

NASA Satellite Observations and Tools for Fire and Smoke Monitoring

Fire Detections, Using NASA FIRMS, & A Case Study

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March 23, 2026

Learning Objectives

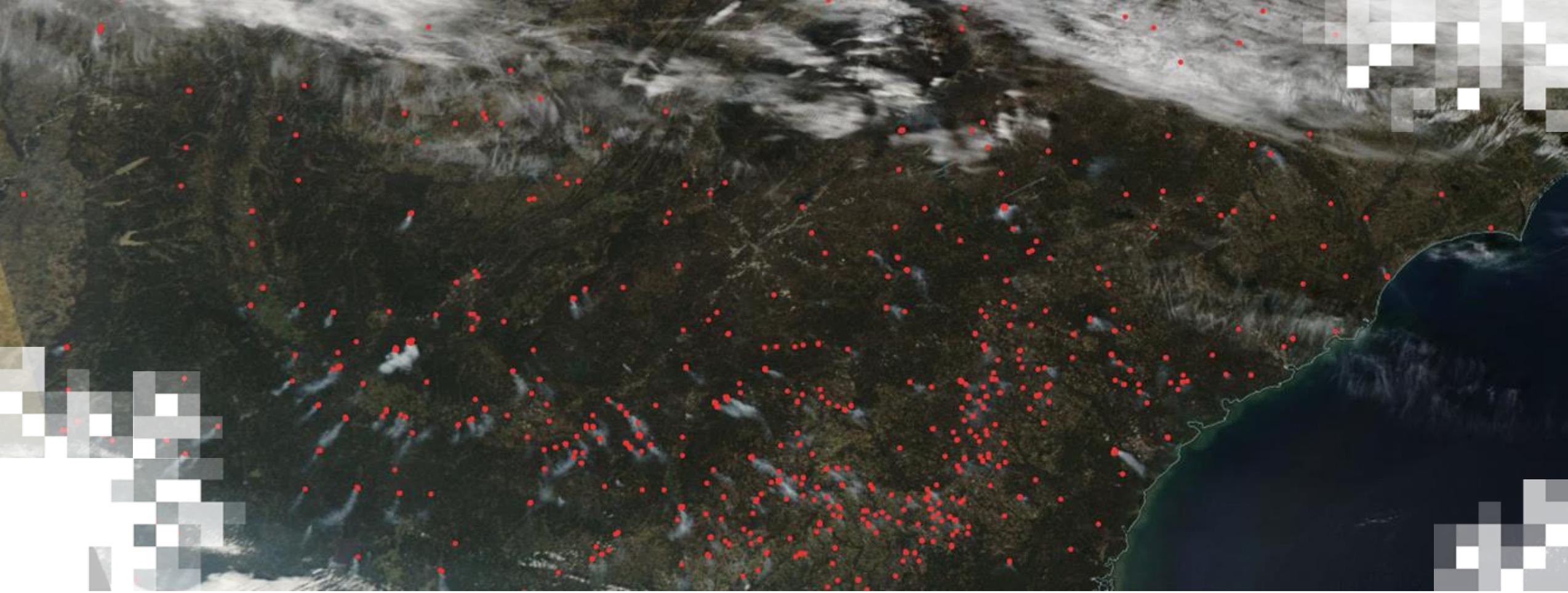
By the end of this training, you will be able to:

- Understand how active fire detections are made
- Understand the difference in types of satellites that detect active fires
- Evaluate active fire detection data sources using FIRMS to build a wildfire narrative
- Apply strategies using FIRMS to identify factors that can impact satellite-based wildfire detection, resulting in a 'missed' wildfire, and plan for when data may become available
- Use FIRMS to monitor a particular area of interest by accessing active fire data from the archive of available data
- Shown where on FIRMS ...
 - Web services are to create an email alert for the area
 - Ingesting the resulting fire alerts into a GIS platform to enable evaluation
- Case study of a recent wildland fire



How to Ask Questions

- Please hold your questions to the end of the section
 - I will answer those when I change direction



NASA Satellite Observations and Tools for Fire and Smoke Monitoring
Overview of Fire Detections

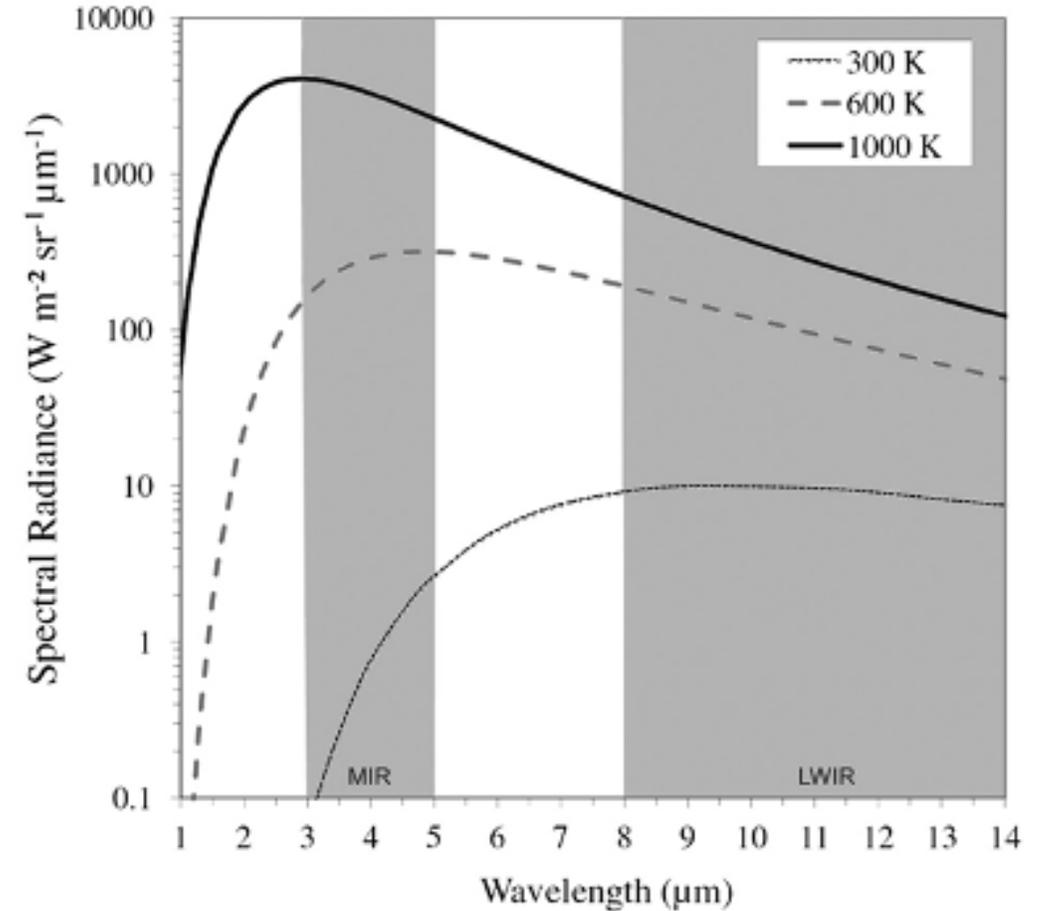
Observing Fires from Space



[Wildfire Animation](https://go.nasa.gov/4kVXK1e)
<https://go.nasa.gov/4kVXK1e>

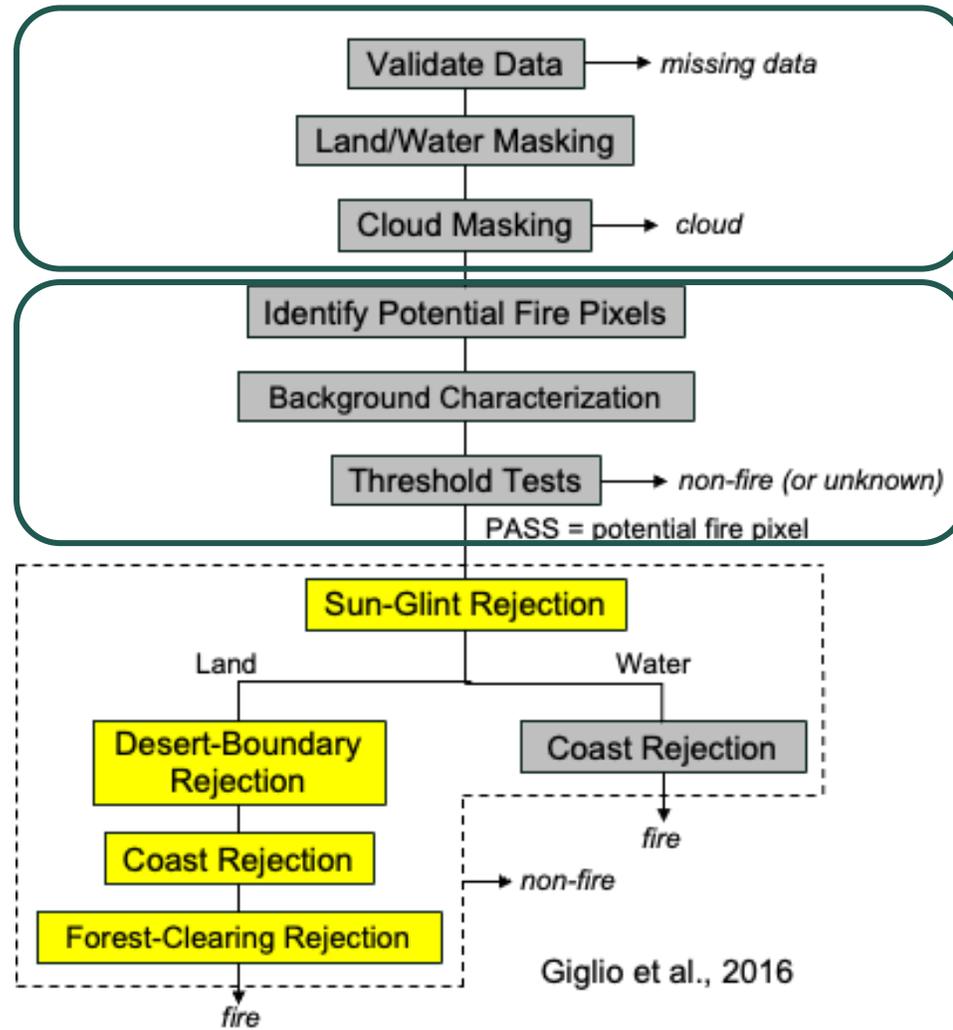
How is a fire detected by satellite?

- Satellites detect fires at the time of observation or overpass.
- Typical Temperatures:
 - Earth's Surface: ~300K
 - Smoldering Fires: 600K to 800K
 - Flaming Fires: ~1000K and Higher

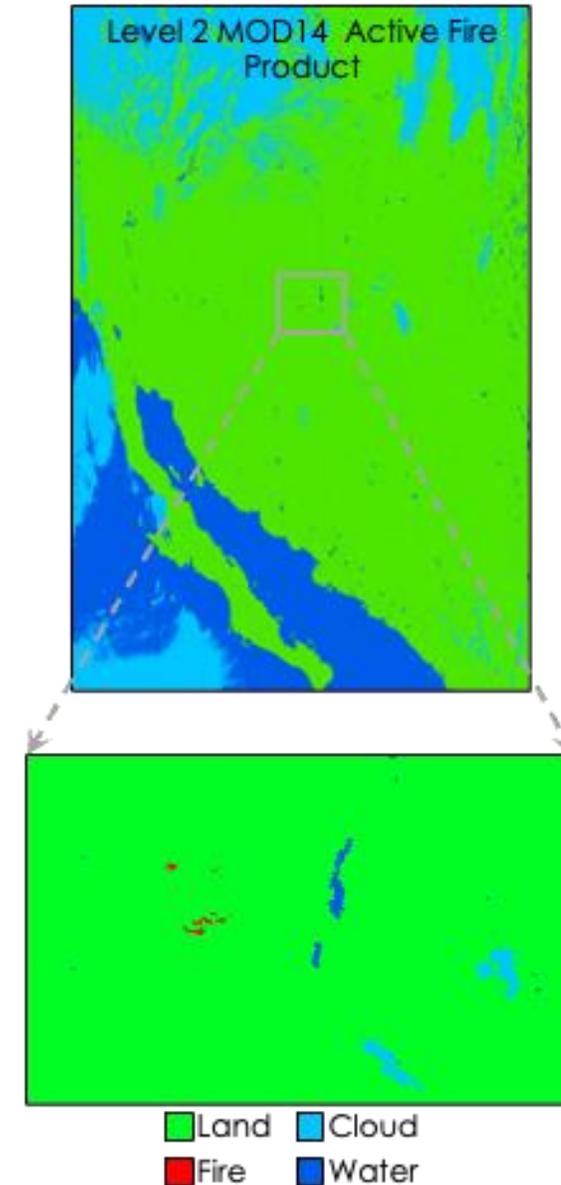


Wooster et al., 2021

How is a fire detected by satellite?

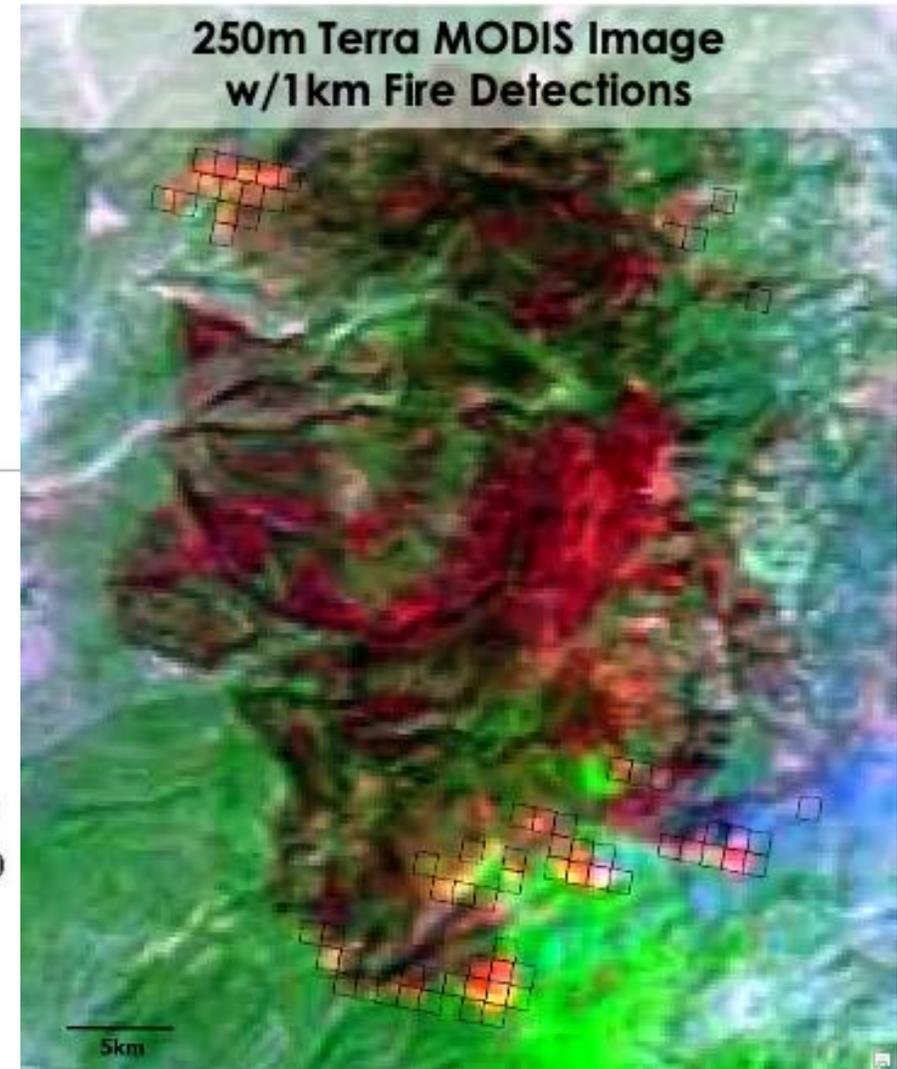
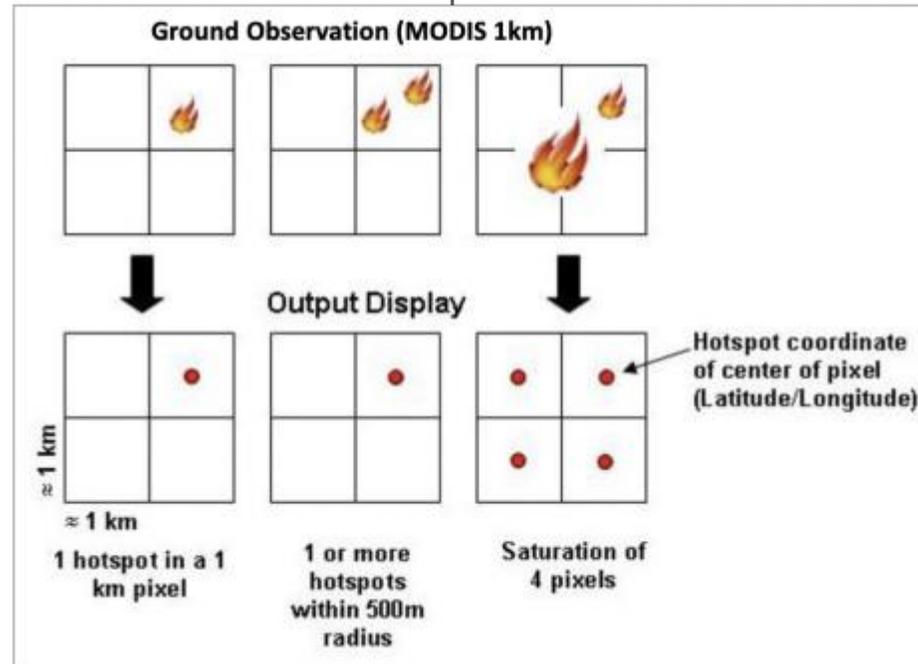


Giglio et al., 2016



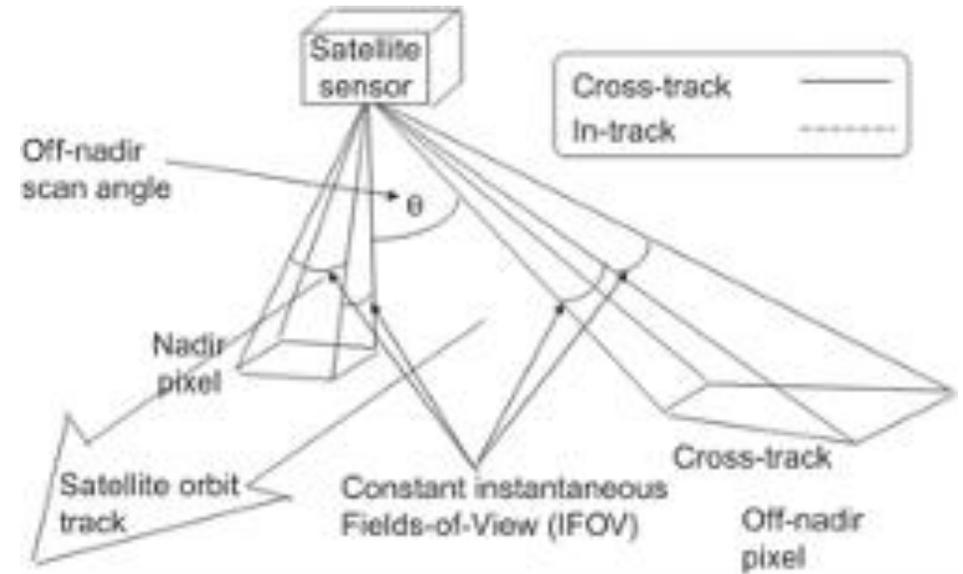
What does a detection mean on the ground?

- Driven by the characteristics of the fire.
- Detected fire activity is often less than the pixel size.
 - Small or large, intense fire(s)
 - Less intense fire burning over a broader area
- Pixel size for fire detection data is determined by sensor spatial resolution.
- Detection coordinates are the center of a pixel containing fire activity.



What does a detection mean on the ground?

- Sensor altitude, view angle affects ground footprint covered by a pixel
- Time of sensor observation or overpass relative to fire activity
- Other factors affecting detection ability:
 - Fire Size and Intensity
 - Cloud Cover
 - Smoke
 - Canopy Cover
 - Terrain
 - Land Cover Heterogeneity



Schueler and Barnes, 1998
Schueler et al., 2013



What sizes/types of fires can be detected by satellite?

MODIS (1000m)

~1,000m² smoldering to flaming fires in good conditions (day)

~100m² flaming fire in good conditions (day)

VIIRS I-Band (375m)

~100m² smoldering to flaming fires in good conditions (day)

~20m² flaming fire in good conditions (day)

~2m² flaming fire in good conditions (night)

Landsat OLI (30m)

~10-20m² smoldering to flaming fires in good conditions (day)

~4m² flaming fire in good conditions (day)

~1m² flaming fire in good conditions (night)

Algorithms and products are not perfect!



Schroeder et al., 2016

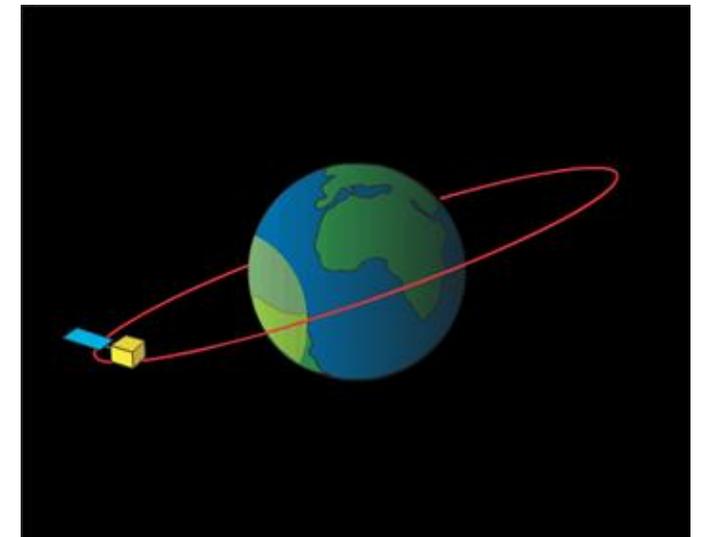
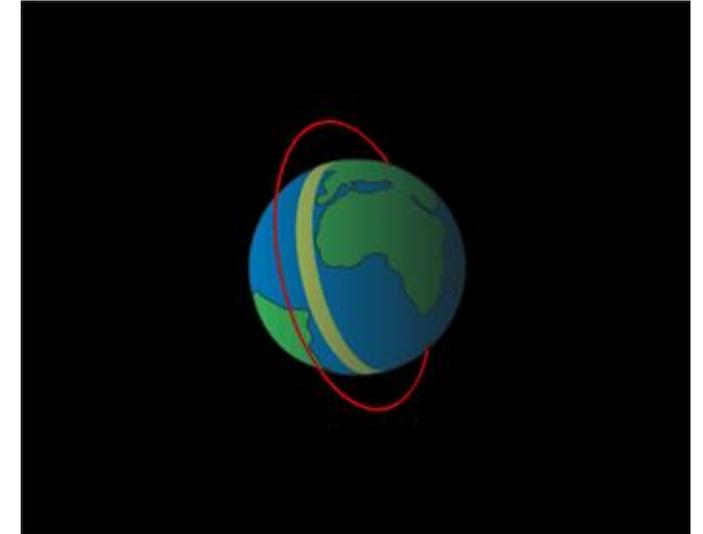
Schroeder et al., 2014

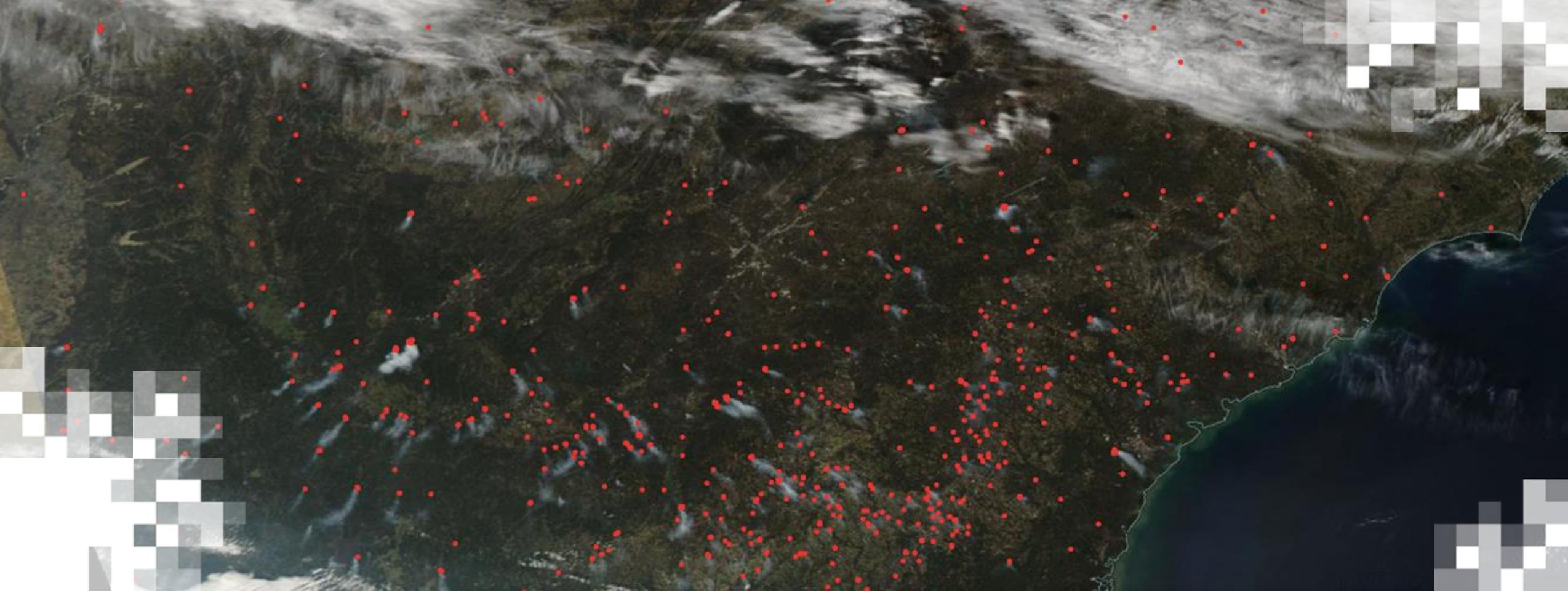
Schroeder & Giglio, 2017



Satellite Orbits

- Polar-Orbiting Satellite Orbits
 - Orbit from pole to pole while Earth rotates beneath
 - Sun-synchronous; collect on both daytime and nighttime sides
 - Low orbit (<1,000km)
 - 1-2 observations daily (more in higher latitudes)
 - Sensors cover a defined swath width
 - Relatively higher spatial resolution
- Geostationary Satellite Orbits
 - Locked on fixed point while Earth rotates
 - High orbit (35,000km)
 - Sensors observe full-disk of Earth's hemisphere
 - Multiple observations per hour
 - Relatively coarser spatial resolution





NASA Satellite Observations and Tools for Fire and Smoke Monitoring
**NASA Fire Information for Resource Management System
(FIRMS)**

Fire Information for Resource Management System (FIRMS)

- Provides multiple sources of time sensitive derived active fire detection data products and satellite imagery
- Objectives:
 - Enable access to global, NRT satellite imagery, active fire/hotspots and related products from multiple satellite missions
 - Detect and monitor the location, extent and intensity/severity of fire activity, its effects on the environment, and to support event response
 - Inform science-based decision making through standardized, readily interpretable interfaces and services to support operational users, researchers, and other stakeholders

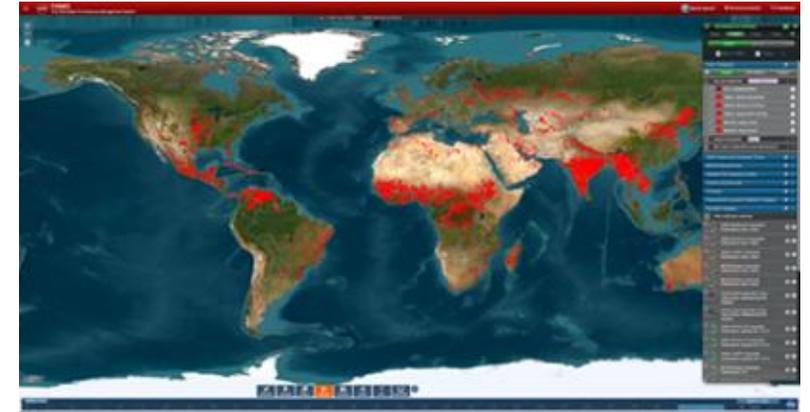


FIRMS - Global & US/Canada



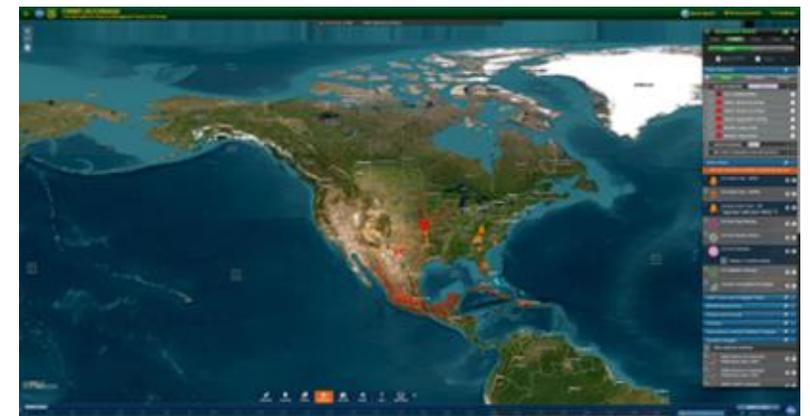
FIRMS Website: earthdata.nasa.gov/data/tools/firms

- Enables access to global near real-time satellite imagery, active fire detections and other data from multiple satellites
- Developed by University of Maryland in early 2000s and used data from MODIS
- Transitioned to NASA's **L**and, **A**tmosphere **N**ear real-time **C**apability for **E**arth observation (**LANCE**) in 2012



FIRMS US/Canada Website: firms.modaps.eosdis.nasa.gov/usfs

- Near real-time, real-time imagery and active fire detection products for the US & Canada
- Developed in partnership with USDA Forest Service
- Integrated with FIRMS Global within NASA LANCE in 2021

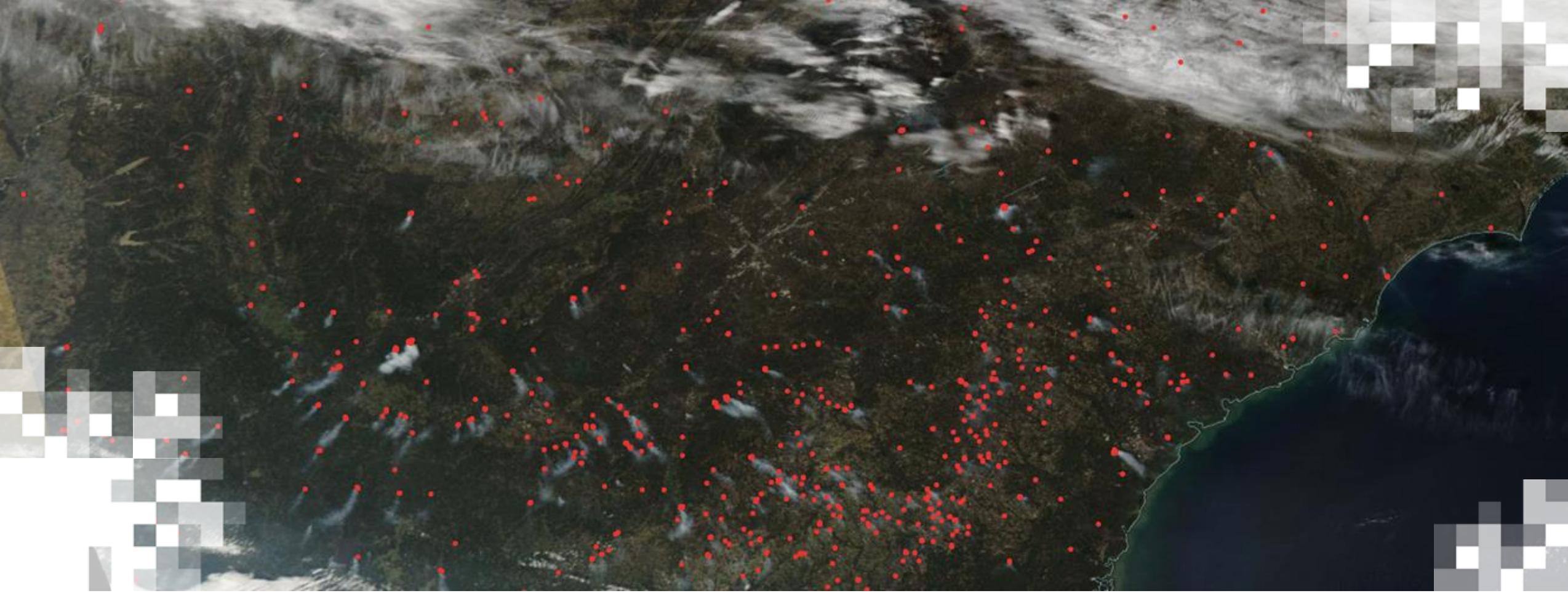


Summary of Satellite Data Product Availability in FIRMS

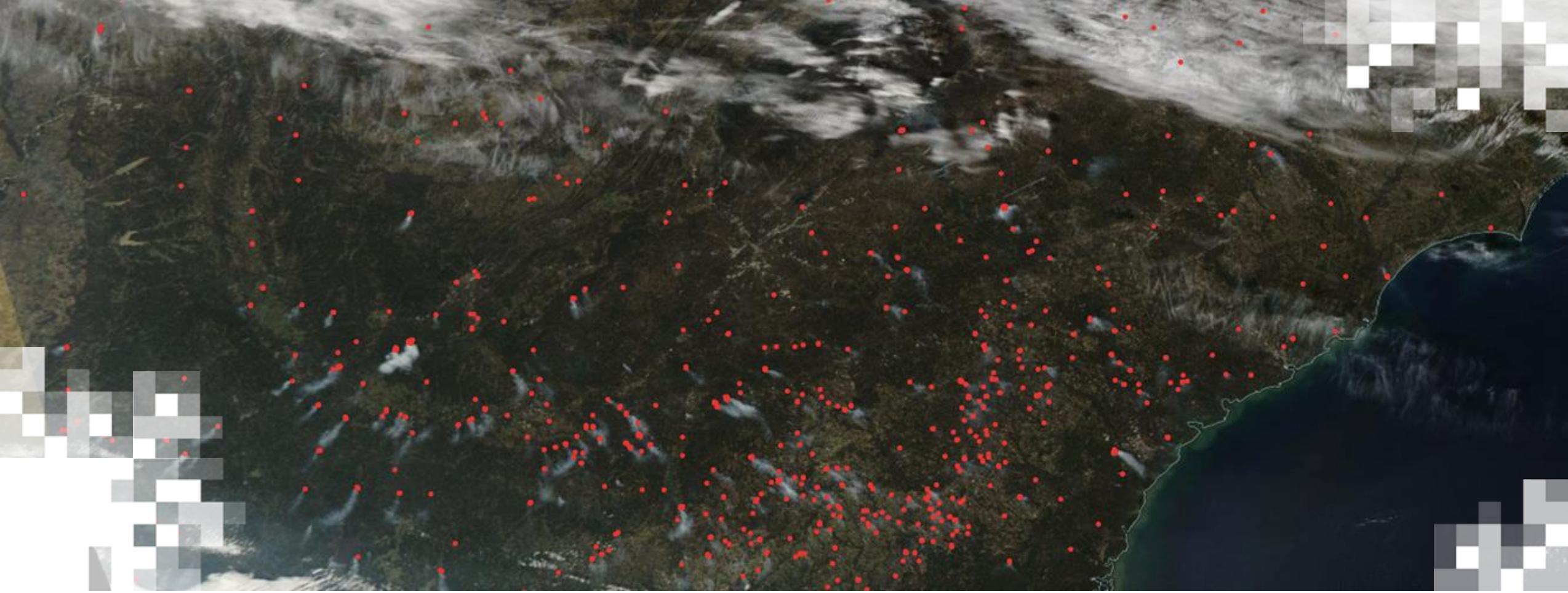
Satellite - Sensor	Active Fire	True Color Composite Imagery	False Color Composite Imagery	DNB Imagery	DNB/IR Composite Imagery	Burned Area	Vegetation Indices	Aerosol Indices	Snow Cover
GOES-18 ABI	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Not Provided in FIRMS	Not Available	Not Available	Not Available	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
GOES-19 ABI	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Not Provided in FIRMS	Not Available	Not Available	Not Available	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
Meteosat-9 SEVIRI	Available - Provided in FIRMS	Available - Planned to Include in FIRMS	Available - Not Provided in FIRMS	Not Available	Not Available	Not Available	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
Meteosat-10 SEVIRI	Available - Provided in FIRMS	Available - Planned to Include in FIRMS	Available - Not Provided in FIRMS	Not Available	Not Available	Not Available	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
Himawari-9 AHI	Available - Provided in FIRMS	Available - Planned to Include in FIRMS	Available - Not Provided in FIRMS	Not Available	Not Available	Not Available	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Not Available
Terra MODIS	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Provided in FIRMS	Not Available	Not Available	Available - Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
Aqua MODIS	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Provided in FIRMS	Not Available	Not Available	Available - Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
S-NPP VIIRS	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Not Provided in FIRMS	Available - Provided in FIRMS	Available - Not Provided in FIRMS				
NOAA-20 VIIRS	Available - Provided in FIRMS	Not Available	Available - Not Provided in FIRMS	Available - Provided in FIRMS	Available - Provided in FIRMS				
NOAA-21 VIIRS	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Planned to Include in FIRMS	Available - Planned to Include in FIRMS	Not Available	Available - Not Provided in FIRMS	Available - Planned to Include in FIRMS	Available - Not Provided in FIRMS
Sentinel-3A SLSTR	Available - Planned to Include in FIRMS	Available - Planned to Include in FIRMS	Available - Planned to Include in FIRMS	Not Available	Not Available	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
Sentinel-3B SLSTR	Available - Planned to Include in FIRMS	Available - Planned to Include in FIRMS	Available - Planned to Include in FIRMS	Not Available	Not Available	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS	Available - Not Provided in FIRMS
Landsat 8 OLI	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Not Provided in FIRMS	Not Available	Available - Not Provided in FIRMS	Available - Provided in FIRMS	Not Available	Available - Not Provided in FIRMS
Landsat 9 OLI	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Provided in FIRMS	Available - Not Provided in FIRMS	Not Available	Available - Not Provided in FIRMS	Available - Provided in FIRMS	Not Available	Available - Not Provided in FIRMS
Sentinel 2A MSI	Not Available	Available - Provided in FIRMS	Available - Provided in FIRMS	Not Available	Not Available	Not Available	Available - Provided in FIRMS	Not Available	Available - Not Provided in FIRMS
Sentinel 2B MSI	Not Available	Available - Provided in FIRMS	Available - Provided in FIRMS	Not Available	Not Available	Not Available	Available - Provided in FIRMS	Not Available	Available - Not Provided in FIRMS

Available – Provided in FIRMS	Available – Planned to Include in FIRMS	Available – Not Planned to Include in FIRMS	Available – Not Provided in FIRMS	Not Available
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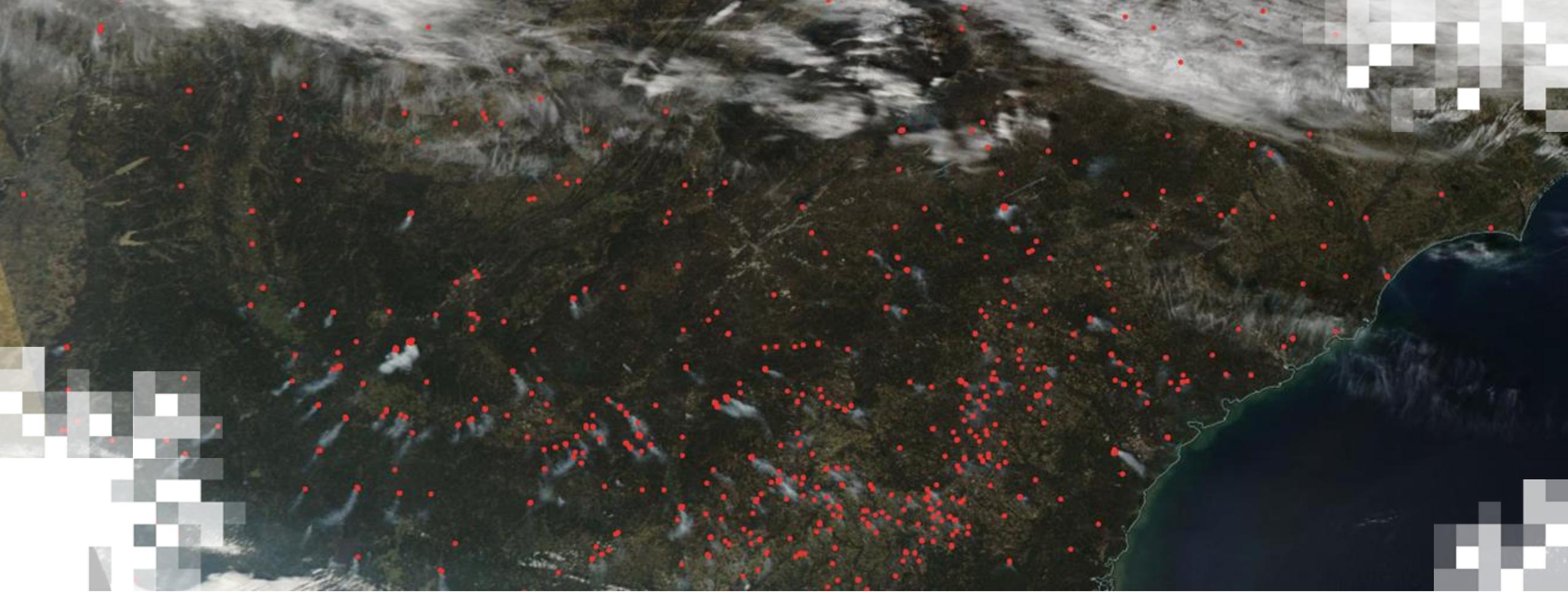




NASA Satellite Observations and Tools for Fire and Smoke Monitoring
**NASA Fire Information for Resource Management System
(FIRMS) – Walkthrough & Case Study**



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Launch US/Canada FIRMS Map



Turn Off Pre-Selected Layers

The screenshot displays the FIRMS US/CANADA web application interface. The main map shows North America with various geographical features and labels. The interface includes a top navigation bar with the NASA and USFS logos, the title "FIRMS US/CANADA", and the subtitle "Fire Information for Resource Management System US/Canada". There are also links for "Quick Search", "Announcements", and "Feedback". The map shows the current date and time as "2026-03-12 (24HRS)" and coordinates "Lat: 62.608°, Lon: -91.850°". A sidebar on the right is titled "BASIC MODE" and contains several sections: "Fires / Hotspots" with a "Simple" view selected, "Active Alerts" with a warning for "FIRES NOT DECLARED CONTAINED, CONTROLLED, NOR OUT.", "Overlays", and "Dynamic Imagery". The "Active Alerts" section lists several alerts, each with a toggle switch and an information icon. The "Dynamic Imagery" section lists "VIIRS NOAA-20 Corrected Reflectance (true color)". The bottom of the interface has a toolbar with icons for "MEASURE", "LOCATION", "LAYERS", "TIMELINE", "CAPTURE", "SHARE", "HELP", and "VIEW MODE".

Top Bar: NASA, USFS, FIRMS US/CANADA, Fire Information for Resource Management System US/Canada, Quick Search, Announcements, Feedback.

Map Info: Lat: 62.608°, Lon: -91.850°, 2026-03-12 (24HRS).

Right Panel (BASIC MODE):

- Fires / Hotspots:** TODAY, 24HRS (selected), 7DAYS, 24HRS (From [Yesterday 00:00:00 UTC] to present).
- View:** Simple (selected), Time Based.
- Layers:** Landsat [30m], VIIRS (S-NPP, NOAA-20 & NOAA-21) [375m], MODIS (Aqua & Terra) [1km].
- Active Alerts:** FIRES NOT DECLARED CONTAINED, CONTROLLED, NOR OUT. (Warning banner).
 - US Active Fires - IMSR (checked)
 - Canada Active Fires - DIP (checked)
 - US Fire Perimeter (checked)
 - US Fire Weather Watch (checked)
 - US Red Flag Warning (checked)
- Overlays:** +
- Dynamic Imagery:** -
 - VIIRS NOAA-20 Corrected Reflectance (true color) (checked)

Bottom Bar: MEASURE, LOCATION, LAYERS, TIMELINE, CAPTURE, SHARE, HELP, VIEW MODE.



Change the Mode to Advanced

The screenshot displays the FIRMS US/CANADA web application interface. The main map shows North America with various geographical features and city labels. A 'MAIN MAP MENU' overlay is visible on the right side, containing several interactive buttons. The 'ADVANCED MODE' button is highlighted in green, indicating it is the selected mode. Other buttons include 'BASIC MODE', 'BURNED AREA', 'GLOBAL FIRES', 'SMOKE / AEROSOLS', 'EXPERIMENTAL', 'FIRE ALERTS', and 'DOWNLOADS'. The top navigation bar includes the NASA and USFS logos, the title 'FIRMS US/CANADA', and links for 'Quick Search', 'Announcements', and 'Feedback'. The bottom navigation bar contains icons for 'MEASURE', 'LOCATION', 'LAYERS', 'TIMELINE', 'CAPTURE', 'SHARE', 'HELP', and 'VIEW MODE'. A scale bar in the bottom left corner shows 1000 km and 500 mi.

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

Lat: 74.251°, Lon: -59.367° 2026-03-12 (24HRS)

MAIN MAP MENU

- BASIC MODE
- ADVANCED MODE**
- BURNED AREA
- GLOBAL FIRES
- SMOKE / AEROSOLS
- EXPERIMENTAL
- FIRE ALERTS
- DOWNLOADS

MEASURE LOCATION LAYERS TIMELINE CAPTURE SHARE HELP VIEW MODE



Use the Location Tool to Select Beaver, OK

The screenshot displays the FIRMS US/CANADA web application interface. The main map shows a satellite view of a region in Oklahoma, with a red location pin placed on Beaver, OK. The 'LOCATION TOOL' panel on the left is open, showing a search for 'beaver' and a list of results, with 'Beaver County, OK, USA' highlighted. The 'ADVANCED MODE' panel on the right is also open, showing the 'DAILY' view for 'Mar 12 2026' with a '2 days' filter. The 'Fires / Hotspots' section is set to 'Simple' view, and the 'POLAR ORBITING' section is set to 'RECOMMENDED'. The 'Active Alerts' section shows 'US Active Fires - IMSR' and 'US Active Fires - IRWIN'. The bottom of the interface features a calendar for February and March 2026, and a navigation bar with icons for MEASURE, LOCATION, LAYERS, TIMELINE, CAPTURE, SHARE, HELP, and VIEW MODE.



Close the Location Tool, Zoom Out, & Scroll to Dynamic Imagery

The screenshot displays the FIRMS US/CANADA web application interface. The main map shows a satellite view of a region in Oklahoma, with a location tool overlay centered on a point. The overlay text reads: "Oklahoma", "Beaver County, OK, USA", "Lat: 36.7497, Lon: -100.4768", and a "+ SAVE LOCATION" button. The top navigation bar includes the NASA and UAS logos, the title "FIRMS US/CANADA", and the subtitle "Fire Information for Resource Management System US/Canada". On the right side of the top bar are links for "Quick Search", "Announcements", and "Feedback". The map interface includes zoom controls (+, -) and a location pin icon on the left. A scale bar at the bottom left indicates 50 km and 20 mi. The bottom navigation bar contains icons for "MEASURE", "LOCATION", "LAYERS", "TIMELINE", "CAPTURE", "SHARE", "HELP", and "VIEW MODE". The "TIMELINE" icon is highlighted. A calendar at the bottom shows the current date as "MAR 12 2026" with a "2 DAYS" scroll indicator. On the right side, an "ADVANCED MODE" panel is open, showing a "DAILY" filter, a date of "Mar 12 2026", and a list of overlays including "VIIRS NOAA-20 Corrected Reflectance (true color)", "VIIRS NOAA-21 Corrected Reflectance (true color)", "VIIRS S-NPP Corrected Reflectance (true color)", "MODIS/Aqua Corrected Reflectance (true color)", "MODIS/Terra Corrected Reflectance (true color)", "Sentinel-2 HLS Last 5-Day Adjusted Reflectance BRDF (true color)", and "Landsat 8/9 HLS Last 8-Day Adjusted Reflectance BRDF (true color)".



Change the Date to February 17, 2026

The screenshot displays the FIRMS US/CANADA web application interface. The main map shows a satellite view of a region in Kansas, with labels for Garden City, Dodge City, Liberal, Guymon, and Dalhart. The map includes a scale bar (50 km / 20 mi) and a coordinate display (Lat: 36.964°, Lon: -102.392°) for the date 2026-02-17 (2 DAYS).

The interface features a top navigation bar with the NASA and UAS logos, the title "FIRMS US/CANADA Fire Information for Resource Management System US/Canada", and links for "Quick Search", "Announcements", and "Feedback".

On the right side, there is an "ADVANCED MODE" panel with a date selection calendar. The calendar is set to February 2026, and the date February 17, 2026, is selected. Below the calendar, there are several layers listed, including "MODIS/Aqua Corrected Reflectance (true color)", "MODIS/Terra Corrected Reflectance (true color)", "Sentinel-2 HLS Last 5-Day Adjusted Reflectance BRDF (true color)", and "Landsat 8/9 HLS Last 8-Day Adjusted Reflectance BRDF (true color)".

At the bottom of the interface, there is a timeline navigation bar showing the months of February 2026 and March 2026, with the date February 17, 2026, highlighted. A "VIEW MODE" button is also visible.



Flip Through Various True Color Imagery is the Clearest

The screenshot displays the FIRMS US/CANADA web application interface. The main map area shows a true-color satellite image of a region in Oklahoma, with a location popup for "Oklahoma, Beaver County, OK, USA" at coordinates 36.7497, -100.4768. The popup includes a "+ SAVE LOCATION" button. The interface features a top navigation bar with the NASA and UAS logos, the title "FIRMS US/CANADA Fire Information for Resource Management System US/Canada", and links for "Quick Search", "Announcements", and "Feedback". A sidebar on the right is in "ADVANCED MODE" and lists various satellite imagery overlays, including VIIRS NOAA-20, VIIRS NOAA-21, VIIRS S-NPP, MODIS/Aqua, MODIS/Terra, Sentinel-2, and Landsat 8/9. The bottom of the interface includes a timeline for February and March 2026, and a bottom toolbar with icons for "MEASURE", "LOCATION", "LAYERS", "TIMELINE", "CAPTURE", "SHARE", "HELP", and "VIEW MODE".



Flip Through Various True Color Imagery is the Clearest

The screenshot displays the FIRMS US/CANADA web application interface. The main map area shows a satellite image of a region in the central United States, with labels for Garden City, Dodge City, Liberal, Guymon, Dalhart, and Woodward. The interface includes a top navigation bar with the NASA and USFS logos, the title "FIRMS US/CANADA Fire Information for Resource Management System US/Canada", and links for "Quick Search", "Announcements", and "Feedback". A right-side panel titled "ADVANCED MODE" is open, showing a list of satellite imagery layers. The "DAILY" tab is selected, and the date is set to "Feb 17 2026" with a "2 days" duration. The layers list includes:

- VIIRS NOAA-20 Corrected Reflectance (true color)
- VIIRS NOAA-21 Corrected Reflectance (true color)
- VIIRS S-NPP Corrected Reflectance (true color)
- MODIS/Aqua Corrected Reflectance (true color)
- MODIS/Terra Corrected Reflectance (true color)
- Sentinel-2 HLS Last 5-Day Adjusted Reflectance BRDF (true color)
- Landsat 8/9 HLS Last 8-Day Adjusted Reflectance BRDF (true color)

At the bottom of the interface, there is a timeline for February 2026, with the 16th highlighted. A "VIEW MODE" button is also visible.



Turn on the Active Fire Detections for all Polar Orbiting Satellites

The screenshot displays the FIRMS US/CANADA web application. The top navigation bar includes the NASA and UAS logos, the title "FIRMS US/CANADA", and the subtitle "Fire Information for Resource Management System US/Canada". It also features "Quick Search", "Announcements", and "Feedback" links. The main map area shows a satellite view of the central United States with red hotspots indicating active fires. A sidebar on the right is open to "ADVANCED MODE", showing filters for "POLAR ORBITING" (RECOMMENDED) and "GEOSTATIONARY" (BETA). The "POLAR ORBITING" section lists several satellite sensors: OLI / Landsat [30m], VIIRS / NOAA-20 [375m], VIIRS / NOAA-21 [375m], VIIRS / Suomi NPP [375m], MODIS / Aqua [1km], and MODIS / Terra [1km]. The "Active Alerts" section shows "US Active Fires - IMSR" with a note that data is only available from 2026-03-05 to the present. The bottom of the interface features a timeline for February 2026, with the 16th highlighted, and a "VIEW MODE" button.



Pan to the Left to See More Smoke in the Imagery, Click for Metadata

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

Quick Search Announcements Feedback

Lat: 37.614°, Lon: -98.636° FIRES: 2026-02-17 (2 DAYS)

Advanced Mode: Today ~24hrs 3 days 7 days

DAILY SUB-DAILY

Feb 17 2026 2 days

Fires / Hotspots: Simple Time Based Custom

POLAR ORBITING **RECOMMENDED**

- OLI / Landsat [30m]
- VIIRS / NOAA-20 [375m]
- VIIRS / NOAA-21 [375m]
- VIIRS / Suomi NPP [375m]
- MODIS / Aqua [1km]
- MODIS / Terra [1km]
- GEOSTATIONARY **BETA**
- NRT AND STANDARD (FOR RESEARCH)

Active Alerts

FIRES NOT DECLARED CONTAINED, CONTROLLED, NOR OUT.

US Active Fires - IMSR

DATA ONLY AVAILABLE - 2026-03-05 TO PRESENT

		MODIS / Aqua [1km]											
				● UTC ● Local Time GMT-0400 (Eastern Daylight Time)									
LATITUDE	LONGITUDE	BRIGHTNESS	SCAN TRACK	ACQUIRE_TIME	SATELLITE	INSTRUMENT	CONFIDENCE	VERSION	BRIGHT_T31	FRP	DAYNIGHT		
36.94582	-101.18204	326.45	1.03	1.01	2026-02-17	16:37:00	A	MODIS	28	6.1NRT	295.28	19.41	D
36.95462	-101.18394	319.31	1.03	1.01	2026-02-17	16:37:00	A	MODIS	36	6.1NRT	293.91	12.88	D
36.96461	-101.24335	326.28	1.02	1.01	2026-02-17	16:37:00	A	MODIS	83	6.1NRT	294.83	22.15	D

FILTER BY: nothing ... All fields All dates

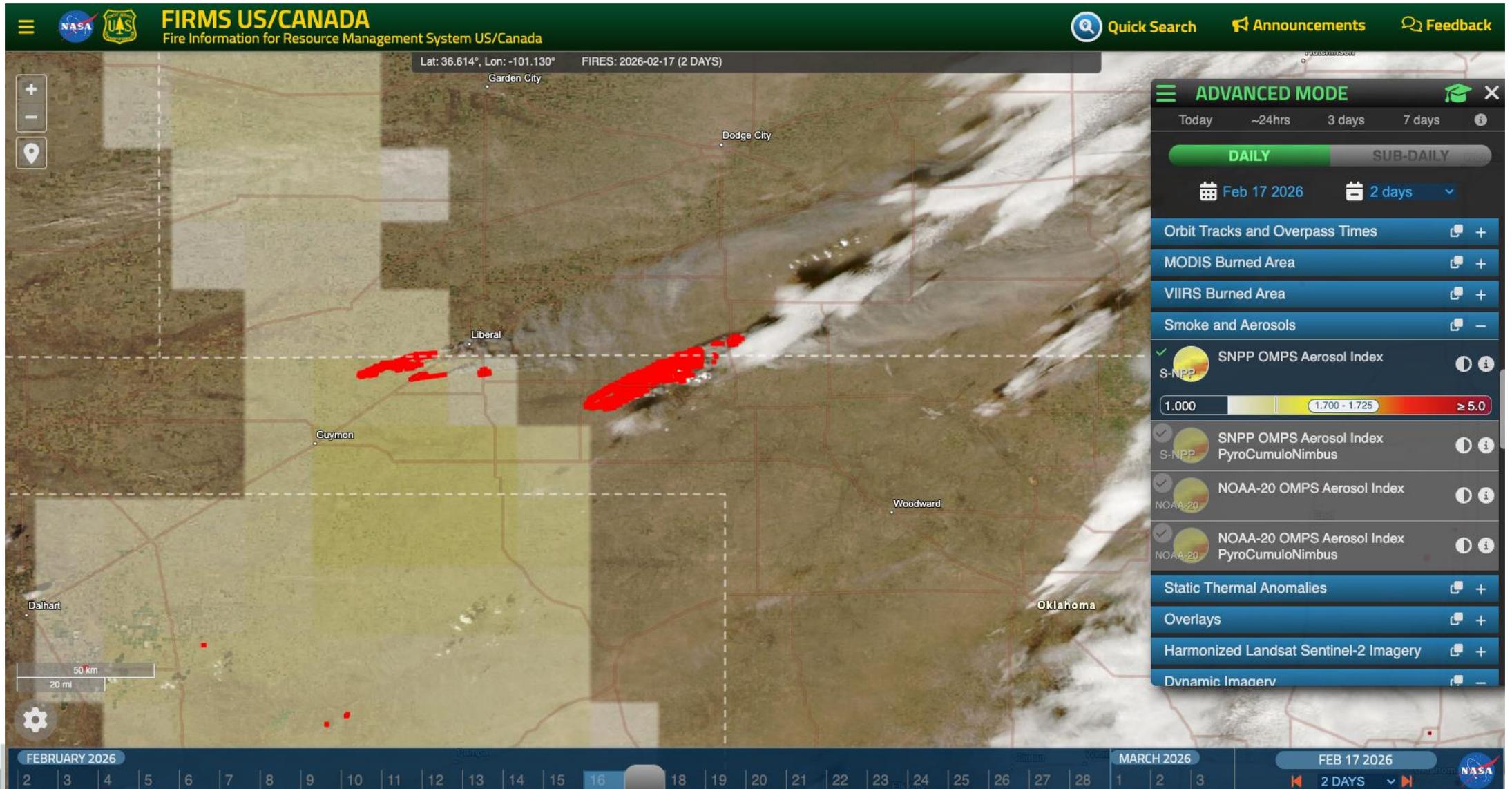
FEBRUARY 2026 MARCH 2026 FEB 17 2026

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

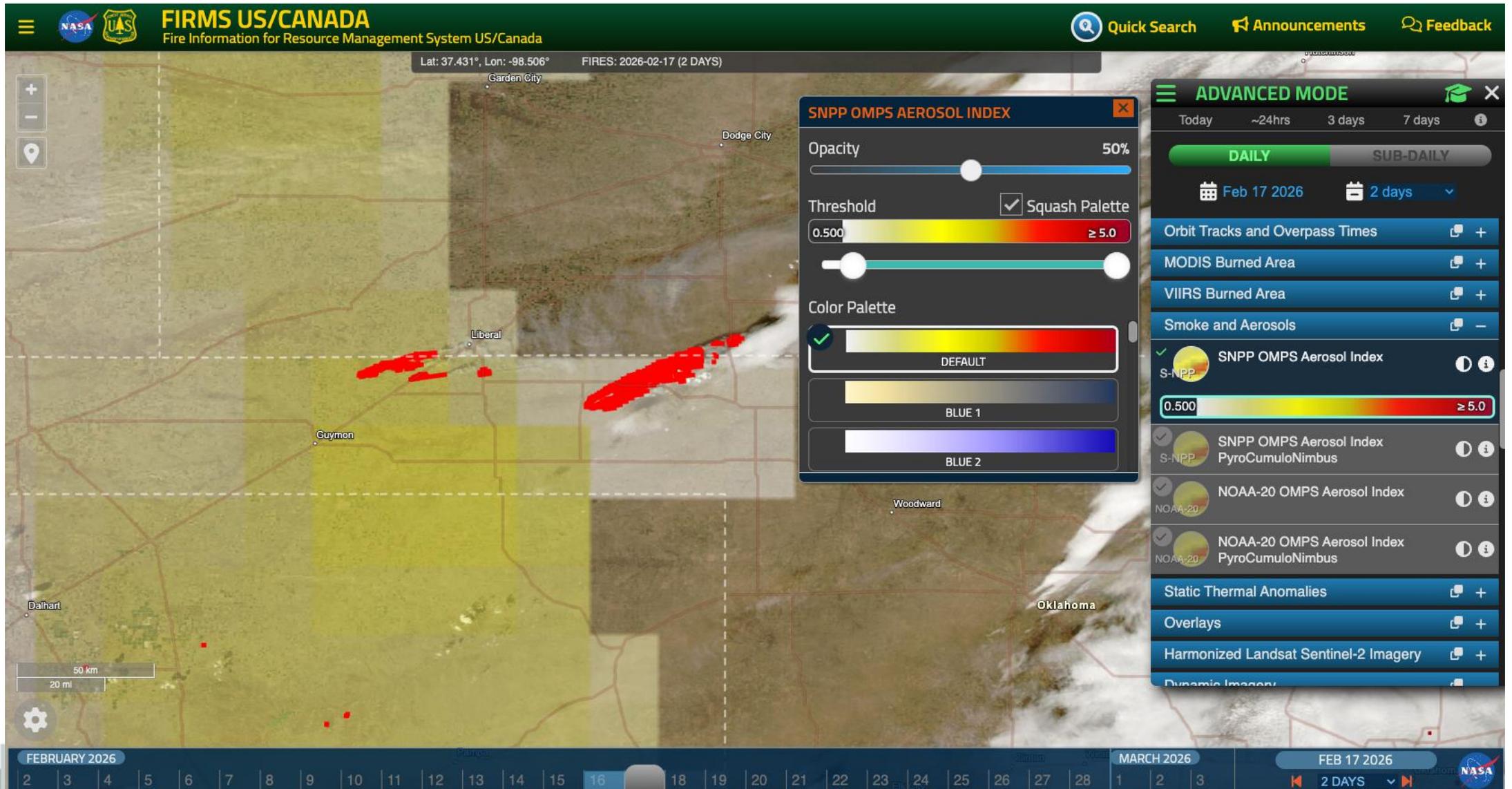
2 DAYS



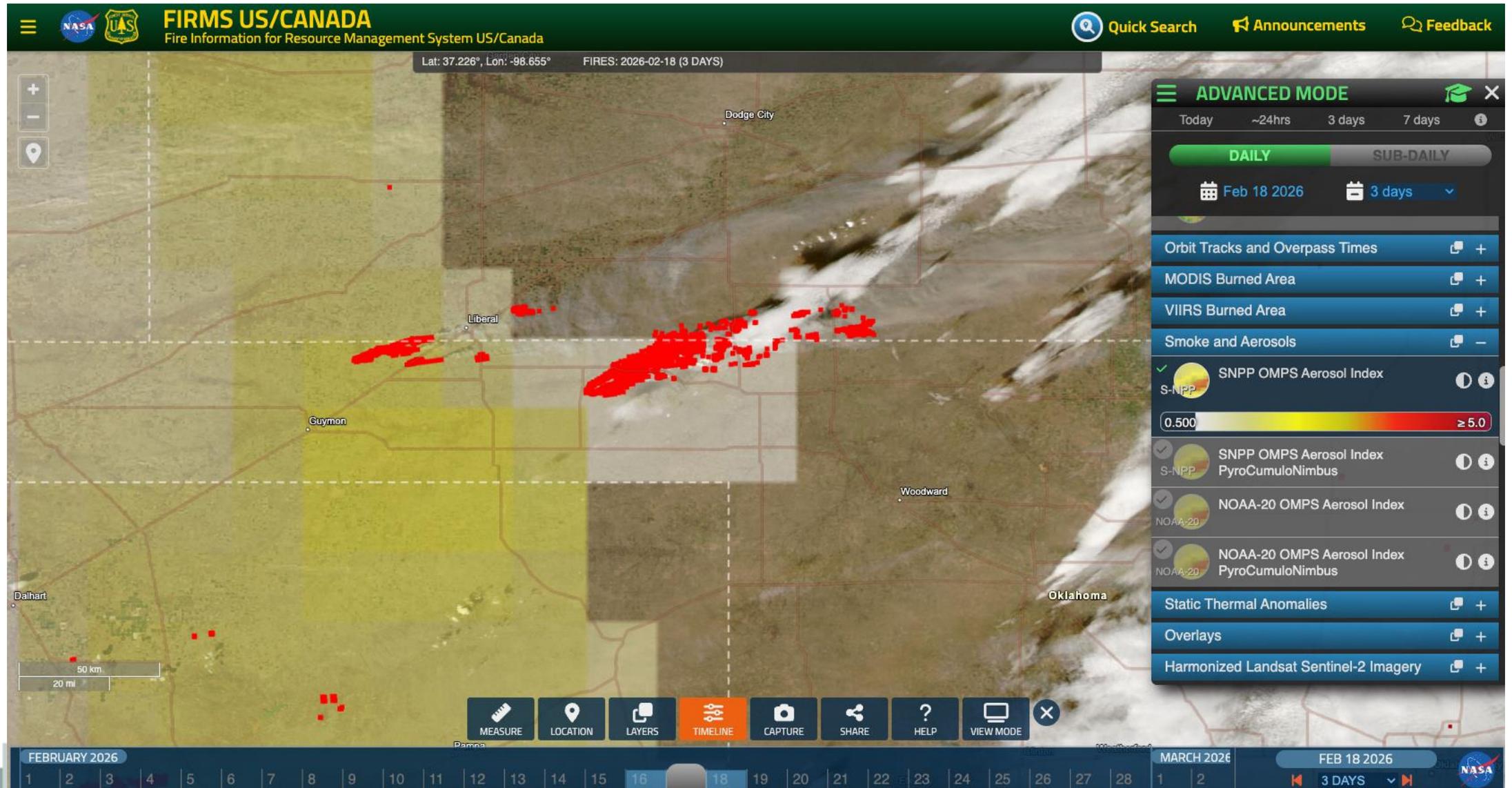
Open Smoke & Aerosols Layer List, Turn on Aerosol Index



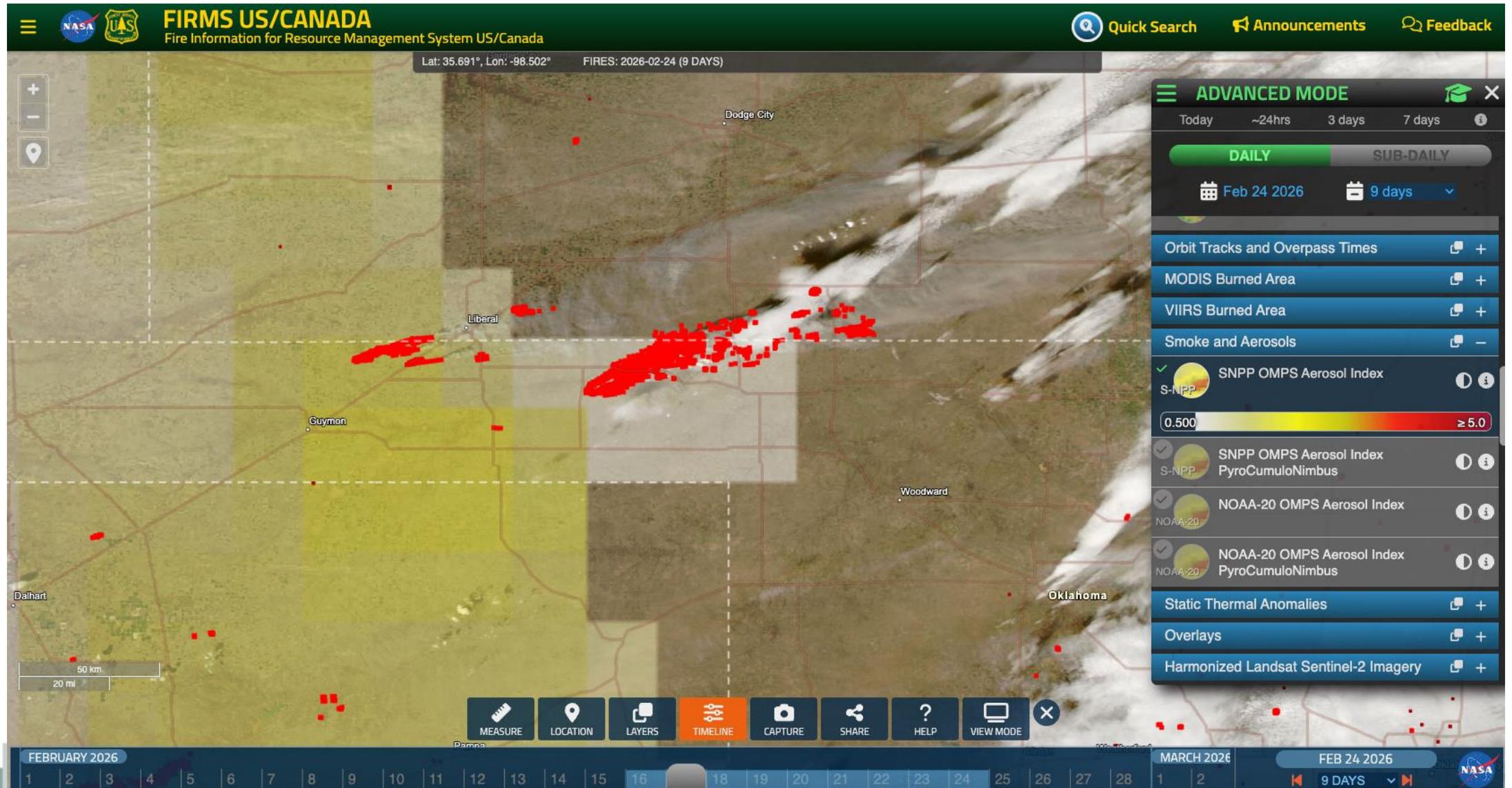
Click on the Legend, Decrease Threshold



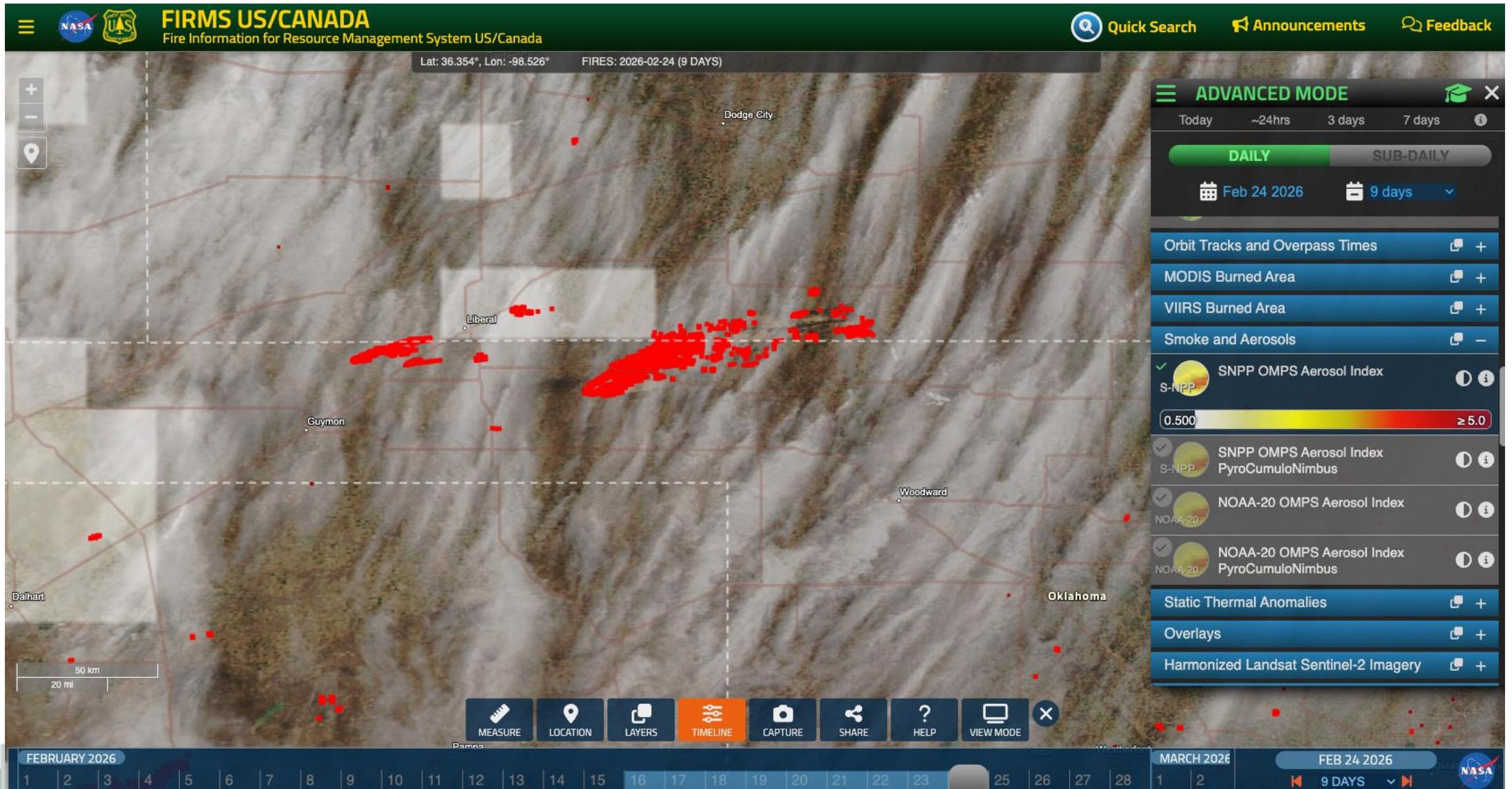
Drag to the Right to Expand the Timeline for Detections



Drag to the Right to Expand the Timeline until the 24th



Step Through the Various Days to See Imagery Difference



Turn Off the Imagery and Aerosol Index

The screenshot displays the FIRMS US/CANADA web application interface. The main map area shows satellite imagery of a region in Oklahoma, with red fire activity visible. The interface includes a top navigation bar with the NASA and US logos, the title "FIRMS US/CANADA", and the subtitle "Fire Information for Resource Management System US/Canada". There are also links for "Quick Search", "Announcements", and "Feedback". The map shows a grid with latitude and longitude coordinates (Lat: 36.710°, Lon: -98.980°) and a date range for fires (2026-02-24 (9 DAYS)).

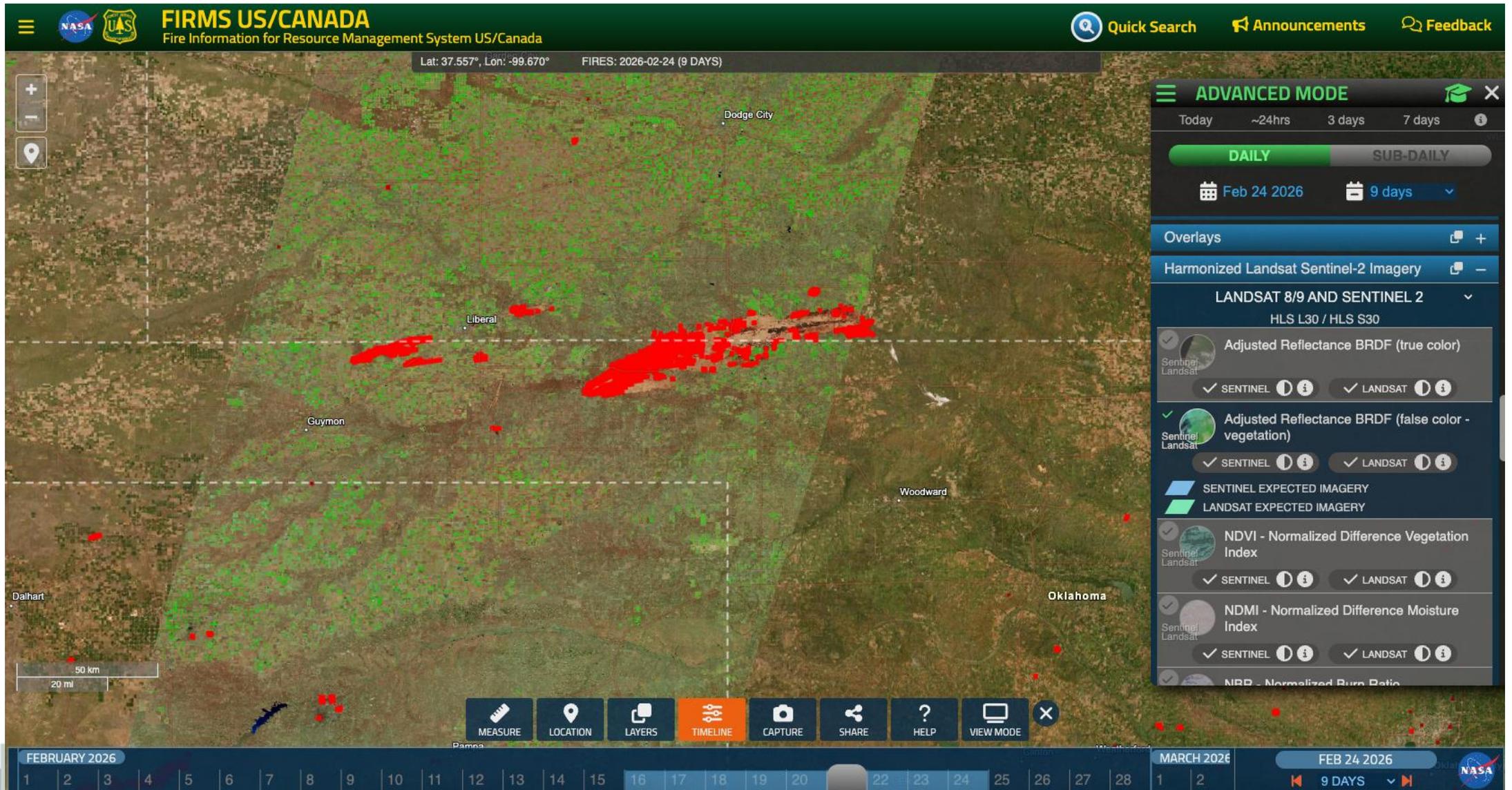
On the right side, there is an "ADVANCED MODE" settings panel. It includes a "DAILY" button (highlighted in green) and a "SUB-DAILY" button. Below these are date selection options: "Feb 24 2026" and "9 days". The panel lists several data layers with checkboxes and toggle icons:

- SNPP OMPS Aerosol Index
- SNPP OMPS Aerosol Index PyroCumuloNimbus
- NOAA-20 OMPS Aerosol Index
- NOAA-20 OMPS Aerosol Index PyroCumuloNimbus
- Static Thermal Anomalies
- Overlays
- Harmonized Landsat Sentinel-2 Imagery
- Dynamic Imagery
- Allow multi layer selection
- VIIRS NOAA-20 Corrected Reflectance (true color)
- VIIRS NOAA-21 Corrected Reflectance (true color)

At the bottom of the interface, there is a "MEASURE" button and a timeline for "FEBRUARY 2026" and "MARCH 2026". The current date is "FEB 24 2026" with a "9 DAYS" range. A NASA logo is visible in the bottom right corner of the interface.



Turn On HLS Adjusted Reflectance BRDF



Turn Off Fire Detections

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

Quick Search Announcements Feedback

Lat: 37.557°, Lon: -99.670° 2026-02-24 (9 DAYS)

ADVANCED MODE

Today ~24hrs 3 days 7 days

DAILY SUB-DAILY

Feb 24 2026 9 days

Fires / Hotspots

Simple Time Based Custom

POLAR ORBITING **RECOMMENDED** i -

- OLI / Landsat [30m] i
- VIIRS / NOAA-20 [375m] i
- VIIRS / NOAA-21 [375m] i
- VIIRS / Suomi NPP [375m] i
- MODIS / Aqua [1km] i
- MODIS / Terra [1km] i

GEOSTATIONARY **BETA** i +

NRT AND STANDARD (FOR RESEARCH) i +

Active Alerts

FIRES NOT DECLARED CONTAINED, CONTROLLED, NOR OUT.

US Active Fires - IMSR i

DATA ONLY AVAILABLE - 2026-03-05 TO PRESENT

MEASURE LOCATION LAYERS TIMELINE CAPTURE SHARE HELP VIEW MODE

FEBRUARY 2026 MARCH 2026 FEB 24 2026 9 DAYS



Change the Date to See the Other Half of the Burned Area

The screenshot displays the FIRMS US/CANADA web application interface. The main map shows a satellite view of a region in Oklahoma, with a large, irregularly shaped area highlighted in red, indicating a burned area. The map includes a scale bar (50 km / 20 mi) and a timeline at the bottom for February 2026, with the date Feb 24 2026 selected. The interface features a top navigation bar with the NASA and USFS logos, the title "FIRMS US/CANADA", and links for "Quick Search", "Announcements", and "Feedback". A right-hand sidebar is open to "ADVANCED MODE", showing options for "DAILY" and "SUB-DAILY" views, a date selector set to "Feb 24 2026", and a "Fires / Hotspots" section with various satellite data sources (POLAR ORBITING and GEOSTATIONARY) and "Active Alerts". A bottom toolbar contains icons for "MEASURE", "LOCATION", "LAYERS", "TIMELINE", "CAPTURE", "SHARE", "HELP", and "VIEW MODE".



Summary

You should generally understand

- How fires on the ground translate into active fire detections
- Which satellites to use to see a general area of interest
- What caveats there may be to what is seen on the FIRMS map
- How FIRMS is set up
- How to build a display on FIRMS for a fire or smoke event of interest





Thank You!

