NWS FORM E-5				HYDROLOGIC SERVICE ARE	EA (HSA)		
(11-88)	NATIONAL OCE	ANIC AND ATMOSPHERIC ADM	INISTRATION				
(PRES. by NWS Instruc	tion 10-924)	NATIONAL WEATH	HER SERVICE	Tulsa, Oklahor	na (TSA)		
				REPORT FOR:			
MONTHLY	REPORT OF RIV	ER AND FLOOD COND	MONTH	YEAR			
				July	2025		
				SIGNATURE			
TO:	Hydrometeorolog	ical Information Center, W	OH2	Steven F. Piltz			
NOAA / National Weather Service				(Meteorologist-in-Charge)			
	1325 East West Hig			DATE			
	Silver Spring, MD	20910-3283		DATE	\ <del>-</del>		
				August 29, 202	<u>'</u> 5		

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.

While overall, much of eastern OK and northwest AR received below normal rainfall in July 2025, there were several rounds of thunderstorms, with heavy rainfall causing both flash flooding and minor river flooding. This report, past E-5 reports, and monthly hydrology and climatology summaries can be found at <a href="https://www.weather.gov/tsa/climo\_summary\_e5list">https://www.weather.gov/tsa/climo\_summary\_e5list</a>.

## **Monthly Summary**

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 1a), rainfall totals for July 2025 ranged from around 1" to 14" across eastern OK and northwest AR, with much of the area receiving 2"-4". These rainfall totals correspond to 20% to 440% of the normal July rainfall (Fig. 1b).

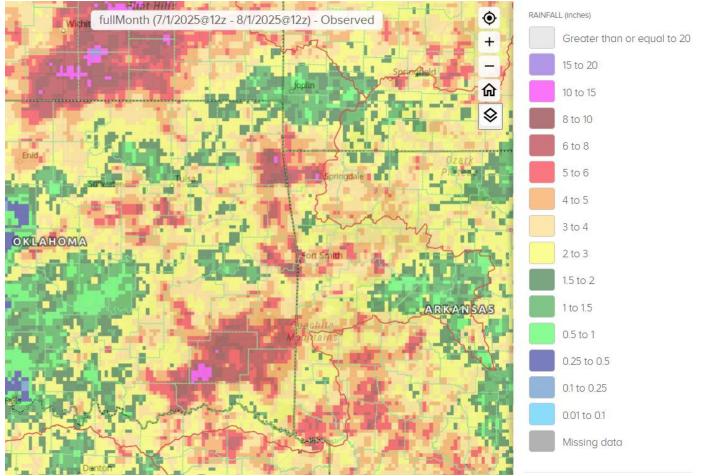


Fig. 1a. Estimated Observed Rainfall for July 2025

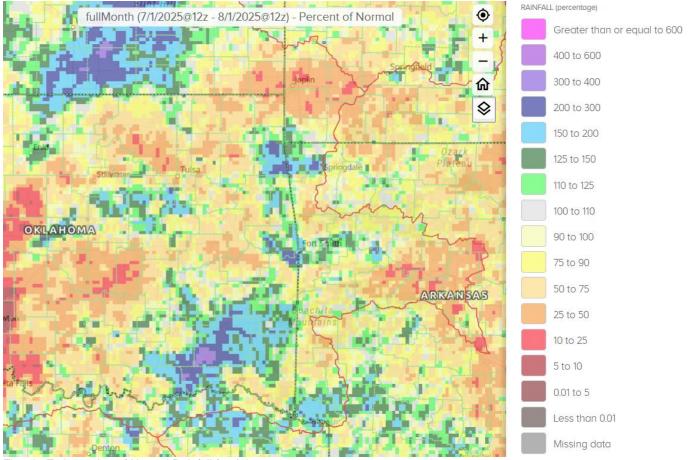


Fig. 1b. Estimated % of Normal Rainfall for July 2025

In Tulsa, OK, July 2025 ranked as the 41<sup>st</sup> warmest July (83.9°F, tied 2018, 1937, 1913; since records began in 1905) and the 47<sup>th</sup> wettest July (4.12"; since records began in 1888). Fort Smith, AR had the 18<sup>th</sup> warmest July (84.8°F, tied 1957; since records began in 1882) and the 32<sup>nd</sup> wettest July (4.67"; since records began in 1882). Fayetteville, AR had the 10<sup>th</sup> warmest (80.8°F) and the 33<sup>rd</sup> wettest (3.16") July since records began in 1950.

Some of the larger precipitation reports (in inches) for July 2025 included:

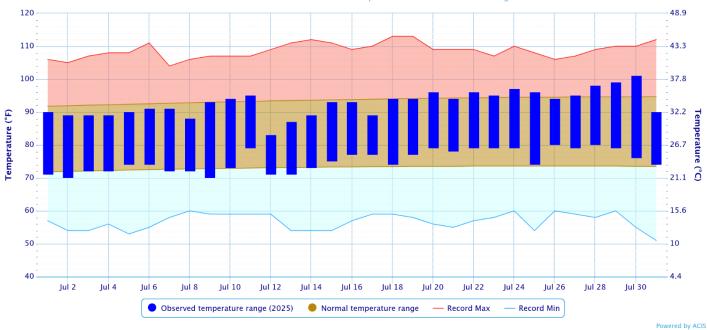
Antlers, OK (meso)		Upper Spavinaw Port, OK (coop)	8.64	Sallisaw 0.3SE, OK (coco)	8.52					
Jay 3.3 NNE, OK (coco)	8.49	Gentry 2.1SSW, AR (coco)	8.04	Jay, OK (meso)	7.96					
Clayton, OK (meso) 7.21		Wister 3.0NNE, OK (coco)		Vian 5.3ENE, OK (coco)	6.79					
Some of the lowest precipitation reports (in inches) for July 2025 included:										
Pryor, OK (meso)	0.76	Pryor 2.2SE, OK (coco)	0.96	Tulsa, OK (meso)	1.30					
Tulsa 3.7W, OK (coco)	1.53	Owasso 1.4NNW, OK (coco)	1.60	Miami 3.7ENE, OK (coco)	1.64					
Tulsa 12.2SE, OK (coco)	1.69	Broken Arrow 1.5WSW, OK (coco)	1 71	Burbank, OK (meso)	1.74					
1 4104 12:202, 011 (0000)	1.03	BIOREIT ATION 1.5VVOVV, OR (COCO)	1.7 1	Barbarik, Ort (mcso)	1.77					

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

Rank since	Last 30	Summer-	Last 120	Growing	Year-to-	Water Year-to-	Last 365 Days
1921	Days	to-Date	Days	Season-to-	Date	Date	(Aug 1, 2024 –
	(Jul 2-	(Jun 1 –	(Apr 3 –	Date (Mar 1	(Jan 1 –	(Oct 1, 2024 –	Jul 31, 2025)
	31)	Jul 31)	Jul 31)	– Jul 31)	Jul 31)	Jul 31, 2025)	
Northeast	47 <sup>th</sup>	5 <sup>th</sup>	4 <sup>th</sup>	4 <sup>th</sup>	7 <sup>th</sup>	5 <sup>th</sup>	12 <sup>th</sup>
OK	driest	wettest	wettest	wettest	wettest	wettest	wettest
East	41 <sup>st</sup>	13 <sup>th</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	6 <sup>th</sup>	4 <sup>th</sup>	5 <sup>th</sup>
Central OK	wettest	wettest	wettest	wettest	wettest	wettest	wettest
Southeast	23 <sup>rd</sup>	24 <sup>th</sup>	6 <sup>th</sup>	11 <sup>th</sup>	15 <sup>th</sup>	15 <sup>th</sup>	22 <sup>nd</sup>
OK	wettest	wettest	wettest	wettest	wettest	wettest	wettest
0	48 <sup>th</sup>	22 <sup>nd</sup>	4 <sup>th</sup>	4 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	16 <sup>th</sup>
Statewide	driest	wettest	wettest	wettest	wettest	wettest	wettest

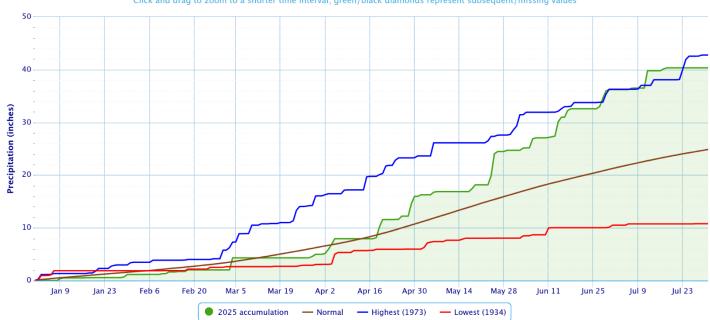
## Daily Temperature Data - Tulsa Area, OK (ThreadEx)

Period of Record – 1905–01–06 to 2025–08–06. Normals period: 1991–2020. Click and drag to zoom chart.



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

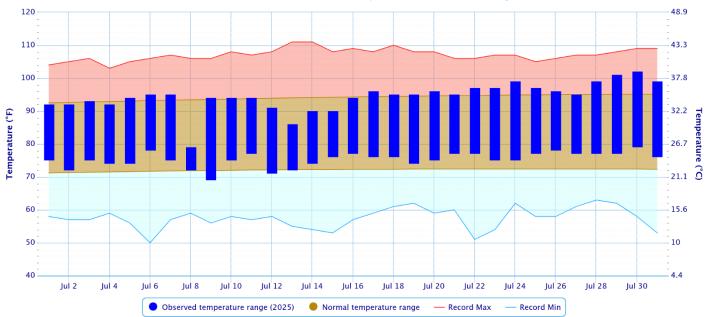
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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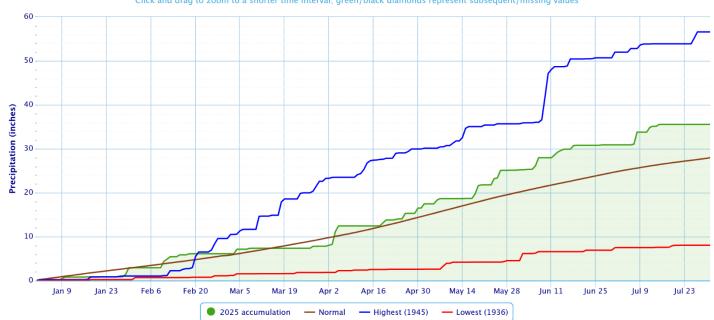
## Daily Temperature Data - Fort Smith Area, AR (ThreadEx)

Period of Record – 1882–06–01 to 2025–08–06. Normals period: 1991–2020. Click and drag to zoom chart.



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

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

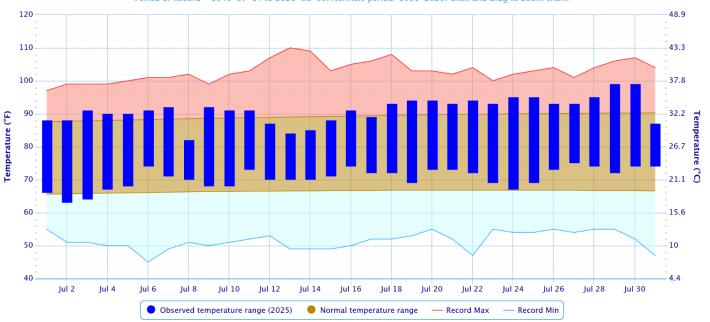


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## Daily Temperature Data - FAYETTEVILLE DRAKE FIELD, AR

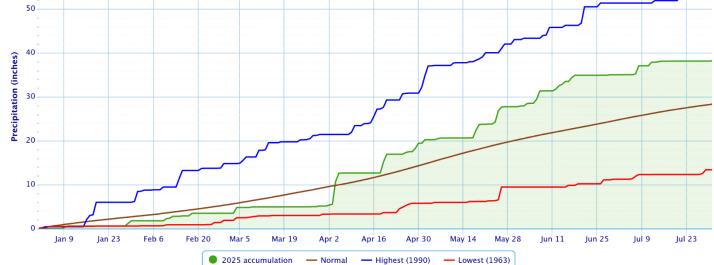
Period of Record - 1949-07-14 to 2025-08-06. Normals period: 1991-2020. Click and drag to zoom chart.



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## Accumulated Precipitation - FAYETTEVILLE DRAKE FIELD, AR Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

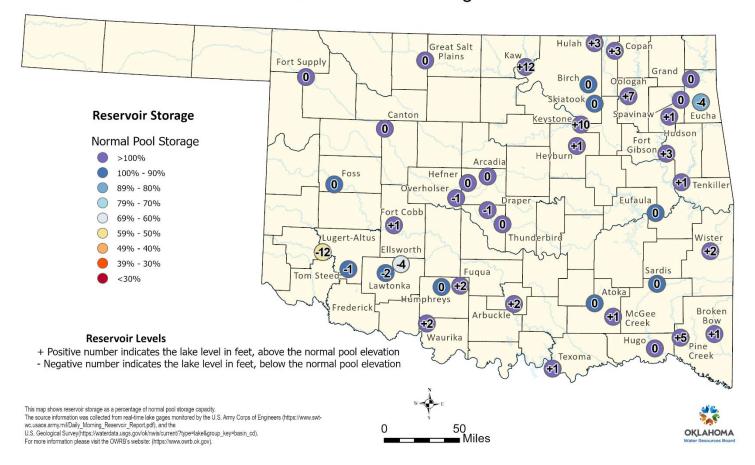
60



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## Reservoirs

## Oklahoma Reservoir Levels and Storage as of 8/4/2025



According to the USACE, several of lakes in the HSA were above 3% of top of their conservation pools as of 8/1/2025: Beaver Lake 54%, Kaw Lake 27%, Oologah Lake 24%, Keystone Lake 23%, Copan Lake 12%, Hudson Lake 6%, Ft. Gibson Lake 6%, and Hulah Lake 5%. No lakes were more than 3% below the top of their conservation pools.

## **Drought**

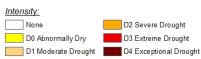
According to the <u>U.S. Drought Monitor</u> (USDM) from August 5, 2025 (Figs. 2, 3), there was no drought present in eastern OK and northwest AR. Abnormally Dry (D0) but not in drought conditions were occurring in parts of Ottawa County in eastern OK and Carroll County in northwest AR.

## U.S. Drought Monitor Oklahoma

## August 5, 2025 (Released Thursday, Aug. 7, 2025) Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	99.83	0.17	0.00	0.00	0.00	0.00
Last Week 07-29-2025	95.27	4.73	0.00	0.00	0.00	0.00
3 Month's Ago 05-06-2025	75.09	24.91	13.95	6.91	0.00	0.00
Start of Calendar Year 01-07-2025	70.28	29.72	5.52	0.33	0.00	0.00
Start of Water Year 10-01-2024	22.82	77.18	61.31	37.39	11.50	0.00
One Year Ago 08-06-2024	13.53	86.47	43.79	5.40	0.00	0.00



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: Richard Tinker CPC/NOAA/NWS/NCEP

**USDA** 







droughtmonitor.unl.edu

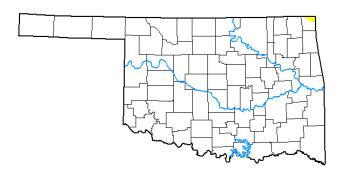
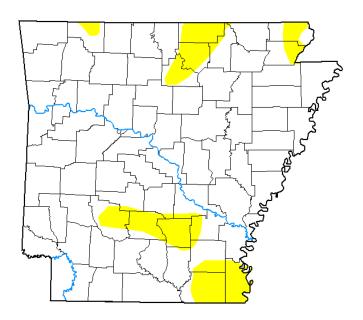


Fig. 2. Drought Monitor for Oklahoma

# U.S. Drought Monitor Arkansas



## August 5, 2025

(Released Thursday, Aug. 7, 2025) Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	Drought Conditions (Fercent Area)						
	None D0-D4 D1-D4 D2-D4 D3-D4 D4						
Current	89.12	10.88	0.00	0.00	0.00	0.00	
Last Week 07-29-2025	99.62	0.38	0.00	0.00	0.00	0.00	
3 Month s Ago 05-06-2025	100.00	0.00	0.00	0.00	0.00	0.00	
Start of Calendar Year 01-07-2025	86.02	13.98	0.00	0.00	0.00	0.00	
Start of Water Year 10-01-2024	27.93	72.07	38.75	5.49	0.00	0.00	
One Year Ago 08-06-2024	69.84	30.16	3.18	0.00	0.00	0.00	

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: Richard Tinker CPC/NOAA/NWS/NCEP









droughtmonitor.unl.edu

Fig. 3. Drought Monitor for Arkansas

## **Outlooks**

The <u>Climate Prediction Center</u> (CPC) outlook for August 2025 (issued July 31, 2025) indicates equal chances for above, near, and below normal temperatures and precipitation across all of eastern OK and northwest AR. This outlook was based on dynamical and statistical model output along with long-term trends and soil moisture considerations.

For the 3-month period August-September-October 2025, CPC is forecasting an 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 July 17, 2025). This outlook is based on long-term trends, ENSO state, and incorporates a suite of statistical and dynamical forecast tools. According to CPC, "ENSO-neutral is most likely through the late Northern Hemisphere summer 2025 (56% chance in August-October). Thereafter, chances of La Niña conditions increase into the fall and winter 2025-26, but remain comparable to ENSO-neutral."

<u>Summary of Heavy Precipitation Events</u> Daily quality-controlled rainfall maps can be found at: <a href="http://water.weather.gov/precip/index.php?location">http://water.weather.gov/precip/index.php?location</a> type=wfo&location name=tsa

Isolated to widely scattered showers and thunderstorms affected eastern OK through much of the 2<sup>nd</sup> as a subtropical moisture plume from the Pacific overspread the area. Slightly stronger forcing moved into the area early on the 3<sup>rd</sup>, resulting in a larger area of shower and thunderstorm activity from north central OK into southeast OK from the pre-dawn hours into the early evening hours. While most affected locations received less than an inch of rain, some areas received 1"-4" (Figs. 4, 5).

A thunderstorm complex moved south out of KS during the evening of the 6<sup>th</sup>, affecting portions of northeast OK and locations along the OK/AR state line before dissipating during the early morning hours of the 7<sup>th</sup> before reaching I-40. Rainfall totals ranged from 0.25"-3" (Fig 6).

Scattered showers and thunderstorms developed during the afternoon of the 7<sup>th</sup> across eastern OK and northwest AR, within a very moist atmosphere. Precipitable water (PWAT) values were near to just over 2". This activity persisted through the evening and dissipated shortly after midnight. Convection renewed during the predawn hours of the 8<sup>th</sup> as the tail end of an upper-level trough clipped the area. Through 7am CDT July 8, rainfall totals ranged from around 0.10" to 3.5" (Fig. 7). Storms trained over the Sequoyah County area from about 4:30am through 10:30am, resulting in significant rainfall, especially over the City of Sallisaw. 5"-7" of rain fell over the city (Figs. 8, 9), resulting in significant flash flooding, including evacuation of the Boys and Girls Club (Fig. 10). Most of the convection shifted south through the afternoon hours, with just a few isolated storms remaining during the evening hours. 24-hour rainfall totals through 7am July 9 ranged from 0.10" to 5" across eastern OK and northwest AR, with 2"-7" over most of Sequoyah County (Fig. 9). The heavy rain in east central AR also caused the Arkansas River at Van Buren to exceed flood stage, resulting in minor flood impacts (see E3 and preliminary hydrographs at the end of this report).

A period of active weather developed mid-month as a slow moving upper-level trough that extended from the Great Lakes to west TX remained over the region for several days. Showers and thunderstorms developed over northeast OK and northwest AR just before sunrise on the 12th and scattered convection continued through the morning hours near an elevated 700mb boundary along and north of I-40. PWAT values over the region were 1.7"-2". Storms were more isolated during the afternoon hours as the elevated boundary became less defined. However, a broad north-to-south line of thunderstorms over central OK moved east into eastern OK during the late afternoon, with widely scattered convection continuing ahead of this line. The main line of storms reached northwest AR by late evening and rapidly decreased by midnight. Isolated showers and thunderstorms remained overnight. Just before dawn, a cluster of storms moved into southeast OK. Through 7am July 13th, rainfall totals were around 0.50" to near 5" for most of eastern OK and northwest AR (Fig. 11). The convection over southeast OK moved to the northeast into west central AR and then exited the area shortly after noon. The deep layer moisture plume remained over southeast OK and west central AR. Isolated showers and thunderstorms were around for the afternoon and evening hours across eastern OK and northwest AR. However, a cluster of storms developed over southeast OK during the evening and moved north-northeast into east central OK and west central AR through the early morning hours of the 14th. Once again in the predawn hours, storms developed over southeast OK and continued until the mid-morning hours.

24-hour rainfall totals were 0.25"-4.5" across southeast OK and west central AR, with nearly 3.5" falling in 1-2 hours near Antlers, OK (Figs. 12-15). Over the 2-day period, southwest Pushmataha County received 5"-8" of rain (Fig. 16). Isolated showers and thunderstorms again developed across the region during the heat of the day. Another cluster of thunderstorms developed over southeast OK as a mesoscale convective vortex (MCV) tracked out of northeast TX during the evening hours of the 14<sup>th</sup>, impacting the same areas that had already received heavy rainfall. PWAT values across this region were in excess of 2". These storms moved into west central AR around midnight. Then, during the early morning hours, convection redeveloped over southeast OK as the MCV continued to move northeast across southeast OK and eventually into west central AR. Most of the rain finally came to an end shortly after sunrise. The affected areas of southeast OK into northwest AR received around 0.3" to 2" of rain in the 24-hours ending at 7 am July 15, with a pocket of 2"-3.5" of rain in southwest Pushmataha County (Figs. 21-22). After three days of heavy rain, southeast OK had received a total of 2"-11" of rainfall (Figs. 24-25).

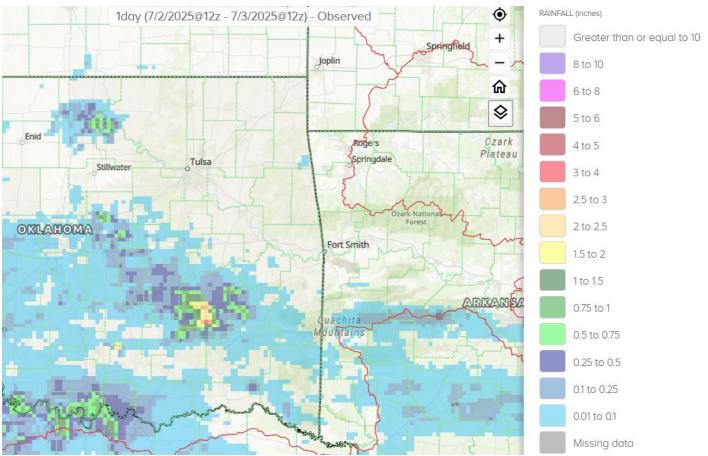


Fig. 4. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/03/2025.

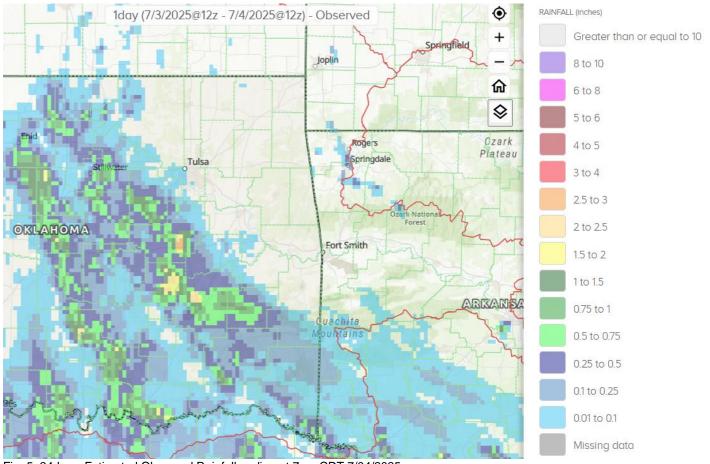


Fig. 5. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/04/2025.

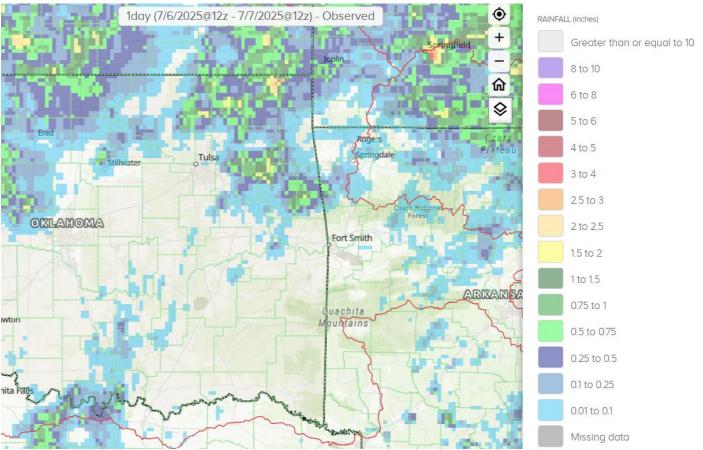


Fig. 6. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/07/2025.

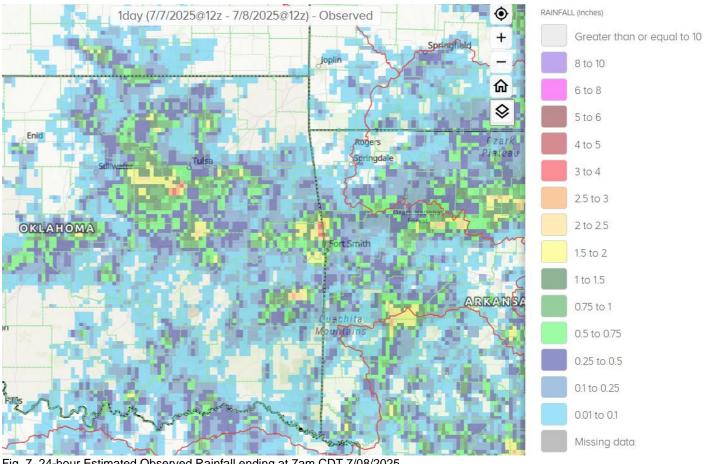


Fig. 7. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/08/2025.

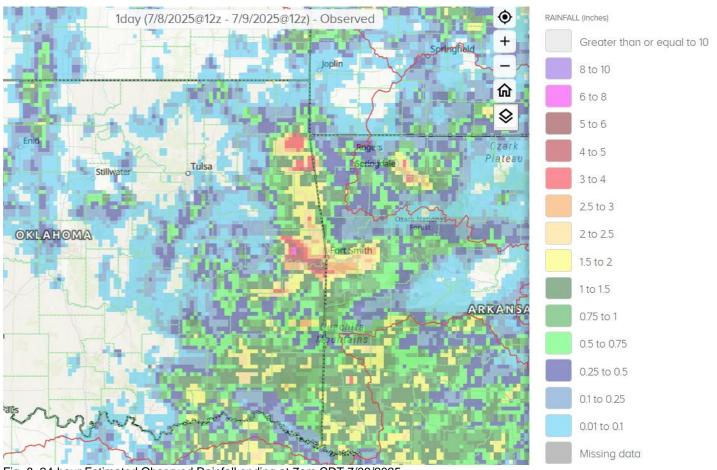


Fig. 8. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/09/2025.

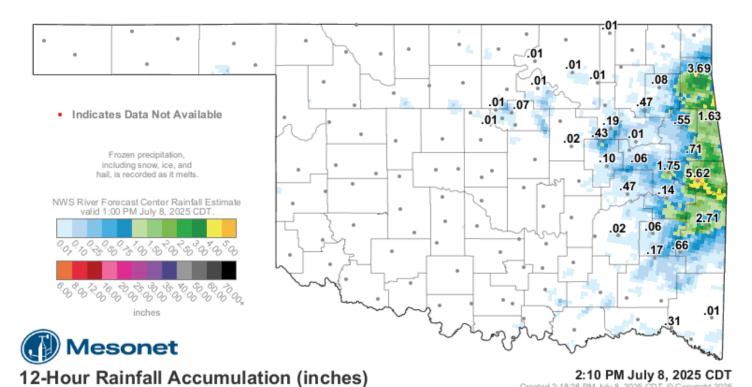


Fig. 9. OK Mesonet (values) and NWS RFC rainfall estimate (image) 12-hour rainfall ending at 2:10 pm CDT 07/08/2025.



Fig. 10. Evacuation of the Sequoyah County Boys and Girls Club July 8, 2025. Photo Credit: City of Sallisaw.

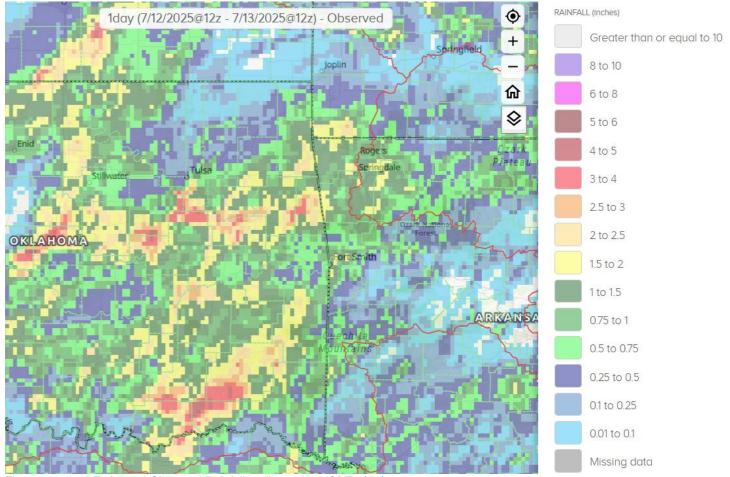


Fig. 11. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/13/2025.

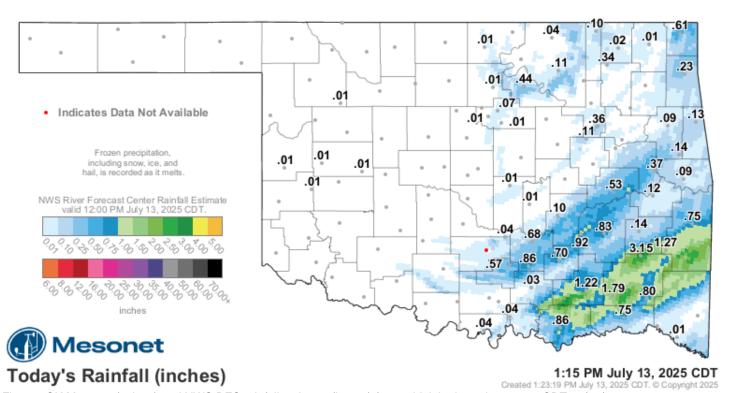


Fig. 12. OK Mesonet (values) and NWS RFC rainfall estimate (image) from midnight through 1:15 pm CDT 07/13/2025.

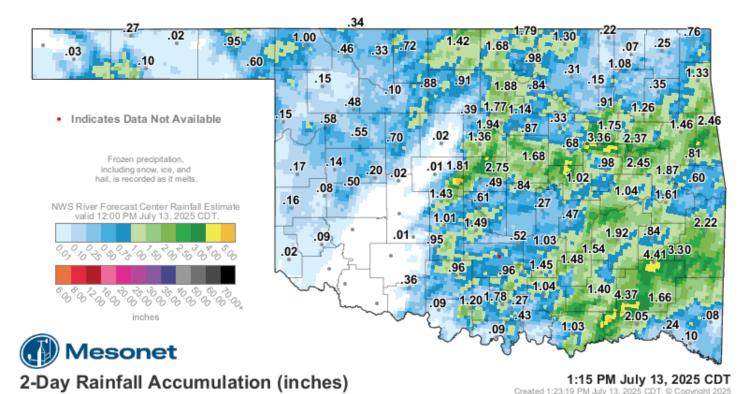


Fig. 13. OK Mesonet (values) and NWS RFC rainfall estimate (image) 48-hour rainfall ending at 1:15 pm CDT 07/13/2025.

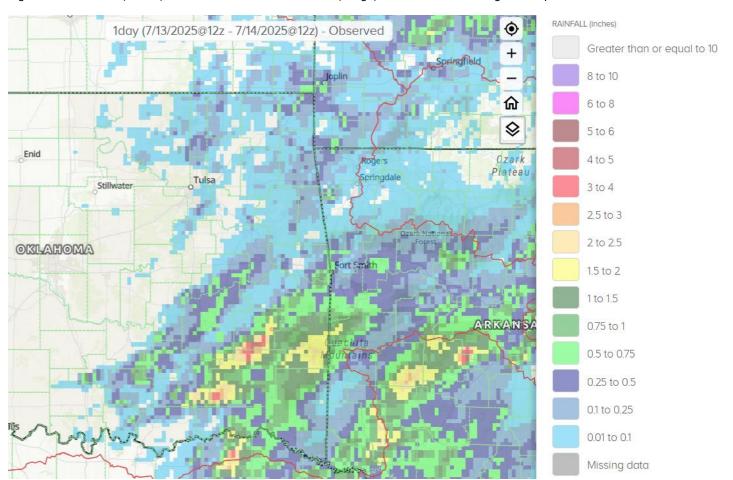


Fig. 14. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/14/2025.

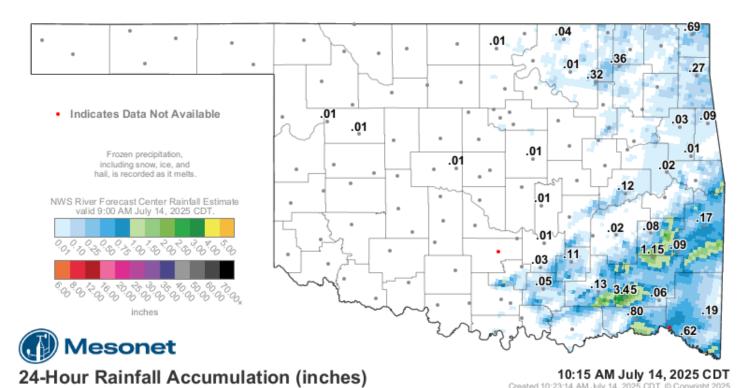


Fig. 15. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 10:15 am CDT 07/14/2025.

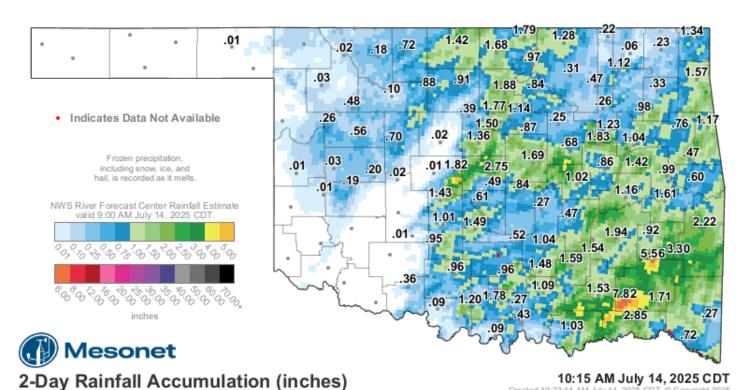


Fig. 16. OK Mesonet (values) and NWS RFC rainfall estimate (image) 48-hour rainfall ending at 10:15 am CDT 07/14/2025.

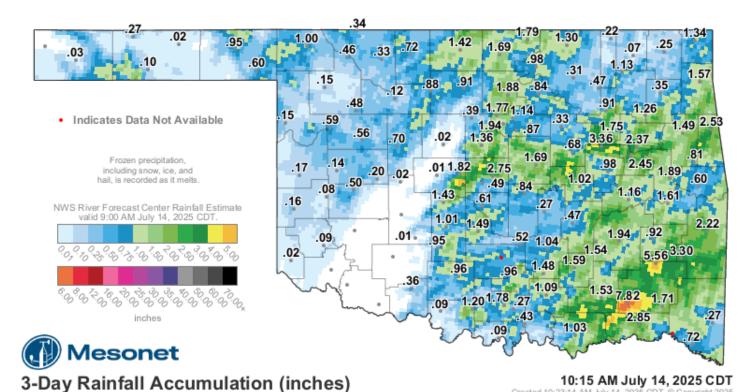


Fig. 17. OK Mesonet (values) and NWS RFC rainfall estimate (image) 72-hour rainfall ending at 10:15 am CDT 07/14/2025.

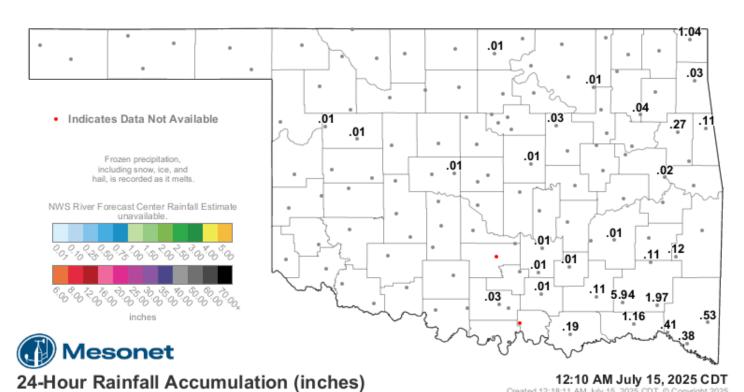


Fig. 18. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 12:10 am CDT 07/15/2025.

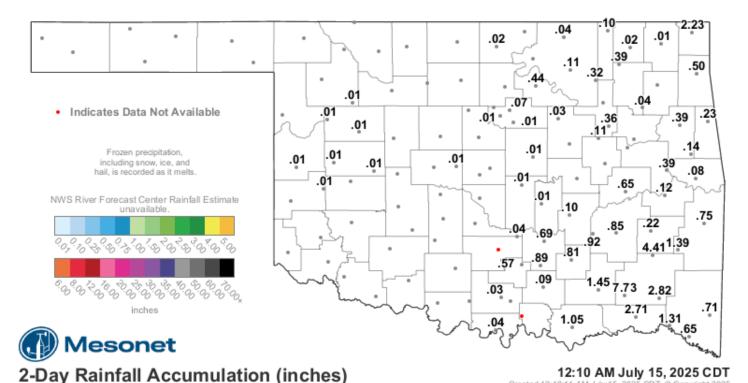


Fig. 19. OK Mesonet (values) and NWS RFC rainfall estimate (image) 48-hour rainfall ending at 12:10 am CDT 07/15/2025.

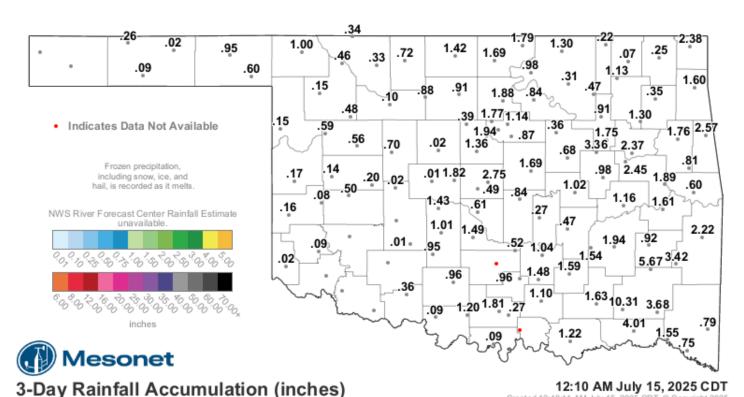


Fig. 20. OK Mesonet (values) and NWS RFC rainfall estimate (image) 72-hour rainfall ending at 12:10 am CDT 07/15/2025.

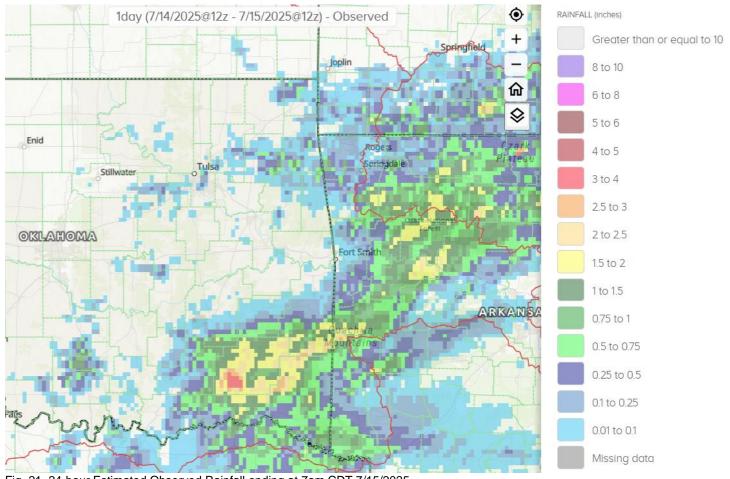


Fig. 21. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/15/2025.

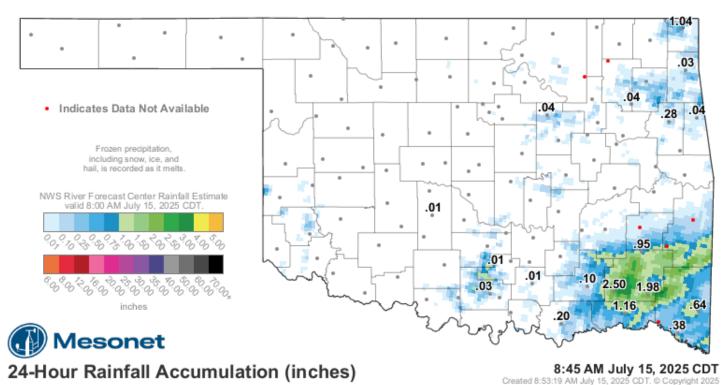


Fig. 22. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 8:45 am CDT 07/15/2025.

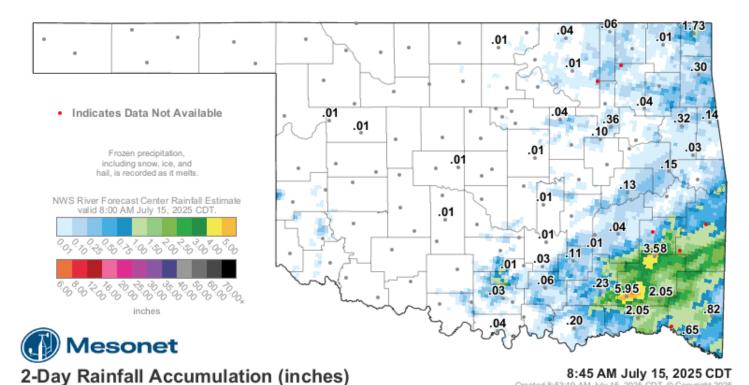


Fig. 23. OK Mesonet (values) and NWS RFC rainfall estimate (image) 48-hour rainfall ending at 8:45 am CDT 07/15/2025.

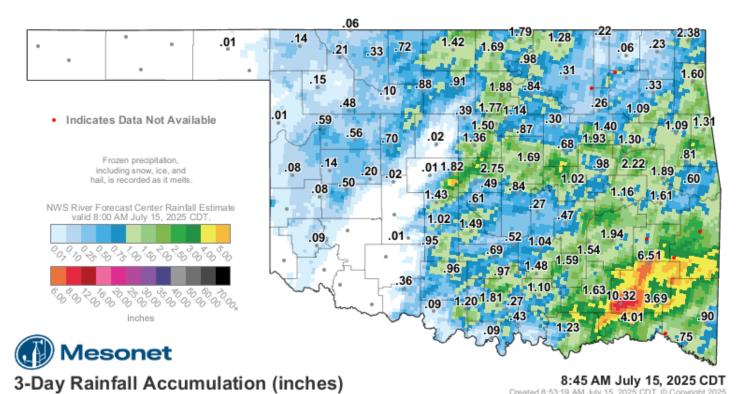


Fig. 24. OK Mesonet (values) and NWS RFC rainfall estimate (image) 72-hour rainfall ending at 8:45 am CDT 07/15/2025.

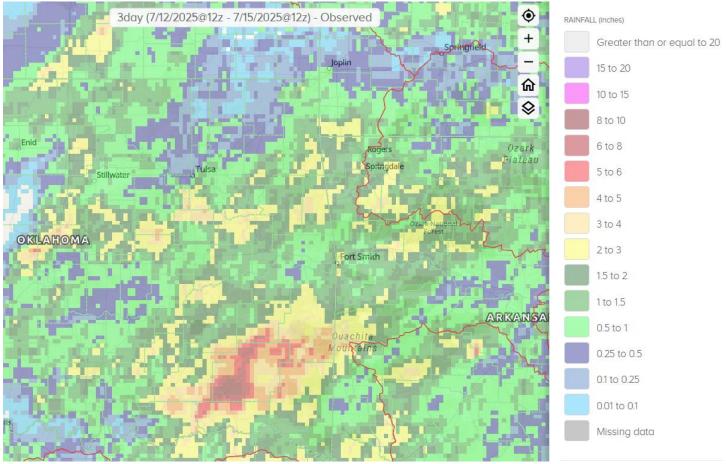


Fig. 25. 72-hour Estimated Observed Rainfall ending at 7am CDT 7/15/2025.

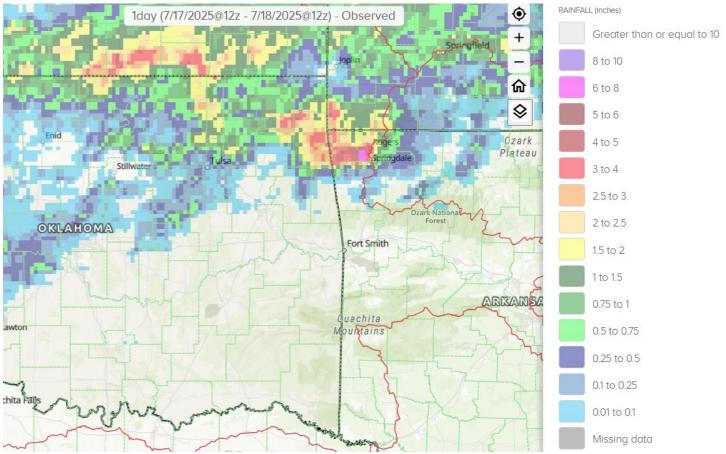


Fig. 26. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/18/2025.

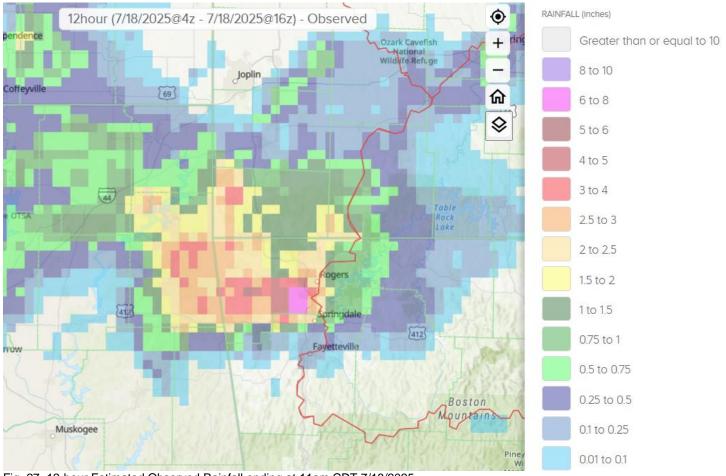


Fig. 27. 12-hour Estimated Observed Rainfall ending at 11am CDT 7/18/2025.

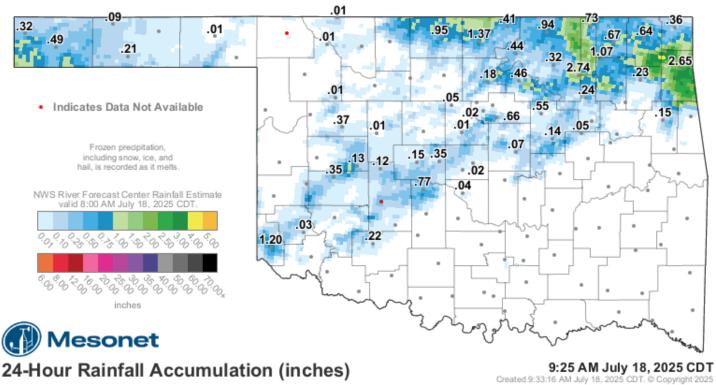


Fig. 28. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 9:25 am CDT 07/18/2025.

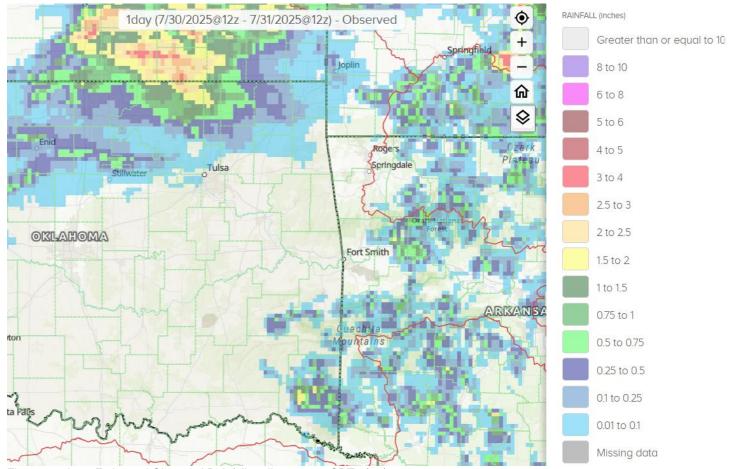


Fig. 29. 24-hour Estimated Observed Rainfall ending at 7am CDT 7/31/2025.

A thunderstorm complex that stretched from north central OK into eastern KS drifted south across the state line, affecting the border counties of northeast OK mid-morning of the 17th. While the rain had dissipated by noon, an outflow boundary remained stretched across northeast OK into northwest AR from the storm complex. As a mid-level wave moved into the area during the afternoon, an isolated thunderstorm moved northeast along I-44. As the wave got closer and the low-level jet increased during the evening, clusters of showers and thunderstorms developed across northeast OK and northwest AR, primarily along and north of Highway 412. High rainfall rates and training thunderstorms during the late evening resulted in heavy rain across a portion of far northeast OK and far northwest AR, with much of Delaware and Benton Counties receiving 1.75"-5" of rain (Fig. 27). The Cave Springs, AR area received 6"-8" of rain (Fig. 27), leading to flash flooding. Successful water rescues of two individuals occurred on W Wagon Wheel Rd at Cross Creek in South Cave Springs. A portion of this heavy rain affected the headwaters of Flint Creek and the Illinois River, resulting in minor flooding along Flint Creek near Kansas and the Illinois River near Tahlequah (see E3 and preliminary hydrographs at the end of this report). Showers and thunderstorms continued through the overnight hours, before dissipating mid-morning of the 18th. Rainfall totals ranged from a few hundredths of an inch to near 8" (Figs. 26-28).

Showers and thunderstorms along a cold front moved out of southern KS and into the northern tier of OK counties late in the evening of the 30<sup>th</sup>. This activity continued through the overnight, slowly drifting south before dissipating north of Highway 412 by mid-morning of the 31<sup>st</sup>. Rainfall totals ranged from around one tenth of an inch to near 3" (Fig. 29).

Written by:

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## **Products issued in July 2025:**

- 26 Flash Flood Warnings (FFW)
- 17 Flash Flood Statements (FFS)
- 2 Flash/Areal Flood Watches (FFA) (9 Watch FFA CON/EXT/EXA/EXB/CAN)
- 69 Urban and Small Stream Advisories (FLS)
  - 4 Areal Flood Warnings (FLW)
- 2 Areal Flood Statements (FLS)
- 5 River Flood Warnings (FLW) (includes category increases)
- 21 River Flood Statements (FLS)
- 6 River Flood Advisories (FLS) (33 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:**

