A satellite image showing a region with a grid overlay. A large area in the center is highlighted with a blue border. The text "Fire Detection by SATELLITE and RADAR" is overlaid in the center. The background is a grayscale satellite image with a grid of red lines. A blue line follows a path in the lower right quadrant.

# Fire Detection by SATELLITE and RADAR

# Questions You Should Be Able to Answer by the End of this Module

- For what is the  $3.9 \mu$  Infrared satellite image useful?
- For what is the Blue Visible satellite image useful?
- For what is local radar imagery useful?
- How can I animate satellite and radar images?

A detailed illustration of a satellite in orbit above Earth. The satellite features a central body with various instruments, including a large lens-like sensor, a white cylindrical tank, and a complex antenna array. It has five large solar panel arrays extending from its side, each with a grid pattern and yellow markings. The Earth's blue and white horizon is visible at the bottom, and the blackness of space with scattered stars is in the background.

# Fire Detection by SATELLITE

Current Station Conditions >

**Current Maps** >

Past & Forecast Animated Maps >

Past & Forecast Charts/Tables >

Fire Prescription Planner >

NWS Forecast Chart (Stillwater) >

NWS Forecast Table (Stillwater) >

Relative Greenness Zoom Map >

Default Fuel Model Zoom Map >

Fire Advisories and Outlooks >

3.9  $\mu$  Infrared Satellite Map >

Recent Lightning Activity >

Oklahoma Burn Bans >

Additional Resources >

Contacts and Learning Tools >

News >

Current Fuel Model for  
Stillwater

T - Tallgrass with open evergreen brus ▾

Default is T



## Current Maps

Fire Weather

Fire Danger

**Satellite**

Local Radar

### Fire Weather



Mesonet  
Current Fire Weather Conditions  
2:25 PM September 17, 2020 CDT

#### Current Fire Weather Conditions

[learn more](#)



Mesonet  
Relative Humidity and Winds  
2:25 PM September 17, 2020 CDT

#### Relative Humidity and Winds

[learn more](#)



Mesonet  
1-hour Relative Humidity Change (%)  
2:25 PM September 17, 2020 CDT

#### 1-hr Relative Humidity Change

[learn more](#)



Mesonet  
3-hour Relative Humidity Change (%)  
2:25 PM September 17, 2020 CDT

#### 3-hr Relative Humidity Change

[learn more](#)



Mesonet  
Today's Maximum Relative Humidity (%)  
2:25 PM September 17, 2020 CDT

#### Today's Maximum Relative Humidity

[learn more](#)

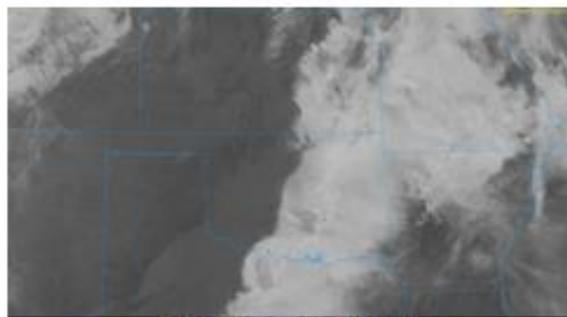


Mesonet  
Wind Speed and Direction  
2:25 PM September 17, 2020 CDT

#### Wind Speed and Direction

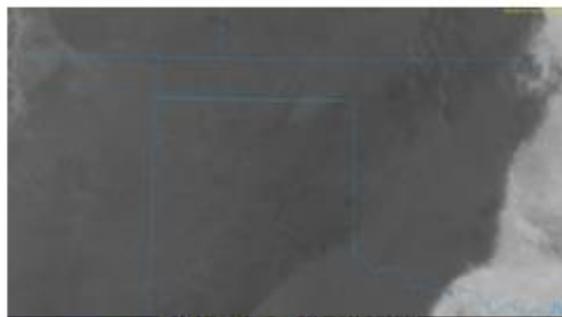
[learn more](#)

## Satellite



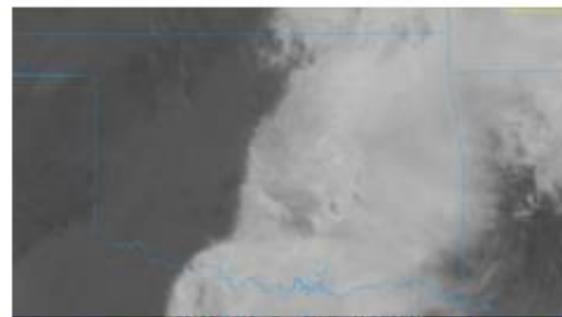
**Oklahoma 3.9 micron Infrared**

[learn more](#)



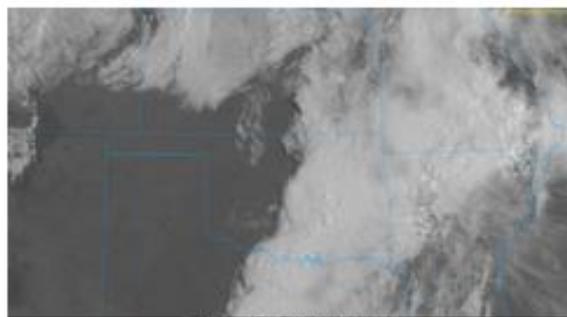
**Oklahoma West 3.9 micron Infrared**

[learn more](#)



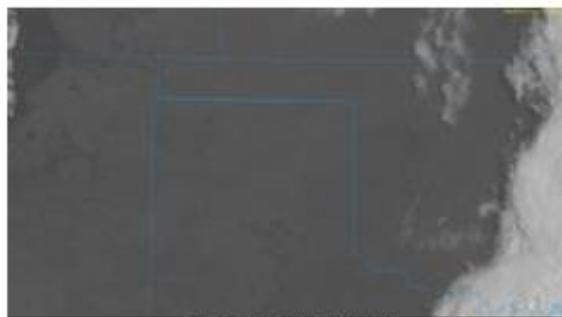
**Oklahoma East 3.9 micron Infrared**

[learn more](#)



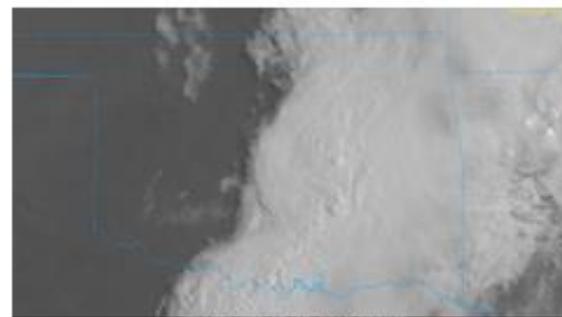
**Oklahoma Visible (Blue)**

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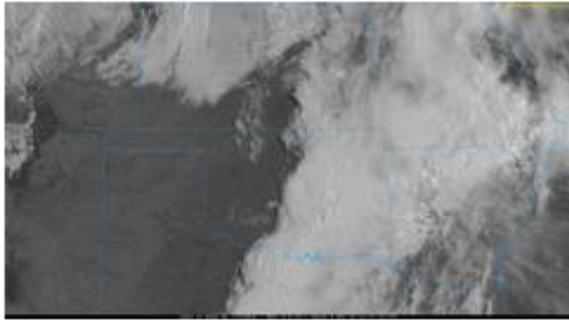
**Oklahoma West Visible (Blue)**

[learn more](#)



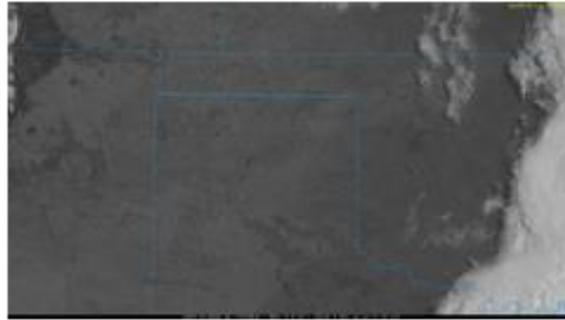
**Oklahoma East Visible (Blue)**

[learn more](#)



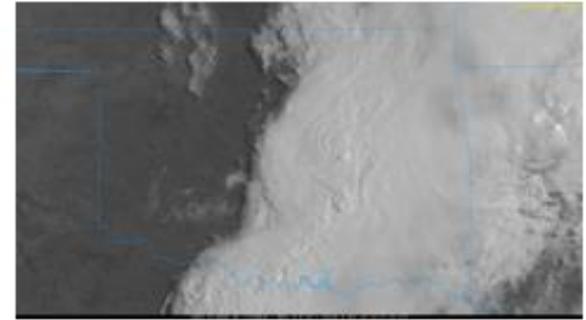
**Oklahoma Visible (Red)**

[learn more](#)



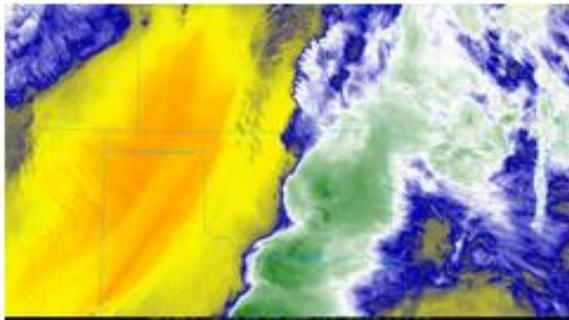
**Oklahoma West Visible (Red)**

[learn more](#)



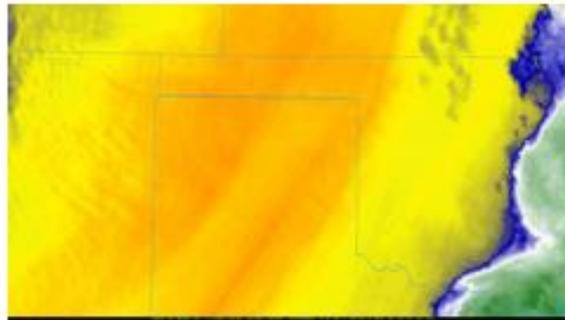
**Oklahoma East Visible (Red)**

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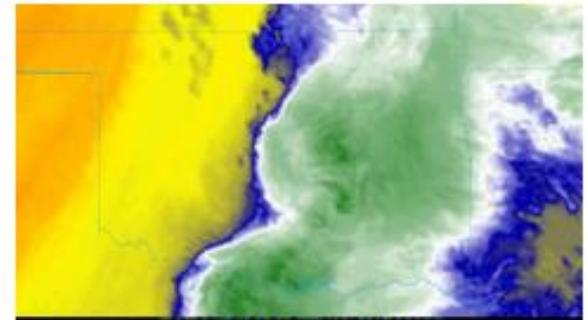
**Oklahoma Water Vapor**

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**Oklahoma West Water Vapor**

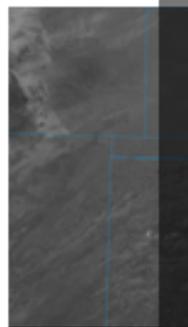
[learn more](#)



**Oklahoma East Water Vapor**

[learn more](#)

## Satellite

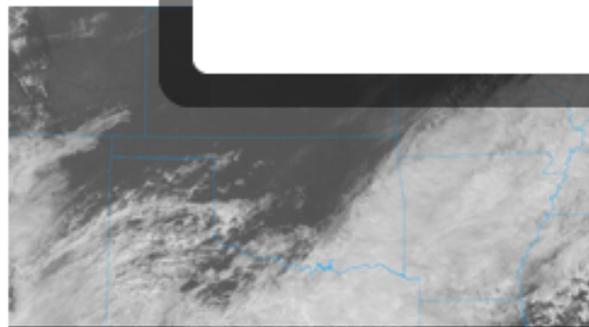


### Oklahoma :

[learn more](#)

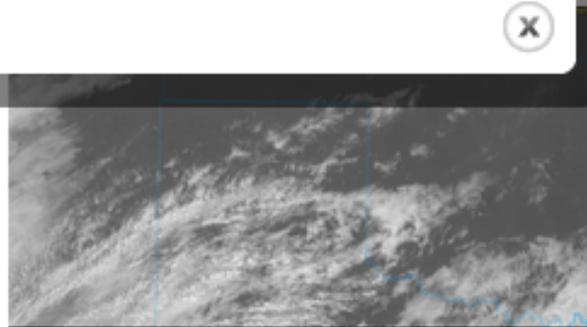
### Oklahoma 3.9 micron Infrared

This satellite image displays the shortwave infrared wavelength band (band 7) from the GOES-16 satellite. This is a particular wavelength band (centered at 3.9 microns) that is very useful for detecting wildland fires (wildfires or prescribed fires). Fires appear as distinct black areas (often dots) against the usual gray background. Clouds are depicted in whites and will usually obscure any surface fires. The map, useful during day or night, has a spatial resolution of 2 km with a central wavelength of 3.9 microns. This image is provided by the College of DuPage and is updated every 5 minutes. The time of the image is shown beneath the map in UTC time (CST = UTC - 6 hours; CDT = UTC - 5 hours). [Click here](#) to see an animation of this map with county boundaries over the past four hours. More information about this particular wavelength band and its uses can be found [here](#).



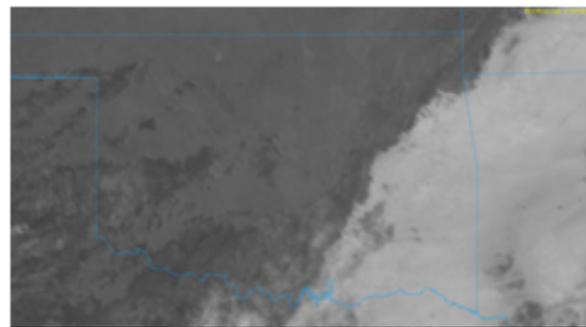
### Oklahoma Visible (Blue)

[learn more](#)



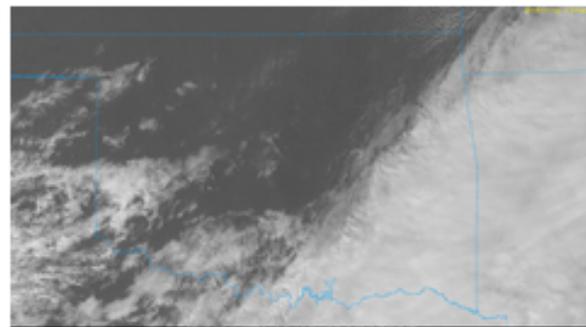
### Oklahoma West Visible (Blue)

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### Oklahoma East 3.9 micron Infrared

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### Oklahoma East Visible (Blue)

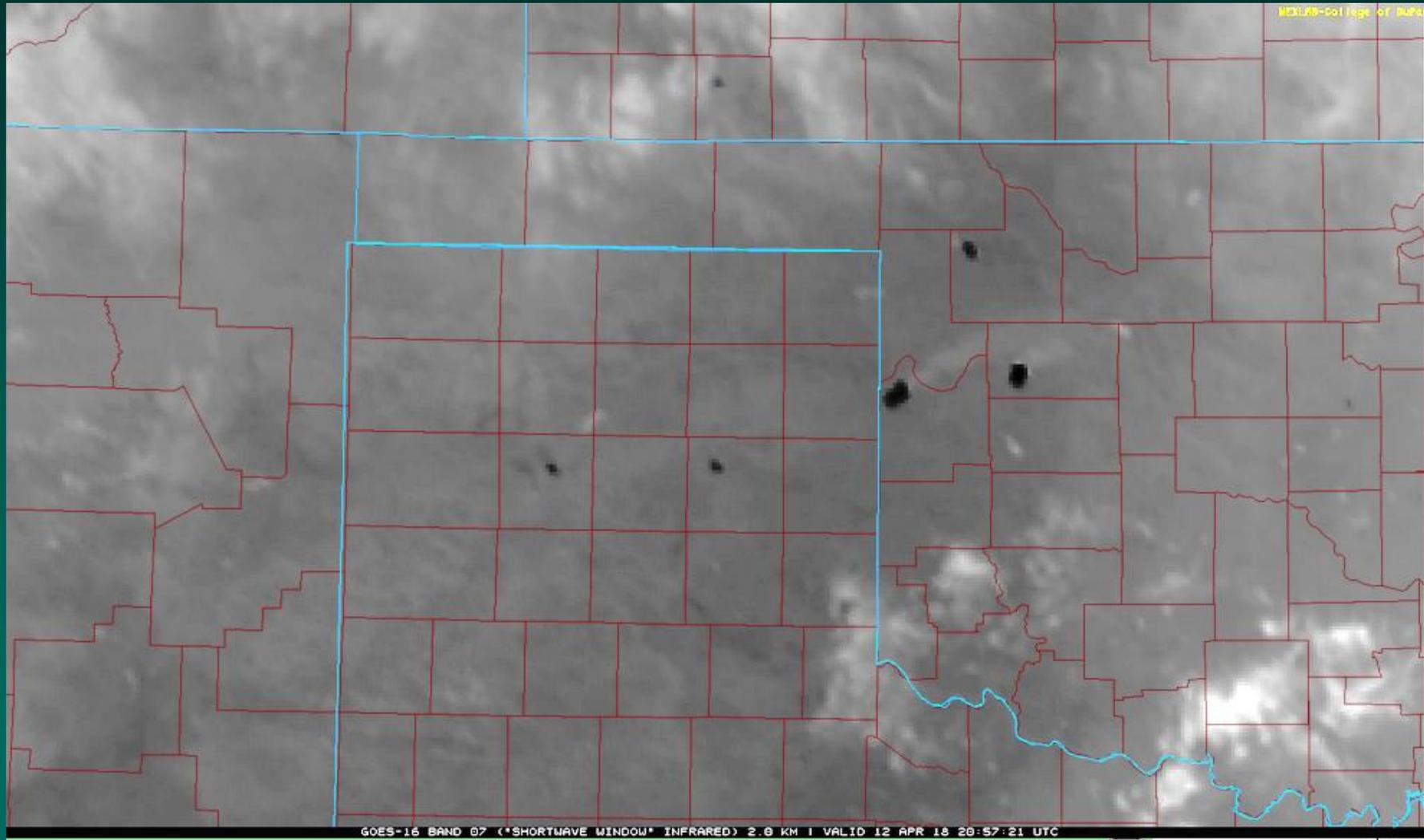
[learn more](#)

# Rhea Fire (287,000 acres)





# 3.9 $\mu$ Infrared



- Current Station Conditions >
- Current Maps >
- Past & Forecast Animated Maps >
- Past & Forecast Charts/Tables >
- Fire Prescription Planner >
- NWS Forecast Chart (Stillwater) >
- NWS Forecast Table (Stillwater) >
- Relative Greenness Zoom Map >
- Default Fuel Model Zoom Map >
- Fire Advisories and Outlooks >
- 3.9  $\mu$  Infrared Satellite Map >**
- Recent Lightning Activity >
- Oklahoma Burn Bans >
- Additional Resources >
- Contacts and Learning Tools >
- News >

Current Fuel Model for  
Stillwater

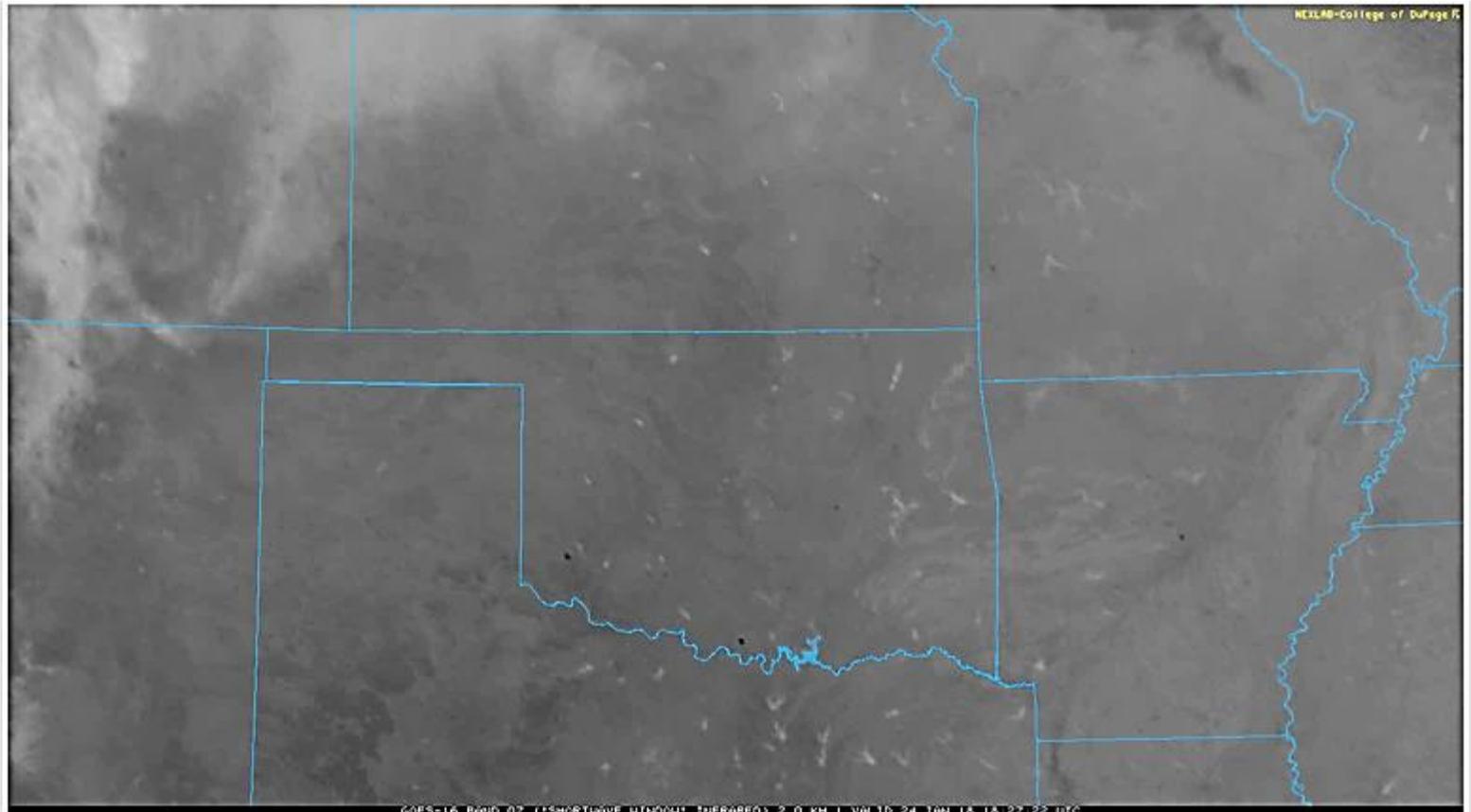
T - Tallgrass with open evergreen brus

Default is T

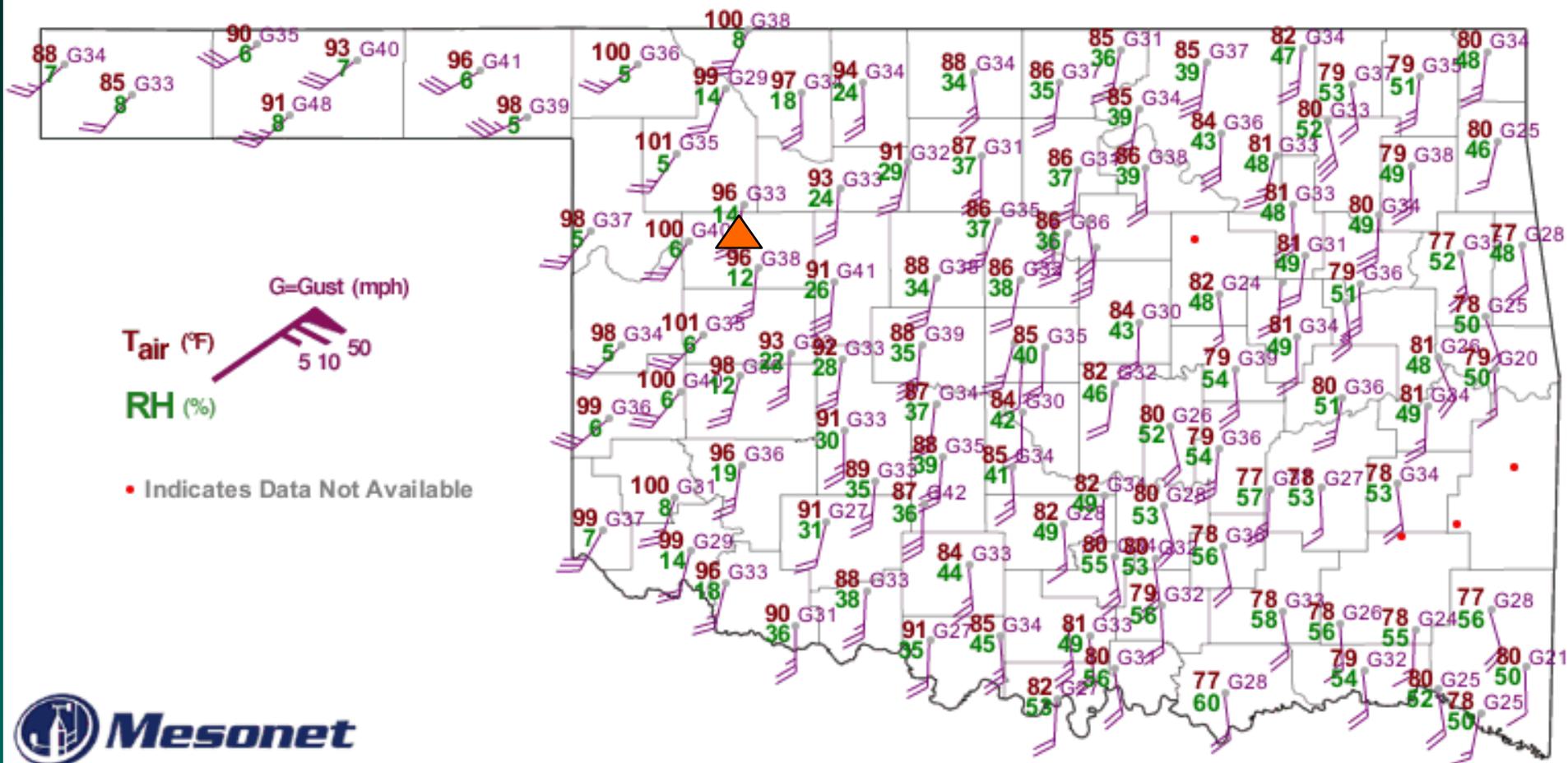


## Oklahoma 3.9 micron Infrared Satellite

Share Tweet



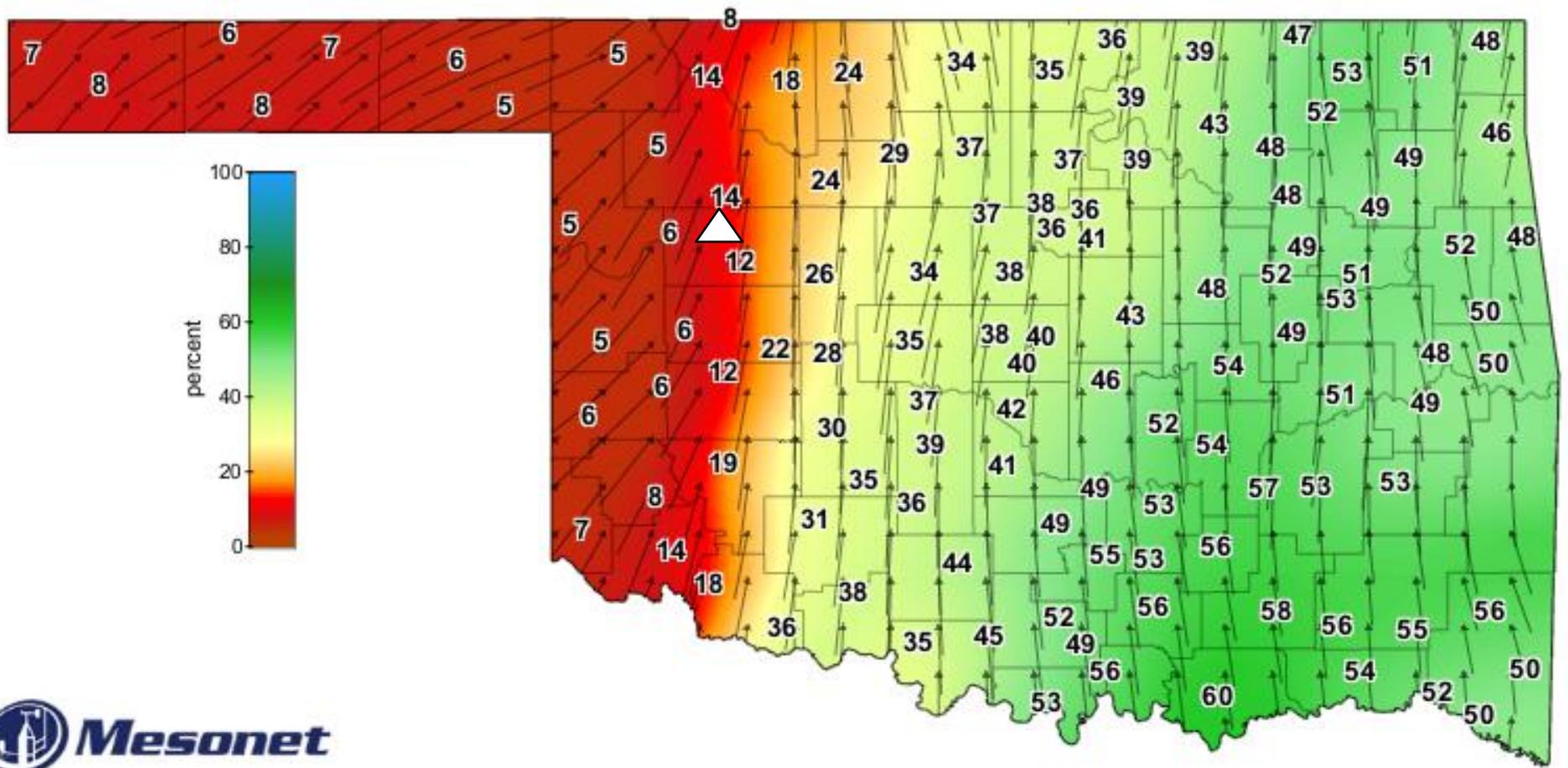
HEXLAB-College of DuPage IL



## Current Fire Weather Conditions

3:25 PM April 12, 2018 CDT

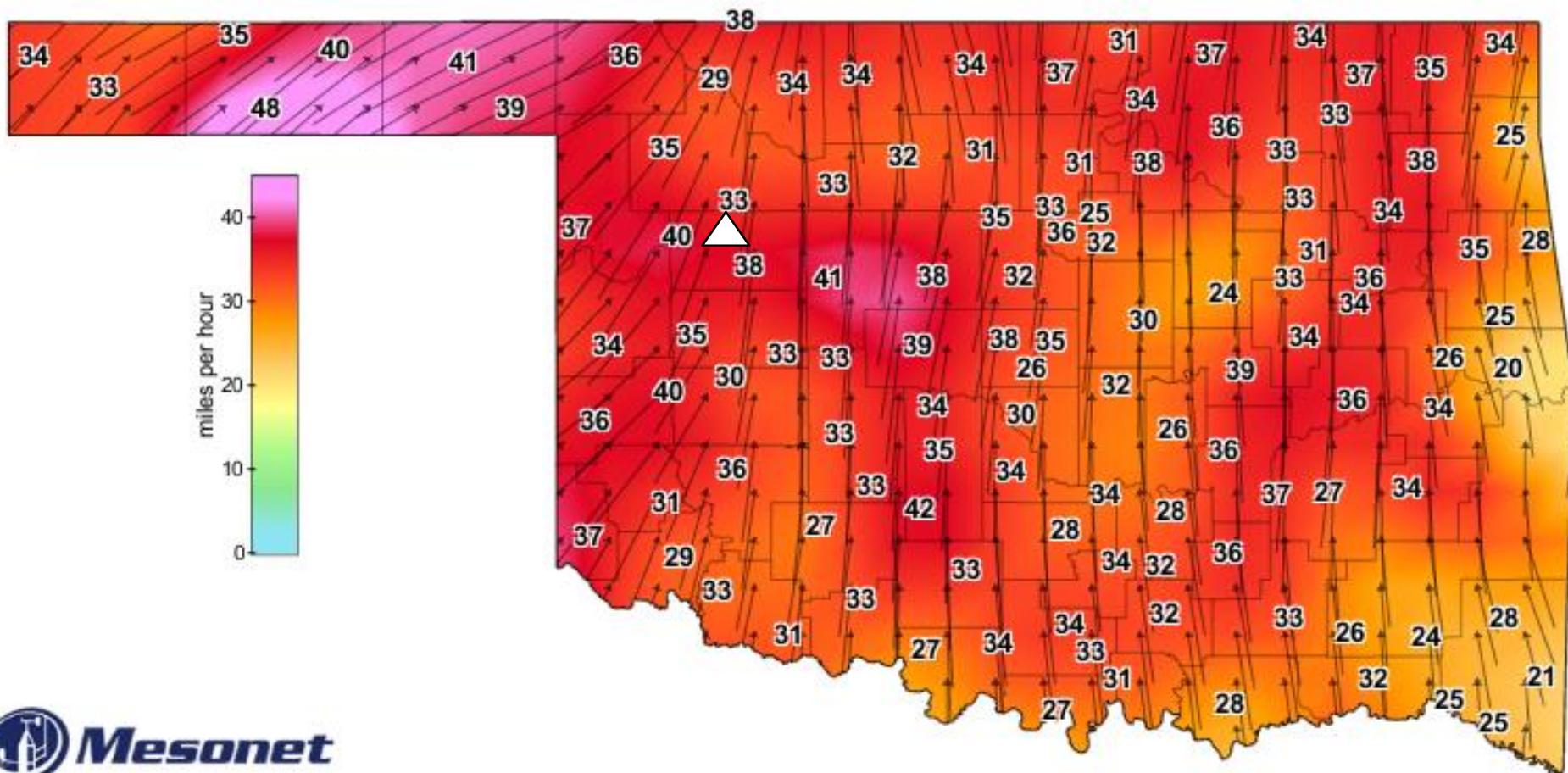
Created 3:30:22 PM April 12, 2018 CDT. © Copyright 2018



## Relative Humidity and Winds

3:25 PM April 12, 2018 CDT

Created 3:30:26 PM April 12, 2018 CDT. © Copyright 2018



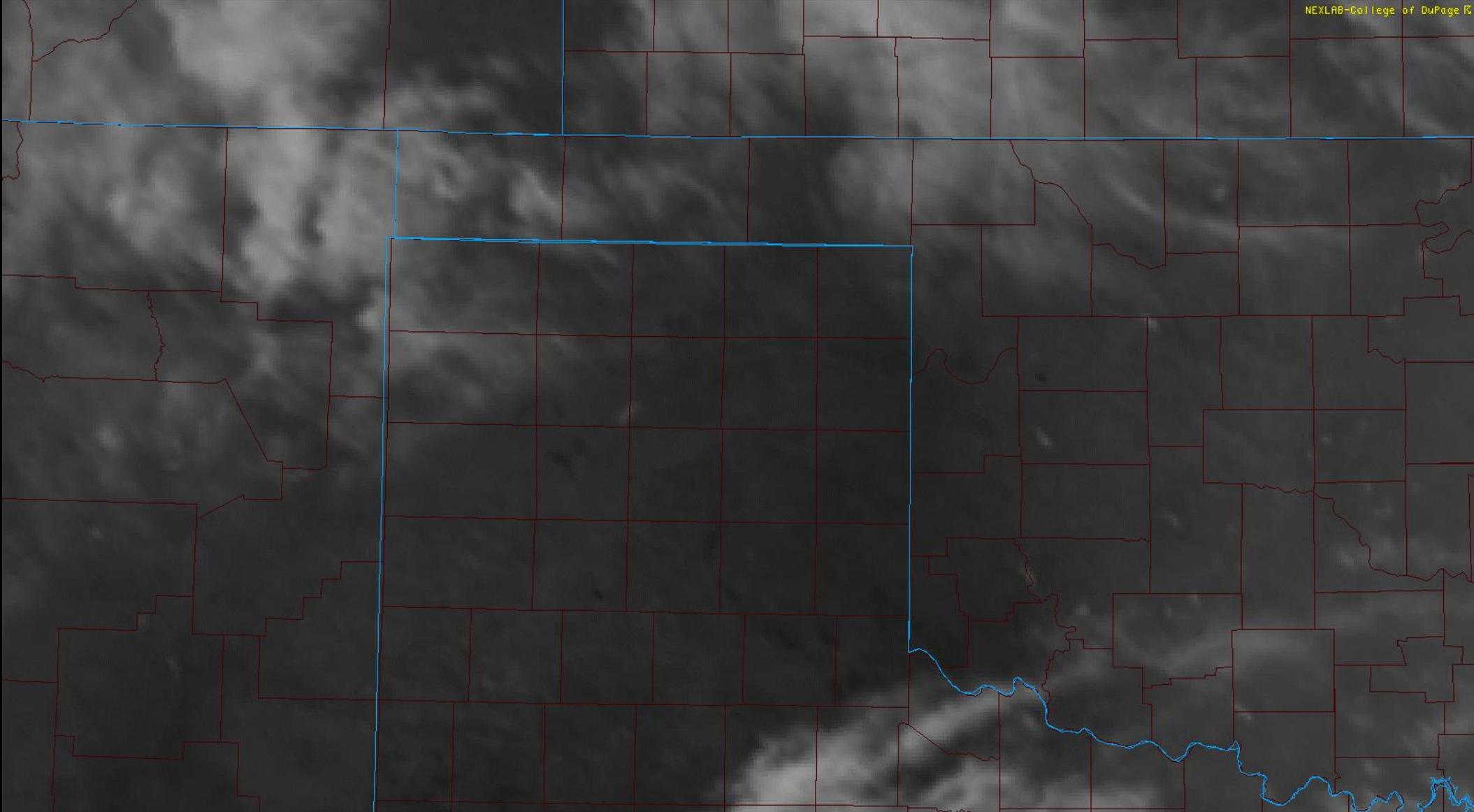
Wind Gusts (mph)

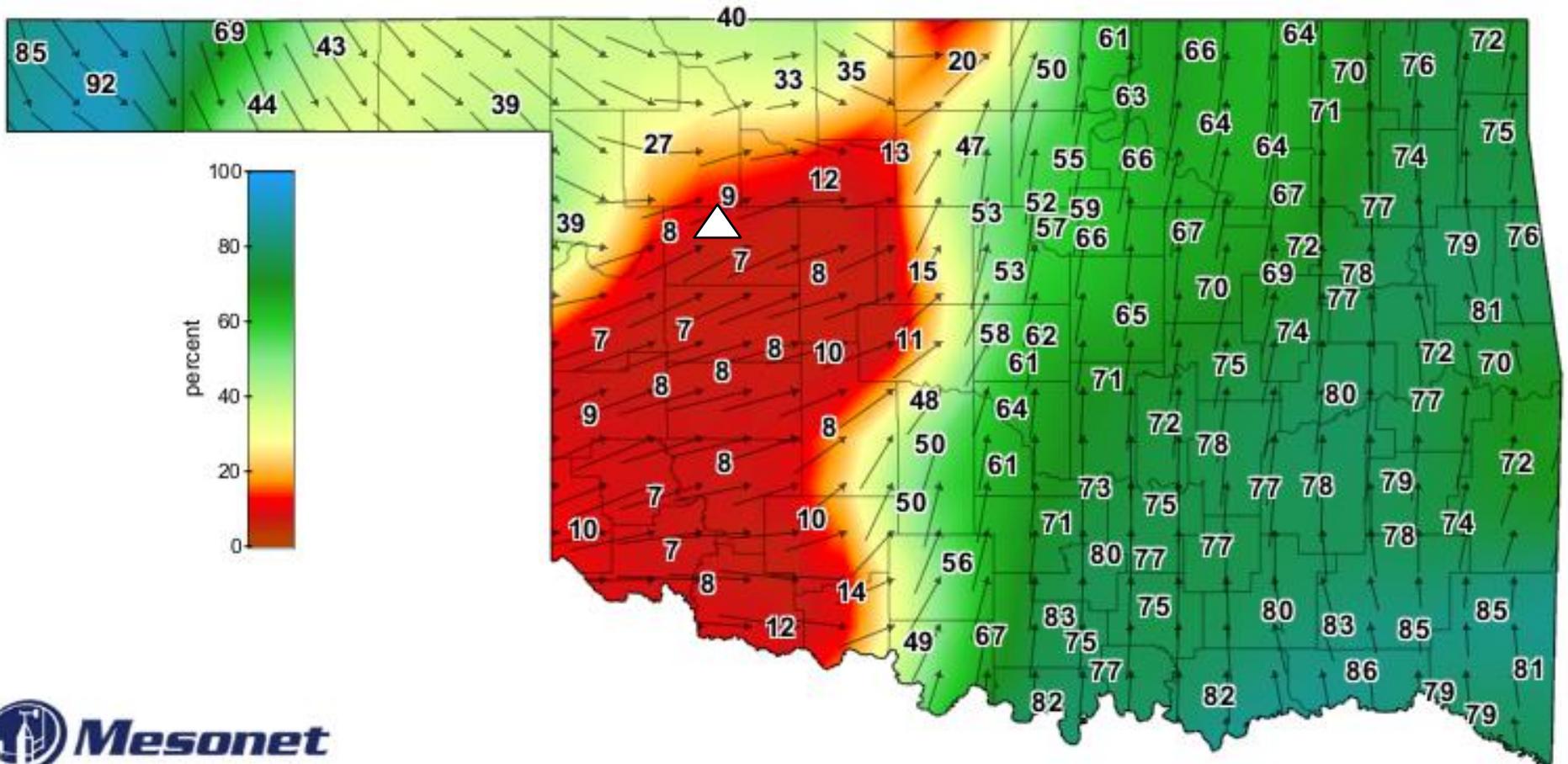
3:25 PM April 12, 2018 CDT

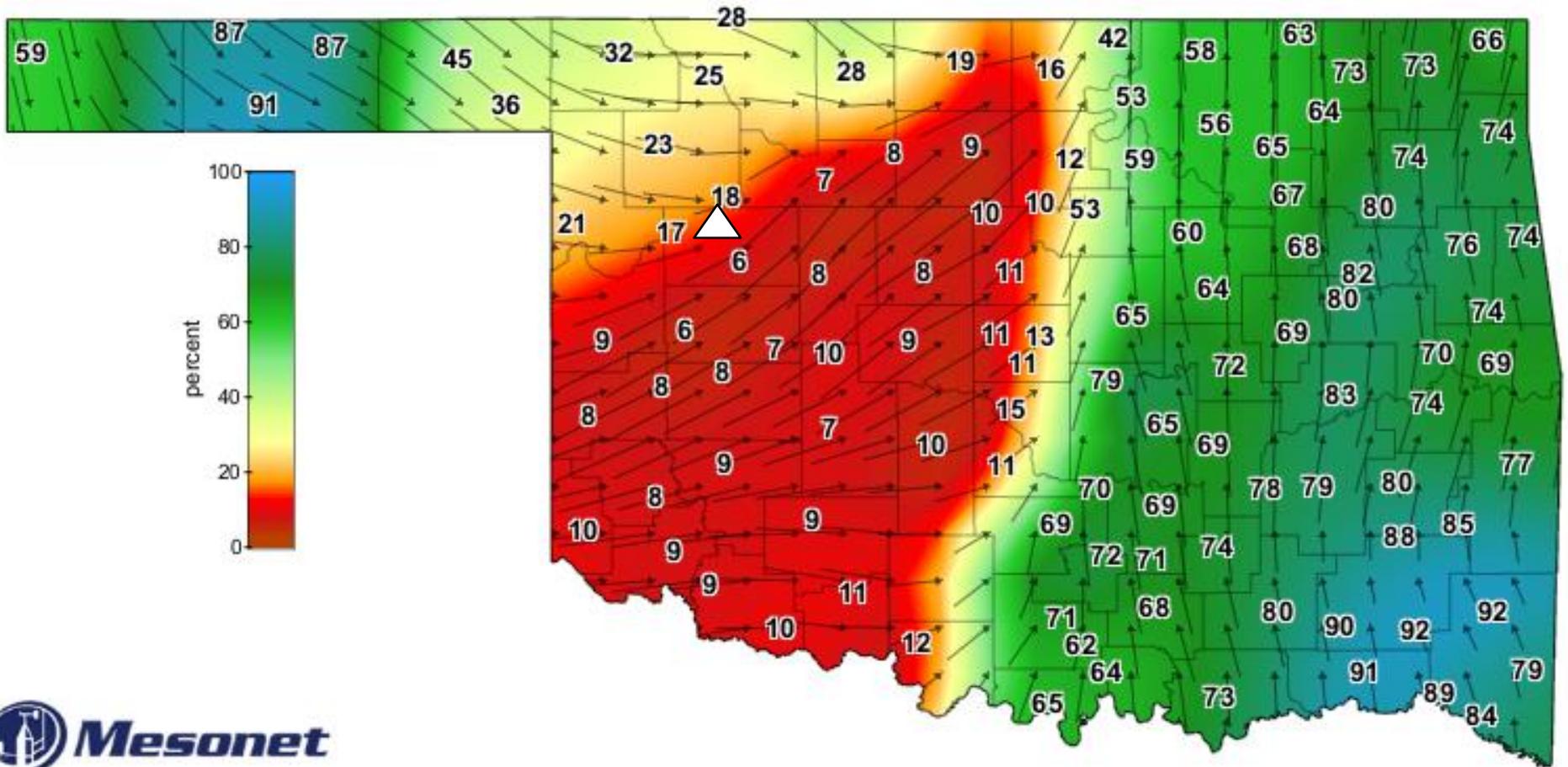
Created 3:30:27 PM April 12, 2018 CDT. © Copyright 2018

# Animation of 3.9 $\mu$ Infrared

12-5 pm April 12



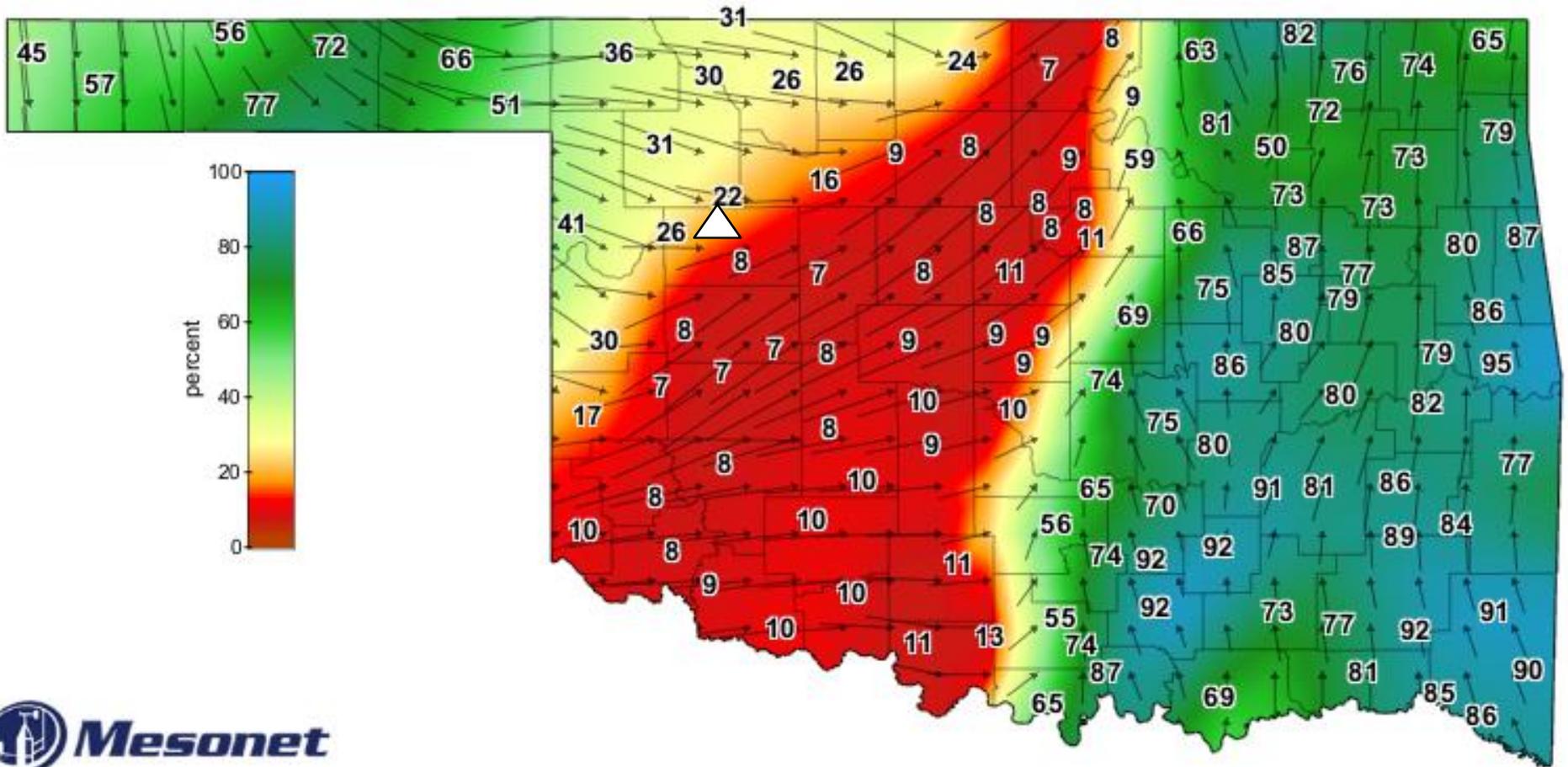




Relative Humidity and Winds

2:00 PM April 13, 2018 CDT

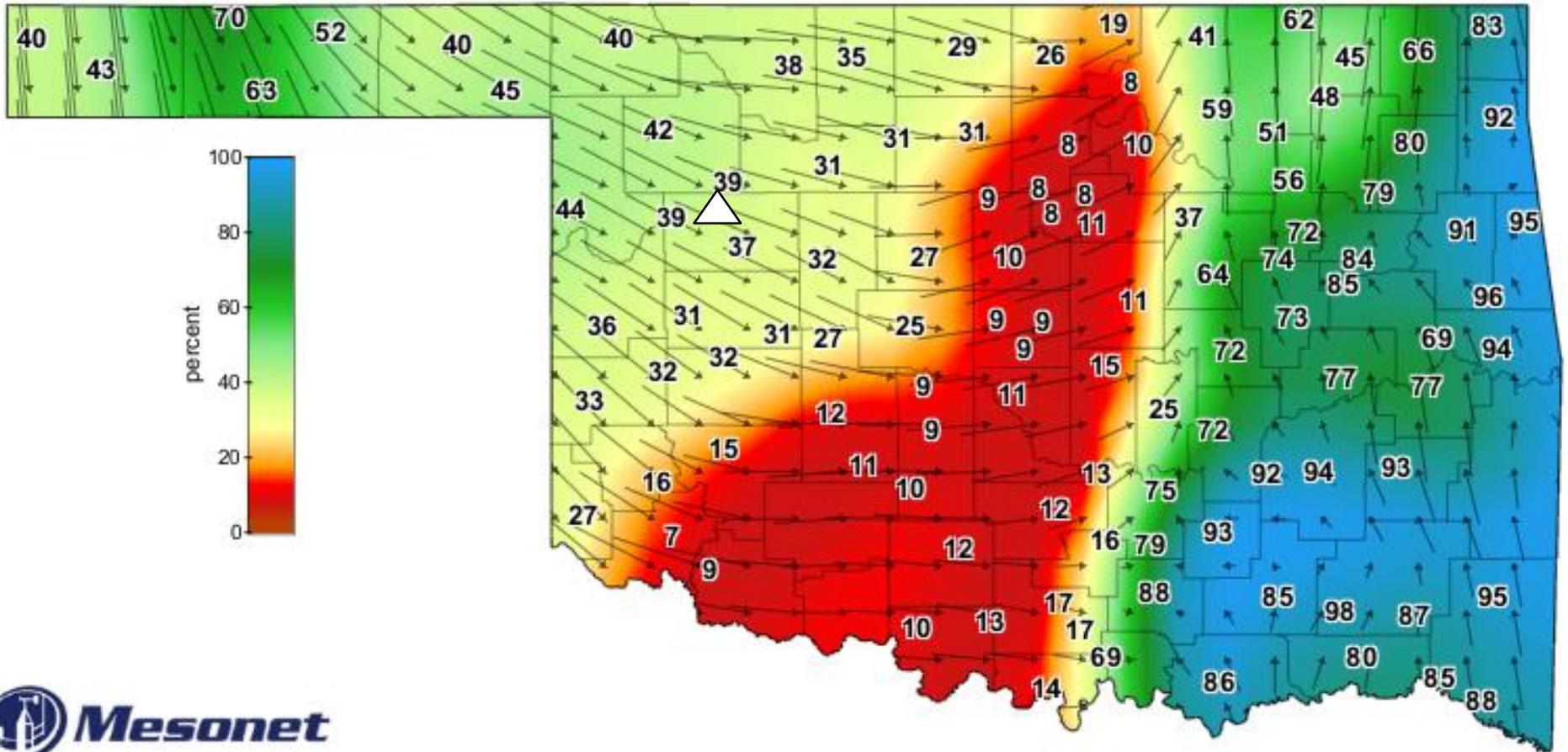
Created 2:06:34 PM April 13, 2018 CDT. © Copyright 2018



Relative Humidity and Winds

4:00 PM April 13, 2018 CDT

Created 4:05:41 PM April 13, 2018 CDT. © Copyright 2018



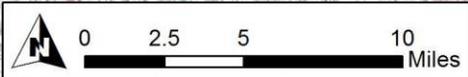
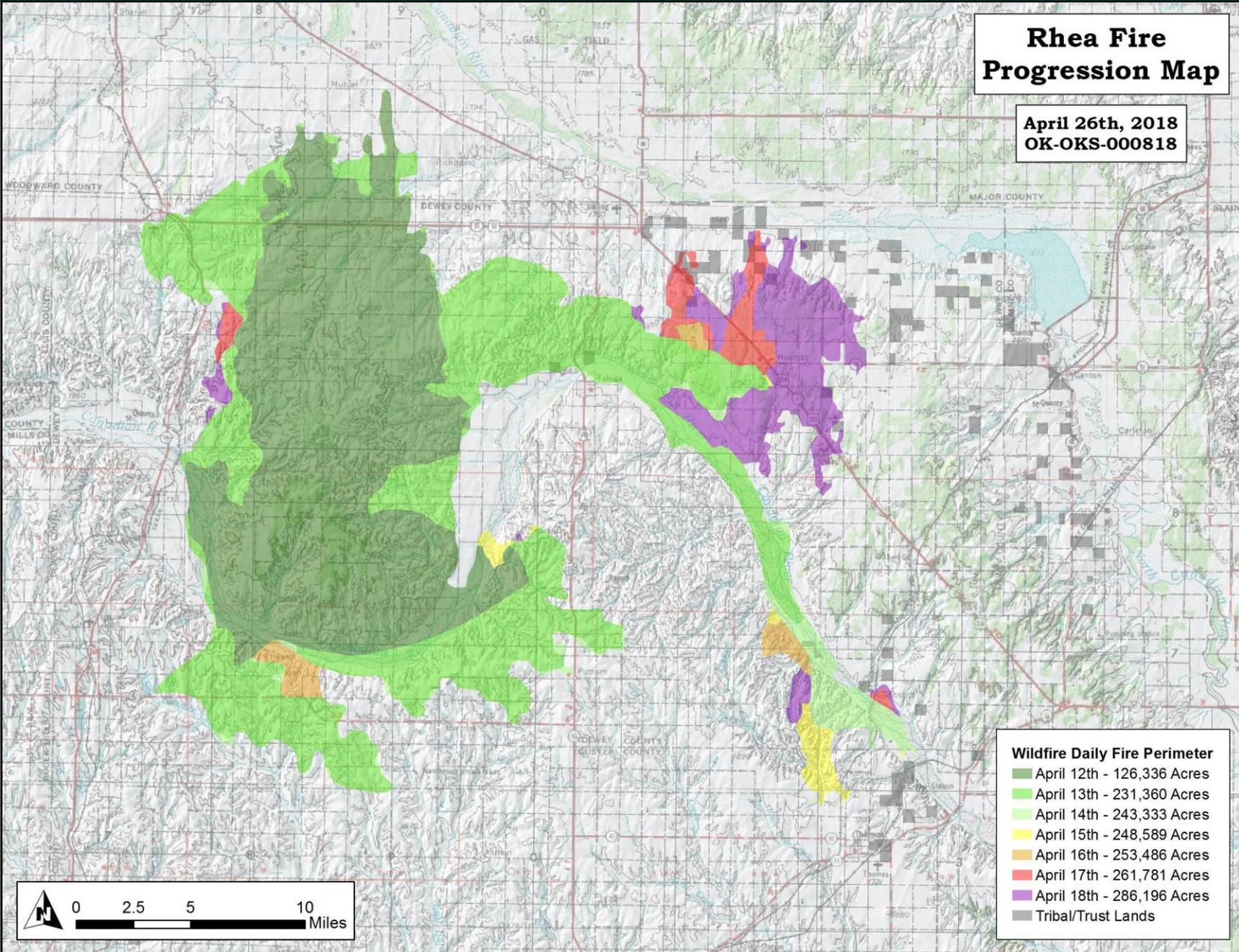
Relative Humidity and Winds

6:00 PM April 13, 2018 CDT

Created 6:05:40 PM April 13, 2018 CDT. © Copyright 2018

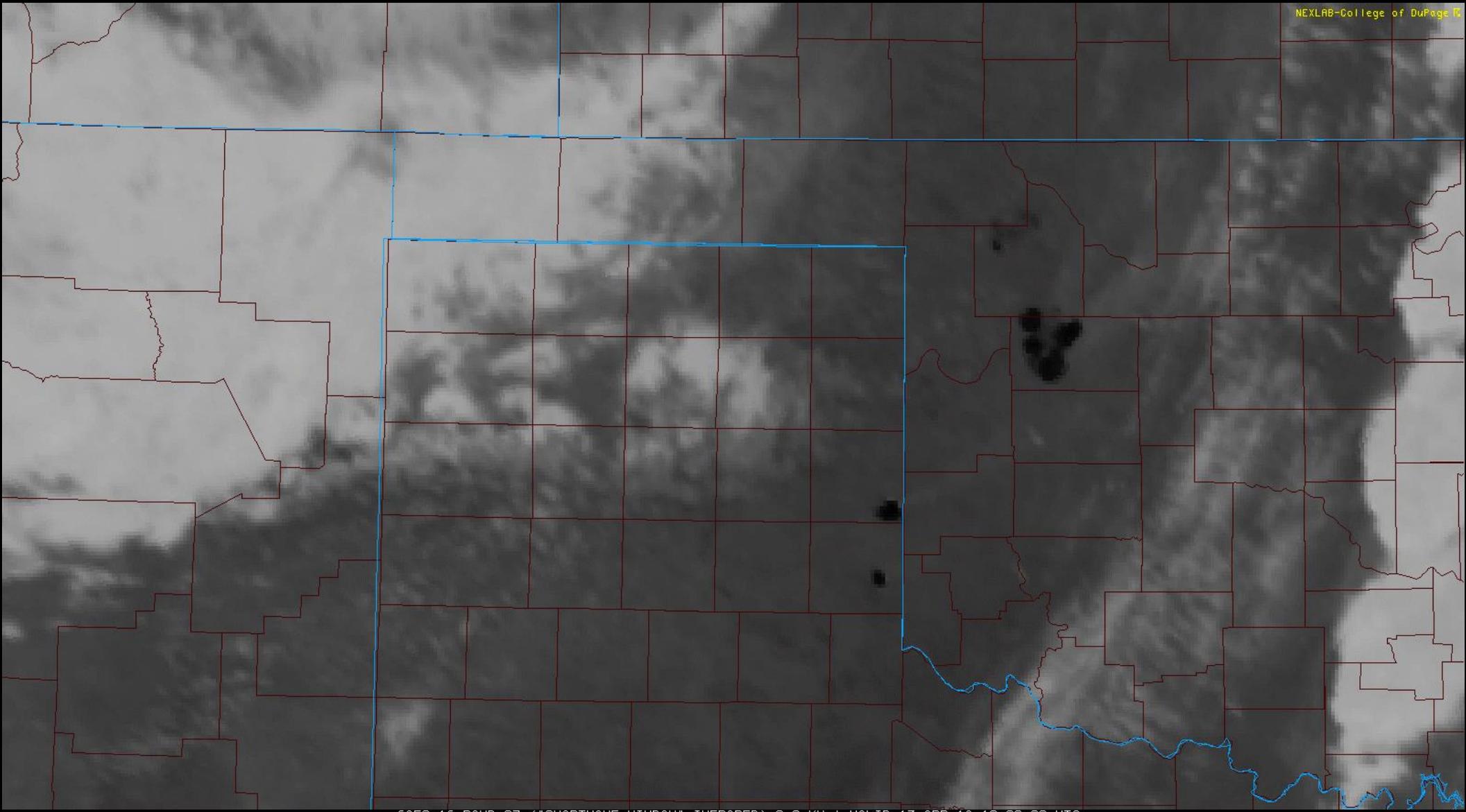
# Rhea Fire Progression Map

April 26th, 2018  
OK-OKS-000818



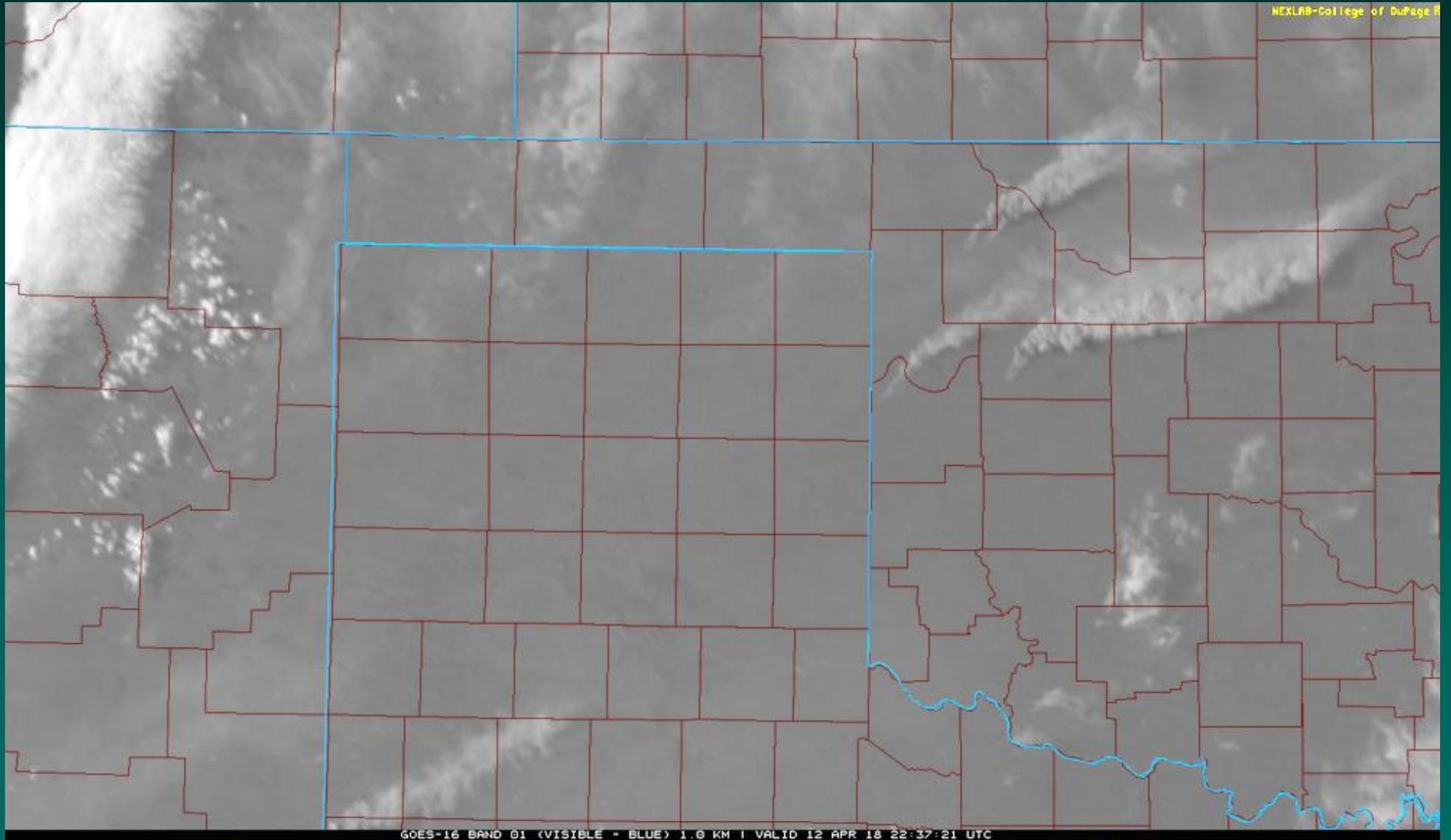
# Animation of 3.9 $\mu$ Infrared

2-7 pm April 13



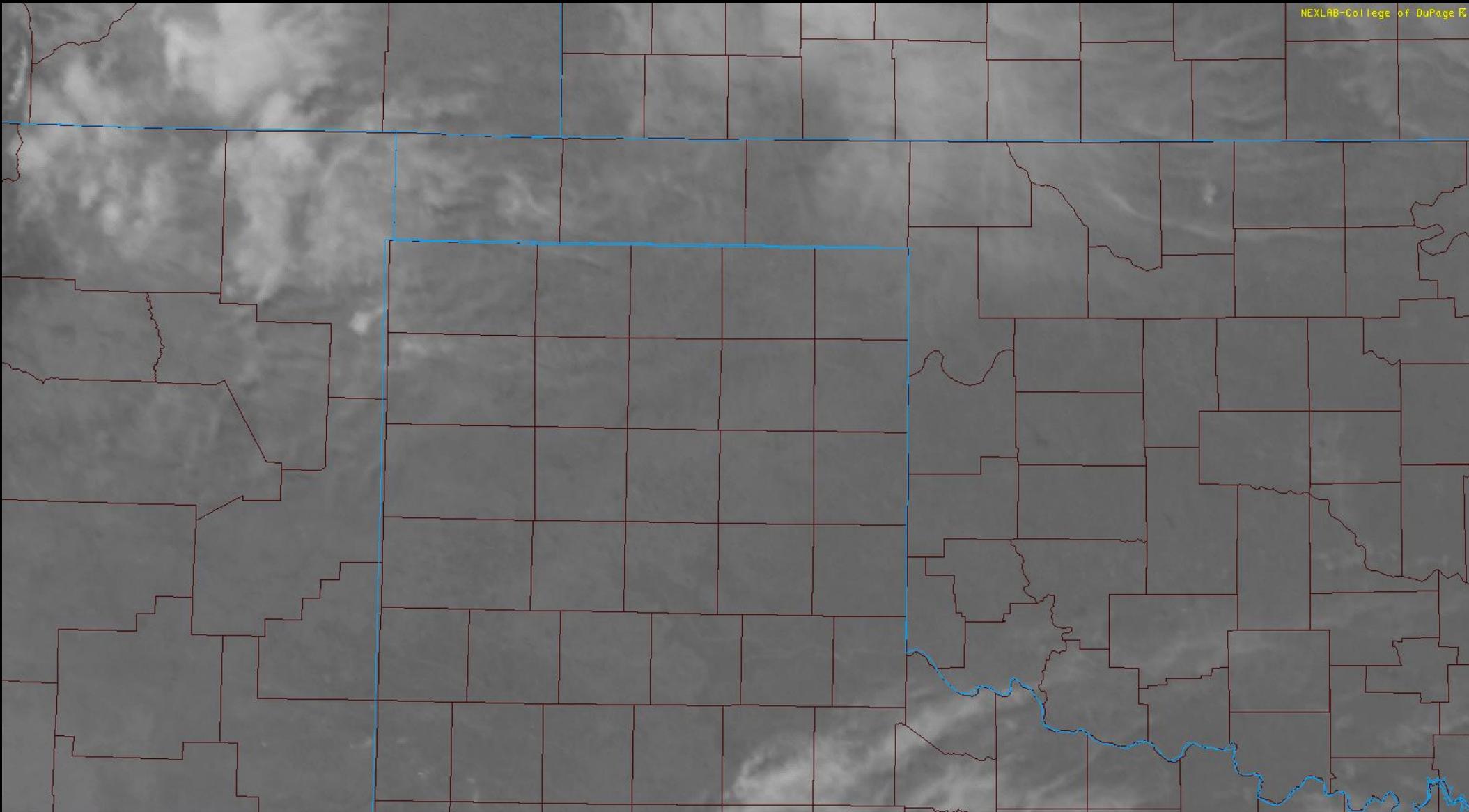
GOES-16 BAND 07 ("SHORTWAVE WINDOW" INFRARED) 2.0 KM | VALID 13 APR 18 19:02:22 UTC

# Visible (Blue)



# Animation of Blue Visible

12-5 pm April 12

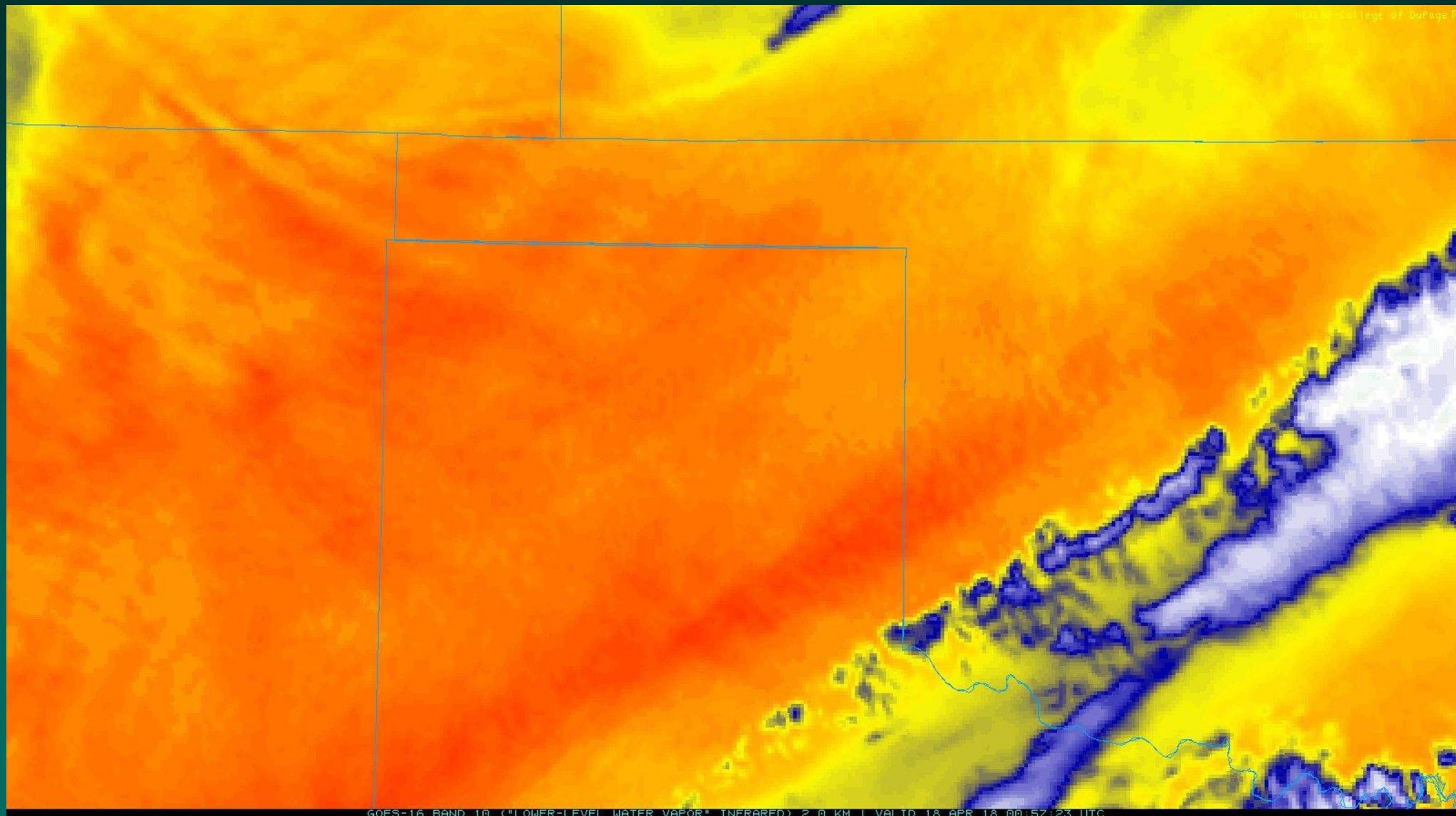


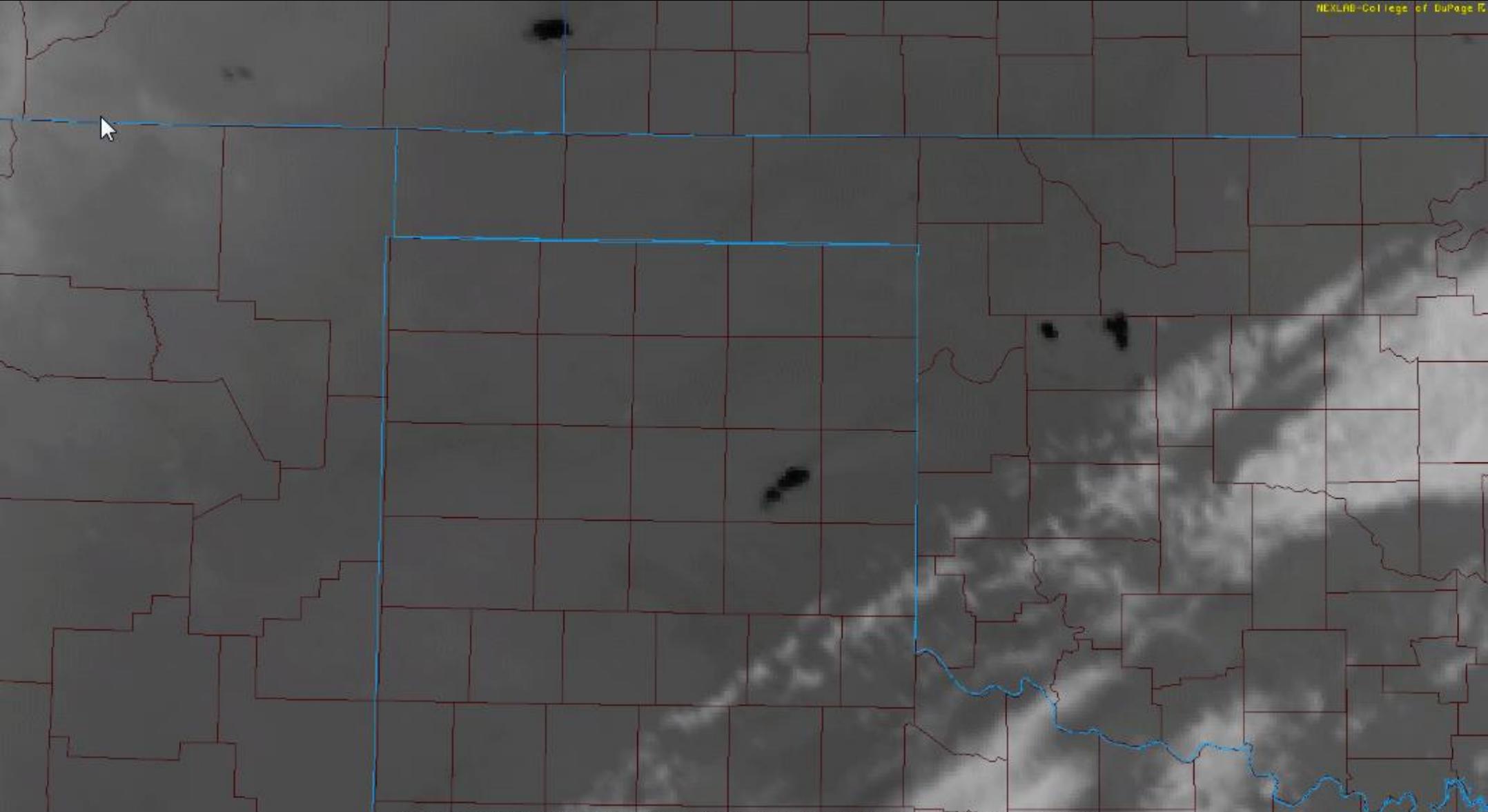
GOES-16 BAND 01 (VISIBLE - BLUE) 1.0 KM | VALID 12 APR 18 17:32:21 UTC

**Smoke Plume  
(Blue Visible)**

**6 pm April 15**

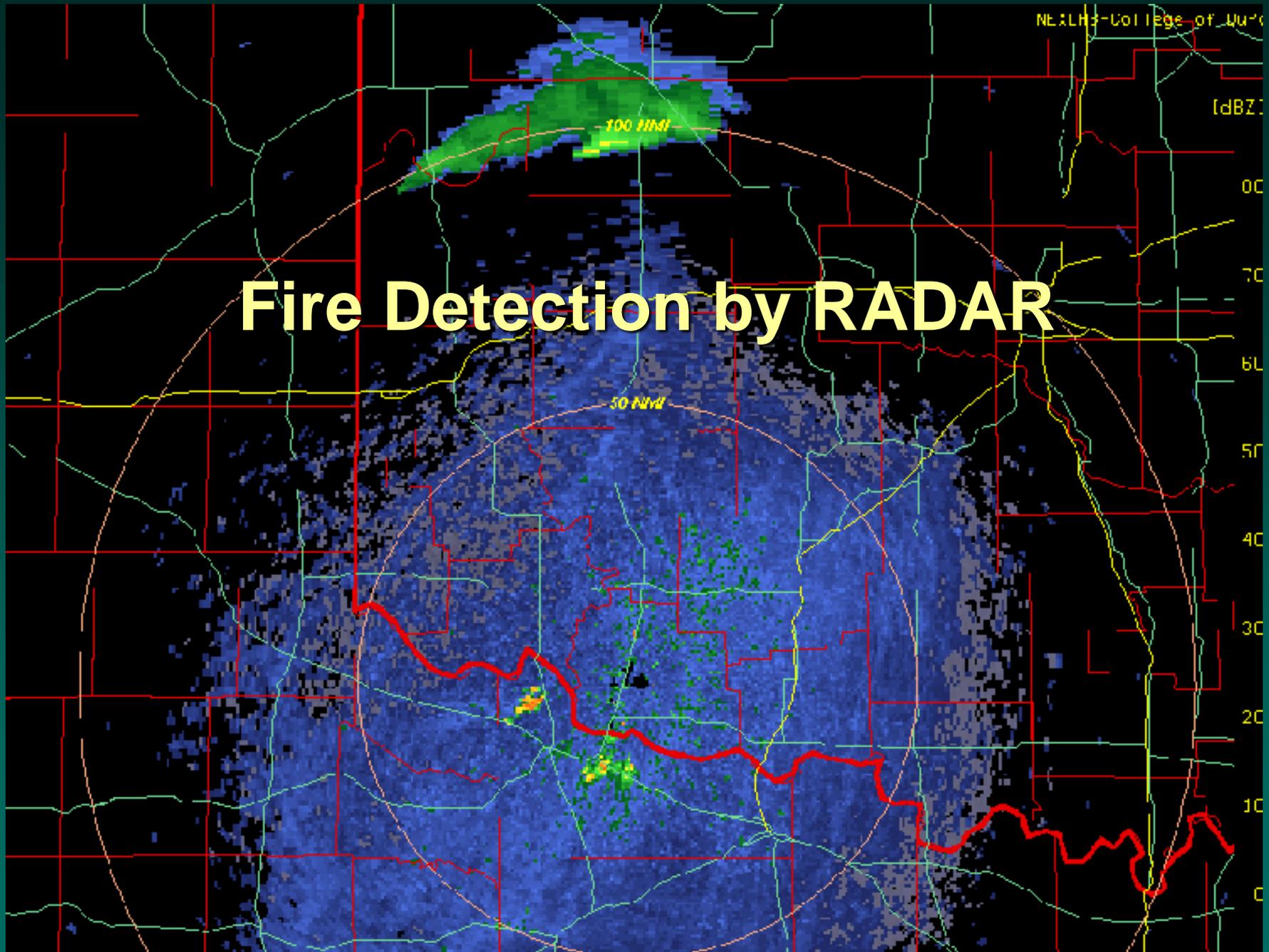
# Water Vapor (Apr. 17, 2018)





GOES-16 BAND 07 ("SHORTWAVE WINDOW" INFRARED) 2.0 KM 1 VALID 18 APR 18 00:07:23 UTC

# Fire Detection by RADAR



Current Station Conditions >

**Current Maps** >

Past & Forecast Animated Maps >

Past & Forecast Charts/Tables >

Fire Prescription Planner >

NWS Forecast Chart (Stillwater) >

NWS Forecast Table (Stillwater) >

Relative Greenness Zoom Map >

Default Fuel Model Zoom Map >

Fire Advisories and Outlooks >

3.9 μ Infrared Satellite Map >

Recent Lightning Activity >

Oklahoma Burn Bans >

Additional Resources >

Contacts and Learning Tools >

News >

Current Fuel Model for  
Stillwater

T - Tallgrass with open evergreen brus ▾

*Default is T*



## Current Maps

Fire Weather

Fire Danger

Satellite

**Local Radar**

### Fire Weather



Current Fire Weather Conditions

2:25 PM September 17, 2024 CDT

#### Current Fire Weather Conditions

[learn more](#)



Relative Humidity and Winds

2:25 PM September 17, 2024 CDT

#### Relative Humidity and Winds

[learn more](#)



1-hour Relative Humidity Change (%)

2:25 PM September 17, 2024 CDT

#### 1-hr Relative Humidity Change

[learn more](#)



3-hour Relative Humidity Change (%)

2:25 PM September 17, 2024 CDT

#### 3-hr Relative Humidity Change

[learn more](#)



Today's Maximum Relative Humidity (%)

2:25 PM September 17, 2024 CDT

#### Today's Maximum Relative Humidity

[learn more](#)



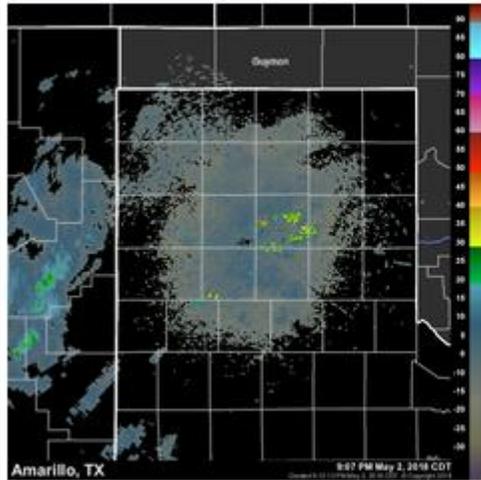
Wind Speed and Direction

2:25 PM September 17, 2024 CDT

#### Wind Speed and Direction

[learn more](#)

## Local Radar



**Amarillo**

[learn more](#)



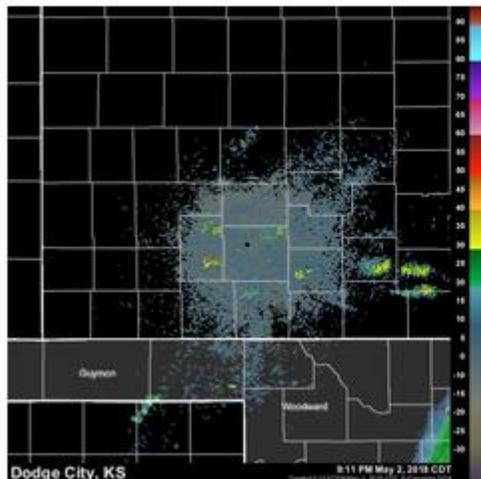
**Oklahoma City**

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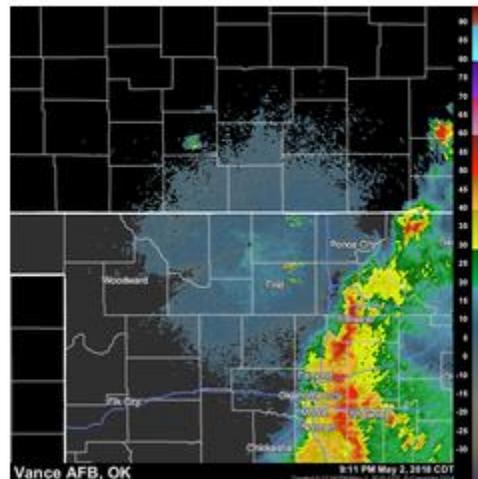


**Tulsa**

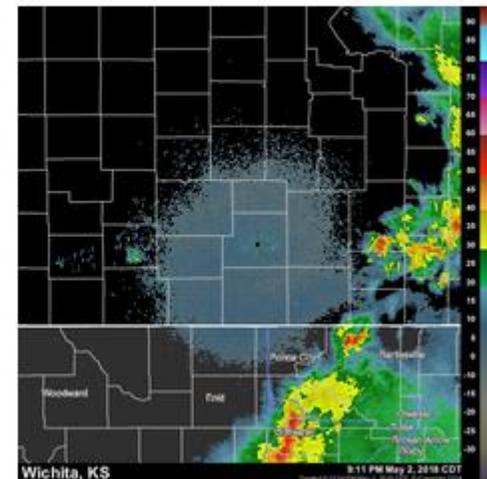
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**Dodge City**



**Vance AFB**



**Wichita**



**Frederick**

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**Dallas - Fort Worth**

[learn more](#)



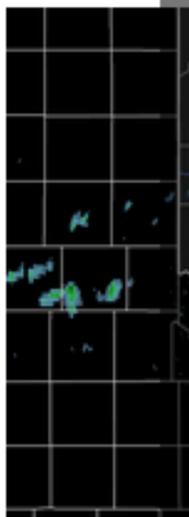
**Fort Smith**

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Dodge City, KS

## Dodge City

[learn more](#)



Frederick, OK

## Frederick

[learn more](#)

## Frederick

This radar image from Frederick shows the current base reflectivity at a 0.5 degree upward tilt of the radar beam. Local radar can be useful, as can satellite imagery in the visible, in detecting smoke plumes from wildland fire. However, the radar beam has to intersect the smoke plume for the plume to be detected, meaning lower-level smoke plumes are more difficult to detect the further the distance from the radar site due to the upward tilt of the radar beam. During non-precipitation conditions, this map is updated approximately every 10 minutes, but during precipitation events the updates can be as frequent as every 2 to 3 minutes. To view a 24-frame past animation (4-hours under non-precipitation conditions) of this local radar map, [click here](#). These animated maps are provided by the College of DuPage, with the time of each image shown beneath the map in UTC time (CST = UTC - 6 hours; CDT = UTC - 5 hours).



Dallas - Ft. Worth, TX

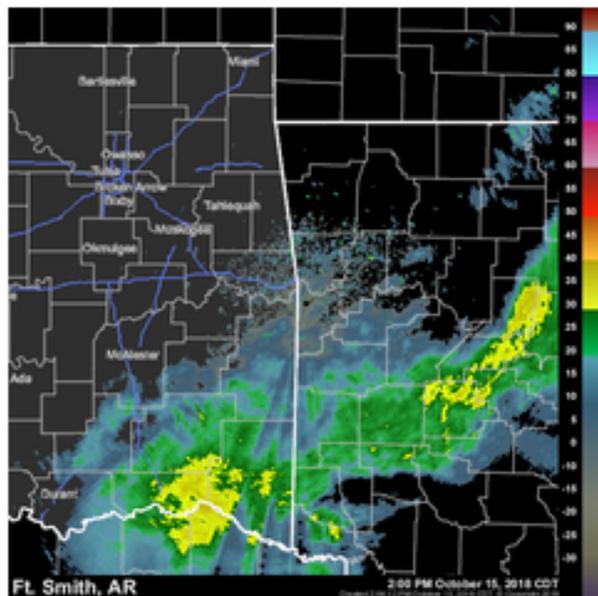
## Dallas - Fort Worth

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Wichita, KS

## Wichita

[learn more](#)



Fl. Smith, AR

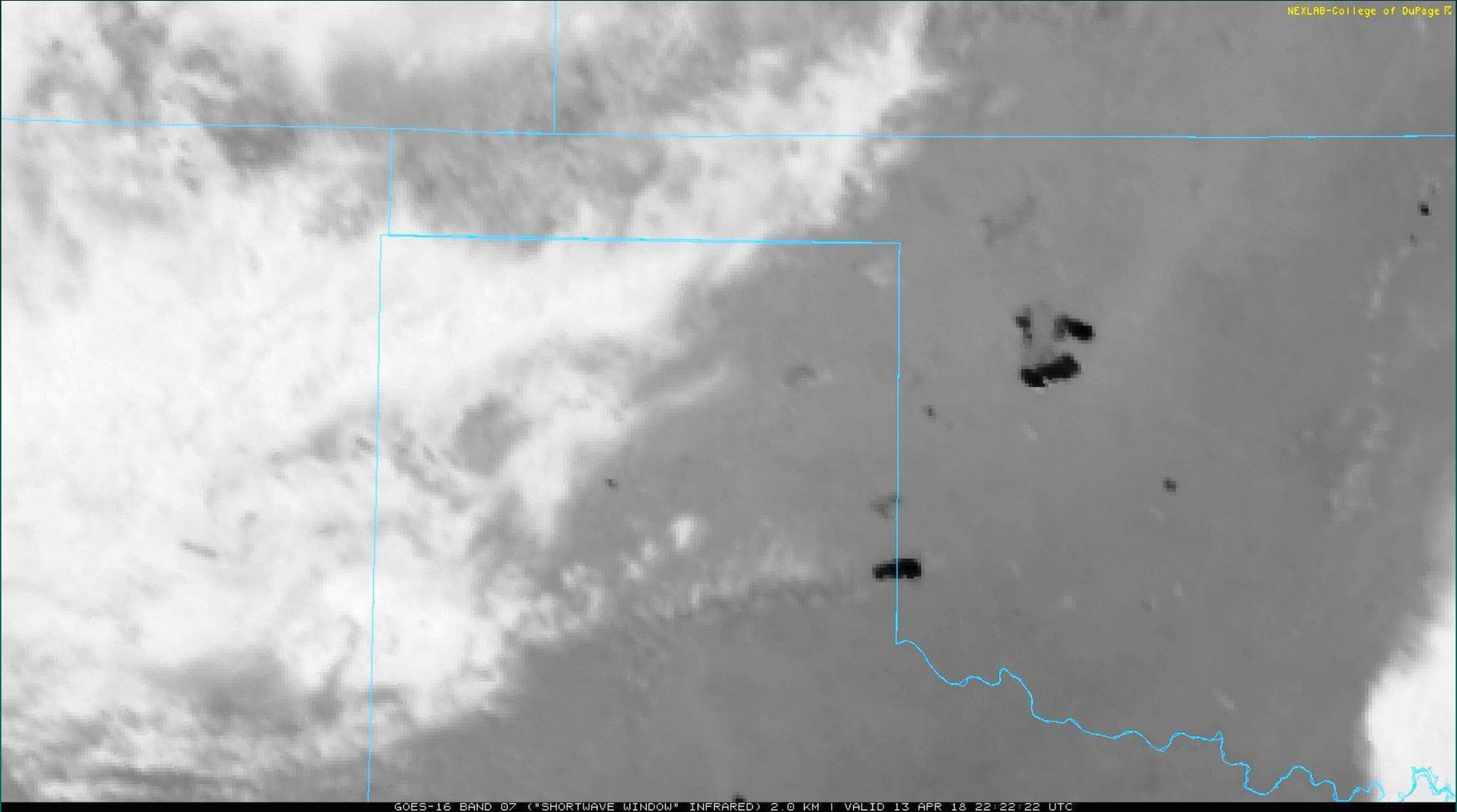
## Fort Smith

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**April 13, 2018**

NEXLAB-College of DuPage

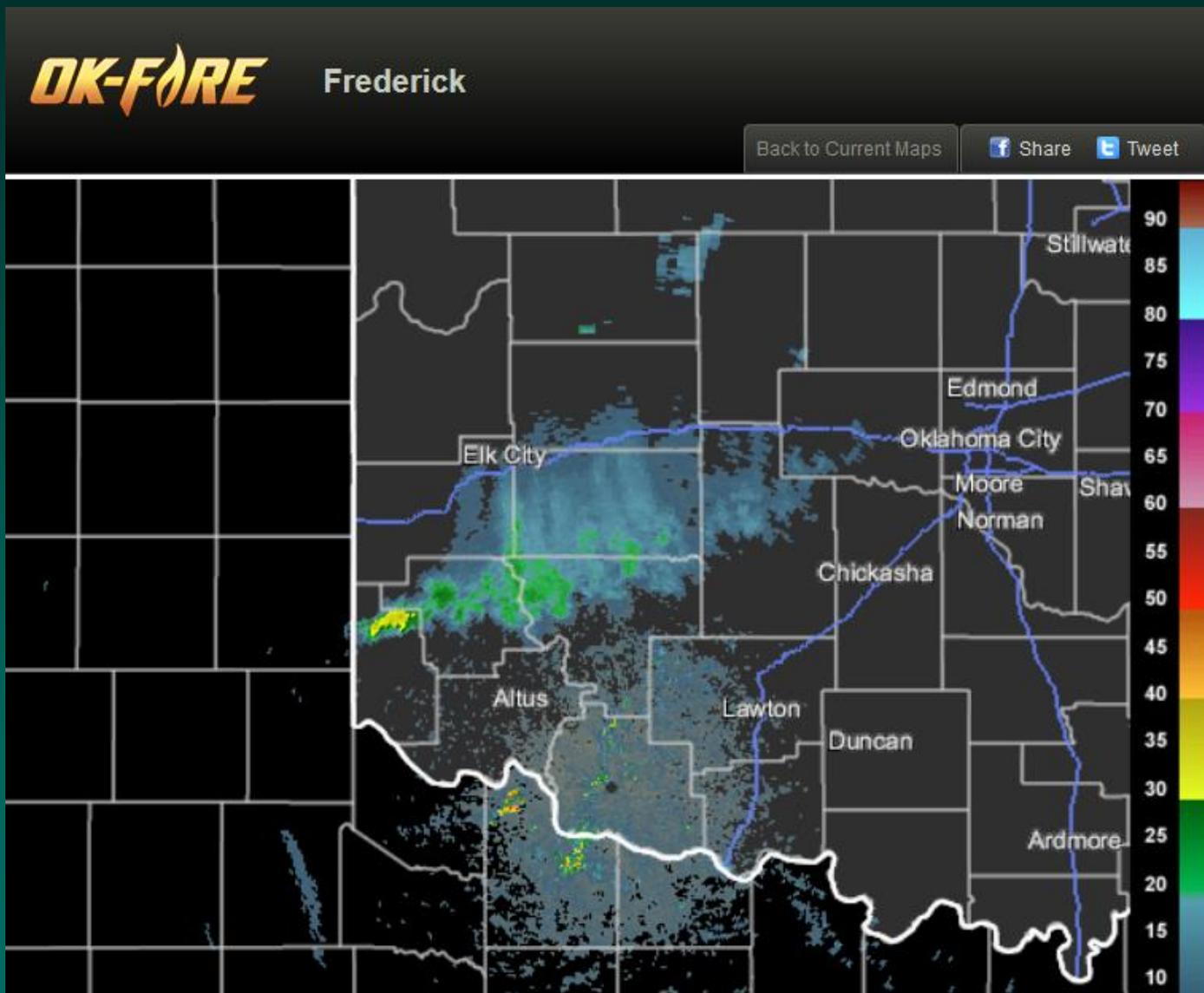
GOES-16 BAND 07 ("SHORTWAVE WINDOW" INFRARED) 2.0 KM | VALID 13 APR 18 22:22:22 UTC



# Vance AFB Radar

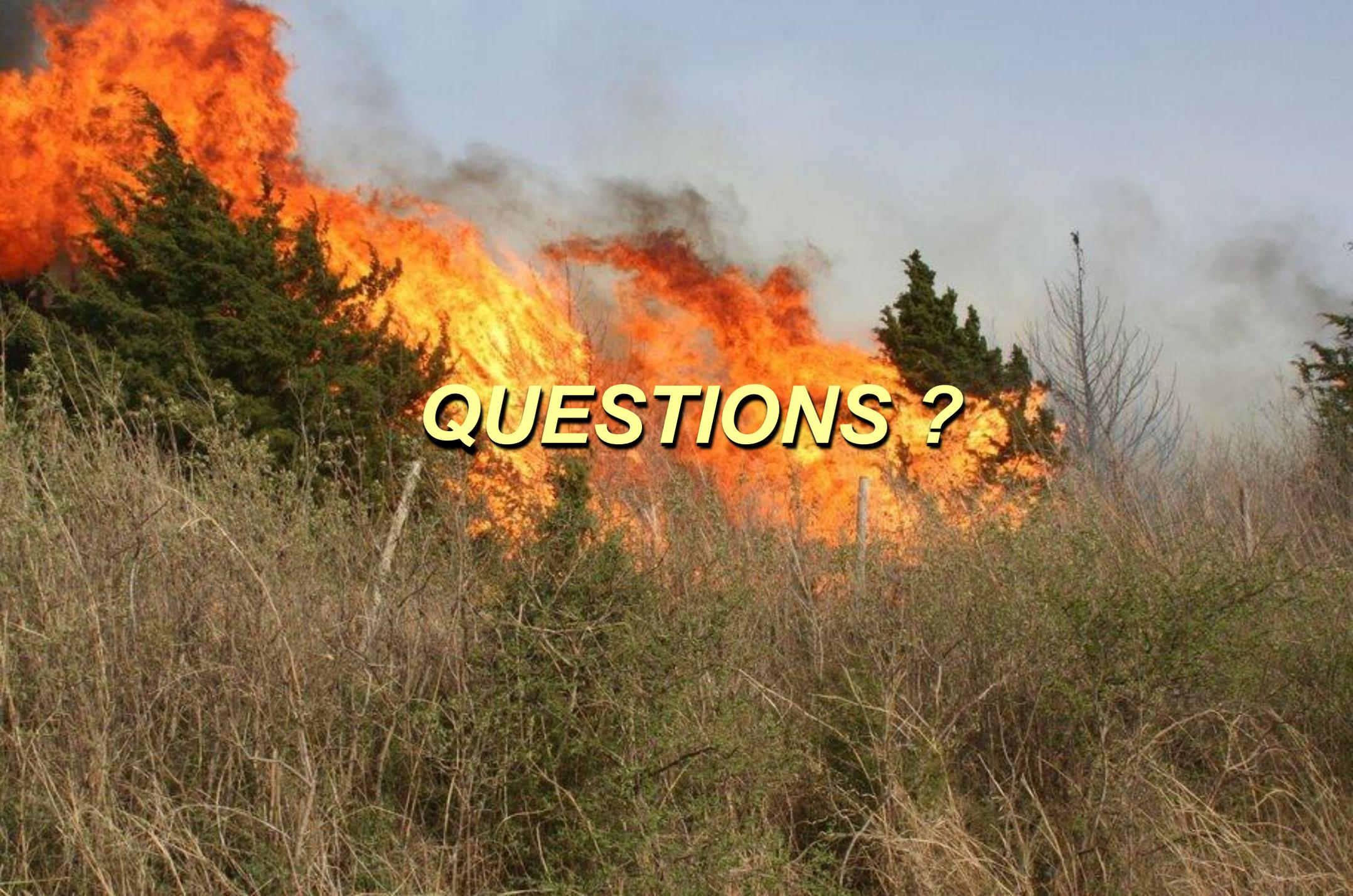


# Frederick Radar

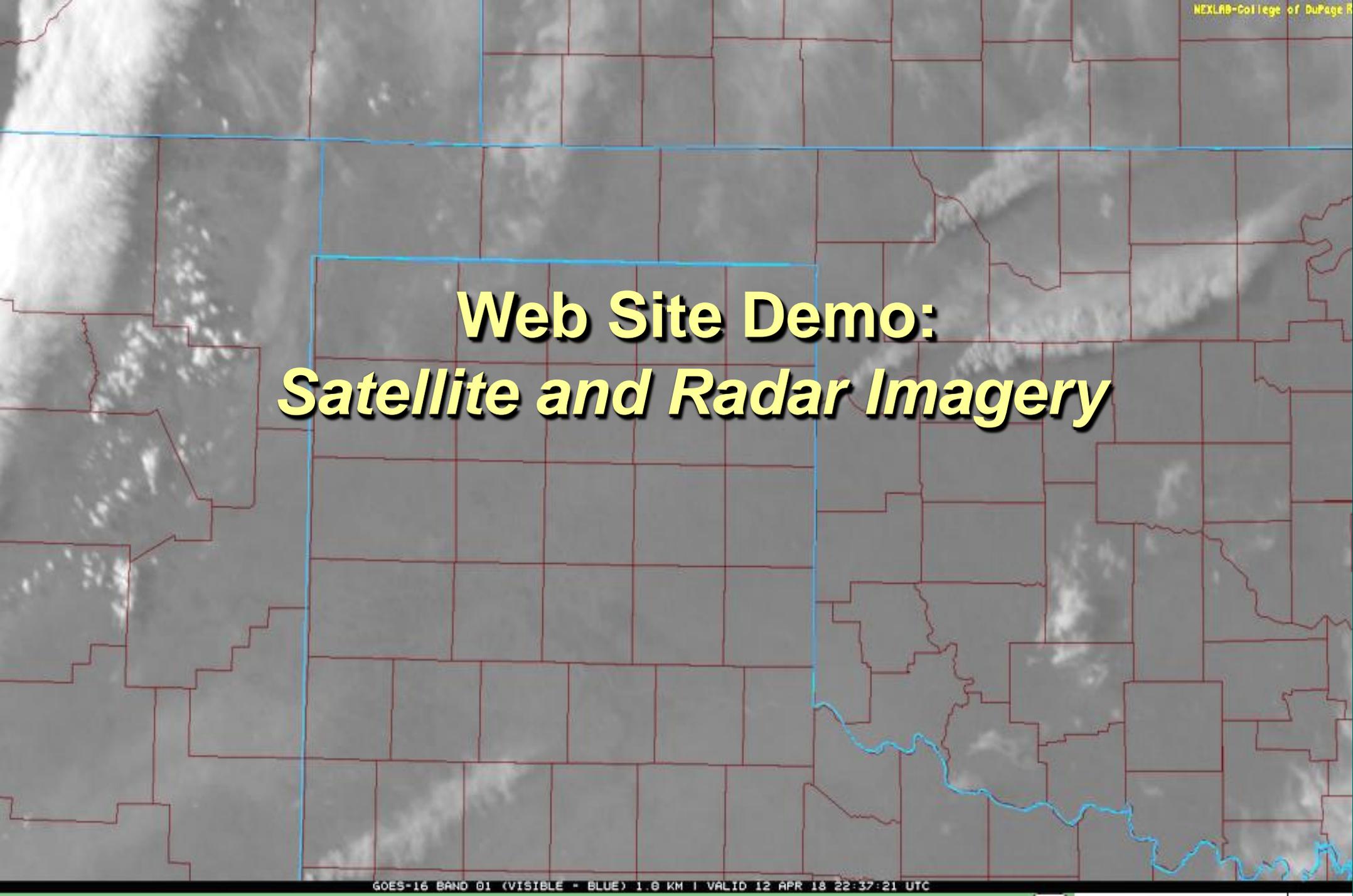


# Questions You Should Be Able to Answer by the End of this Module

- For what is the  $3.9 \mu$  Infrared satellite image useful?
- For what is the Blue Visible satellite image useful?
- For what is local radar imagery useful?
- How can I animate satellite and radar images?

A large fire is burning in a forest, with bright orange and yellow flames rising from the trees. The fire is intense and appears to be spreading. In the foreground, there is a dense thicket of dry, brown grasses and some green shrubs. The sky is a pale, overcast blue. The text "QUESTIONS ?" is overlaid in the center of the image in a bold, yellow, italicized font with a black outline.

***QUESTIONS ?***

The image displays a satellite or radar view of a geographical area, likely a state or large county. A grid of red lines is overlaid on the image, representing a coordinate system. A prominent blue boundary outlines a specific region within the grid. The text is centered over this blue-outlined region.

# **Web Site Demo: *Satellite and Radar Imagery***