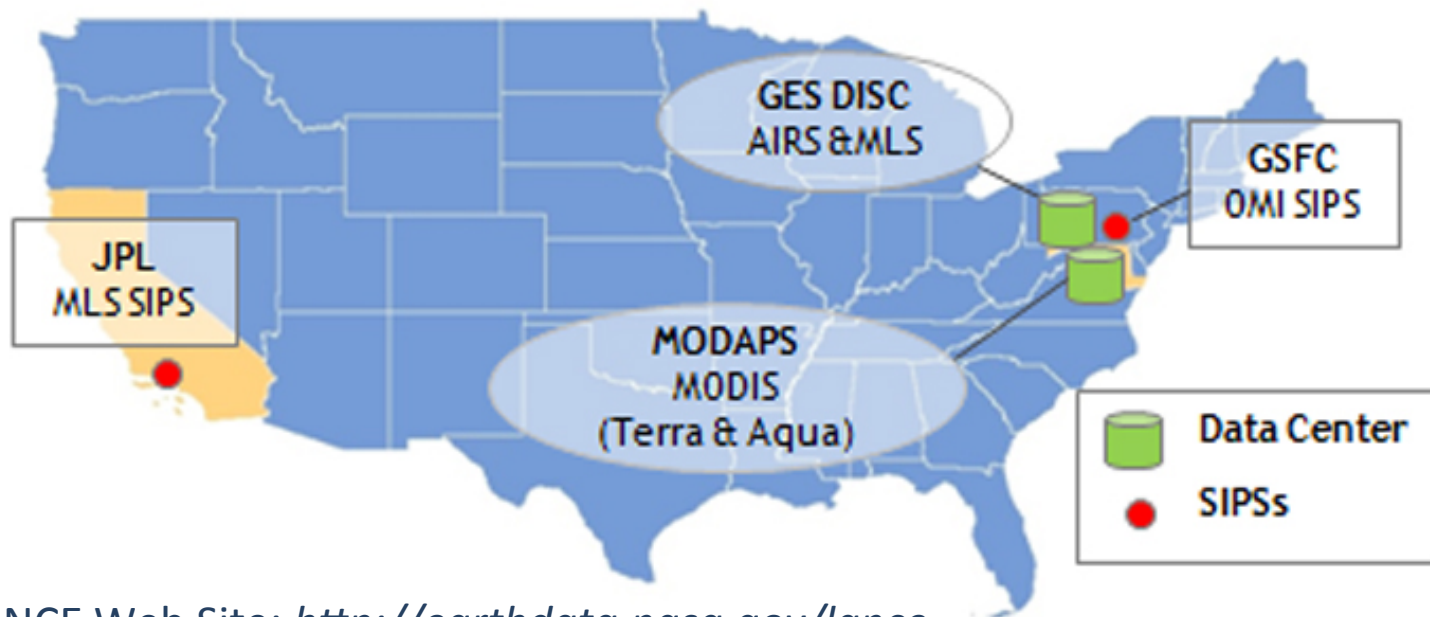


# LANCE – A component of EOSDIS

- LANCE is a component of EOSDIS – NASA’s Earth Observing System Data and Information System
- NASA Earth Science Division sponsored the development of LANCE in 2009
- LANCE is a virtual system that leverages existing EOSDIS components

**LANCE** provides a central point of access to high quality NRT data products for land and atmosphere studies within 3 hours of satellite observation

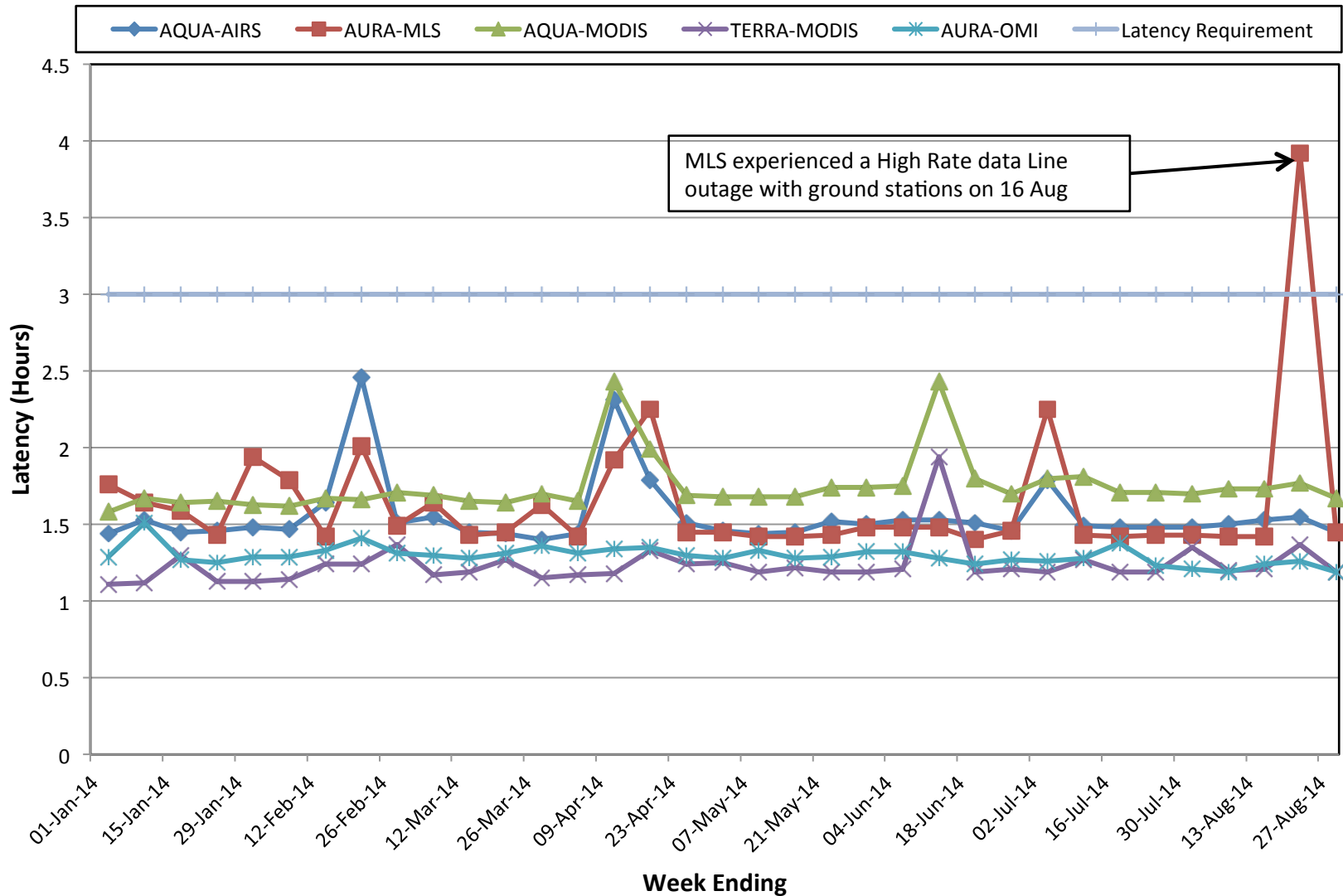
## LANCE Facilities



- LANCE Web Site: <http://earthdata.nasa.gov/lance>

# Weekly LANCE-Wide Latency for Level 0, 1 and 2 Products

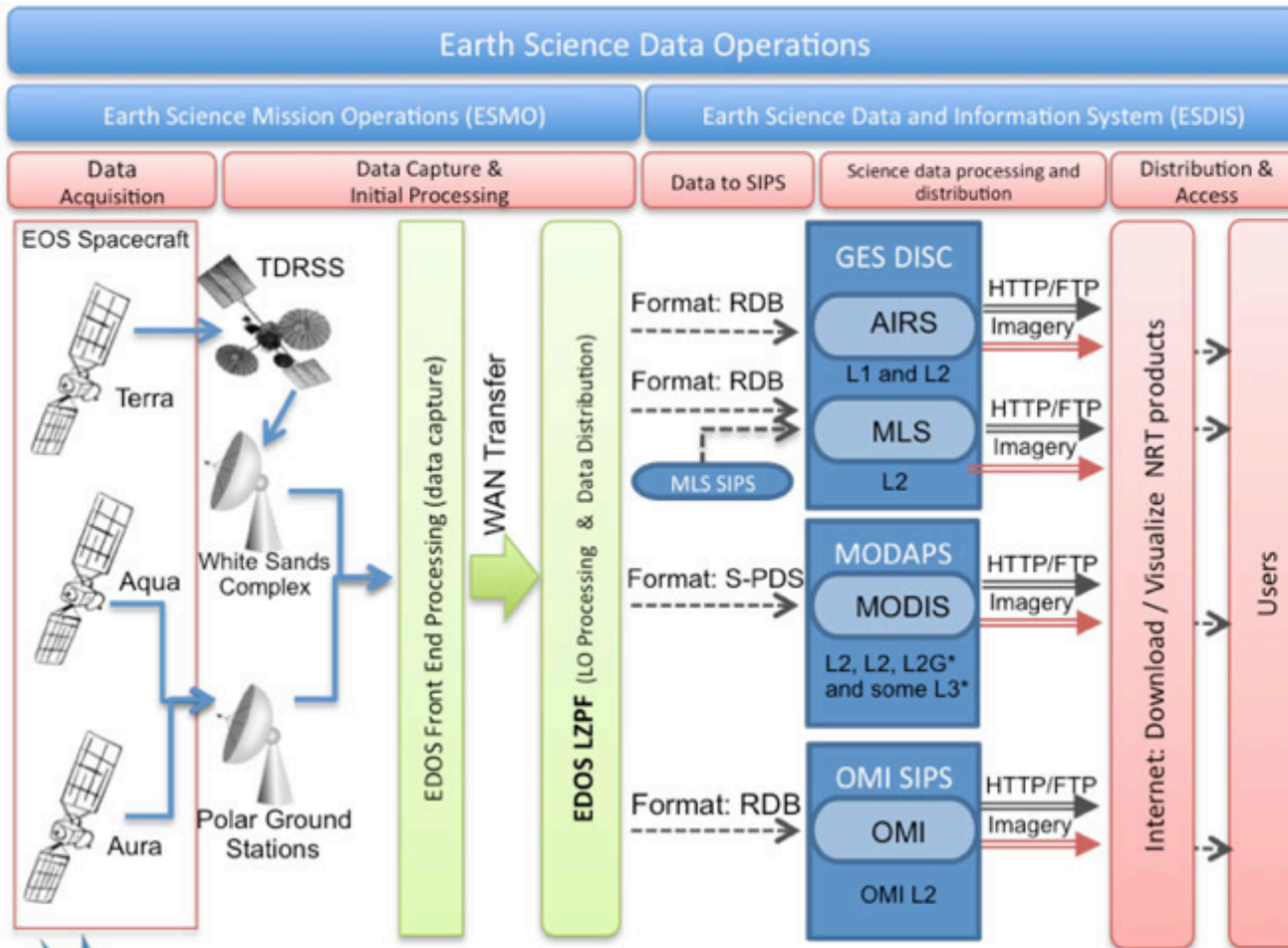
## January 1 - August 30, 2014





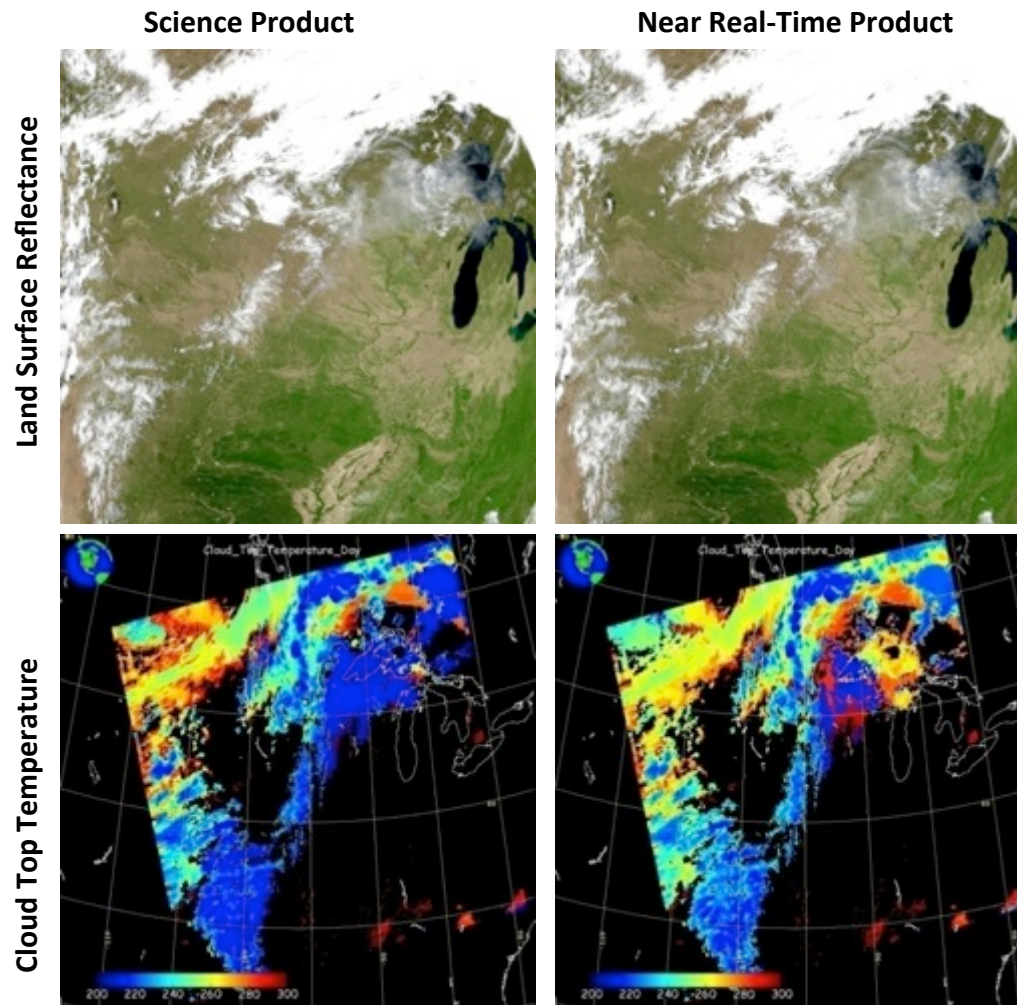
# LANCE System Architecture

NASA'S EARTH OBSERVING SYSTEM



# Comparison of NRT and Science Products

Latency requirements necessitate the use of predicted geo-location data and relaxed ancillary data – in some cases there are significant differences between the NRT and standard, science-quality data products, but overall the agreement is high.



# Key differences between NRT and Standard Processing

Process	Standard Products	Near Real-Time
Level 0 processing	Standard processing use definitive geo-location (attitude and ephemeris) data.	Predicted geo-location. Terra via an on-board GPS. Aqua and Aura use spacecraft housekeeping data and predicted geo-location.
Level 2 products that do not make use of ancillary data e.g. fire, snow, sea ice	Standard processing code	Inherent differences from L0 plus standard processing codes.
Level 2 products that require ancillary data	Standard requirements	Inherent differences from L0 and relaxed requirements for ancillary data

# LANCE NRT Products

Instrument (satellite)	Product Categories	Average Latency
AIRS (Aqua)	Radiances, Temperature and Moisture Profiles, Precipitation, Dust, Clouds and Trace Gases	75 – 140 minutes
MLS (Aura)	Ozone, Temperature, Carbon Monoxide, Water Vapor, Nitric Acid, Nitrous Oxide, Sulfur Dioxide	75 – 140 minutes
MODIS (Aqua & Terra)	Radiances, Cloud/Aerosols, Water Vapor, Fire, Snow Cover, Sea Ice, Land Surface Reflectance, Land Surface Temperature	60-125 minutes*
OMI (Aura)	Ozone, Sulfur Dioxide, Aerosols, Cloud Top Pressure	100 -165 minutes**

- AIRS - Atmospheric Infrared Sounder
- MLS - Microwave Limb Sounder
- MODIS - Moderate Resolution Imaging Spectroradiometer
- OMI - Ozone Monitoring Instrument
- AMSR2 – Advanced Microwave Scanning Radiometer 2 (GCOM-W1)
- MISR - Multi-angle Imaging SpectroRadiometer



# Discover and Access LANCE Products

As part of NASA's Open Data Policy, data can be downloaded following self registration through the EOSDIS User Registration System <https://urs.earthdata.nasa.gov/users/new>

**Data products** are available for download from:

- FTP sites (HTTPS coming soon)
- the Near Real-Time webpages: <https://earthdata.nasa.gov/lance>
- Visually search for data through Worldview <https://earthdata.nasa.gov/worldview>
- NASA Reverb: <http://reverb.echo.nasa.gov/reverb/>

**MODIS Hotspot/Active Fire data (vector format)**

- FIRMS (Fire Information for Resource Management System)

**Imagery** (no registration required)

- Worldview
- Global Imagery Browse Services
- Rapid Response





# LANCE – Discover & Access Data

NASA'S EARTH OBSERVING SYSTEM

Each element has 2 stand alone FTP strings

- **LANCE-MODIS**

nrt1.modaps.eosdis.nasa.gov  
nrt2.modaps.eosdis.nasa.gov

Path:

*allData/1/<esdt>/<year>/<dataday>*

- **LANCE-AIRS and MLS**

discnrt1.gesdisc.eosdis.nasa.gov  
discnrt2.gesdisc.eosdis.nasa.gov

*Data/Aqua\_NRT*

- **OMI**

omisips1.omisips.eosdis.nasa.gov  
omisips2.omisips.eosdis.nasa.gov

*/<data type>*



**EOSDIS**  
NASA'S EARTH OBSERVING SYSTEM  
DATA AND INFORMATION SYSTEM

Search

- Home
- About EOSDIS
- Data**
- Our Community
- User Resources
- Labs
- Wiki
- Register

- Data Tools
- Data Centers
- Near Real-Time Data**
- Standards and References

# Near Real-Time Data

Land Atmosphere Near Real-time Capability for EOS

## Near Real-Time Data

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- Visualization
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- About LANCE
- FAQ
  - Support

## GET DATA

- MODIS
- AIRS
- MLS
- OMI
- Platform
- Hazards and Disasters

## NRT HIGHLIGHTS



**FIRMS**  
Download MODIS fire data



**Rapid Response**  
MODIS, AIRS, MLS & OMI imagery



**Worldview**  
Visualize near real-time data



**Featured Stories**

Home » Data

## What is Near Real-Time Data?

Available in less than 3 hours from observation, Near Real-Time (NRT) products from the MODIS, OMI, AIRS, and MLS instruments are offered by LANCE. The Land Atmosphere Near real-time Capability for EOS (LANCE) supports application users interested in monitoring and analyzing a wide variety of natural and man-made phenomena.

[Register](#) to start downloading data.

## How do I get started?



Download



Visualize



Learn

## LANCE News

[New Vegetation Indices and Surface Reflectance Products Available from LANCE](#)



Search

Home About EOSDIS **Data** Our Community User Resources Labs Wiki Register

Data Tools Data Centers **Near Real-Time Data** Standards and References

## Near Real-Time Data Land Atmosphere Near Real-time Capability for EOS

### Near Real-Time Data

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        - Near Real-Time vs. Science Quality
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    - Rapid Response
      - Learn
    - About LANCE

Home » Data » Near Real-Time Data » Data » Instrument » MODIS

### Download MODIS NRT data

Have you [registered](#)? Select MODIS NRT products from the table below.

Note: MODIS NRT products can also be downloaded from either FTP server: [nrt1.modaps.eosdis.nasa.gov](http://nrt1.modaps.eosdis.nasa.gov) or [nrt2.modaps.eosdis.nasa.gov](http://nrt2.modaps.eosdis.nasa.gov). The directory path is: *allData/1/<product>/<year>/<dataday>* or *allData/1/<product>/Recent*

- [Learn about MODIS](#)
- Visualize imagery through [MODIS Browse](#) images, [Rapid Response](#) MODIS images or in [Worldview](#)
- Read the [disclaimer](#) for more information about using the data

### MODIS / Terra

Product (FTP download link)	Description (Global Change Master Directory link)	Volume (GB/day)	Browse
AM1EPHN0	Spacecraft Ephemeris Data	0.01	N/A
AM1EPHNE	Extrapolated Orbital Data	0.00001	N/A
MOD00S	L0 PDS Data, Session-Based	76.48	N/A
MOD00F	L0 PDS Data, 5-Min Swath	68.91	N/A
MOD01	L1A Raw Radiances, 5-Min Swath	107.72	N/A
MOD03	Geolocation, 5-Min Swath 1km	7.79	N/A
MOD021KM	L1B Calibrated Radiances, 5-Min Swath 1km	31.21	<a href="#">L1B Radiances Browse</a>
MOD02HKM	L1B Calibrated Radiances, 5-Min Swath 500m	21.61	<a href="#">L1B Radiances Browse</a>
MOD02QKM	L1B Calibrated Radiances, 5-Min Swath 250m	23.68	<a href="#">L1B Radiances Browse</a>
MOD02SSH	L1B Subsampled Calibrated Radiances, 5-Min Swath 5km	3.28	N/A
MOD07_L2	L2 Temperature and Water Vapor Profiles, 5-Min Swath 5km	1.70	<a href="#">L2 Total Ozone Burden Browse</a> <a href="#">L2 Skin Temperature Browse</a> <a href="#">L2 Lifted Index Browse</a> <a href="#">L2 Water Vapor Browse</a>



Search

# Near Real-Time Data

Land Atmosphere Near Real-time Capability for EOS

## Near Real-Time Data

- Data
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    - Fires
    - Floods
    - Severe Storms
    - Shipping
    - Smoke Plumes
    - Vegetation
  - Fire Email Alerts
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- Rapid Response
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  - Support

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## Hazards and Disasters

LANCE EOS data and imagery enable users to get a snap shot of the Earth in near-real time. This timely data is useful for a range of applications e.g. to detect fires, track smoke, ash and dust plumes; to monitor aerosols, carbon monoxide and sulfur dioxide, which in turn are useful for air quality assessments; and to determine the extent of sea ice, snow, and flooding which are useful to support shipping in the polar regions and to allow rapid assessment of areas worst affected by snow or flood water. Visualize the data by category in [Worldview](#).

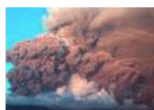
[Register](#) to start downloading data.

Please read the [disclaimer](#) for more information about using the data.



### Air Quality

AIRS data have been used to track propagation of toxic gases like Carbon Monoxide (CO) from massive fires; accurate early warnings of such pollution spikes are useful because they give people the option to reduce their risk of exposure to poor air by limiting outdoor activity at these times. Air quality forecasters use NRT data from LANCE to improve some local and national air quality forecasts.



### Ash Plumes

MODIS imagery are useful for identifying and tracking ash plumes from volcanic eruptions. The use of NRT satellite data for monitoring volcanic plumes is undergoing further developments to enable quantitative retrievals to be produced, which should enable a global capability for volcanic ash monitoring to be introduced.



### Drought

Agro-climatic monitoring programs and global food security risks are monitored using MODIS NRT data from LANCE. There are several global/regional scale systems in place that report on drought and food shortages including the USAID Famine Early Warning Systems Network (FEWS NET).



### Dust Storms

Dust storms can have an impact on human health, weather patterns as well as cause disruption through flight delays and the closure of highways. Data from LANCE are used to monitor and predict dust storms. This information is used by agencies within the Department of Defense to improve resource allocation in remote areas and help promote aircraft safety.

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Land Atmosphere Near Real-time Capability for EOS



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- Near Real-Time Data**
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    - Smoke Plumes
    - Vegetation
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  - Active Fire Data
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- FIRMS

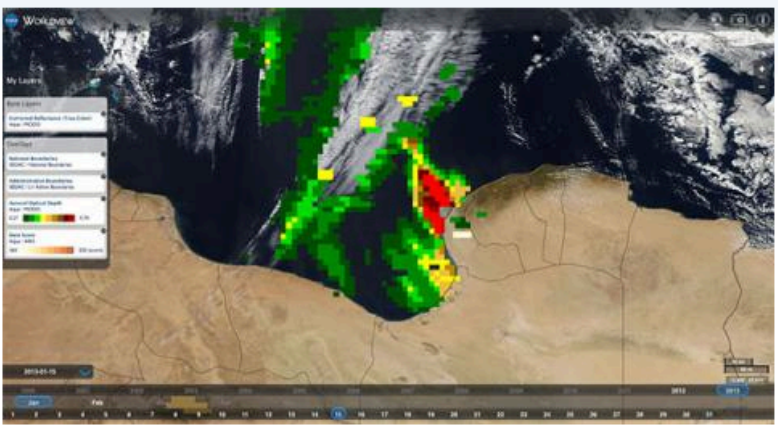
Home » Data » Near Real-Time Data » Data » Hazards and Disasters

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Potentially useful data sets: MODIS Aerosol, Corrected Reflectance and Land Surface Reflectance, AIRS Dust Score and OMI Aerosol Optical Depth, Absorbing Aerosol Optical Depth and Aerosol Index.

[Register](#) to start downloading data.  
Read the [disclaimer](#) for more information about using the data.



Visualize NRT data related to Dust Storms in Worldview

Worldview showing the MODIS aerosol optical depth of a dust plume blowing over Banghazi (Benghazi), Libya on January 15, 2013. [Read more at NASA's Earth Observatory.](#)

# Downloadable NRT data related to Dust Storms

## MODIS / Aqua

Product (FTP download link)	Description (Global Change Master Directory link)	Volume (GB/day)	Browse	Comments
MYD04_L2	L2 Aerosol, 5-Min Swath 10km	0.16	L2 Aerosol Browse	N/A
MYD09GA	L2G Light Surface Reflectance – Daily 500m and 1km	17.37	L2G Surface Reflectance Browse	Bands 1-4-3 & 7-2-1
MYD09GQ	L2G Light Surface Reflectance – Daily 250m	18.82	L2G Surface Reflectance Browse	Bands 1-4-3 & 7-2-1
MYD09GHK	L2G Surface Reflectance – Daily 500m	18.27	N/A	Bands 1-4-3 & 7-2-1
MYD09GQK	L2G Surface Reflectance - Daily 250m	25.48	N/A	Bands 1-4-3 & 7-2-1
MYDAODHD	L3 Value-added Aerosol Optical Depth	0.001	N/A	N/A

## MODIS / Terra

Product (FTP download link)	Description (Global Change Master Directory link)	Volume (GB/day)	Browse	Comments
MOD04_L2	L2 Aerosol, 5-Min Swath 10km	0.15	L2 Aerosol Browse	N/A
MOD09GA	L2G Light Surface Reflectance – Daily 500m and 1km	17.48	L2G Surface Reflectance Browse	Bands 1-4-3 & 7-2-1
MOD09GQ	L2G Light Surface Reflectance – Daily 250m	18.91	L2G Surface Reflectance Browse	Bands 1-4-3 & 7-2-1
MOD09GHK	L2G Surface Reflectance – Daily 500m	18.34	N/A	Bands 1-4-3 & 7-2-1
MOD09GQK	L2G Surface Reflectance – Daily 250m	25.31	N/A	Bands 1-4-3 & 7-2-1
MODAODHD	L3 Value-added Aerosol Optical Depth	0.001	N/A	N/A

## MODIS / Combined

Product (FTP download link)	Description (Global Change Master Directory link)	Volume (GB/day)	Browse	Comments
MCDAODHD	L3 Value-added Aerosol Optical Depth	0.001	N/A	N/A

## AIRS / Aqua

Product (FTP download link)	Description (Global Change Master Directory link)	Volume (GB/day)	Browse
AIRVBRAD_NRT	L1B Vis/Near-IR geolocated radiances	N/A	N/A
AIRIBQAP_NRT	L1B IR quality assurance subset	N/A	N/A

## OMI / Aura

Product (FTP download link)	Description (Global Change Master Directory link)	Volume (GB/day)	Browse
OMAEUV	L2 Near UV Aerosol Optical Depth and Single Scattering Albedo Swath 13x24 km	N/A	N/A
AAOD			
AI			

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Land Atmosphere Near Real-time Capability for EOS



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    - Drought
    - Dust Storms**
    - Fires
    - Floods
    - Severe Storms
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    - Smoke Plumes
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  - Active Fire Data
  - Science Quality Products
  - Datacasting
    - External Data

- Visualization
- FIRMS

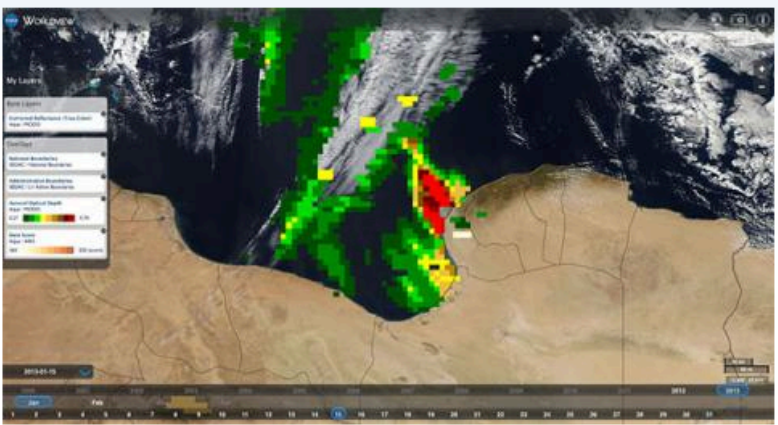
Home » Data » Near Real-Time Data » Data » Hazards and Disasters

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Read the [disclaimer](#) for more information about using the data.



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Worldview showing the MODIS aerosol optical depth of a dust plume blowing over Banghazi (Benghazi), Libya on January 15, 2013. [Read more at NASA's Earth Observatory.](#)



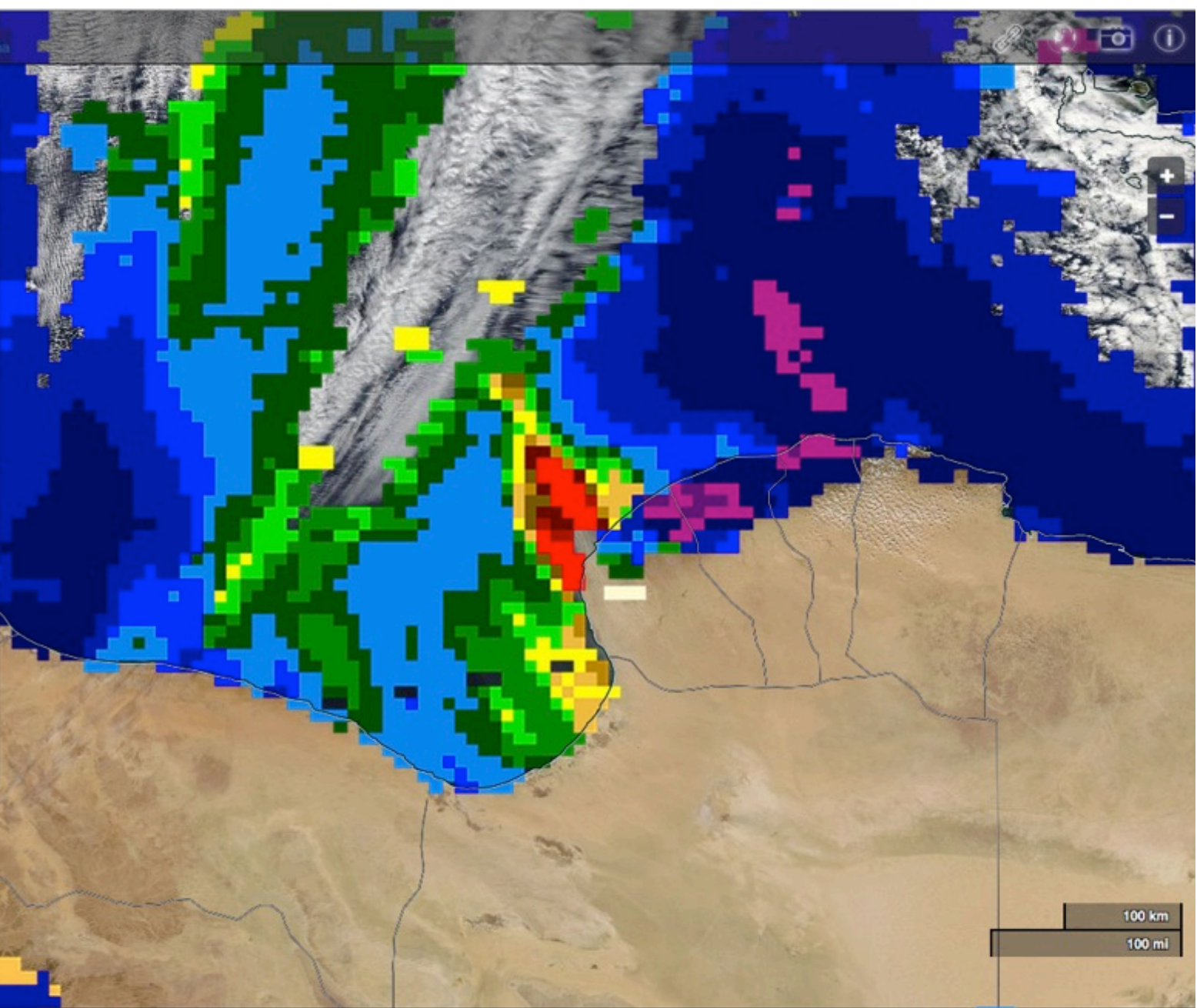
Active +

Base Layers

- Corrected Reflectance (True Color) Aqua / MODIS

Overlays

- Coastlines © OpenStreetMap (license)
- Coastlines / Borders / Roads © OpenStreetMap (license), Natural Earth
- Aerosol Optical Depth Aqua / MODIS  
-0.05 0.70
- Dust Score Aqua / AIRS  
360 > 500 score



2013-01-15

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

100 km  
100 mi

Active +

Base Layers

Corrected Reflectance (True Color)   
Aqua / MODIS

Overlays

Coastlines   
© OpenStreetMap [\(license\)](#)

Coastlines / Borders / Roads   
© OpenStreetMap [\(license\)](#), Natural Earth

Aerosol Optical Depth   
Aqua / MODIS  
  
-0.05 0.70 [Show Layer](#)

Dust Score   
Aqua / AIRS  
  
360 > 500 score

2013-01-15



100 km  
100 mi  
24.467°, 28.036°

Download

Download Selected Data

MODIS/Aqua Aerosol 5-Min L2 Swath  
10km 1 selected

Aerosol Optical Depth  
Aqua / MODIS

AIRS/Aqua Level 2 Standard physical retrieval (AIRS+AMSU) 0 selected

Dust Score  
Aqua / AIRS

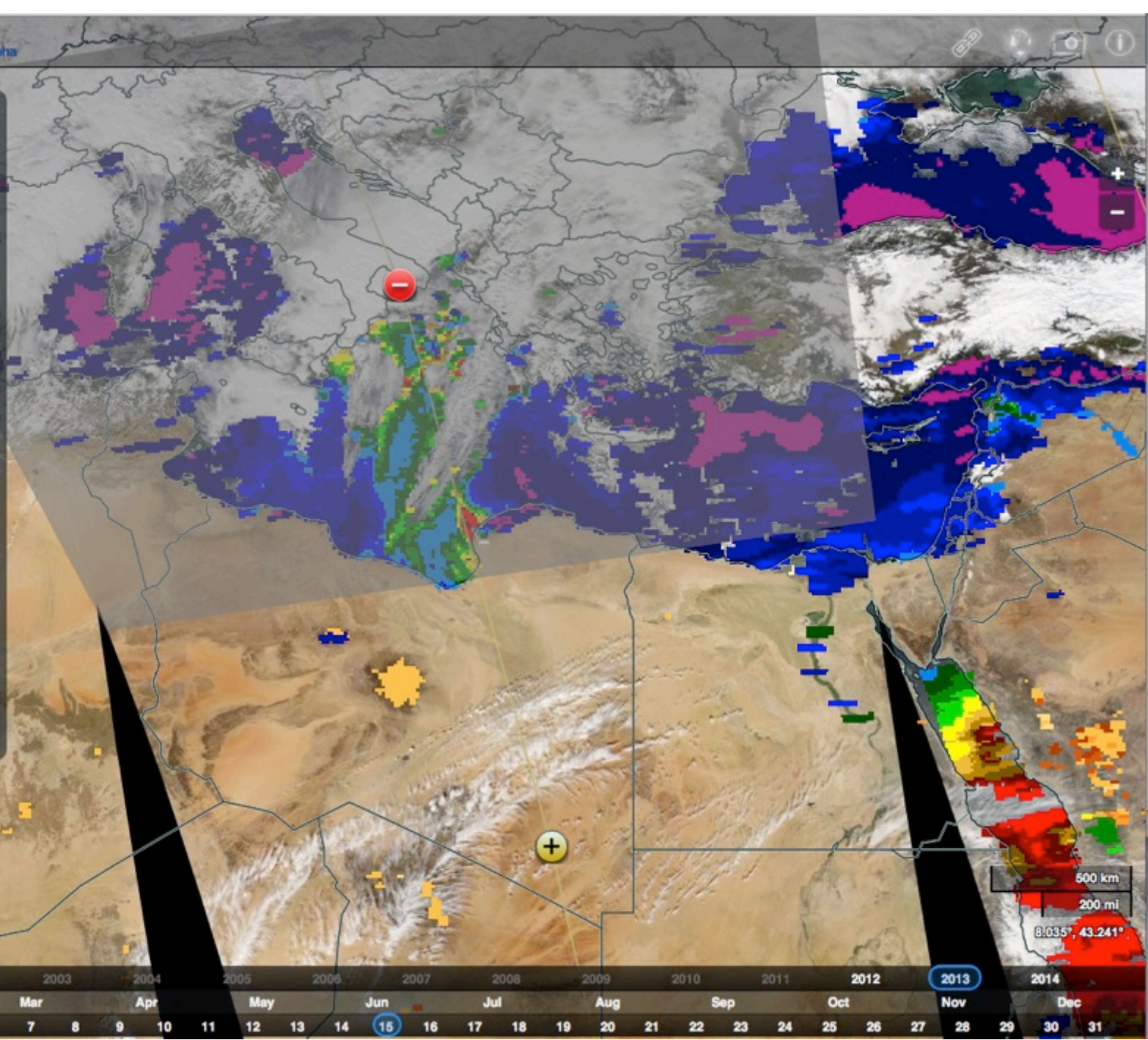
Not available for download (?)

Corrected Reflectance (True Color)  
Aqua / MODIS

Coastlines  
© OpenStreetMap (license)

Coastlines / Borders / Roads  
© OpenStreetMap (license) Natural Earth

2013-01-15



Download Selected Data

MODIS/Aqua Aerosol 5-Min L2 Swath 10km **1 selected**

Aerosol Optical Depth  
Aqua / MODIS

AIRS/Aqua Level 2 Standard physical retrieval (AIRS+AMSU) **0 selected**

Dust Score  
Aqua / AIRS

Not available for download (?)

Corrected Reflectance (True Color)  
Aqua / MODIS

Coastlines  
© OpenStreetMap [license](#)

Coastlines / Borders / Roads  
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**Download Links**

**MODIS/Aqua Aerosol 5-Min L2 Swath 10km**

Selected Data

2013-01-15: 11:55-12:00 [MYD04\\_L2.A2013015.1155.051.2013016165912.hdf](#)

Data Collection Information

- [Overview of MODIS Atmosphere Data Products \(ECSCollGuide\)](#)
- [MODIS Atmosphere Data Availability Calendar and Validation Level \(MiscInformation\)](#)
- [Known Data Issues \(DatasetDisclaimer\)](#)

Bulk Download

- [List of Links](#): for wget or download managers that accept a list of URLs
- [List of cURL Commands](#): can be copied and pasted to a terminal window to download using cURL.

2013-01-15

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 **2013** 2014

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

1 2 3 4 5 6 7 8 9 10 11 12 13 14 **15** 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



### Search Options

Spatial

Search Terms  
MODIS NRT

Temporal

Platforms & Instruments [\[?\]](#)

Campaigns [\[?\]](#)

Processing Levels [\[?\]](#)

Science Keywords [\[?\]](#)

[Save Query](#)

[Clear Criteria](#)

**Feedback?**  
Tell us what you think.

Availability [\[?\]](#)

#### Modis Reprojection Tool (MRT) Service Option

2014-09-05 10:00PM (GMT+1:00) to 2014-09-12 1:00PM (GMT+1:00)

[More](#)

Notices [\[?\]](#)

#### URS Single Sign On

2014-06-25 1:00PM (GMT+1:00) to (End Date Not Provided)

[More](#)

### Step 1: Select Search Criteria [\[?\]](#)

#### Spatial Search [\[?\]](#)

Bounding Box: e.g. -50.736, 163.477, -11.144, 105.680 (S,E,N,W) [Reset](#)

[Clear](#)

Satellite [v](#)



Click and drag to set a bounding rectangle

Google

[Terms of Use](#)

[Search by ESRI shape file](#) [\[?\]](#)

#### Search Terms [\[?\]](#)

MODIS NRT

[Clear](#)

#### Temporal Search [\[?\]](#)

START

[Clear](#)

END

[Clear](#)

\* all times must be specified in GMT  
[Date Range](#) [Annual Repeating Dates](#)

### Step 2: Select Datasets [\[?\]](#)

Found 48 datasets. Total Query Time: 0.72s

MODIS/Terra Near Real Time (NRT) Level 3 Daily Rolling-8-Day Surface Reflectance Global 250m NRT

Archive Center: MODAPS Short Name: MOD09Q1N Version: 5



MODIS/Terra Near Real Time (NRT) Surface Reflectance Rolling 8-Day L3 Global 500m SIN Grid V005 NRT

Archive Center: MODAPS Short Name: MOD09A1N Version: 5



MODIS/Aqua NRT value-added Aerosol Optical Depth Produc V051 NRT

Archive Center: LAADS Short Name: MYDAODHD Version: 5



MODIS/Terra+Aqua NRT value-added Aerosol Optical Depth Produc V051 NRT

Archive Center: LAADS Short Name: MCDAODHD Version: 5





# Near Real-Time Data

Land Atmosphere Near Real-time Capability for EOS

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  - [MODIS Global Fire Maps](#)
  - [Fire Email Alerts](#)
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## GET DATA

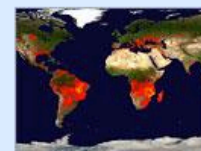
- [MODIS](#)
- [AIRS](#)
- [MLS](#)
- [OMI](#)
- [Platform](#)
- [Hazards and Disasters](#)

[Home](#) » [Data](#) » [Near Real-Time Data](#)

## Fire Information for Resource Management System (FIRMS)

FIRMS delivers global MODIS hotspots / fire locations in easy to use formats.

Subscribe to the [LANCE FIRMS mailing list](#).



### Download Data

Download recent and historic global MODIS fire locations in user friendly formats.  
Shape, KML, WMS or Text Files  
[Archive Download Tool](#)



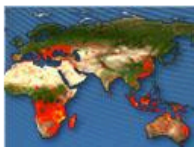
### Email Alerts

Receive notification of fires in your area-of-interest by subscribing to free FIRMS fire email alerts. Email alerts can be delivered in near real-time or as daily or weekly summaries.



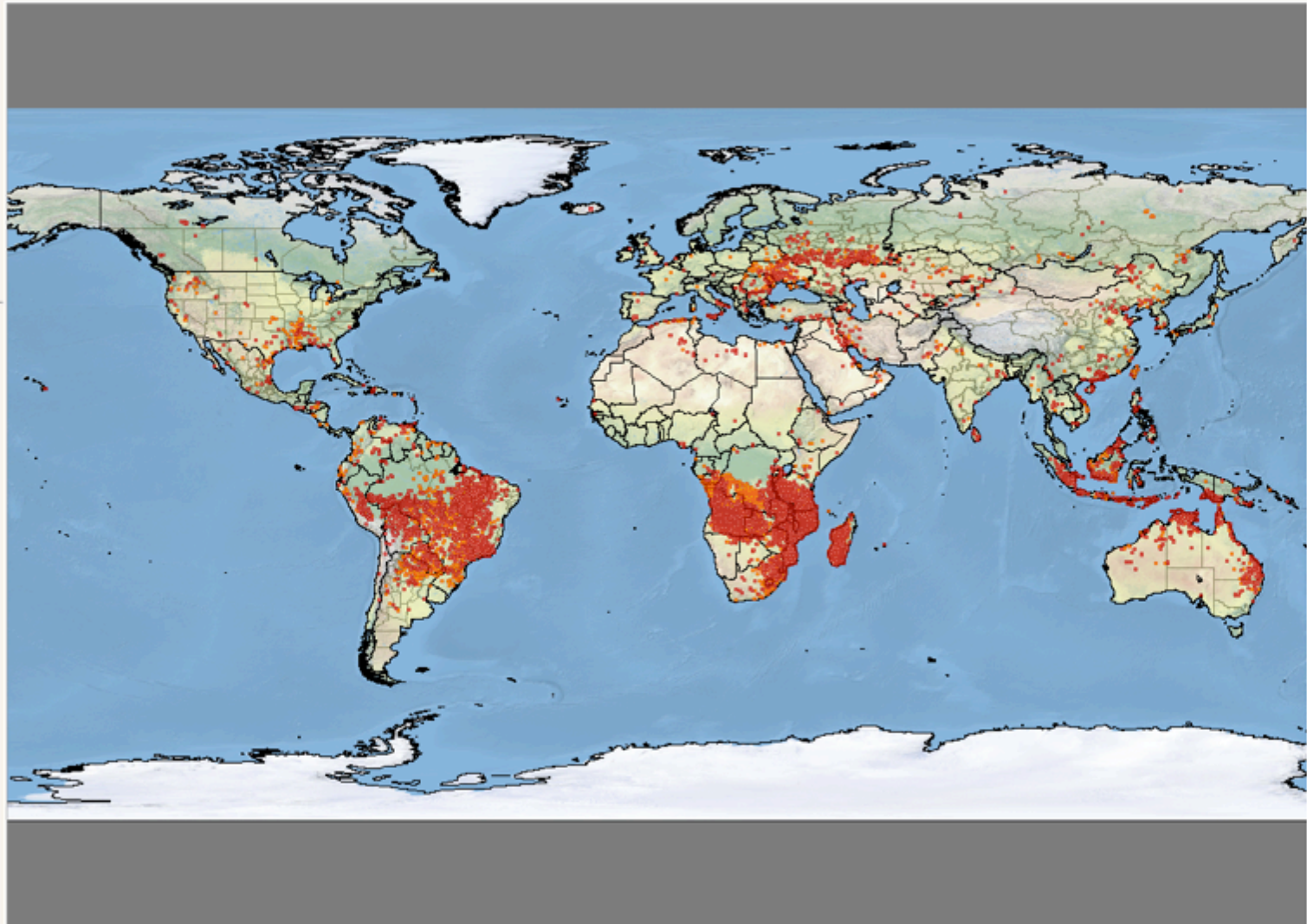
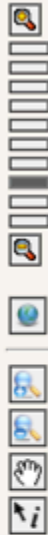
### Web Fire Mapper

Interactively browse daily global MODIS Fire locations and monthly burned areas through Web Fire Mapper.



### Global Fire Maps

View and download global 10-day fire maps and monthly composite animations by year, summarizing the fire activity across the world.



[Bookmark current view](#)

**Fires**

Select fires to display using the following choices.

Data source:

Satellite source:

Time period:  
 Past 24 hours  
 Past 48 hours  
 Past 72 hours  
 Past 7 days

Custom

Start:

End:

Viewing the Fire Aggregate Grid? [Toggle Fire Aggregates Legend](#)

Note: Cloud cover may obscure active fire detections.

- Regions
- Background Images
- Layers
- MODIS Burned Area
- Activity Log
- Links

# Worldview

EOSDIS Data Visualization, Discovery, and Download Tool for GIBS



## Key Features:

- 75+ global satellite imagery products available from GIBS, many available within 4 hours of observation
- Google Maps-like ability to interactively pan and zoom, then share “permalinks” with others
- Unlike Google Maps, Worldview can
  - interactively change the currently-displayed time
  - view imagery in Arctic and Antarctic polar stereographic projections
  - download imagery in JPEG, PNG, GeoTIFF, and KML
  - download the underlying data used to generate the imagery
- Web browser-based, developed using open standards (JavaScript, CSS, HTML) for cross-device compatibility; all code is [available as open source](https://github.com/nasa/worldview)

<https://earthdata.nasa.gov/worldview>



# Worldview Movie


 Search

- About EOSDIS
- Data
- Our Community
- User Resources
- Labs
- Wiki
- Register

- EOSDIS Project
- Performance
- Science System Description
- Interfaces
- Requirements
- News
- Internal Account Request

### EOSDIS Components

- Common Metadata Repository (CMR)
  - EOSDIS Data Centers
- EOS Clearing House (ECHO)
- EOSDIS Metrics System (EMS)
- Global Imagery Browse Services (GIBS)**
  - Available Imagery Products
  - Technical Information / Wiki
  - Blog
- LANCE
  - EOS Networks
  - Science Investigator-led Processing Systems (SIPS)
  - User Registration System (URS)
  - Web Infrastructure (WI)

Feedback

### EOSDIS News

- Celebrating 50 Years of Satellite Laser Ranging at NASA Goddard Space Flight Center
- ORNL DAAC Summer 2014 newsletter
- New Vegetation Indices and Surface Reflectance Products Available from LANCE
- Earthdata Connects With End Users through Social Media and Webinars

Home » About EOSDIS » Science System Description » EOSDIS Components

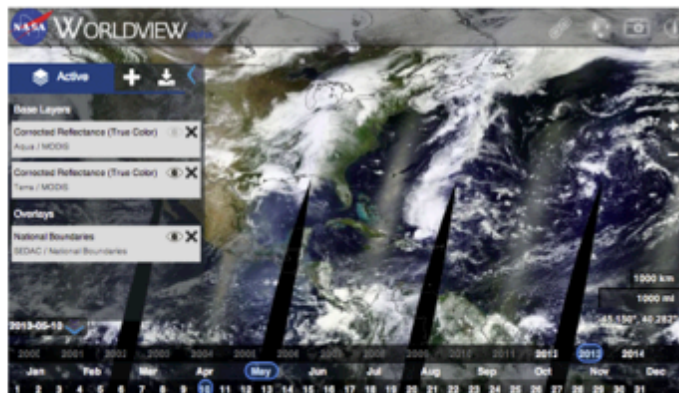
## Global Imagery Browse Services (GIBS)

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### Introduction

The Global Imagery Browse Services (GIBS) system is a core EOSDIS component which provides a scalable, responsive, highly available, and community standards based set of imagery services. These services are designed with the goal of advancing user interactions with EOSDIS' inter-disciplinary data through enhanced visual representation and discovery. These advancements are realized in the following ways:

- Improved Approachability & Extended Reach - Imagery greatly improves the usability of NASA Earth science data to new communities and improves cross-disciplinary data discovery through full-resolution, "no boundaries" (or "granule-free") interaction patterns.
- Cohesive Approach to Imagery - As a core EOSDIS component, GIBS integrates with other core EOSDIS systems, components, and processes to provide a primary, authoritative source for EOSDIS imagery.
- Improved Cross-Discipline Research - GIBS leverages science expertise and interoperable standards to provide science-based products that enhance cross-discipline discovery and analysis.



See GIBS in Action Using NASA's WorldView

SPACE SHORTCUTS

- Available Imagery Products
- API for Developers
- Map Library Usage
- GIS Usage

CHILD PAGES

- Pages
  - Global Imagery Browse Services (...
    - GIBS Available Imagery Products
    - GIBS Technical Working Group
    - GIBS API for Developers
    - Map Library Usage
    - Geographic Information System...
    - Archived

# Global Imagery Browse Services (GIBS) Home

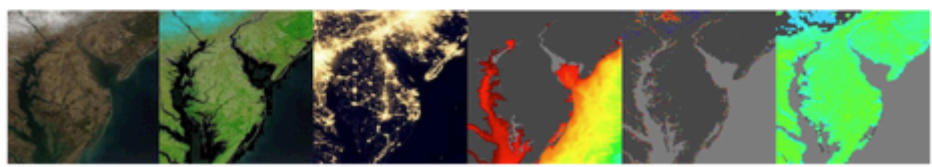
Created by Ross Bagwell, last modified by Ryan Boller on Jun 27, 2014



The Global Imagery Browse Services (GIBS) system is a core EOSDIS component which provides a scalable, responsive, highly available, and community standards based set of imagery services. These services are designed with the goal of advancing user interactions with EOSDIS' interdisciplinary data through enhanced visual representation and discovery. For a full overview, visit the [GIBS landing page](#). For open source code to the GIBS OnEarth server, MRF tiled imagery storage format, and mapping examples, see the [GIBS GitHub page](#). For detailed information about available imagery products and accessing GIBS, see below.

## Information for Users:

Imagery Products



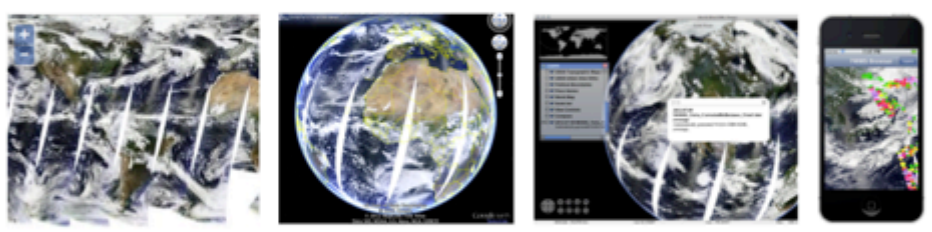
GIBS API for Developers

```

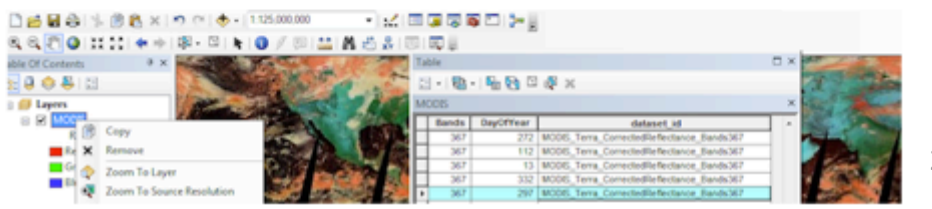
http://map1.vis.earthdata.nasa.gov/wmts-geo/
http://map1.vis.earthdata.nasa.gov/wmts-arctic/
http://map1.vis.earthdata.nasa.gov/wmts-antarctic/

.../{Product}/{Time}/{TileMatrixSet}/{TileMatrix}/{TileRow}/{TileCol}.png
  
```

Map Library Usage



GIS Tool Usage





# LANCE – Updates

NASA'S EARTH OBSERVING SYSTEM

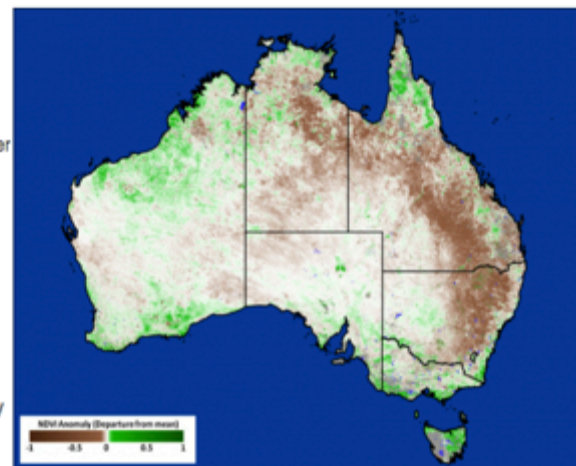
- Products Enhancements
  - *MODIS 8-Day rolling VI*
    - *MOD13Q4N (250m) and MOD13A4N (500m product)*
  - *MODIS 8-Day rolling SR*
    - *MOD09Q1N and MOD09A1N*
- Coming Soon
  - *MODIS Rolling Surface Albedo Level 3 filtered, corrected and aggregated product*

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## New Vegetation Indices and Surface Reflectance Products Available from LANCE

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The Land Atmosphere Near real-time Capability for EOS (LANCE) has started generating near real-time (NRT) daily 8-day rolling datasets following requests from the dust modeling and agricultural monitoring communities. The new Moderate Resolution Imaging Spectroradiometer (MODIS) products are: a daily 8-day rolling vegetation indices product, which includes both Normalized Difference Vegetation Index (NDVI) and Enhanced Vegetation Index (EVI), and an 8-day rolling surface reflectance product.

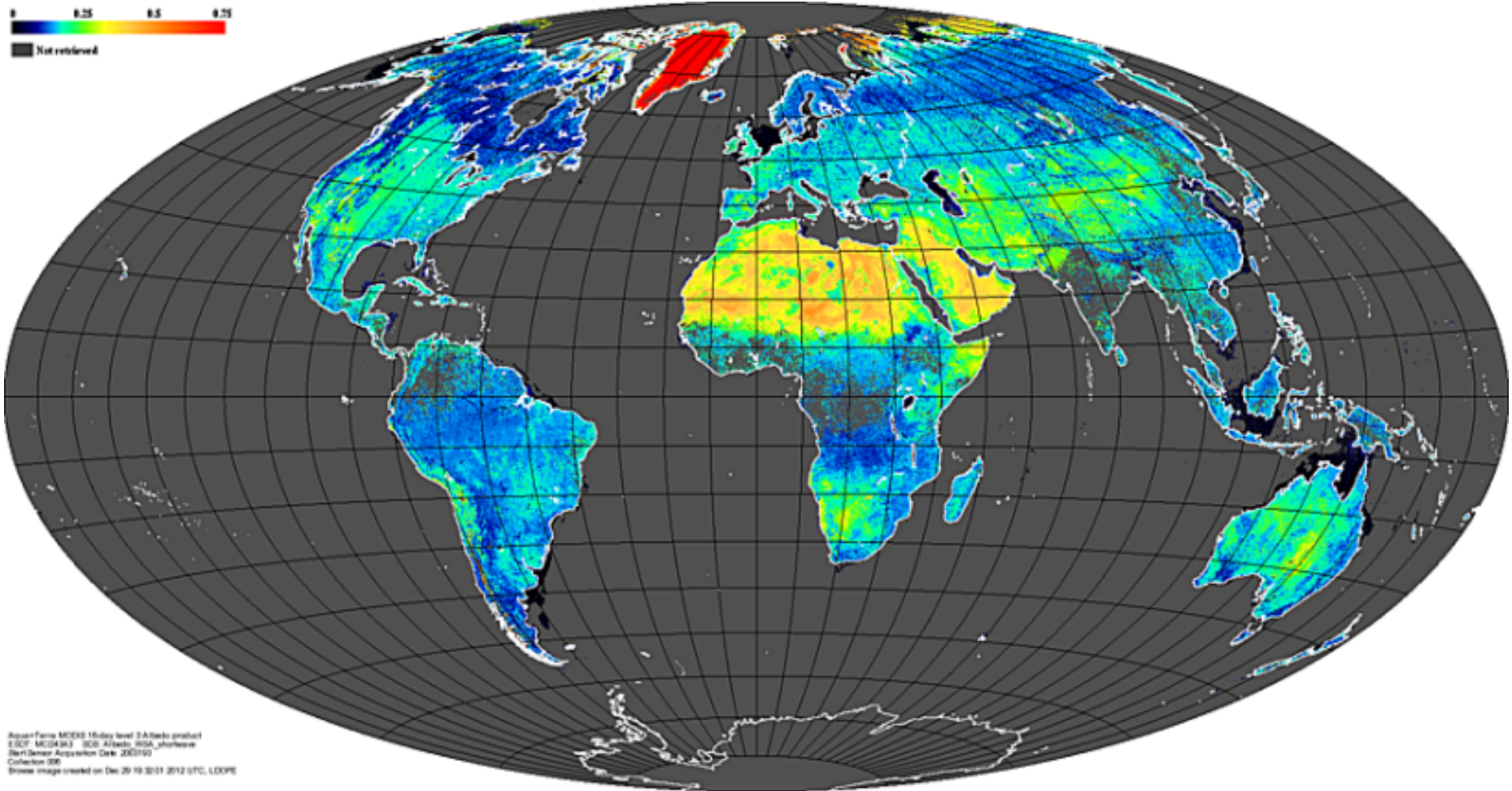


This NRT MODIS NDVI image was provided by the GLAM system. It shows the rolling 8-day NDVI product for Australia from 1-9 January 2014.

It is expected that the rolling NRT estimates of NDVI and EVI will provide operational aerosol forecasting models with a more reliable estimate of dust emissions. Currently the parameterization of dust emissions in models are generally formulated in terms of a static dust source function, modulated by surface parameters such as wind speed, soil moisture as well as the vegetative state at a particular time and location. The rolling NRT estimates of NDVI and EVI are intended to provide these models with a more recent and accurate depiction of the vegetation state, affording a more reliable estimate of dust emissions. The products will be used by organizations that routinely carry out operational aerosol forecasting, including the National Centers for Environmental Prediction (NOAA), the Global Modeling Assimilation Office (NASA/GSFC), the European Centre for Medium-Range Forecasts, the Naval Research Laboratory and the UK Met Office.

Within the agricultural monitoring community, MODIS vegetation indices are routinely used for monitoring vegetation, crop development and crop condition. Crops develop rapidly during the growing season and crop forecasts must be released in a timely fashion. NRT MODIS NDVI data are critical in building up a timely picture of crop development over the growing season. NRT NDVI data are routinely used by the G-20 GEO Global Agricultural Monitoring community (GEOGLAM) to provide national, regional and global crop condition assessments. These NRT data are a direct NASA Applied Sciences contribution to the GEOGLAM agriculture monitoring community.

# NRT BRDF, NBAR, Albedo





# LANCE – Updates

NASA'S EARTH OBSERVING SYSTEM

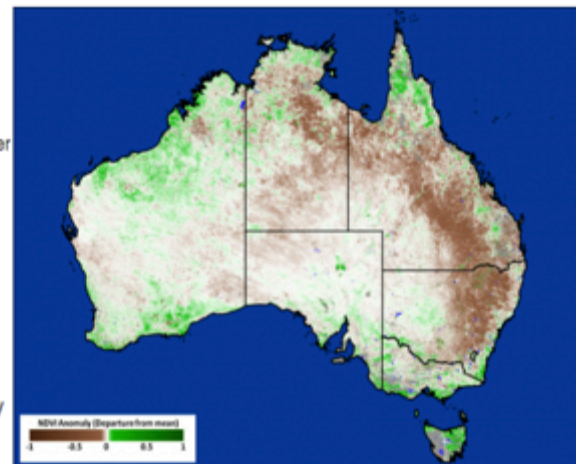
- Products Enhancements
  - *MODIS 8-Day rolling VI*
    - *MOD13Q4N (250m) and MOD13A4N (500m product)*
  - *MODIS 8-Day rolling SR*
    - *MOD09Q1N and MOD09A1N*
- Approved Enhancements
  - *MODIS Rolling Surface Albedo Level 3 filtered, corrected and aggregated product*
  - *Per pixel geolocation coordinates will be added to the NRT MOD14 product*

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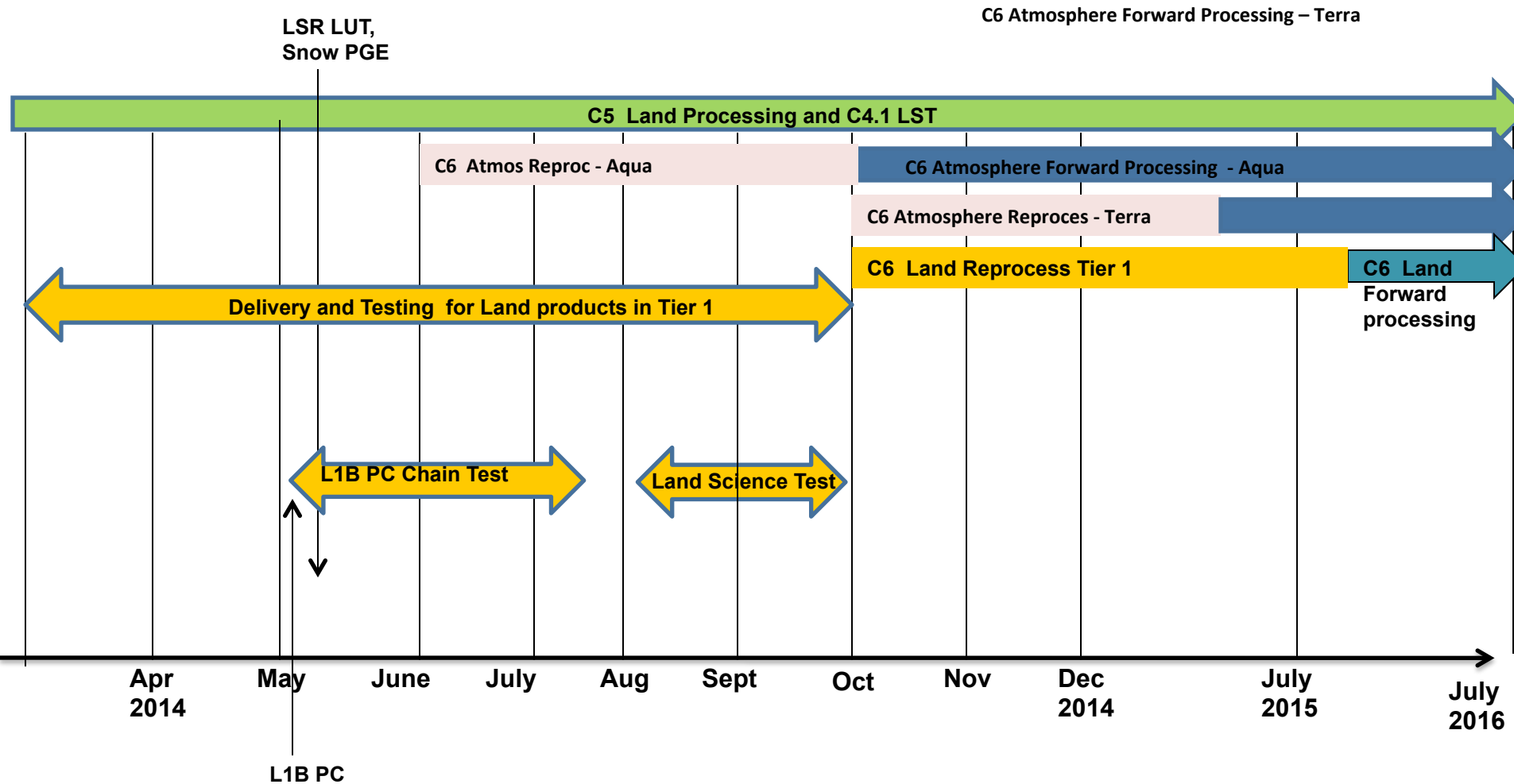


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# C6 Land and Atmosphere Testing and Reprocessing TimeLine



# Collection 6 Movie



# Near Real Time Processing for LANCE MODIS – C5/C6

- Products are being generated within 2 hours of data acquisition for most L2 products. Latency varies for L3 products.
- C6 PGEs are currently being prepared for NRT and expected to be operational within 6 months after start of C6 reprocessing at MODAPS.
- In general C6 will be run in parallel with C5 for 1 year to allow applications users time to transition – additional resources are being added to meet the latency requirement and the needed redundancy (nrt1 and nrt2)



# LANCE – Updates continued

NASA'S EARTH OBSERVING SYSTEM

- OMI (Aura) OMSO2NRTb algorithm update
  - *Product Boundary Layer will be updated with cleaner values to remove much of the background noise*
  
- S-NPP Update – from the LANCE UWG minutes
  - *It is too early to know what NASA NRT products will be produced from SNPP; it is anticipated more will be known in mid-November. It was estimated that global S-NPP products would not be available before late 2015 but that the Direct Readout Laboratory (DRL) would provide an interim source for non-global products. It was agreed that LANCE should consider ways to fast track products to LANCE when they are ready.*

# Links and More Information

## LANCE Near Real-Time webpages:

- LANCE <https://earthdata.nasa.gov/lance>
- Rapid Response: <https://earthdata.nasa.gov/lance/rapid-response>
- Worldview <https://earthdata.nasa.gov/worldview>
- Global Imagery Browse Services <https://earthdata.nasa.gov/gibs>
- GIBS wiki: <https://wiki.earthdata.nasa.gov/display/GIBS/>
- FIRMS: <https://earthdata.nasa.gov/worldview>

NASA Reverb: <http://reverb.echo.nasa.gov/reverb/>

EOSDIS User Registration System: <https://urs.earthdata.nasa.gov/users/new>

NASA's Earth Observatory: <http://earthobservatory.nasa.gov>

Questions?

[support@earthdata.nasa.gov](mailto:support@earthdata.nasa.gov)

