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 **September** YEAR **2025**
TO: Hydrometeorological Information Center, W/OH2 NOAA / National Weather Service 1325 East West Highway, Room 7230 Silver Spring, MD 20910-3283	SIGNATURE **Steven F. Piltz** (Meteorologist-in-Charge) DATE **October 24, 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.**

Most of September 2025 was dry, but several rounds of heavy rain resulted in flash flooding and minor river flooding mid-month. 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 September 2025 ranged from around 0.1" to 8" across eastern OK and 4" to 10" across northwest AR. These rainfall totals correspond to 5% to 260% of the normal September rainfall with nearly all of eastern OK below normal and nearly all of northwest AR above normal this month (Fig. 1b).

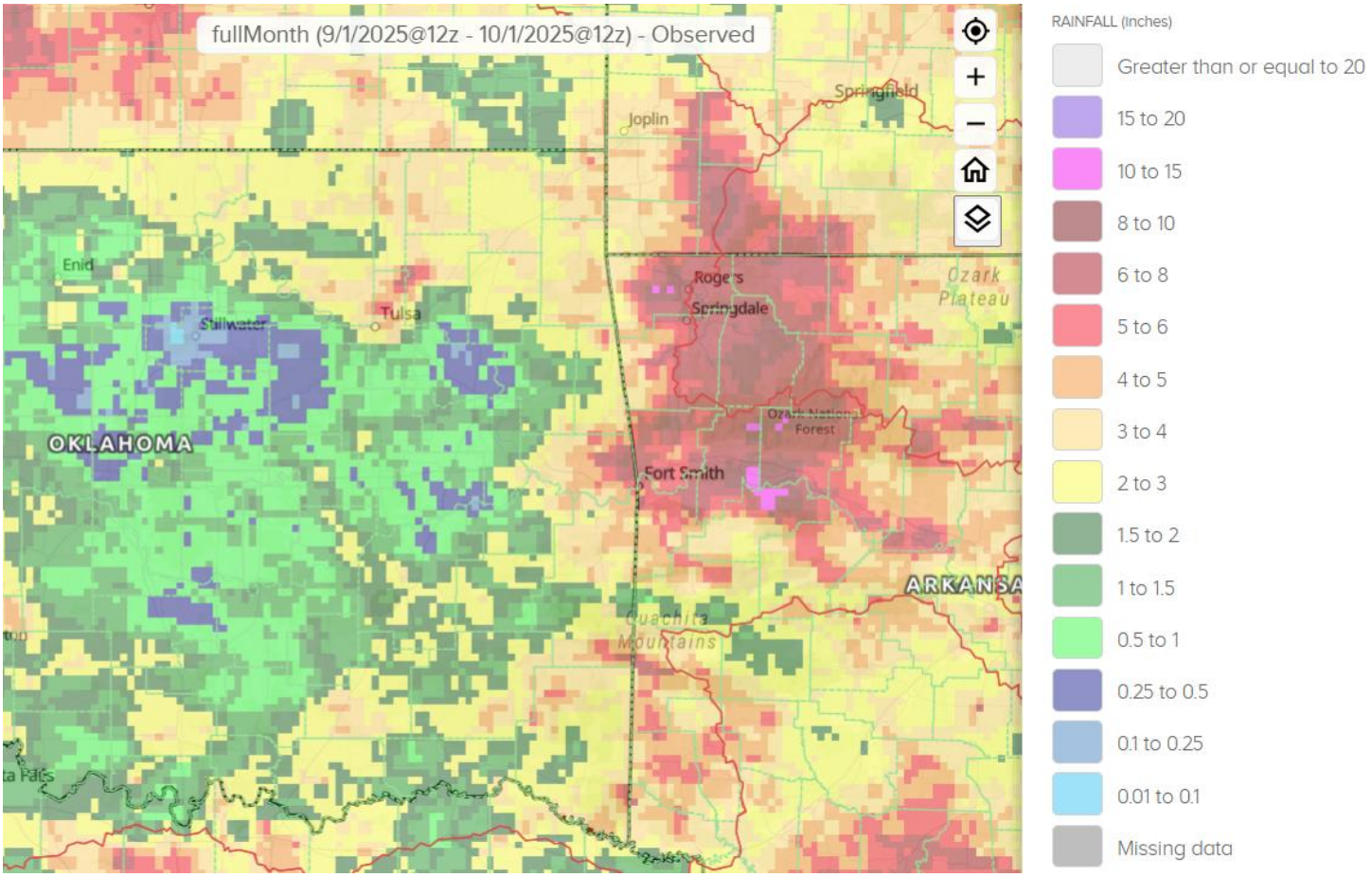


Fig. 1a. Estimated Observed Rainfall for September 2025

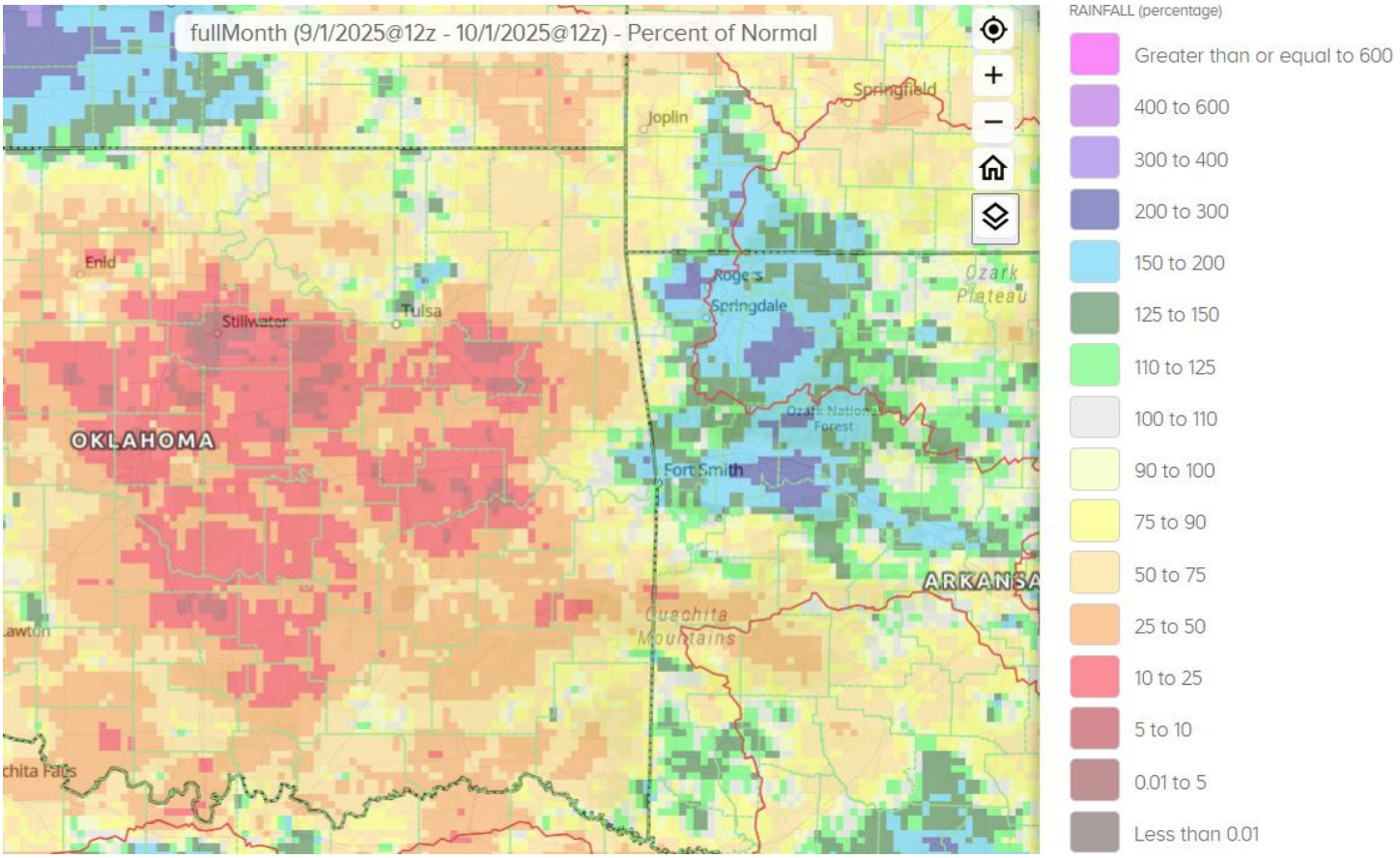


Fig. 1b. Estimated % of Normal Rainfall for September 2025

In Tulsa, OK, September 2025 ranked as the 41st warmest September (75.4°F, tied 1972, 1960; since records began in 1905) and the 54th wettest September (3.62"; since records began in 1888). Fort Smith, AR had the 34th warmest September (76.8°F, tied 1986; since records began in 1882) and the 27th wettest September (5.68"; since records began in 1882). Fayetteville, AR had the 18th warmest (71.7°F) and the 8th wettest (7.53") September since records began in 1949.

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

Centerton 2.1SE, AR (coco)	11.24	Bentonville 1.6NE, AR (coco)	10.29	Ozark 4.6S, AR (coco)	9.81
Springdale 0.6E, AR (coco)	9.40	Centerton 1.0E, AR (coco)	9.40	Huntsville 10N, AR (coop)	9.07
Bentonville 6.6SSW, AR (coco)	8.94	NW AR Regional Airport (ASOS)	8.93	Rogers 2.4SSW, AR (coco)	8.83

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

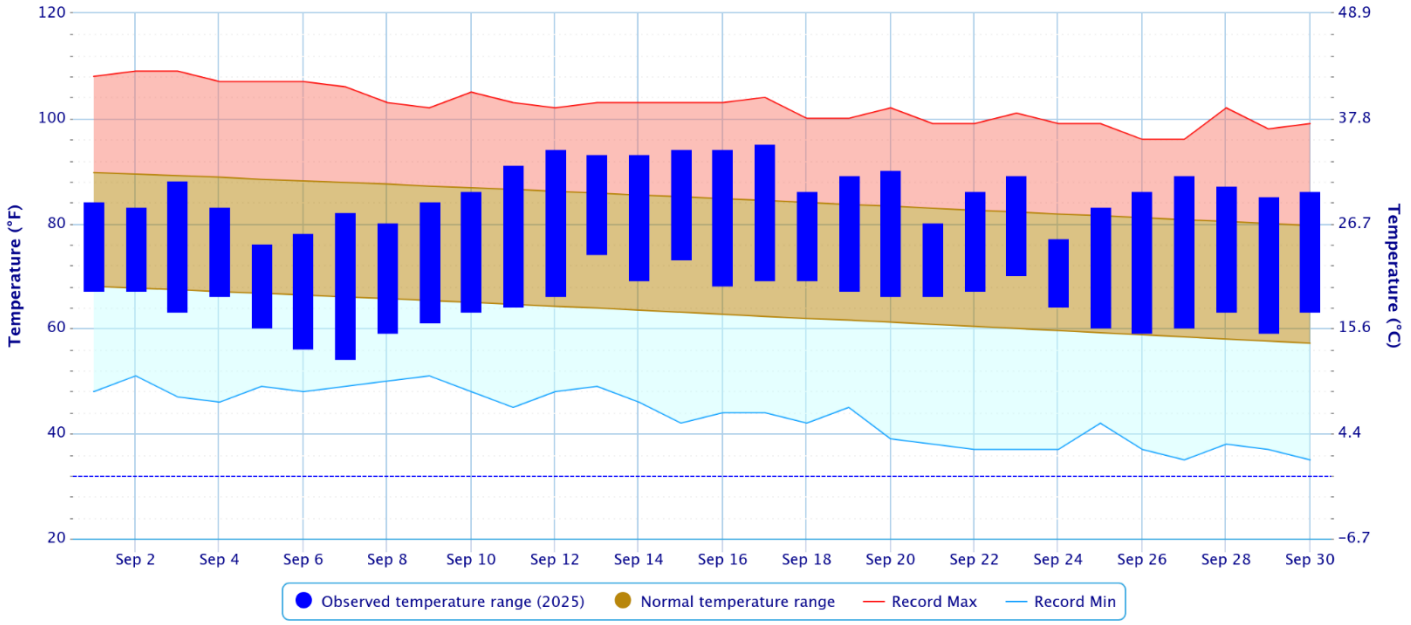
Oilton, OK (meso)	0.18	Bristow, OK (meso)	0.36	Drumright 0.6SW, OK (coco)	0.44
Eufaula, OK (meso)	0.63	Hectorville, OK (meso)	0.73	Bixby 3.4SW, OK (coco)	0.75
Bixby 4.2WNW, OK (coco)	0.88	Okemah, OK (meso)	0.96	Inola 3.3SSE, OK (coco)	0.97

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

Rank since 1921	September 2025	Last 60 Days (Aug 2 – Sep 30)	Last 90 Days (Jul 3 – Sep 30)	Last 180 Days (Apr 4 – Sep 30)	Year-to-Date (Jan 1 – Sep 30)	Water Year 2024-25 (Oct 1, 2024 – Sep 30, 2025)	Last 365 Days (Oct 1, 2024 – Sep 30, 2025)
Northeast OK	30th driest	33rd driest	38th driest	**8th wettest**	11th wettest	**9th wettest**	**9th wettest**
East Central OK	29th driest	40th driest	49th driest	**3rd wettest**	**6th wettest**	**6th wettest**	**6th wettest**
Southeast OK	29th driest	45th driest	37th wettest	18th wettest	19th wettest	19th wettest	19th wettest
Statewide	21st driest	51st driest	53rd wettest	**5th wettest**	**9th wettest**	**10th wettest**	**10th wettest**

Daily Temperature Data – Tulsa Area, OK (ThreadEx)

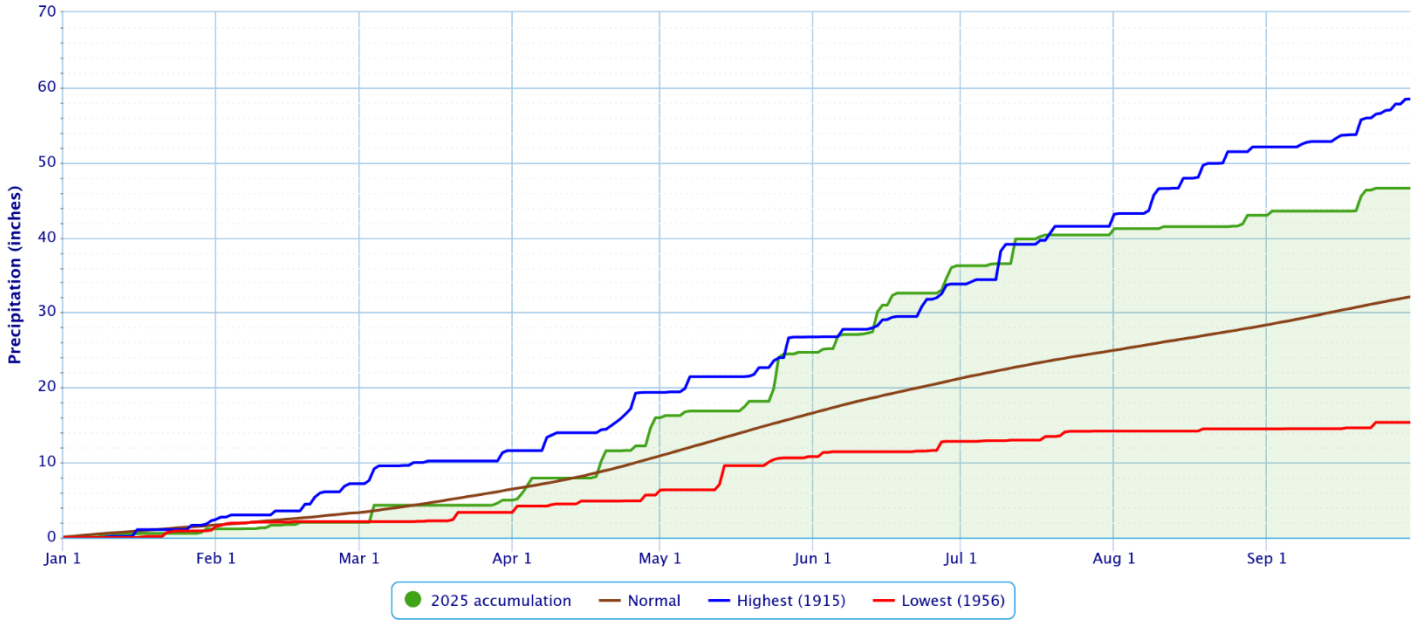
Period of Record – 1905-01-06 to 2025-10-02. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

Accumulated Precipitation – Tulsa Area, OK (ThreadEx)

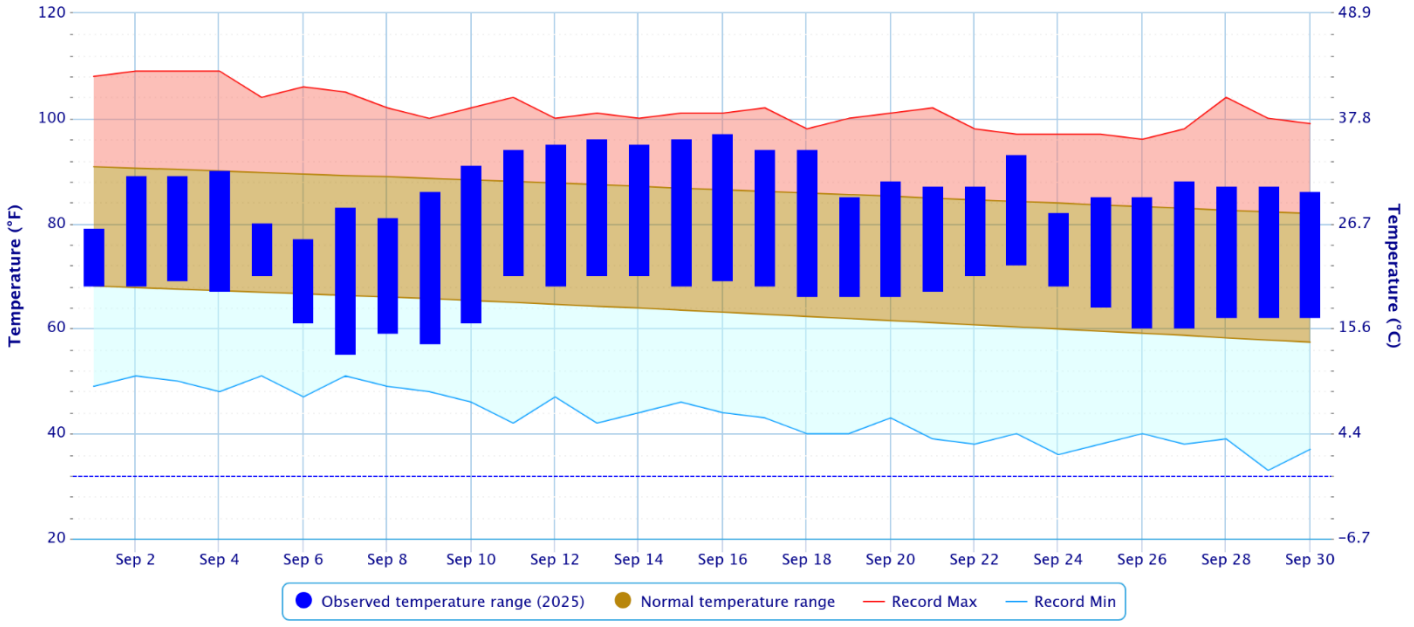
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS

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

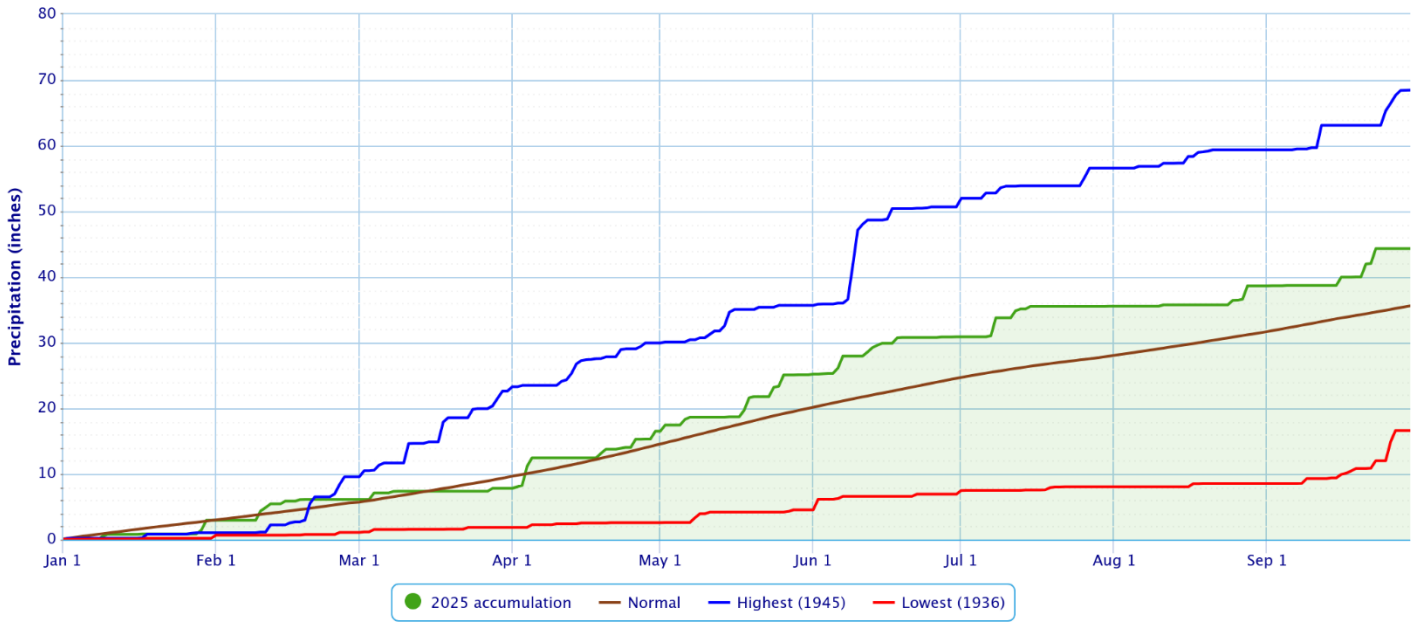
Period of Record – 1882-06-01 to 2025-10-02. Normals period: 1991-2020. Click and drag to zoom chart.



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



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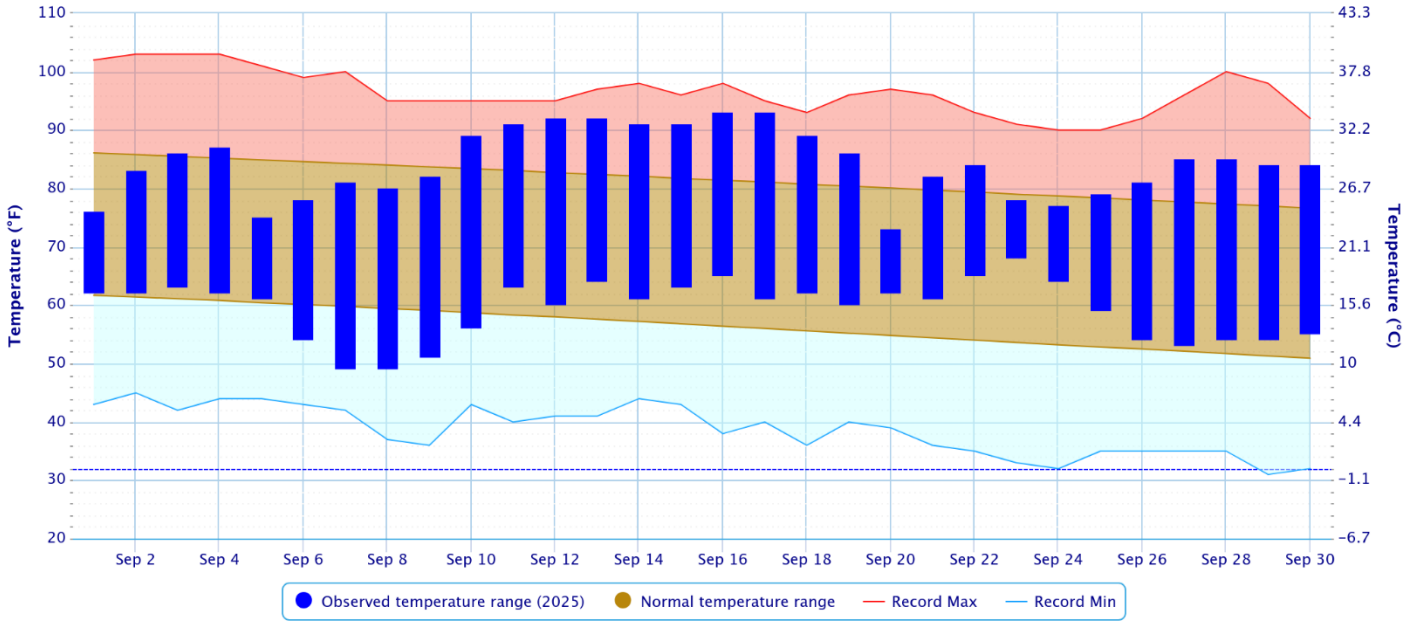
Daily Temperature Data – FAYETTEVILLE DRAKE FIELD, AR

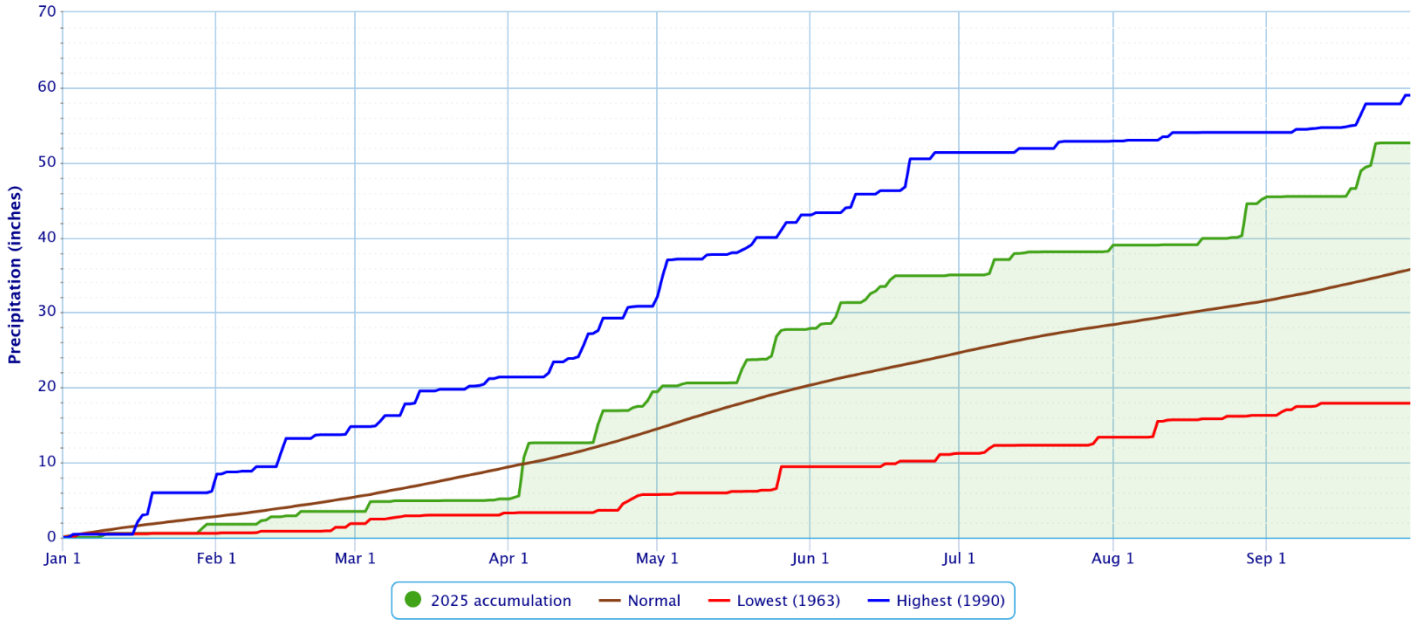
Period of Record – 1949-07-14 to 2025-10-02. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

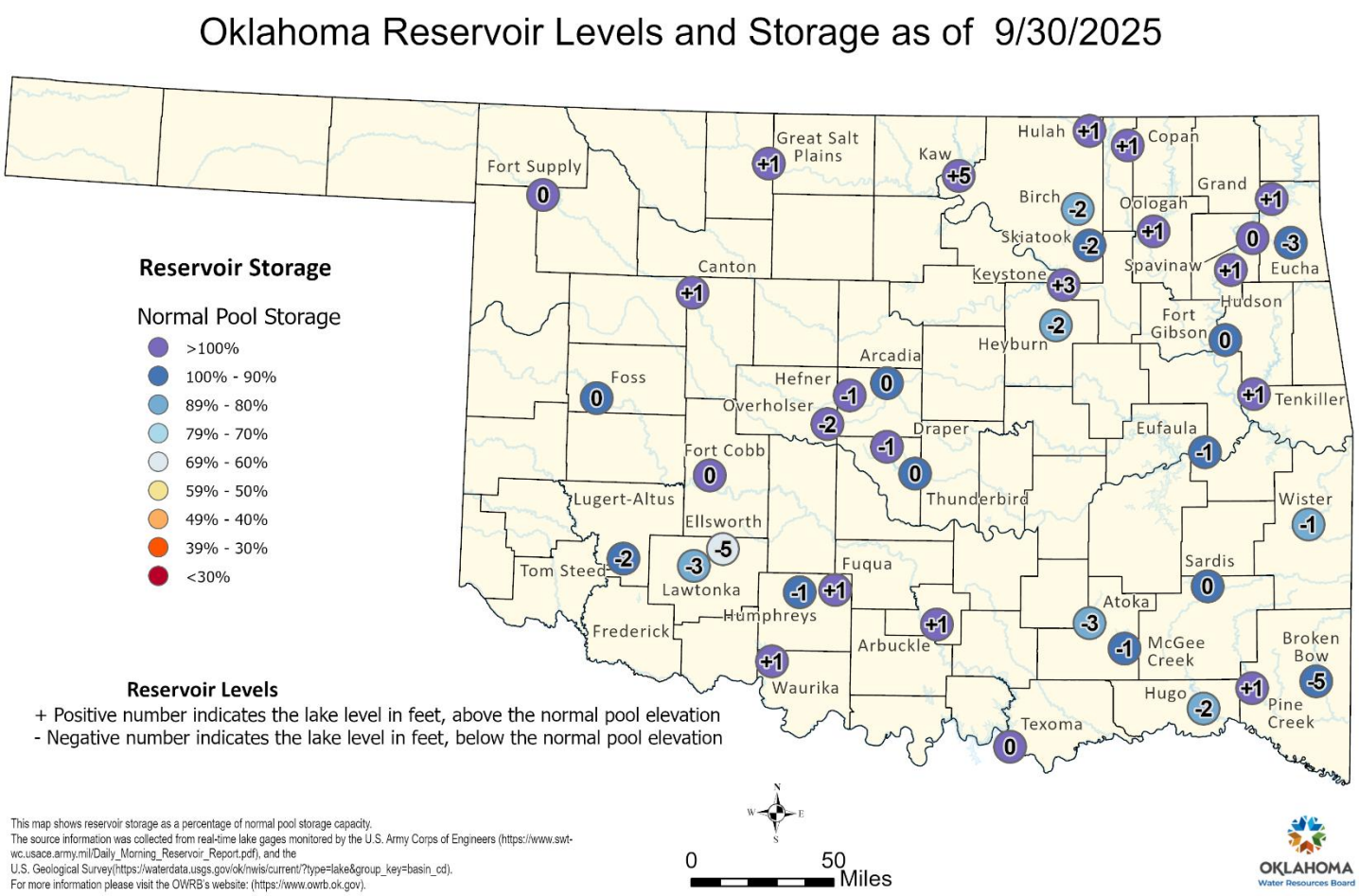
Accumulated Precipitation – FAYETTEVILLE DRAKE FIELD, AR

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



Powered by ACIS

Reservoirs



According to the USACE, a few lakes in the HSA were above 3% of top of their conservation pools as of 10/1/2025: Beaver Lake 14%, Kaw Lake 9%, Hudson Lake 6%, Keystone Lake 5%, and Grand Lake 4%. A few lakes were also more than 3% below the top of their conservation pools: Heyburn Lake 66%, Hugo Lake 83%, Wister Lake 85%, Birch Lake 85%, and Skiatook Lake 92%.

Drought

According to the U.S. Drought Monitor (USDM) from September 30, 2025 (Figs. 2, 3), Moderate (D1) Drought conditions were present in portions of Pawnee, McIntosh, Muskogee, and Ottawa Counties in eastern OK. Abnormally Dry (D0) but not in drought conditions were occurring in parts of Craig, Ottawa, Delaware, Osage, Pawnee, Creek, Tulsa, Okfuskee, Okmulgee, Wagoner, Rogers, Mayes, Muskogee, McIntosh, Pittsburg, Haskell, Cherokee, Adair, Sequoyah, Le Flore, and Choctaw Counties in eastern OK and Benton, Washington, Crawford, Franklin, and Carroll Counties in northwest AR.

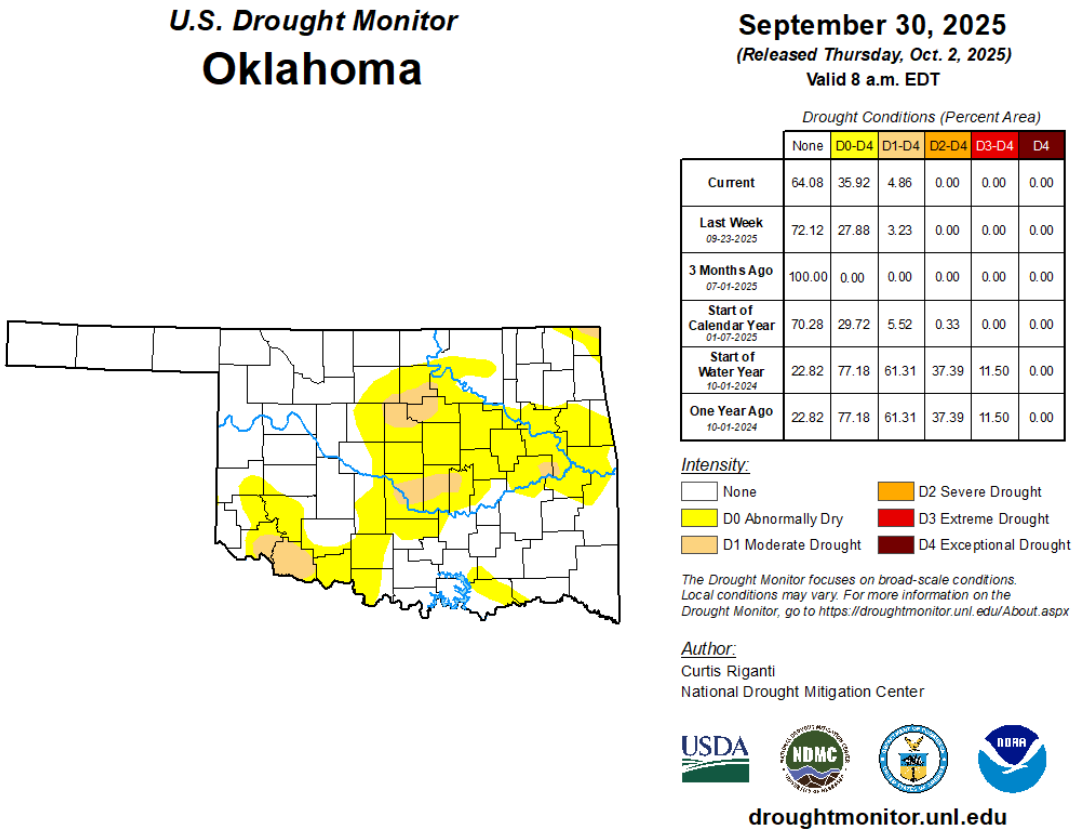


Fig. 2. Drought Monitor for Oklahoma

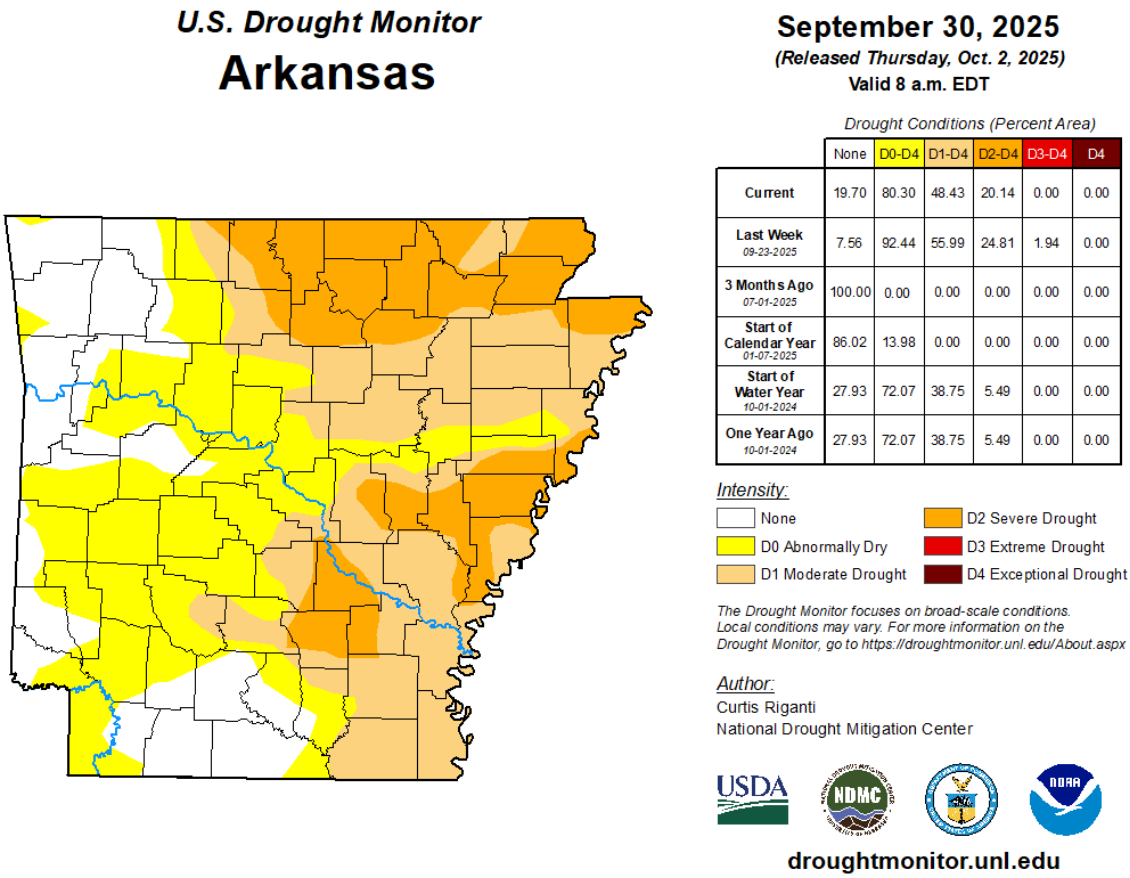


Fig. 3. Drought Monitor for Arkansas

Outlooks

The Climate Prediction Center (CPC) outlook for October 2025 (issued September 30, 2025) indicates an enhanced chance for above normal temperatures and below median 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 October-November-December 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 September 18, 2025). This outlook is based on long-term trends, ENSO state, and incorporates a suite of statistical and dynamical forecast tools. According to CPC, "a transition from ENSO-neutral to La Niña is likely in the next couple of months, with a 71% chance of a La Niña during October – December 2025. Thereafter, La Niña is favored but chances decrease to 54% in December 2025 – February 2026."

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 showers and isolated thunderstorms developed over eastern OK and northwest AR around midnight on the 1st as an upper-level disturbance moved southeast through the area. This activity persisted through the mid-evening hours. While most locations did not receive much rainfall, there was localized totals of 0.5"-2.5" in central OK and across the far northeast corner of OK into northwest AR (Figs. 4, 5). Widely scattered convection redeveloped over eastern OK and northwest AR during the pre-dawn hours of the 2nd as a weak cold front dropped south into the area and a stronger upper-level disturbance passed just to the northeast of the region. These storms continued through the morning and afternoon hours before dissipating mid-evening with the loss of daytime heating. Most affected locations received less than 0.5" of rain, but there were some isolated totals of 0.5"-2", including that from early morning storms in Washington Co OK (Figs. 5, 6).

Scattered convection developed along and ahead of a cold front as it moved across eastern OK and northwest AR on the 18th. The convection first began around sunrise, but increased in intensity and coverage during the peak heating of the afternoon. This activity dissipated by midnight, but additional storms began to develop over central OK around this time. In the pre-dawn hours of the 19th, a large cluster of storms began to move east into eastern OK, along and south of Highway 412. Through 7am September 19, the 24-hour rainfall totals ranged from 0.25" to near 2" (Fig. 7). These storms developed into a mesoscale convective system (MCS), which moved east-southeast across eastern OK and northwest AR, south of Highway 412, through noon and brought 0.25"-2" of rain (Fig. 8).

During the early morning hours of the 20th, a MCS moving across KS entered northeast OK. The MCS continued to move east-southeast across far northeast OK and into northwest AR during the morning. Training storms continued through the afternoon over northwest AR before finally shifting east of the area. During the evening, showers and thunderstorms redeveloped along a leftover outflow boundary that was located across north central into northeast OK. Some of these storms produced damaging winds of 60-70mph. These storms continued across northeast OK and expanded into northwest AR around midnight. Scattered convection continued through the early morning hours before dissipating around sunrise on the 21st. Rainfall totals ranged from around 0.25" to around 5" (Figs. 8, 9).

Thunderstorms developed over eastern OK and northwest AR during the afternoon of the 21st as a small-scale vorticity maximum tracked over the region. These storms continued through the evening hours. An east-west boundary then set up across east central OK and west central AR, providing a focus for repeated storms as the low-level jet increased around midnight. Training storms brought heavy rainfall to this area before they shifted east of the region soon after sunrise. Rainfall totals ranged from 0.25" to 6", with widespread 1.5"-6" of rain across a large portion of far east central OK and west central AR (Figs. 10, 11).

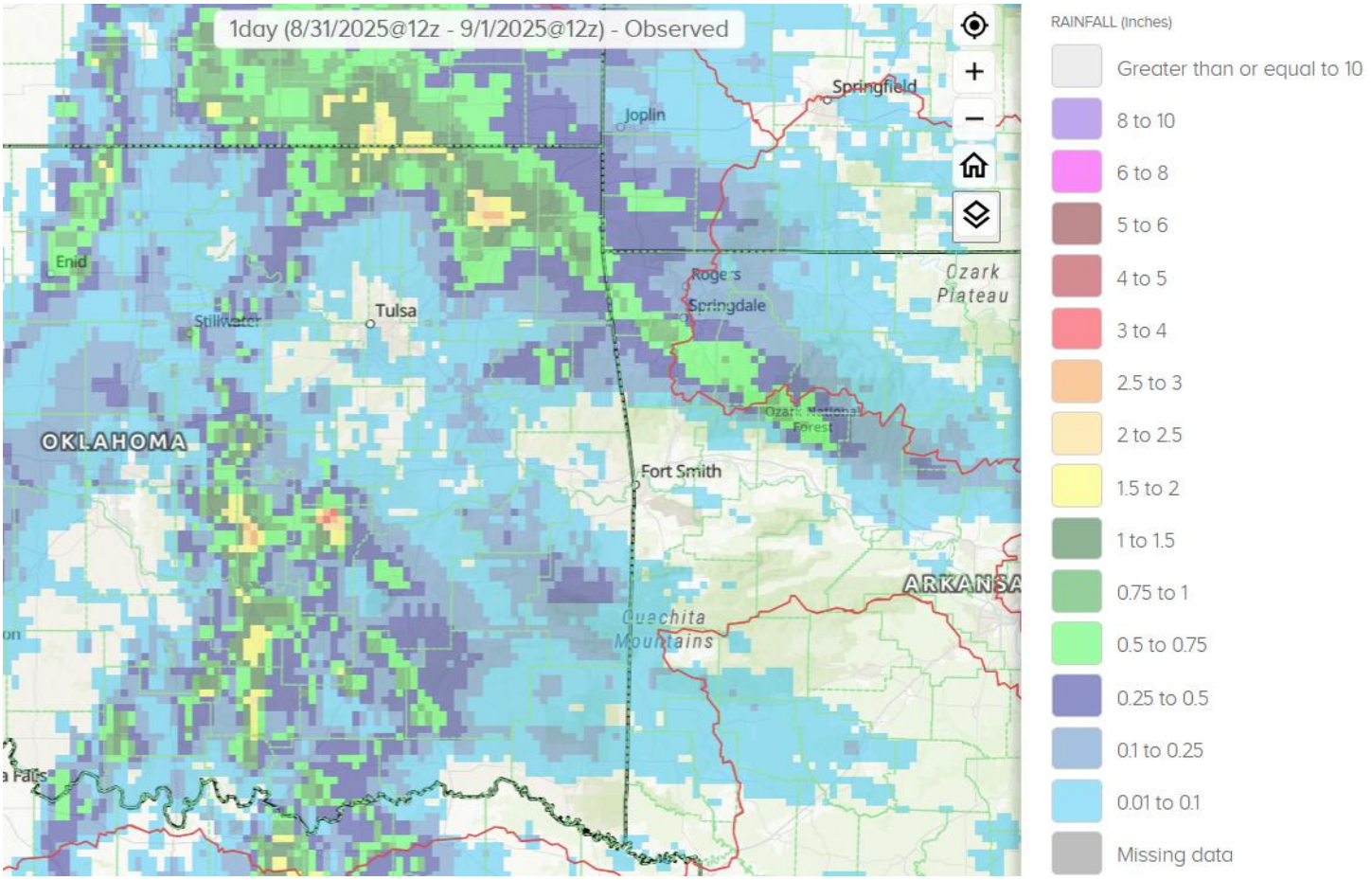


Fig. 4. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/01/2025.

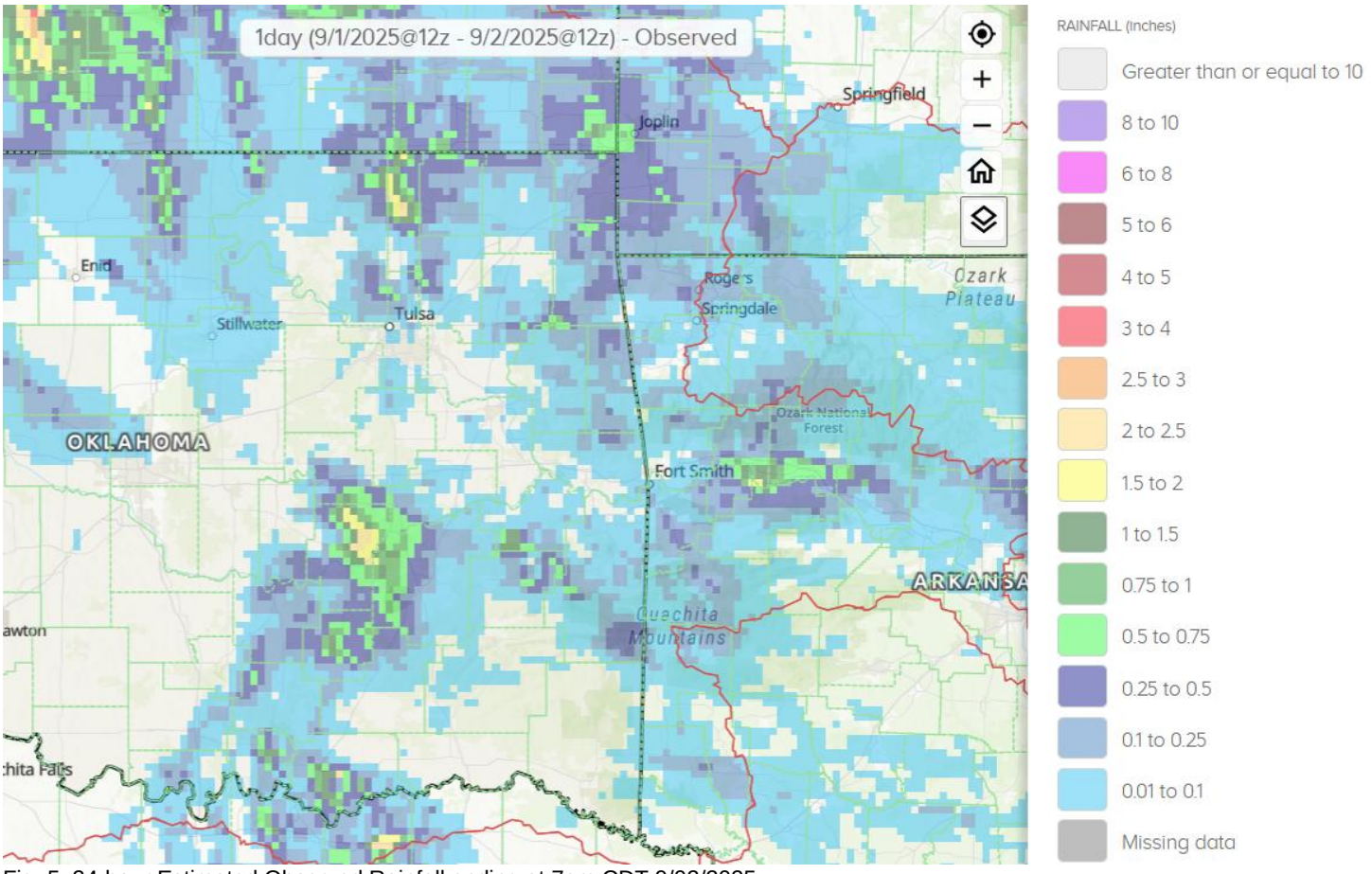


Fig. 5. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/02/2025.

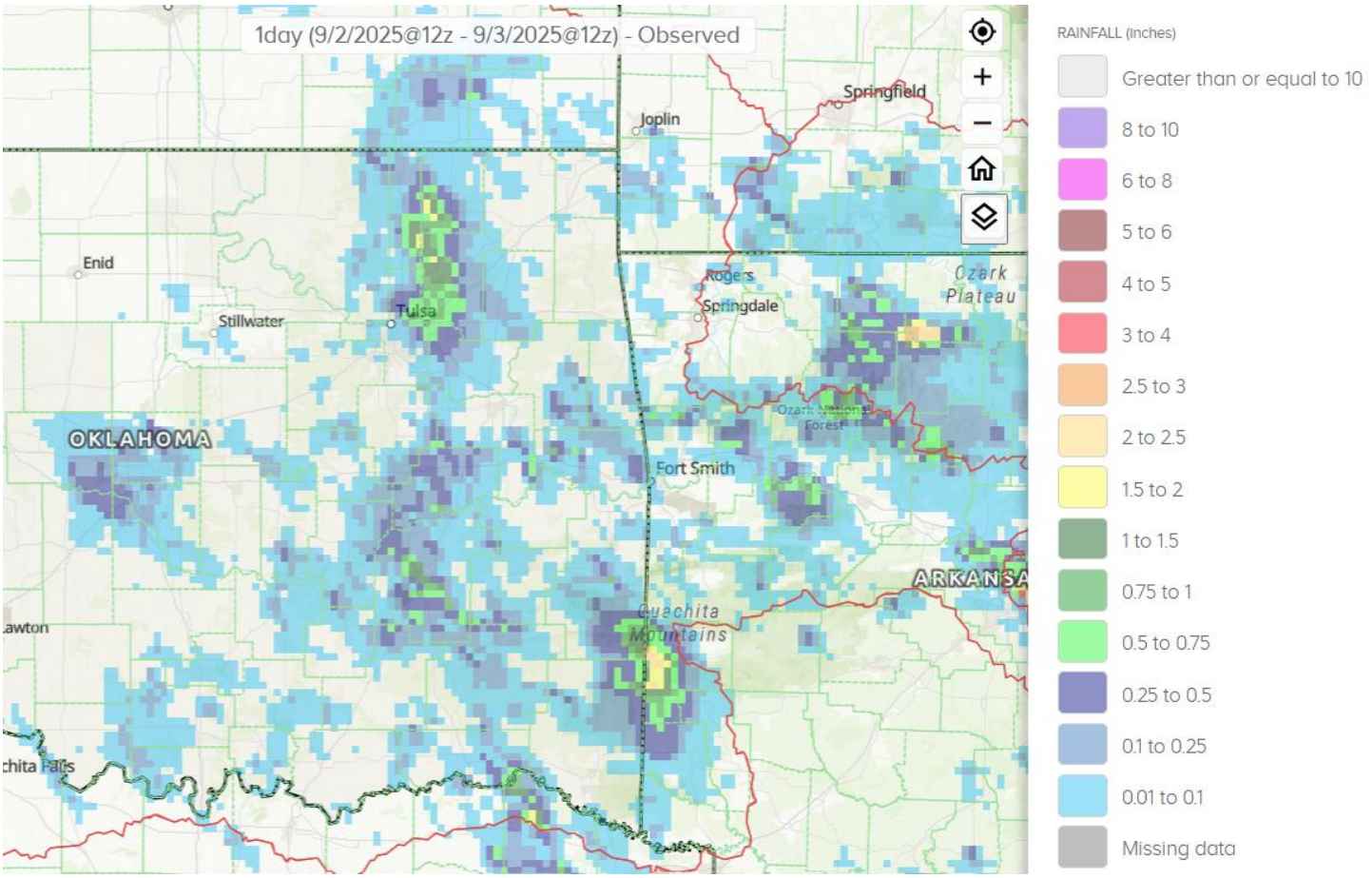


Fig. 6. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/03/2025.

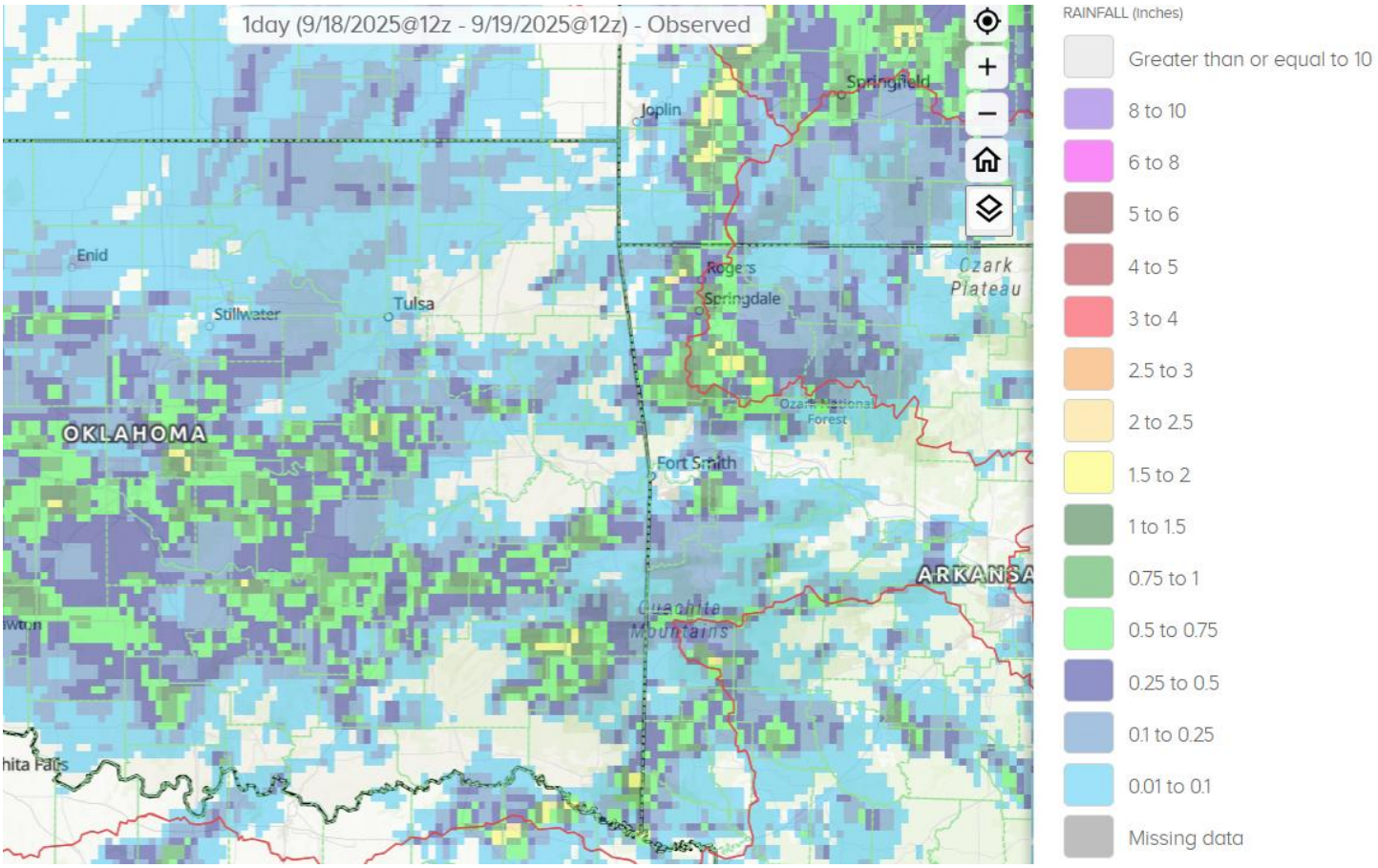


Fig. 7. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/19/2025.

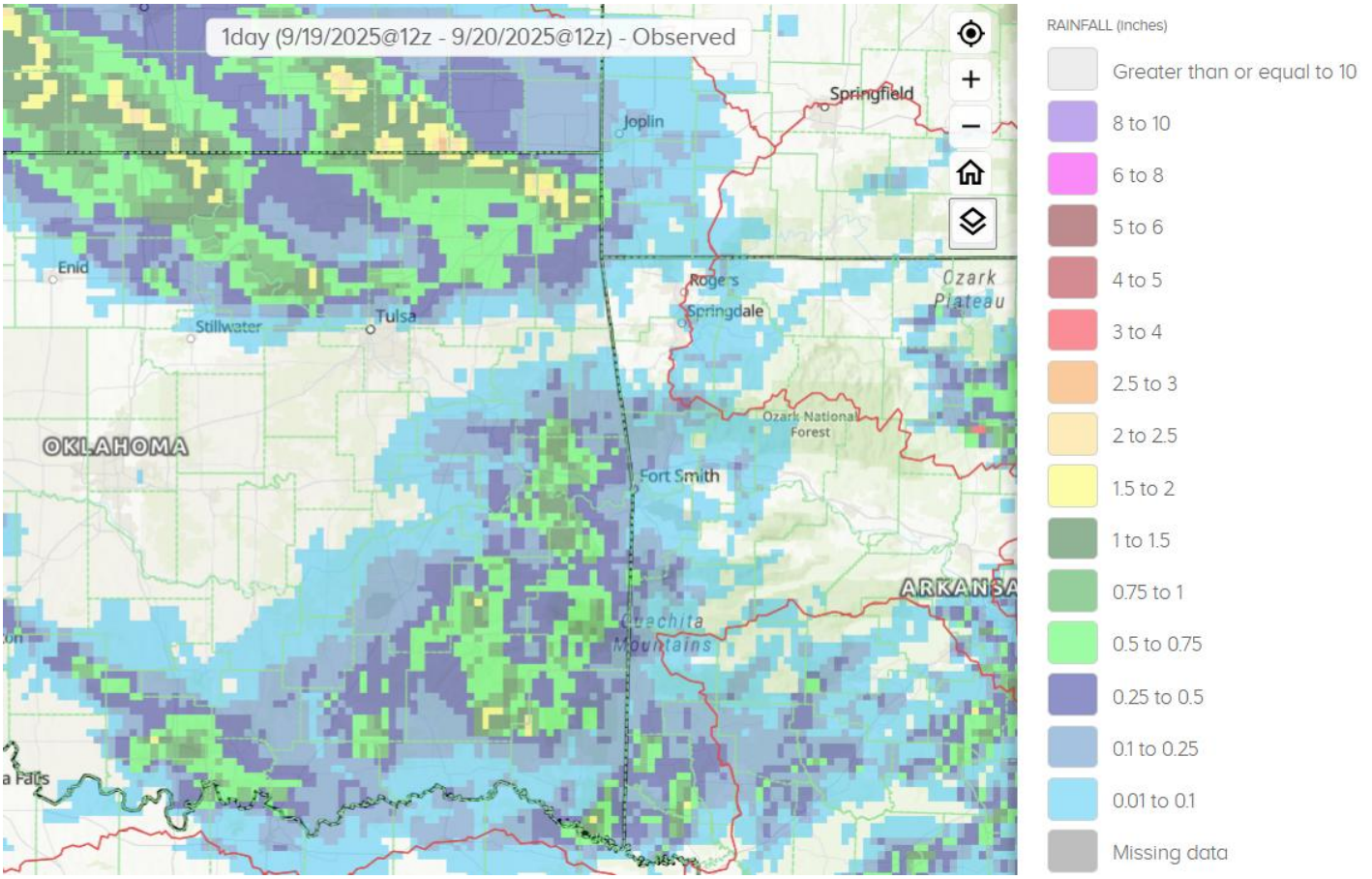


Fig. 8. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/20/2025.

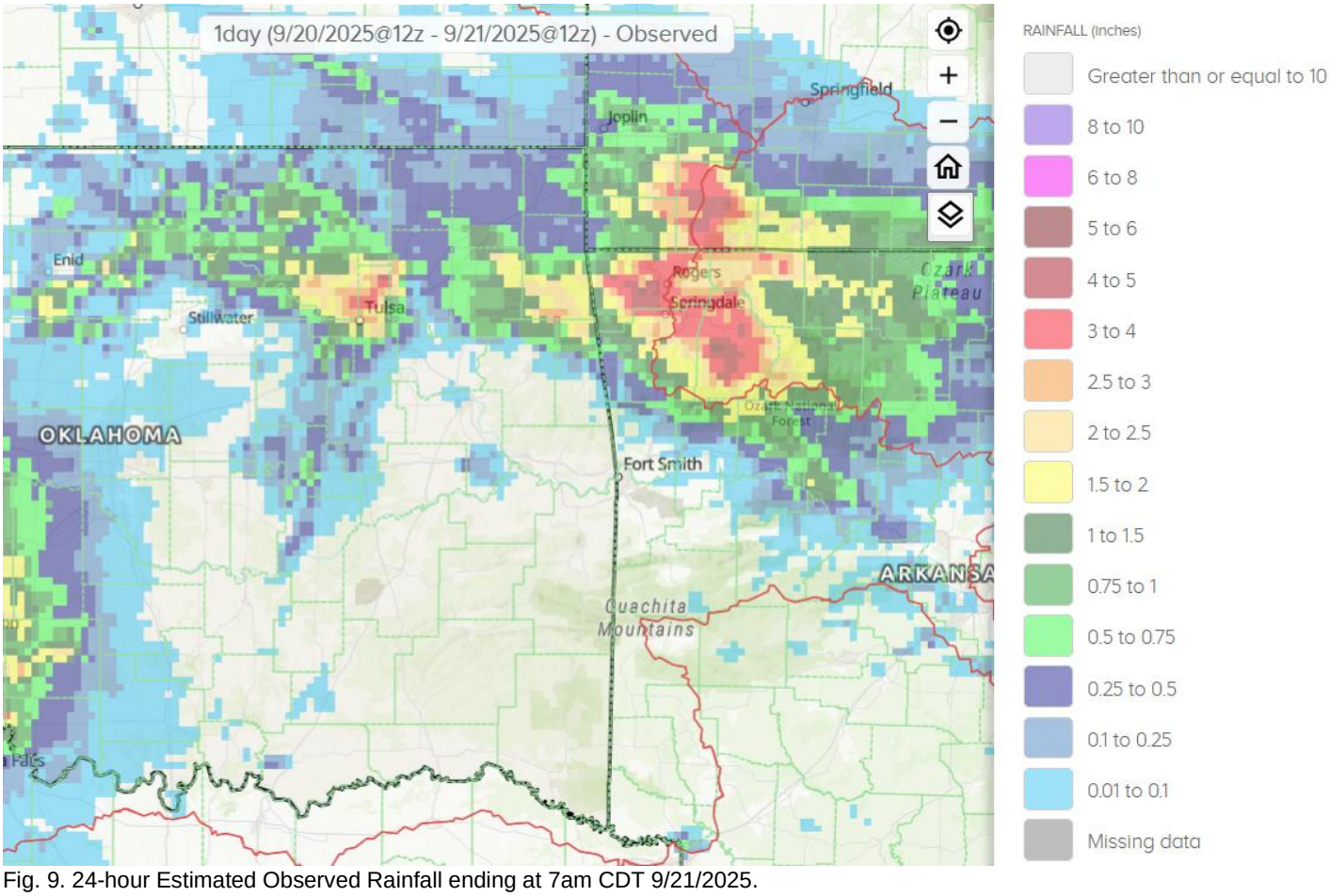


Fig. 9. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/21/2025.

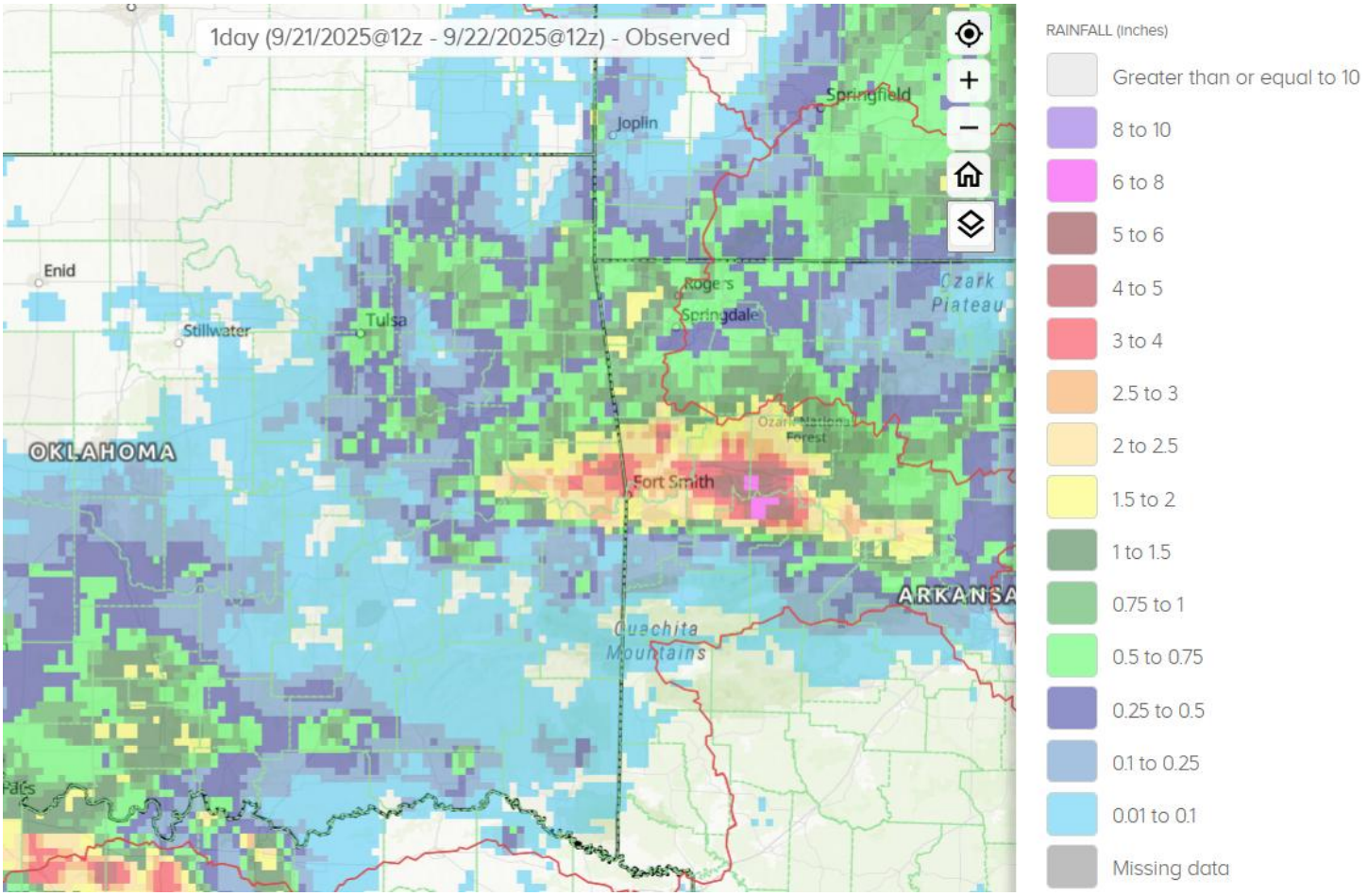


Fig. 10. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/22/2025.

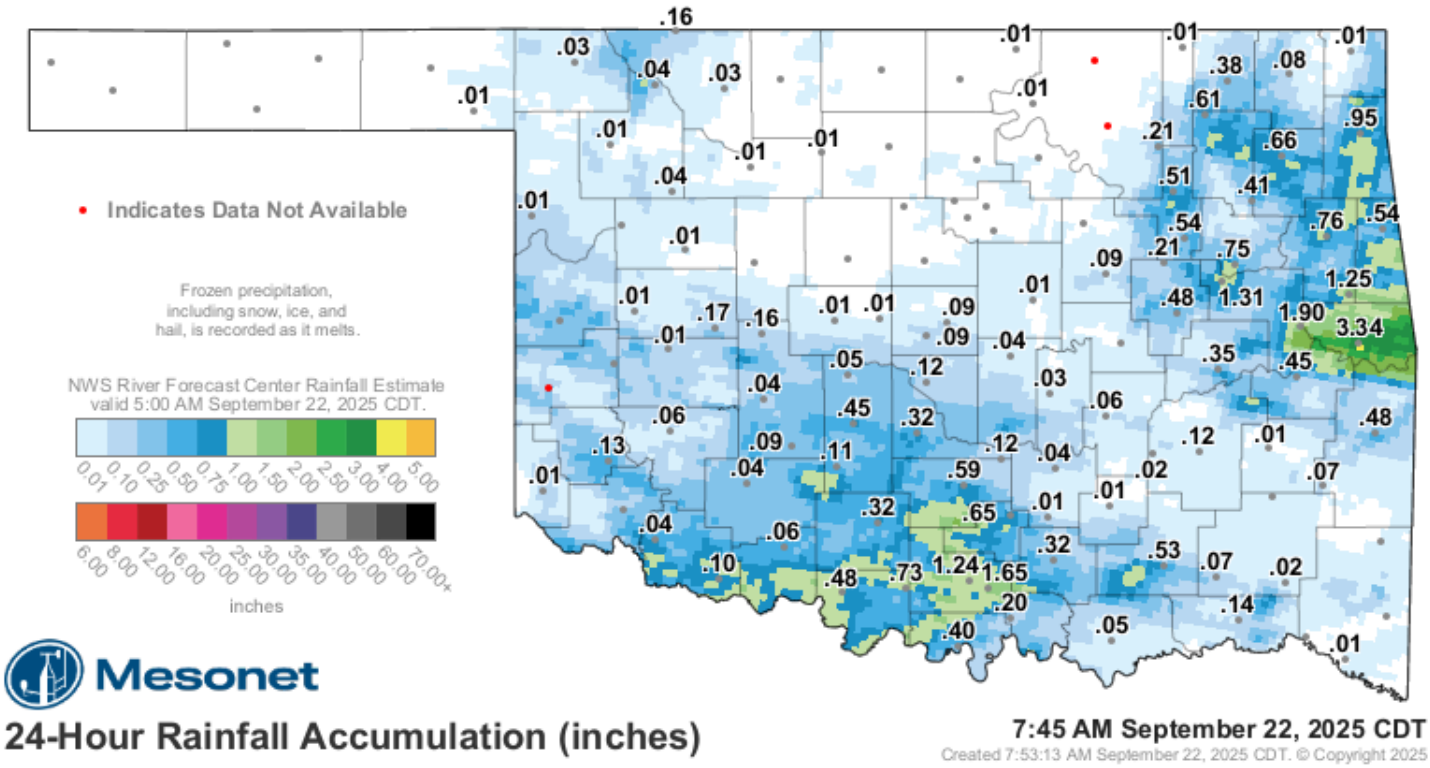


Fig. 11. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 7:45 am CDT 9/22/2025.

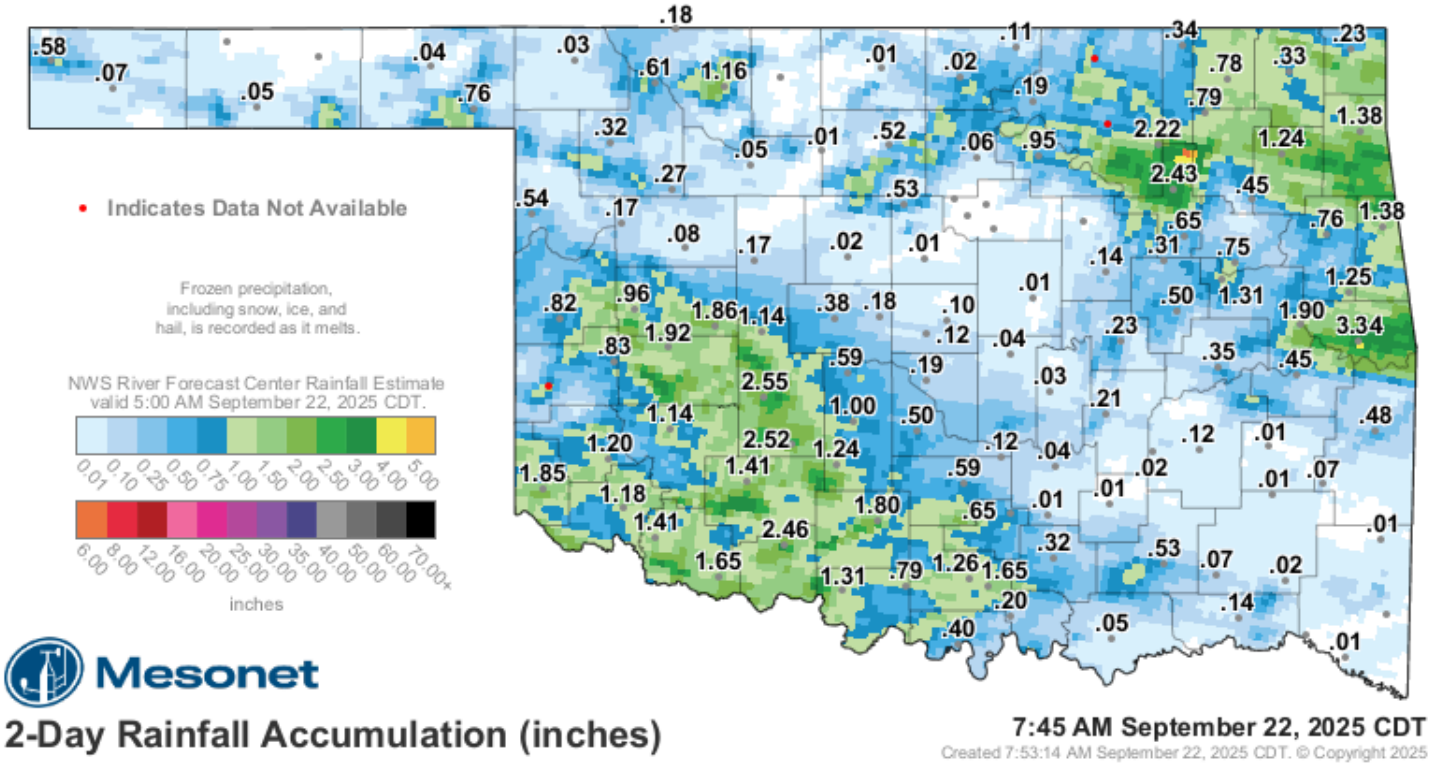


Fig. 12. OK Mesonet (values) and NWS RFC rainfall estimate (image) 48-hour rainfall ending at 7:45 am CDT 9/22/2025.

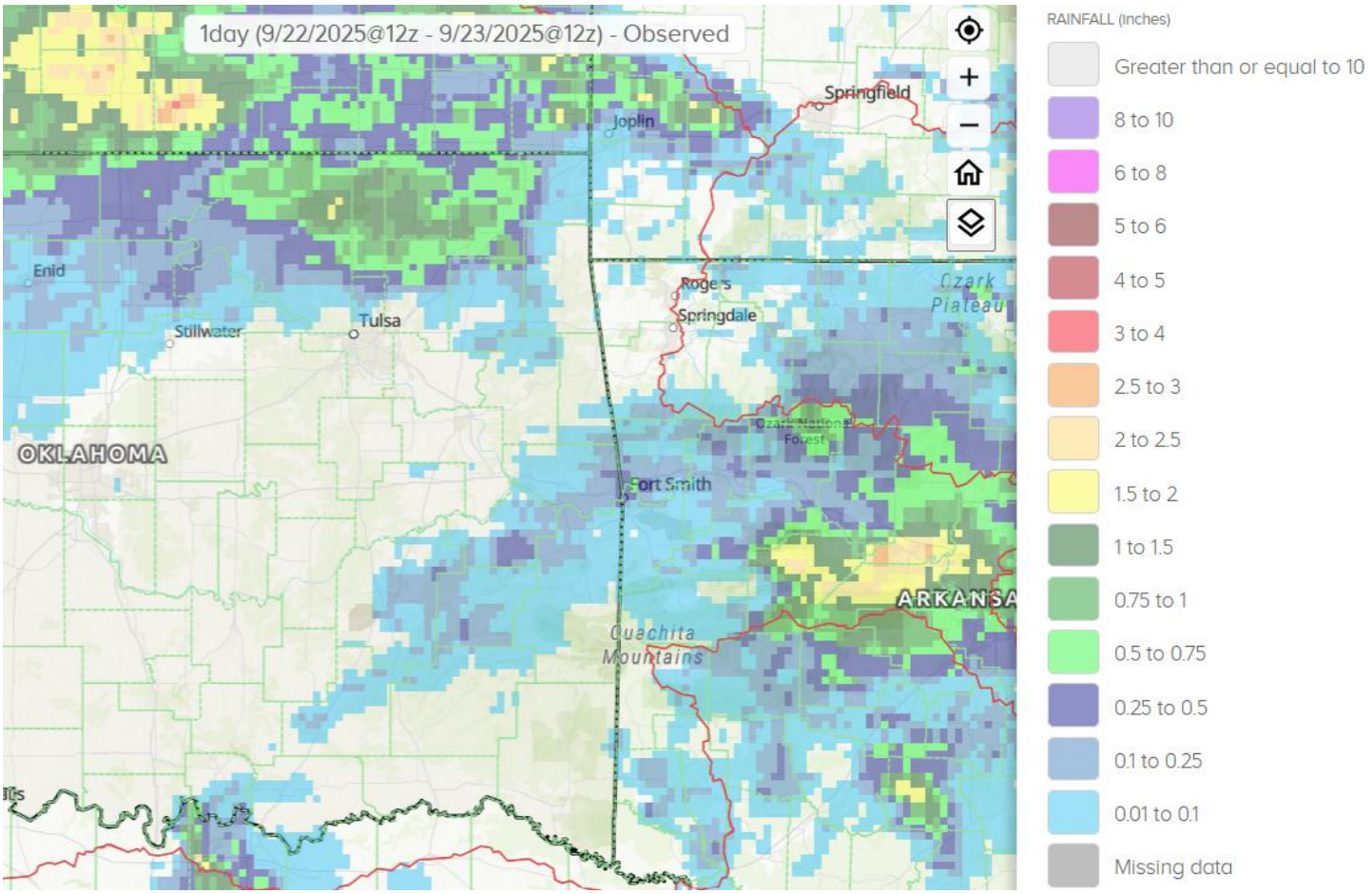


Fig. 13. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/23/2025.

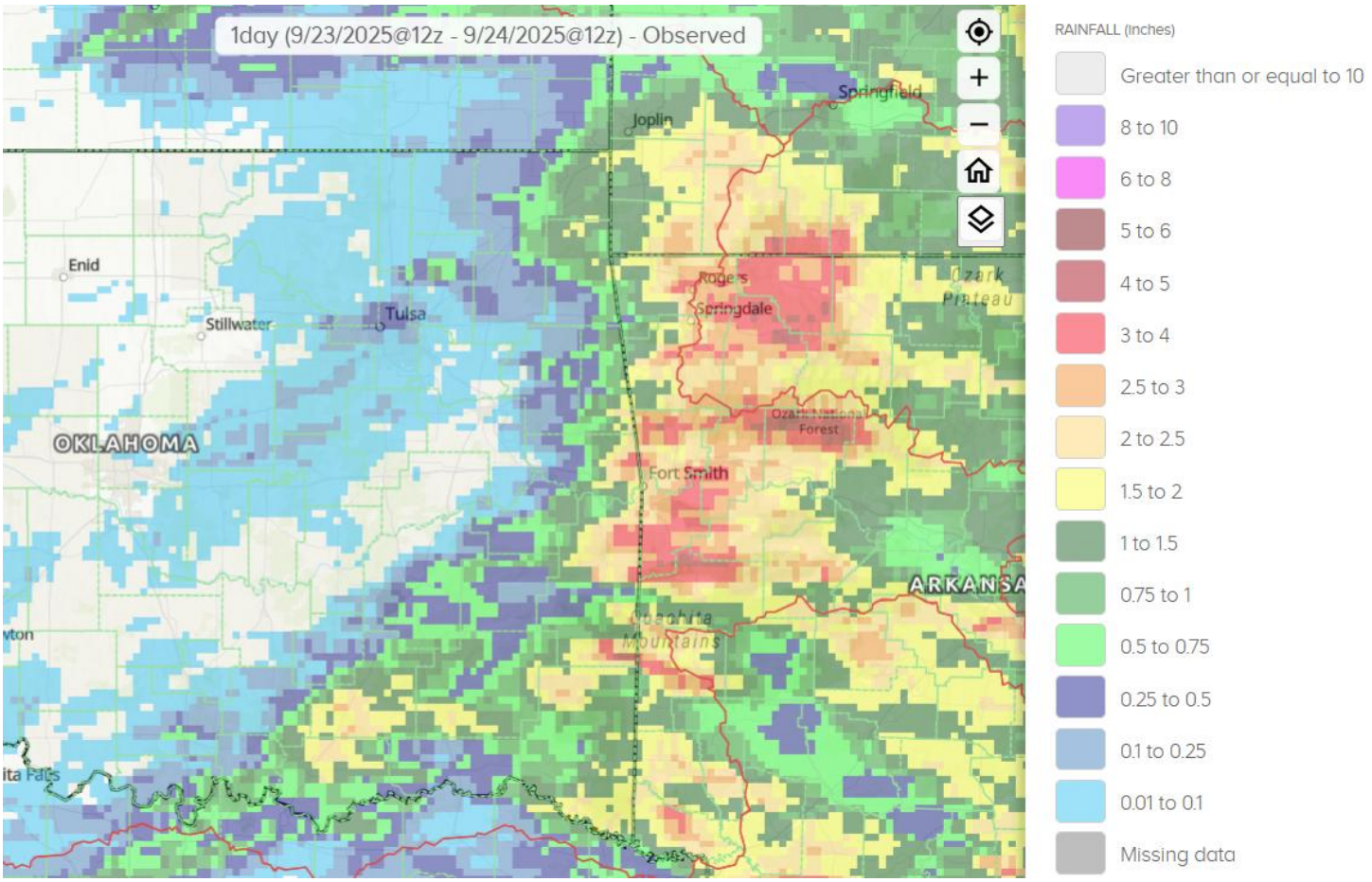


Fig. 14. 24-hour Estimated Observed Rainfall ending at 7am CDT 9/24/2025.

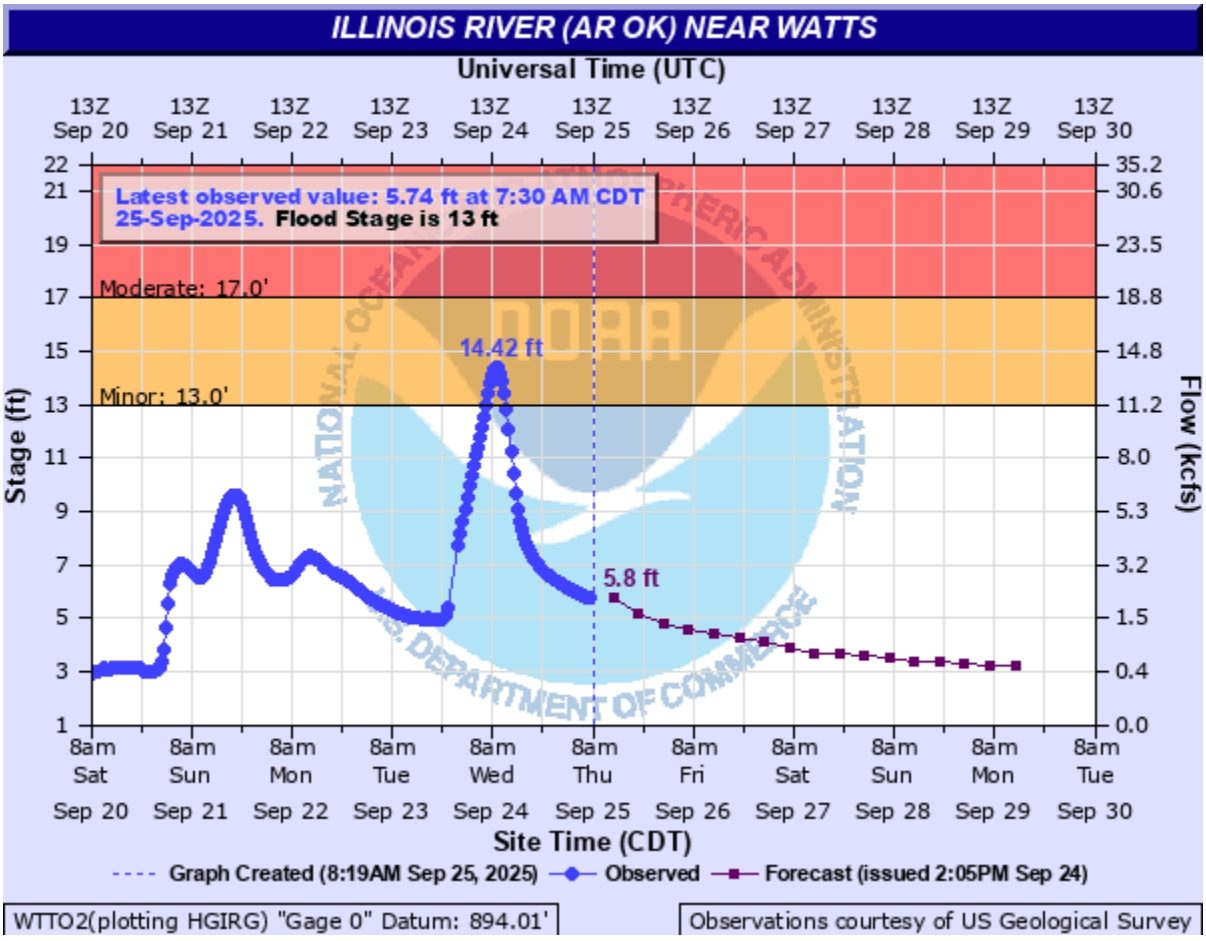
Another MCS moving across KS drifted south into northeast OK during the early morning hours of the 23rd and continued to push east-southeast into northwest AR by mid-morning. While a large portion of the MCS had exited the region by noon, thunderstorms remained across northwest AR during the afternoon hours. More convection developed over eastern OK during the afternoon along a Pacific cold front as the low-level jet axis moved into the area. Numerous thunderstorms continued from southeast OK into northwest AR through the evening and late-night hours before finally moving east of the area before sunrise on the 24th. Precipitable water (PWAT) values were 1.6”-1.8” across the area, which is above the 90th percentile for this time of year. Heavy rain was widespread, with a large portion of northwest AR and far east central and far southeast OK receiving 1”-4” of rain (Figs. 12, 13). There were numerous reports of flash flooding across northwest AR, as well as wind damage across eastern OK and northwest AR. The heavy rain fell over the headwaters of the Illinois River, resulting in minor flooding (see E3 and preliminary hydrographs at the end of this report). The Mulberry River also rose, but remained just below flood stage.

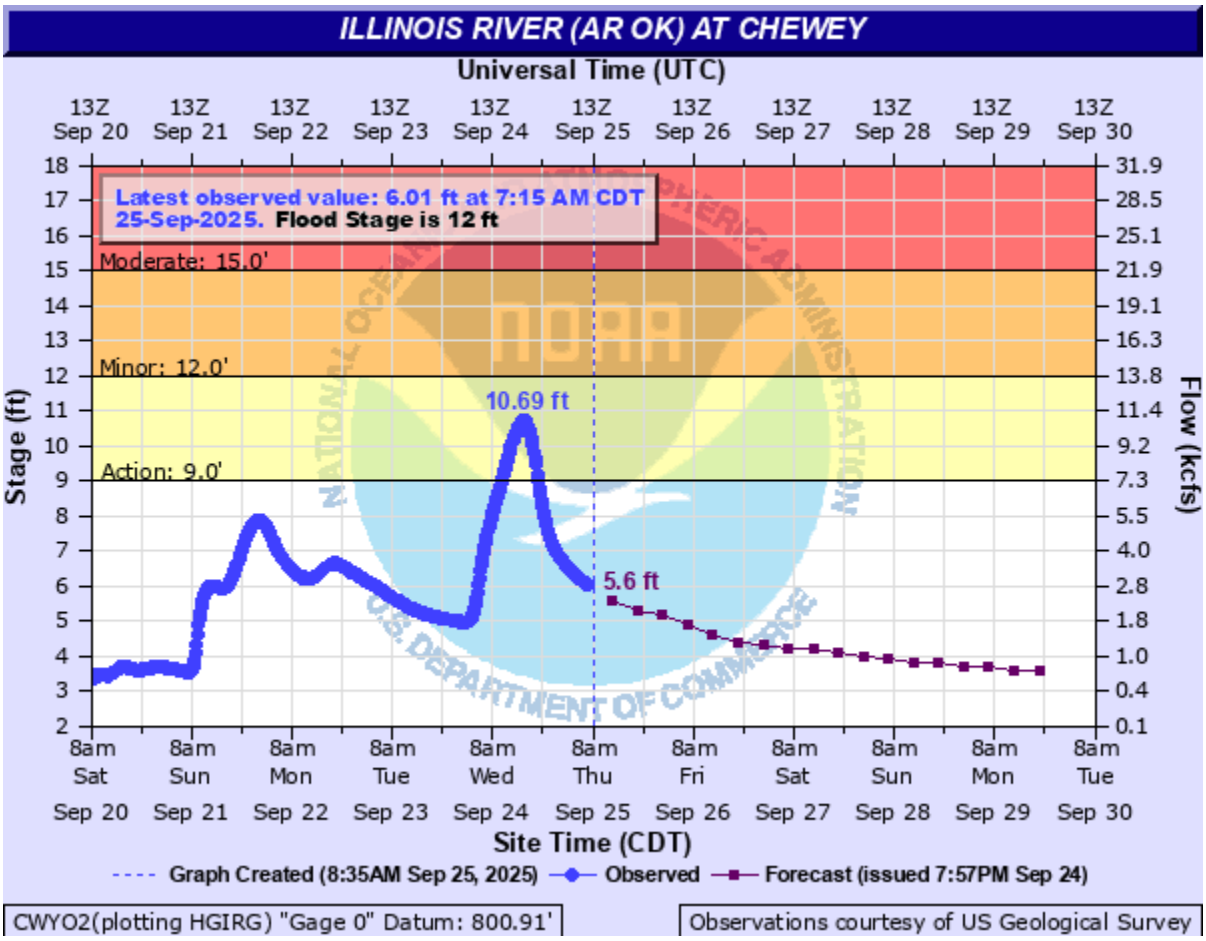
Written by:
Nicole McGavock
Service Hydrologist
WFO Tulsa

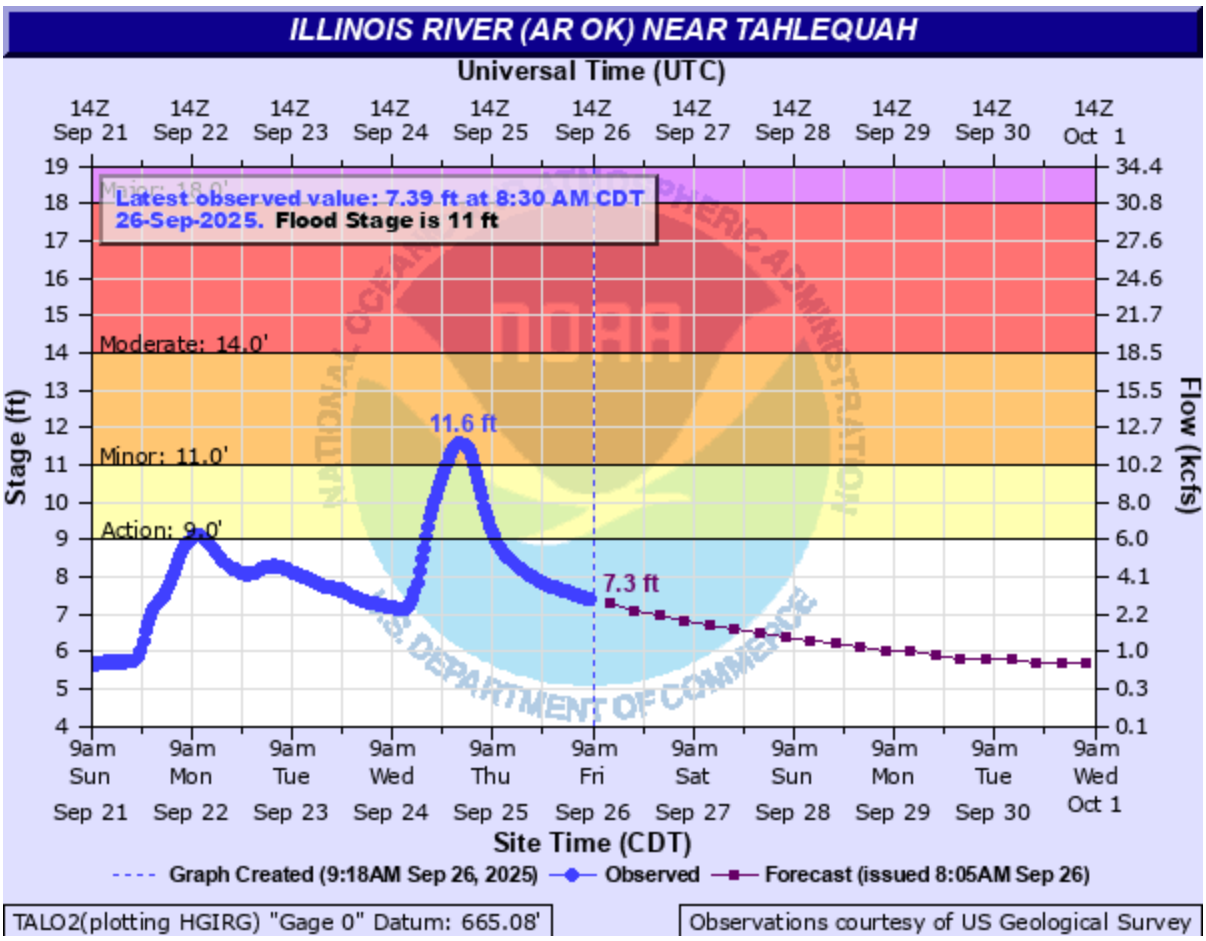
Products issued in September 2025:

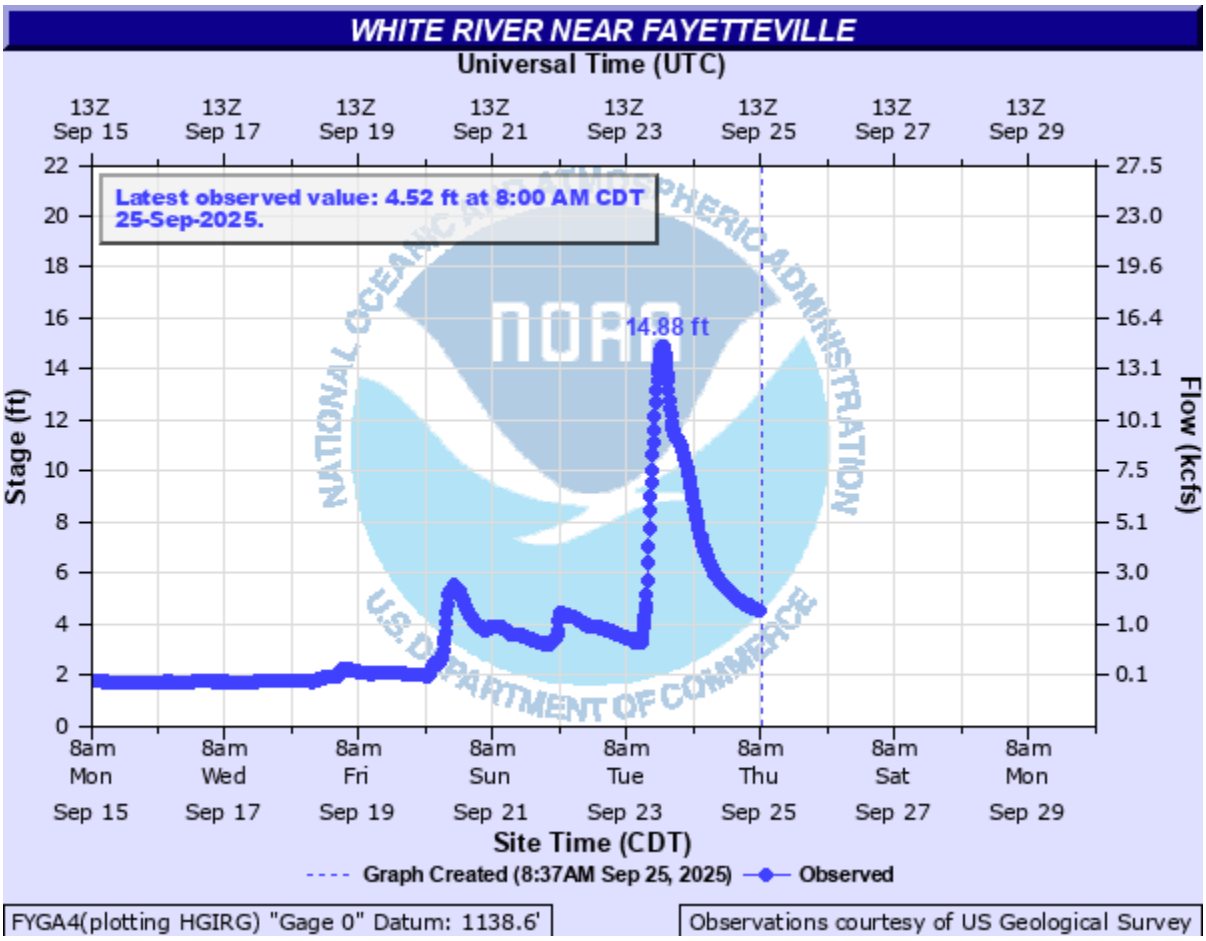
26 Flash Flood Warnings (FFW)
14 Flash Flood Statements (FFS)
1 Flash/Areal Flood Watches (FFA) (4 Watch FFA CON/EXT/EXA/EXB/CAN)
35 Urban and Small Stream Advisories (FLS)
9 Areal Flood Warnings (FLW)
2 Areal Flood Statements (FLS)
3 River Flood Warnings (FLW) (includes category increases)
14 River Flood Statements (FLS)
4 River Flood Advisories (FLS) (11 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)

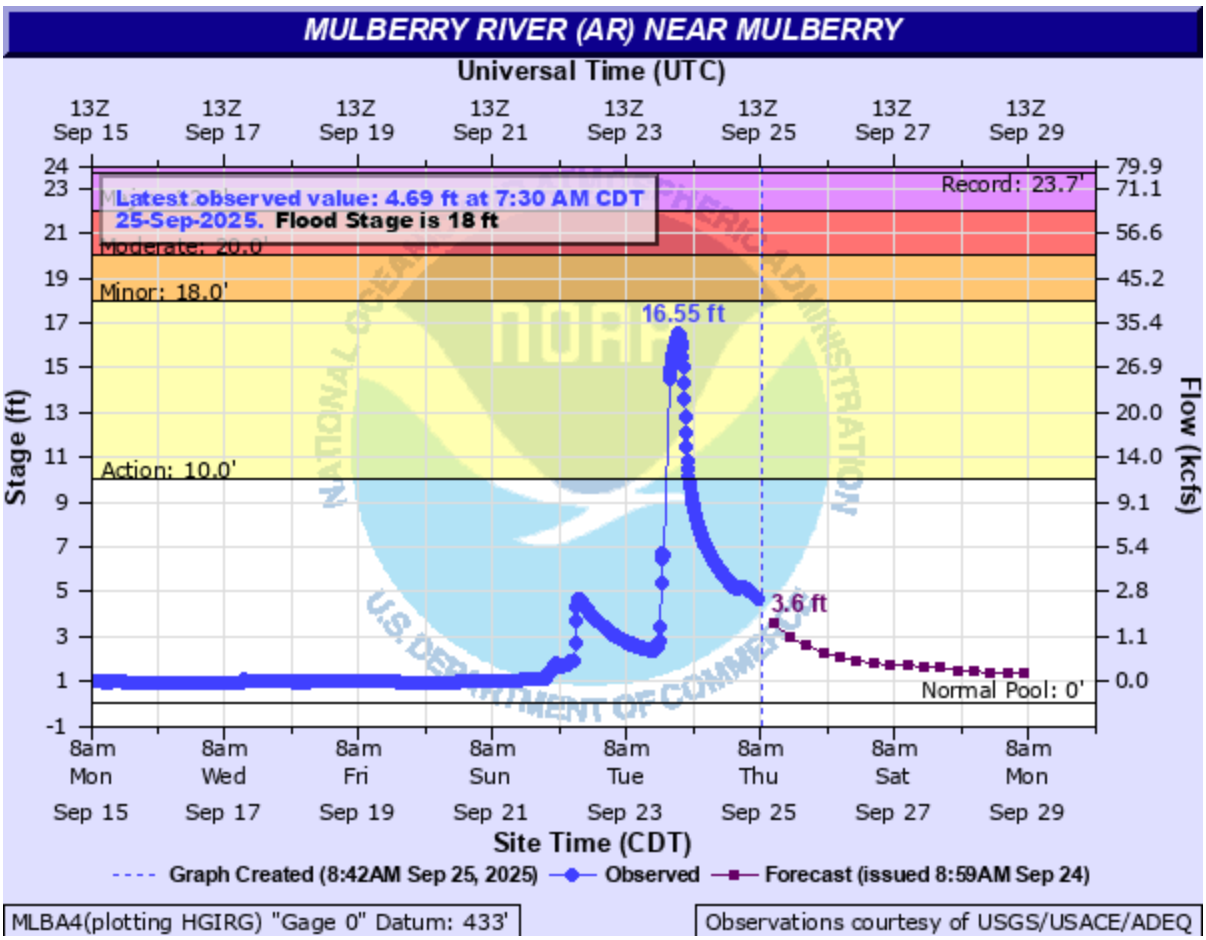
Preliminary Hydrographs:




ILLINOIS RIVER (AR OK) AT CHEWEY
Universal Time (UTC)
13Z Sep 20
13Z Sep 21
13Z Sep 22
13Z Sep 23
13Z Sep 24
13Z Sep 25
13Z Sep 26
13Z Sep 27
13Z Sep 28
13Z Sep 29
13Z Sep 30
Latest observed value: 6.01 ft at 7:15 AM CDT 25-Sep-2025. Flood Stage is 12 ft
Moderate: 15.0'
Minor: 12.0'
Action: 9.0'
10.69 ft
5.6 ft
Stage (ft)
Flow (kcfs)
8am Sat Sep 20
8am Sun Sep 21
8am Mon Sep 22
8am Tue Sep 23
8am Wed Sep 24
8am Thu Sep 25
8am Fri Sep 26
8am Sat Sep 27
8am Sun Sep 28
8am Mon Sep 29
8am Tue Sep 30
Site Time (CDT)
Graph Created (8:35AM Sep 25, 2025)
Observed
Forecast (issued 7:57PM Sep 24)
CWYO2(plotting HGIRG) "Gage 0" Datum: 800.91'
Observations courtesy of US Geological Survey


ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH
Universal Time (UTC)
14Z Sep 21
14Z Sep 22
14Z Sep 23
14Z Sep 24
14Z Sep 25
14Z Sep 26
14Z Sep 27
14Z Sep 28
14Z Sep 29
14Z Sep 30
14Z Oct 1
Latest observed value: 7.39 ft at 8:30 AM CDT 26-Sep-2025. Flood Stage is 11 ft
Moderate: 14.0'
Minor: 11.0'
Action: 9.0'
11.6 ft
7.3 ft
Stage (ft)
Flow (kcfs)
9am Sun Sep 21
9am Mon Sep 22
9am Tue Sep 23
9am Wed Sep 24
9am Thu Sep 25
9am Fri Sep 26
9am Sat Sep 27
9am Sun Sep 28
9am Mon Sep 29
9am Tue Sep 30
9am Wed Oct 1
Site Time (CDT)
Graph Created (9:18AM Sep 26, 2025)
Observed
Forecast (issued 8:05AM Sep 26)
TALO2(plotting HGIRG) "Gage 0" Datum: 665.08'
Observations courtesy of US Geological Survey


WHITE RIVER NEAR FAYETTEVILLE
Universal Time (UTC)
13Z Sep 15
13Z Sep 17
13Z Sep 19
13Z Sep 21
13Z Sep 23
13Z Sep 25
13Z Sep 27
13Z Sep 29
Latest observed value: 4.52 ft at 8:00 AM CDT 25-Sep-2025.
14.88 ft
Stage (ft)
Flow (kcfs)
8am Mon Sep 15
8am Wed Sep 17
8am Fri Sep 19
8am Sun Sep 21
8am Tue Sep 23
8am Thu Sep 25
8am Sat Sep 27
8am Mon Sep 29
Site Time (CDT)
Graph Created (8:37AM Sep 25, 2025)
Observed
FYGA4(plotting HGIRG) "Gage 0" Datum: 1138.6'
Observations courtesy of US Geological Survey


MULBERRY RIVER (AR) NEAR MULBERRY
Universal Time (UTC)
13Z Sep 15
13Z Sep 17
13Z Sep 19
13Z Sep 21
13Z Sep 23
13Z Sep 25
13Z Sep 27
13Z Sep 29
Latest observed value: 4.69 ft at 7:30 AM CDT 25-Sep-2025. Flood Stage is 18 ft
Record: 23.7'
Moderate: 20.0'
Minor: 18.0'
Action: 10.0'
16.55 ft
3.6 ft
Normal Pool: 0'
Stage (ft)
Flow (kcfs)
8am Mon Sep 15
8am Wed Sep 17
8am Fri Sep 19
8am Sun Sep 21
8am Tue Sep 23
8am Thu Sep 25
8am Sat Sep 27
8am Mon Sep 29
Site Time (CDT)
Graph Created (8:42AM Sep 25, 2025)
Observed
Forecast (issued 8:59AM Sep 24)
MLBA4(plotting HGIRG) "Gage 0" Datum: 433'
Observations courtesy of USGS/USACE/ADEQ