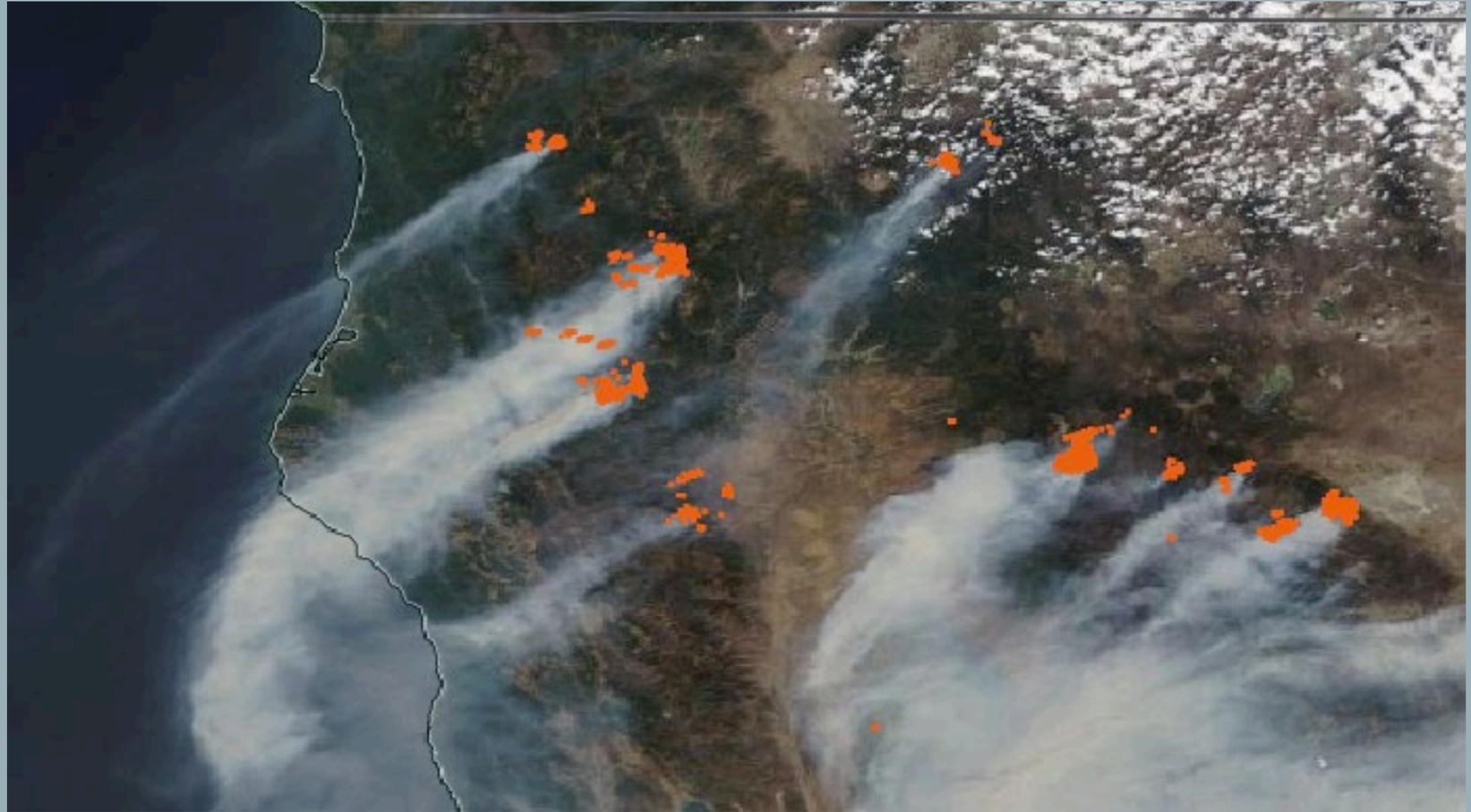


# Updates on NASA FIRMS and FIRMS US/Canada

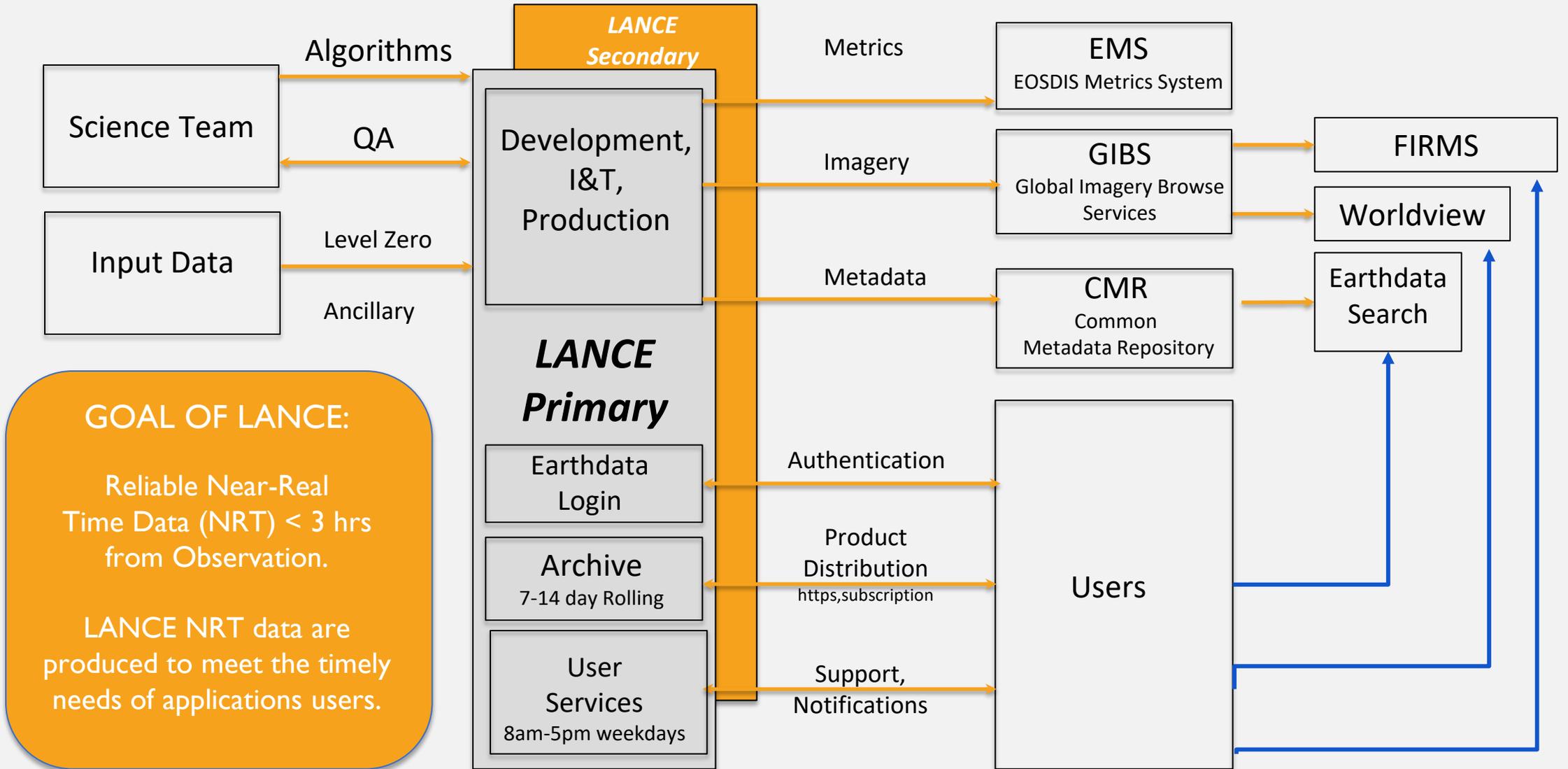


Diane Davies, LANCE Operations Manager

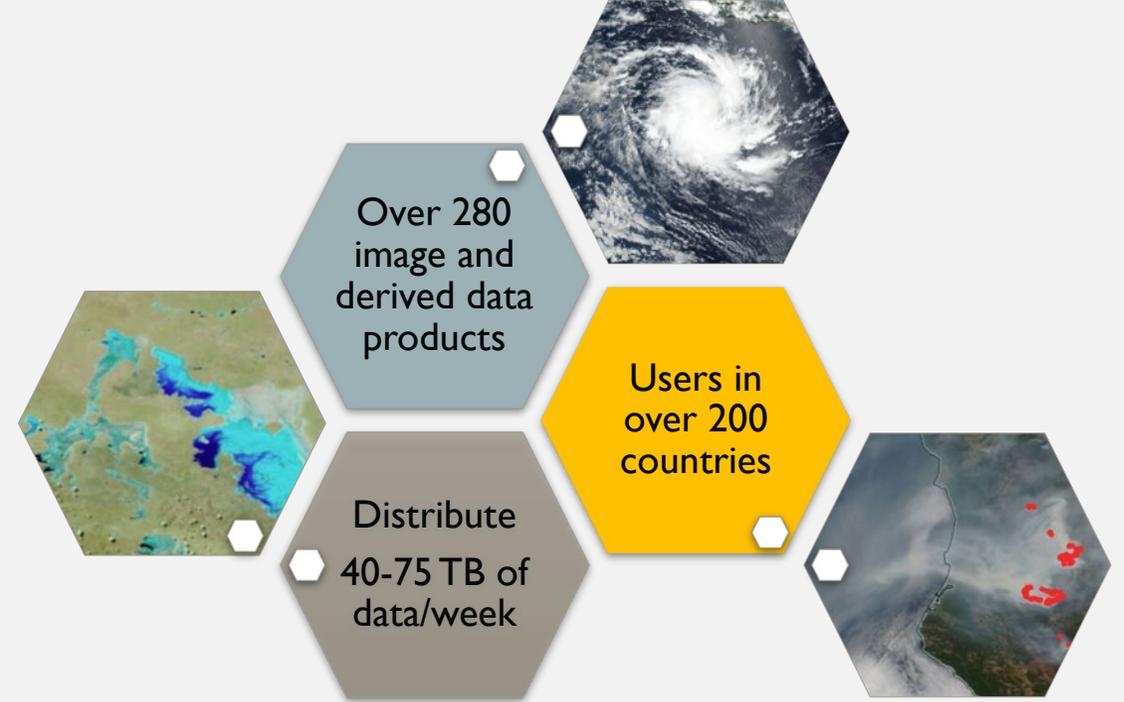
Brad Quayle (USFS). Otmar Olsina, Greg Ederer, Asen Radov (NASA GSFC)



# LANCE IN A NUTSHELL



# LANCE DISTRIBUTION



- [AIRS](#) - Atmospheric Infrared Sounder
- [AMSR2](#) - Advanced Microwave Scanning Radiometer 2
- [LIS ISS](#) - Lightning Imaging Sensor on the International Space Station
- [ICESat-2](#) - Advanced Topographic Altimeter System (ATLAS) on the Ice, Cloud, and land Elevation Satellite
- [MISR](#) - Multi-angle Imaging SpectroRadiometer
- [MLS](#) - Microwave Limb Sounder
- [MODIS](#) - Moderate Resolution Imaging Spectroradiometer
- [MOPITT](#) - Measurements of Pollution in the Troposphere
- [OMI](#) - Ozone Monitoring Instrument
- [OMPS](#) - Ozone Mapping and Profiler Suite
- [VIIRS-Atmosphere](#) - Visible Infrared Imaging Radiometer Suite
- [VIIRS-Land](#) - Visible Infrared Imaging Radiometer Suite

# Fire Information for Resource Management System (FIRMS)

Originally developed at the University of Maryland. It was funded by NASA's Applied Sciences and the United Nations (UN) Food and Agriculture Organization (FAO) using data from MODIS Rapid Response

FIRMS became part of LANCE in 2012. In 2020 the USFS approached NASA to develop FIRMS US/Canada. The prototype was released in January 2021.



# FIRMS & FIRMS US/CANADA



# NEW FEATURES ADDED TO FIRMS

(GLOBAL AND US/CANADA)

Fires: Last 24hrs

MODIS Terra		MODIS Aqua [6]		VIIRS 375m Suomi NPP [8]		VIIRS 375m NOAA-20 [10]				
<input type="radio"/> GMT <input checked="" type="radio"/> Local Time GMT+0100 (British Summer Time)										
LATITUDE	LONGITUDE	BRIGHTNESS	SCAN	TRACK	ACQUIRE_TIME	CONFIDENCE	VERSION	BRIGHTNESS2	FRP	DAYNIGHT
-12.12647	132.82144	322.14	1	1	2022-06-17 05:53:00	41	6.1NRT	304.45	7.98	D
-12.1175	132.82008	320.82	1	1	2022-06-17 05:53:00	35	6.1NRT	304.55	7.2	D
-12.12012	132.80185	320.71	1	1	2022-06-17 05:53:00	32	6.1NRT	304.61	7.03	D
-12.12144	132.79272	326.74	1	1	2022-06-17 05:53:00	76	6.1NRT	306.39	14.02	D
-12.12563	132.8007	315.58	4.68	1.98	2022-06-16 05:12:00	56	6.1NRT	294.12	72.83	D
-12.12616	132.79311	318.71	4.68	1.98	2022-06-16 05:12:00	66	6.1NRT	294.29	97.49	D

**CURRENT** HISTORICAL

TODAY 24 HRS 7 DAYS

From [Yesterday 00:00:00 GMT] to present ⓘ

BASIC MODE ADVANCED MODE

---

**Fires / Hotspots**

Simple Time Based

Time since detection:

■ < 6 ■ 6-12 ■ 12-24 ■ > 24 [hrs]

VIIRS (S-NPP, NOAA-20) ⓘ

MODIS (Aqua, Terra) ⓘ

---

**Overlays** +

**Dynamic Imagery** -

VIIRS NOAA-20 Corrected Reflectance (true color) + ⓘ

VIIRS S-NPP Corrected Reflectance (true color) + ⓘ

MODIS/Aqua Corrected Reflectance (true color) + ⓘ

MODIS/Terra Corrected Reflectance (true color) + ⓘ

---

**Static Backgrounds** -

Blue Marble ⓘ

FIRMS: BASIC AND ADVANCED MODE

Fires: Last 24hrs

MODIS Terra		MODIS Aqua [6]		VIIRS 375m Suomi NPP [8]		VIIRS 375m NOAA-20 [10]				
<input type="radio"/> GMT <input checked="" type="radio"/> Local Time GMT+0100 (British Summer Time)										
LATITUDE	LONGITUDE	BRIGHTNESS	SCAN	TRACK	ACQUIRE_TIME	CONFIDENCE	VERSION	BRIGHTNESS2	FRP	DAYNIGHT
-12.12647	132.82144	322.14	1	1	2022-06-17 05:53:00	41	6.1NRT	304.45	7.98	D
-12.1175	132.82008	320.82	1	1	2022-06-17 05:53:00	35	6.1NRT	304.55	7.2	D
-12.12012	132.80185	320.71	1	1	2022-06-17 05:53:00	32	6.1NRT	304.61	7.03	D
-12.12144	132.79272	326.74	1	1	2022-06-17 05:53:00	76	6.1NRT	306.39	14.02	D
-12.12563	132.8007	315.58	4.68	1.98	2022-06-16 05:12:00	56	6.1NRT	294.12	72.83	D
-12.12616	132.79311	318.71	4.68	1.98	2022-06-16 05:12:00	66	6.1NRT	294.29	97.49	D

**CURRENT** **HISTORICAL** 

TODAY **24 HRS** 7 DAYS 

From [Yesterday 00:00:00 GMT] to present 

**BASIC MODE** ADVANCED MODE

**Fires / Hotspots** 

Simple **Time Based**

Time since detection:  
■ < 6 ■ 6-12 ■ 12-24 ■ > 24 [hrs]

VIIRS (S-NPP, NOAA-20) 

MODIS (Aqua, Terra) 

**Overlays** 

**Dynamic Imagery** 

 VIIRS NOAA-20 Corrected Reflectance (true color)  

 VIIRS S-NPP Corrected Reflectance (true color)  

 MODIS/Aqua Corrected Reflectance (true color)  

 MODIS/Terra Corrected Reflectance (true color)  

**Static Backgrounds** 

 Blue Marble 

 PAN  MEASURE  LOCATION  LAYERS  TIMELINE  SHARE  SCREENSHOT  HELP 

FIRMS: BASIC AND ADVANCED MODE

Fires: Jun 16 2022 .. Jun 17 2022



**CURRENT** **HISTORICAL** X

Jun 17 2022 2 days v

BASIC MODE **ADVANCED MODE**

Fires / Hotspots i -

Simple **Time Based**

VIIRS 375m / NOAA-20 - i

Day Night

Time Since Detector Auto v

< 6 6-12 12-24 > 24 [hrs]

VIIRS 375m / Suomi NPP - i

Day Night

Time Since Detector Auto v

< 6 6-12 12-24 > 24 [hrs]

MODIS / Aqua - i

Day Night

Time Since Detector Auto v

< 6 6-12 12-24 > 24 [hrs]

MODIS / Terra - i

Day Night

Time Since Detector Auto v

< 6 6-12 12-24 > 24 [hrs]

MAY 2022 JUNE 2022 JUN 17 2022

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

PAN MEASURE LOCATION LAYERS **TIMELINE** SHARE SCREENSHOT HELP

# FIRMS: BASIC AND ADVANCED MODE

Fires: Jun 16 2022 .. Jun 17 2022

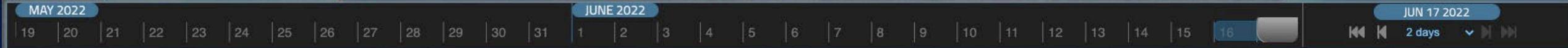


**CURRENT** **HISTORICAL** X

Jun 17 2022 2 days

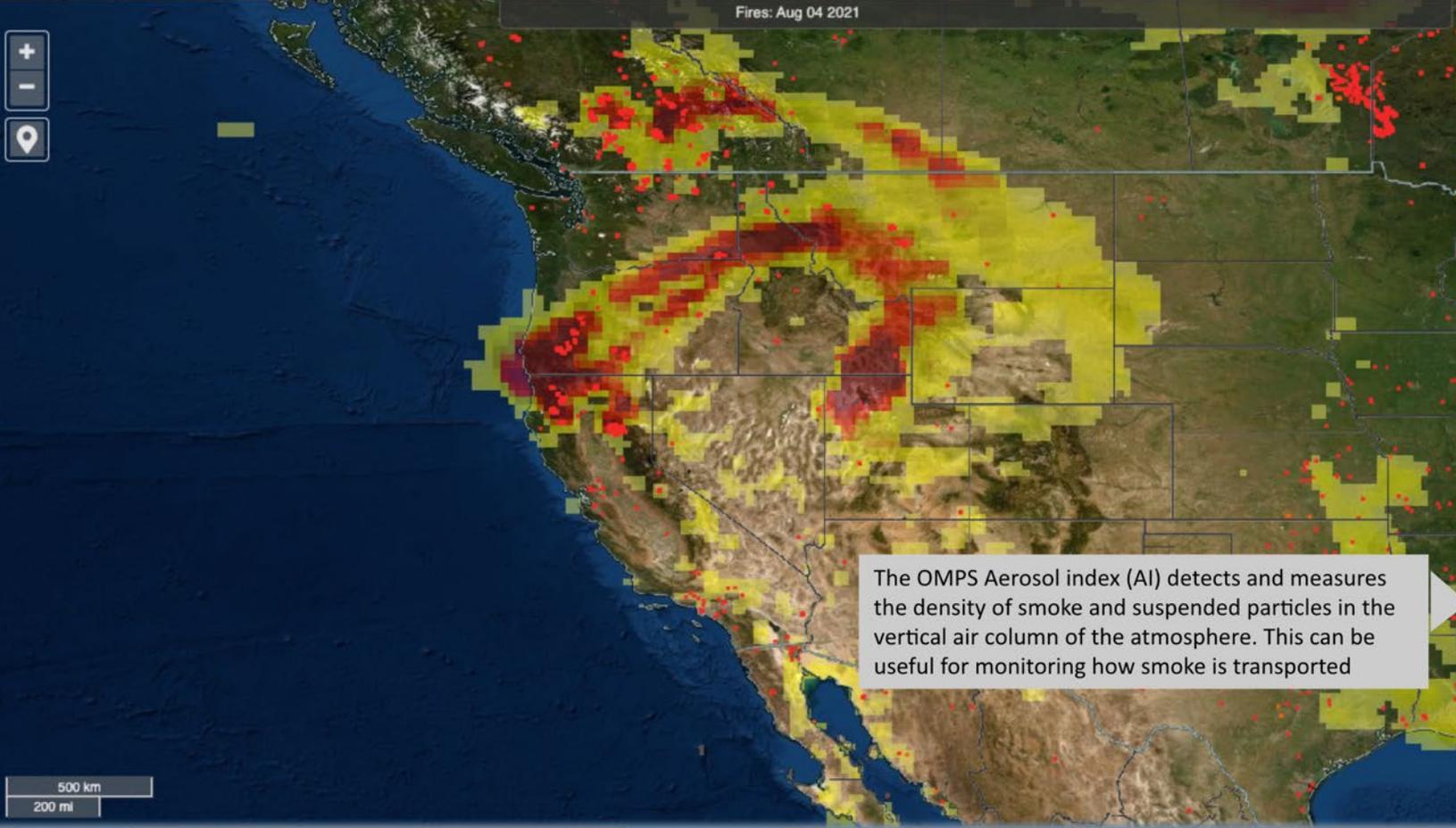
**BASIC MODE** **ADVANCED MODE**

- Gridded Fire Hotspots +
- MODIS - Burned Area +
- Orbit Tracks and Overpass Times +
- Overlays +
- Harmonized Landsat / Sentinel-2 Imagery +
- Dynamic Imagery -
- Allow multi layer selection
- NOAA-20 VIIRS NOAA-20 Corrected Reflectance (true color) + i
- S-NPP VIIRS S-NPP Corrected Reflectance (true color) + i
- Aqua MODIS/Aqua Corrected Reflectance (true color) + i
- Terra MODIS/Terra Corrected Reflectance (true color) + i
- GOES-E GOES East GeoColor (True Color (Day), Multispectral IR (Night)) + i
- GOES-W GOES West GeoColor (True Color) + i



PAN MEASURE LOCATION LAYERS **TIMELINE** SHARE SCREENSHOT HELP

# FIRMS: BASIC AND ADVANCED MODE



The OMPS Aerosol index (AI) detects and measures the density of smoke and suspended particles in the vertical air column of the atmosphere. This can be useful for monitoring how smoke is transported

**CURRENT** **HISTORICAL** X

Aug 04 2021 1 day

BASIC MODE **ADVANCED MODE**

Additional info at US/Canada map

**Overlays** -

- Latitude-Longitude Lines + i
- Coastlines / Borders / Roads - BASIC + i
- Coastlines / Borders / Roads - DETAILED + i
- OMPS Aerosol Index PyroCumuloNimbus + i
- OMPS Aerosol Index** + i
- 1.000 ≥ 5.0
- Human Built-up And Settlement Extent + i
- Protected Areas + i

JULY 2021 AUGUST 2021 AUG 04 2021

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

1 day

PAN MEASURE LOCATION LAYERS **TIMELINE** SHARE SCREENSHOT HELP

# Time Since Detection, Location Tool and Timeline

**NASA FIRMS**  
Fire Information for Resource Management System

Announcements Feedback

Lat: -12.503°, Lon: 135.025° Fires: Jun 16 2022 .. Jun 17 2022

**LOCATION TOOL**

- Current Location
- Find Location
- Saved Locations

**AUTO DETECT YOUR LOCATION**

You can also determine location by directly clicking on the map.

Allow multiple location selection Clear All

**East Arnhem, Northern Territory**  
East Arnhem, Northern Territory, AUS  
Lat: -12.3945, Lon: 135.2262

**+ SAVE LOCATION**

**CURRENT** **HISTORICAL**

Jun 17 2022 2 days

**BASIC MODE** **ADVANCED MODE**

**Fires / Hotspots**

- Simple Time Based
- VIIRS 375m / NOAA-20  
Day Night  
Time Since Detector Auto  
< 6 6-12 12-24 > 24 [hrs]
- VIIRS 375m / Suomi NPP  
Day Night  
Time Since Detector Auto  
< 6 6-12 12-24 > 24 [hrs]
- MODIS / Aqua  
Day Night  
Time Since Detector Auto  
< 6 6-12 12-24 > 24 [hrs]
- MODIS / Terra  
Day Night  
Time Since Detector Auto  
< 6 6-12 12-24 > 24 [hrs]

MAY 2022 JUNE 2022 JUN 17 2022

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

PAN MEASURE LOCATION LAYERS TIMELINE SHARE SCREENSHOT HELP

NASA Official: Robert E. Wolfe Web Privacy Policy Data & Information Policy Communications Policy Freedom of Information Act USA.gov

# Measure Tool – Area and Distance

**FIRMS US/CANADA**  
Fire Information for Resource Management System US/Canada

Announcements Feedback Home

Fires: Jun 15 2022

**MEASURE TOOL - AREA**

- AREA
- DISTANCE
- PAN
- CLEAR

**LIMITS**

- ACRES [ac]
- HECTARES [ha]
- KM [km]
- MILES [mi]

Cerro Pelado Hermits Peak

20 km  
10 mi

**CURRENT** **HISTORICAL**

Jun 15 2022 1 day

BASIC MODE **ADVANCED MODE**

- Terra MODIS/Terra Corrected Reflectance (true color)
- GOES-E GOES East GeoColor (True Color (Day), Multispectral IR (Night))
- GOES-W GOES West GeoColor (True Color (Day), Multispectral IR (Night))
- NOAA-20 VIIRS NOAA-20 Corrected Reflectance (bands M11-I2-I1)
- S-NPP VIIRS S-NPP Corrected Reflectance (bands M11-I2-I1)
- Aqua MODIS/Aqua Corrected Reflectance 721
- Terra MODIS/Terra Corrected Reflectance 721

MAY 2022 JUNE 2022 JUN 15 2022

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

1 day

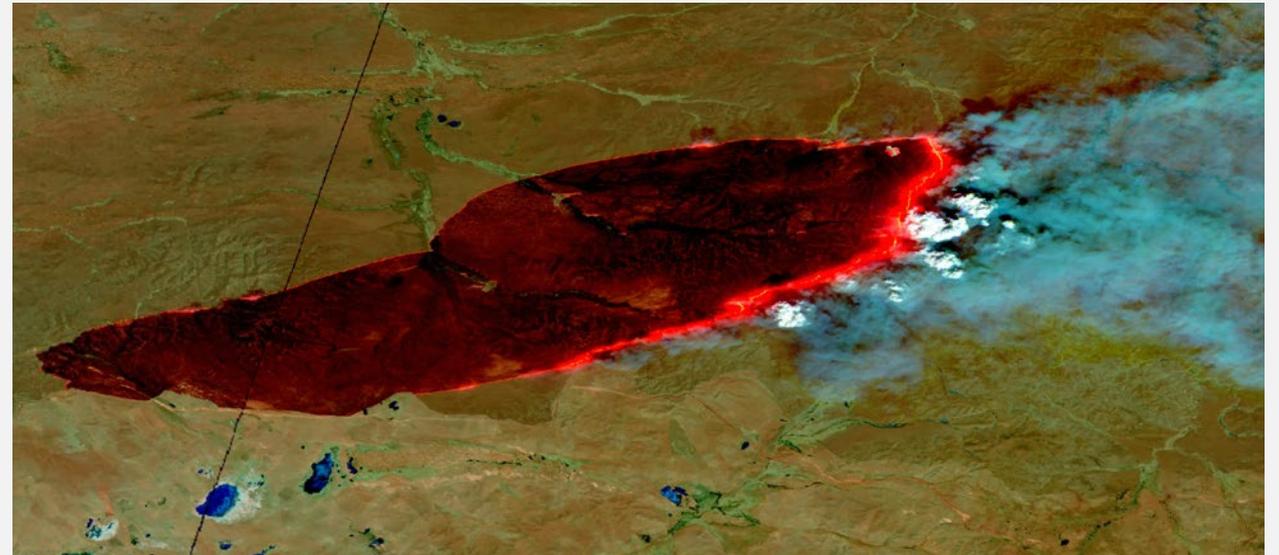
PAN MEASURE LOCATION LAYERS **TIMELINE** SHARE SCREENSHOT HELP

NASA Official: Robert E. Wolfe Web Privacy Policy Data & Information Policy Communications Policy Freedom of Information Act USA.gov

# PROTOTYPE HARMONIZED LANDSAT AND SENTINEL 2 (HLS) FALSE COLOR COMPOSITE IMAGERY FOR LANCE FIRMS

- Available from March 15, 2022 – present on both US/Canada and Global FIRMS
- Dynamically generated imagery using COGs hosted in LP DAAC S3 bucket
  - Slower response times than pre-generated imagery as in GIBS

Satellite	L30	S30
FCC Band 1	7	12
FCC Band 2	5	8A
FCC Band 3	4	4

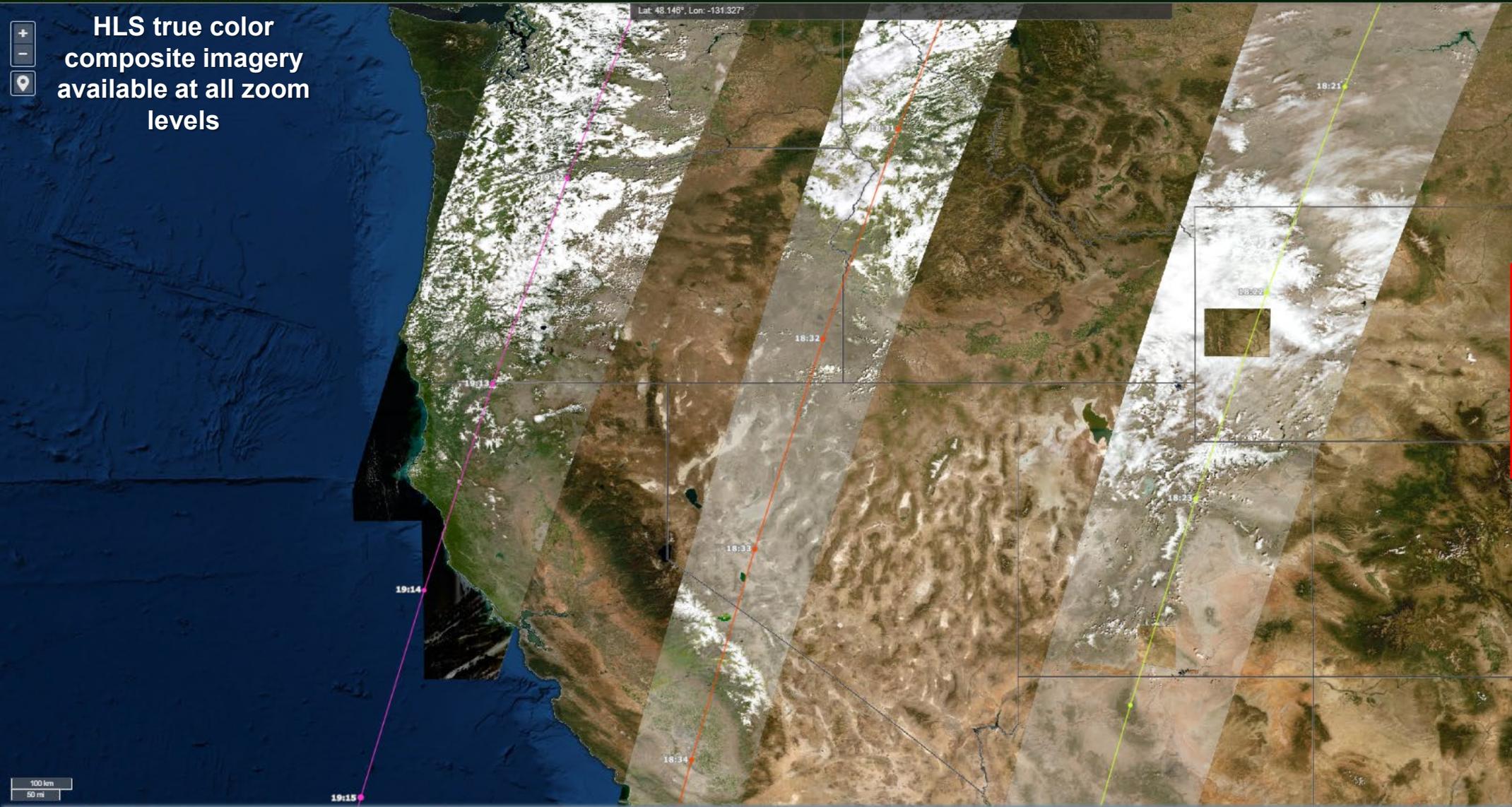


Slide courtesy of Brian Freitag (NASA MSFC / IMPACT). Presented at the LANCE UWG May 2022



# FIRMS HLS TRUE COLOR/FALSE COLOR COMPOSITE ACCESS

HLS true color composite imagery available at all zoom levels



CURRENT HISTORICAL

Apr 29 2022 31 days

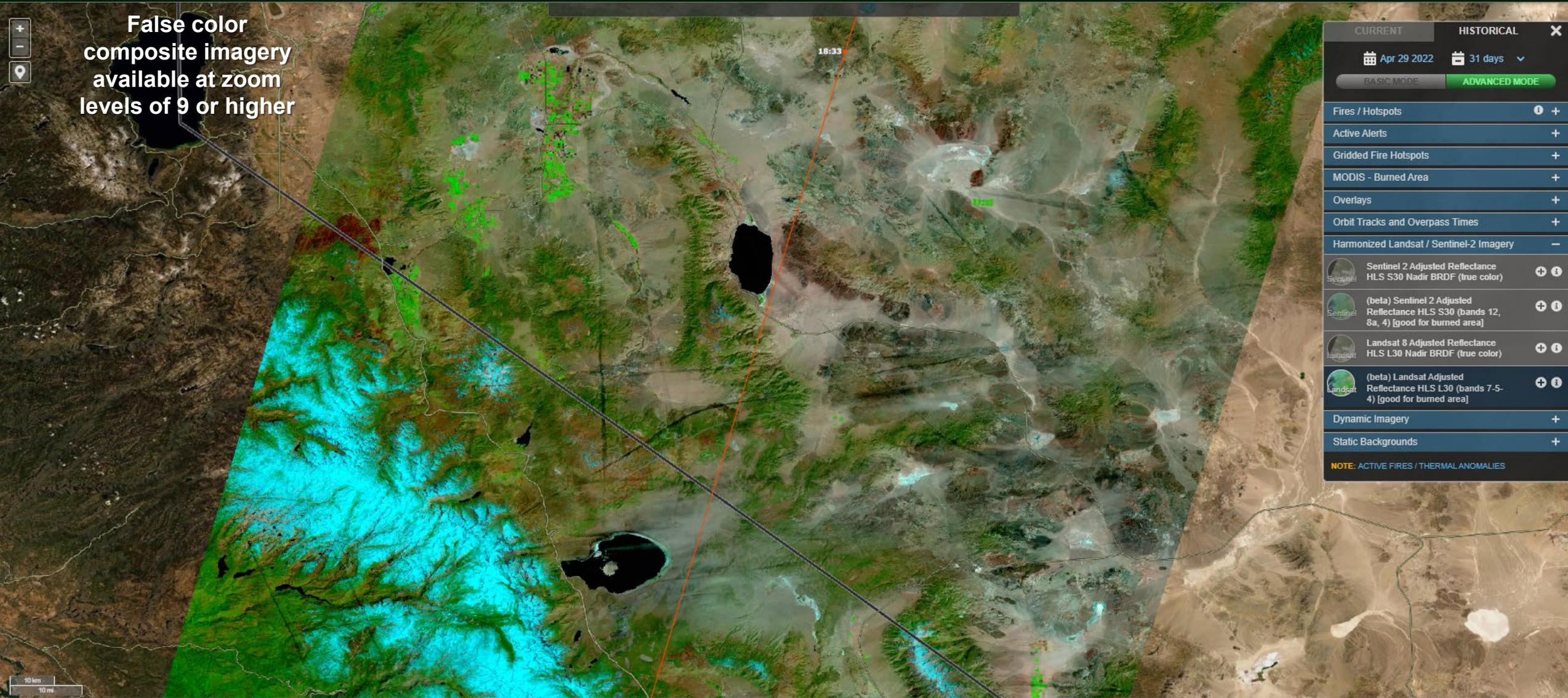
BASIC MODE ADVANCED MODE

- Fires / Hotspots +
- Active Alerts +
- Gridded Fire Hotspots +
- MODIS - Burned Area +
- Overlays +
- Orbit Tracks and Overpass Times +
- Harmonized Landsat / Sentinel-2 Imagery -
- Sentinel 2 Adjusted Reflectance HLS S30 Nadir BRDF (true color) + -  
Current zoom level not supported (good for burned area)
- Landsat 8 Adjusted Reflectance HLS L30 Nadir BRDF (true color) + -  
Current zoom level not supported (good for burned area)
- Dynamic Imagery +
- Static Backgrounds -
- Blue Marble ⓘ
- Streets ⓘ
- Topographic ⓘ
- Light Gray ⓘ
- Dark Gray ⓘ

NOTE: ACTIVE FIRES / THERMAL ANOMALIES

# FIRMS HLS TRUE COLOR/FALSE COLOR COMPOSITE ACCESS

False color  
composite imagery  
available at zoom  
levels of 9 or higher



**CURRENT** **HISTORICAL** 

 Apr 29 2022  31 days 

**BASIC MODE** **ADVANCED MODE**

- Fires / Hotspots  +
- Active Alerts +
- Gridded Fire Hotspots +
- MODIS - Burned Area +
- Overlays +
- Orbit Tracks and Overpass Times +
- Harmonized Landsat / Sentinel-2 Imagery -
-  Sentinel 2 Adjusted Reflectance HLS S30 Nadir BRDF (true color)  +
-  (beta) Sentinel 2 Adjusted Reflectance HLS S30 (bands 12, 8a, 4) [good for burned area]  +
-  Landsat 8 Adjusted Reflectance HLS L30 Nadir BRDF (true color)  +
-  (beta) Landsat Adjusted Reflectance HLS L30 (bands 7-5-4) [good for burned area]  +
- Dynamic Imagery +
- Static Backgrounds +

**NOTE:** ACTIVE FIRES / THERMAL ANOMALIES

APRIL 2022 MAY 2022 APR 29 2022

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

  31 days 

# Hermit's Peak Fire, New Mexico

**FIRMS US/CANADA**  
Fire Information for Resource Management System US/Canada

Announcements Feedback Home

Lat: 35.963° Lon: -105.620° Fires: Mar 31 2022 .. Apr 30 2022

64,394 acres  
April 28, 2022  
HLS L30

Hermit's Peak

2 km 10000 ft

APRIL 2022 MAY 2022 APR 30 2022 31 days

PAN MEASURE LOCATION LAYERS TIMELINE SHARE SCREENSHOT HELP

**CURRENT** **HISTORICAL**

Apr 30 2022 31 days

BASIC MODE **ADVANCED MODE**

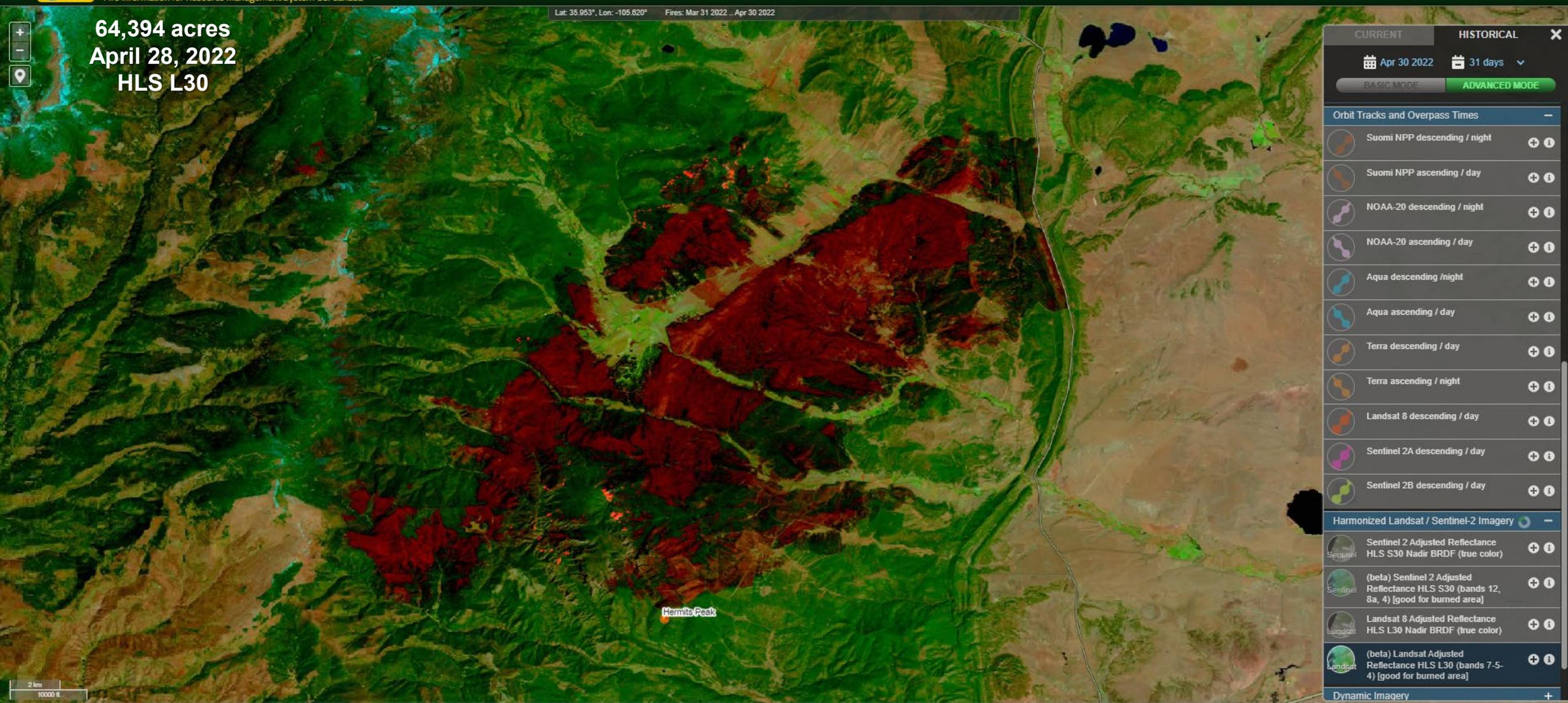
Orbit Tracks and Overpass Times

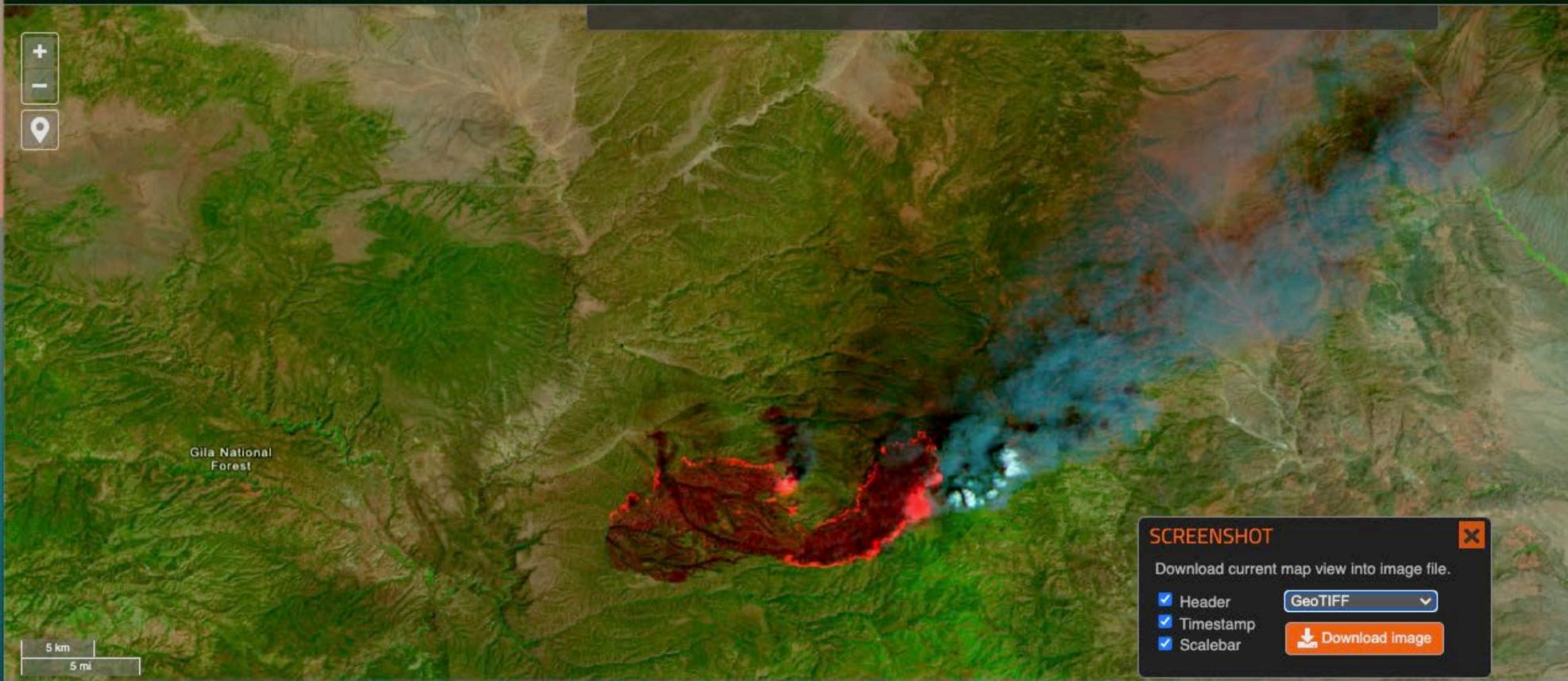
- Suomi NPP descending / night
- Suomi NPP ascending / day
- NOAA-20 descending / night
- NOAA-20 ascending / day
- Aqua descending / night
- Aqua ascending / day
- Terra descending / day
- Terra ascending / night
- Landsat 8 descending / day
- Sentinel 2A descending / day
- Sentinel 2B descending / day

Harmonized Landsat / Sentinel-2 Imagery

- Sentinel 2 Adjusted Reflectance HLS S30 Nadir BRDF (true color)
- (beta) Sentinel 2 Adjusted Reflectance HLS S30 (bands 12, 8a, 4) [good for burned area]
- Landsat 8 Adjusted Reflectance HLS L30 Nadir BRDF (true color)
- (beta) Landsat Adjusted Reflectance HLS L30 (bands 7-5-4) [good for burned area]

Dynamic Imagery





CURRENT HISTORICAL

May 16 2022 1 day

BASIC MODE **ADVANCED MODE**

- Canada Forecasted Fire Danger
- Gridded Fire Hotspots
- MODIS - Burned Area
- Overlays
- Orbit Tracks and Overpass Times
- Harmonized Landsat / Sentinel-2 Imagery
  - Sentinel 2 Adjusted Reflectance HLS S30 Nadir BRDF (true color)
  - (beta) Sentinel 2 Adjusted Reflectance HLS S30 (bands 12, 8a, 4) [good for burned area]
  - Landsat 8 Adjusted Reflectance HLS L30 Nadir BRDF (true color)

**SCREENSHOT**

Download current map view into image file.

- Header
- Timestamp
- Scalebar

GeoTIFF

Download image

MAY 2022

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

MAY 16 2022 1 day

PAN MEASURE LOCATION LAYERS TIMELINE SHARE SCREENSHOT HELP

Black fire - HLS (beta) Sentinel 2 Adjusted Reflectance HLS S30 (bands 12, 8a, 4). Shows active fire front and burned area on 16 May

# FIRMS US/CANADA

# FIRMS US/CANADA

Fire Information for Resource Management System US/Canada



Fires: Jun 14 2022

CURRENT HISTORICAL

Jun 14 2022 1 day

BASIC MODE ADVANCED MODE

### Active Alerts

USA Active Fires larger than 1,000 acres / 404 ha

Canada Active Fires larger than 1,000 acres / 404 ha

USA Red Flag Warning

USA Fire Weather Watch

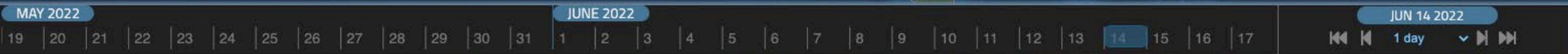
USA Fire Perimeter

USA Forecasted Fire Danger

Canada Forecasted Fire Danger

Gridded Fire Hotspots

MODIS - Burned Area



Current incidents mapped on FIRMS US/Canada include links to national incident situation reports from trusted sources in the United States and Canada:

- [National Interagency Coordination Center \(NICC\) \(United States\)](#)
- [Canadian Interagency Forest Fire Center \(CIFFC\) \(Canada\)](#)

These reports provide valuable information about National Preparedness Levels, fire activity, and information about resources assigned to individual fires.

**COLORADO**

687.00 acres	278.03 ha
1.07 miles <sup>2</sup>	2.78 km <sup>2</sup>

[ZOOM TO LOCATION](#)

**Discovery Date:**  
**Fri Jan 21 2022 19:17:25 GMT-0800**  
*(Pacific Standard Time)*

[View situation report](#)

**River Complex** (3 fires), Klamath NF, USFS. NIMO (Team 3) and IMT 2 (CA Team 15). Nine miles southwest of Etna, CA. Timber and brush. Active fire behavior with backing, group torching and short-range spotting. Several communities, numerous structures and infrastructure threatened. Evacuations, area, road and trail closures in effect.

**McCash**, Six Rivers NF, USFS. IMT 2 (SW Team 3). Fourteen miles northeast of Somes Bar, CA. Timber, brush and tall grass. Extreme fire behavior with uphill runs, running and long-range spotting. Several communities and communication infrastructure threatened. Evacuations, area, road and trail closures in effect.

**Lava**, Shasta-Trinity NF, USFS. Four miles east of Weed, CA. Timber and brush. Minimal fire behavior with creeping and smoldering. Area and road closures in effect.

Incident Name	Unit	Size		%	Ctn/Comp	Est	Personnel		Resources			Strc Lost	\$\$ CTD	Origin Own
		Acres	Chge				Total	Chge	Crw	Eng	Heli			
Dixie	CA-BTU	662,647	35,896	35	Ctn	9/30	5,982	-59	71	503	20	1,217	285M	ST
Monument	CA-SHF	128,613	9,249	10	Ctn	9/1	889	-31	12	85	9	32	21.7M	FS
Caldor	CA-ENF	62,586	39,667	0	Ctn	8/31	601	359	11	58	0	0	2.8M	FS
McFarland	CA-SHF	111,016	12,609	51	Ctn	9/2	631	179	16	57	7	2	23.3M	FS
Antelope	CA-KNF	60,634	2,970	27	Ctn	9/30	828	8	14	39	1	11	17.8M	FS
River Complex	CA-KNF	53,071	4,857	10	Ctn	10/1	806	54	14	40	9	0	14.6M	FS
McCash	CA-SRF	6,788	3,555	0	Ctn	9/29	338	36	4	5	2	0	5.3M	FS
Lava	CA-SHF	26,409	0	85	Ctn	9/1	5	0	0	1	0	23	35.3M	FS

**Northwest Area (PL 5)**

New fires:	7
New large incidents:	0
Uncontained large fires:	39
Type 1 IMTs committed:	7
Type 2 IMTs committed:	9

**Ford Corkscrew**, Northeast Region, DNR. IMT 2 (SW Team 5). Eleven miles south of Springdale, WA. Timber and brush. Active fire behavior with uphill runs, isolated torching and spotting. Several communities and structures threatened. Evacuations and road closures in effect.

**Schneider Springs**, Okanogan-Wenatchee NF, USFS. IMT 2 (EA Silver Team). IMT 1 (PNW Team 2) mobilizing. IMT is also managing the Windy Pass incident. Twenty-one miles northwest of Tieton, WA. Short grass, timber and brush. Extreme fire behavior with uphill runs, running and flanking. Several communities and numerous structures threatened. Evacuations, area, road and trail closures in effect.

**Windy Pass**, Okanogan-Wenatchee NF, USFS. Eleven miles southwest of Cle Elum, WA. Timber and short grass. Minimal fire behavior. Structures threatened. Area, road and trail closures in effect.

**Walker Creek**, Northeast Region, DNR. IMT 2 (NR Team 6). IMT is also managing the Chickadee Creek incident. Four miles northwest of Wauconda, WA. Timber and short grass. Active fire behavior with single tree torching, short-range spotting and flanking. Several communities and numerous structures threatened. Evacuations, area, road and trail closures in effect.

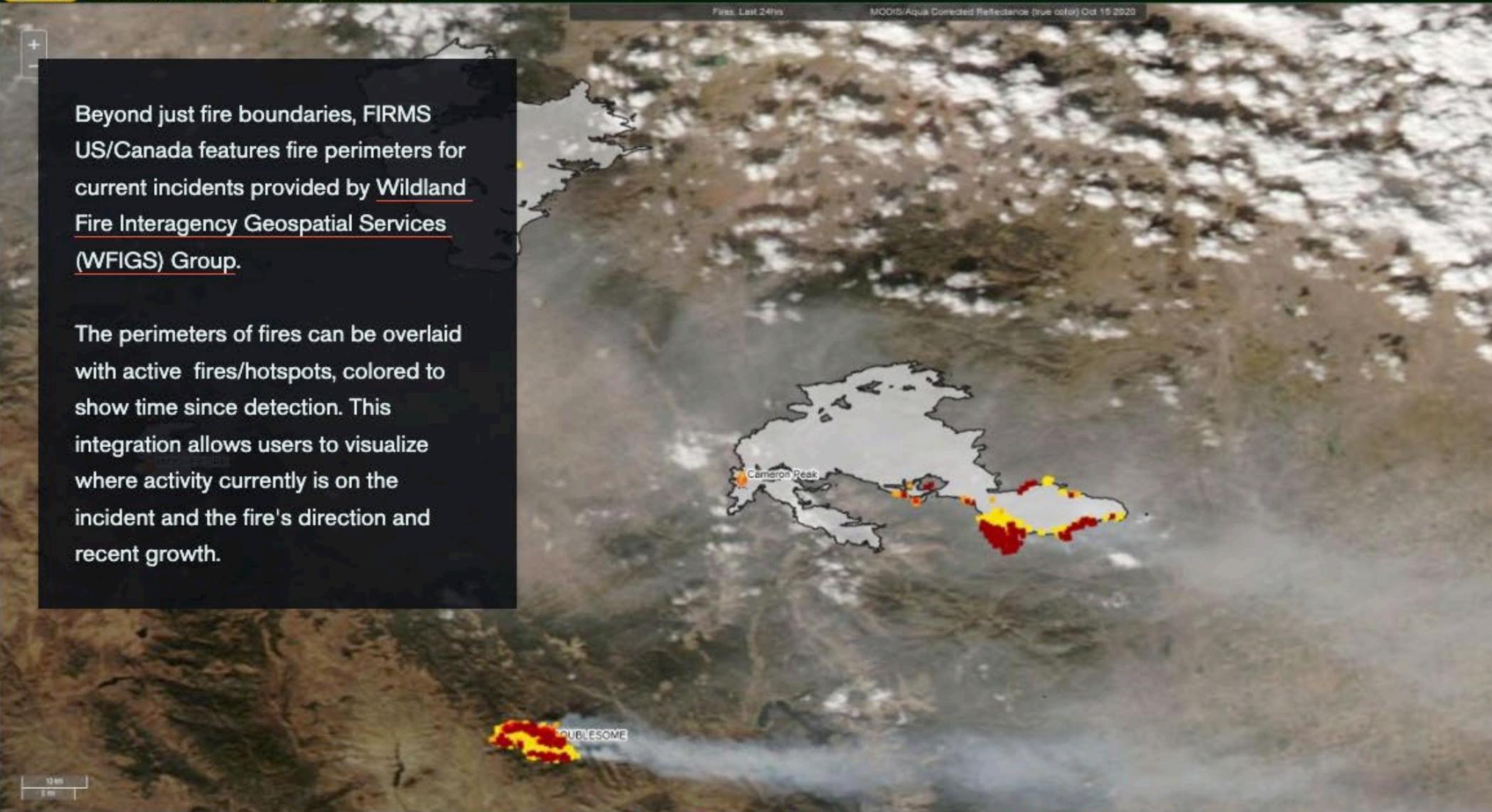


Fires: Last 24hrs

MODIS/Aqua Corrected Reflectance (true color) Oct 15 2020

Beyond just fire boundaries, FIRMS US/Canada features fire perimeters for current incidents provided by Wildland Fire Interagency Geospatial Services (WFIGS) Group.

The perimeters of fires can be overlaid with active fires/hotspots, colored to show time since detection. This integration allows users to visualize where activity currently is on the incident and the fire's direction and recent growth.



Current | Historical

today | 24 hrs

my location

Fires (Near Real-Time)

- VIIRS 375m / NOAA-20
  - Day | Night
  - Time Since Detection: Auto
  - < 6 | 6-12 | 12-24 | > 24 [hrs]
- VIIRS 375m / Suomi NPP
  - Day | Night
  - Time Since Detection: Auto
  - < 6 | 6-12 | 12-24 | > 24 [hrs]
- MODIS / Aqua
  - Day | Night
  - Time Since Detection: Auto
  - < 6 | 6-12 | 12-24 | > 24 [hrs]
- MODIS / Terra
  - Day | Night
  - Time Since Detection: Auto
  - < 6 | 6-12 | 12-24 | > 24 [hrs]

Active Alerts

- USA Active Fires
- Canada Active Fires
- USA Red Flag Warning
- USA Fire Weather Watch
- USA Fire Perimeter

Overlays +

Orbit Tracks and Overpass Times +





FIRMS showing Interagency fire management boundaries of the US National Geographic Area Coordination Centers (GACC).

## NEXT STEPS

### FIRMS Global

#### Geostationary active fire data

- Himawari, Meteosat - FRP Algorithm
- GOES 16 & 17 FDC NOAA Algorithm

### FIRMS US/Canada

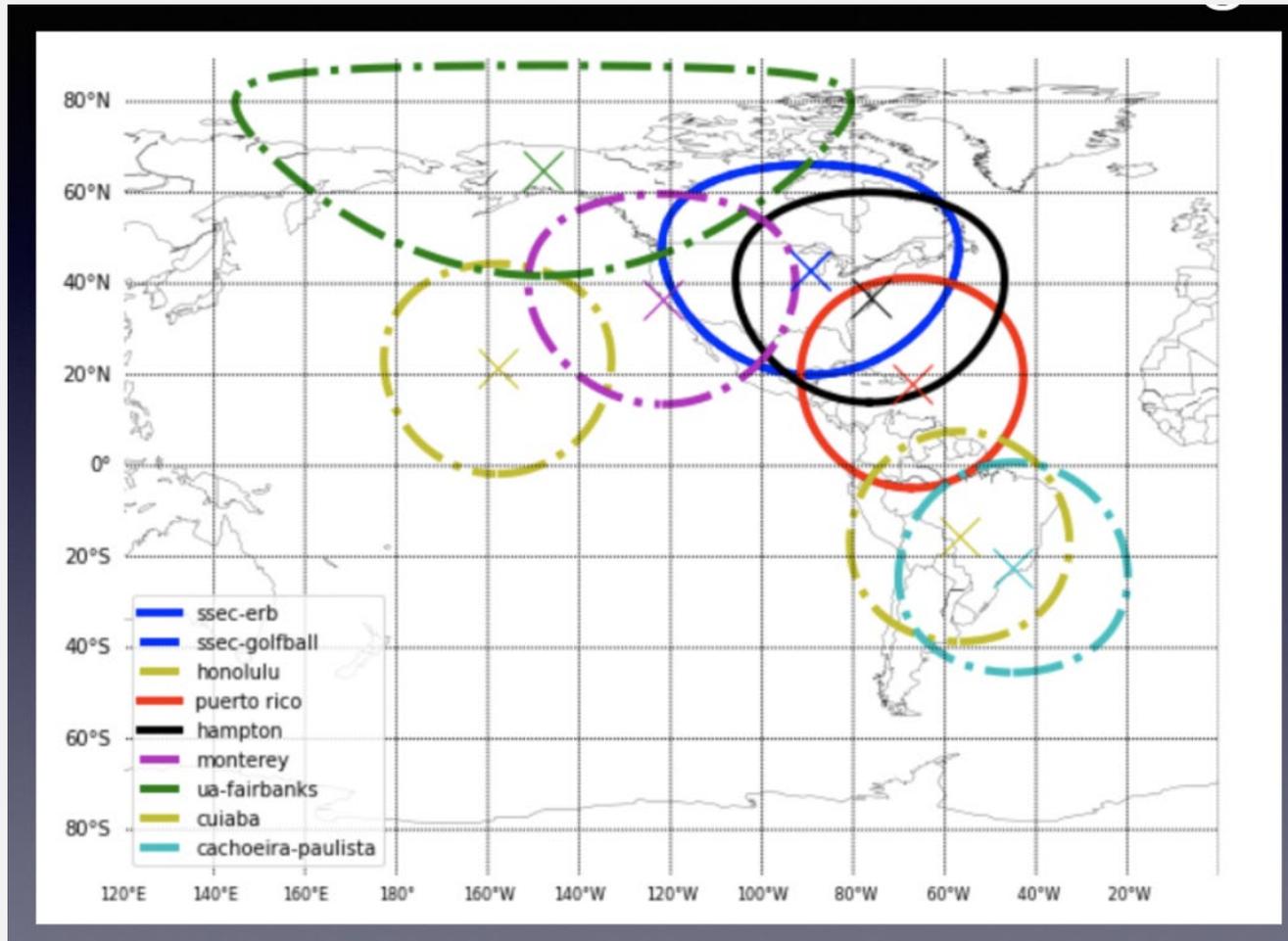
#### RT MODIS and VIIRS

#### Landsat Active Fire



# Ultra Low Latency Detection of Active Fires using VIIRS and MODIS

## Current and Planned Coverage of Real-Time Data

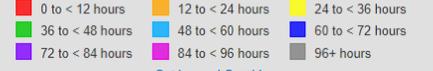


## Current Status

- Ultra low latency data are received from Madison (x 2 antennas), Hampton, and Mayaguez.
- Standard low latency data are received from Honolulu and Monterey (after the pass is complete).
- MODIS data are processed via OCSSW and MOD14; VIIRS data are processed via VIIRS L1 and VFIRE375.
- Fire locations are converted to CSV and are provided to LANCE/FIRMS via Web API.
- MODIS latency is ~ 25 seconds; VIIRS is ~ 50 seconds for data ingested and processed in real time.
- Have tested VIIRS data ingest from two antennas in Brazil; have requested VIIRS data from Univ. of Alaska Fairbanks.

# MAP SERVICES

- OGC compliant WMS, WMS-T and WFS services
- Optimized to meet decision support application needs
- Updated every 15 minutes
- Active fire detection services
  - Time since detection services
  - Cumulative year to date services
- Esri AGOL feature services:
  - Active fire feature services with NASA as authoritative source
- Burned area services
  - Monthly MODIS burned Burn scar services

Time Since Detection 0..7 days - 4 colors			
Suomi-NPP and NOAA-20	Suomi-NPP	NOAA-20	MODIS
tsd_4_viirs_00_06 tsd_4_viirs_06_12 tsd_4_viirs_12_24 tsd_4_viirs_24_00 tsd_4_viirs_all	tsd_4_viirs_snpp_00_06 tsd_4_viirs_snpp_06_12 tsd_4_viirs_snpp_12_24 tsd_4_viirs_snpp_24_00 tsd_4_viirs_snpp_all	tsd_4_viirs_noaa20_00_06 tsd_4_viirs_noaa20_06_12 tsd_4_viirs_noaa20_12_24 tsd_4_viirs_noaa20_24_00 tsd_4_viirs_noaa20_all	tsd_4_modis_00_06 tsd_4_modis_06_12 tsd_4_modis_12_24 tsd_4_modis_24_00 tsd_4_modis_all
<a href="#">GetCapabilities</a>			
LEGEND  <a href="#">Get Legend Graphics</a>			
Time Since Detection 0..7 days - 9 colors			
Suomi-NPP and NOAA-20	Suomi-NPP	NOAA-20	MODIS
tsd_9_viirs_00_12 tsd_9_viirs_12_24 tsd_9_viirs_24_36 tsd_9_viirs_36_48 tsd_9_viirs_48_60 tsd_9_viirs_60_72 tsd_9_viirs_72_84 tsd_9_viirs_84_96 tsd_9_viirs_96_00 tsd_9_viirs_all	tsd_9_viirs_snpp_00_12 tsd_9_viirs_snpp_12_24 tsd_9_viirs_snpp_24_36 tsd_9_viirs_snpp_36_48 tsd_9_viirs_snpp_48_60 tsd_9_viirs_snpp_60_72 tsd_9_viirs_snpp_72_84 tsd_9_viirs_snpp_84_96 tsd_9_viirs_snpp_96_00 tsd_9_viirs_snpp_all	tsd_9_viirs_noaa20_00_12 tsd_9_viirs_noaa20_12_24 tsd_9_viirs_noaa20_24_36 tsd_9_viirs_noaa20_36_48 tsd_9_viirs_noaa20_48_60 tsd_9_viirs_noaa20_60_72 tsd_9_viirs_noaa20_72_84 tsd_9_viirs_noaa20_84_96 tsd_9_viirs_noaa20_96_00 tsd_9_viirs_noaa20_all	tsd_9_modis_00_12 tsd_9_modis_12_24 tsd_9_modis_24_36 tsd_9_modis_36_48 tsd_9_modis_48_60 tsd_9_modis_60_72 tsd_9_modis_72_84 tsd_9_modis_84_96 tsd_9_modis_96_00 tsd_9_modis_all
<a href="#">GetCapabilities</a>			
LEGEND  <a href="#">Get Legend Graphics</a>			
Cumulative Year to Date (from 2022-01-01 to TODAY)			MODIS
Suomi-NPP	NOAA-20		
cy_viirs_snpp_alaska cy_viirs_snpp_canada cy_viirs_snpp_usa_contiguous_and_hawaii	cy_viirs_noaa20_alaska cy_viirs_noaa20_canada cy_viirs_noaa20_usa_contiguous_and_hawaii	cy_modis_alaska cy_modis_canada cy_modis_usa_contiguous_and_hawaii	
<a href="#">GetCapabilities</a>			
LEGEND  <a href="#">Get Legend Graphics</a>			

## Additional Resources

**Additional information about wildland fires in US and Canada**

Get information and maps to assist in wildland fires. (Updated on 10/18/2022)

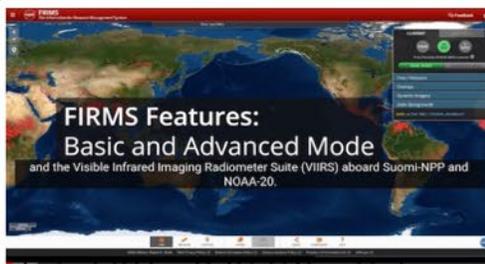
The new FIRMS (2022) provides the location and status of wildland and prescribed fires. (Updated on 10/18/2022)

USA as the location to use the same, accurate, location and current data of the fire. This information is only added and managed in systems of record managed by US and Canada wildfire management agencies. Click on the **Share** button to access a national situation report which may contain specific warning information about the fire of interest. Additionally, by clicking the **2020 FIRE DETECTION** button, you may access an additional view to the extent of the fire.



**FIRMS Blog**  
Tips, Suggestions and What's new.

**FIRMS Features: Basic and Advanced Mode**  
and the Visible Infrared Imaging Radiometer Suite (VIIRS) aboard Suomi-NPP and NOAA-20.



**YouTube Tutorial**  
How to use NASA's FIRMS.

**FIRMS: Fire Information for Resource Management System**

Managing Wildfires with Satellite Data

Providing critical data to wildfire management organizations and impacted individuals.  
January 21, 2022



**FIRMS Story Map**  
Managing Wildfires with Satellite Data.

**FIRMS FAQ**

FIRMS Frequently Asked Questions

Update: Super heated smoke plumes cause data artifacts in nighttime detections (3 August 2018). Note on data artifacts due to super heated smoke in VIIRS/NOAA-20 (17 July 2020). Please also see: Are there ever false detections or data artifacts?

**Getting started**

- Where can I find the MODIS and VIIRS Active Fire User guides?
- What are the key differences between NRT and Standard quality fire data?
- What does a fire detection mean on the ground?
- What are the different sources of data in FIRMS?
- How often are the active fire data acquired?

**FIRMS FAQ**  
Frequently Asked Questions.

**Worldview**



**Worldview**  
Explore satellite imagery.

**Worldview Snapshots**

Map Projection: Basic Layer

Geographic: True, MODIS, Corrected Reflectance, True Color

Layer Date: 20200918

Layer Style: Default Layers

Overview

How To Use

1. Create a snapshot by choosing a map projection, date, date's bounding box, and single the camera.
2. Select the download button to generate and alert a custom before downloading.
3. Click the download button to generate a snapshot.

Check out the **Frequently Asked Questions** for more information.

Other Tools

**Worldview Snapshots**  
Creating image subsets and snapshots.

# NASA Earth Science Data Resources for Wildfires



## FIRMS

NASA's Fire Information for Resource Management System (FIRMS) enables access to global near real-time (NRT) satellite imagery, active fire detections and other data from multiple satellites. FIRMS combines value-added data products to provide critical information to wildfire management organizations and impacted individuals. FIRMS distributes active fire data in multiple GIS formats, as web services and as automated detection alerts.

Access FIRMS: <https://earthdata.nasa.gov/firms>



## FIRMS US/Canada

FIRMS US/Canada combines FIRMS capabilities, value-added and regionally specific data products for North America as well as ongoing efforts by NASA and the USDA Forest Service to integrate new technologies and data enhancements. NRT satellite data with real-time availability for selected data sources will be available in summer 2022.

Access FIRMS US/Canada: <https://firms.modaps.eosdis.nasa.gov/usfs/>



## FIRMS Tutorial

This tutorial provides an introduction to the basic and advanced features of NASA's FIRMS. We show how to view satellite observations of active fires and hotspots on an interactive map; navigate between the basic and advanced modes; learn what a satellite-derived fire detection means on the ground and demonstrate how to add data imagery layers to be able to view fires and smoke plumes.

View tutorial: <https://youtu.be/SSd7KnWN9CM>



## Pathfinders and Toolkits

Data Pathfinders are designed to help users select and learn how to use data products by providing links to commonly used datasets across NASA's Earth science data collections. Toolkits, which are organized by topic and provide access to datasets, articles, and other useful information, show users different ways to visualize and subset NASA data, and provide options for saving data in different file formats.

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

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



## Blog, Tutorials, and FAQ

Do you have questions about how to use FIRMS or FIRMS US/Canada? Interested in learning what new capabilities are available? You can find all of this information, and learn more about the active fire detections and data products at: <https://firms.modaps.eosdis.nasa.gov/usfs/resources/>



## Applied Sciences Wildfires Program

The Applied Sciences Wildfires program area leverages Earth-observing data, applied research and partnerships to reduce wildfire risk before, during, and after an event.

Learn more: <https://appliedsciences.nasa.gov/what-we-do/wildfires>



## Need Help with our Data, Services, or Tools?

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National Aeronautics and  
Space Administration

