

NWS FORM E-5 (11-88) (PRES. by NWS Instruction 10-924)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE		HYDROLOGIC SERVICE AREA (HSA) Tulsa, Oklahoma (TSA)	
MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS				REPORT FOR: MONTH August YEAR 2025	
				SIGNATURE Steven F. Piltz (Meteorologist-in-Charge)	
TO: Hydrometeorological Information Center, W/OH2 NOAA / National Weather Service 1325 East West Highway, Room 7230 Silver Spring, MD 20910-3283				DATE September 30, 2025	

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.

Localized heavy rainfall resulted in some flash flooding in August 2025, but no river flooding occurred this month at NWS River Forecast Points. This report, past E-5 reports, and monthly hydrology and climatology summaries can be found at https://www.weather.gov/tsa/climo_summary_e5list.

Monthly Summary

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 1a), rainfall totals for August 2025 ranged from around 1” to 11” across eastern OK and northwest AR, with much of the area receiving 2”-4”. These rainfall totals correspond to 40% to 300% of the normal August rainfall (Fig. 1b).

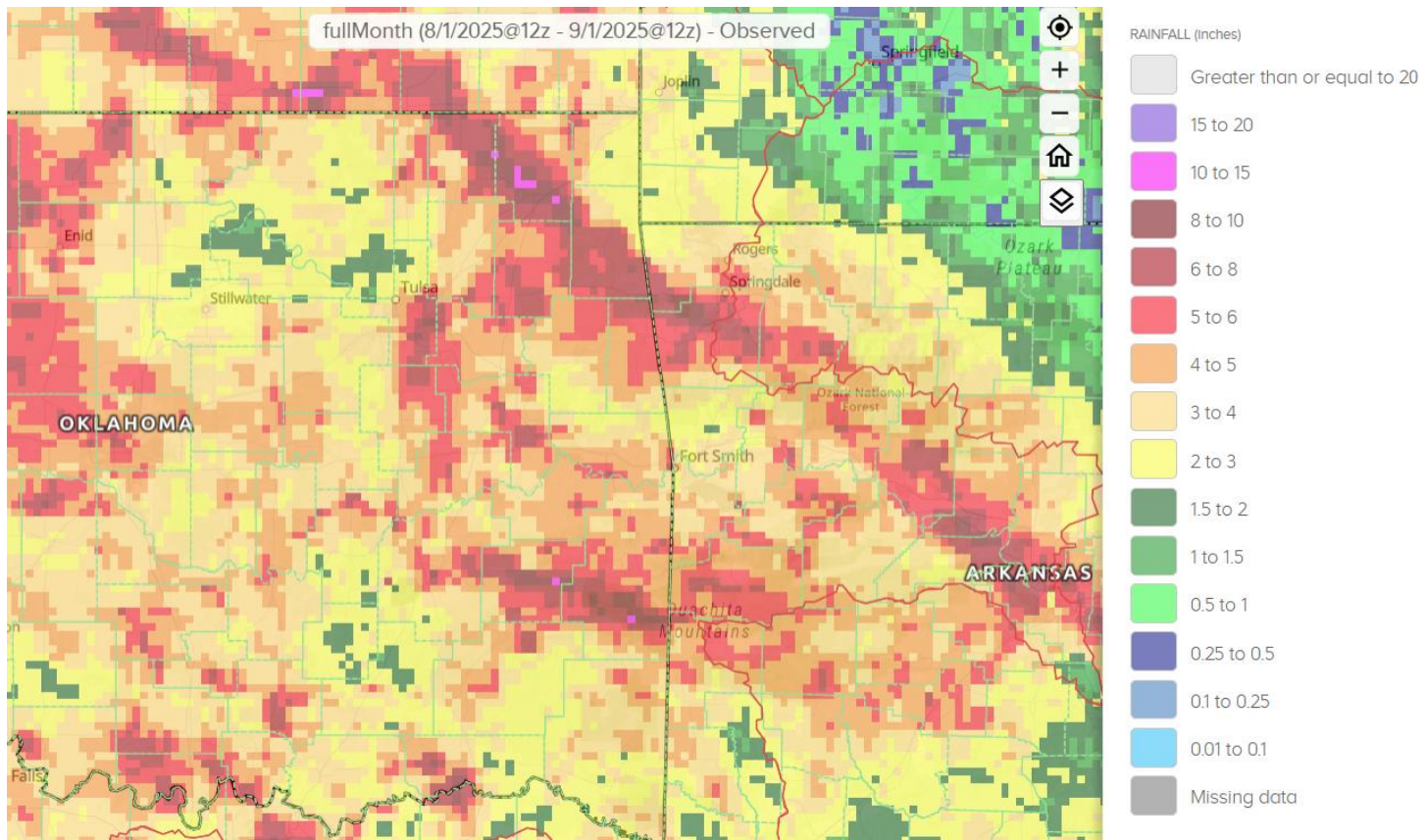


Fig. 1a. Estimated Observed Rainfall for August 2025

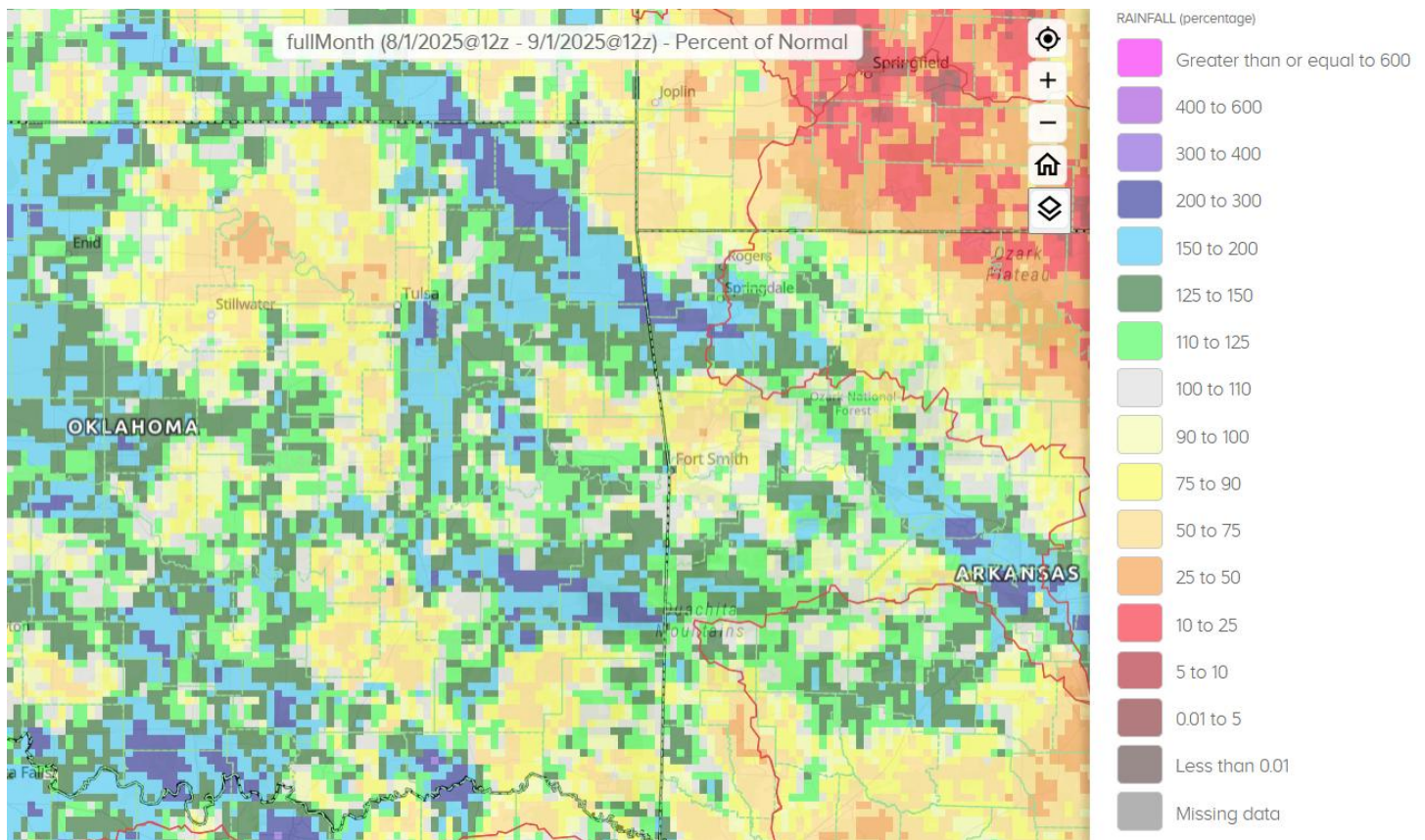


Fig. 1b. Estimated % of Normal Rainfall for August 2025

In Tulsa, OK, August 2025 ranked as the 36th coldest August (80.6°F; since records began in 1905) and the 64th driest August (2.62"; since records began in 1888). Fort Smith, AR had the 49th warmest August (82.7°F, tied 1968, 1921; since records began in 1882) and the 56th wettest August (3.09"; since records began in 1882). Fayetteville, AR had the 29th warmest (78.1°F) and the 7th wettest (6.91") August since records began in 1949.

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

Vinita 8.6ESE, OK (coco)	9.23	Broken Arrow 4.6NNW, OK (coco)	9.07	Vinita 4.9WNW, OK (coco)	8.83
Pryor 2.2SE, OK (coco)	8.62	Tulsa 7.7SSE, OK (coco)	8.53	Farmington 0.4NNE, AR (coco)	8.38
Pryor 6.9 ESE, OK (coco)	8.17	Tulsa 12.2SE, OK (coco)	8.17	Viney Grove 2.4NW, AR (coco)	8.16

Some of the lowest precipitation reports (in inches) for August 2025 included:

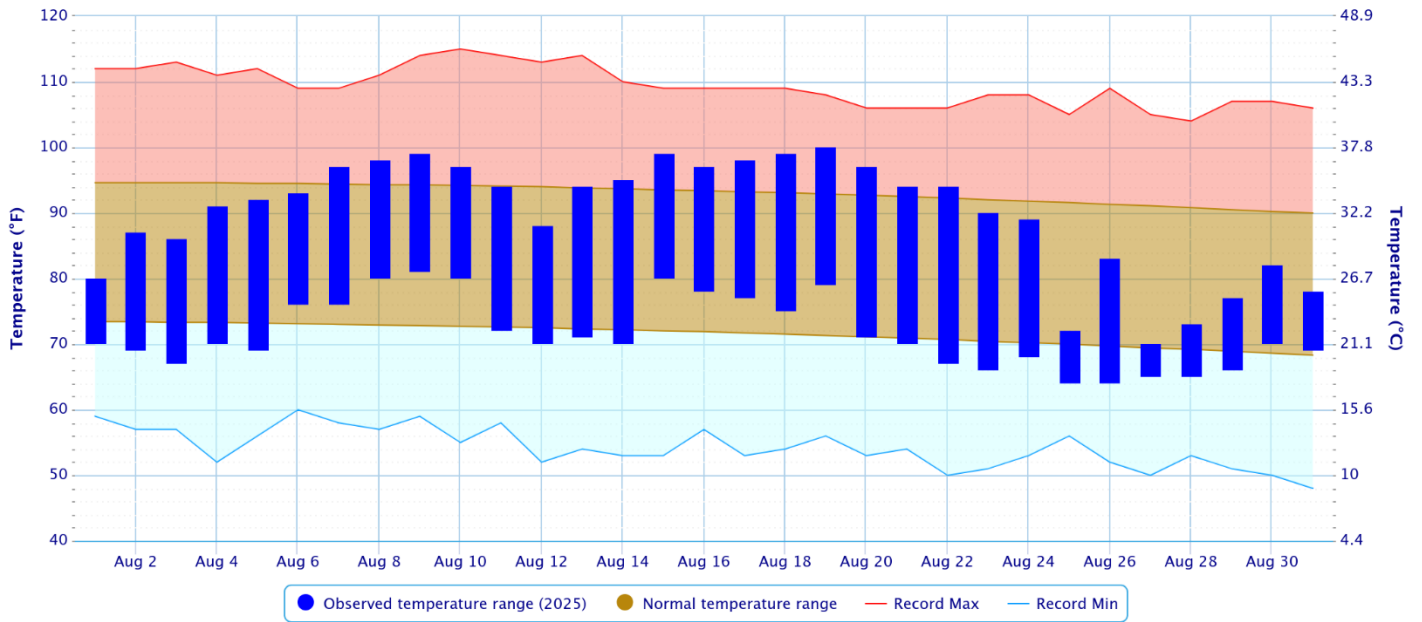
Cloudy, OK (meso)	1.85	Pawnee, OK (meso)	2.04	Hugo, OK (meso)	2.04
Green Forest 7NNE, AR (coop)	2.17	Skiatook, OK (meso)	2.20	Foraker, OK (meso)	2.45
Antlers 6.3SE, OK (coco)	2.51	Cookson, OK (meso)	2.55	Burbank, OK (meso)	2.56

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

Rank since 1921	Last 30 Days (Aug 2-31)	Summer 2025 (Jun 1 – Aug 31)	Last 60 Days (Jul 3 – Aug 31)	Growing Season-to-Date (Mar 1 – Aug 31)	Year-to-Date (Jan 1 – Aug 31)	Water Year-to-Date (Oct 1, 2024 – Aug 31, 2025)	Last 365 Days (Sep 1, 2024 – Aug 31, 2025)
Northeast OK	44 th wettest	7th wettest	46 th wettest	5th wettest	5th wettest	6th wettest	9th wettest
East Central OK	28 th wettest	8th wettest	28 th wettest	3rd wettest	4th wettest	4th wettest	6th wettest
Southeast OK	35 th wettest	22 nd wettest	21 st wettest	10th wettest	13 th wettest	14 th wettest	18 th wettest
Statewide	16 th wettest	9th wettest	29 th wettest	4th wettest	5th wettest	4th wettest	9th wettest

Daily Temperature Data – Tulsa Area, OK (ThreadEx)

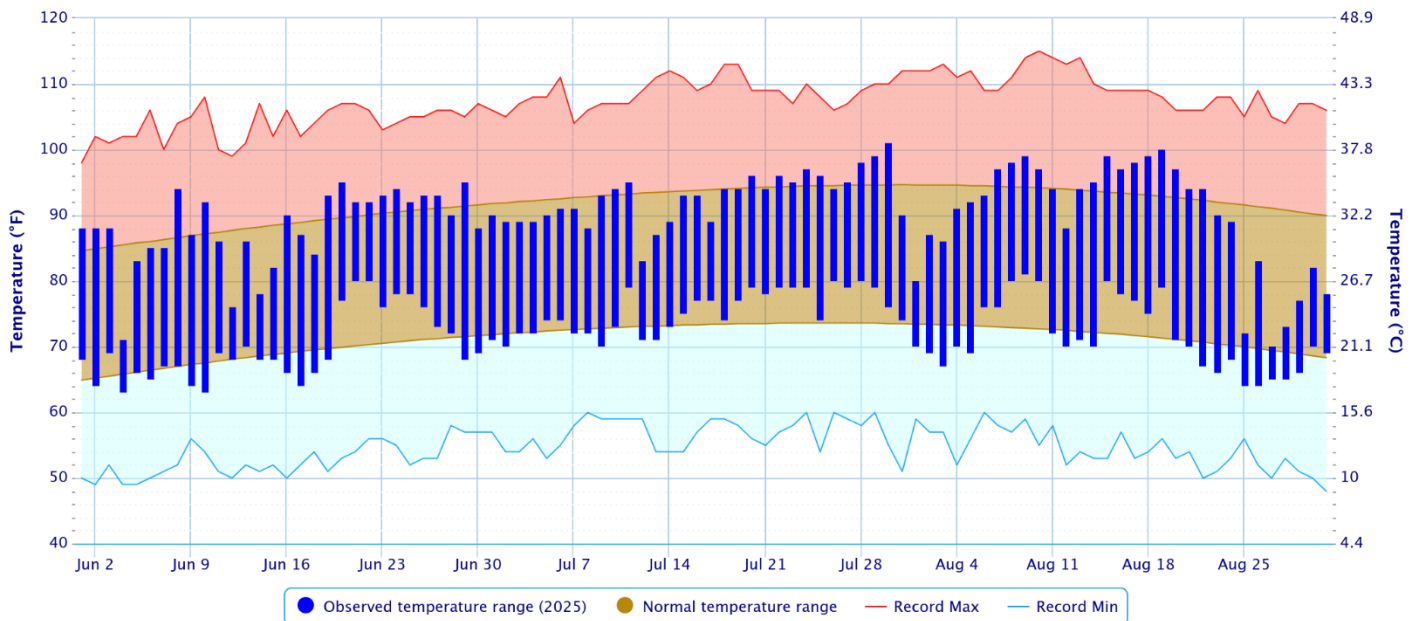
Period of Record – 1905-01-06 to 2025-10-23. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

Daily Temperature Data – Tulsa Area, OK (ThreadEx)

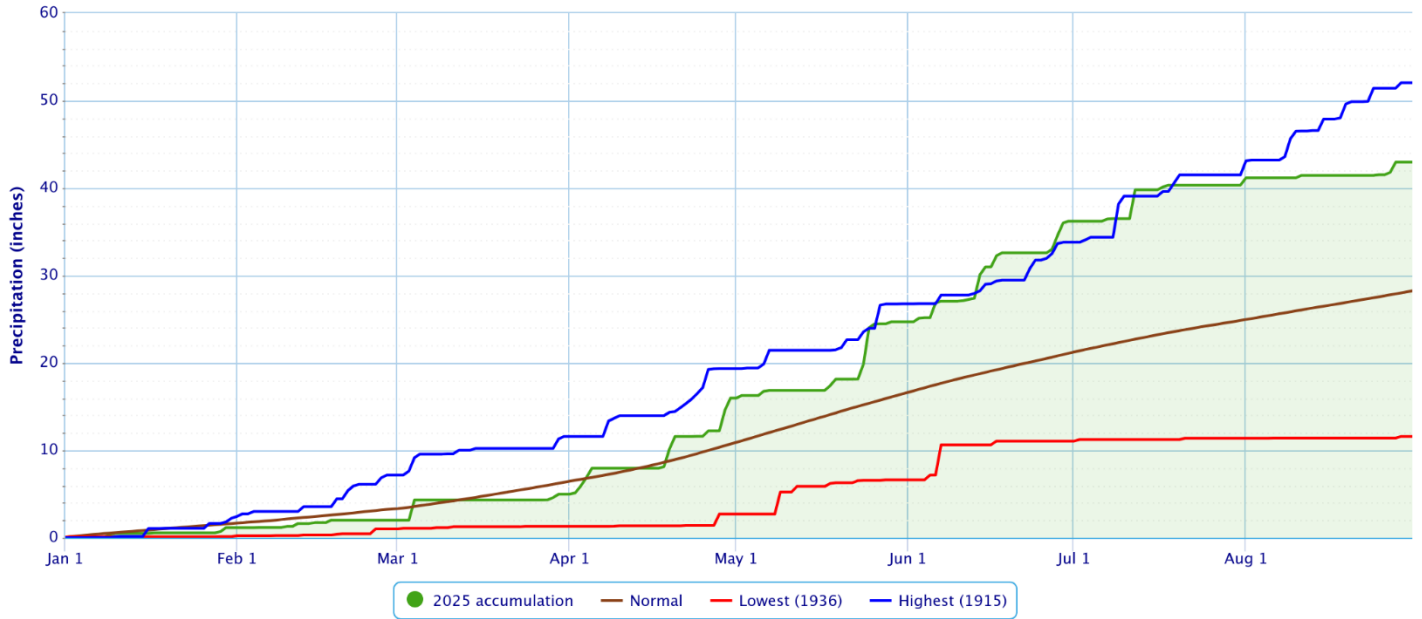
Period of Record – 1905-01-06 to 2025-10-23. Normals period: 1991-2020. Click and drag to zoom chart.



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Accumulated Precipitation – Tulsa Area, OK (ThreadEx)

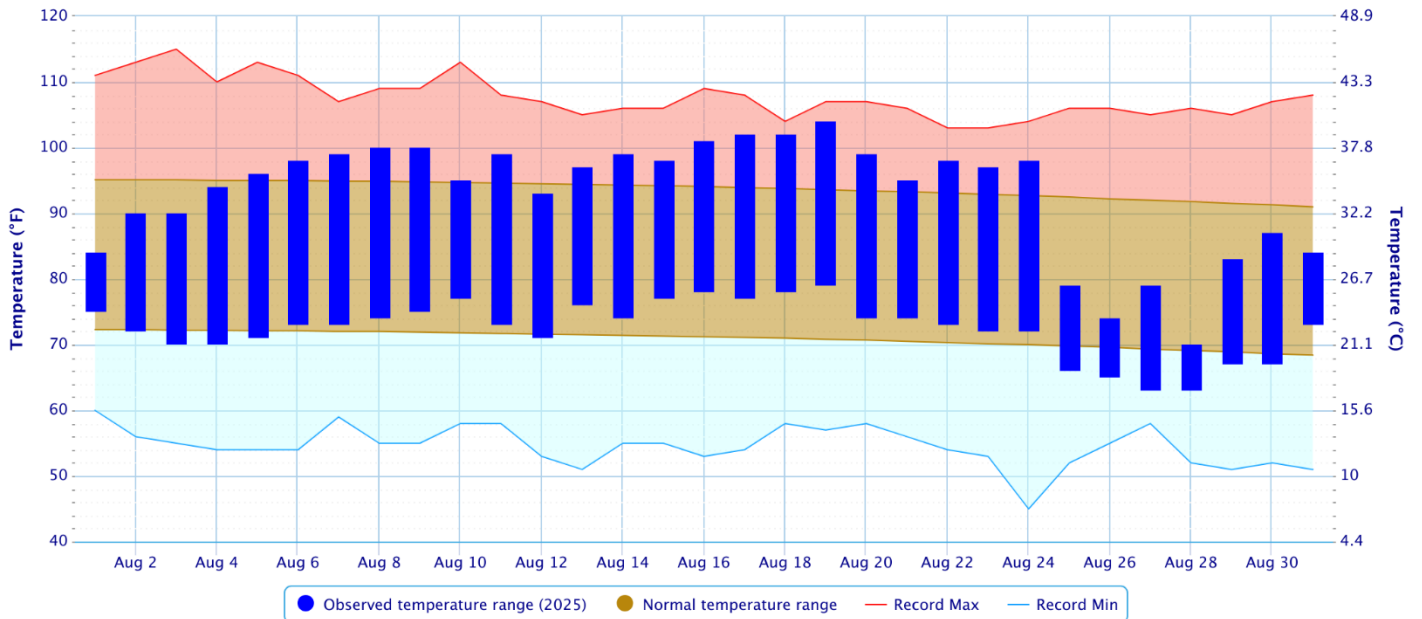
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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

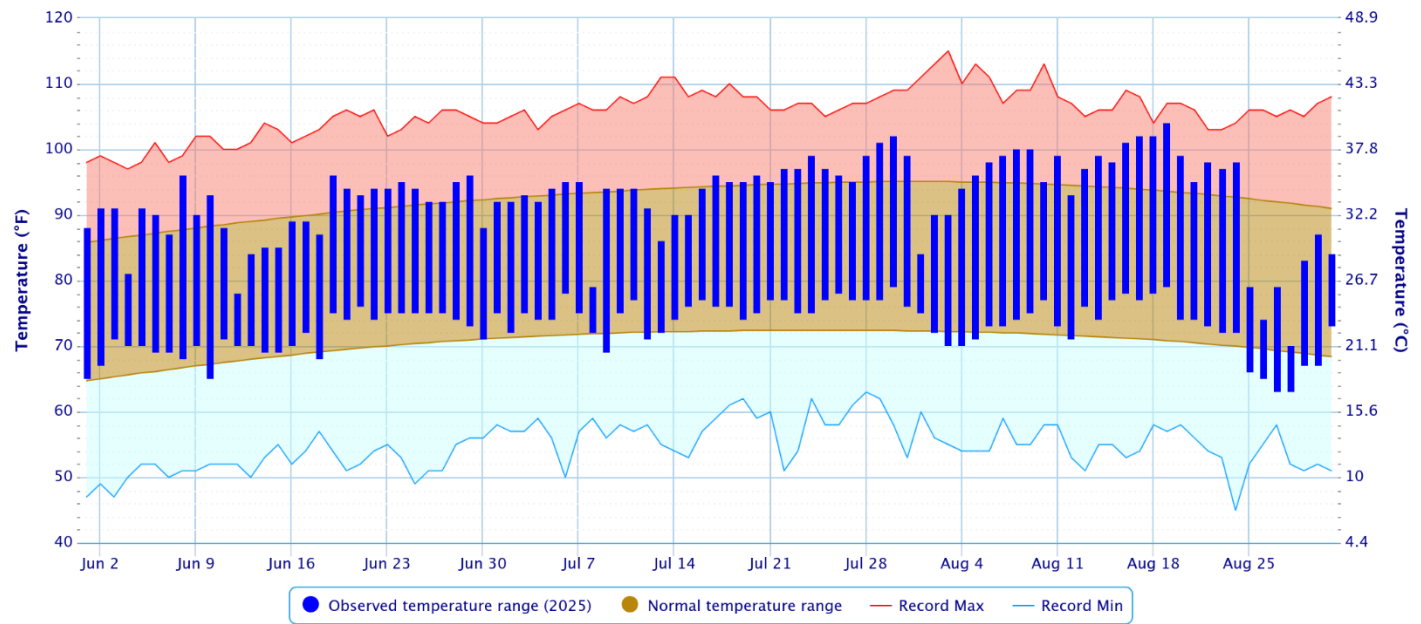
Period of Record – 1882-06-01 to 2025-10-23. Normals period: 1991-2020. Click and drag to zoom chart.



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

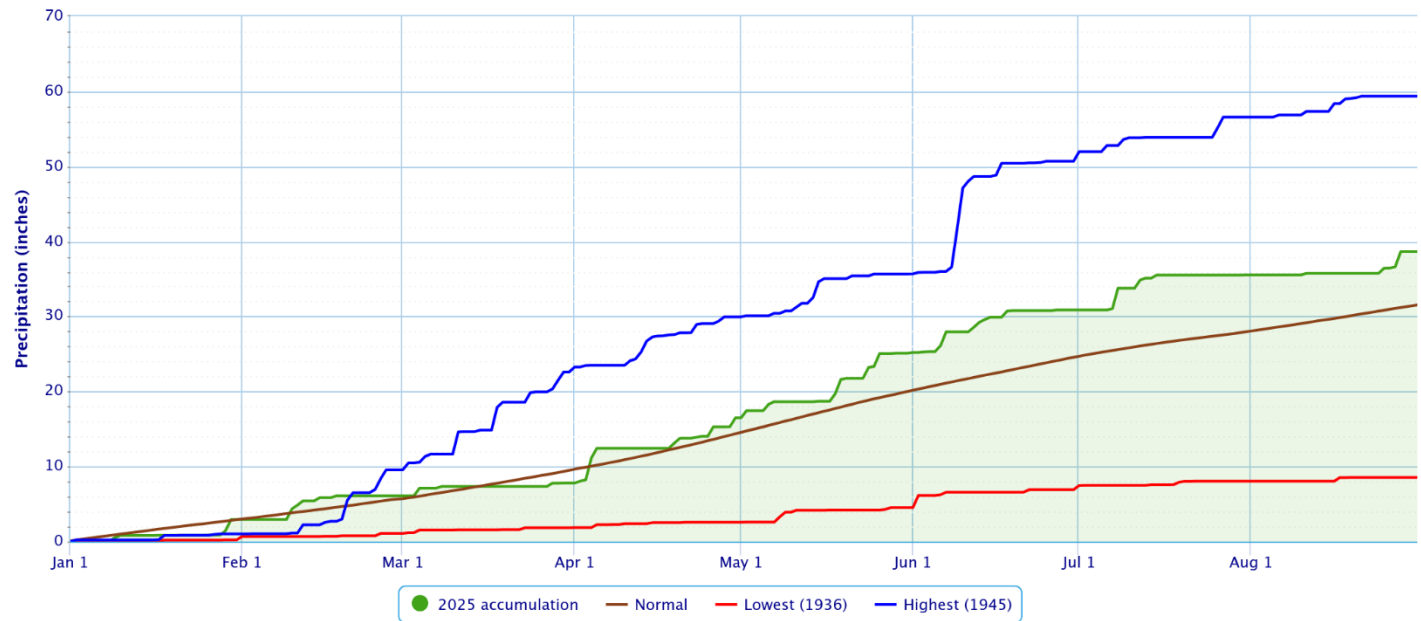
Period of Record – 1882-06-01 to 2025-10-23. Normals period: 1991-2020. Click and drag to zoom chart.



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Accumulated Precipitation – Fort Smith Area, AR (ThreadEx)

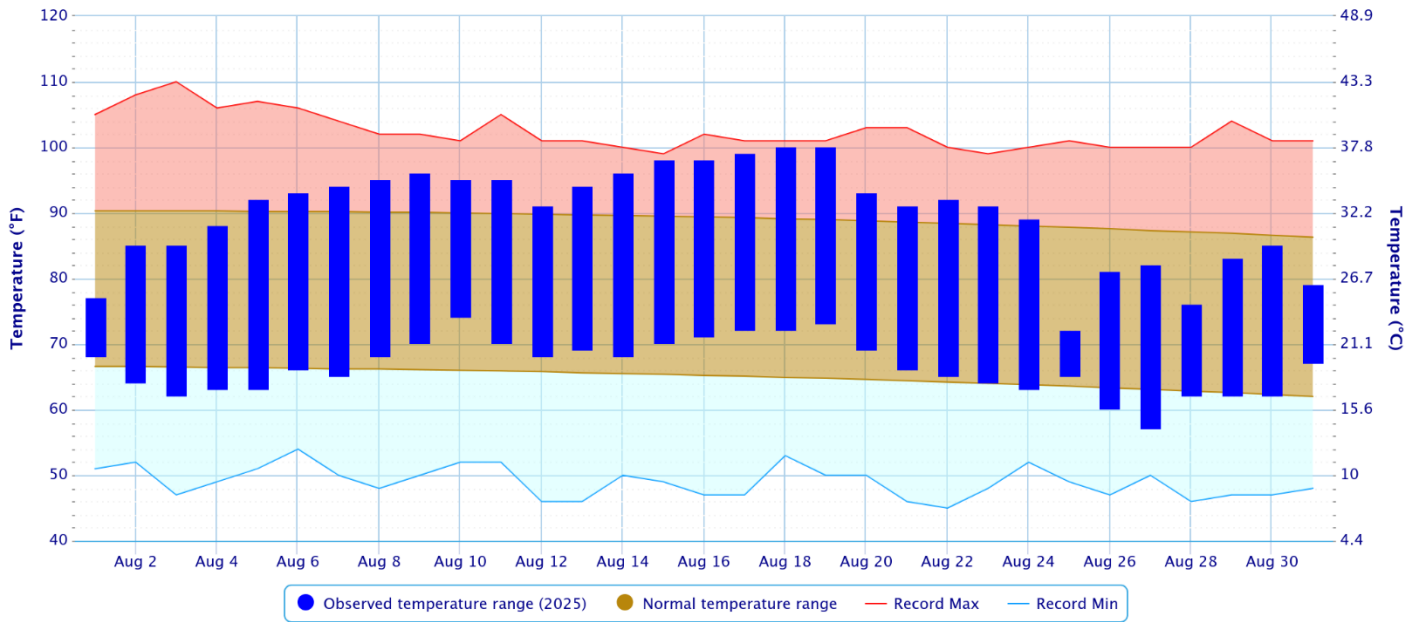
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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Daily Temperature Data – FAYETTEVILLE DRAKE FIELD, AR

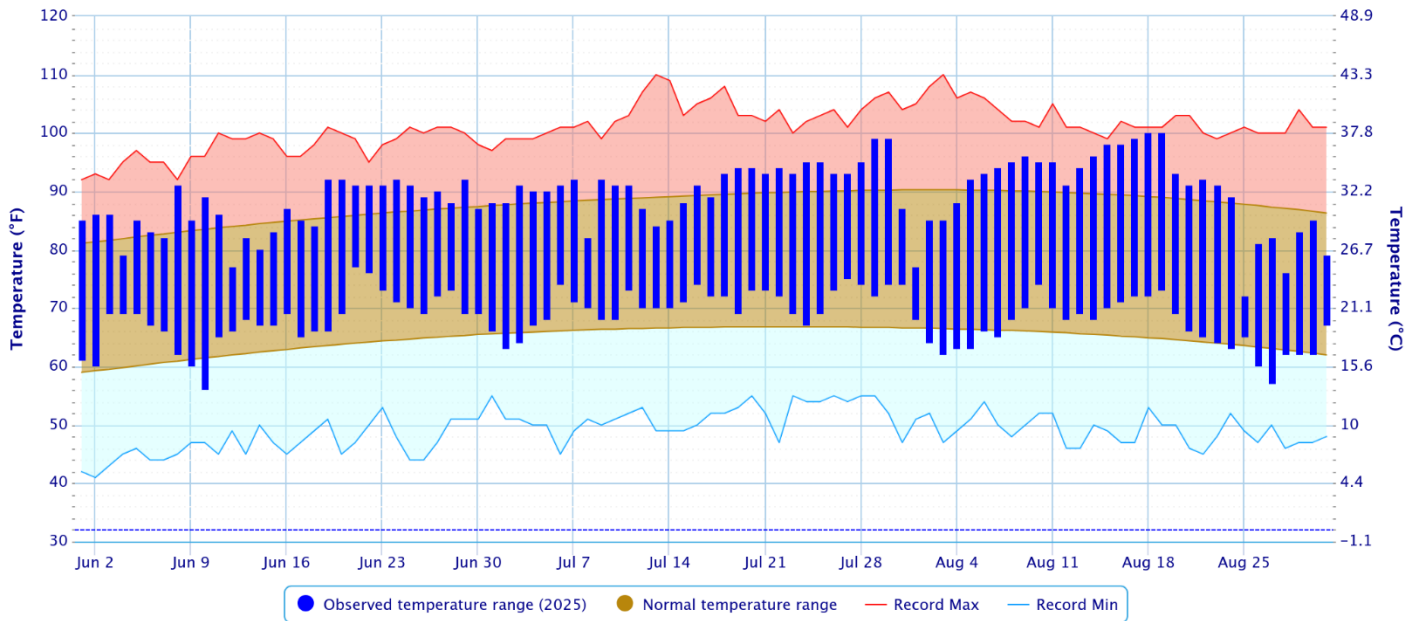
Period of Record – 1949-07-14 to 2025-10-23. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

Daily Temperature Data – FAYETTEVILLE DRAKE FIELD, AR

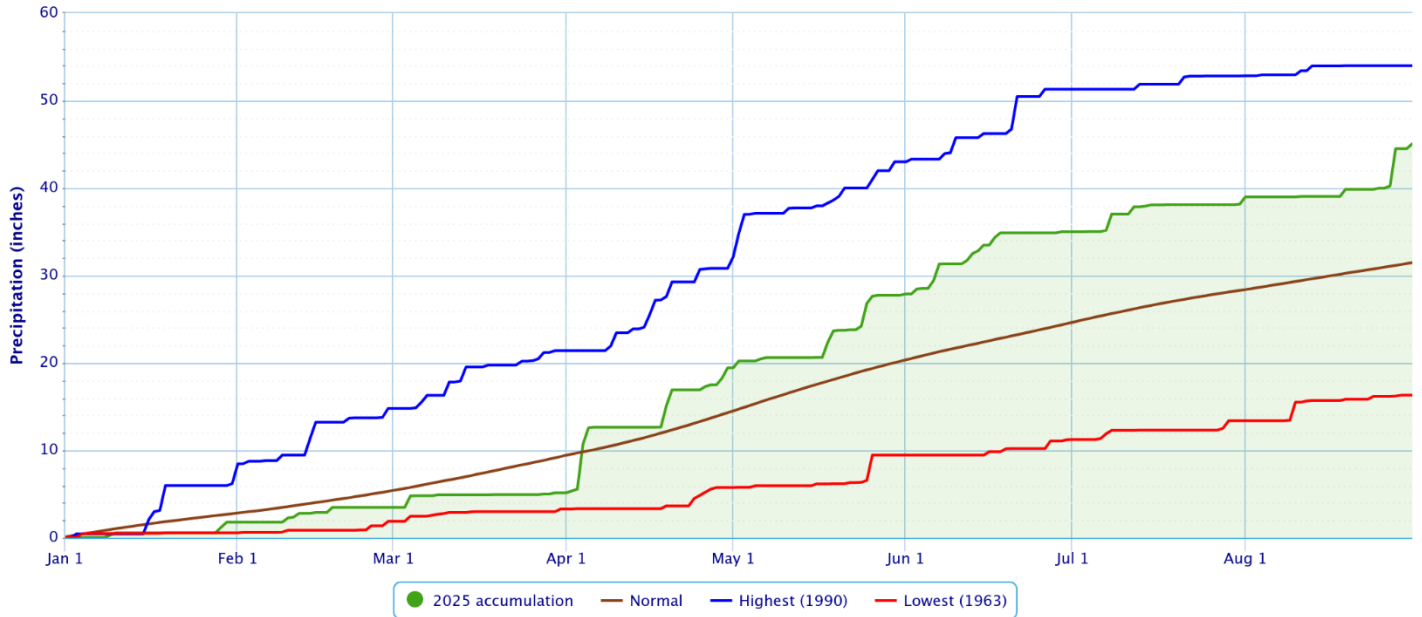
Period of Record – 1949-07-14 to 2025-10-23. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

Accumulated Precipitation – FAYETTEVILLE DRAKE FIELD, AR

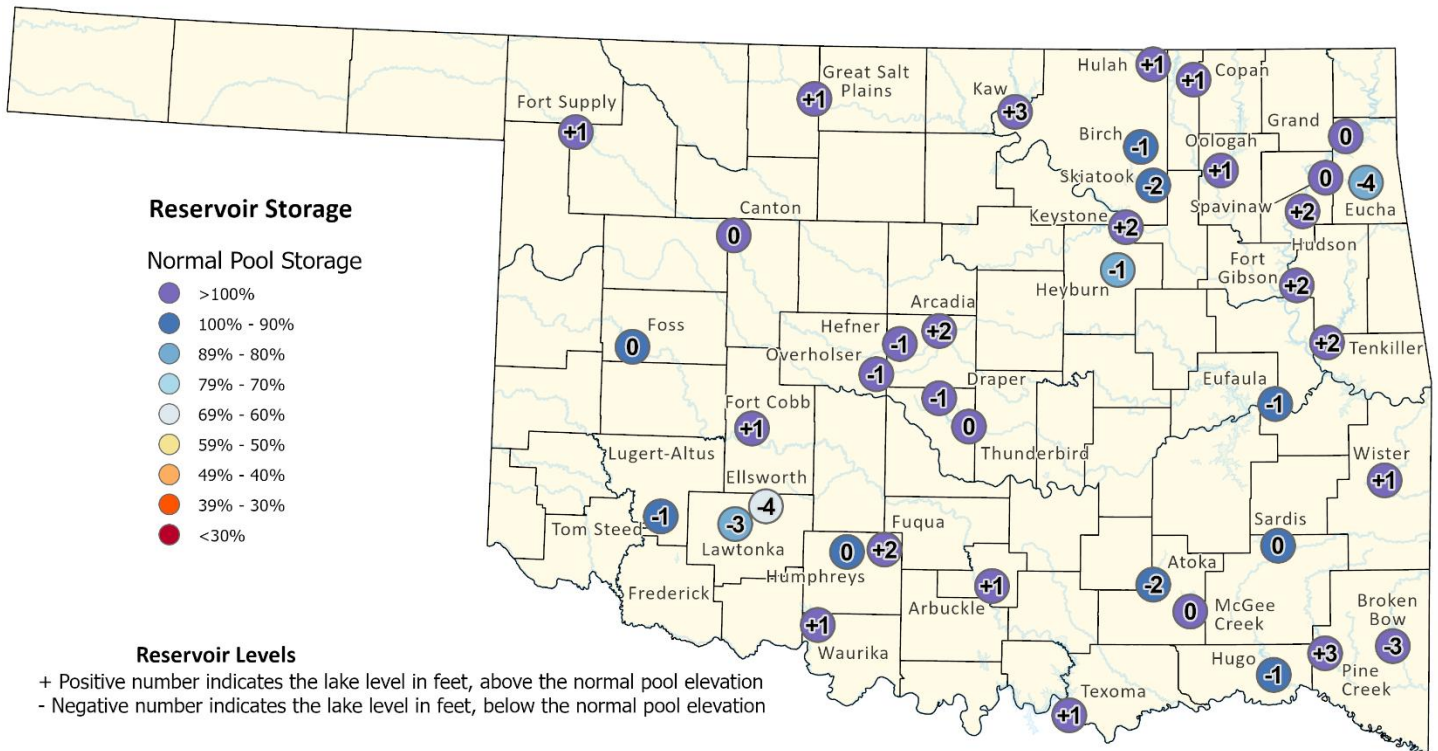
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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Reservoirs

Oklahoma Reservoir Levels and Storage as of 9/2/2025



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 (https://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf), and the U.S. Geological Survey (https://waterdata.usgs.gov/ok/nwis/current/?type=lake&group_key=basin_cd).
For more information please visit the OWRB's website: (<https://www.owrb.ok.gov/>).



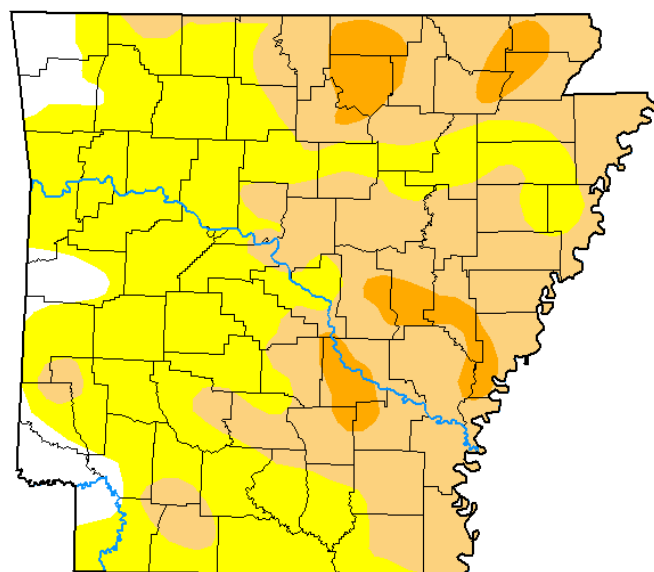
0 50 Miles



Fig. 2. Drought Monitor for Oklahoma

U.S. Drought Monitor Arkansas

September 2, 2025
(Released Thursday, Sep. 4, 2025)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	5.83	94.17	47.04	6.92	0.00	0.00
Last Week 08-26-2025	6.13	93.87	60.75	6.34	0.00	0.00
3 Months Ago 06-03-2025	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 01-01-2025	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 09-03-2024	21.77	78.23	22.85	3.48	0.00	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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:

David Simeral
Western Regional Climate Center



droughtmonitor.unl.edu

Fig. 3. Drought Monitor for Arkansas

Summer 2025 (June-July-August) Summary

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 4a), rainfall totals for Summer 2025 ranged from around 7" to 26" across eastern OK and northwest AR, with much of the area receiving 10"-15". These rainfall totals correspond to 65% to 200% of the normal summer rainfall (Fig. 4b).

In Tulsa, OK, Summer 2025 ranked as the 59th coldest Summer (81.1°F, tied 1966; since records began in 1905) and the 11th wettest Summer (18.26"; since records began in 1888). Fort Smith, AR had the 16th warmest Summer (82.8°F, tied 2016; since records began in 1882) and the 36th wettest Summer (13.53"; since records began in 1882). Fayetteville, AR had the 10th warmest (78.7°F, tied 2012, 1952) and the 6th wettest (17.33") Summer since records began in 1950.

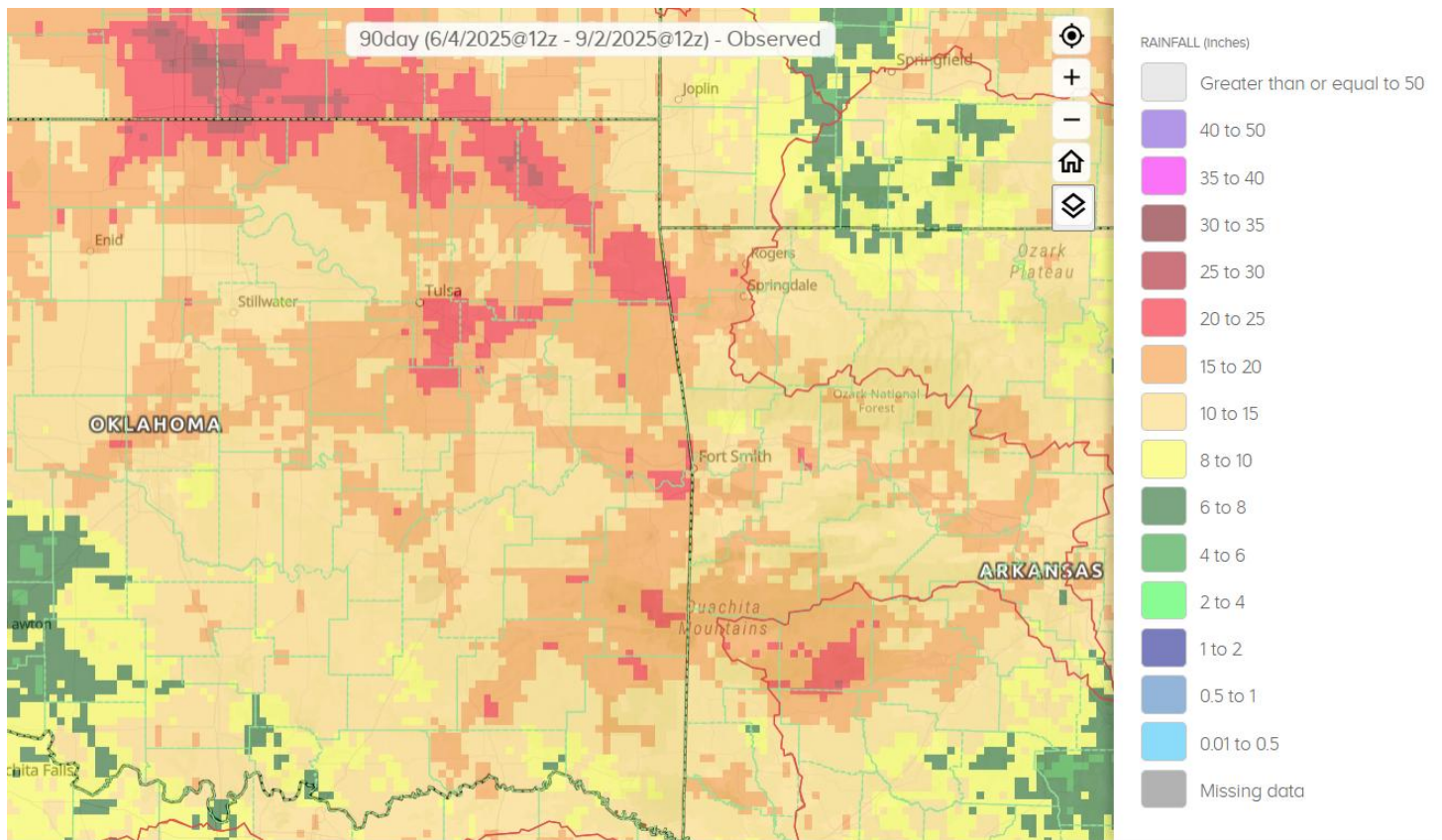


Fig. 4a. Estimated Observed 90-day Rainfall for 7am CDT June 4 through 7am CDT September 2, 2025

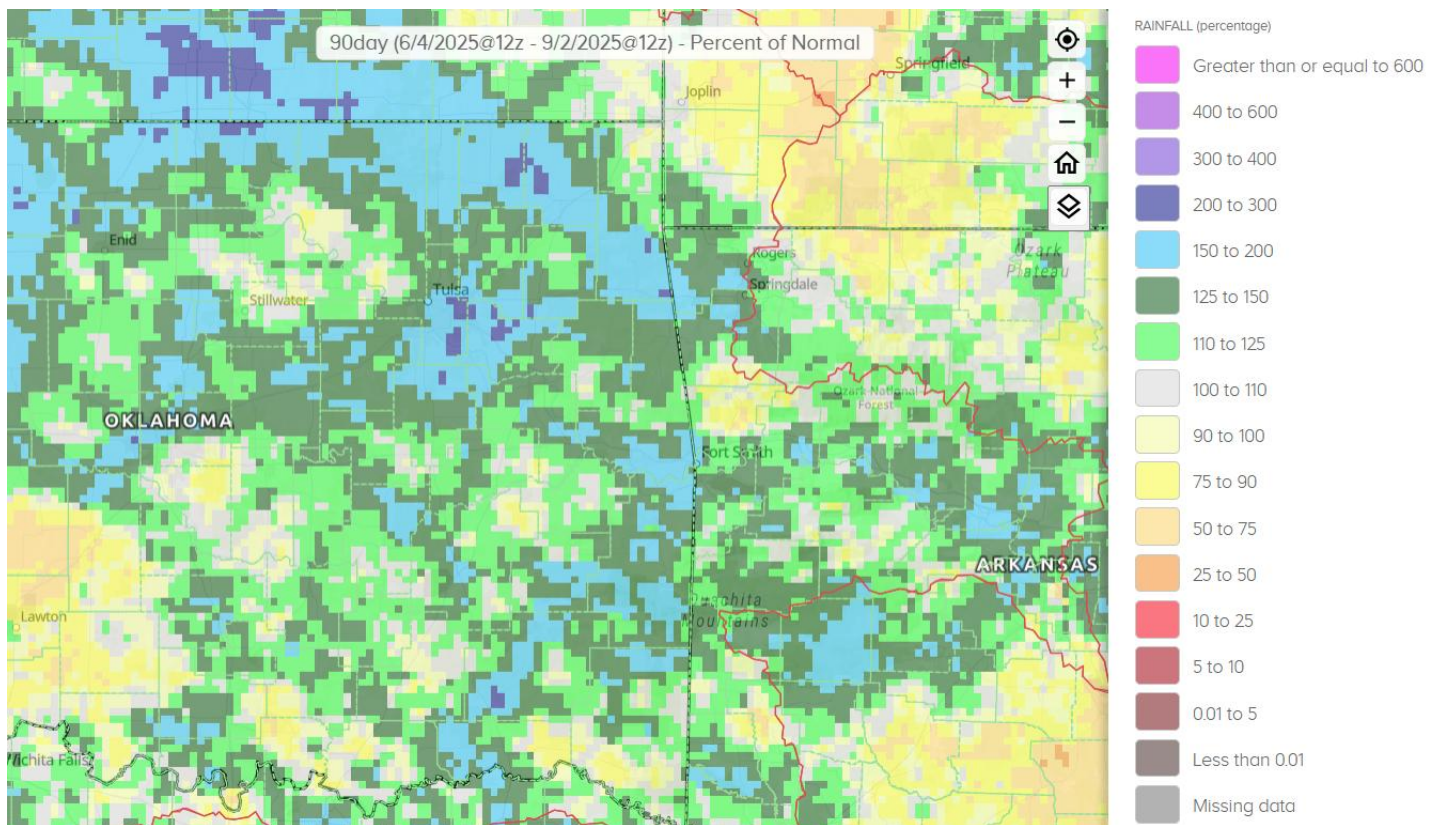


Fig. 4b. Estimated % of Normal 90-day Rainfall for 7am CDT June 4 through 7am CDT September 2, 2025

Outlooks

The [Climate Prediction Center](#) (CPC) outlook for September 2025 (issued August 31, 2025) indicates equal chances for above, near, and below normal temperatures across all of eastern OK and northwest AR. This outlook also indicates an enhanced chance for above median precipitation northwest of I-44 and equal chances for above, near, and below median precipitation elsewhere across 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 September-October-November 2025, CPC is forecasting an enhanced chance for above normal temperatures and a slightly enhanced chance for below median precipitation across all of eastern OK and northwest AR (outlook issued August 21, 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, a brief period of La Niña conditions is favored in the fall and early winter 2025-26 before reverting to ENSO-neutral."

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

Widely scattered convection developed across the higher terrain areas of southeast OK and northwest AR during the afternoon and evening hours of July 31 as outflow boundaries and a cold front continued to move south across the region. These storms dissipated by late evening with the loss of daytime heating. Around 2am CDT on August 1, showers and thunderstorms redeveloped near I-44 in response to a mid-level vorticity maximum combined with an 850-700mb frontal boundary. Deeper moisture pooling along this elevated boundary aided in precipitable water (PWAT) values around 2". This activity continued over roughly the same area through sunrise, and then began to slowly shift east. Some street flooding was reported in Tulsa, OK. Through 7am CDT August 1, rainfall totals ranged from 0.10" to near 5" (Figs. 5, 6). Showers and thunderstorms then affected locations in northeast OK and northwest AR between Interstates 44 and 40 through mid-afternoon. The vorticity maximum and elevated front continued to track southeast during the afternoon, with the deeper moisture plume shifting south with them. Isolated thunderstorms affected southeast OK from mid-afternoon through late evening along and ahead of the boundary. A remnant mesoscale convective vortex (MCV) tracked east along the Red River during the early morning hours of the 2nd, igniting some additional showers and thunderstorms along the weakening boundary over southeast OK. This rain ended by mid-morning. 24-hour rainfall totals through 7am August 2 were 0.25" to 6.5" (Fig. 7).

An outflow boundary left over from early morning convection near the OK/KS border provided the focus for rapid thunderstorm development across northeast OK on the afternoon of the 11th. Training of storms occurred through the afternoon and early evening hours before the convection shifted to the southeast and impacted southeast OK and northwest AR through the evening hours. This convection moved south of the area shortly after midnight of the 12th. Just before sunrise, some scattered convection developed over northeast OK, affecting the area through the morning hours. Rainfall totals ranged from 0.10" to 6.5" (Figs. 8, 9).

During the early morning hours of the 19th, a cluster of thunderstorms developed over Osage, Washington, and Nowata Counties in northeast OK, along a leftover outflow boundary, due to the influence of the southern portion of a mid-level shortwave that was moving east-southeast through the Midwest. These storms produced 0.50" to 3" of rain before dissipating by late morning (Fig. 10). Hot and humid conditions were in place over the region, creating enough instability that weak forcing from an approaching shortwave trough kicked off isolated to widely scattered showers and thunderstorms across eastern OK and northwest AR during the afternoon and evening hours. While most of the convection ended by late evening, some storms remained over southeast OK through the early morning hours of the 20th. Rainfall totals ranged from a few hundredths of an inch to around 2" (Fig. 11).

A mesoscale convective system (MCS) entered eastern OK just before dawn on the 25th and tracked southeast across eastern OK and northwest AR through the morning. An upper-level shortwave trough was also moving into the region, resulting in showers and isolated thunderstorms persisting through the afternoon and evening hours. A quasi-stationary front over central TX was slowly lifting north during the evening hours. Mid-level warm air advection and isentropic lift over the front initiated a band of showers with isolated thunderstorms across southeast OK around midnight. This band lifted north to near I-40 during the overnight and morning hours of the 26th, before retreating back to the south in the afternoon. Rainfall totals were 0.50" to near 4" southwest of a Tulsa to Fort Smith line (Figs. 12, 13).

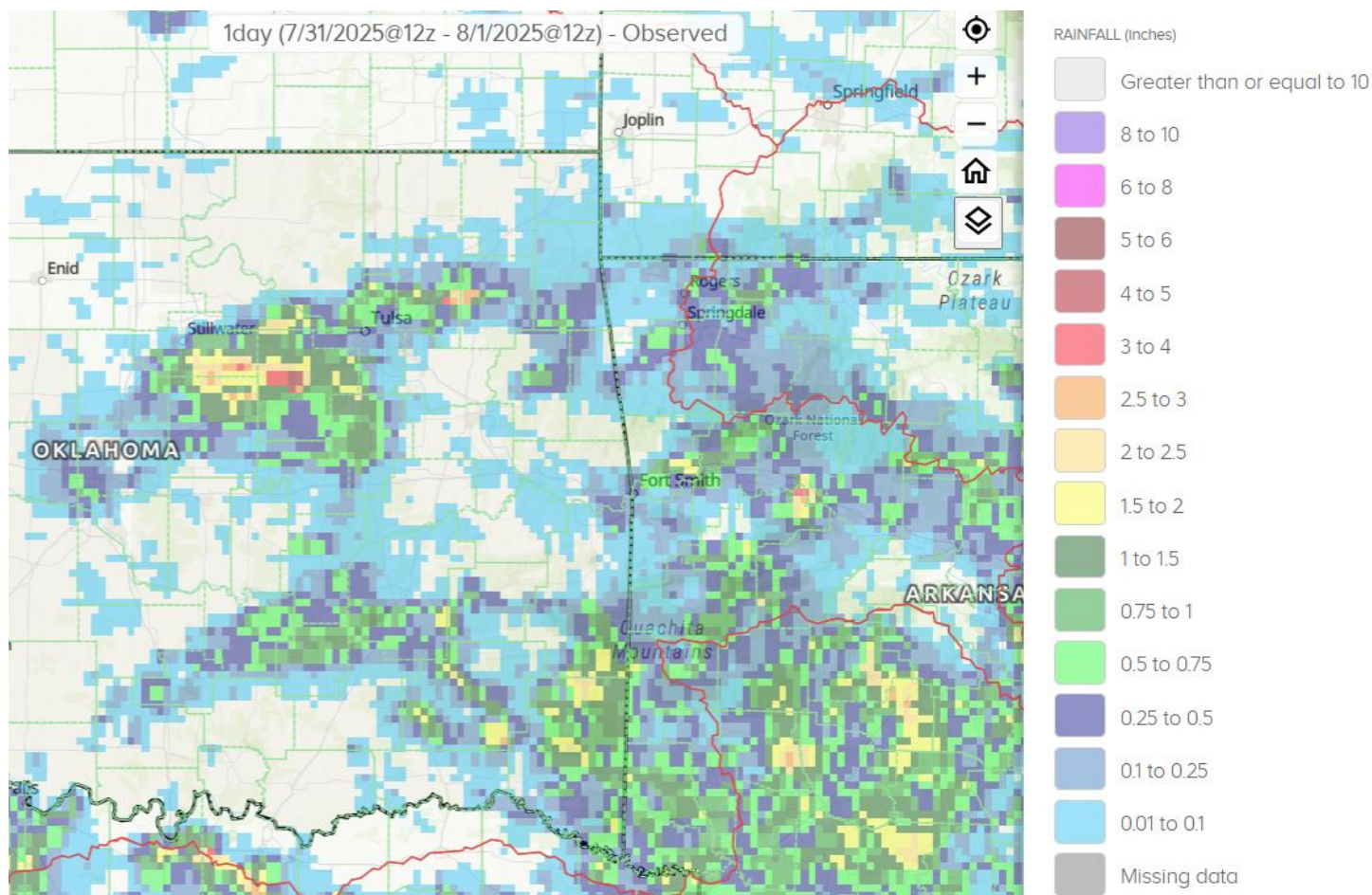


Fig. 5. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/01/2025.

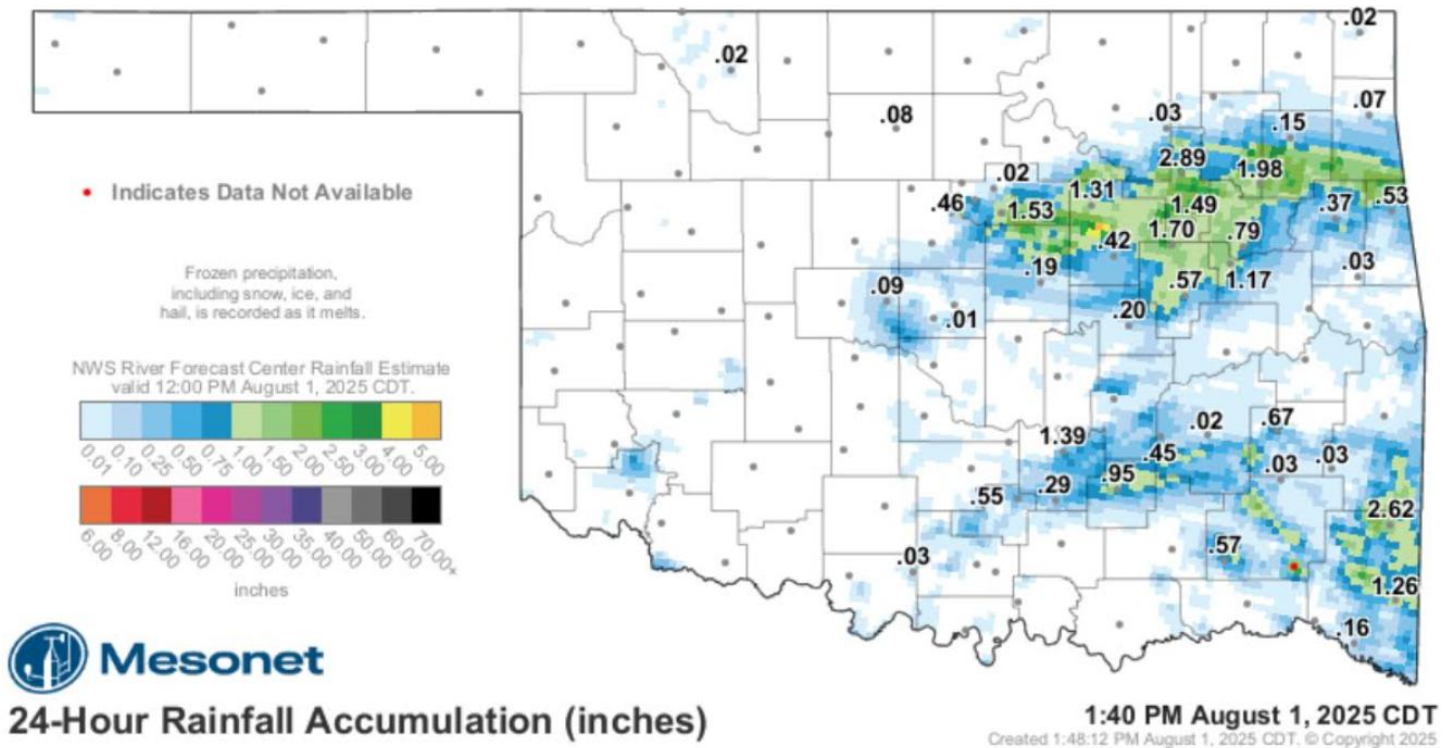


Fig. 6. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 1:40 pm CDT 08/01/2025.

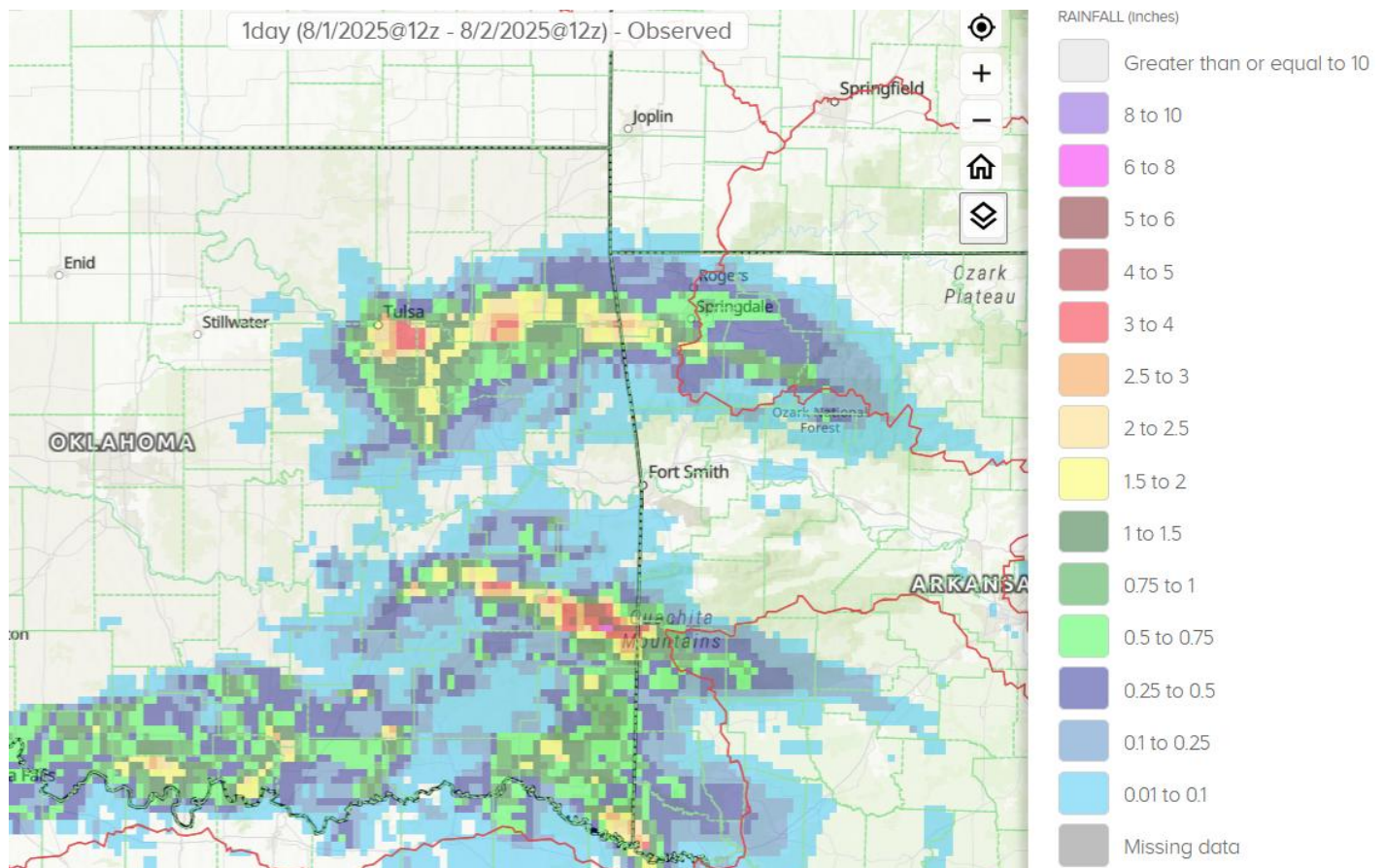


Fig. 7. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/2/2025.

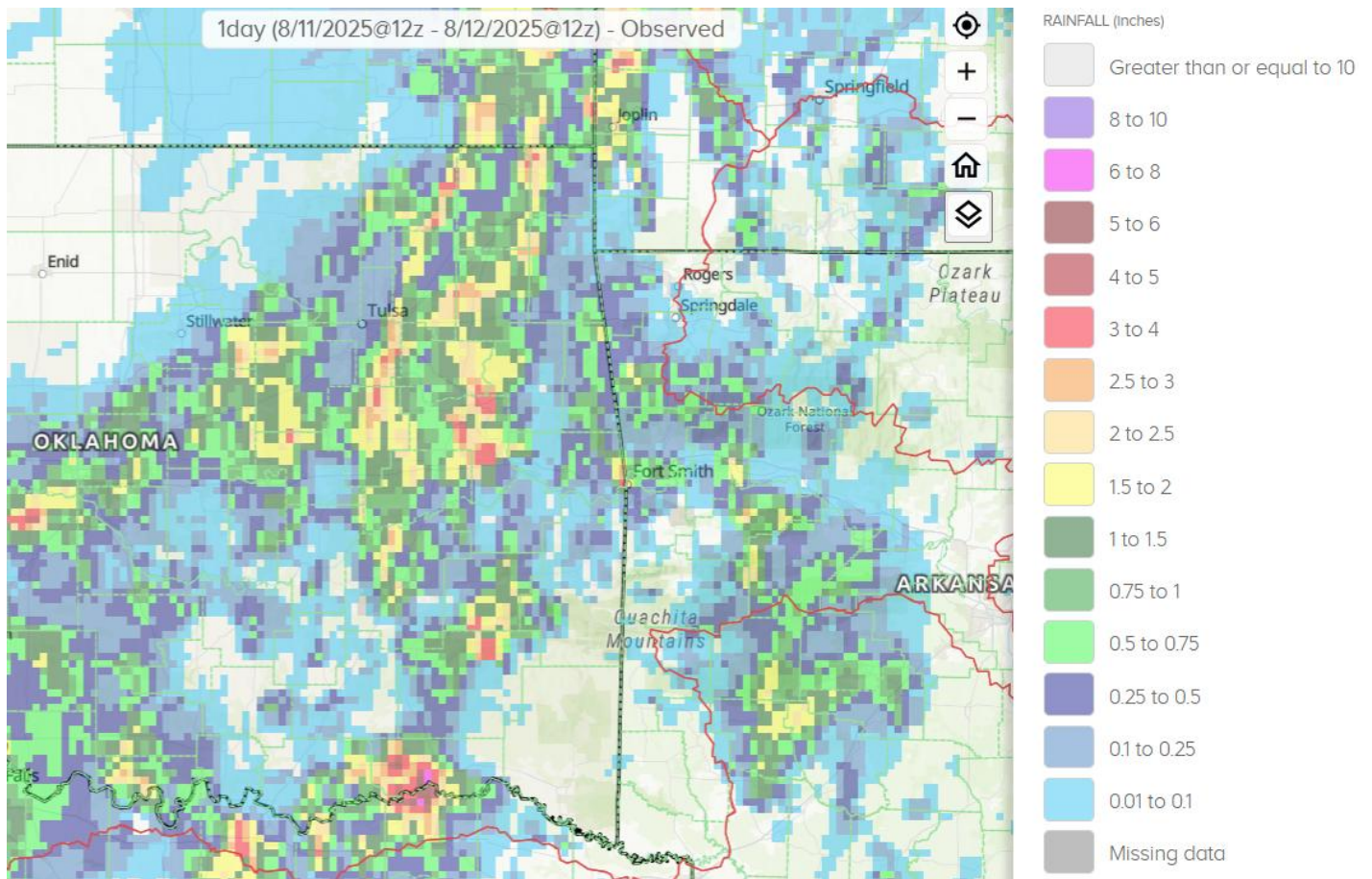


Fig. 8. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/12/2025.

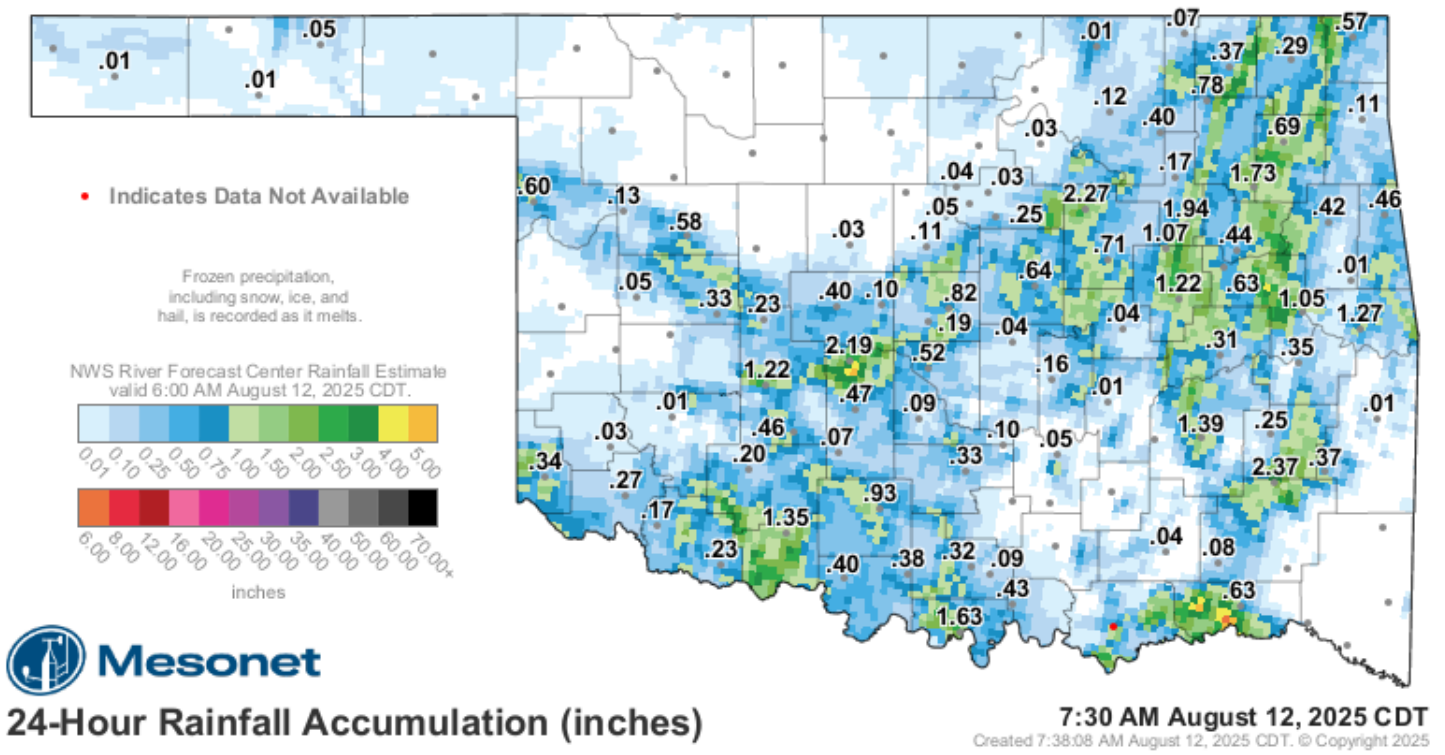


Fig. 9. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 7:30 am CDT 08/12/2025.

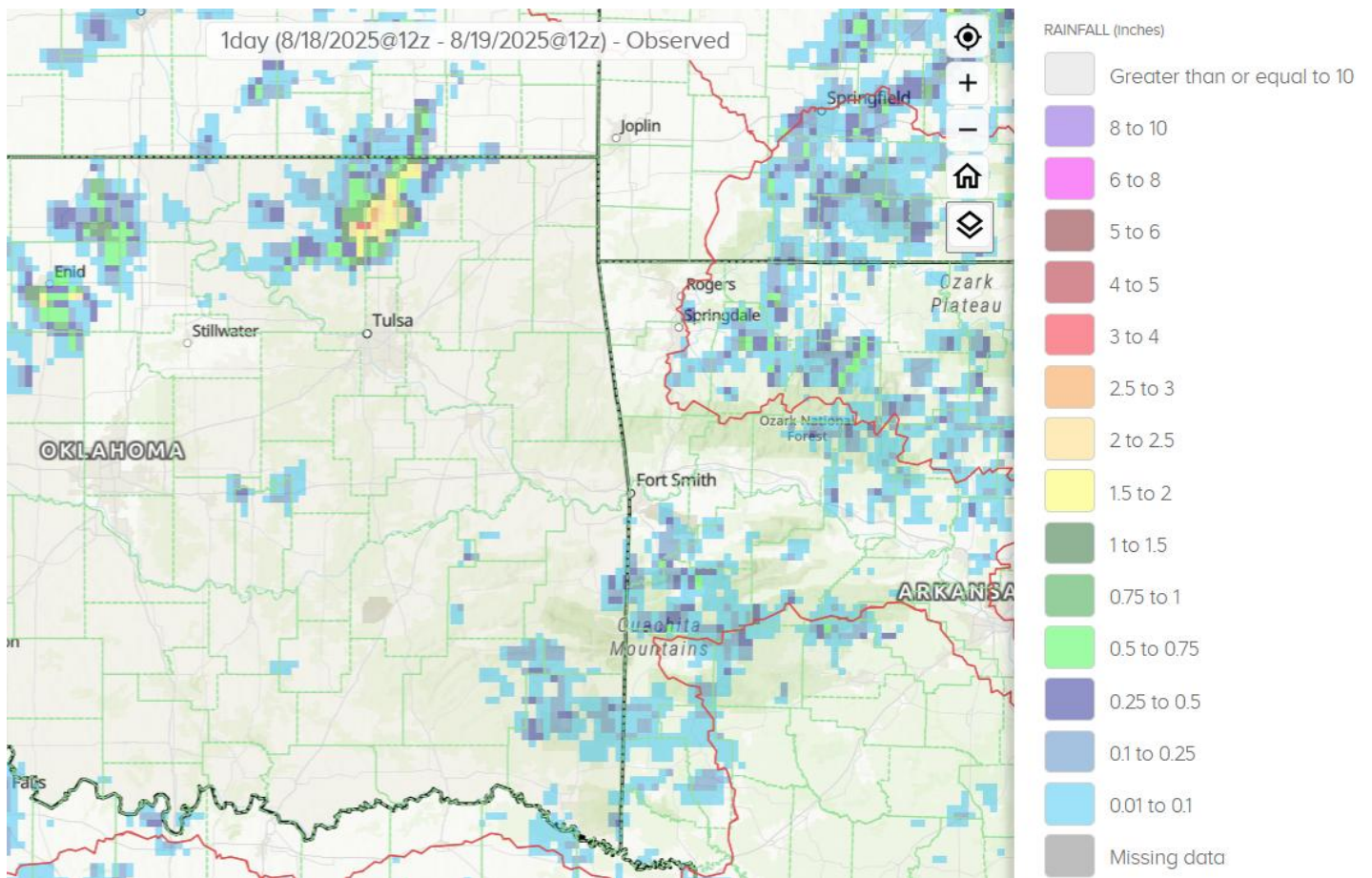


Fig. 10. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/19/2025.

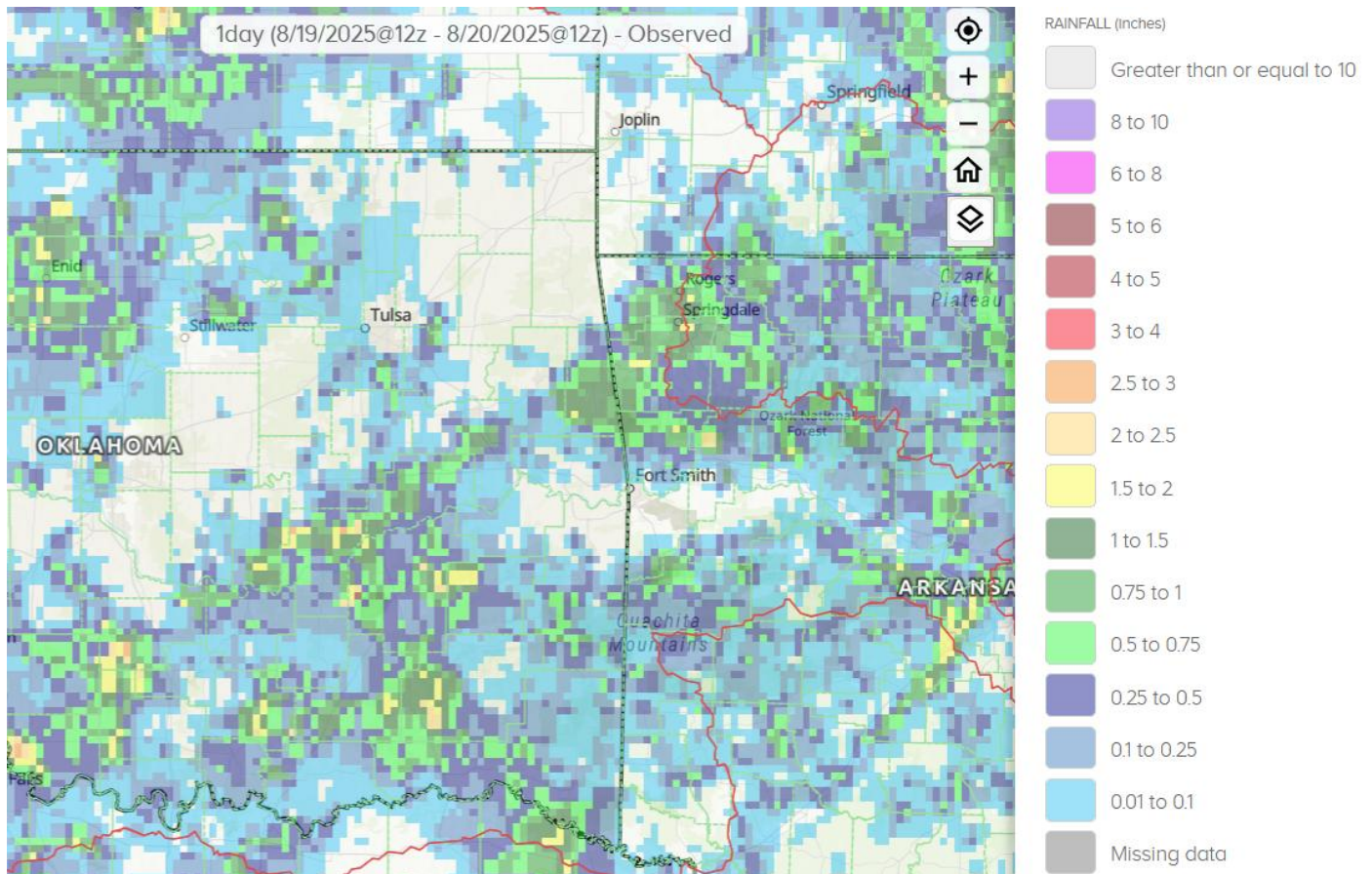


Fig. 11. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/20/2025.

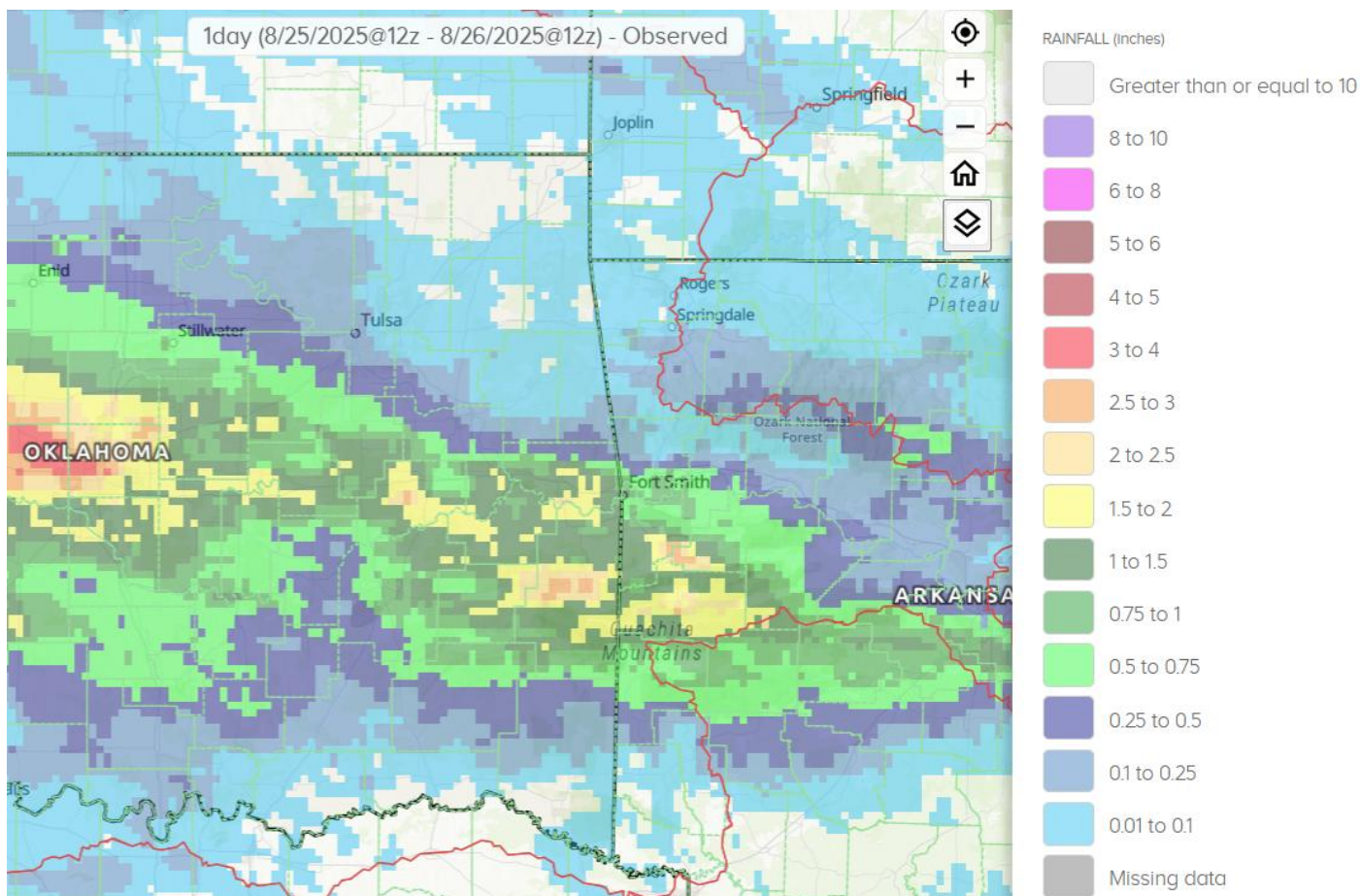


Fig. 12. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/26/2025.

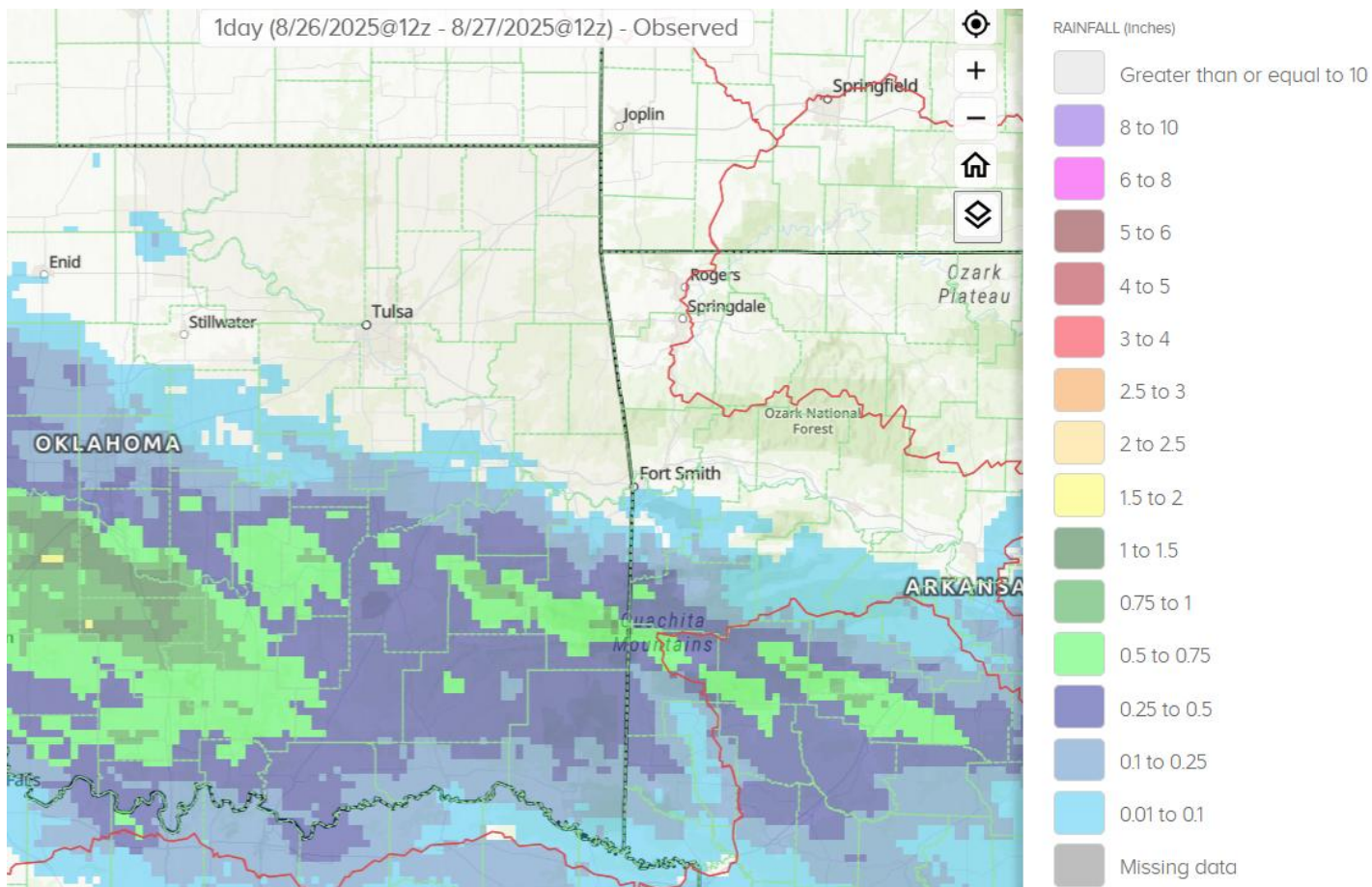


Fig. 13. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/27/2025.

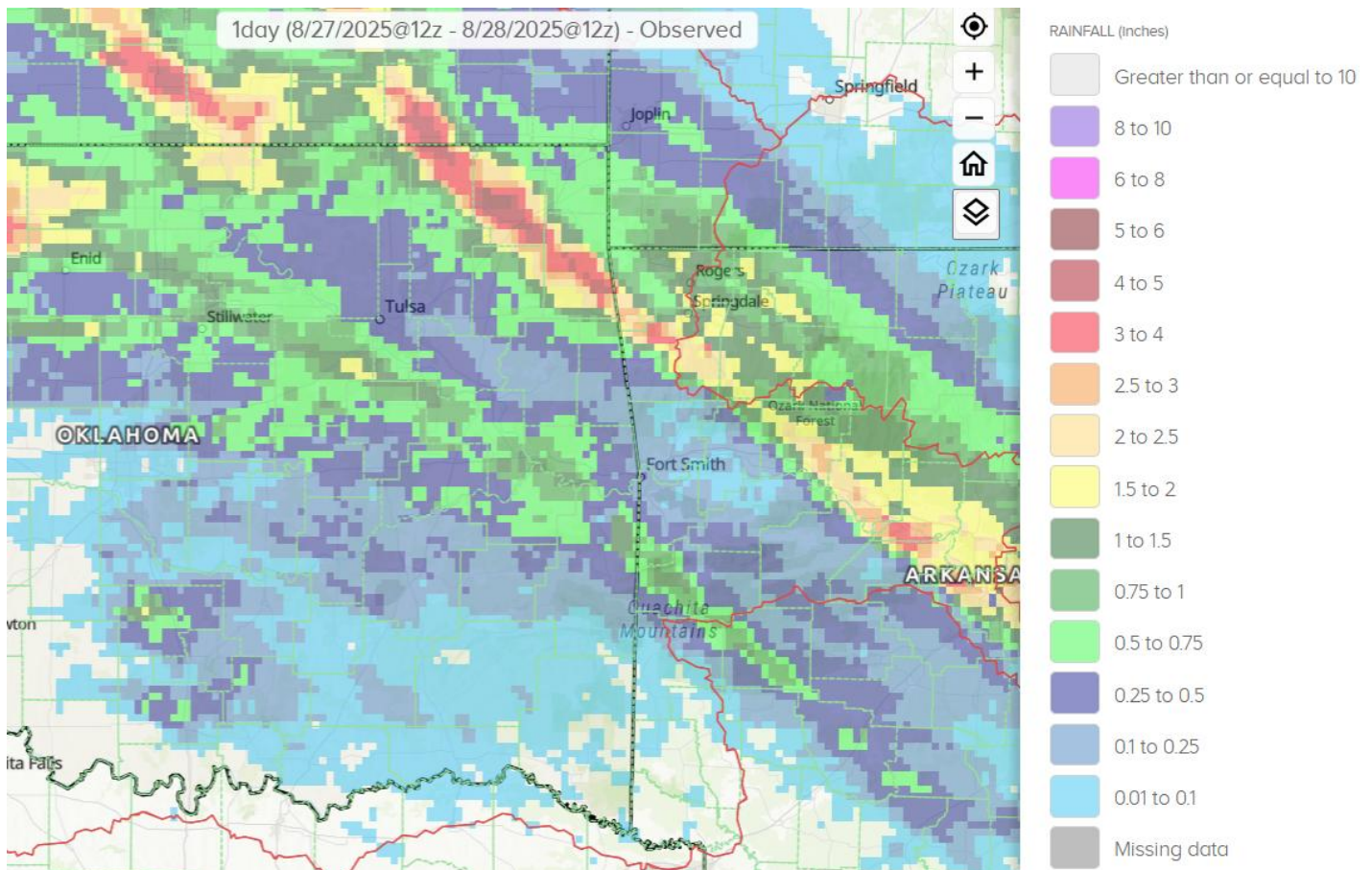


Fig. 14. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/28/2025.

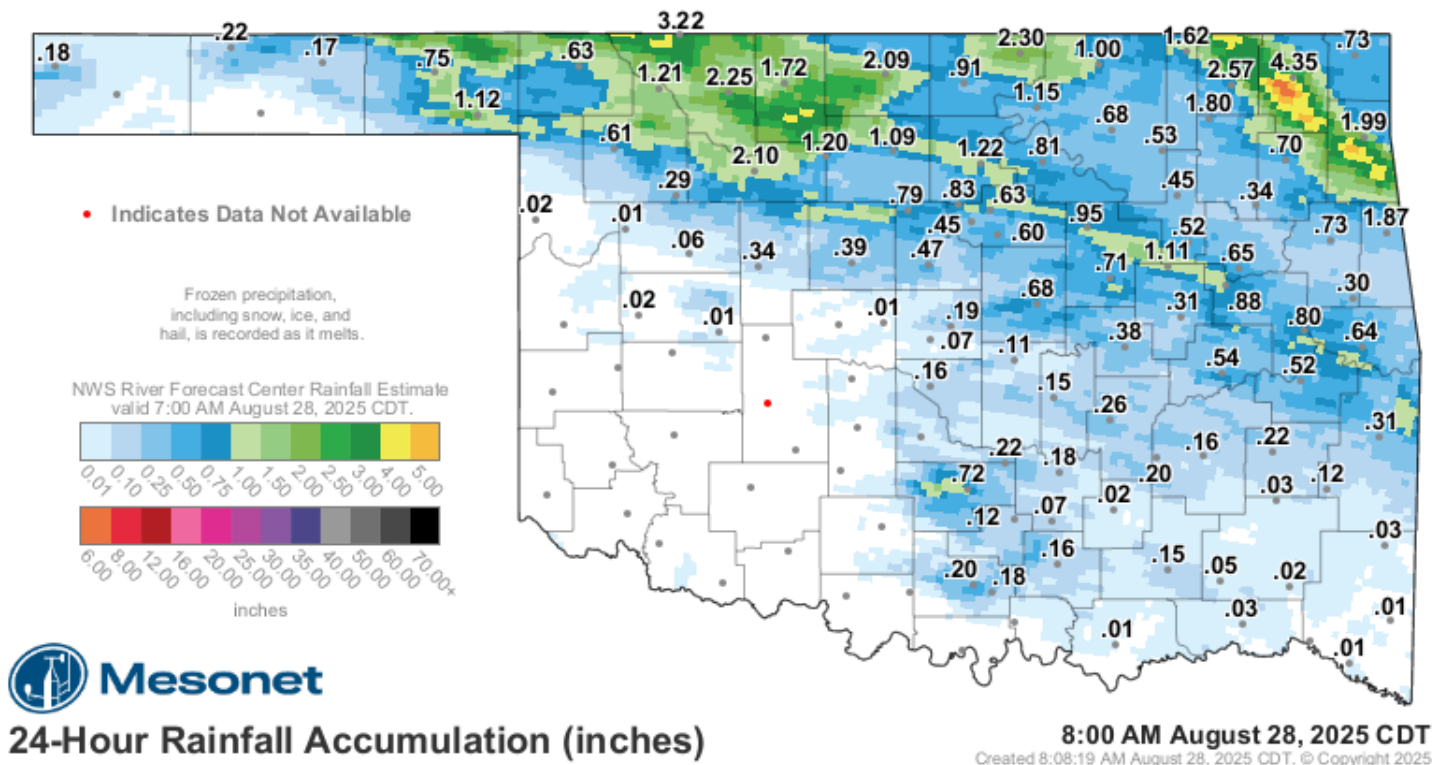
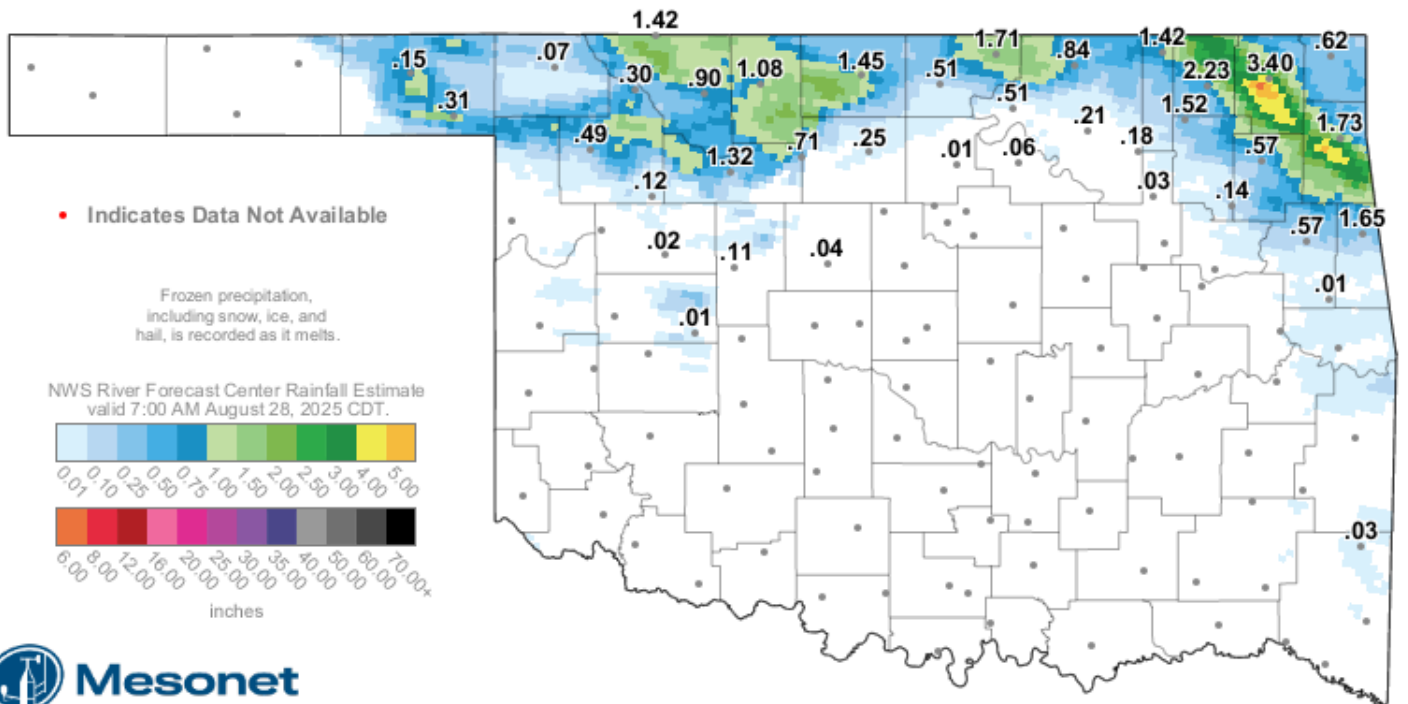


Fig. 15. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 8:00 am CDT 08/28/2025.

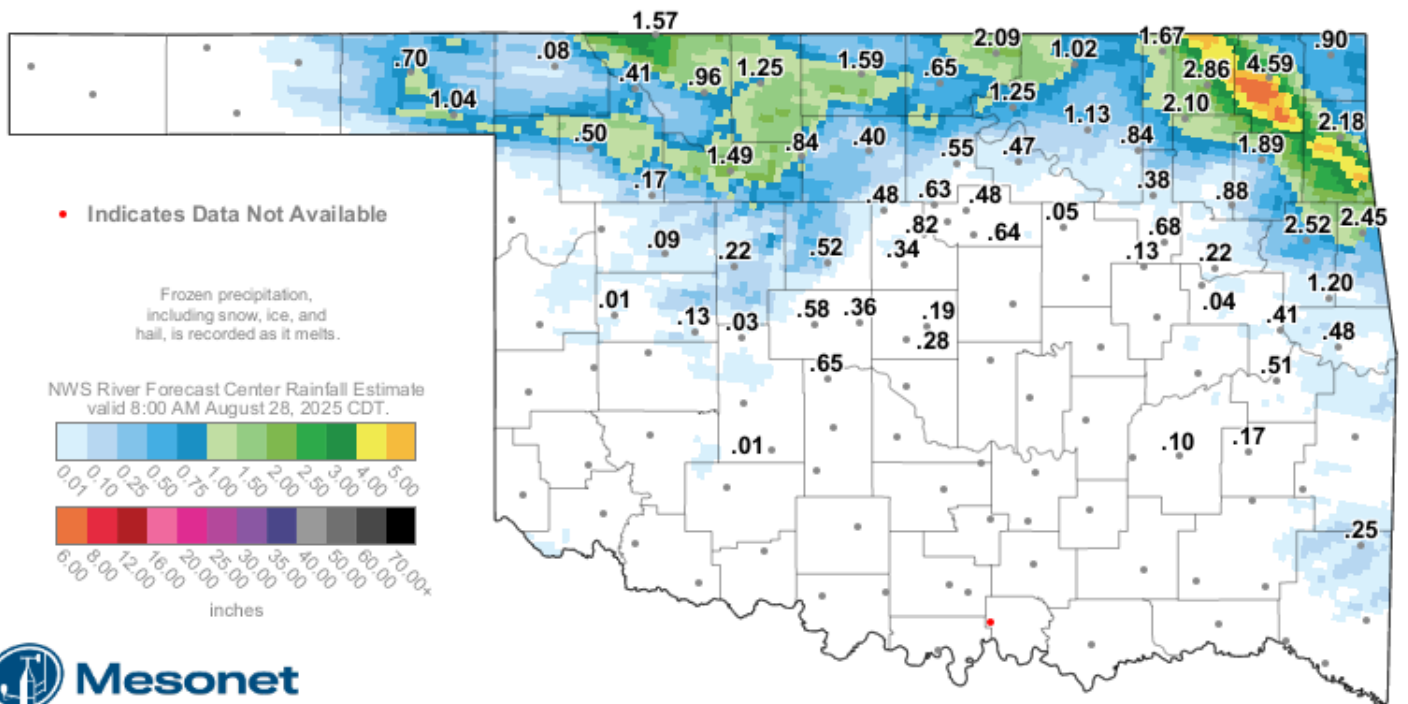


3-Hour Rainfall Accumulation (inches)

7:55 AM August 28, 2025 CDT

Created 8:03:19 AM August 28, 2025 CDT. © Copyright 2025

Fig. 16. OK Mesonet (values) and NWS RFC rainfall estimate (image) 3-hour rainfall ending at 7:55 am CDT 08/28/2025.

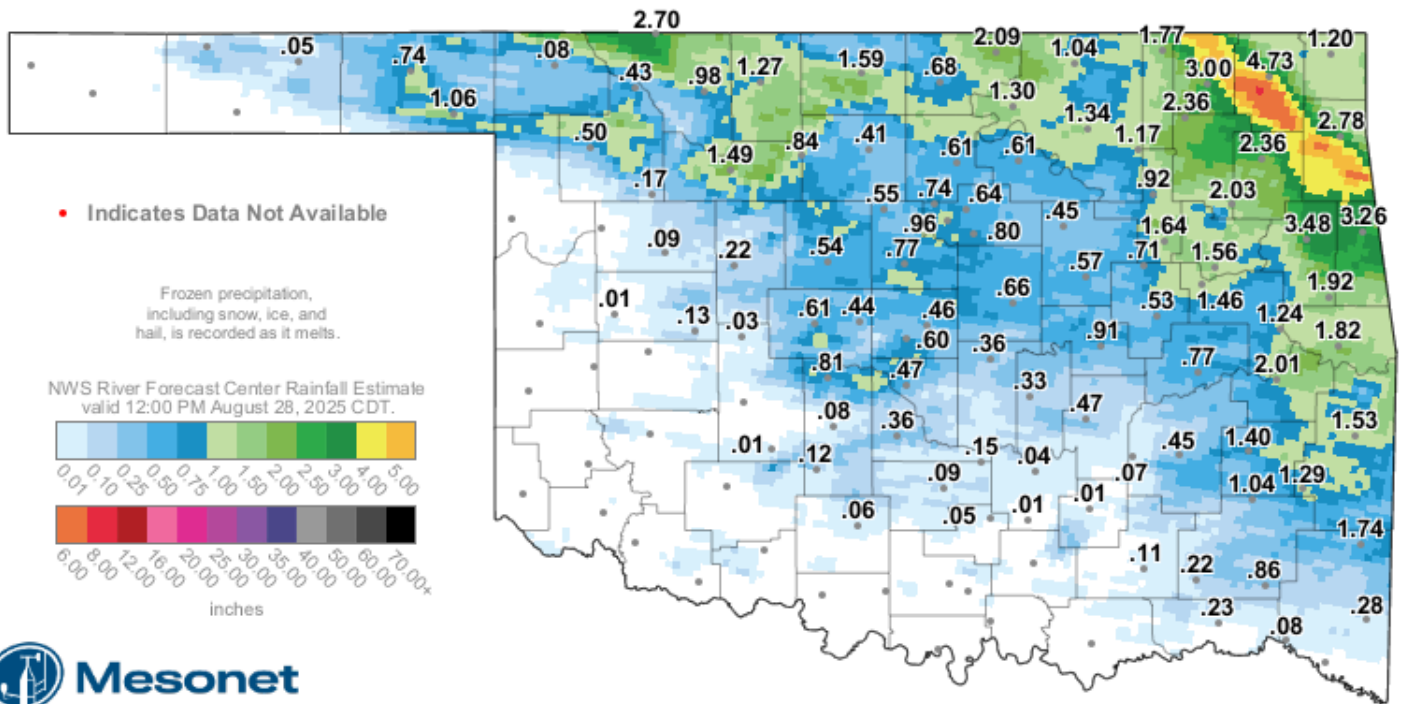


6-Hour Rainfall Accumulation (inches)

9:25 AM August 28, 2025 CDT

Created 9:33:04 AM August 28, 2025 CDT. © Copyright 2025

Fig. 17. OK Mesonet (values) and NWS RFC rainfall estimate (image) 6-hour rainfall ending at 9:25 am CDT 08/28/2025.



12-Hour Rainfall Accumulation (inches)

1:40 PM August 28, 2025 CDT

Created 1:48:19 PM August 28, 2025 CDT. © Copyright 2025

Fig. 18. OK Mesonet (values) and NWS RFC rainfall estimate (image) 12-hour rainfall ending at 1:40 pm CDT 08/28/2025.

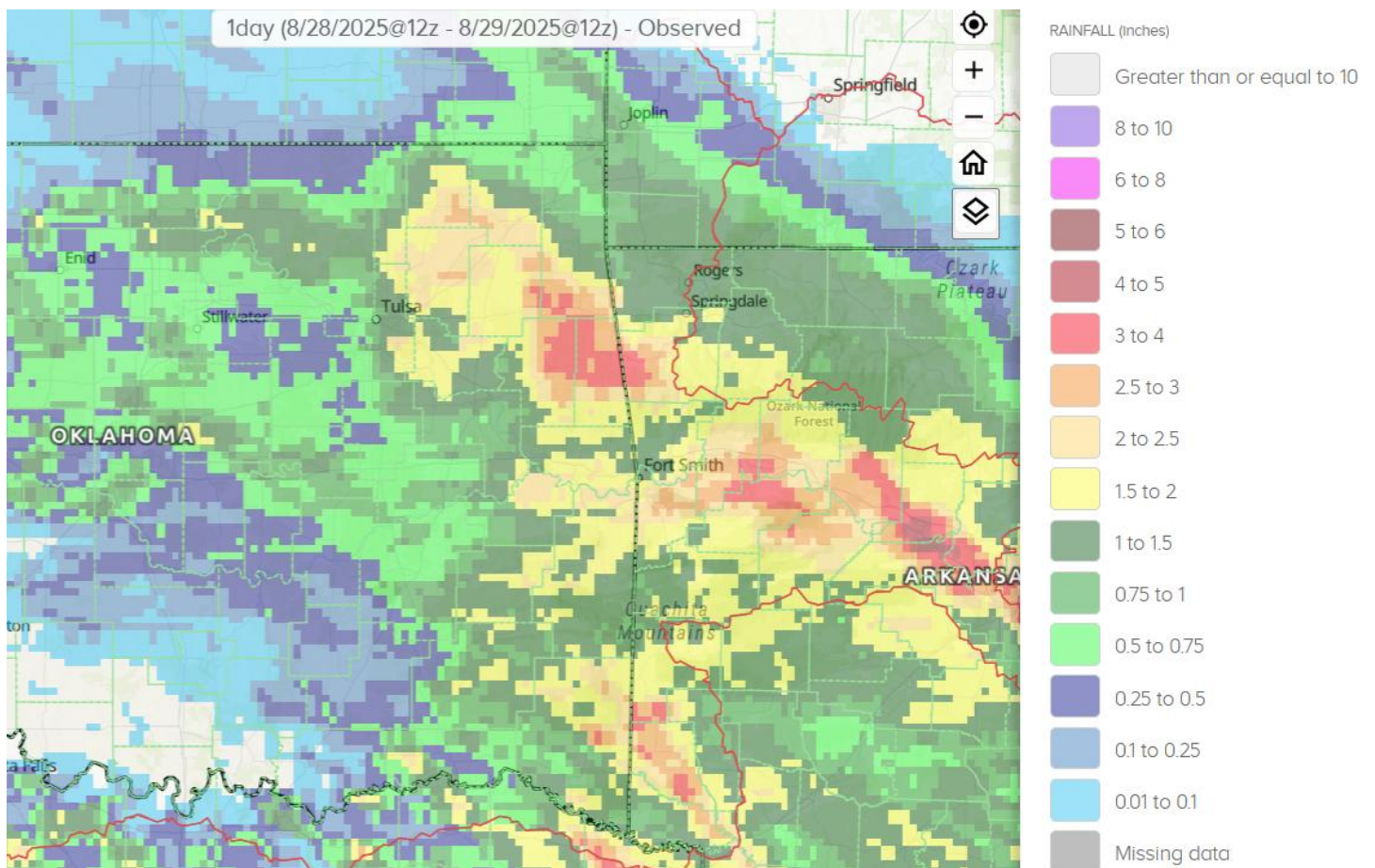


Fig. 19. 24-hour Estimated Observed Rainfall ending at 7am CDT 8/29/2025.

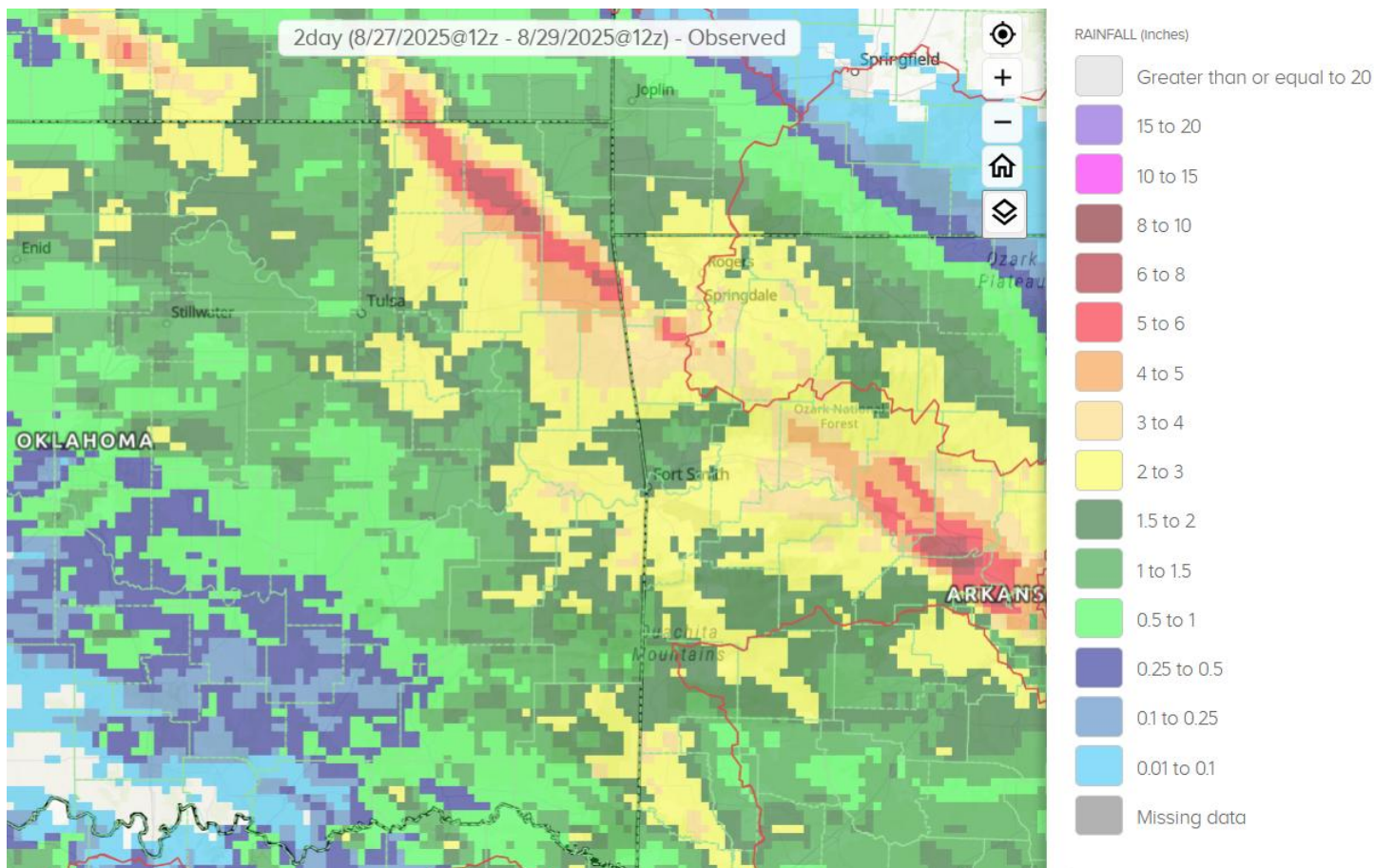


Fig. 20. 48-hour Estimated Observed Rainfall ending at 7am CDT 8/29/2025.

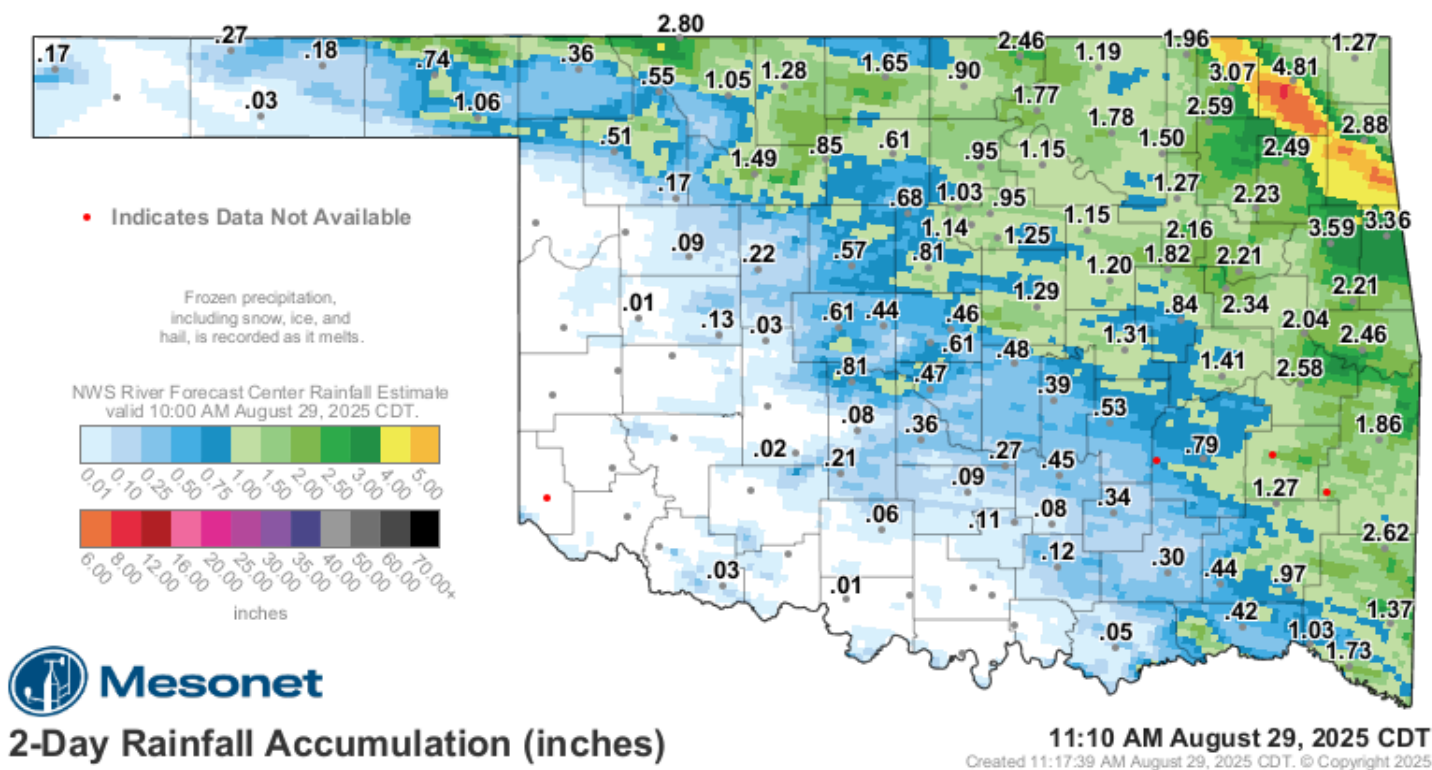


Fig. 21. OK Mesonet (values) and NWS RFC rainfall estimate (image) 48-hour rainfall ending at 11:10 am CDT 08/29/2025.

Surface high pressure shifted eastward on the 27th, allowing for increasing southerly flow and moisture advection across eastern OK and northwest AR. A frontal boundary was lifting north as another mid-level short-wave trough moved through the region. Showers and thunderstorms over central OK moved east into eastern Oklahoma by late morning, and continued to track eastward across all but far southeast OK through the afternoon and early evening, before shifting east out of the area. As the low-level jet increased during the evening, the flow direction combined with PWAT values near 2" set the stage for training storms and heavy rainfall. By late evening, storms over southeast KS and southwest MO moved southeast across northeast OK and northwest AR, along a nearly stationary boundary. This activity persisted and increased in coverage during the early morning hours of the 28th due to the combination of upglide and a stronger short-wave trough that moved from central KS through eastern OK. Through 7am CDT August 28th, there were two northwest-to-southeast oriented bands of higher rainfall totals, with one ranging from 0.3" to around 1.5" and the other ranging from 0.5" to near 6" (Figs. 14, 15). The training storms and heavy rain continued from northeast OK into northwest AR through mid-morning before finally beginning to shift southward. 7.05" of rain was measured in Big Cabin, OK during the 6-hour period from 3am-9am August 28 (Figs. 16, 17). Flash flooding was reported in Vinita, Big Cabin, and Fayetteville. Widespread heavy rain continued through the morning hours before ending from northwest to southeast during the afternoon. While most of the rain had ended by evening, widely scattered showers and isolated thunderstorms persisted through the evening and overnight hours along the Red River in far southeast OK. The 24-hour rainfall totals ending at 7am August 29 ranged from 0.50" to 3.5" across most of eastern OK and northwest AR (Fig. 19). The storm total rainfall (48-hour rainfall through 7am August 29) was 0.50" to 8" (Figs. 20, 21). The highest rainfall of 4"-8" fell across Nowata, Craig, and Delaware Counties in northeast OK and northern Washington County in northwest AR (Figs. 20, 21). Heavy rain over the Illinois River Basin resulted in flows too dangerous for recreation along the Illinois River and Flint Creek, but both remained below flood stage (see preliminary hydrographs at the end of this report).

Written by:

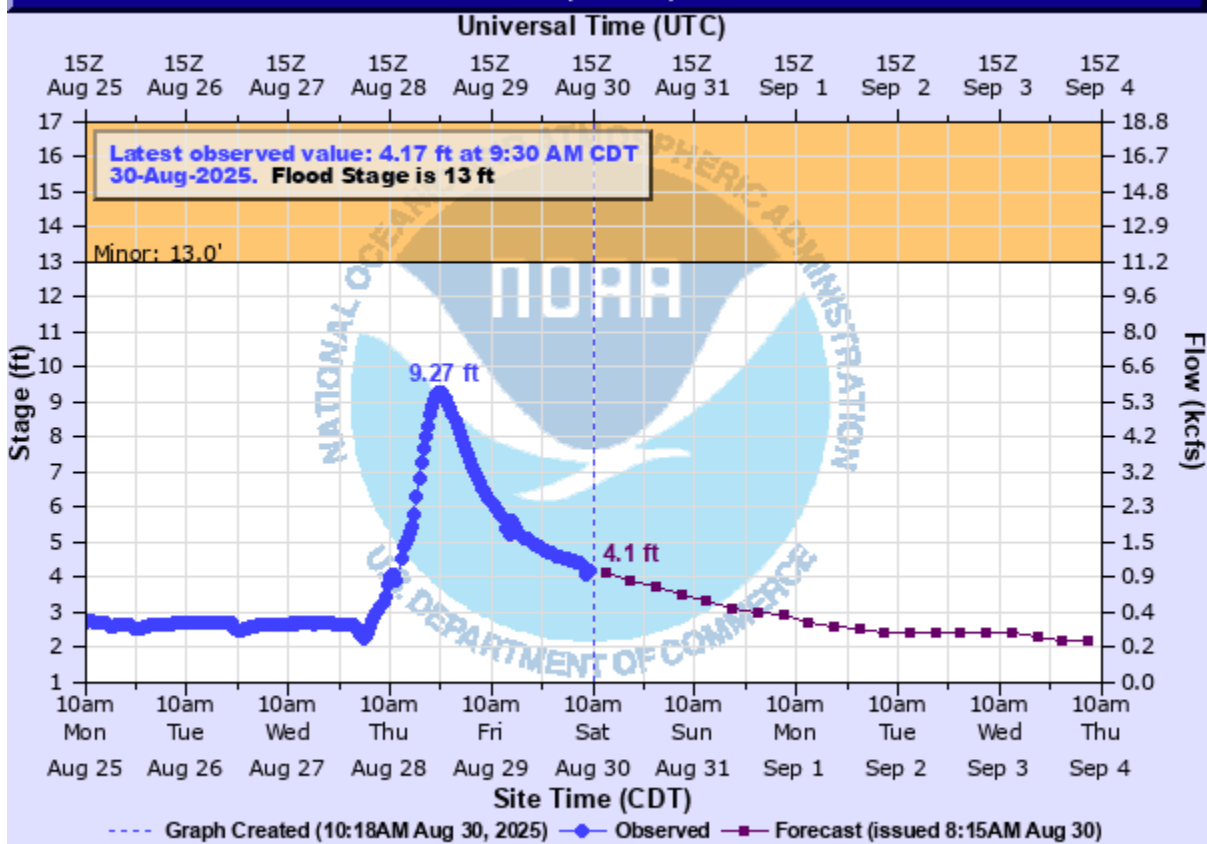
Nicole McGavock
Service Hydrologist
WFO Tulsa

Products issued in August 2025:

- 12 Flash Flood Warnings (FFW)
- 8 Flash Flood Statements (FFS)
- 3 Flash/Areal Flood Watches (FFA) (5 Watch FFA CON/EXT/EXA/EXB/CAN)
- 48 Urban and Small Stream Advisories (FLS)
- 2 Areal Flood Warnings (FLW)
- 0 Areal Flood Statements (FLS)
- 4 River Flood Warnings (FLW) (includes category increases)
- 12 River Flood Statements (FLS)
- 4 River Flood Advisories (FLS) (10 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:

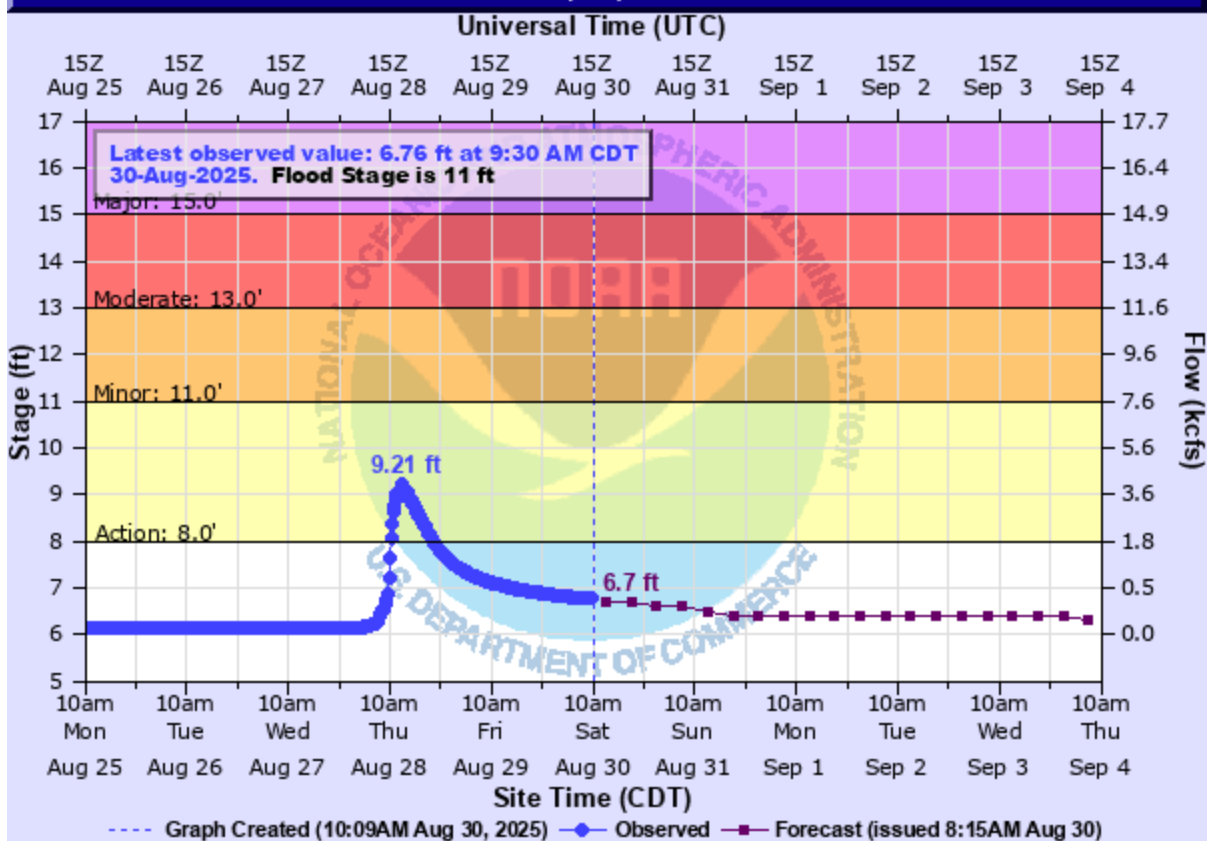
ILLINOIS RIVER (AR OK) NEAR WATTS



WT02(plotting HGIRG) "Gage 0" Datum: 894.01'

Observations courtesy of US Geological Survey

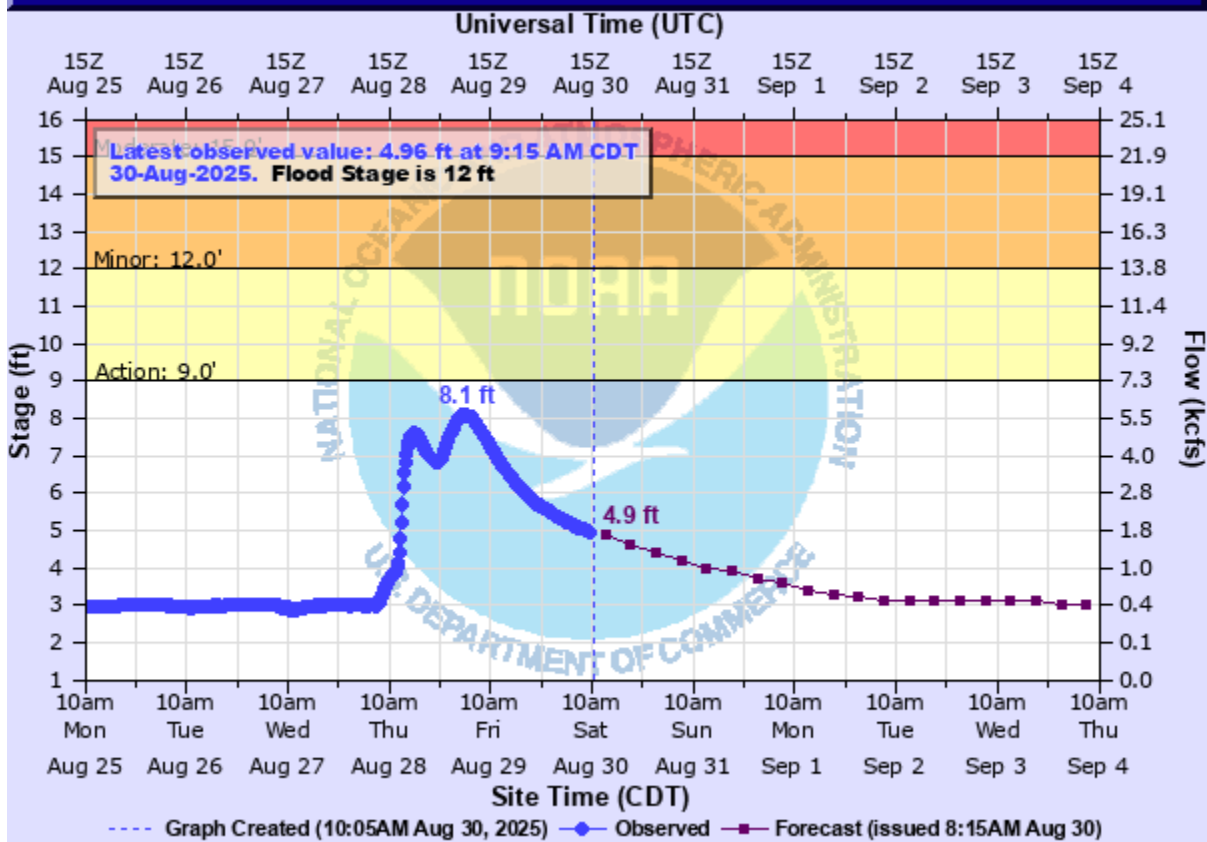
FLINT CREEK (OK) NEAR KANSAS



KNSO2(plotting HGIRG) "Gage 0" Datum: 854.98'

Observations courtesy of US Geological Survey

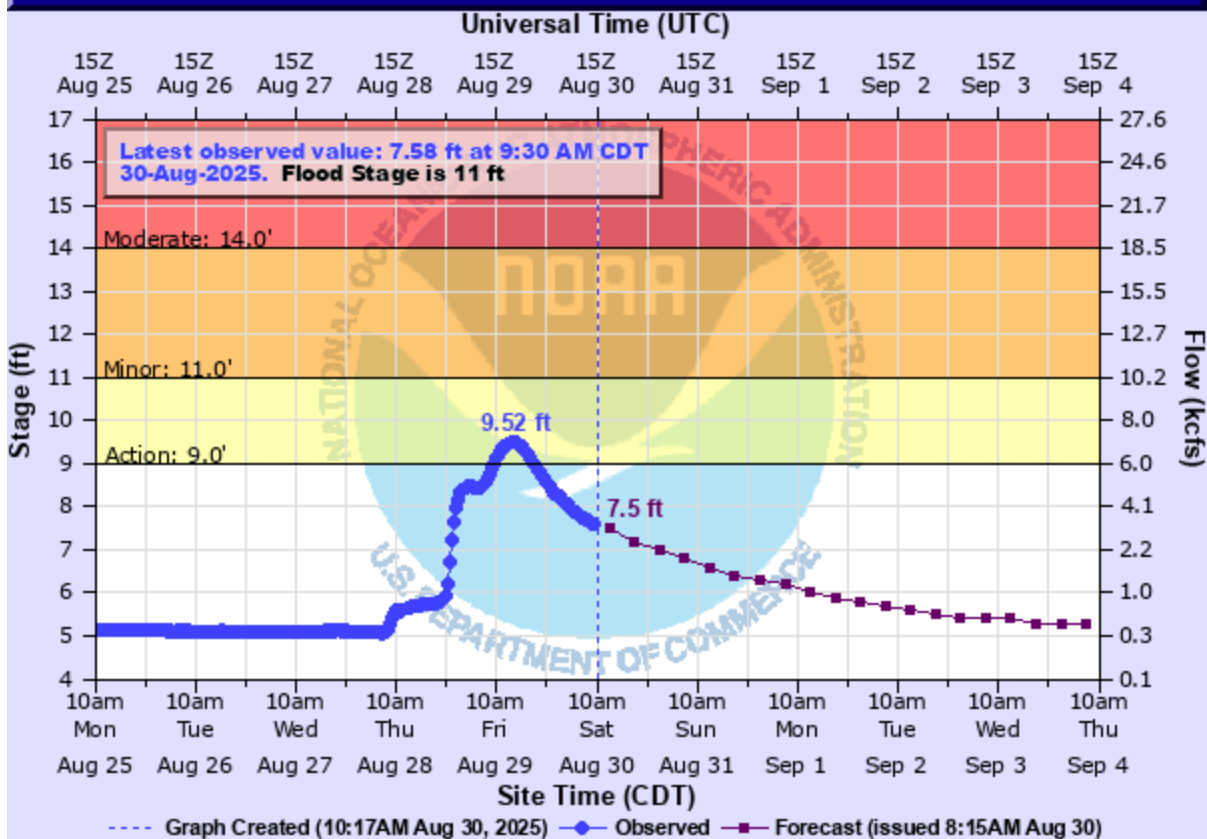
ILLINOIS RIVER (AR OK) AT CHEWEY



CWY02(plotting HGIRG) "Gage 0" Datum: 800.91'

Observations courtesy of US Geological Survey

ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH



TAL02(plotting HGIRG) "Gage 0" Datum: 665.08'

Observations courtesy of US Geological Survey