

<b>NWS FORM E-5</b> (11-88) (PRES. by NWS Instruction 10-924)	<b>U.S. DEPARTMENT OF COMMERCE</b> NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE	HYDROLOGIC SERVICE AREA (HSA)	
		<b>Tulsa, Oklahoma (TSA)</b>	
<b>MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS</b>		REPORT FOR:	
		MONTH <b>May</b>	YEAR <b>2021</b>
TO: Hydrometeorological Information Center, W/OH2 NOAA / National Weather Service 1325 East West Highway, Room 7230 Silver Spring, MD 20910-3283		SIGNATURE <b>Steven F. Piltz</b> (Meteorologist-in-Charge)	
		DATE <b>June 14, 2021</b>	

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924)

An "X" in the box indicates no flood stages were reached in this Hydrologic Service Area (HSA) during the month above.

Several rounds of heavy rain brought flash flooding and minor to moderate river flooding to the HSA in May. Normal precipitation values climatologically rank May as the wettest month of the year. These averages range from 5.0 - 5.5 inches across northeast Oklahoma to 5.5 - 6.0 inches across southeast Oklahoma. The Ozark region of northwest Arkansas averages 5.8 inches for the month. This report, past E-5 reports, and monthly hydrology and climatology summaries can be found at <http://www.weather.gov/tsa/hydro-monthly-summary>.

### Monthly Summary

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 1a), rainfall totals for May 2021 ranged from 3" to near 15" across eastern OK and northwest AR, with most of the area receiving 6"-10". These rainfall totals correspond to 50% to 200% of the normal May rainfall, with above normal rainfall for the majority of eastern OK and northwest AR (Fig. 1b).

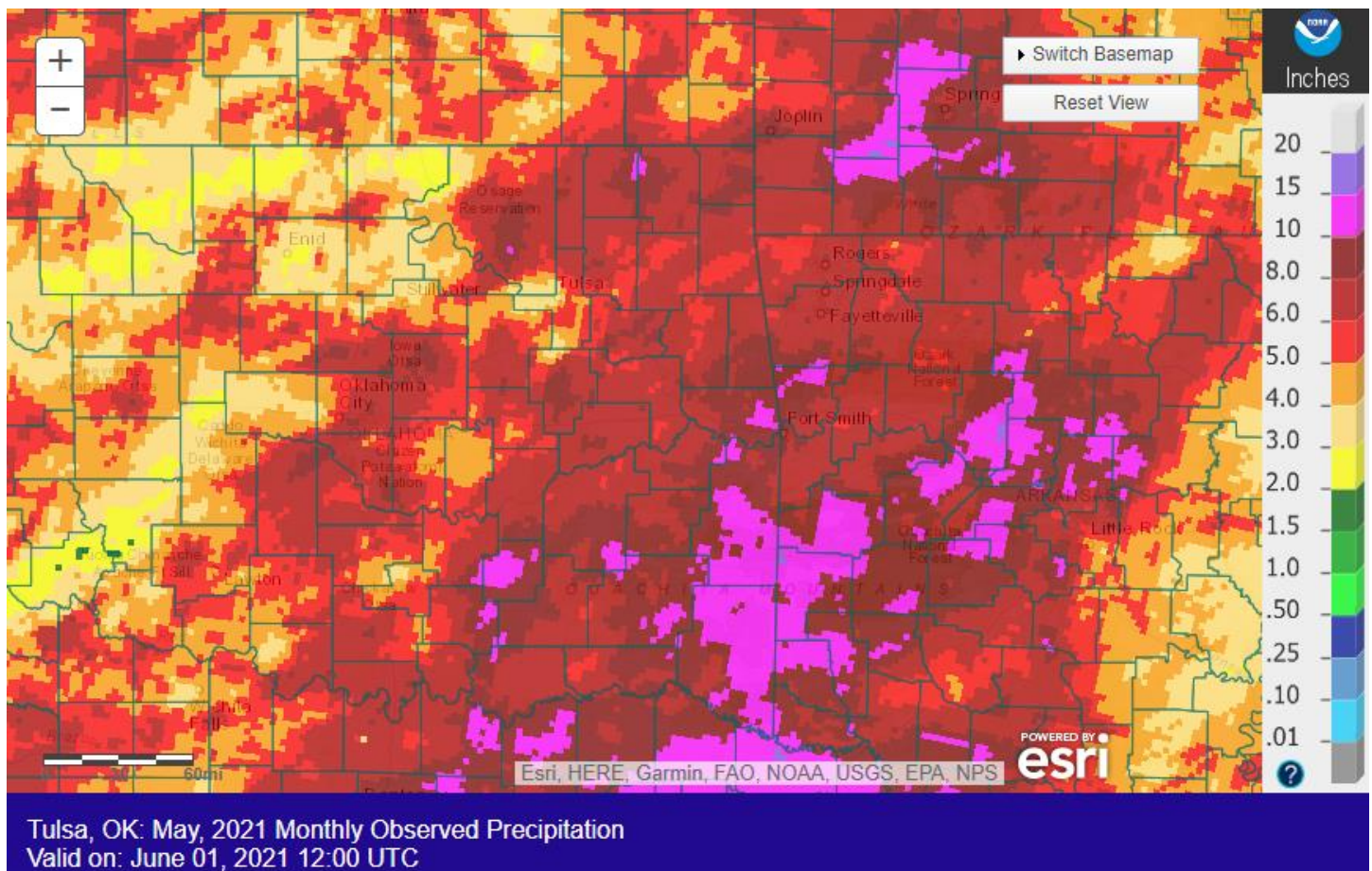


Fig. 1a. Estimated Observed Rainfall for May 2021



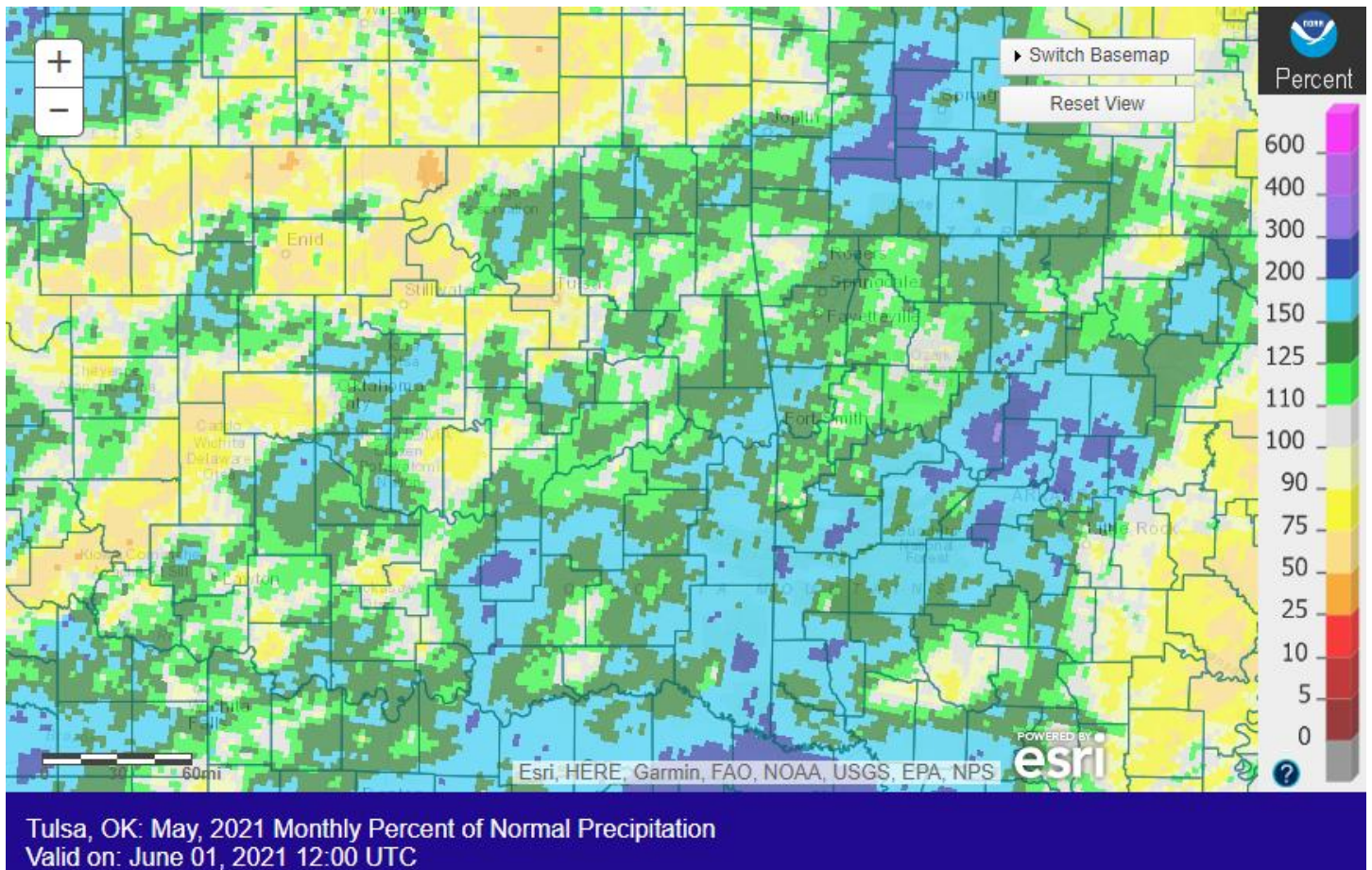


Fig. 1b. Estimated % of Normal Rainfall for May 2021

In Tulsa, OK, May 2021 ranked as the 25<sup>th</sup> coldest May (66.9°F, tied 1997, 1943; since records began in 1905) and the 54<sup>th</sup> wettest May (5.46"; since records began in 1888). Fort Smith, AR had the 36<sup>th</sup> coldest May (67.9°F, tied 1960; since records began in 1883) and the 28<sup>th</sup> wettest May (6.74"; since records began in 1883). Fayetteville, AR had the 14<sup>th</sup> coldest (63.6°F, tied 2013) and the 26<sup>th</sup> wettest (6.67") May since records began in 1950.

Some of the larger precipitation reports (in inches) for May 2021 included:

Krebs 0.3WNW, OK (coco)	10.43	McAlester, OK (meso)	9.65	Wynona, OK (meso)	9.64
Wister, OK (meso)	9.60	Cloudy, OK (meso)	9.36	Hugo, OK (meso)	9.15
Antlers, OK (coop)	9.00	Hugo 1.9ENE, OK (coco)	8.72	Talihina, OK (meso)	8.65

Some of the lowest precipitation reports (in inches) for May 2021 included:

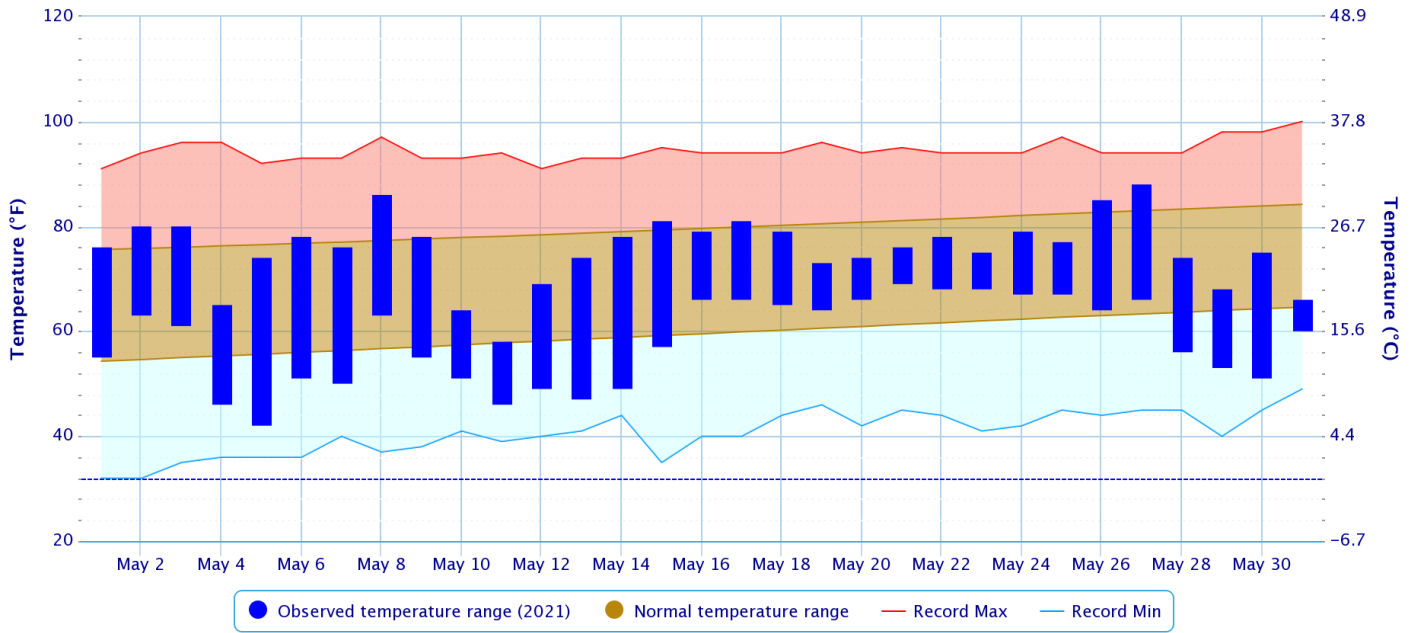
Tulsa 7.7SSE, OK (coco)	2.46	Sand Springs 4.6WNW, OK (coco)	3.08	Tulsa 6.3WSW, OK (coco)	3.27
Hectorville, OK (meso)	3.73	Gravette, AR (coop)	4.03	Pawnee, OK (meso)	4.11
Tulsa 6.3S, OK (coco)	4.18	Tulsa 3.4ENE, OK (coco)	4.23	Broken Arrow 4.6SSW, OK (coco)	4.37

According to statistics from the [Oklahoma Climatological Survey](#) (OCS) Mesonet:

Rank since 1921	Last 30 Days (May 2 – 31)	Last 60 Days (Apr 2 – May 31)	Spring 2021 (Mar 1 – May 31)	Year-to-Date (Jan 1 – May 31)	Last 180 Days (Dec 3 – May 31)	Water Year-to-Date (Oct 1, 2020 – May 31, 2021)	Last 365 Days (Jun 1, 2020 – May 31, 2021)
Northeast OK	30 <sup>th</sup> wettest	40 <sup>th</sup> wettest	25 <sup>th</sup> wettest	27 <sup>th</sup> wettest	26 <sup>th</sup> wettest	22 <sup>nd</sup> wettest	41 <sup>st</sup> wettest
East Central OK	27 <sup>th</sup> wettest	<b>8<sup>th</sup> wettest</b>	17 <sup>th</sup> wettest	29 <sup>th</sup> wettest	29 <sup>th</sup> wettest	36 <sup>th</sup> wettest	31 <sup>st</sup> wettest
Southeast OK	17 <sup>th</sup> wettest	13 <sup>th</sup> wettest	20 <sup>th</sup> wettest	28 <sup>th</sup> wettest	31 <sup>st</sup> wettest	46 <sup>th</sup> wettest	26 <sup>th</sup> wettest
Statewide	30 <sup>th</sup> wettest	28 <sup>th</sup> wettest	25 <sup>th</sup> wettest	37 <sup>th</sup> wettest	32 <sup>nd</sup> wettest	42 <sup>nd</sup> wettest	42 <sup>nd</sup> wettest

### Daily Temperature Data – Tulsa Area, OK (ThreadEx)

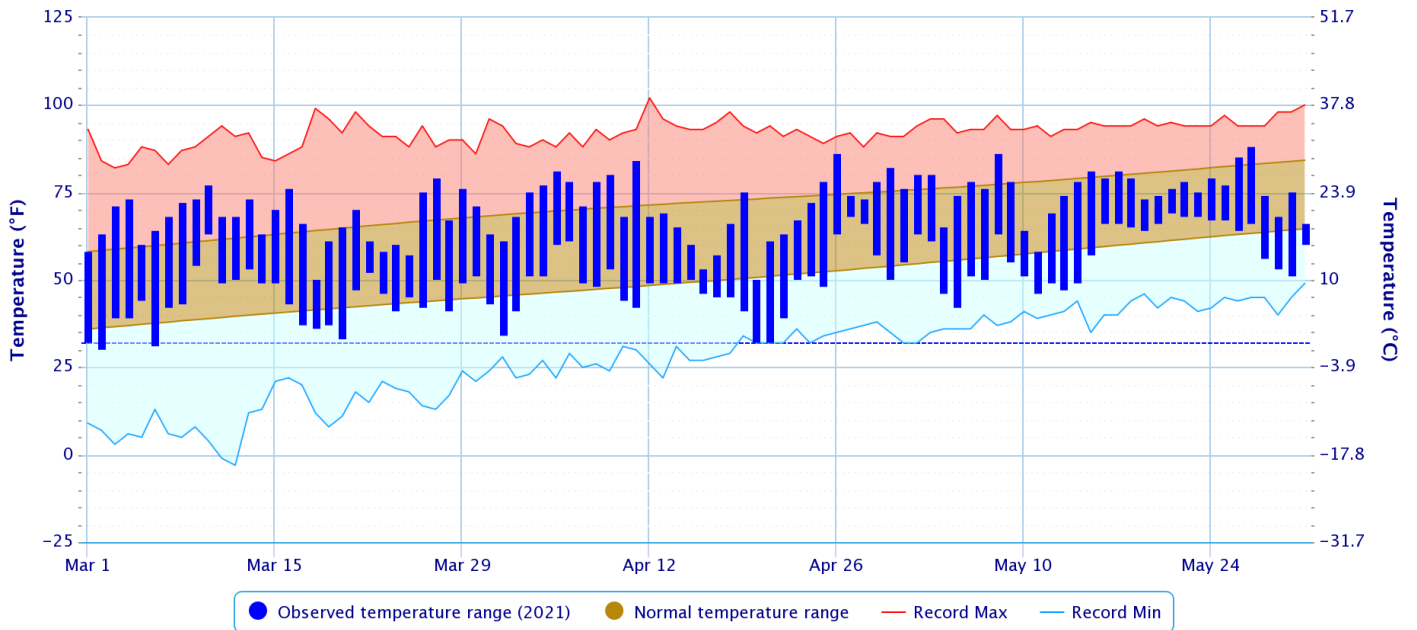
Period of Record – 1905-01-06 to 2021-05-31. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

### Daily Temperature Data – Tulsa Area, OK (ThreadEx)

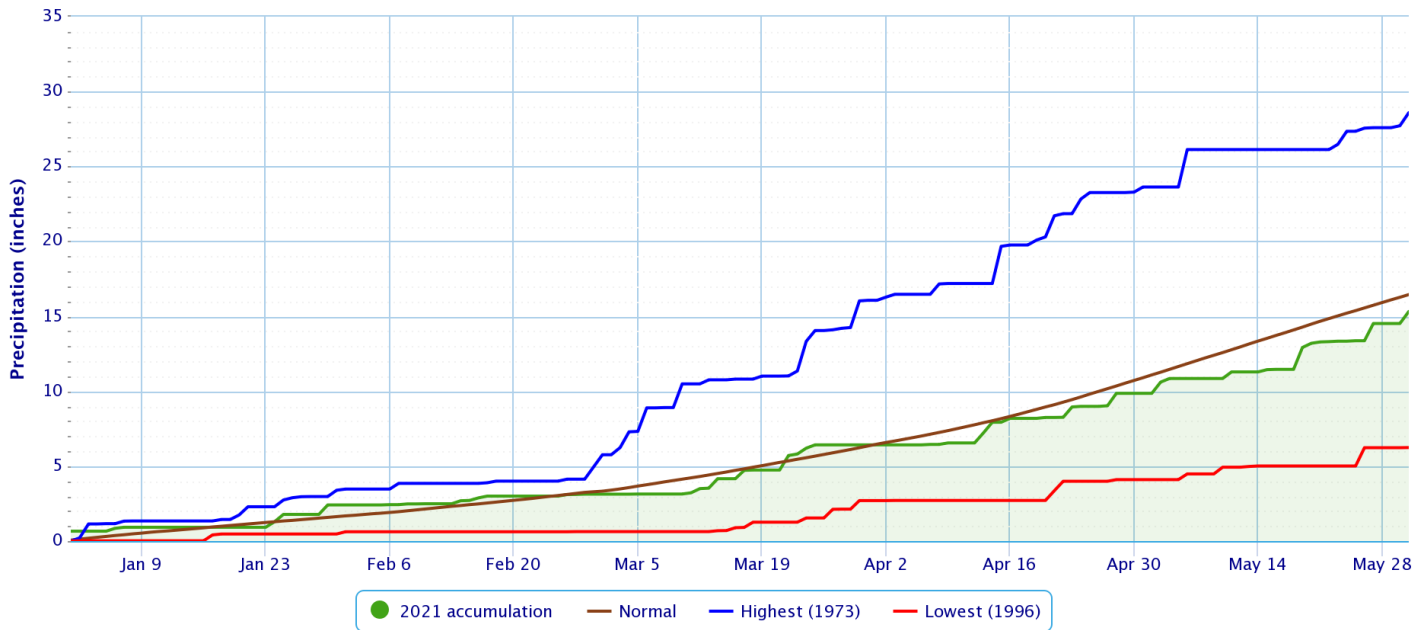
Period of Record – 1905-01-06 to 2021-05-31. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

### Accumulated Precipitation – Tulsa Area, OK (ThreadEx)

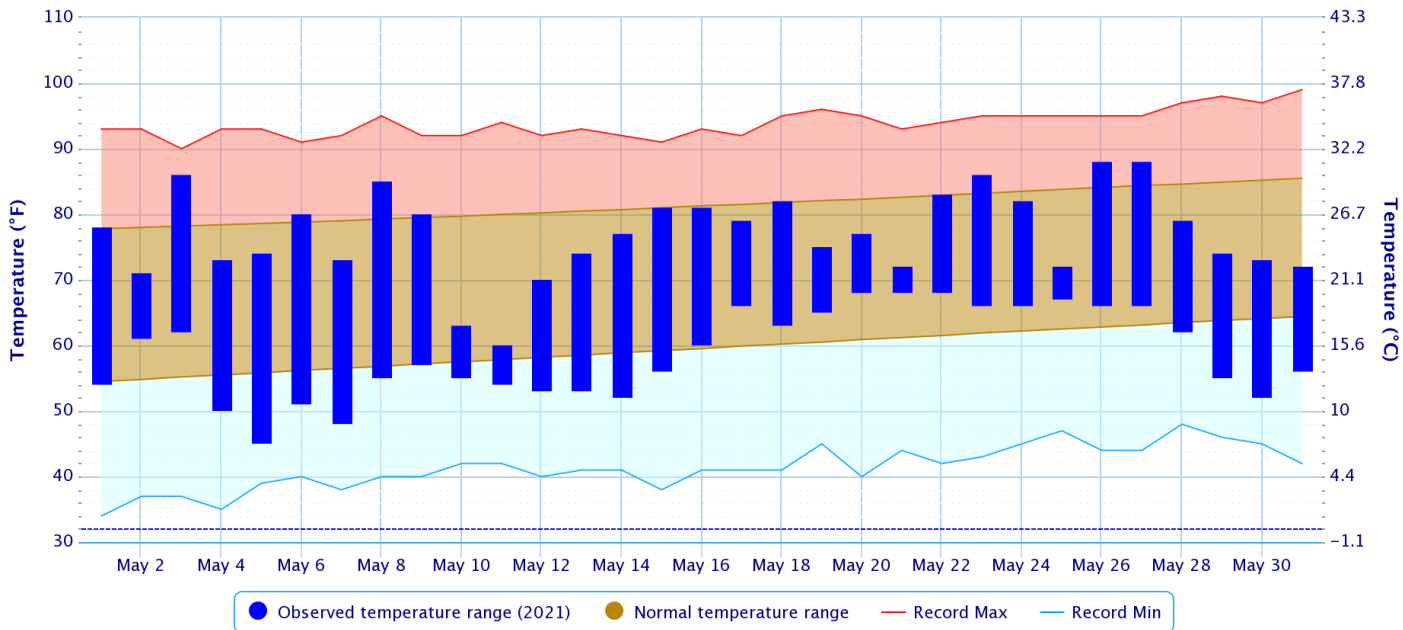
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS

### Daily Temperature Data – Fort Smith Area, AR (ThreadEx)

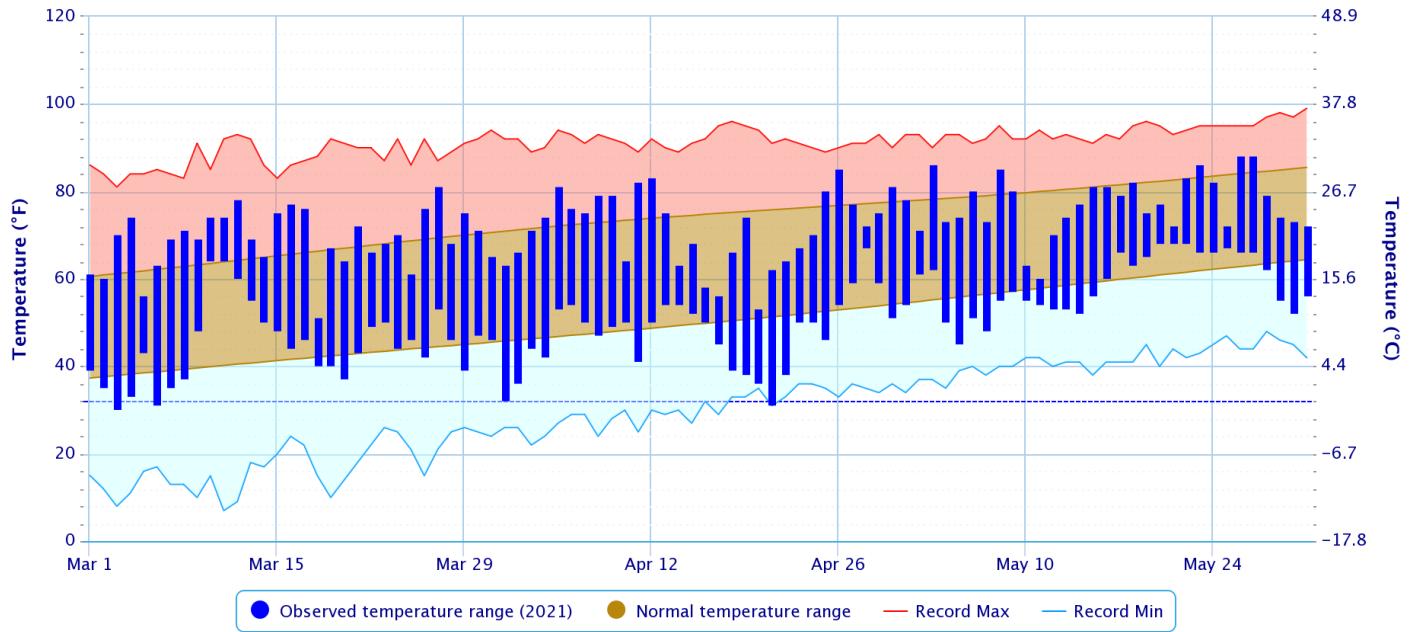
Period of Record – 1882-06-01 to 2021-05-31. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

### Daily Temperature Data – Fort Smith Area, AR (ThreadEx)

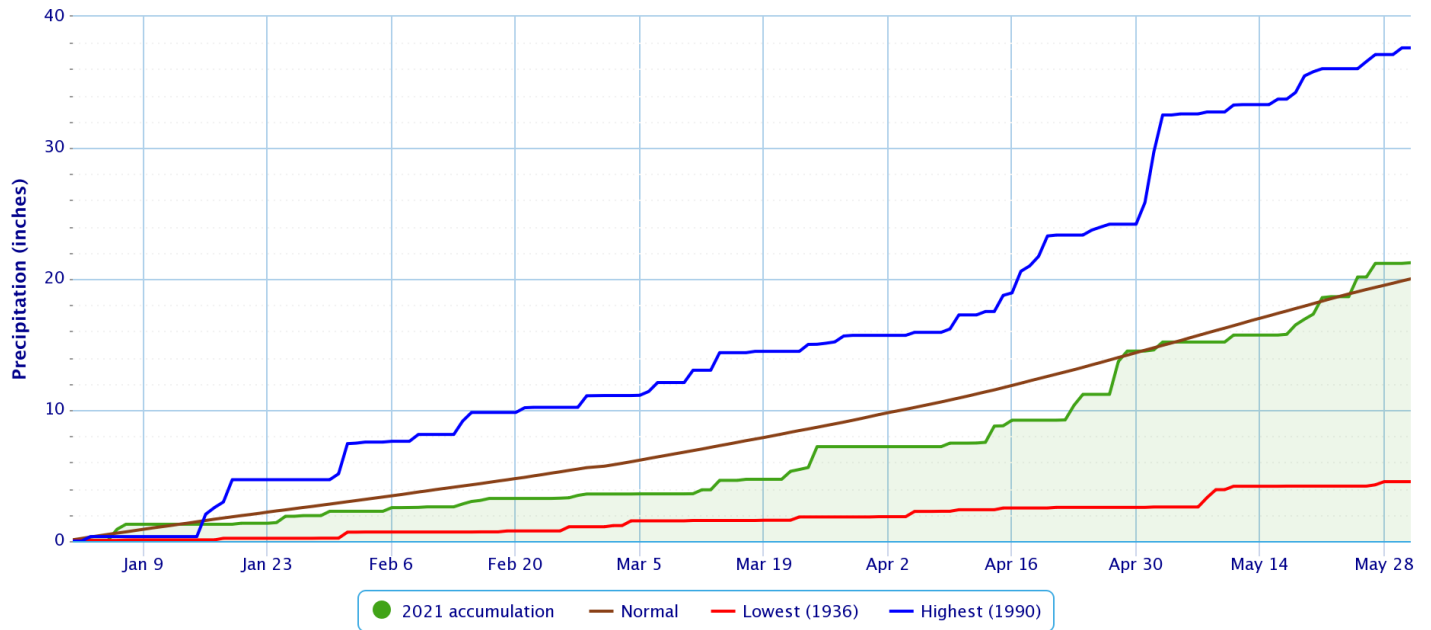
Period of Record – 1882-06-01 to 2021-05-31. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

### Accumulated Precipitation – Fort Smith Area, AR (ThreadEx)

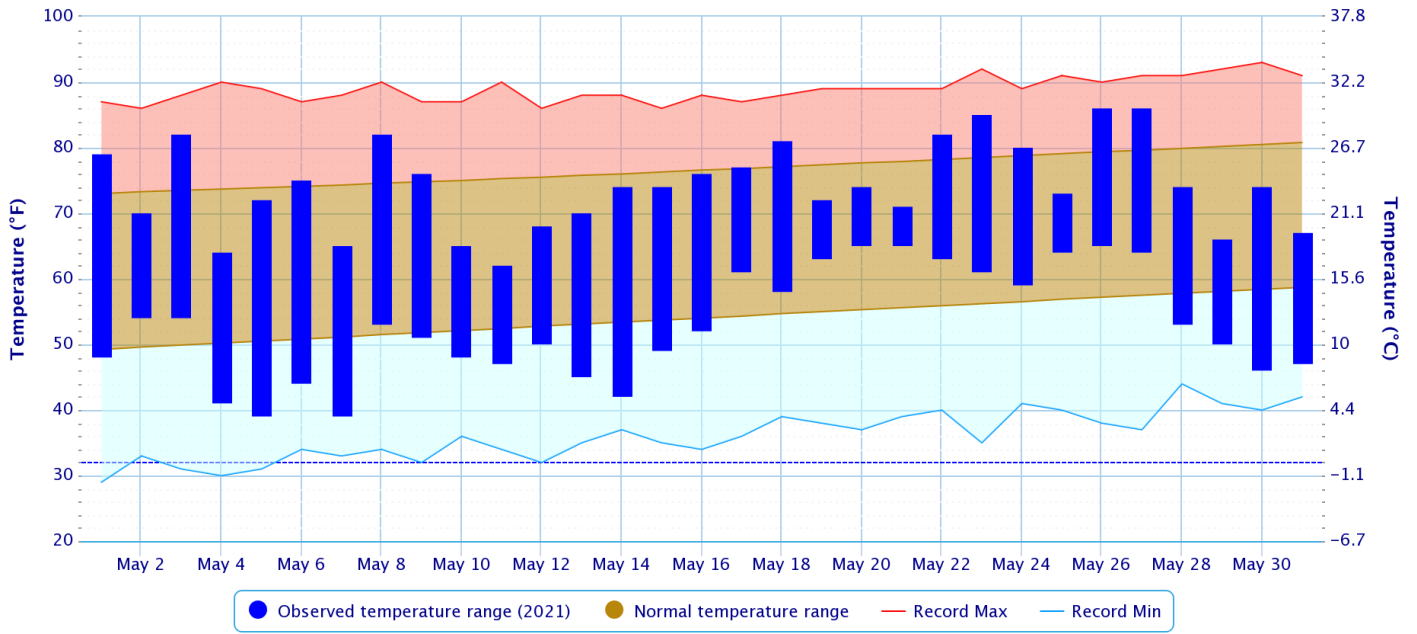
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS

### Daily Temperature Data – FAYETTEVILLE DRAKE FIELD, AR

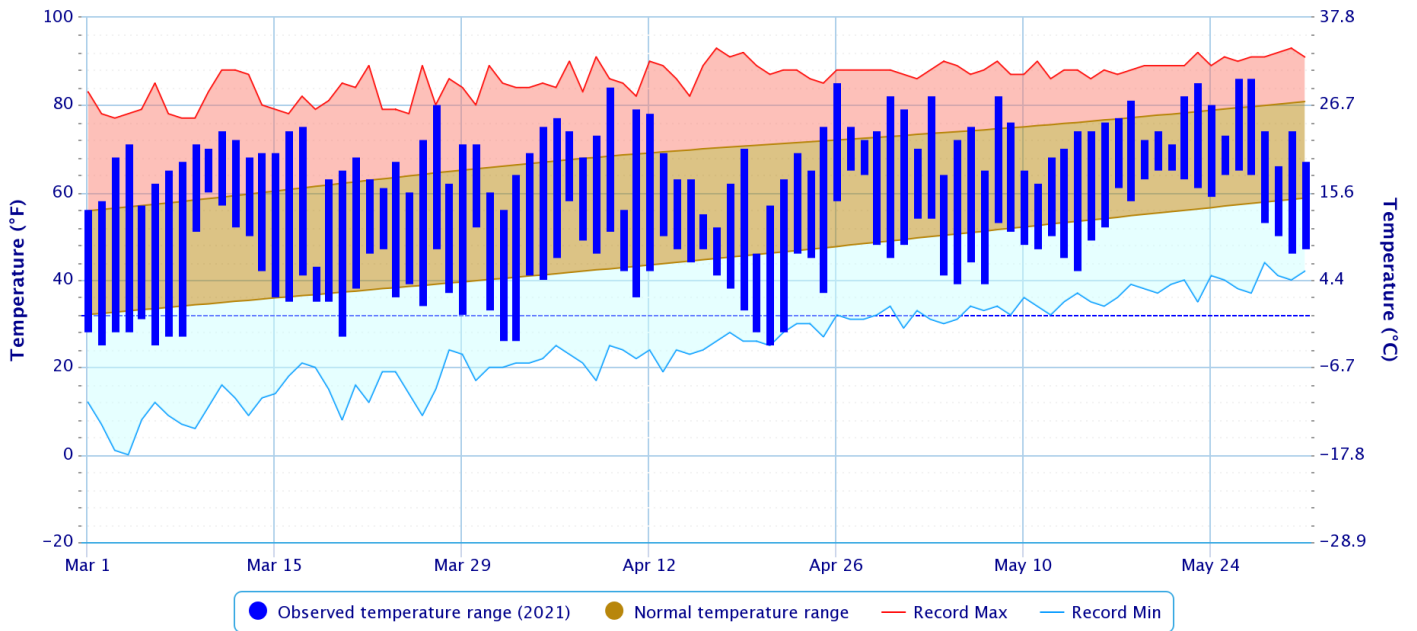
Period of Record – 1949-07-14 to 2021-05-31. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

### Daily Temperature Data – FAYETTEVILLE DRAKE FIELD, AR

Period of Record – 1949-07-14 to 2021-05-31. Normals period: 1991-2020. Click and drag to zoom chart.

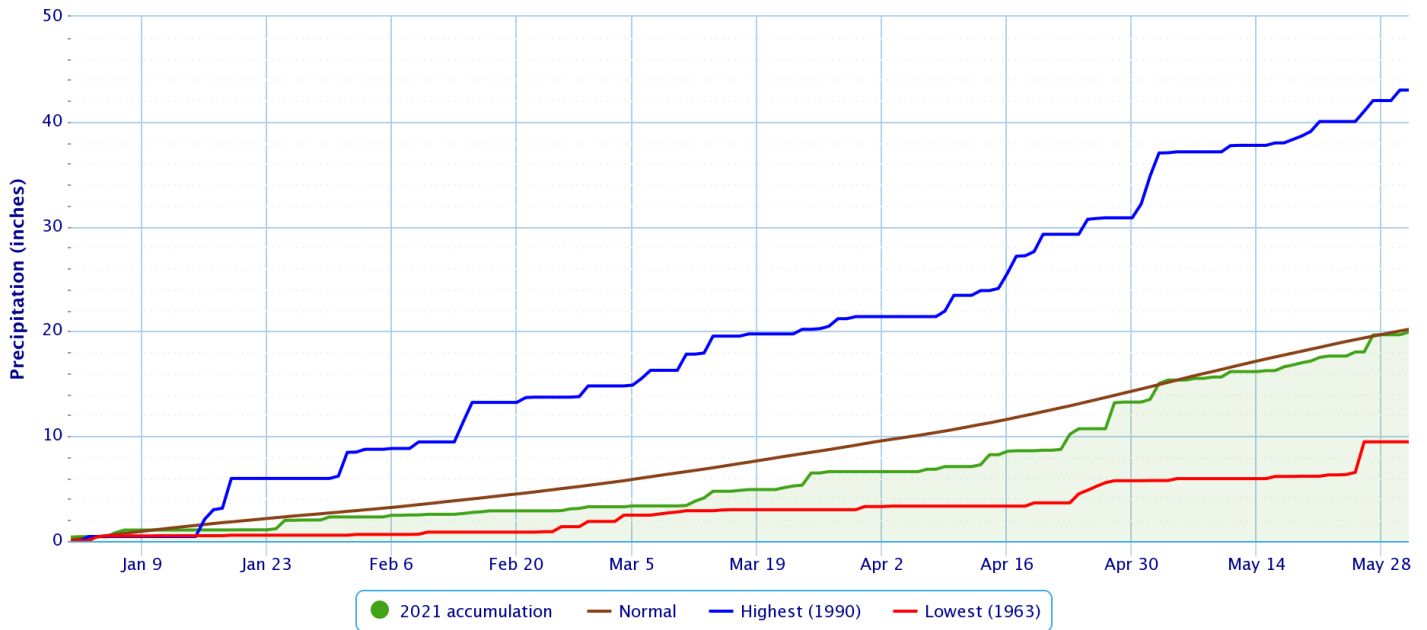


Powered by ACIS



## Accumulated Precipitation – FAYETTEVILLE DRAKE FIELD, AR

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

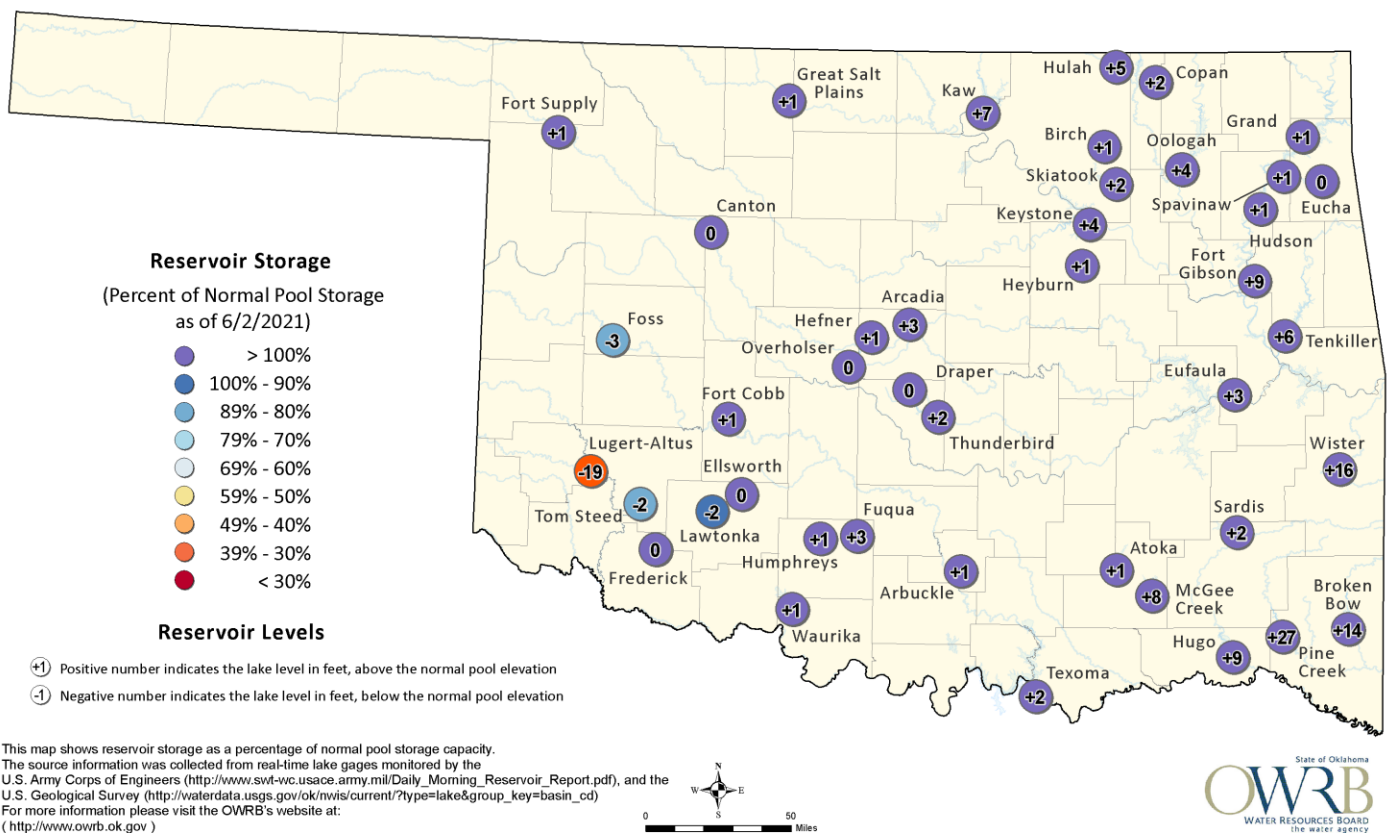


Powered by ACIS

## Reservoirs

# Oklahoma Surface Water Resources

## Reservoir Levels and Storage as of 6/2/2021



This map shows reservoir storage as a percentage of normal pool storage capacity. The source information was collected from real-time lake gages monitored by the U.S. Army Corps of Engineers ([http://www.swt-wc.usace.army.mil/Daily\\_Morning\\_Reservoir\\_Report.pdf](http://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf)), and the U.S. Geological Survey ([http://waterdata.usgs.gov/ok/nwis/current/?type=lake&group\\_key=basin\\_cd](http://waterdata.usgs.gov/ok/nwis/current/?type=lake&group_key=basin_cd)). For more information please visit the OWRB's website at: (<http://www.owrb.ok.gov>)



According to the USACE, many of the lakes in the HSA were higher than 3% of top of their conservation pools as of 6/01/2021: Beaver Lake 82%, Wister Lake 53%, Sardis Lake 26%, Fort Gibson Lake 23%, Hugo Lake 21%, Lake Eufaula 20%, Skiatook Lake 16%, Oologah Lake 14%, Tenkiller Lake 14%, Kaw Lake 12%, Grand Lake 11%, Keystone Lake 8%, Hulah Lake 7%, Copan Lake 5%, and Birch Lake 4%.

### Spring (March-April-May) 2021 Summary

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 2a), rainfall totals for Spring 2021 ranged from 10" to near 25" across eastern OK and northwest AR, with most of the area receiving 10"-20". These rainfall totals correspond to 50% to 200% of the normal Spring rainfall, with above normal rainfall for the majority of eastern OK and northwest AR (Fig. 2b).

In Tulsa, OK, Spring 2021 ranked as the 46<sup>th</sup> warmest Spring (60.7°F, tied 1979, 1935; since records began in 1905) and the 63<sup>rd</sup> wettest Spring (12.19"; since records began in 1888). Fort Smith, AR had the 59<sup>th</sup> warmest Spring (61.4°F; since records began in 1883) and the 22<sup>nd</sup> wettest Spring (17.64"; since records began in 1883). Fayetteville, AR had the 32<sup>nd</sup> warmest (57.1°F, tied 2016, 1953) and the 18<sup>th</sup> wettest (16.65") Spring since records began in 1950.

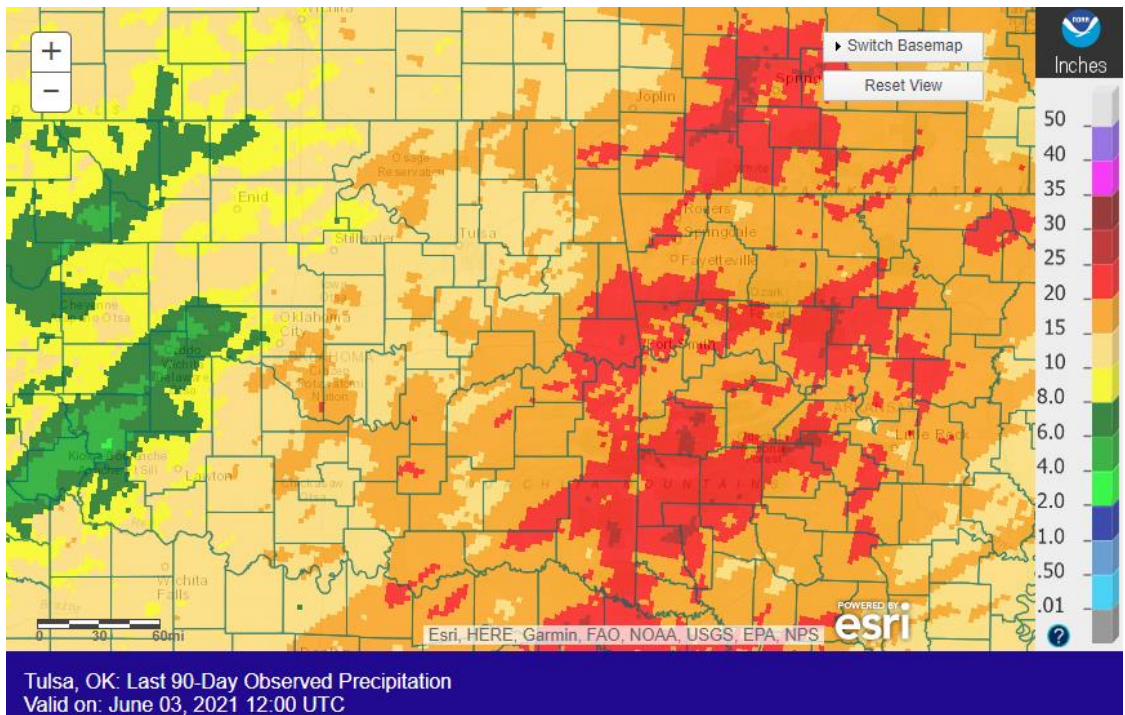


Fig. 2a. Estimated Observed Rainfall for the 90 days ending 7am CDT June 3, 2021

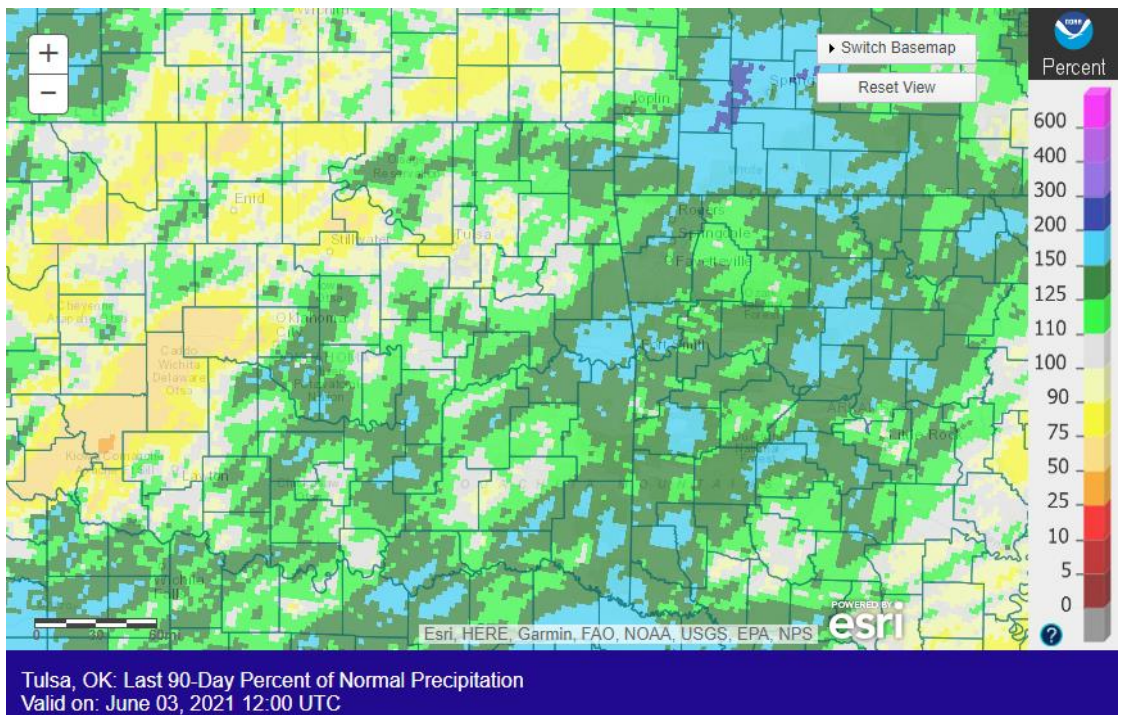


Fig. 2b. Estimated % of Normal Rainfall for the 90 days ending 7am CDT June 3, 2021

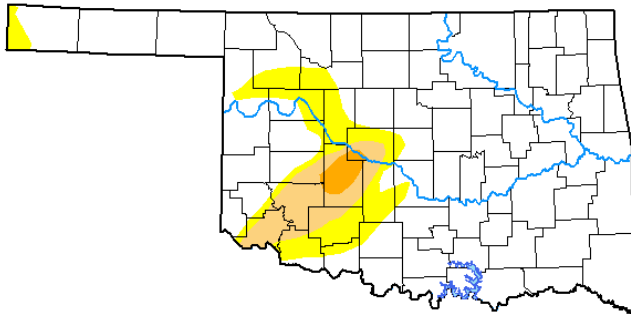


**Drought**

According to the [U.S. Drought Monitor](#) (USDM) from June 1, 2021 (Figs. 3a, 3b), no drought or abnormally dry conditions were present across eastern OK and northwest AR.

**U.S. Drought Monitor  
Oklahoma**

**June 1, 2021**  
(Released Thursday, Jun. 3, 2021)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	84.37	15.63	5.98	1.04	0.00	0.00
<b>Last Week</b> <small>05-25-2021</small>	64.15	35.85	7.84	1.04	0.00	0.00
<b>3 Months Ago</b> <small>03-02-2021</small>	69.00	31.00	14.33	4.38	0.86	0.00
<b>Start of Calendar Year</b> <small>12-29-2020</small>	56.83	43.17	25.21	7.75	1.45	0.00
<b>Start of Water Year</b> <small>09-29-2020</small>	66.79	33.21	17.71	11.97	1.55	0.00
<b>One Year Ago</b> <small>06-02-2020</small>	70.07	29.93	15.16	5.08	1.72	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

Author:

Brian Fuchs  
National Drought Mitigation Center

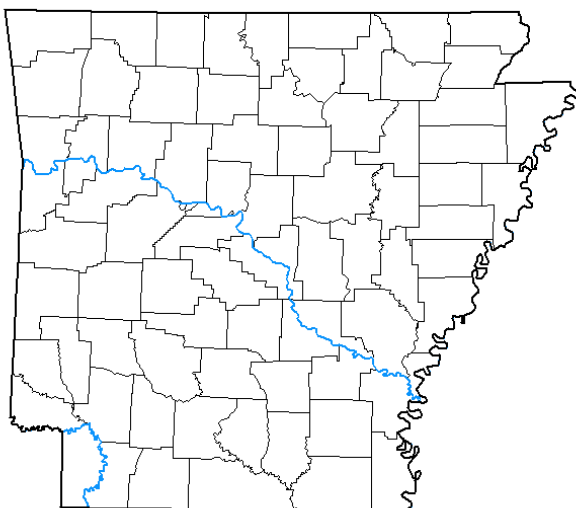


[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Fig. 3a. Drought Monitor for Oklahoma

**U.S. Drought Monitor  
Arkansas**

**June 1, 2021**  
(Released Thursday, Jun. 3, 2021)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	100.00	0.00	0.00	0.00	0.00	0.00
<b>Last Week</b> <small>05-25-2021</small>	100.00	0.00	0.00	0.00	0.00	0.00
<b>3 Months Ago</b> <small>03-02-2021</small>	91.24	8.76	0.00	0.00	0.00	0.00
<b>Start of Calendar Year</b> <small>12-29-2020</small>	16.45	83.55	6.87	0.00	0.00	0.00
<b>Start of Water Year</b> <small>09-29-2020</small>	96.07	3.93	0.62	0.00	0.00	0.00
<b>One Year Ago</b> <small>06-02-2020</small>	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

Author:

Brian Fuchs  
National Drought Mitigation Center



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Fig. 3b. Drought Monitor for Arkansas

## Outlooks

The [Climate Prediction Center](#) (CPC) outlook for June 2021 (issued May 31, 2021) indicates an enhanced chance for below normal temperatures and above median precipitation across all of eastern OK and northwest AR. This outlook was largely based on dynamical model output combined with soil moisture and some influence from the Madden-Julian Oscillation (MJO).

For the 3-month period June-July-August 2021, CPC is forecasting a slightly enhanced chance for above normal temperatures and an equal chance for above, near, and below median precipitation across all of eastern OK and northwest AR (outlook issued May 20, 2021). This outlook is based long-term trends, as well as incorporating both statistical and dynamical forecast tools. According to CPC, the combined effect of the ocean-atmosphere system is consistent with ENSO neutral conditions. ENSO-neutral conditions are favored through early fall, followed by a 55% chance for a return of La Niña conditions late fall through winter 2021-22.

**Summary of Heavy Precipitation Events** Daily quality-controlled rainfall maps can be found at: [http://water.weather.gov/precip/index.php?location\\_type=wfo&location\\_name=tsa](http://water.weather.gov/precip/index.php?location_type=wfo&location_name=tsa)

A 90-100 knot upper-level jet streak lifted into northeast Texas during the evening of the 3<sup>rd</sup>. In response, a cold front pushed through northeast OK and briefly stalled just south of the I-44 corridor in the afternoon as surface low pressure developed over south-central OK. A warm front had also surged north to near I-40. A highly unstable air-mass developed along and south of the cold front by late afternoon, with deep layer shear increasing into the 35-40 knot range across the warm sector. Thunderstorms developed across south central OK and quickly formed into multi-clusters of strong to severe storms as they spread northeast across much of eastern OK and northwest AR during the evening hours. Large hail and damaging winds occurred, as well as 3 EF-1 tornadoes (see <https://arcg.is/8WXi1> for more info). The NWS ASOS anemometer in Fort Smith, AR measured a wind gust of 74 mph. Scattered thunderstorms continued across much of the area for several hours after midnight before diminishing during the early morning hours. Showers lingered across northeast OK and northwest AR through the morning and early afternoon hours of the 4<sup>th</sup> as the main upper-level low moved over the region. Much of the area received 0.50"-1.5" of rain, with pockets of 1.50"-3" (Fig. 4). A large portion of Pittsburg County received 1.5" to near 4" of rain, resulting in flash flooding. Numerous roads were flooded in McAlester, with several vehicles stranded in high water. The Illinois River also experienced a rise from this rainfall, with the gage near Tahlequah rising to just above flood stage (see preliminary hydrographs at the end of this report and the E3 Report for details).

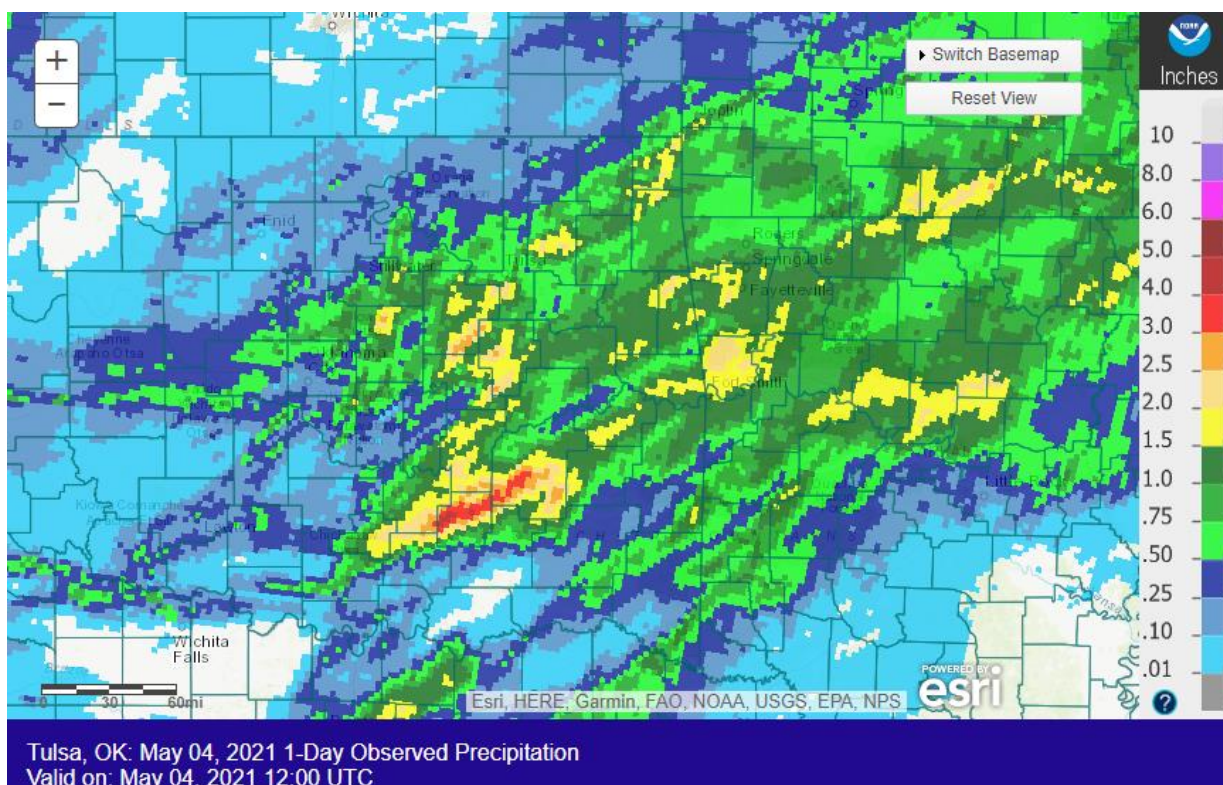
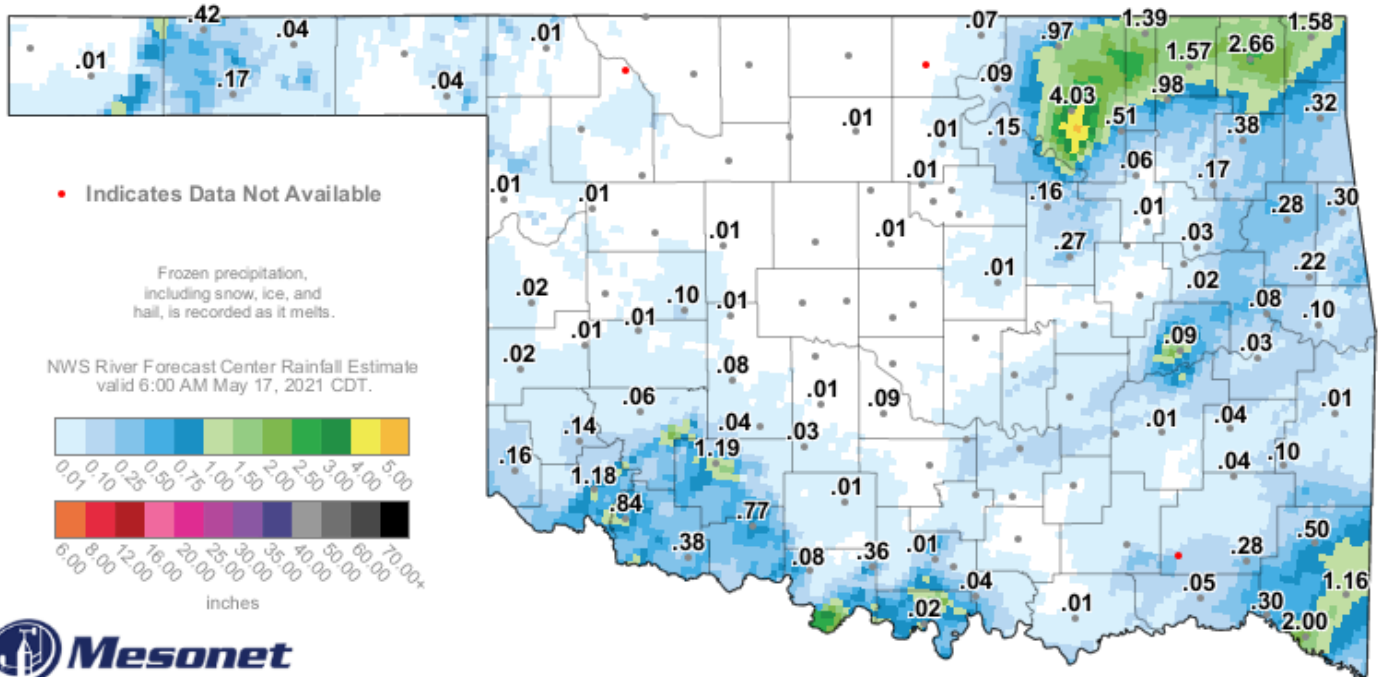


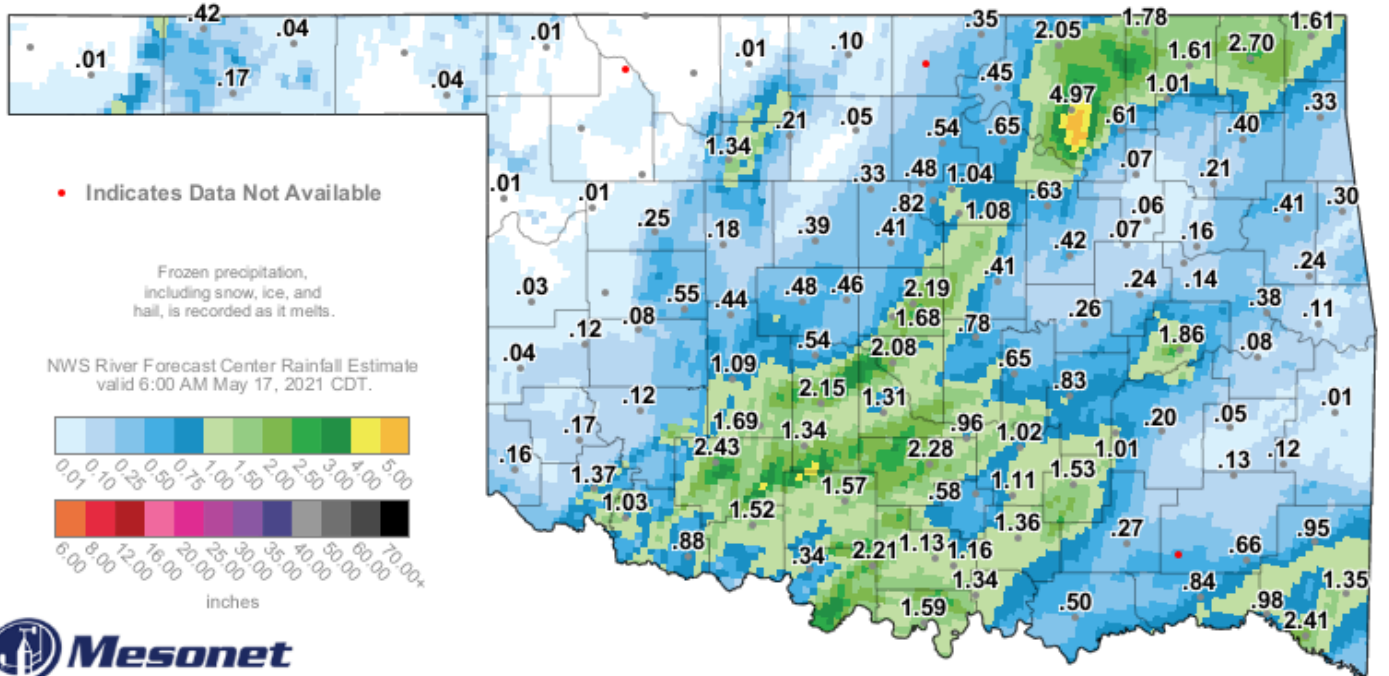
Fig. 4. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/04/2021.

A large area of showers with embedded thunderstorms moved east into eastern OK during the afternoon of the 16<sup>th</sup>, affecting a large portion of eastern OK and some of northwest AR through the afternoon and evening hours. Rain persisted for hours over Osage, Washington (OK), Nowata, and Craig Counties, as well the Neosho River basin in southeast KS, resulting in 1.5"-2.5" of rain over a large area and isolated totals of 2.5"-6" (Figs. 5-7). A large portion of central Osage County received 3"-6" of rain, with 4.97" of rain measured at the Wynona, OK mesonet site. This heavy rain caused minor flooding along Bird Creek near Avant (see preliminary hydrographs at the end of this report and the E3 Report for details). Elsewhere, rainfall totals ranged from a few hundredths of an inch to near 2.5". Most of this activity waned by midnight, though widely scattered showers continued over portions of northeast OK and northwest AR during the overnight hours.



**12-Hour Rainfall Accumulation (inches)** 7:35 AM May 17, 2021 CDT  
Created 7:41:00 AM May 17, 2021 CDT. © Copyright 2021

Fig. 5. OK Mesonet (values) and NWS RFC rainfall estimate (image) 12-hour rainfall ending at 7:35 am CDT 5/17/2021.



**24-Hour Rainfall Accumulation (inches)** 7:35 AM May 17, 2021 CDT  
Created 7:41:01 AM May 17, 2021 CDT. © Copyright 2021

Fig. 6. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 7:35 am CDT 5/17/2021.



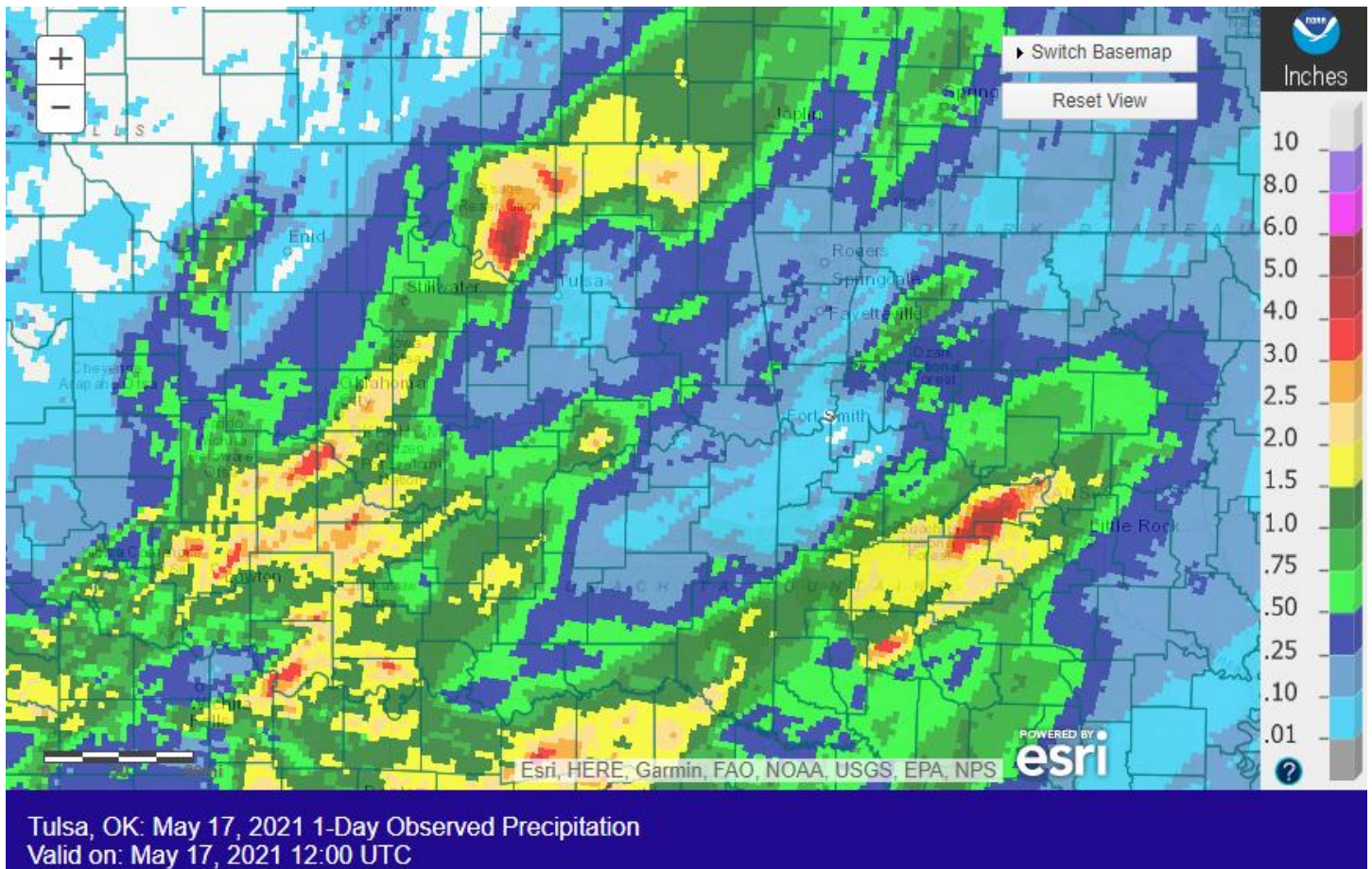
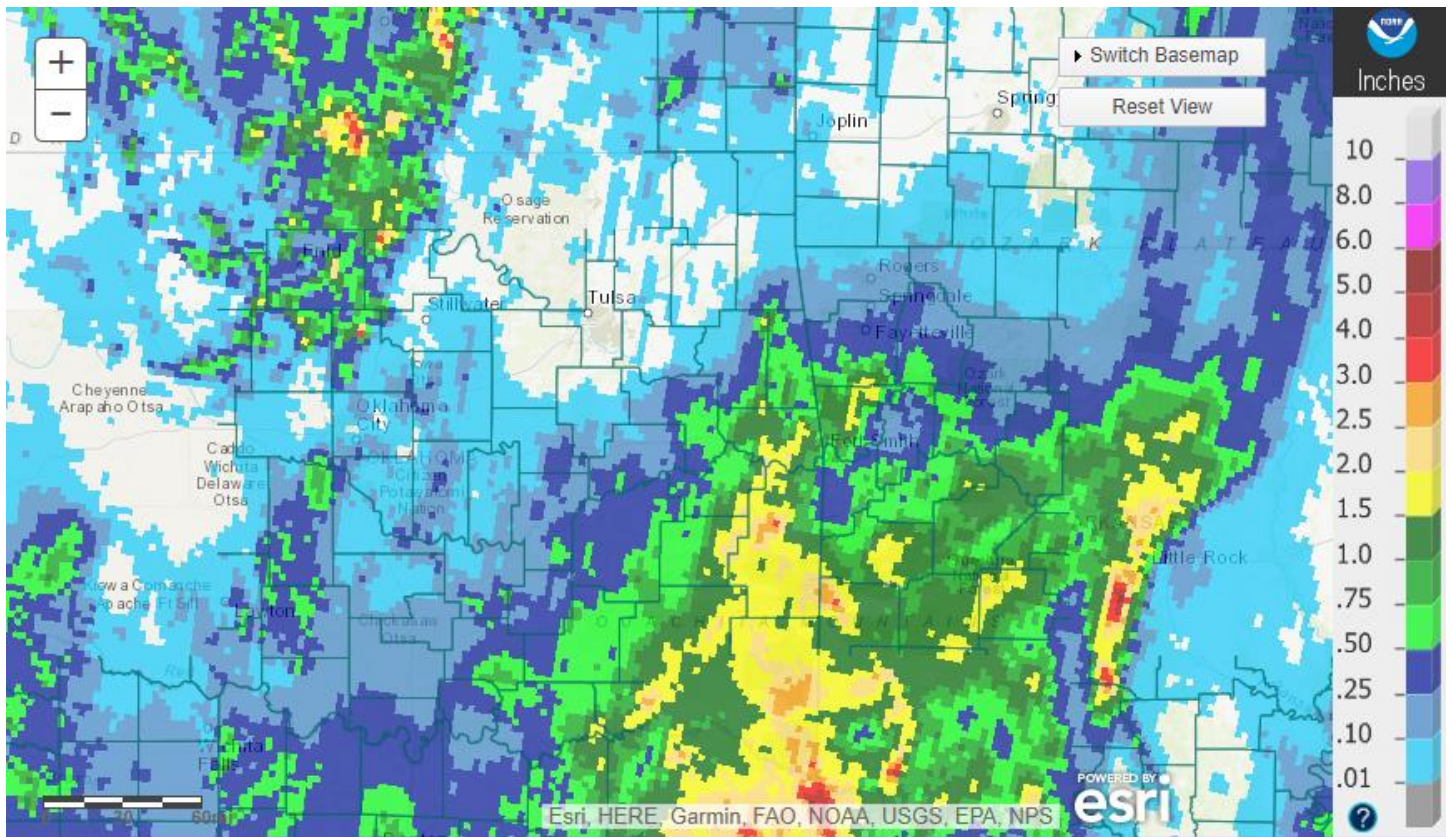


Fig. 7. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/17/2021.

A thunderstorm complex moved northeast out of TX and into southeast OK and west central AR during the afternoon of the 18<sup>th</sup>. The northern edge of this complex reached into northwest AR and adjacent portions of northeast OK during the evening. This complex exited the area before midnight, while new convection began to develop over southeast OK and west central AR in response to a mid-level vorticity maximum. These widely scattered showers and isolated thunderstorms spread north through the overnight hours, with more widespread activity remaining over southeast OK by sunrise on the 19<sup>th</sup>. By 7 am CDT 5/19/2021, rainfall totals ranged from 0.25" to 3" across southeast and east central OK and west central AR (Fig. 8). The area of showers and thunderstorms continued to move northward, primarily over eastern OK, exiting into KS by noon. As the vort max moved north, renewed showers and thunderstorms also moved north from southeast OK through northeast OK and northwest AR during the afternoon and evening hours. In the early morning hours of the 20<sup>th</sup>, a mesoscale convective vortex (MCV) was approaching southeast OK from Shreveport, LA while another upper-level impulse was lifting northward from the south-southwest. Widespread showers and thunderstorms developed and continued through the afternoon hours as these two features moved north over the area. Precipitable water values of 1.5"-2" resulted in efficient rain production with all of this activity. Rainfall totals were 0.25"-1.5" across much of eastern OK and west central AR by 7 am CDT on the 20<sup>th</sup> (Fig. 9), with pockets of 1.5"-4" across both southeast and northeast OK. Yet another round of isolated to scattered showers and thunderstorms developed over southeast OK late evening of the 20<sup>th</sup> and spread northward as a plume of deep moisture continued to lift north around the periphery of an upper-high located over the eastern U.S. Rainfall totals by 7 am CDT on the 21<sup>st</sup> ranged from around 0.10" to around 1.5" (Fig. 10). Most of this rain had ended by sunrise on the 21<sup>st</sup>, though showers lingered over western AR and adjacent OK counties through the rest of the morning and into the evening hours. This brought an additional 0.25"-1.5" of rain along the AR/OK border, with an area of 1.5"-2.5" in far eastern Sequoyah, far northeast Le Flore, far western Crawford, and far western Sebastian Counties (Fig. 11).

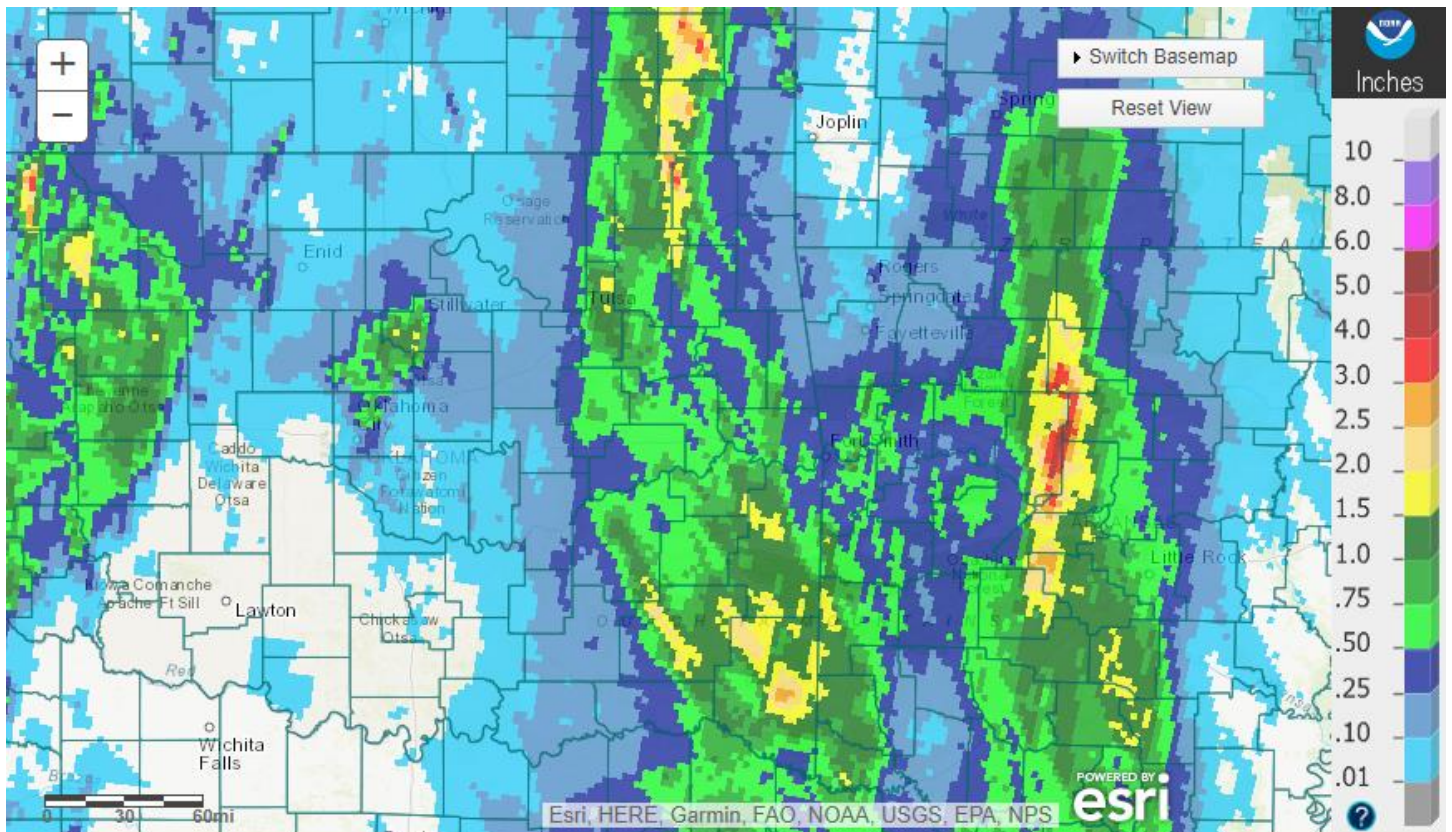
For the 5-day period through late morning on the 21<sup>st</sup>, most of eastern OK and northwest AR received 1"-3", with localized totals of 3"-6" (Fig. 12). This rainfall resulted in moderate flooding along the Neosho River near Commerce and the Poteau River near Panama cresting right at flood stage (see preliminary hydrographs at the end of this report and the E3 Report for details).





Tulsa, OK: May 19, 2021 1-Day Observed Precipitation  
Valid on: May 19, 2021 12:00 UTC

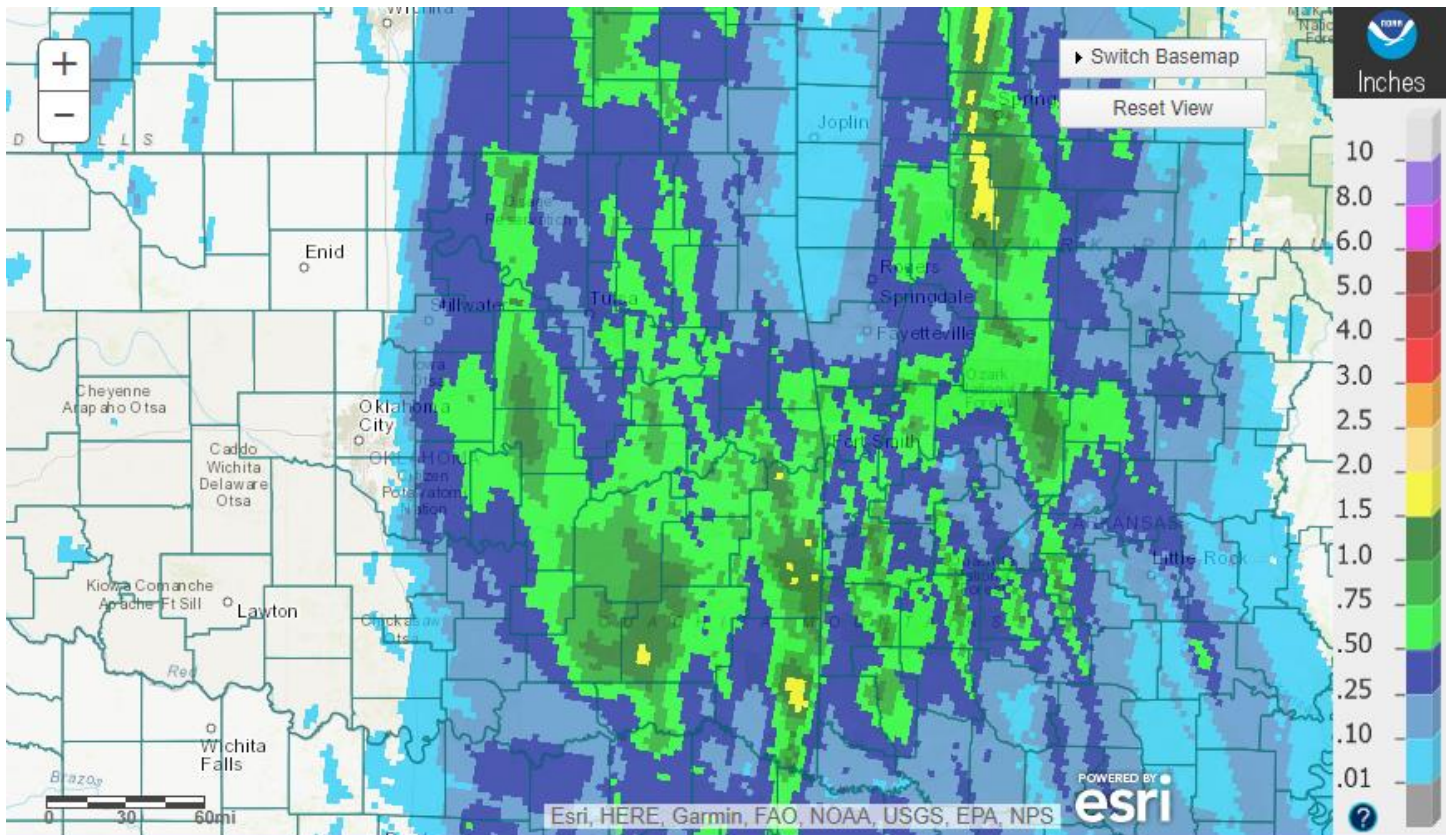
Fig. 8. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/19/2021.



Tulsa, OK: May 20, 2021 1-Day Observed Precipitation  
Valid on: May 20, 2021 12:00 UTC

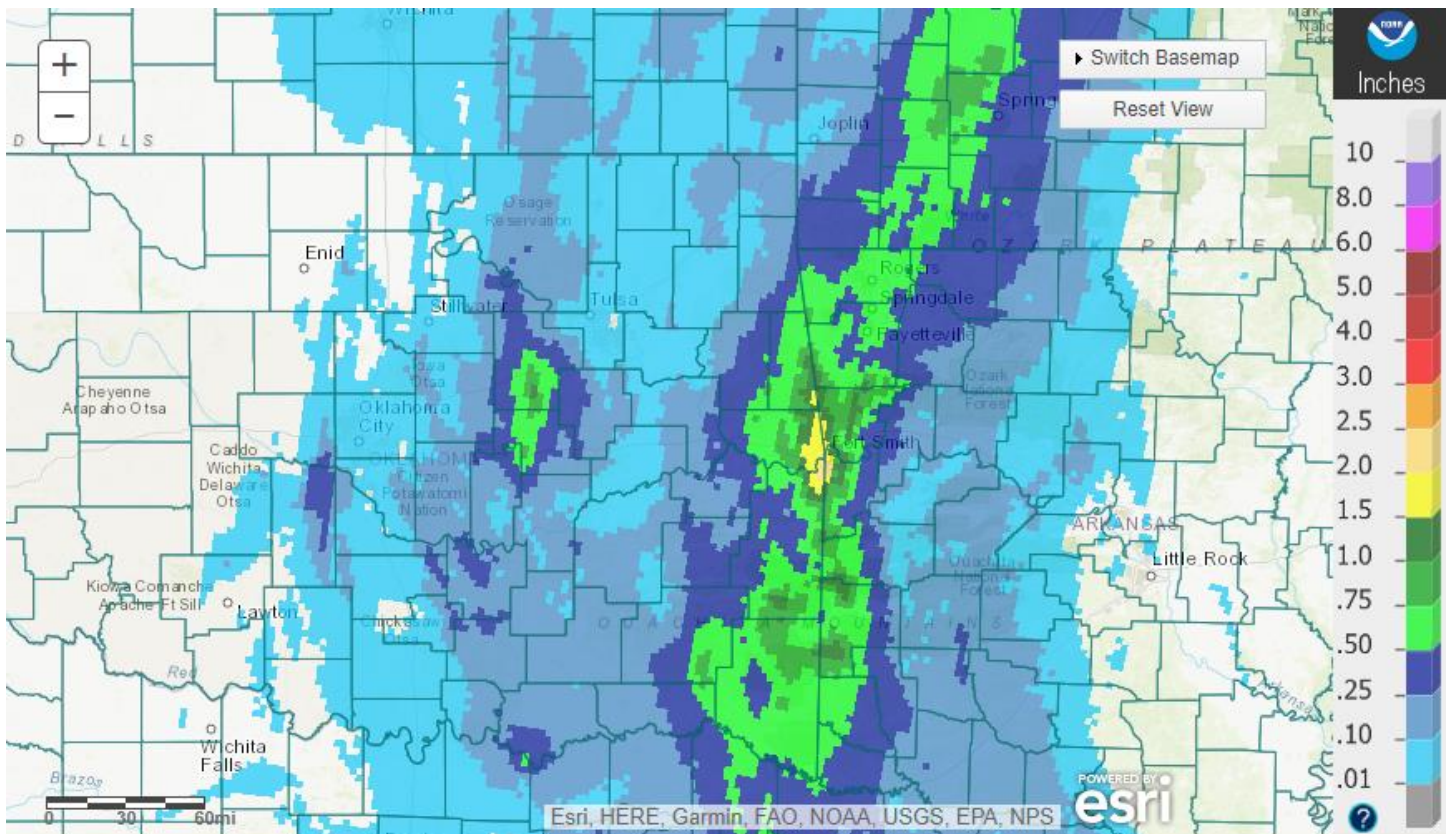
Fig. 9. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/20/2021.





Tulsa, OK: May 21, 2021 1-Day Observed Precipitation  
Valid on: May 21, 2021 12:00 UTC

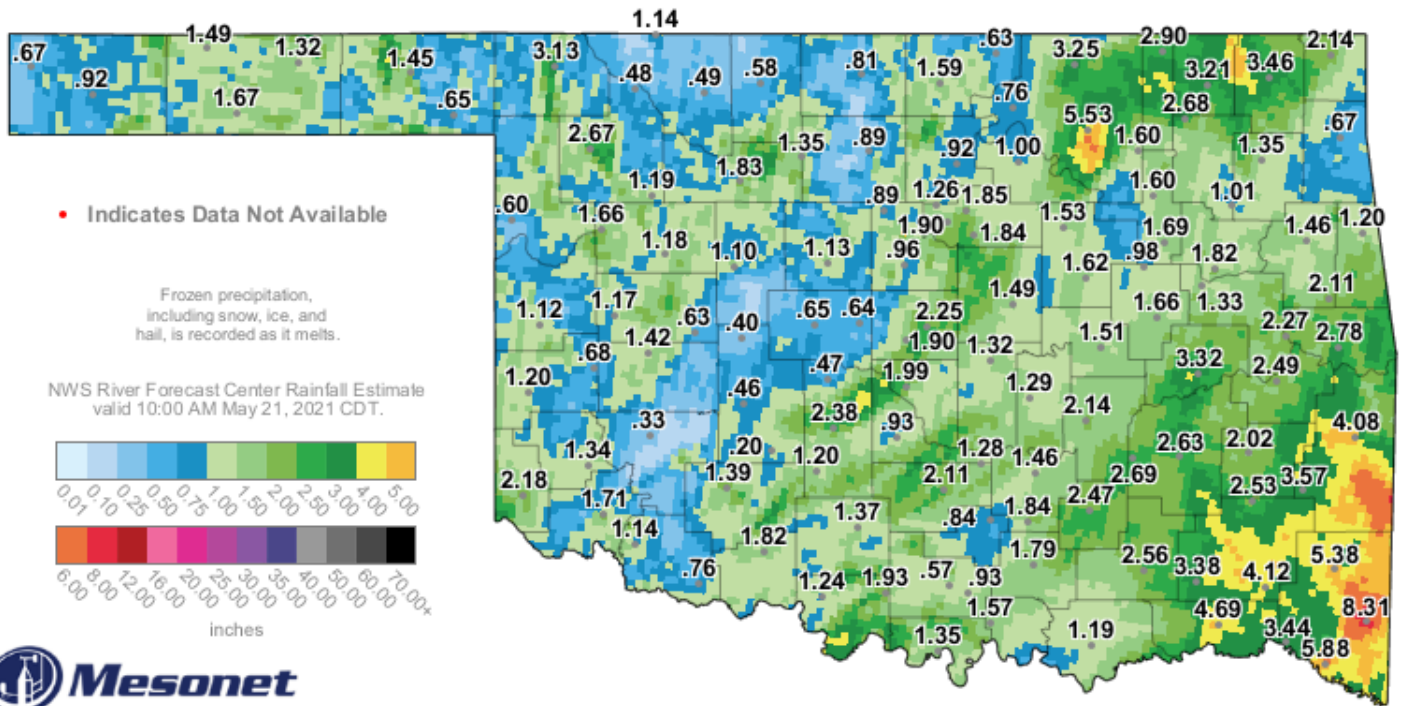
Fig. 10. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/21/2021.



Tulsa, OK: May 22, 2021 1-Day Observed Precipitation  
Valid on: May 22, 2021 12:00 UTC

Fig. 11. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/22/2021.





### 5-Day Rainfall Accumulation (inches)

11:10 AM May 21, 2021 CDT

Created 11:15:09 AM May 21, 2021 CDT. © Copyright 2021

Fig. 12. OK Mesonet (values) and NWS RFC rainfall estimate (image) 5-day rainfall ending at 11:10 am CDT 5/21/2021.

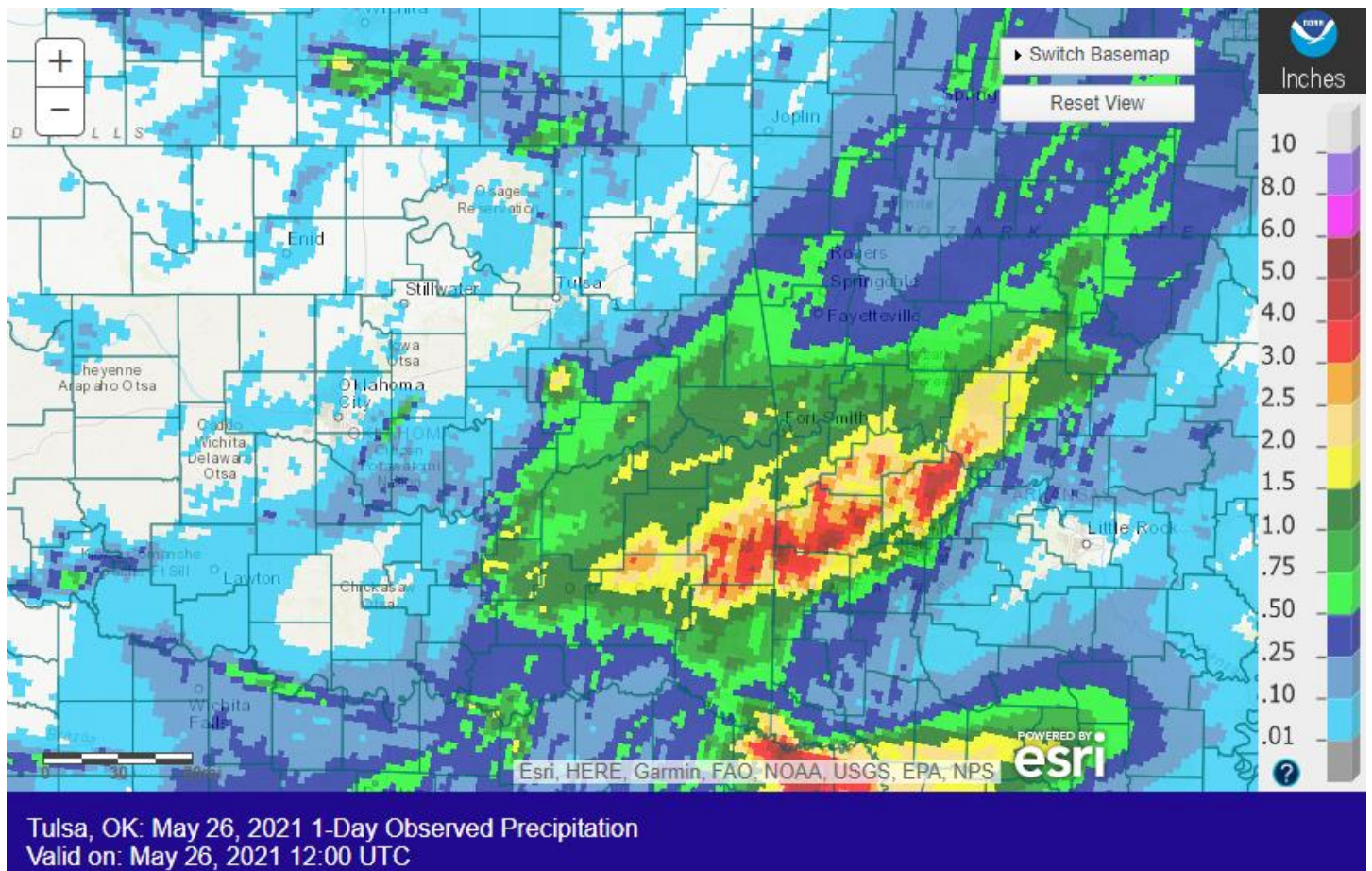


Fig. 13. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/26/2021.

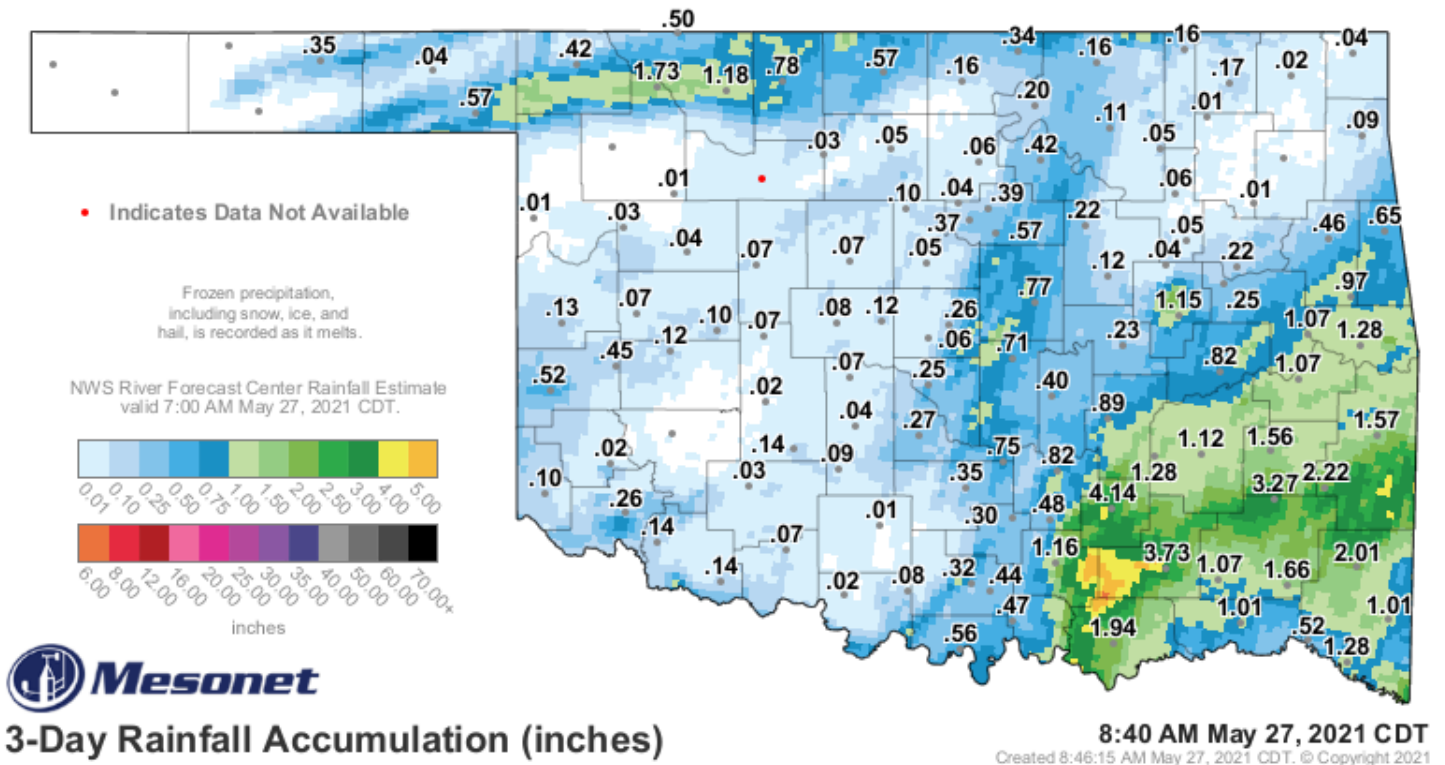
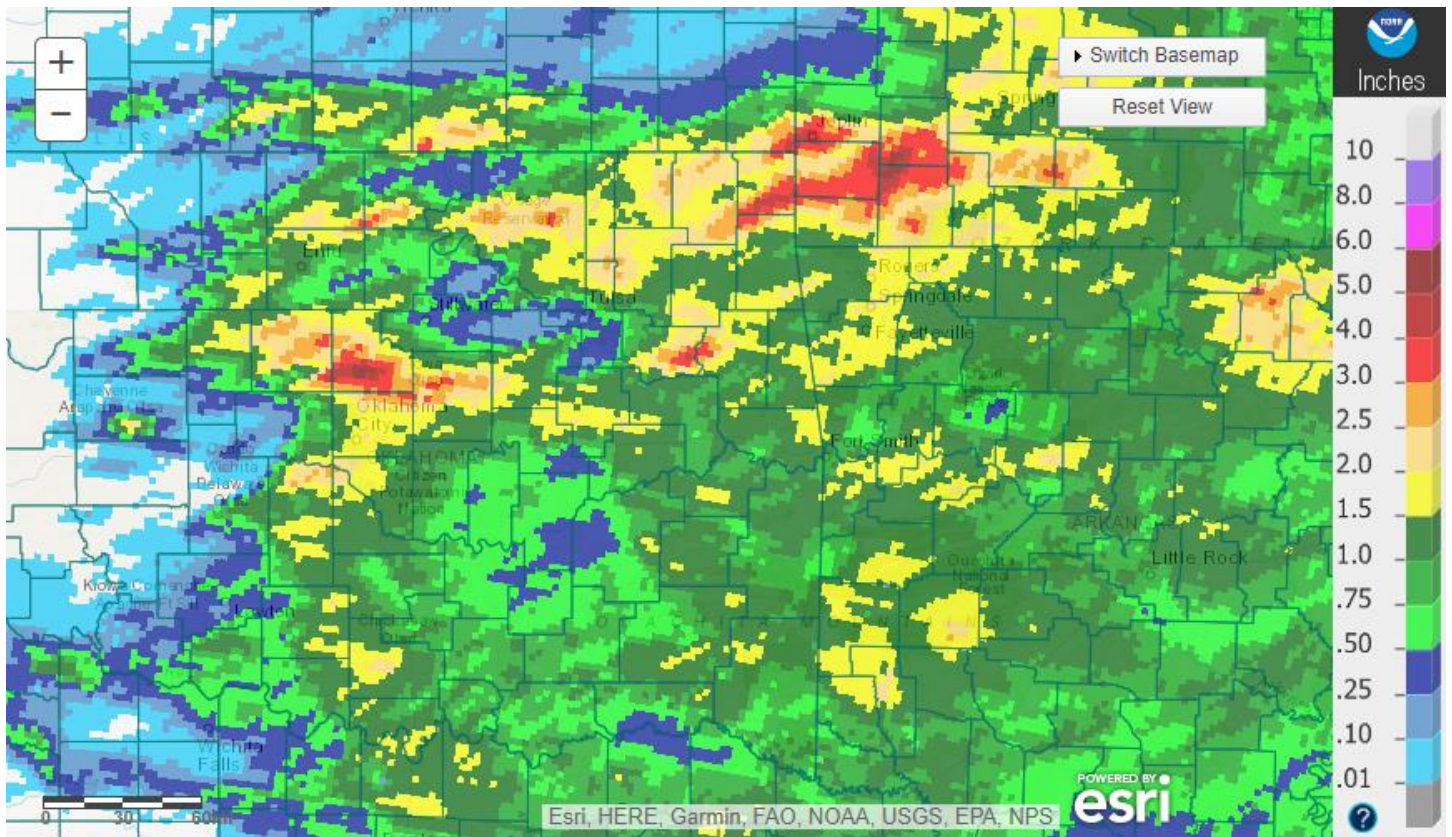


Fig. 14. OK Mesonet (values) and NWS RFC rainfall estimate (image) 3-day rainfall ending at 8:40 am CDT 5/27/2021.

Showers and thunderstorms increased across far northeast TX/southeast OK during the early morning hours of the 25<sup>th</sup> as a subtle low/mid-level wave lifted into the region. This activity continued to spread northward into east central OK and northwest AR through mid-afternoon. Another round of showers and thunderstorms moved into southeast OK during the afternoon ahead of an MCV moving along the Red River. These storms moved to the northeast, bringing rain to east central OK and west central AR as well through the evening hours. Precipitable water values were once again 1.5"-2", resulting in efficient rain production from these storms. Widespread 1.5" to around 4" of rain fell across a large portion of southeast OK, with rainfall totals of 0.25" to around 2" occurring elsewhere (Figs. 13, 14). Minor flooding occurred along the Kiamichi River near Antlers and along the Poteau River near Poteau and Panama (see preliminary hydrographs at the end of this report and the E3 Report for details).

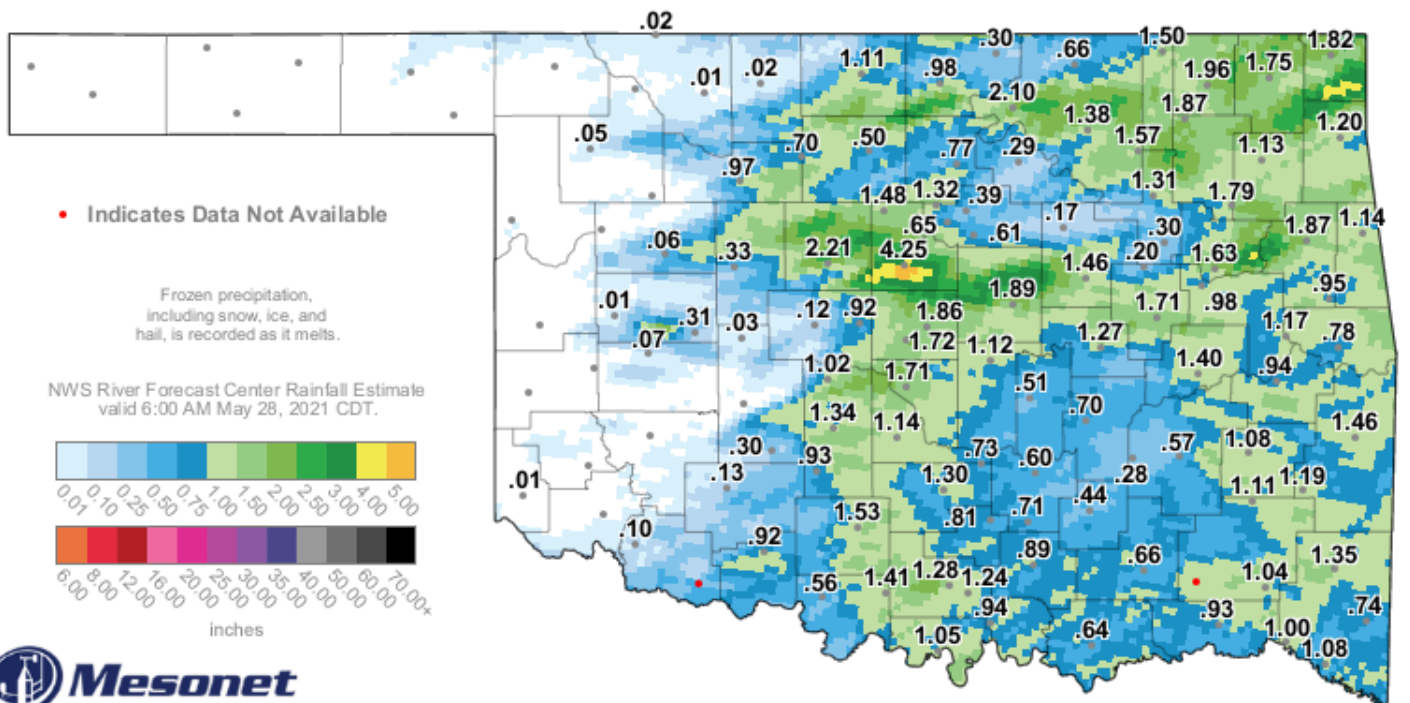
An extremely unstable, very moist, and uncapped atmosphere was in place across the region on the 27<sup>th</sup>. Convection began by mid-morning across northeast OK. Thunderstorms then increased rapidly shortly after noon along a cold front from southeast KS through north central OK, developing into several clusters of strong to severe storms affecting northeast OK northwest of I-44 during the afternoon hours. By 5 pm, the strongest storms and heaviest rainfall were located along the I-44 corridor. Due to all of the recent rain combined with high rainfall rates, most of this rainfall ran off quickly. Flash flooding was reported in numerous locations across northeast OK, with widespread flash flooding reported across the towns of Sperry, Collinsville, and Owasso, OK (all located on the north side of the Tulsa metro area). Numerous roads were closed or washed out due to high water in this area, with reports of stalled cars and water reaching homes. This mesoscale convective system (MCS) then propagated southeast during the evening hours, continuing to produce heavy rain and flash flooding. The leading convective line pushed south of the Red River by midnight, with the trailing precipitation lingering a few more hours. Rainfall totals ranged from around 0.50" to around 4", with the highest totals occurring over northeast OK (Figs. 15, 16). River flooding also occurred from this rain, with minor flooding along Bird Creek at Avant, near Sperry, and near Owasso; minor flooding along the Caney River near Collinsville; and minor flooding along the Poteau River near Panama (see preliminary hydrographs at the end of this report and the E3 Report for details). Notable rises occurred along other area rivers, though they remained within their banks. In addition to the heavy rain, these storms produced damaging winds, large hail, and an EF-1 tornado (see <https://arcg.is/8WXi1> for more details) across eastern OK and northwest AR.





Tulsa, OK: May 28, 2021 1-Day Observed Precipitation  
Valid on: May 28, 2021 12:00 UTC

Fig. 15. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/28/2021.



**24-Hour Rainfall Accumulation (inches)**

7:30 AM May 28, 2021 CDT

Created 7:35:52 AM May 28, 2021 CDT. © Copyright 2021

Fig. 16. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 7:30 am CDT 5/28/2021.



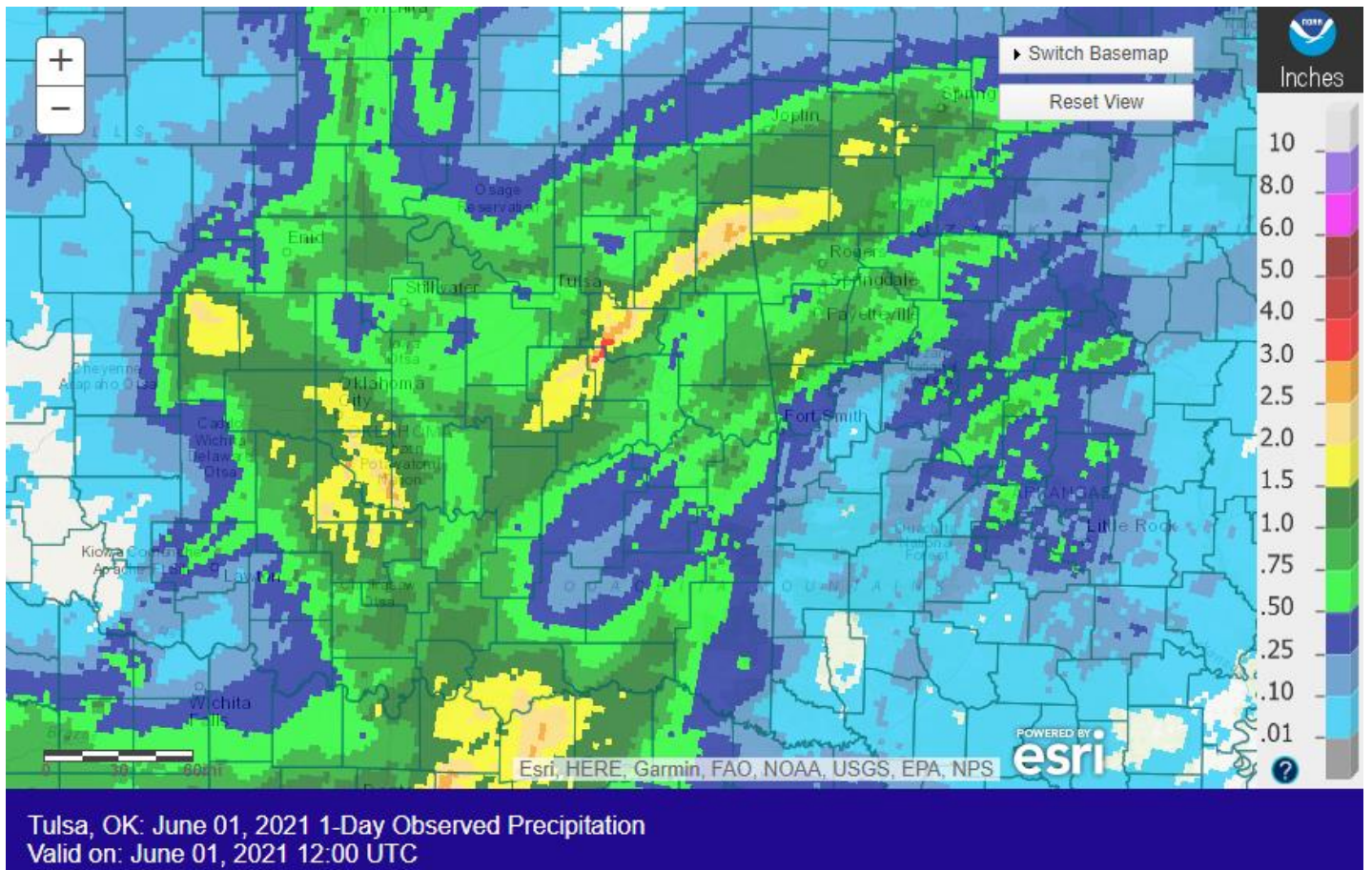


Fig. 17. 24-hour Estimated Observed Rainfall ending at 7am CDT 06/01/2021.

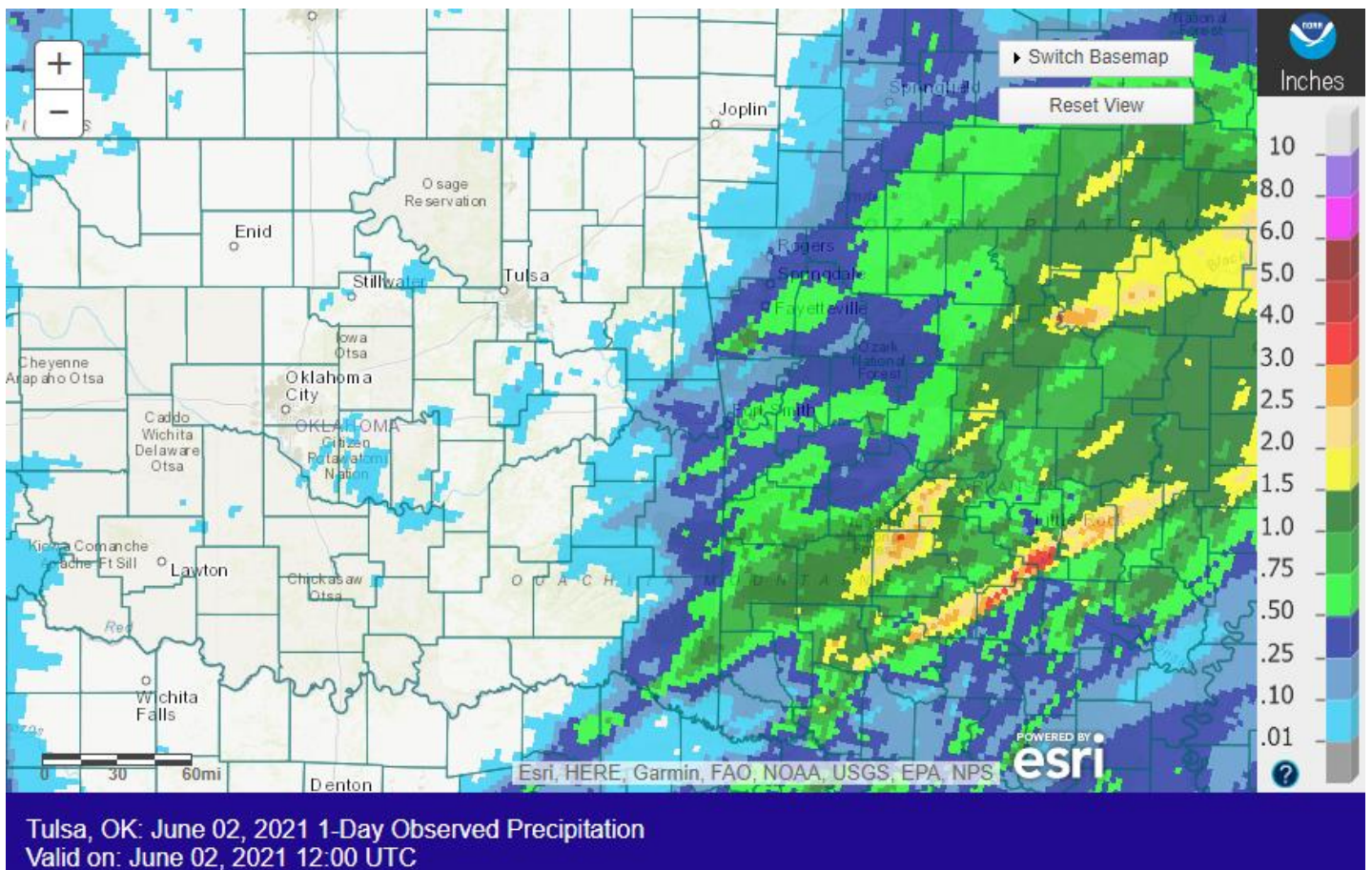


Fig. 18. 24-hour Estimated Observed Rainfall ending at 7am CDT 06/02/2021.

A weakening MCS moved into eastern OK mid-morning on the 31<sup>st</sup>. The southern portion of the line dissipated by early afternoon, while storms continued across northeast and east central OK during the afternoon and evening hours. A few of the storms impacted northwest AR in the evening as well. A second MCS was moving across northern TX, with the northern periphery crossing the Red River into far southeast OK during the evening. 850 mb warm air advection and frontogenesis combined with a 700 mb speed max resulted in additional shower and thunderstorm development during the overnight hours, with the most widespread activity across northeast OK and northwest AR between I-44 and I-40. Near historic precipitable water values once again led to locally heavy rainfall before the rain shifted east of the area by noon on June 1. Rainfall totals ranged from 0.25" to around 3", with 1.5" to around 3" falling in a corridor from Okmulgee County through Delaware County in OK and southern Washington County in Arkansas (Figs. 17, 18).

Written by:

Nicole McGavock  
Service Hydrologist  
WFO Tulsa

#### **Products issued in May 2021:**

\*CWYO2 became a daily river forecast point September 7, 2016

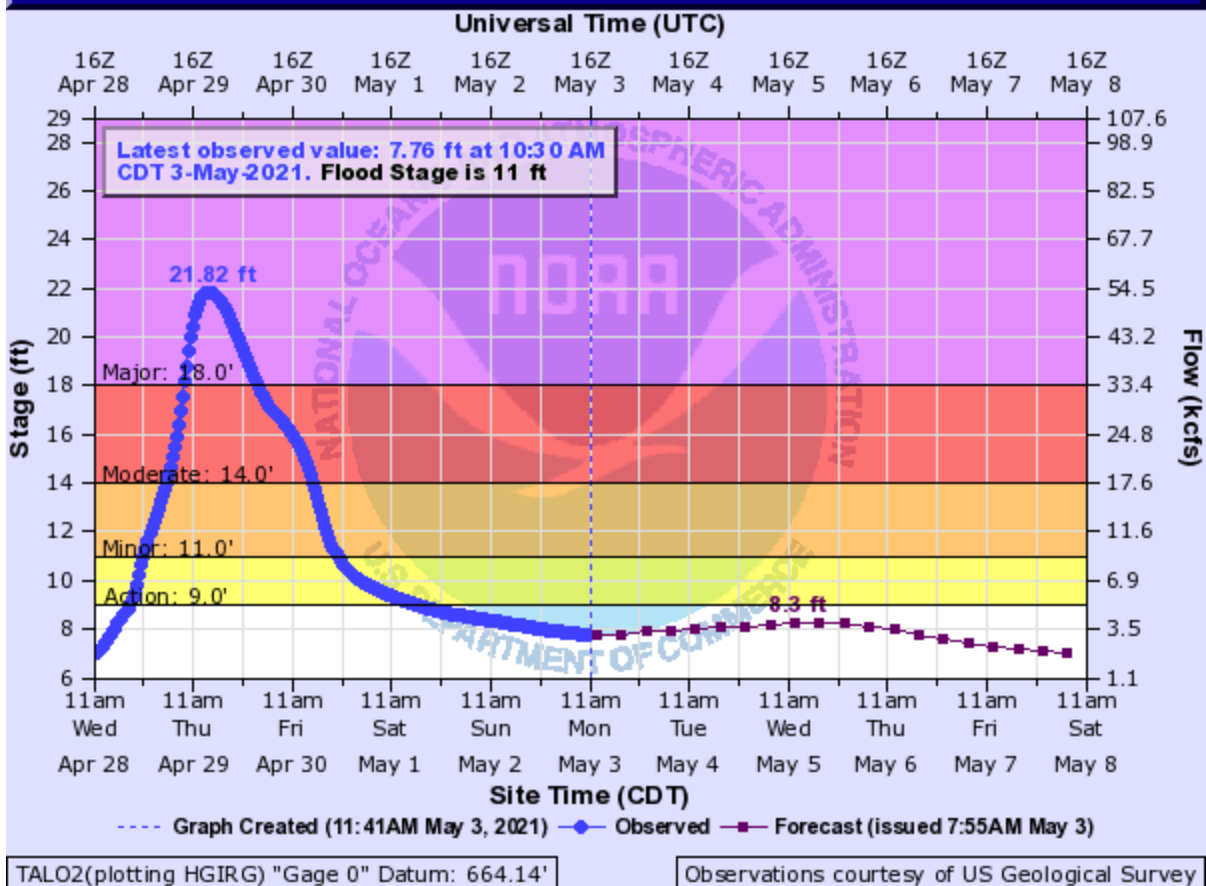
\*MLBA4 and OZGA4 transferred to NWS Tulsa HSA February 5, 2014

\*Mixed case River Flood products began July 31, 2013

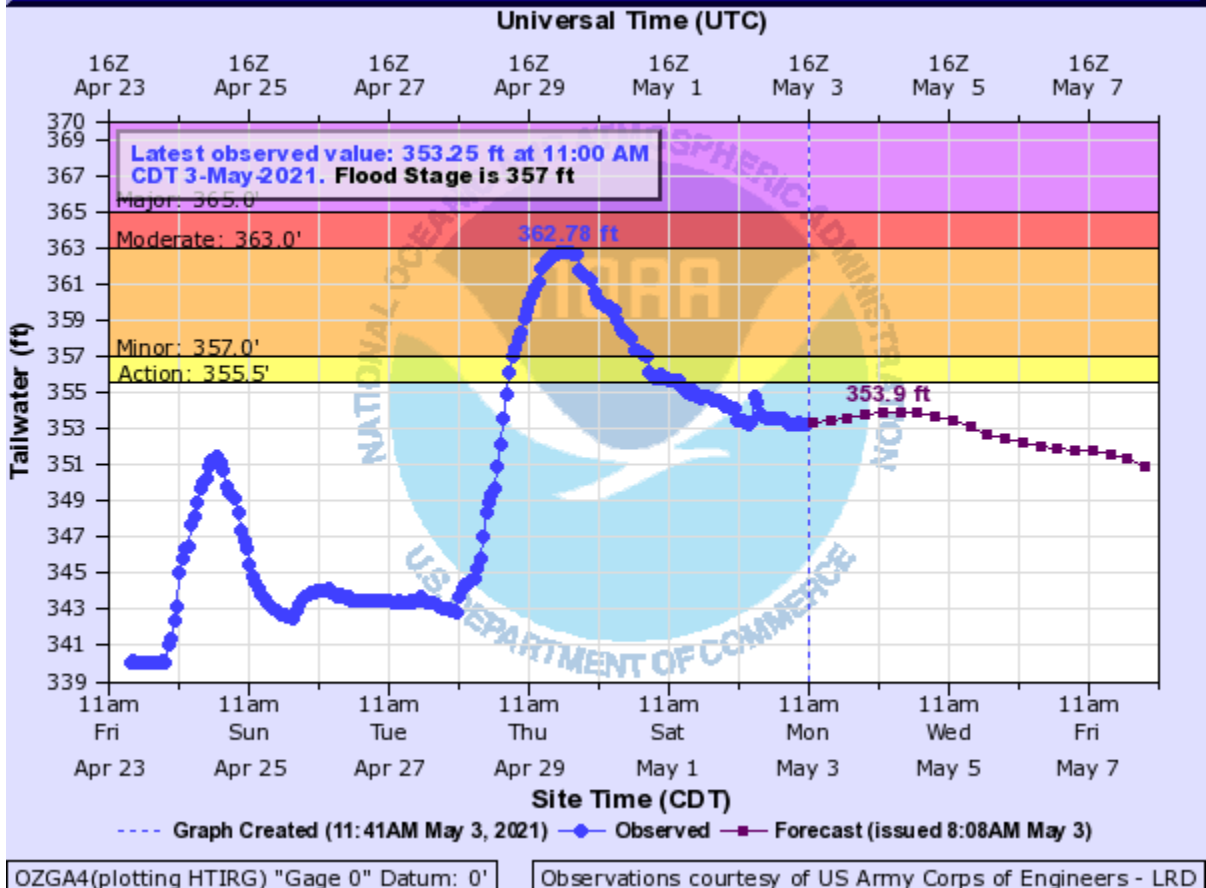
- 17 Flash Flood Warnings (FFW)
- 13 Flash Flood Statements (FFS)
- 3 Flash/Areal Flood Watches (FFA) (12 Watch FFA CON/EXT/EXA/EXB/CAN)
- 16 Urban and Small Stream Advisories (FLS)
- 8 Areal Flood Warnings (FLW)
- 0 Areal Flood Statements (FLS)
- 16 River Flood Warnings (FLW) (includes category increases)
- 71 River Flood Statements (FLS)
- 10 River Flood Advisories (FLS) (29 Advisory FLS CON/EXT/CAN)
- 0 River Flood Watches (FFA) (0 Watch FFA CON/EXT/CAN)
- 0 River Statements (RVS)
- 0 Hydrologic Outlooks (ESF)
- 0 Drought Information Statements (DGT)

#### **Preliminary Hydrographs:**

## ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH



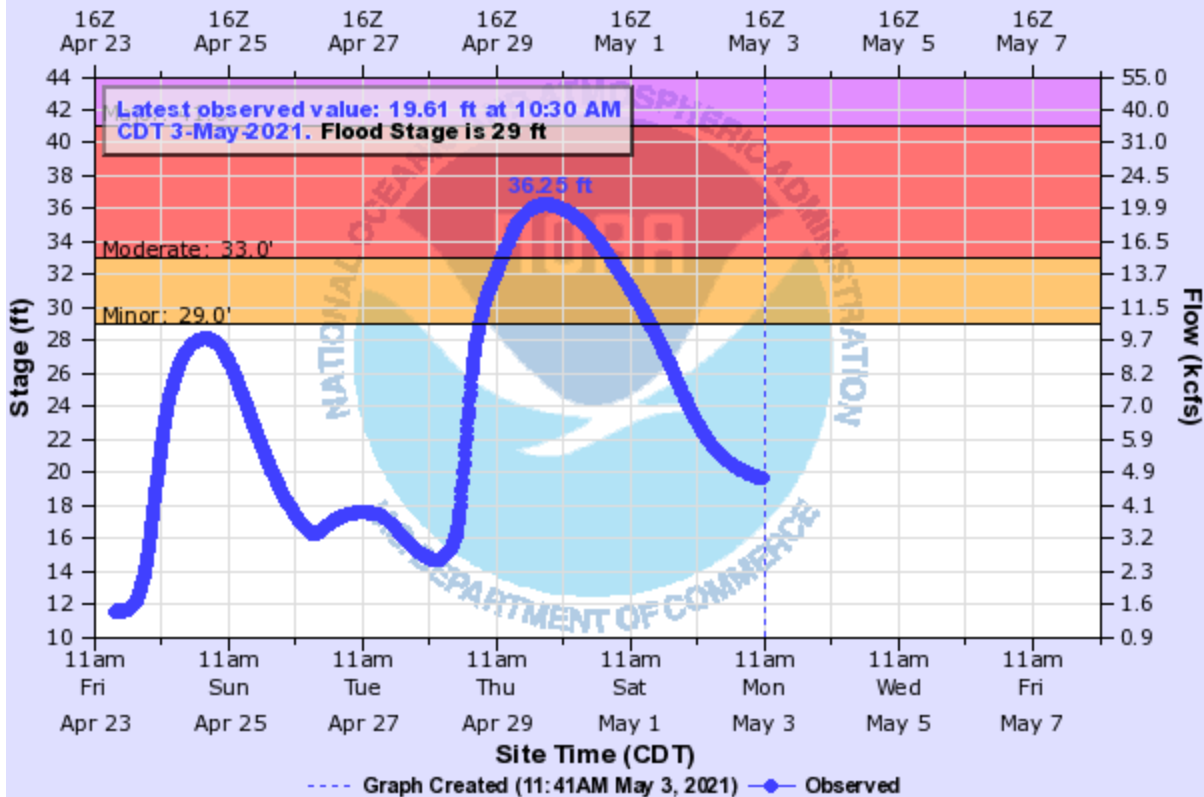
## ARKANSAS RIVER AT OZARK L/D TAILWATER





## POTEAU RIVER NEAR PANAMA

Universal Time (UTC)

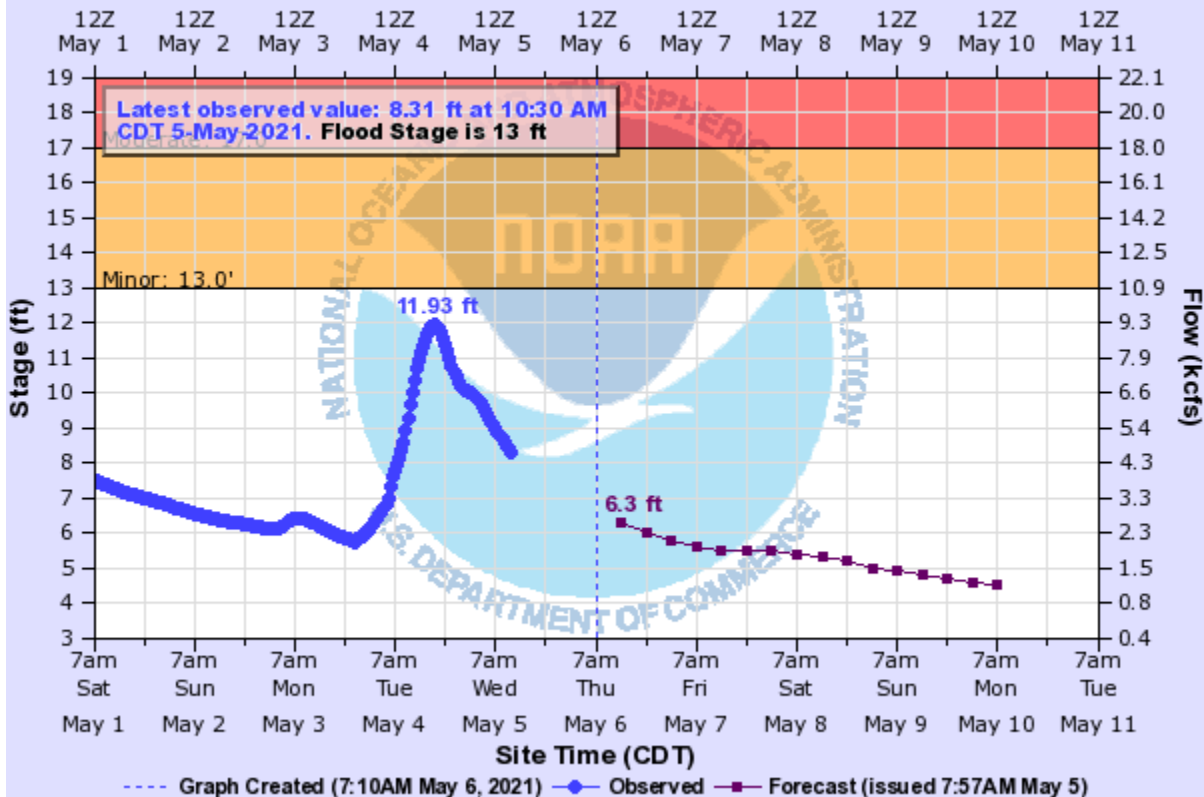


PANO2(plotting HGIRG) "Gage 0" Datum: 387.96'

Observations courtesy of US Geological Survey

## ILLINOIS RIVER (AR OK) NEAR WATTS

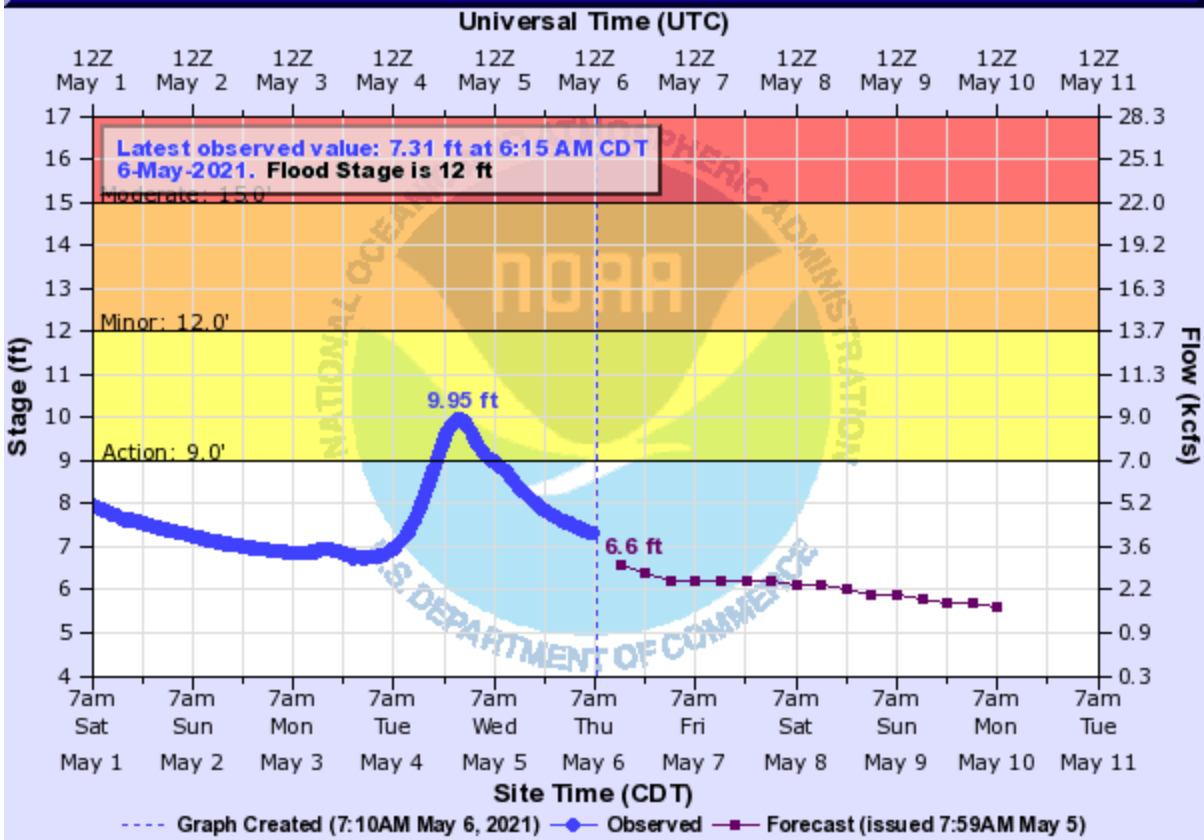
Universal Time (UTC)



WTTO2(plotting HGIRG) "Gage 0" Datum: 893.78'

Observations courtesy of US Geological Survey

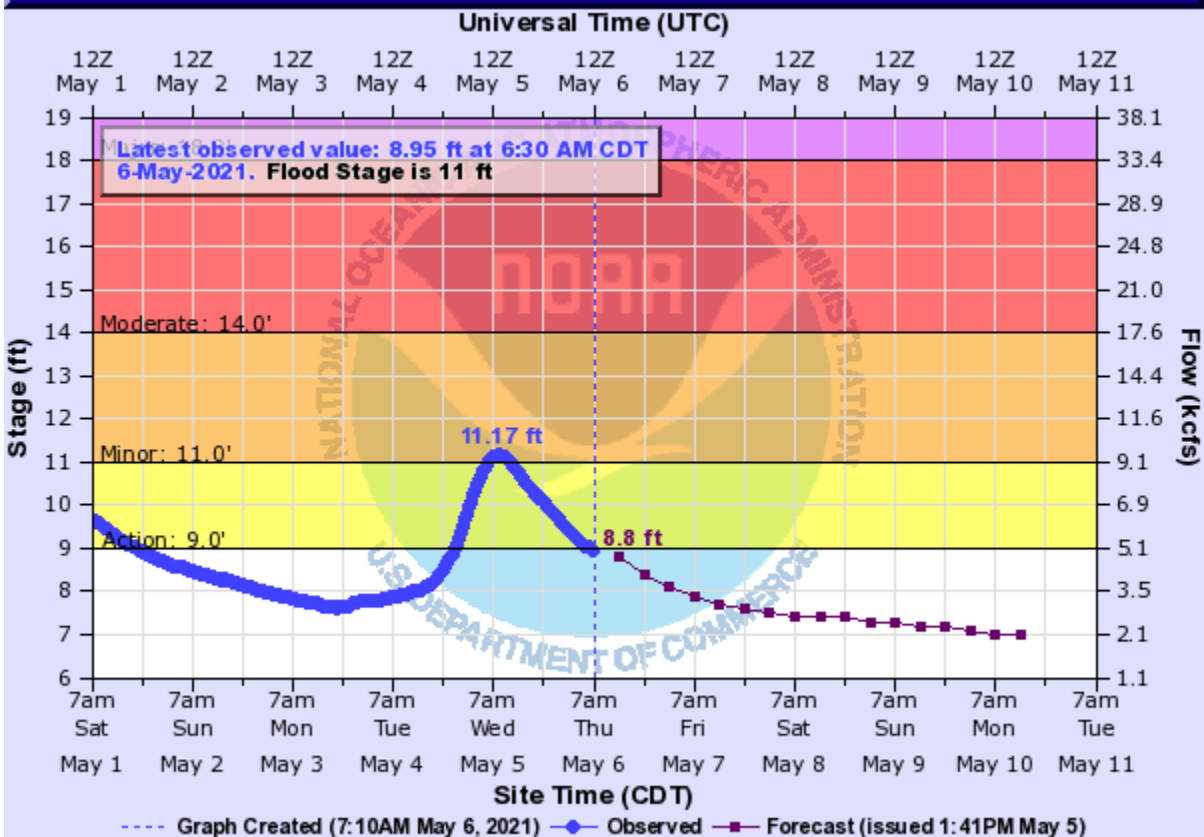
## ILLINOIS RIVER (AR OK) AT CHEWEY



CWY02(plotting HGIRG) "Gage 0" Datum: 800.88'

Observations courtesy of US Geological Survey

## ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH

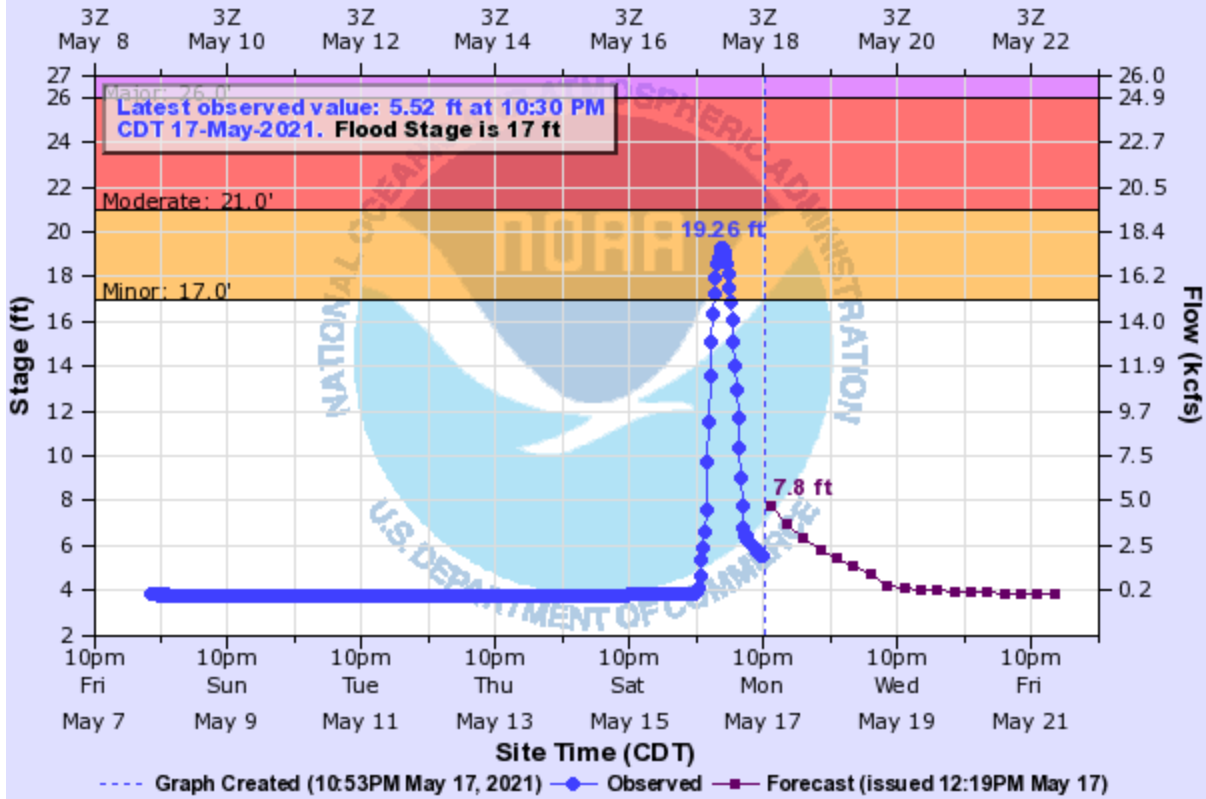


TAL02(plotting HGIRG) "Gage 0" Datum: 664.14'

Observations courtesy of US Geological Survey

### BIRD CREEK AT AVANT

Universal Time (UTC)

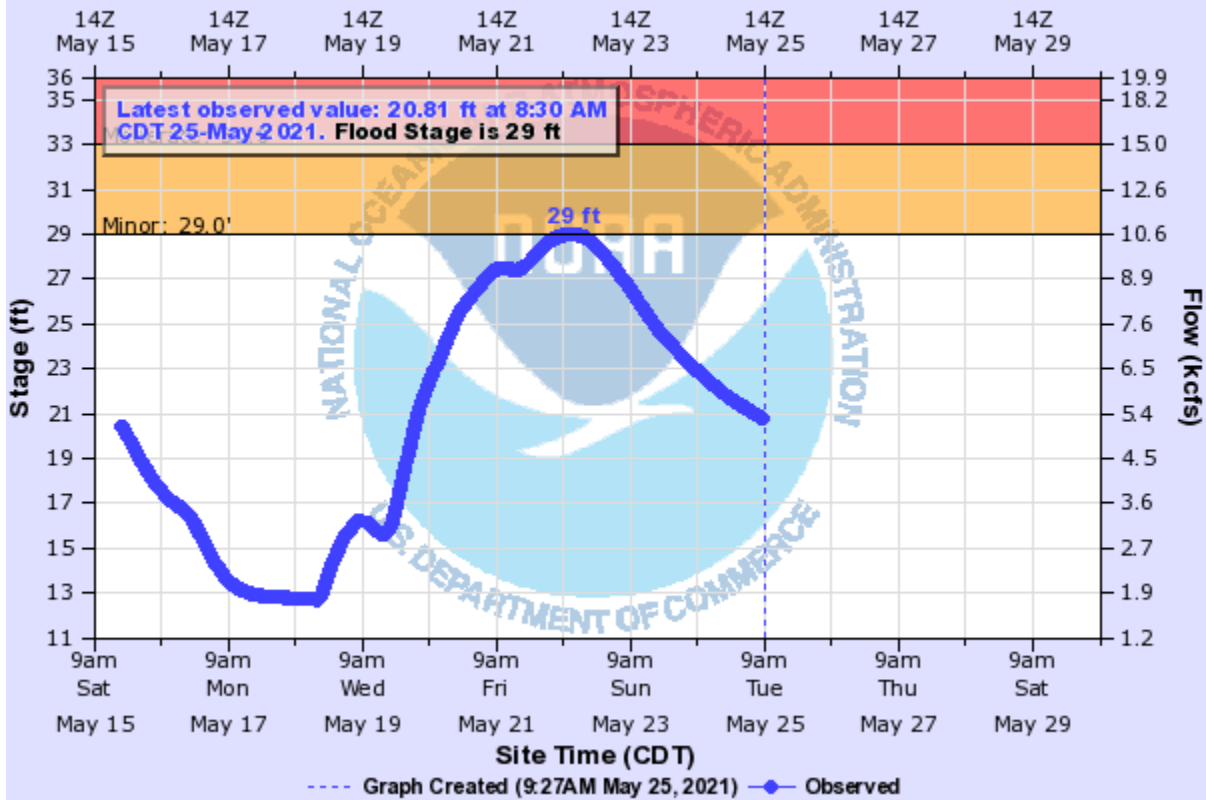


AVT02(plotting HGIRG) "Gage 0" Datum: 646.28'

Observations courtesy of US Geological Survey

### POTEAU RIVER NEAR PANAMA

Universal Time (UTC)



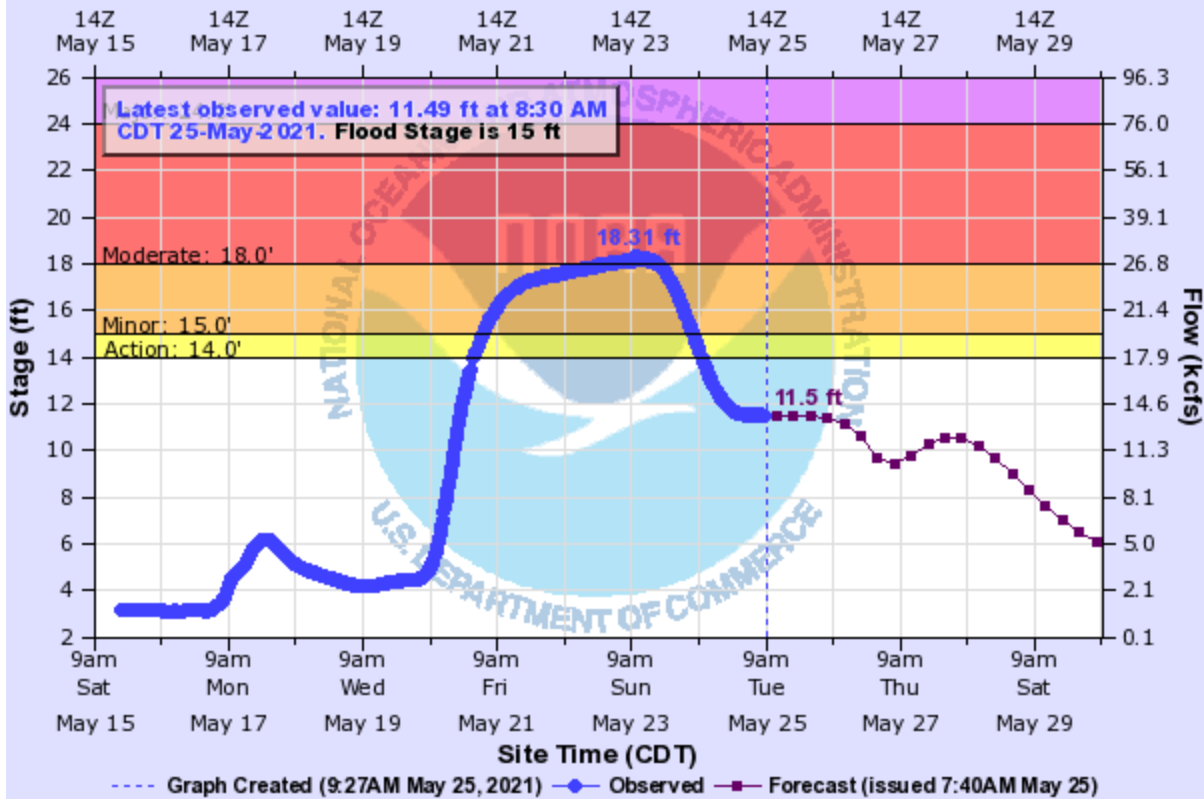
PANO2(plotting HGIRG) "Gage 0" Datum: 387.96'

Observations courtesy of US Geological Survey



## NEOSHO RIVER NEAR COMMERCE

Universal Time (UTC)

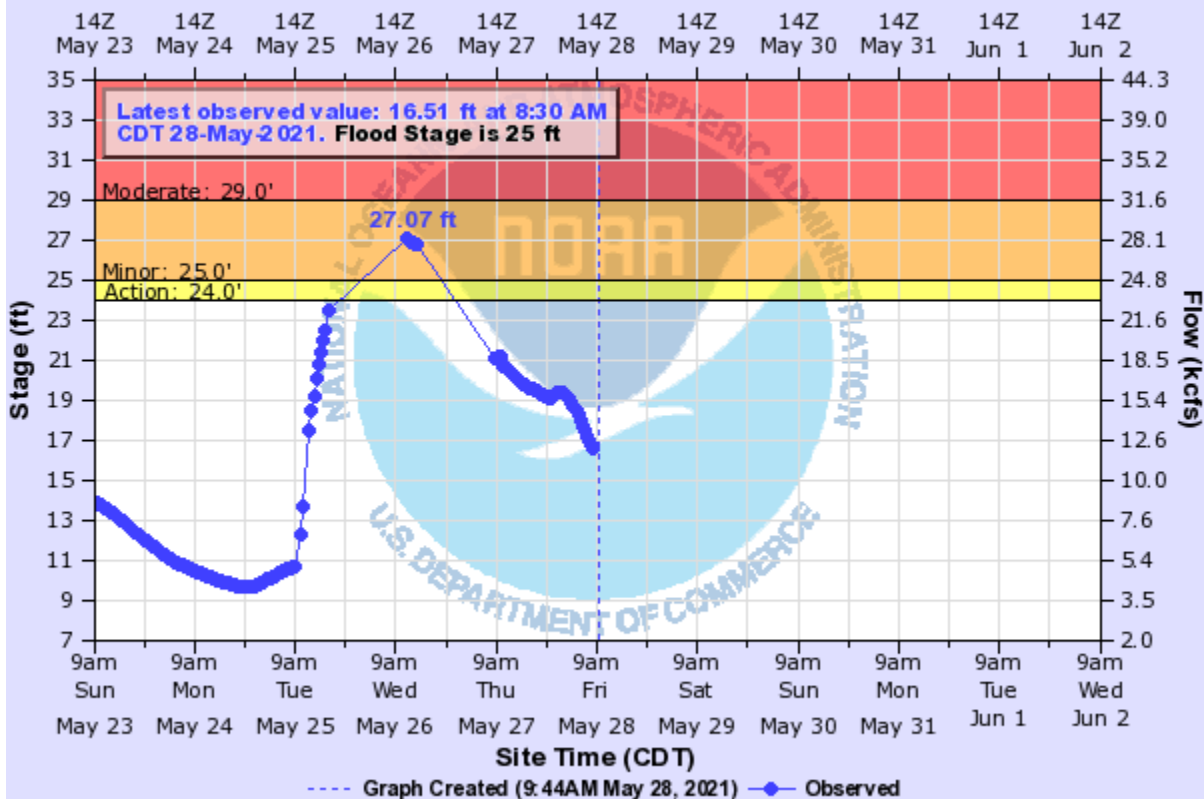


COMO2(plotting HGIRG) "Gage 0" Datum: 748.97'

Observations courtesy of US Geological Survey

## KIAMICHI RIVER NEAR ANTLERS

Universal Time (UTC)

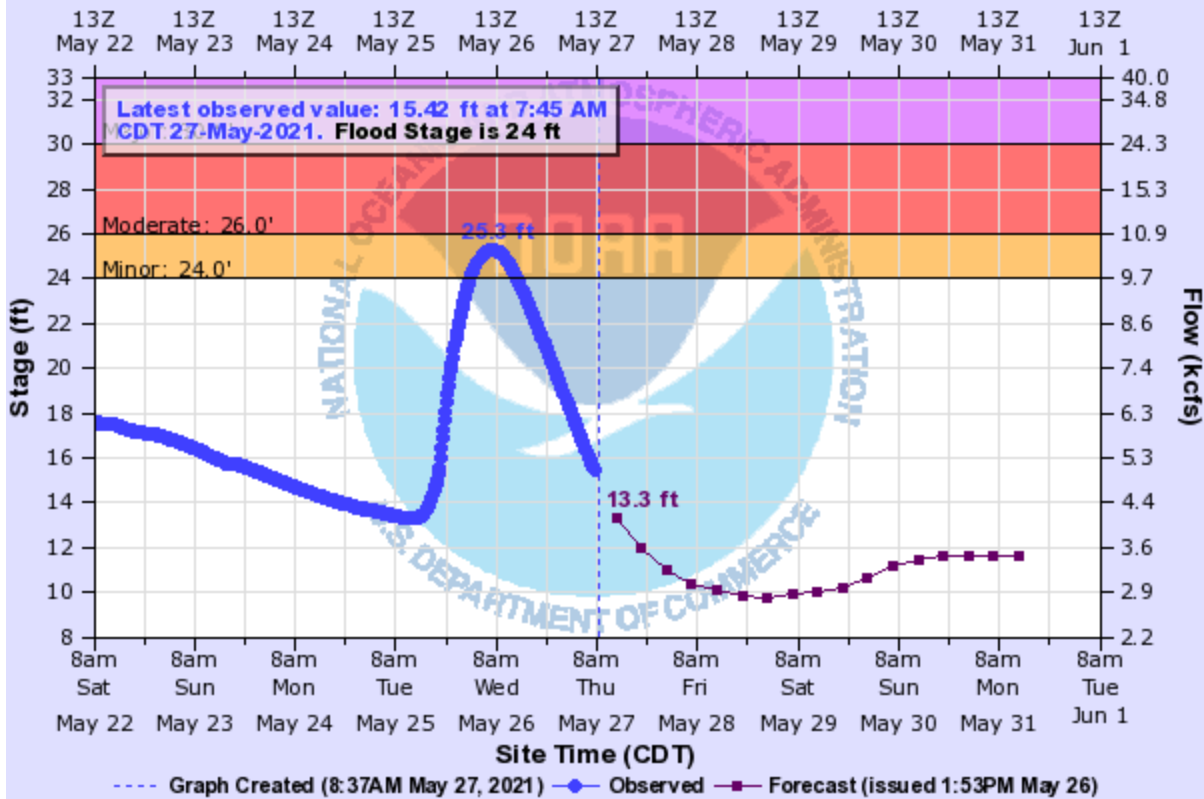


ANTO2(plotting HGIRG) "Gage 0" Datum: 420.1'

Observations courtesy of US Geological Survey

### POTEAU RIVER NEAR POTEAU

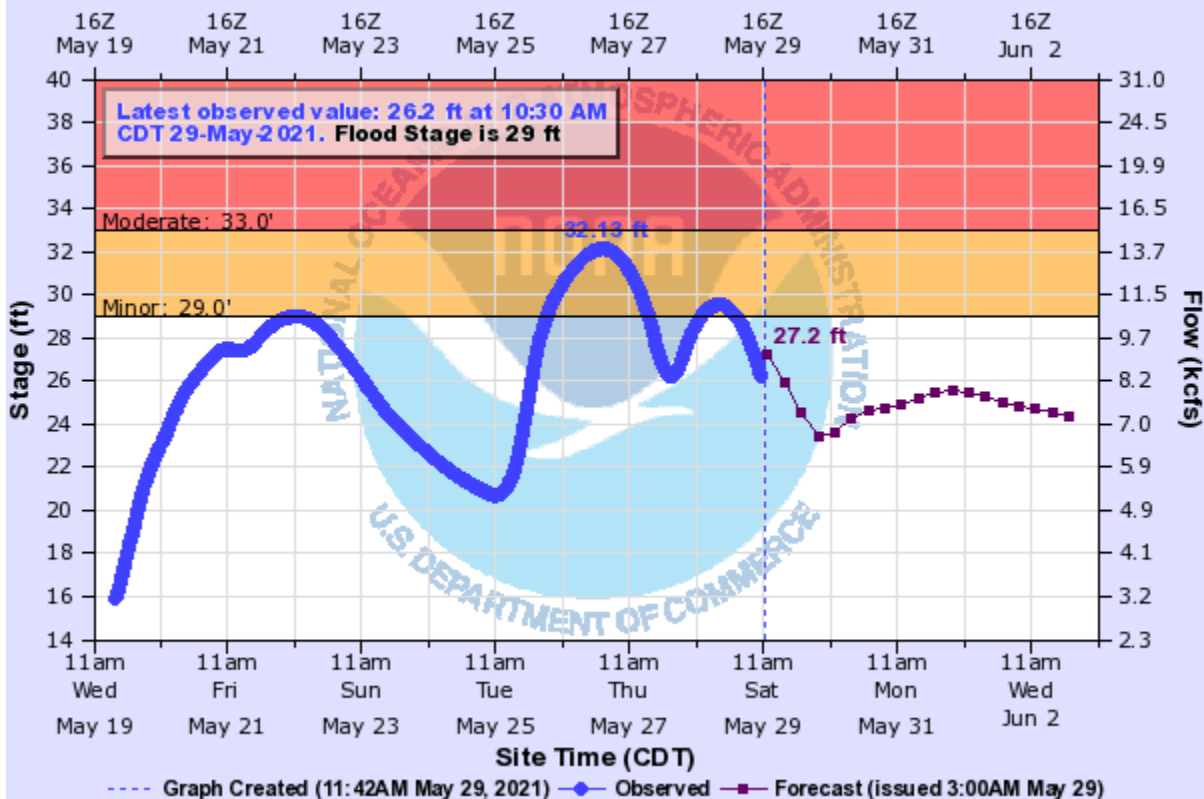
Universal Time (UTC)



PTAO2(plotting HGIRG) "Gage 0" Datum: 409.4'

### POTEAU RIVER NEAR PANAMA

Universal Time (UTC)

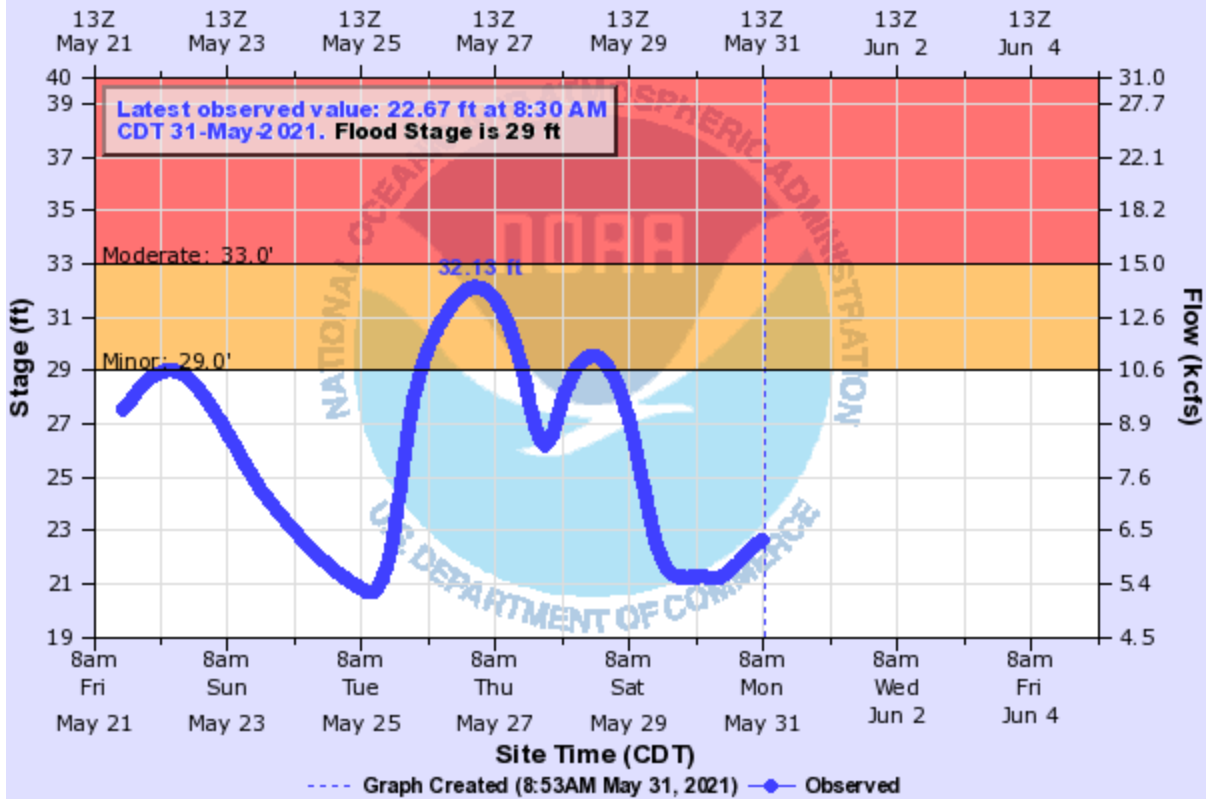


PANO2(plotting HGIRG) "Gage 0" Datum: 387.96'

Observations courtesy of US Geological Survey

## POTEAU RIVER NEAR PANAMA

Universal Time (UTC)

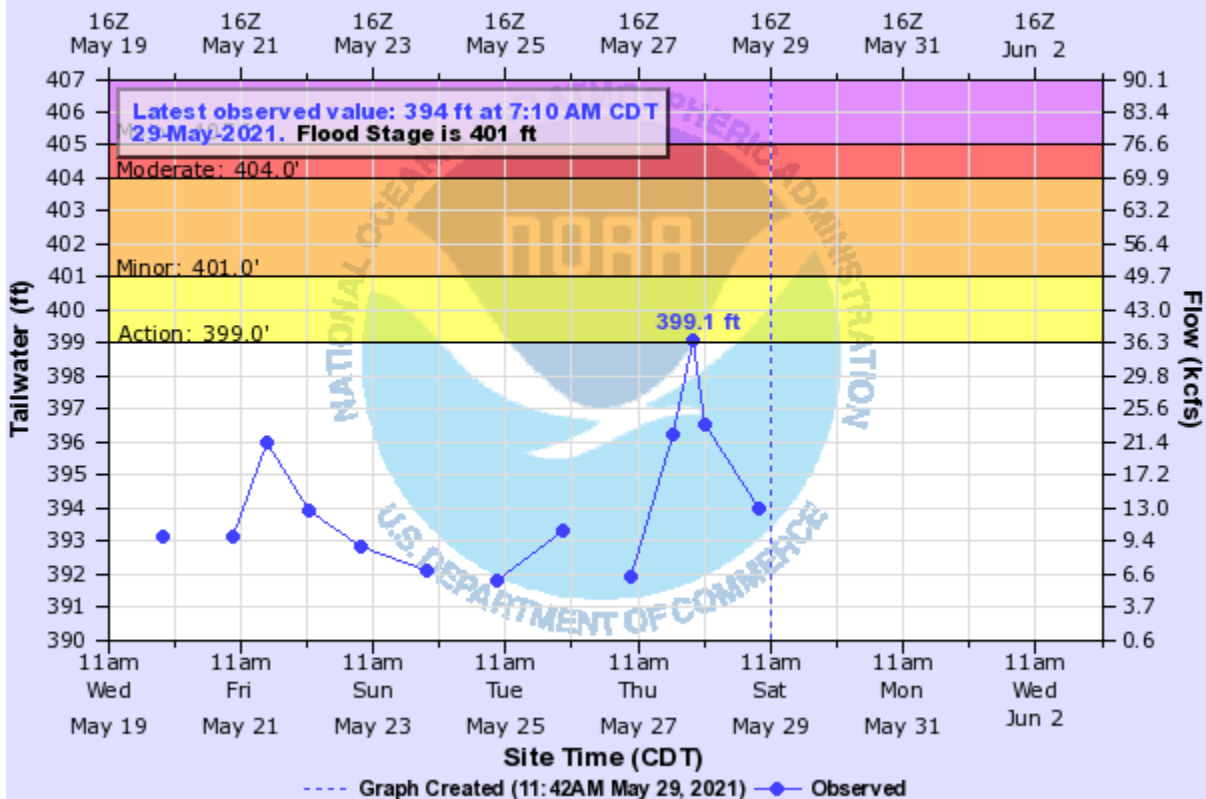


PANO2(plotting HGIRG) "Gage 0" Datum: 387.96'

Observations courtesy of US Geological Survey

## LEE CREEK NEAR VAN BUREN LCR

Universal Time (UTC)

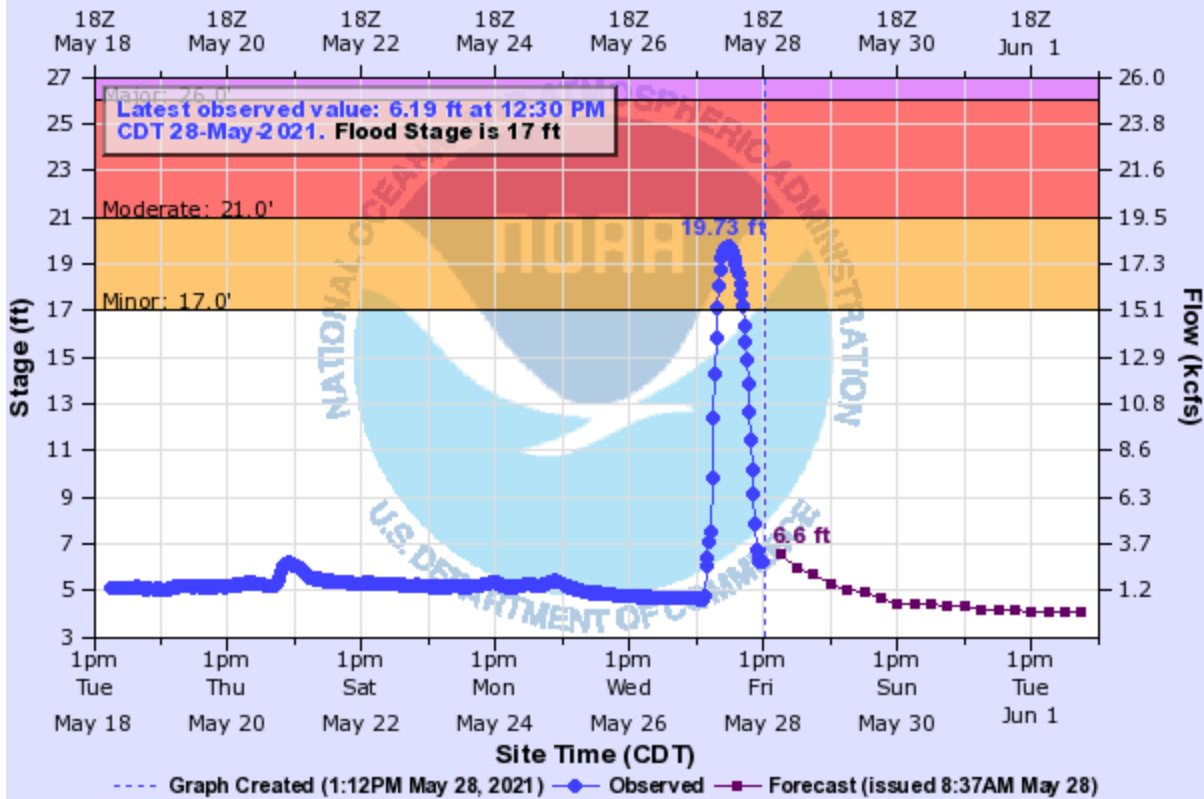


VBRA4(plotting HTIRZ) "Gage 0" Datum: 0'



### BIRD CREEK AT AVANT

Universal Time (UTC)

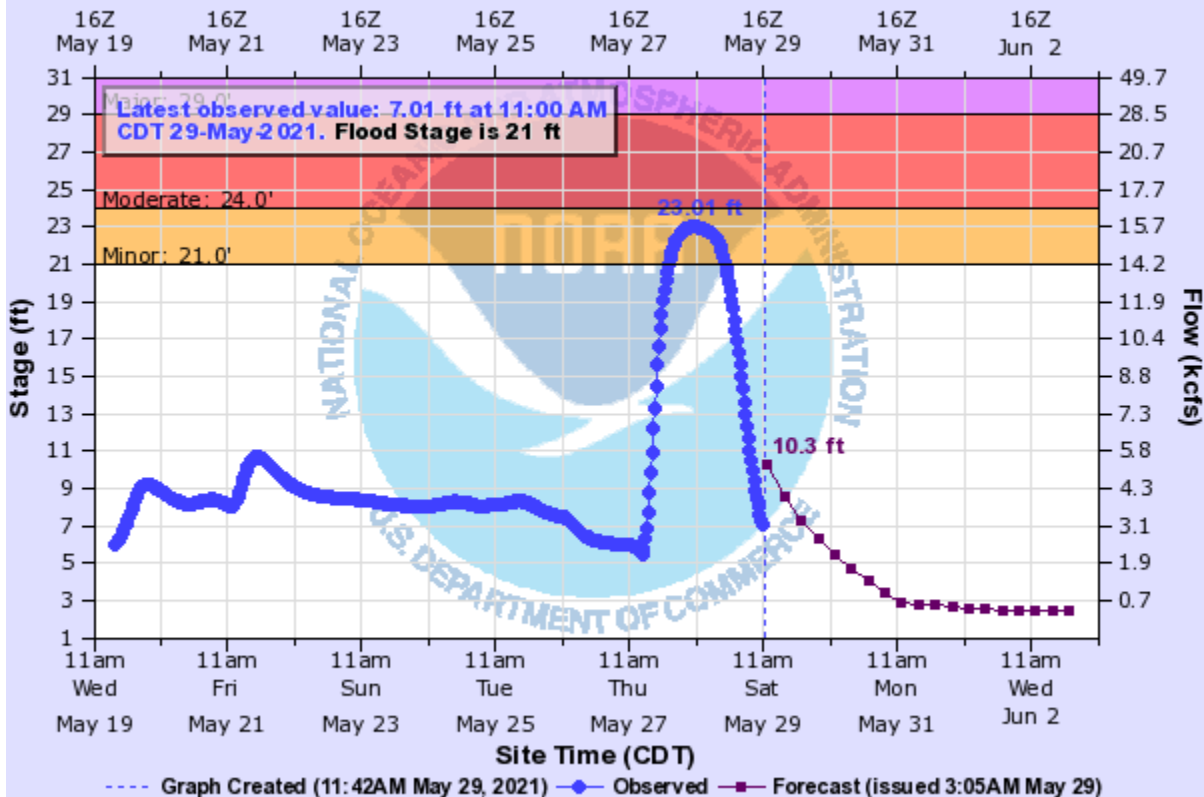


AVT02(plotting HGIRG) "Gage 0" Datum: 646.28'

Observations courtesy of US Geological Survey

### BIRD CREEK NEAR SPERRY

Universal Time (UTC)

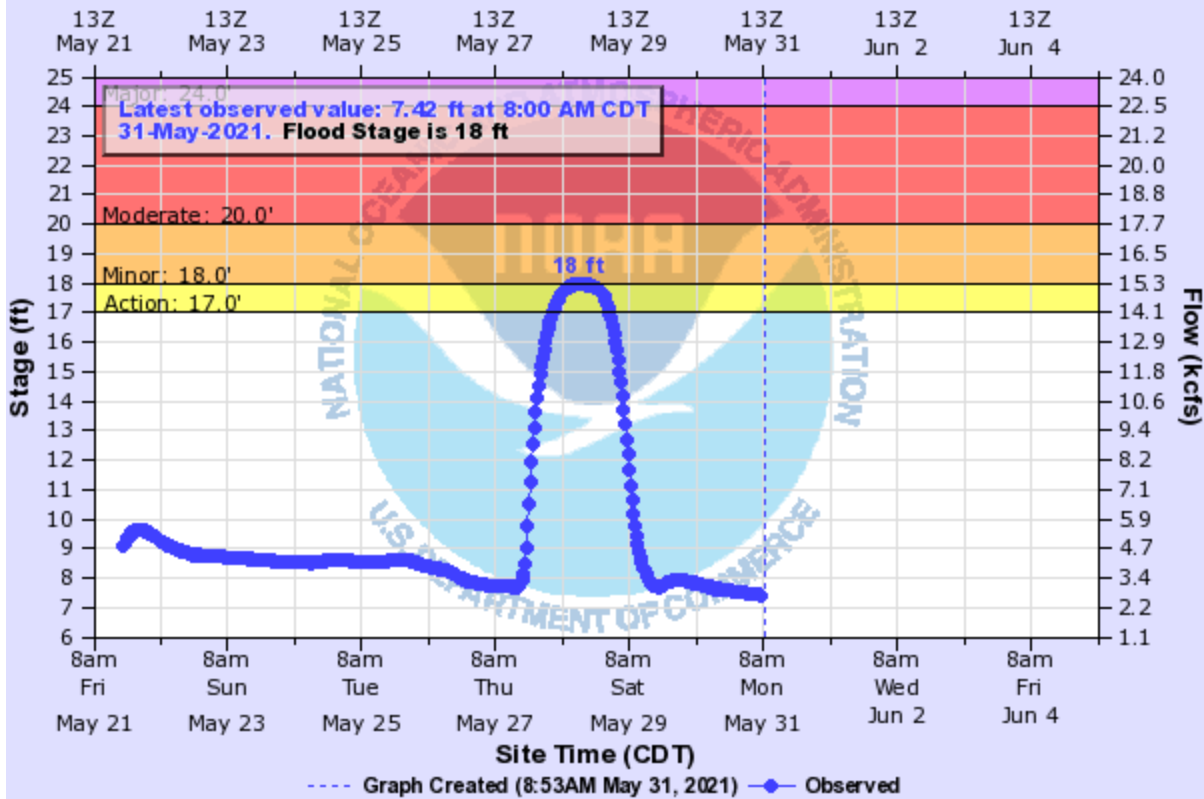


SPE02(plotting HGIRG) "Gage 0" Datum: 579.43'

Observations courtesy of US Geological Survey

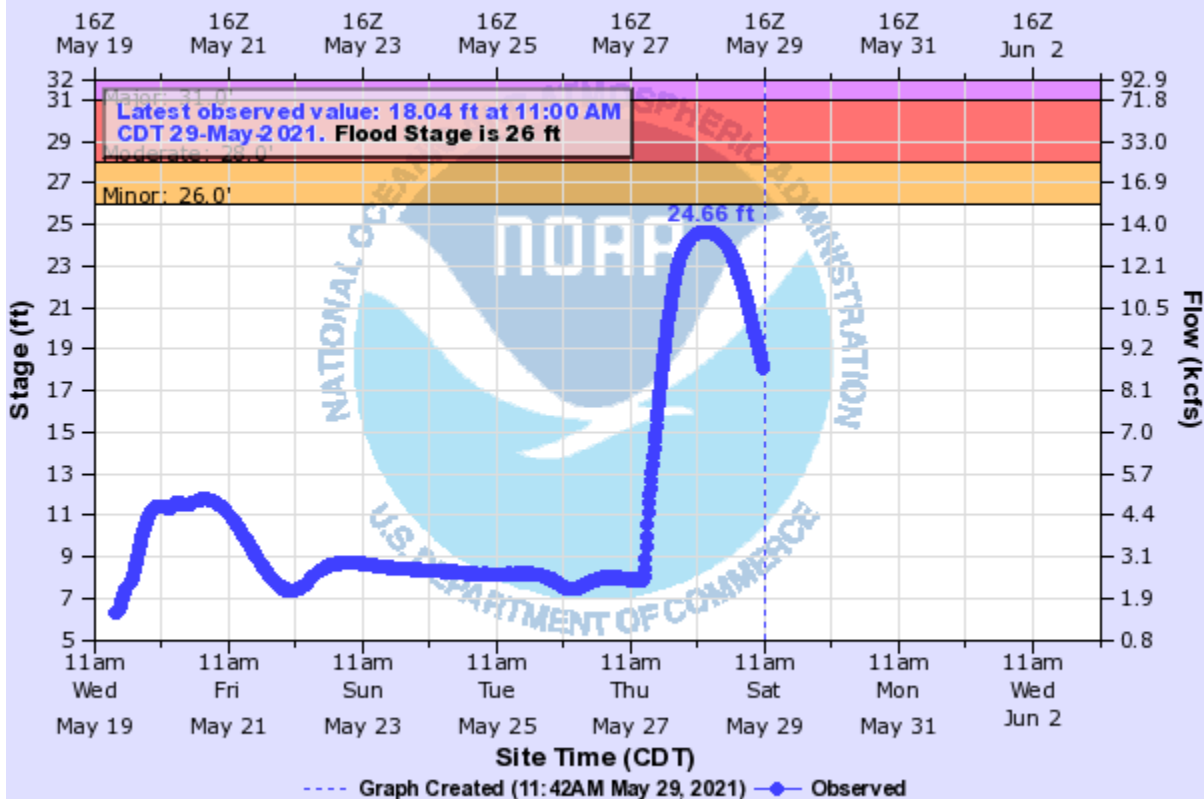
### BIRD CREEK NEAR OWASSO

Universal Time (UTC)



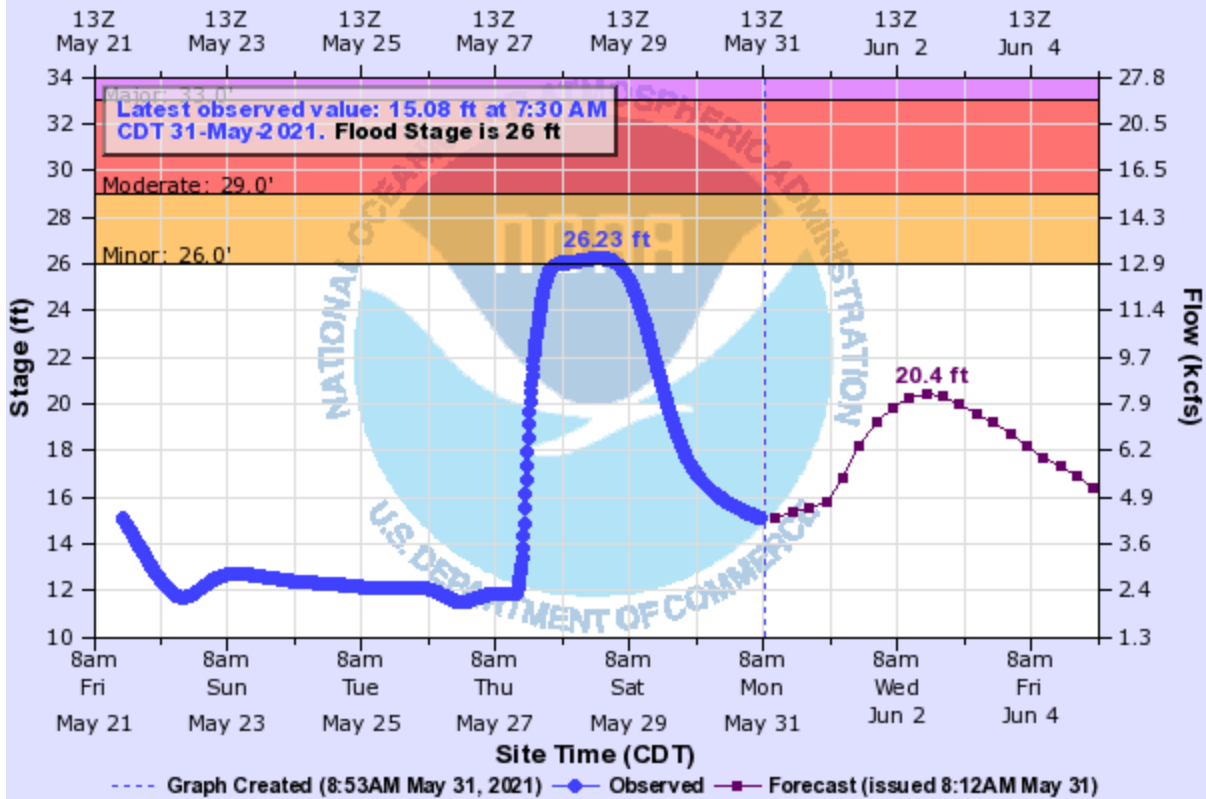
### CANEY RIVER NEAR RAMONA

Universal Time (UTC)



## CANEY RIVER NEAR COLLINSVILLE

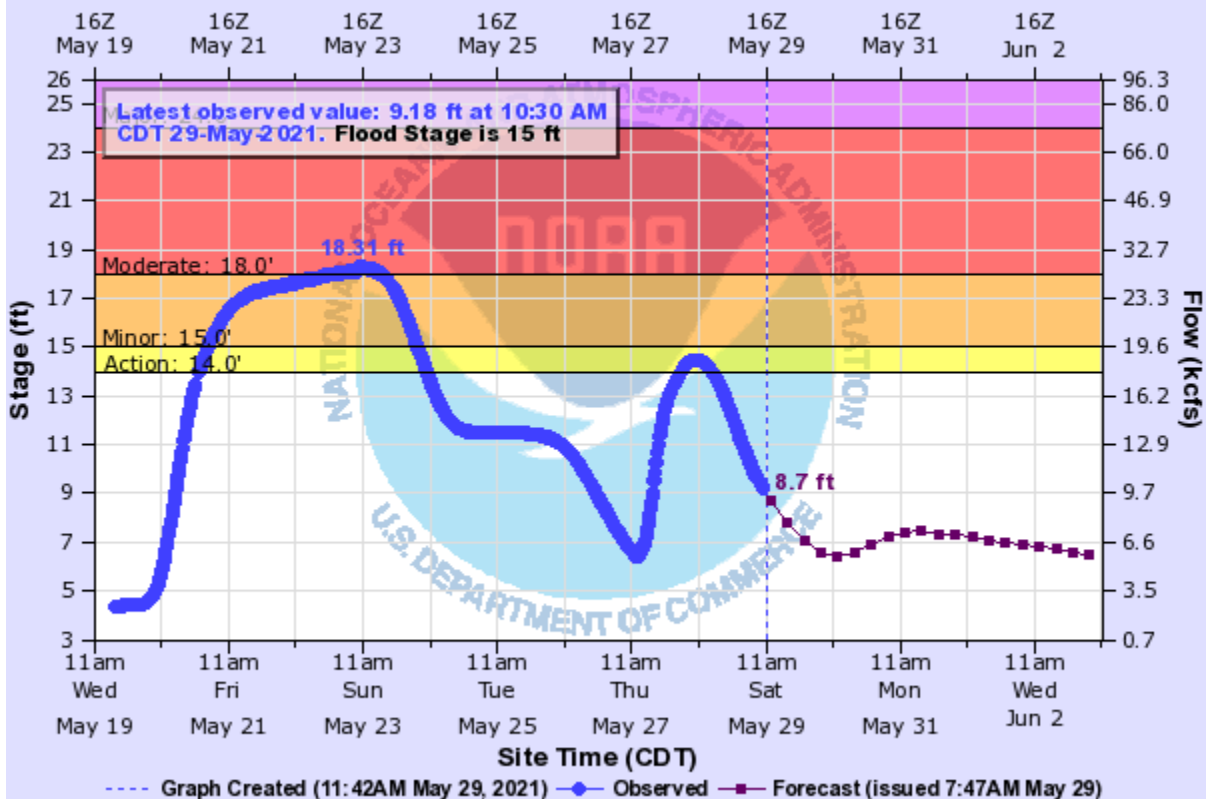
Universal Time (UTC)



CVL02(plotting HGIRG) "Gage 0" Datum: 565.72'

## NEOSHO RIVER NEAR COMMERCE

Universal Time (UTC)



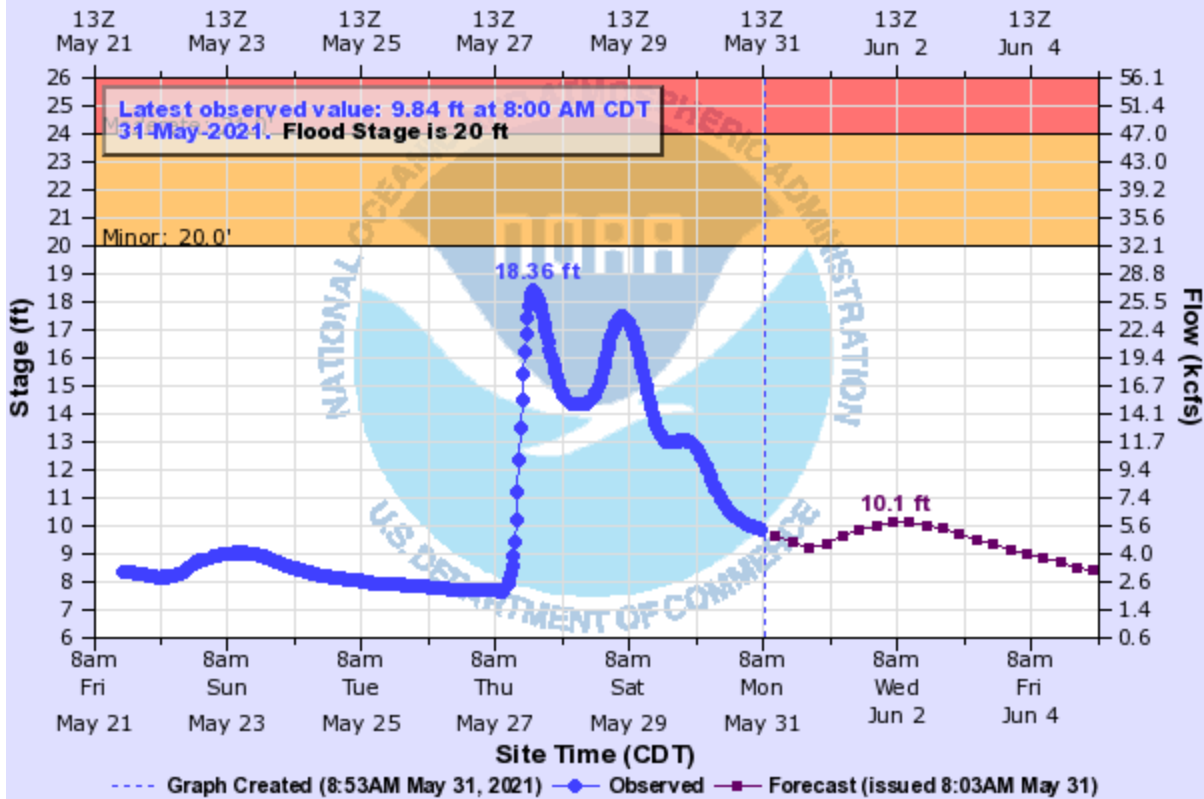
COMO2(plotting HGIRG) "Gage 0" Datum: 748.97'

Observations courtesy of US Geological Survey



## SPRING RIVER NEAR QUAPAW

Universal Time (UTC)

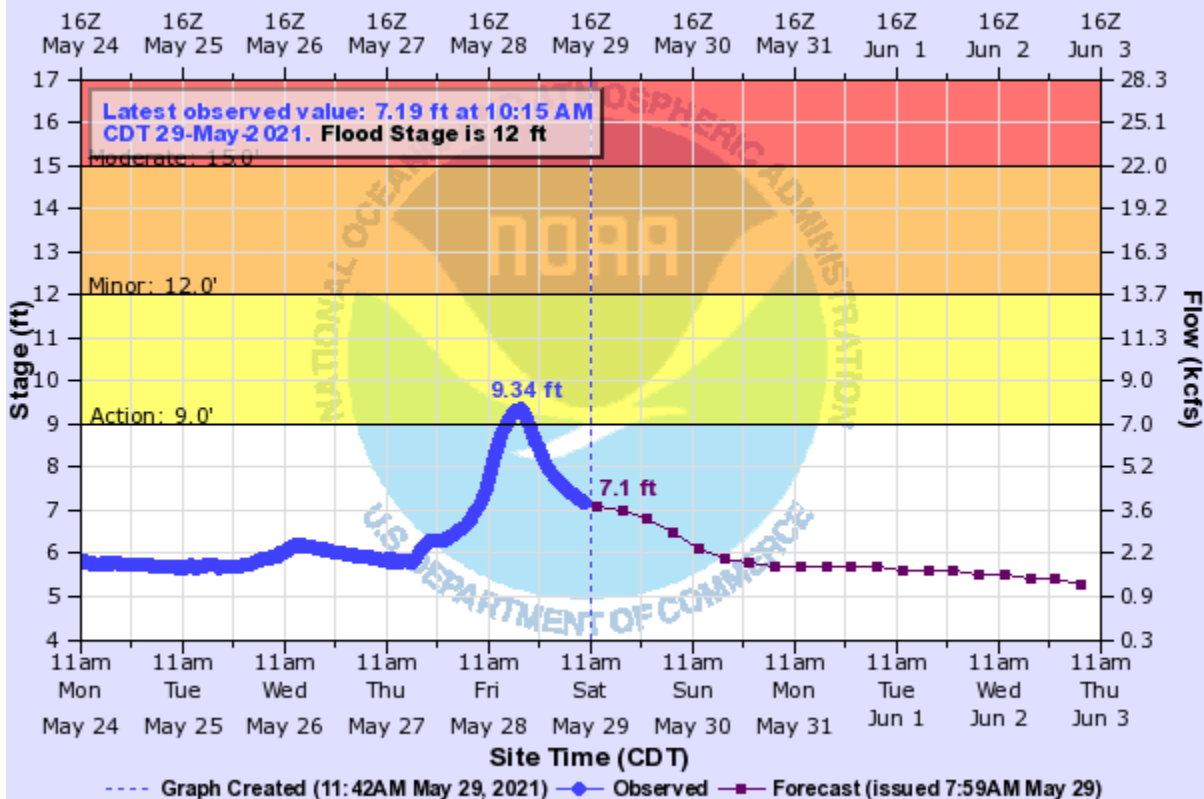


QUAO2(plotting HGIRG) "Gage 0" Datum: 746.25'

Observations courtesy of US Geological Survey

## ILLINOIS RIVER (AR OK) AT CHEWEY

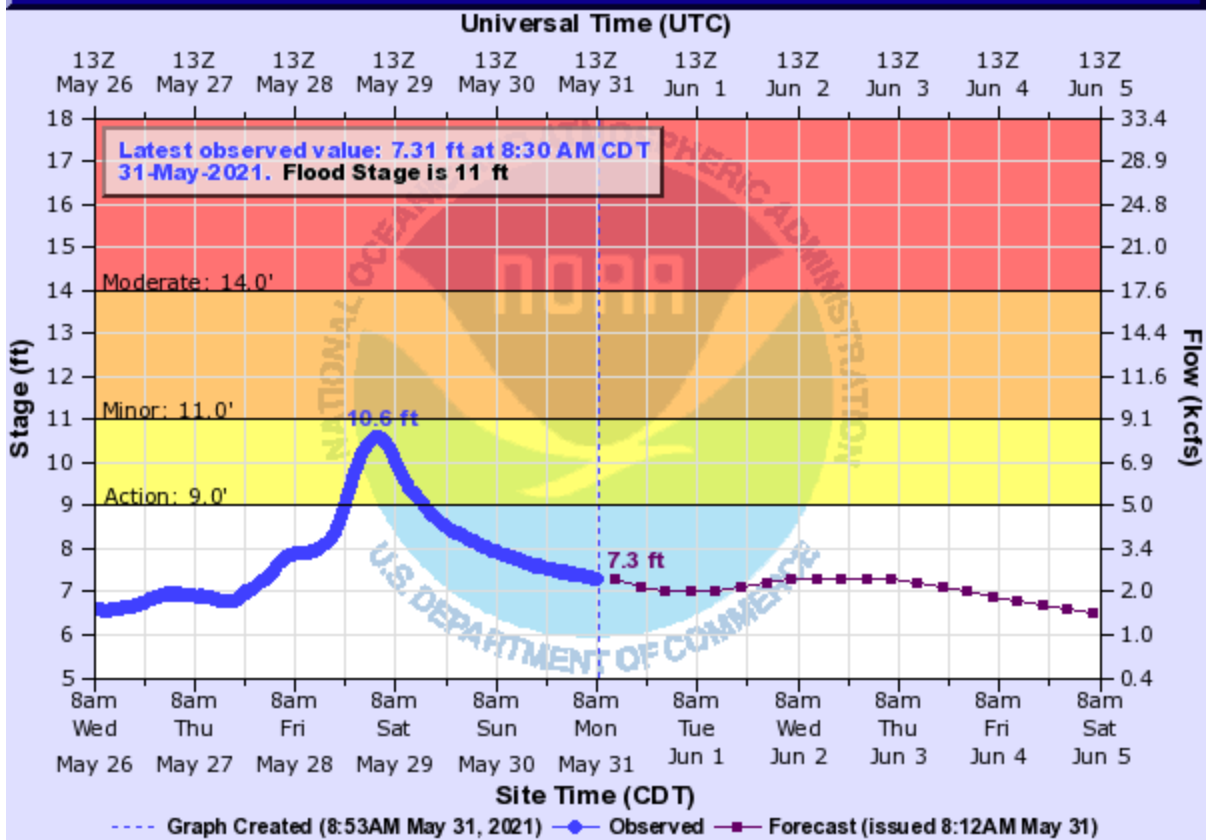
Universal Time (UTC)



CWYO2(plotting HGIRG) "Gage 0" Datum: 800.88'

Observations courtesy of US Geological Survey

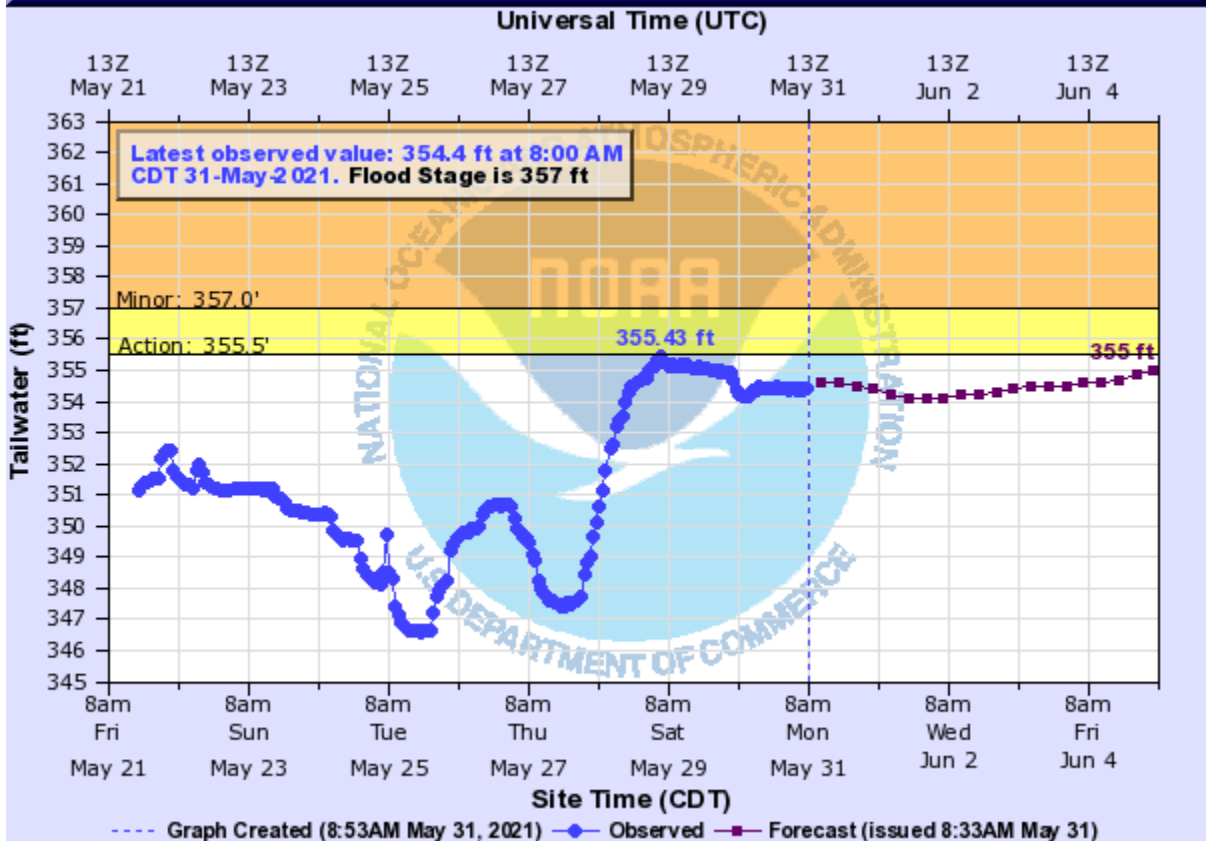
## ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH



TALO2(plotting HGIRG) "Gage 0" Datum: 664.14'

Observations courtesy of US Geological Survey

## ARKANSAS RIVER AT OZARK L/D TAILWATER



OZGA4(plotting HTIRG) "Gage 0" Datum: 0'

Observations courtesy of US Army Corps of Engineers - LRD