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
MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS	HYDROLOGIC SERVICE AREA (HSA) **Tulsa, Oklahoma (TSA)**
	REPORT FOR: MONTH **January** 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 **February 14, 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.**

While most of the month was cold and dry, a storm system at the end of January 2025 brought heavy rain to southeast OK and west central AR, including some minor flooding along the Poteau River. Overall, it was a colder than normal January, and a strong storm system brought widespread heavy snow to the area mid-month. Normal precipitation for January ranges from 1.2 inches in Pawnee County to 2.2 inches in Haskell County. In the Ozark region of northwest Arkansas, precipitation averages 2.2 inches for the 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 January 2025 ranged from around 0.5" to 8" across eastern OK and northwest AR, with much of the area receiving 1.2"-2.5". These rainfall totals correspond to 35% to 220% of the normal January rainfall, with most of the area receiving 40%-80% of normal for the month (Fig. 1b).

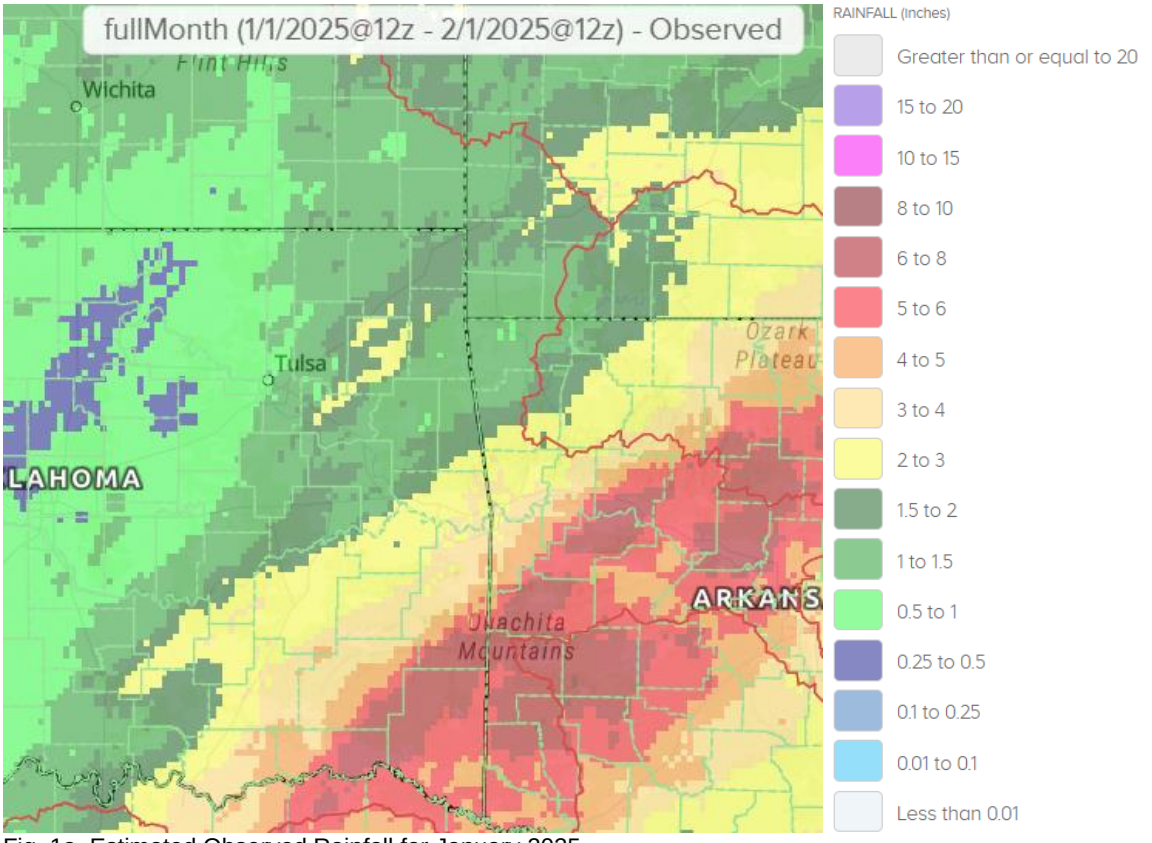


Fig. 1a. Estimated Observed Rainfall for January 2025

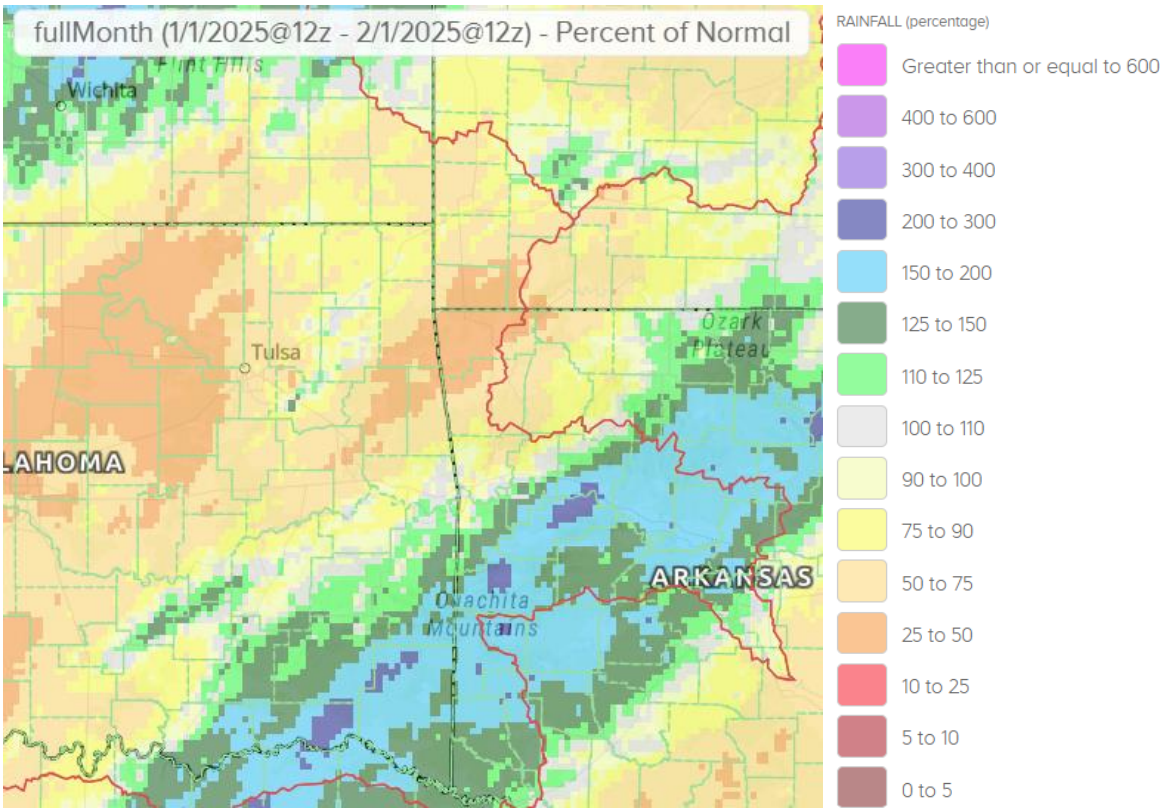


Fig. 1b. Estimated % of Normal Rainfall for January 2025

In Tulsa, OK, January 2025 ranked as the 28th coldest January (34.5°F; since records began in 1905), the 60th driest January (1.16"; since records began in 1888), and the 17th snowiest January (6.4"; since records began in 1900). Fort Smith, AR had the 28th coldest January (36.6°F, tied 1973; since records began in 1883), the 47th wettest January (2.93"; since records began in 1883), and the 12th snowiest January (8.0"; since records began in 1884). Fayetteville, AR had the 17th coldest (33.5°F), the 30th driest (1.77"), and the 8th snowiest (7.5") January since records began in 1950.

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

Kingston 2S, AR (coop)	7.18	Hugo 1.9ENE, OK (coco)	7.15	Green Forest 7NNE, AR (coop)	6.50
Cloudy, OK (meso)	6.45	Hugo, OK (meso)	4.98	Ozark 4.6S, AR (coco)	4.13
Greenwood 0.9S, AR (coco)	3.71	Antlers 6.3SE, OK (coco)	3.59	Antlers, OK (meso)	3.41

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

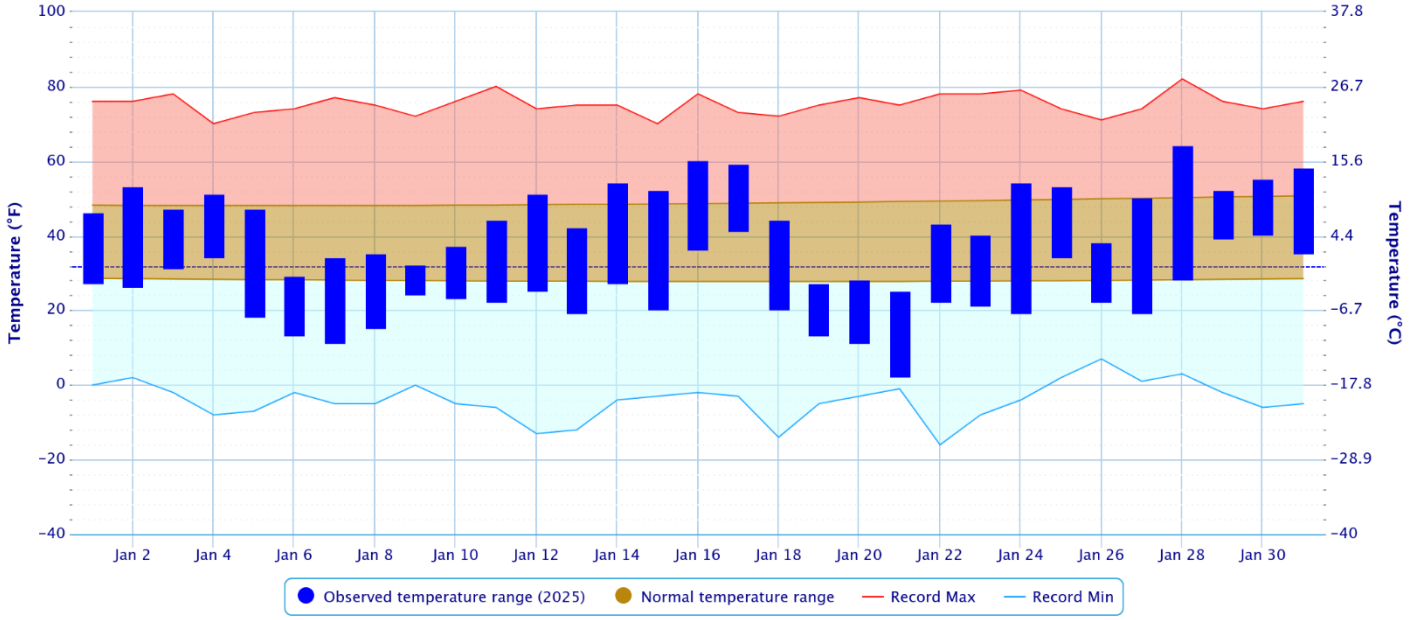
Oilton, OK (meso)	0.59	Terlton 3.7ESE, OK (coco)	0.60	Sand Springs 2.7S, OK (coco)	0.67
Foraker, OK (meso)	0.68	Pawnee, OK (meso)	0.71	Burbank, OK (meso)	0.74
Tulsa 2.6SSW, OK (coco)	0.80	Owasso 4.6ENE, OK (coco)	0.85	Wynona, OK (meso)	0.86

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

Rank since 1921	January 2025	Winter-to-Date (Dec 1 – Jan 31)	Last 90 Days (Nov 3 – Jan 31)	Water Year-to-Date (Oct 1, 2024 – Jan 31, 2025)	Last 180 Days (Aug 5 – Jan 31)	Last 365 Days (Feb 2, 2024 – Jan 31, 2025)
Northeast OK	43rd driest	23rd driest	**8th wettest**	19th wettest	47th wettest	49th driest
East Central OK	50th driest	49th wettest	**10th wettest**	25th wettest	32nd wettest	35th wettest
Southeast OK	23rd wettest	**8th wettest**	**8th wettest**	24th wettest	42nd wettest	37th driest
Statewide	46th driest	39th driest	**5th wettest**	23rd wettest	37th wettest	52nd driest

Daily Temperature Data – Tulsa Area, OK (ThreadEx)

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



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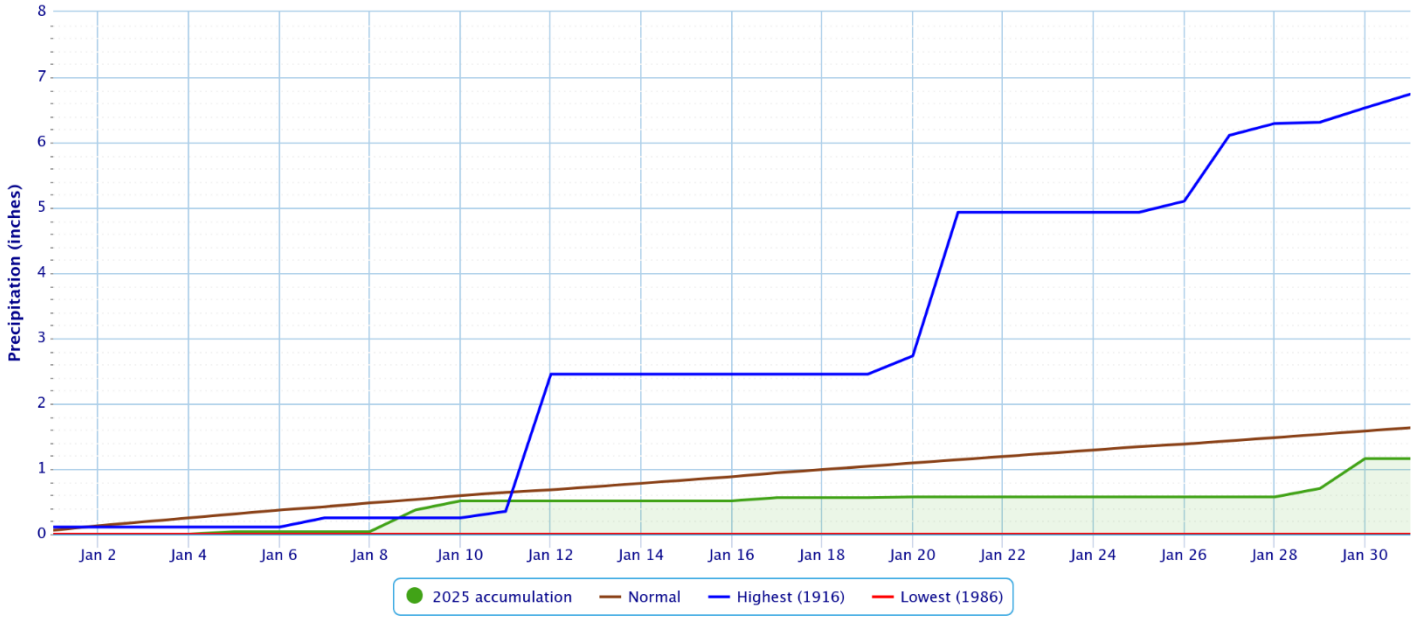
Accumulated Precipitation – Tulsa Area, OK (ThreadEx)

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



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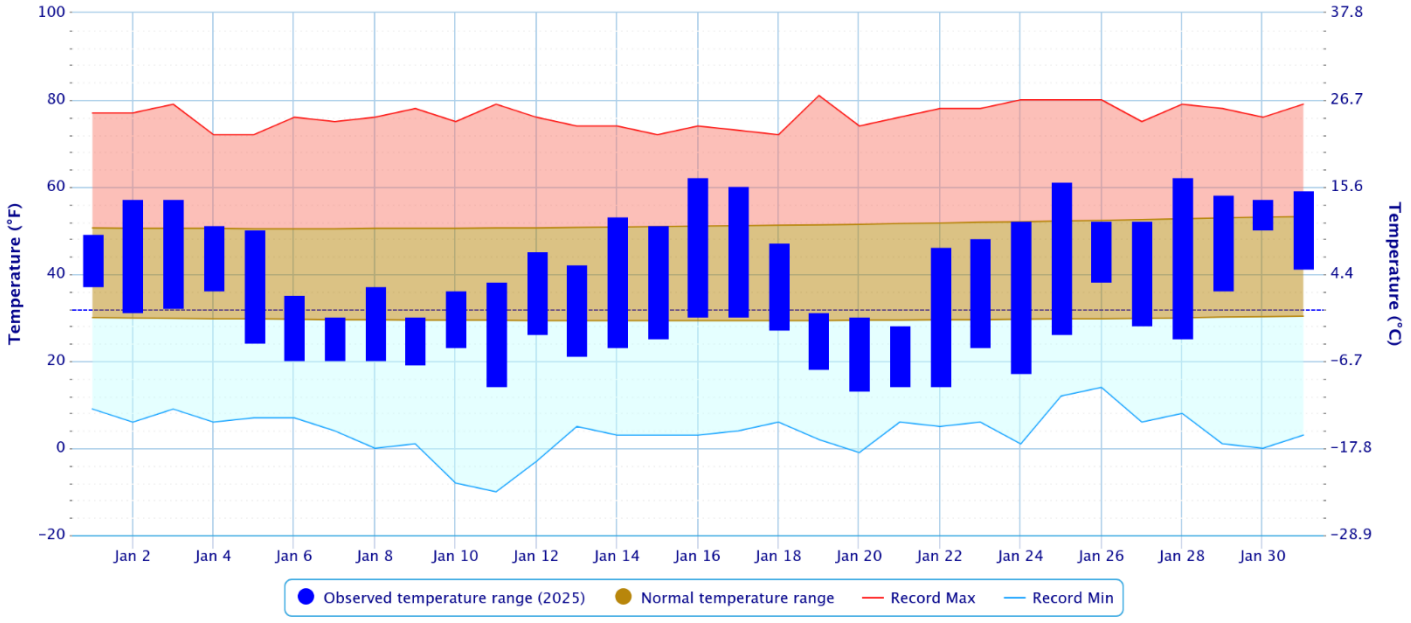
Daily Temperature Data – FORT SMITH REGIONAL AP, AR

Period of Record – 1945-09-27 to 2025-02-02. Normals period: 1991-2020. Click and drag to zoom chart.



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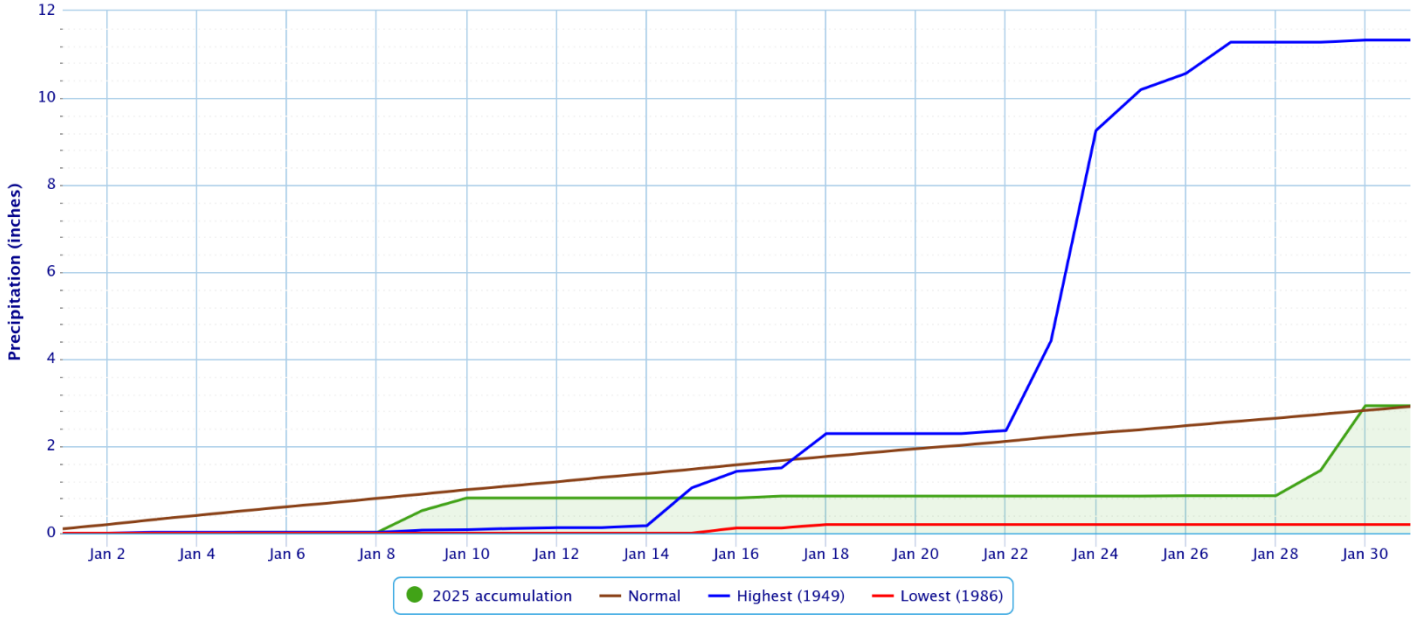
Accumulated Precipitation – FORT SMITH REGIONAL AP, AR

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

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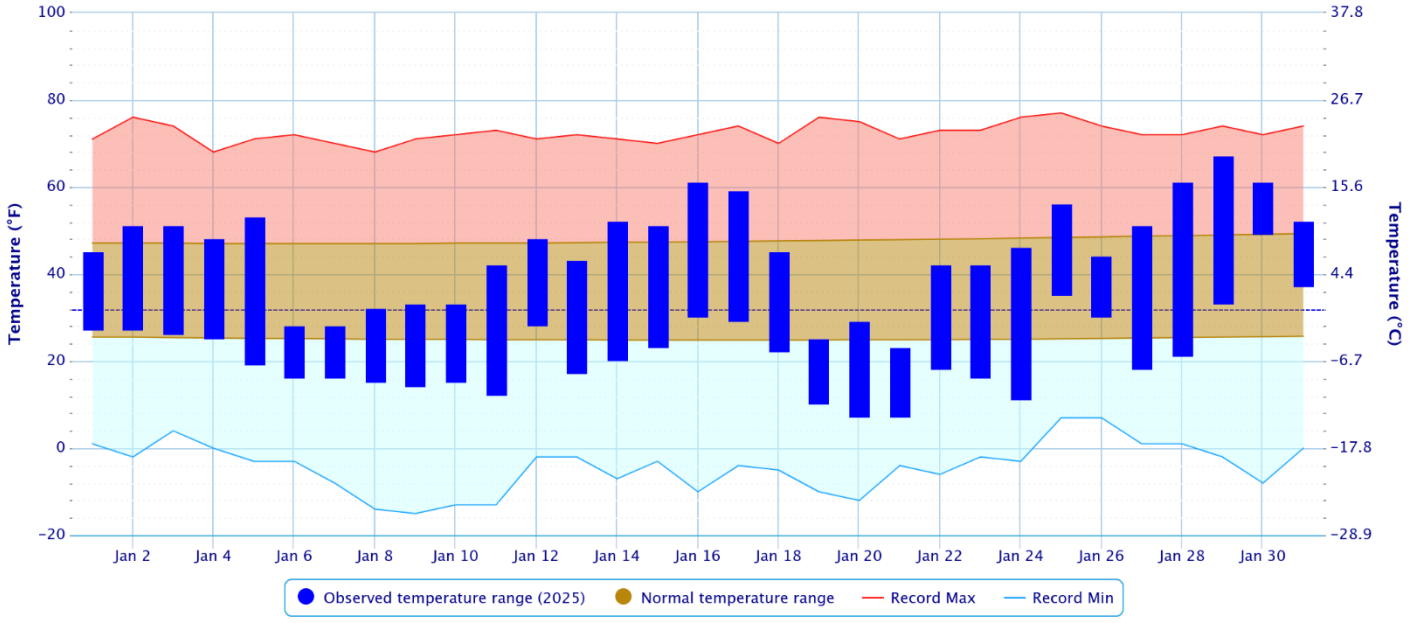

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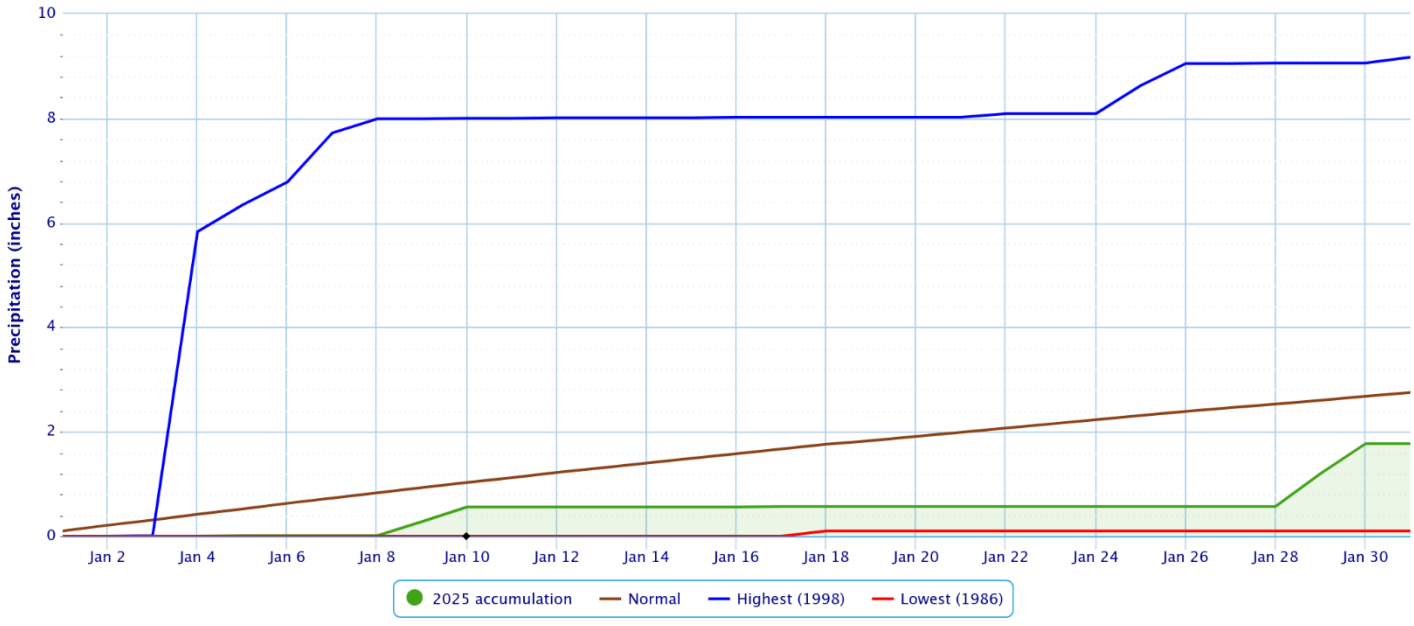
Accumulated Precipitation – FAYETTEVILLE DRAKE FIELD, AR

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



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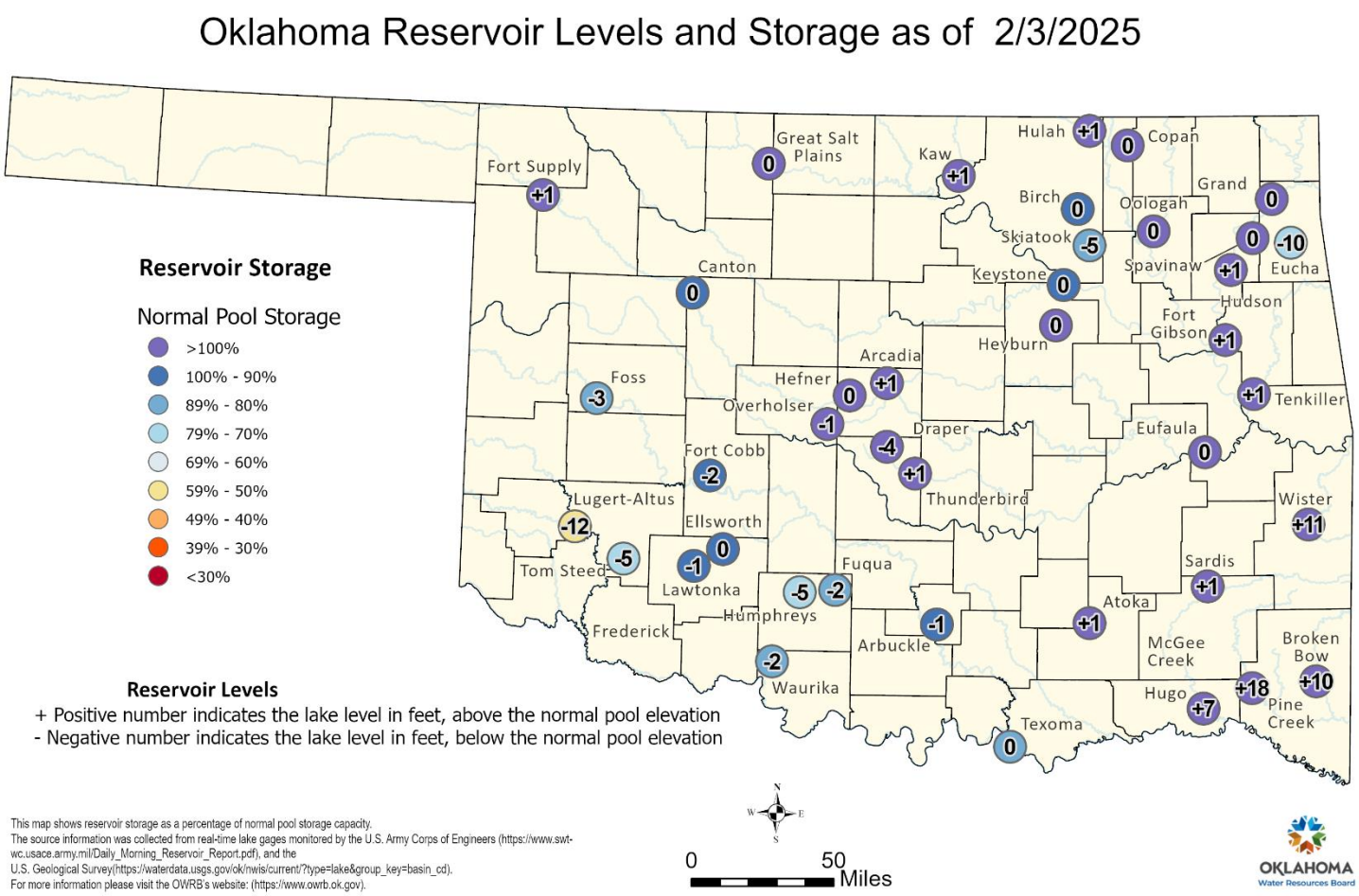
Reservoirs



According to the USACE, a few lakes in the HSA were above 3% of top of their conservation pools as of 1/31/2025: Wister Lake 21%, Sardis Lake 16%, Hugo Lake 9%, and Hudson Lake 5%. A couple of lakes were more than 3% below the top of their conservation pools: Keystone Lake 96% and Skiatook Lake 84%.

Drought

According to the U.S. Drought Monitor (USDM) from February 4, 2025 (Figs. 2, 3), Severe (D2) Drought was present in a small portion of eastern Kay County in eastern OK. Moderate (D1) drought conditions were occurring across portions of Osage, Pawnee, eastern Kay, Cherokee, Adair, and Delaware Counties in eastern OK, and Benton County in northwest AR. Abnormally Dry (D0) but not in drought conditions were depicted in parts of Osage, Pawnee, Creek, Tulsa, Okfuskee, Craig, Rogers, Mayes, Ottawa, Delaware, Adair, Cherokee, Wagoner, and Muskogee Counties in eastern OK, and Benton, Washington, and Carroll Counties in northwest AR.

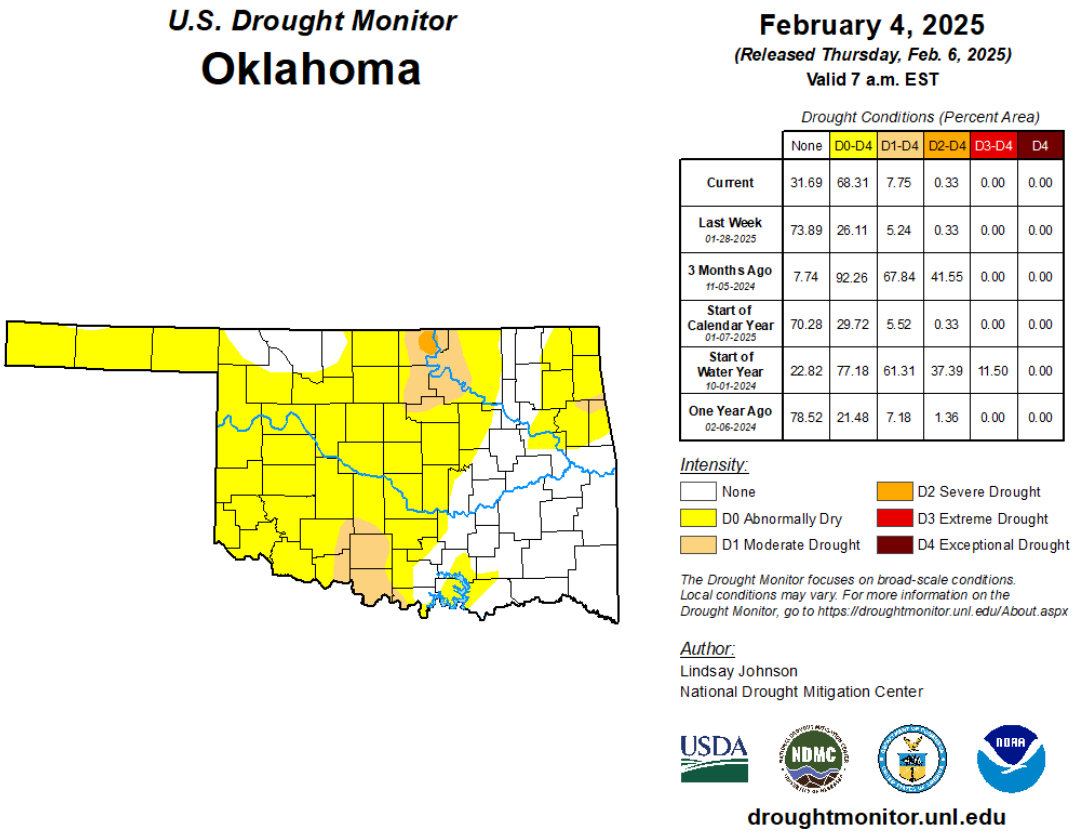


Fig. 2. Drought Monitor for Oklahoma

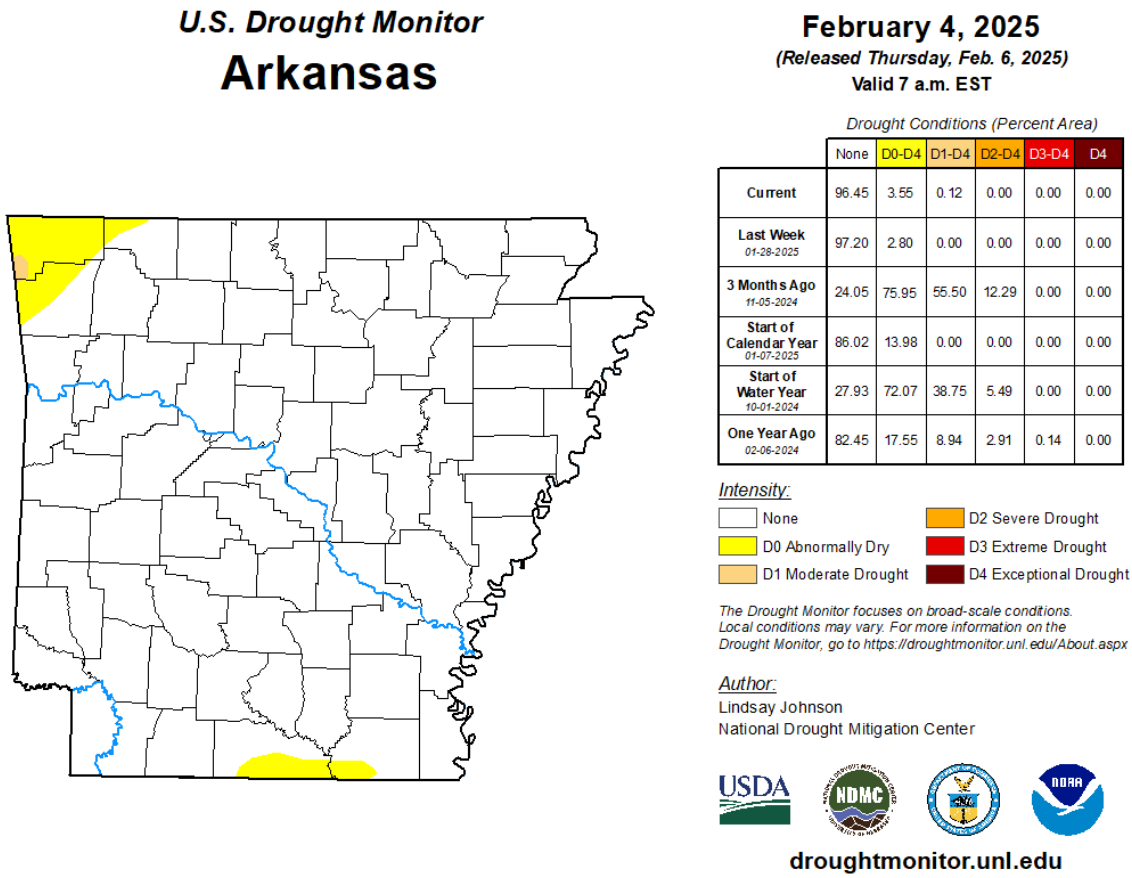


Fig. 3. Drought Monitor for Arkansas

Outlooks

The Climate Prediction Center (CPC) outlook for February 2025 (issued January 31, 2025) indicates an enhanced chance for above normal temperatures across all of eastern OK and northwest AR. This outlook also calls for an enhanced chance for above median precipitation in northwest AR and an equal chance for above, near, and below median precipitation for eastern OK. This outlook was based on dynamical and statistical model output along with long-term trends, La Niña, and the Madden-Julian Oscillation (MJO). The favored above normal precipitation area is where the mean storm track is expected to be this month from the objective models and La Niña composites.

For the 3-month period February-March-April 2025, CPC is forecasting equal chances for above, near, and below normal temperatures north of I-40 and an enhanced chance for above normal temperatures south of I-40 in eastern OK and northwest AR (outlook issued January 16, 2025). This outlook also calls for an enhanced chance for above median precipitation in northwest AR and an equal chance for above, near, and below median precipitation for eastern OK. This outlook is based on long-term trends, ENSO state, and incorporates a suite of statistical and dynamical forecast tools. According to CPC, "La Niña conditions are present and are expected to persist through February-April 2025 (59% chance), with a transition to ENSO-neutral likely during March-May 2025 (60% chance)." CPC continues the La Niña Advisory.

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

Mid-morning of the 9th, a warm advection band moved into southeast OK, producing moderate to heavy snow. This area of snow continued to expand north and east through the morning, affecting all of eastern OK and northwest AR by mid-afternoon. Sleet was mixed in with the snow at times. Widespread snow showers continued across the entire region through midnight as the main upper-level system moved into and through the region. As the storm system began to shift eastward, the snow ended from west to east through the morning hours of the 10th. Snow and sleet totals ranged from 3" to 13" (Fig. 4), with the highest totals along and south of I-40, and the liquid equivalent totals were around 0.2" to 2" (Fig. 5).

Snowfall measurements ≥7" from around the area included:

Whitesboro, OK	13.0"	Stigler, OK	9.5"	1 SW Schulter, OK	8.0"
6 S Indianola, OK	12.0"	1 S Alma, AR	9.5"	1 E Okemah, OK	8.0"
2 SE Wilburton, OK	12.0"	Sawyer, OK	9.3"	Paden, OK	8.0"
Tuskahoma, OK	12.0"	1 WNW Henryetta, OK	9.0"	Mountainburg, AR	7.8"
4 SW Blocker, OK	11.8"	Fort Towson, OK	9.0"	3 SSE Inola, OK	7.8"
McAlester, OK	11.5"	Greenwood, AR	9.0"	Chouteau, OK	7.5"
Kiowa, OK	11.0"	Lavaca, AR	9.0"	Farmington, AR	7.5"
Hartshorne, OK	11.0"	Weleetka, OK	9.0"	Hectorville, OK	7.5"
Enterprise, OK	10.5"	Okmulgee, OK	8.5"	3 NE Bixby, OK	7.5"
Hanna, OK	10.5"	Charleston, AR	8.5"	1 WSW Oneta, OK	7.5"
Wilburton, OK	10.0"	Van Buren, AR	8.5"	3 SSW Broken Arrow, OK	7.3"
5 SE Eufaula, OK	10.0"	1 W Spiro, OK	8.3"	Spavinaw, OK	7.0"
Arpelar, OK	10.0"	1 WNW Vian, OK	8.1"	Webbers Falls, OK	7.0"
1 N Messer, OK	10.0"	2 SW Broken Arrow, OK	8.1"	2 NE Broken Arrow, OK	7.0"
5 SW Poteau, OK	10.0"	Hugo, OK	8.0"	3 SE Fayetteville, AR	7.0"
1 E Bearden, OK	10.0"	Wagoner, OK	8.0"	Fort Gibson, OK	7.0"
3 SW Onapa, OK	9.8"	Fort Smith, AR	8.0"	Jenks, OK	7.0"
1 N Ursula, AR	9.8"	1 E Kibler, AR	8.0"	Siloam Springs, AR	7.0"
Antlers, OK	9.5"	Checotah, OK	8.0"	Oak Grove, AR	7.0"
Swink, OK	9.5"	Pea Ridge, AR	8.0"		

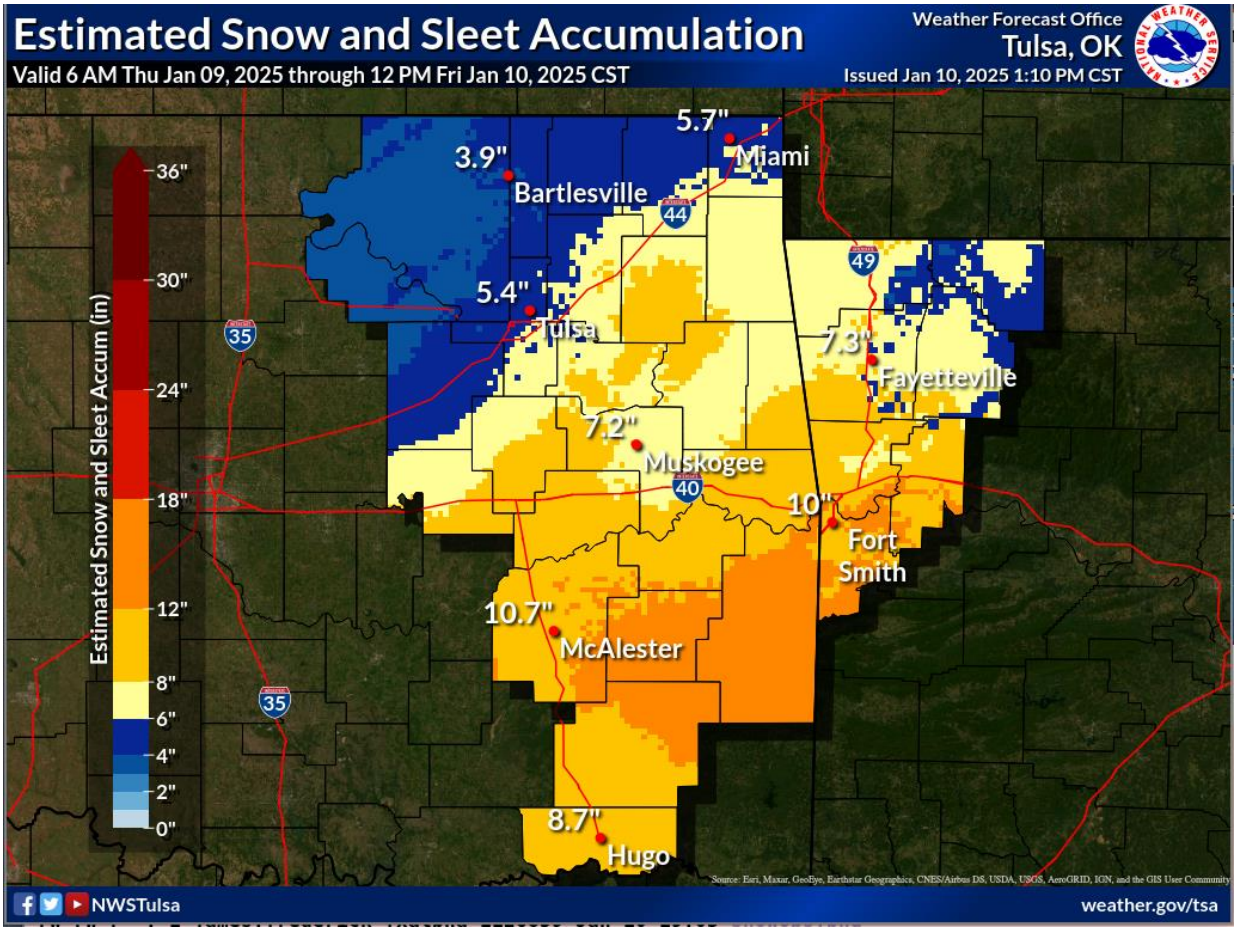


Fig. 4. Estimated snow accumulation for January 9-10, 2025 in eastern OK and northwest AR.

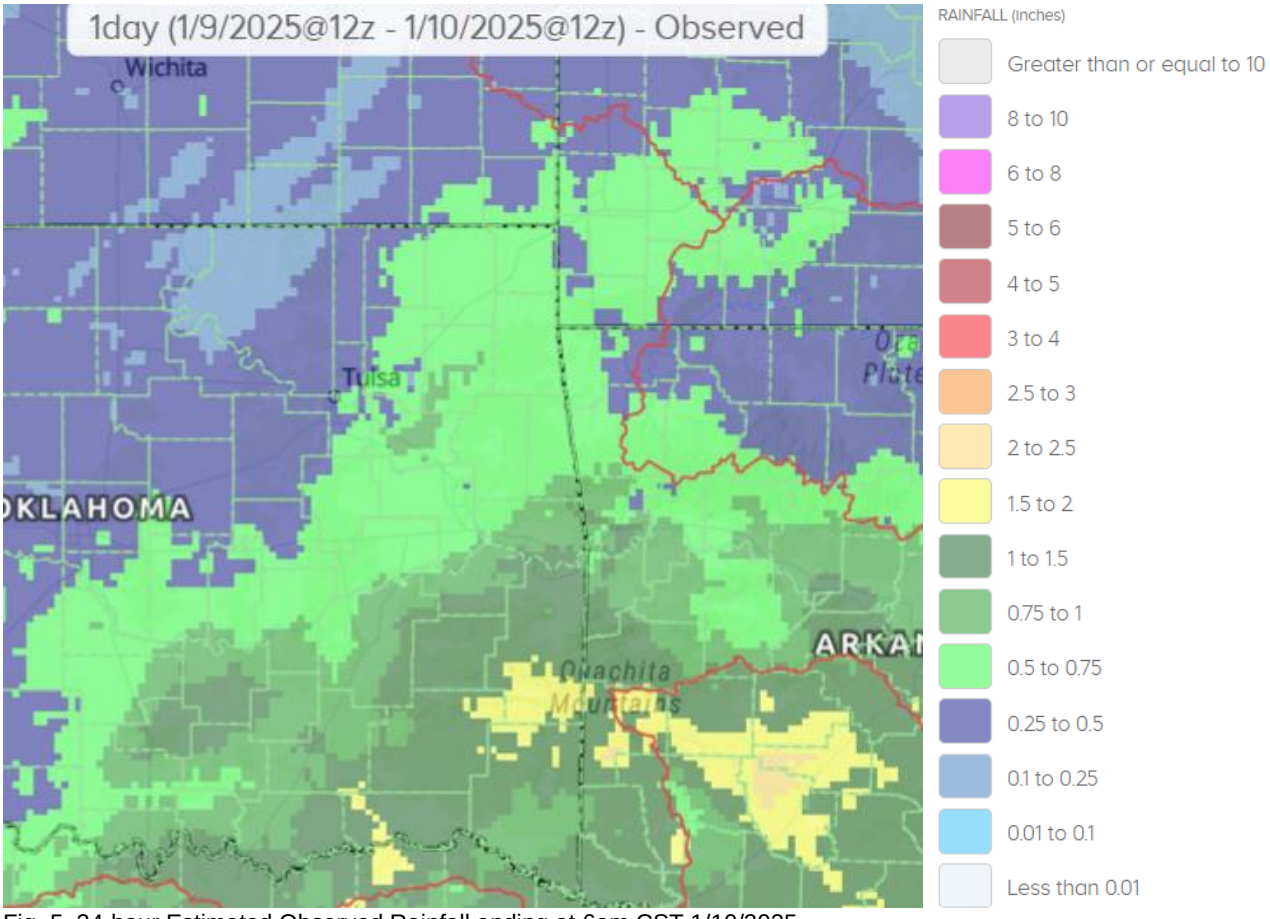


Fig. 5. 24-hour Estimated Observed Rainfall ending at 6am CST 1/10/2025.

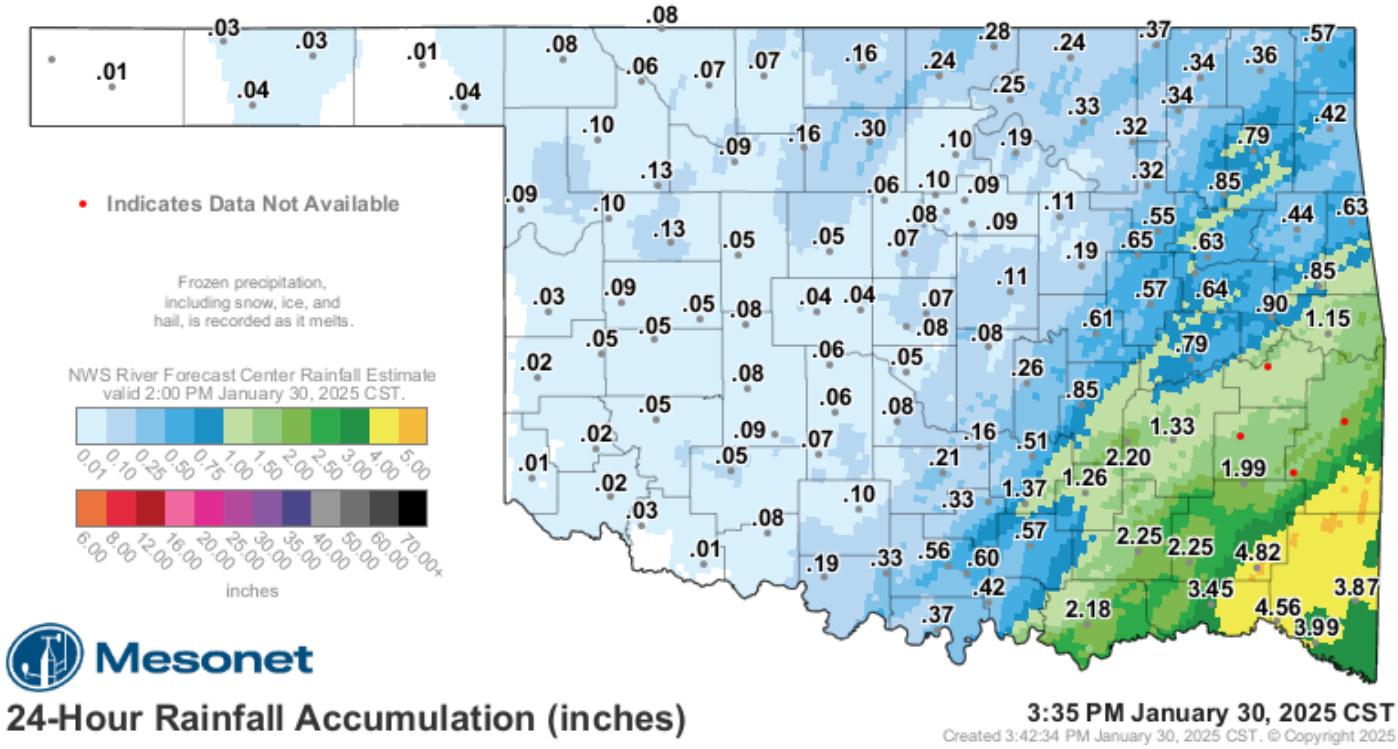


Fig. 6. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 3:35 pm CST 1/30/2025.

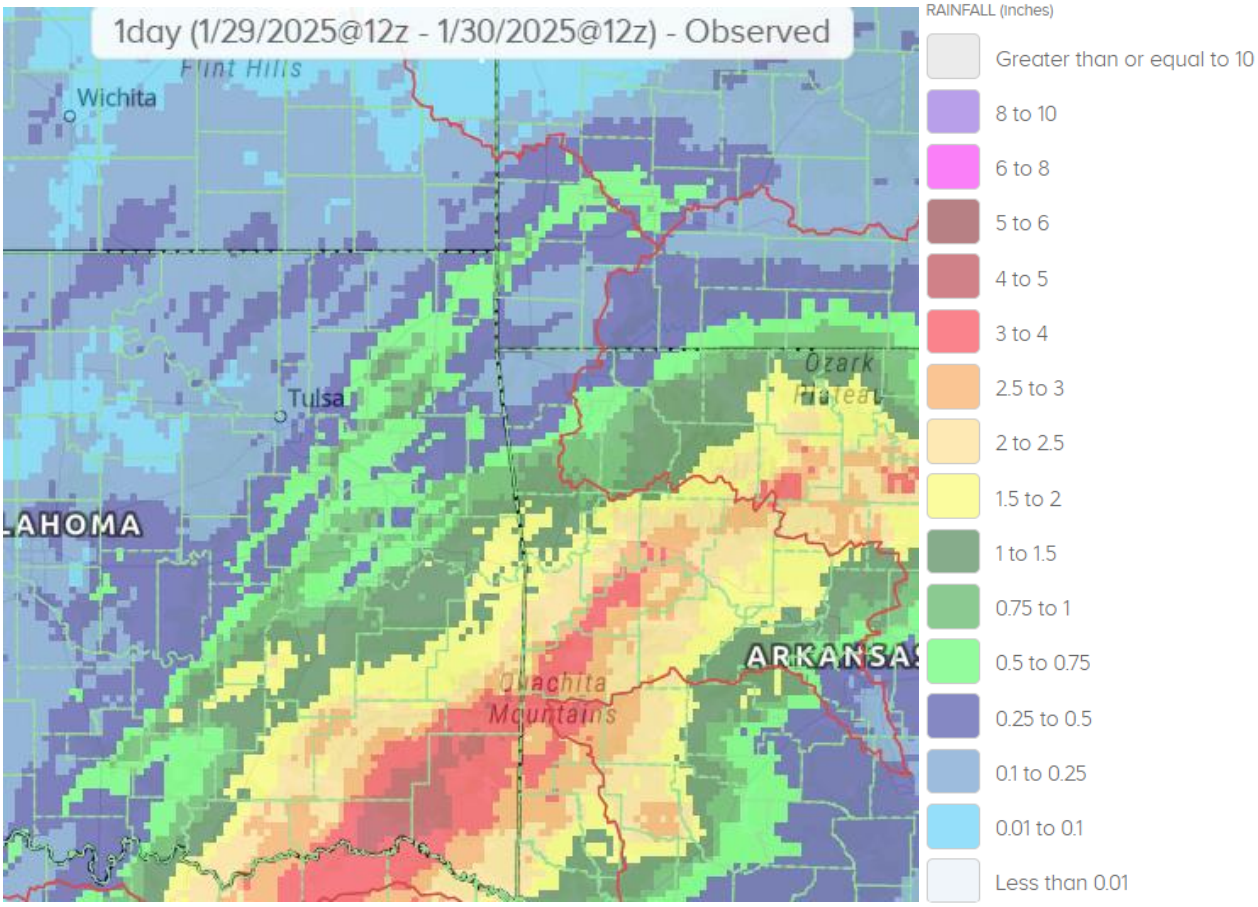


Fig. 7. 24-hour Estimated Observed Rainfall ending at 6am CST 1/30/2025.

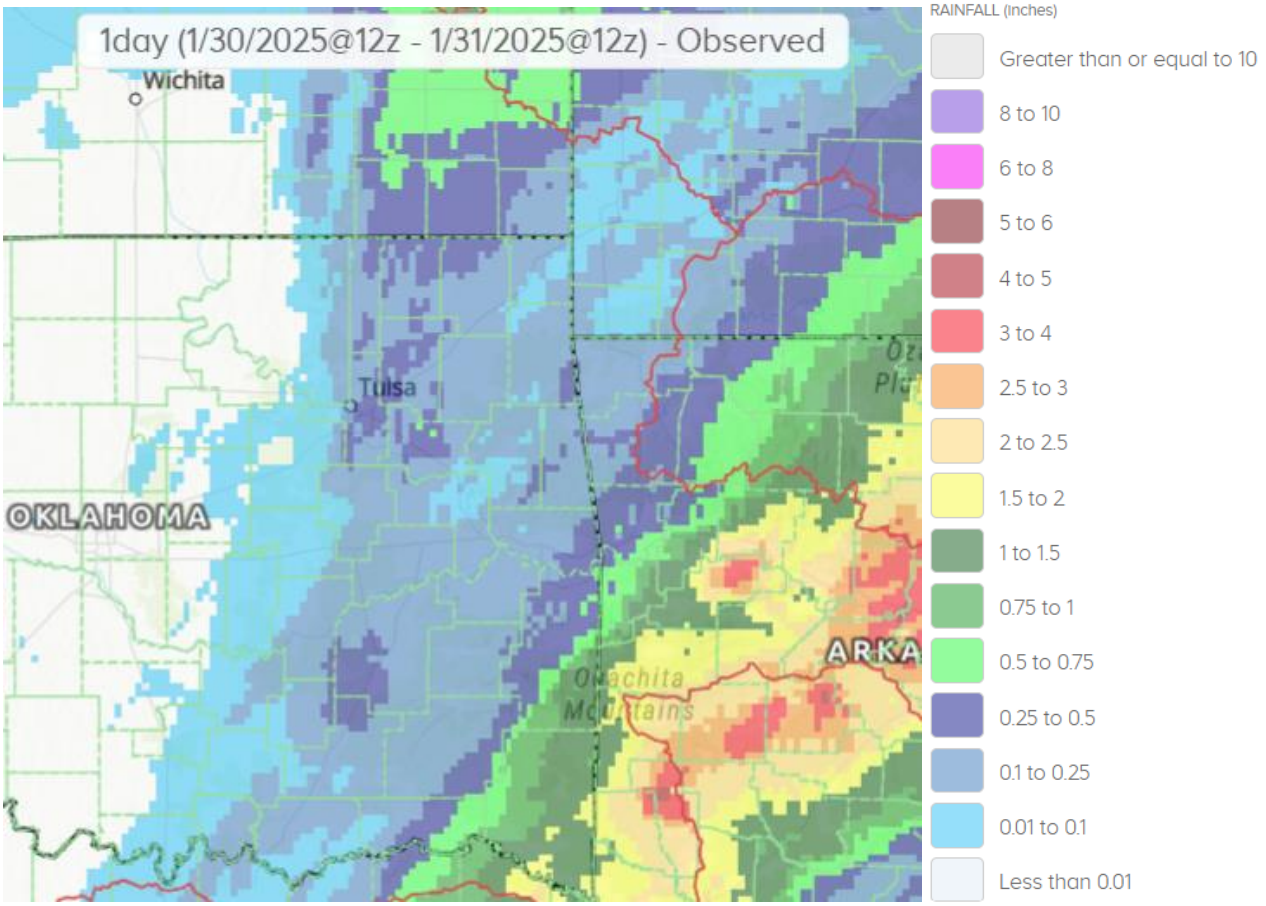


Fig. 8. 24-hour Estimated Observed Rainfall ending at 6am CST 1/31/2025.

Scattered showers and thunderstorms developed over eastern OK and northwest AR during the afternoon of the 29th, in advance of a strong upper-level system that was over the desert southwest. As the low-level jet strengthened during the evening, additional moisture streamed into the area, and the convection increased in coverage and intensity. By midnight, showers and thunderstorms were widespread along and southeast of a McAlester, OK to Fayetteville, AR line. The heaviest rainfall continued through the overnight hours in this general corridor before expanding back to the north near daybreak on the 30th as the upper-level low moved into the region. The precipitation then began to shift eastward through the morning hours as the low progressed east, with most of the rain ending shortly after noon. Some light wrap around rain remained over northeast OK during the evening before the low finally exited the region. Rainfall totals ranged from around 0.10” in northeast OK to 5.5” in southeast OK (Figs. 6-8). The rainfall over the Poteau River basin caused a significant rise in the river levels, with minor flooding occurring along the Poteau River near Panama (see E3 and preliminary hydrographs at the end of this report).

Written by:
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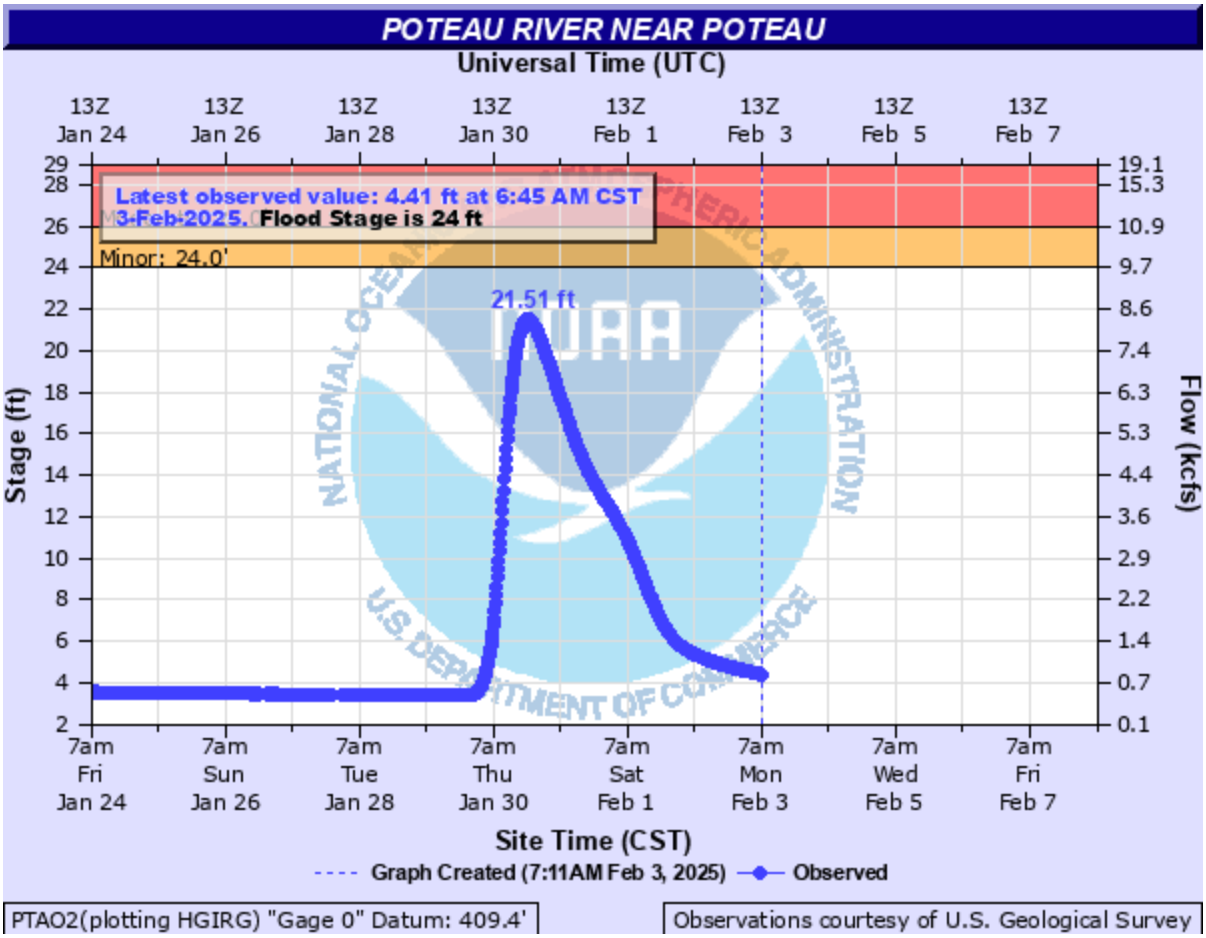
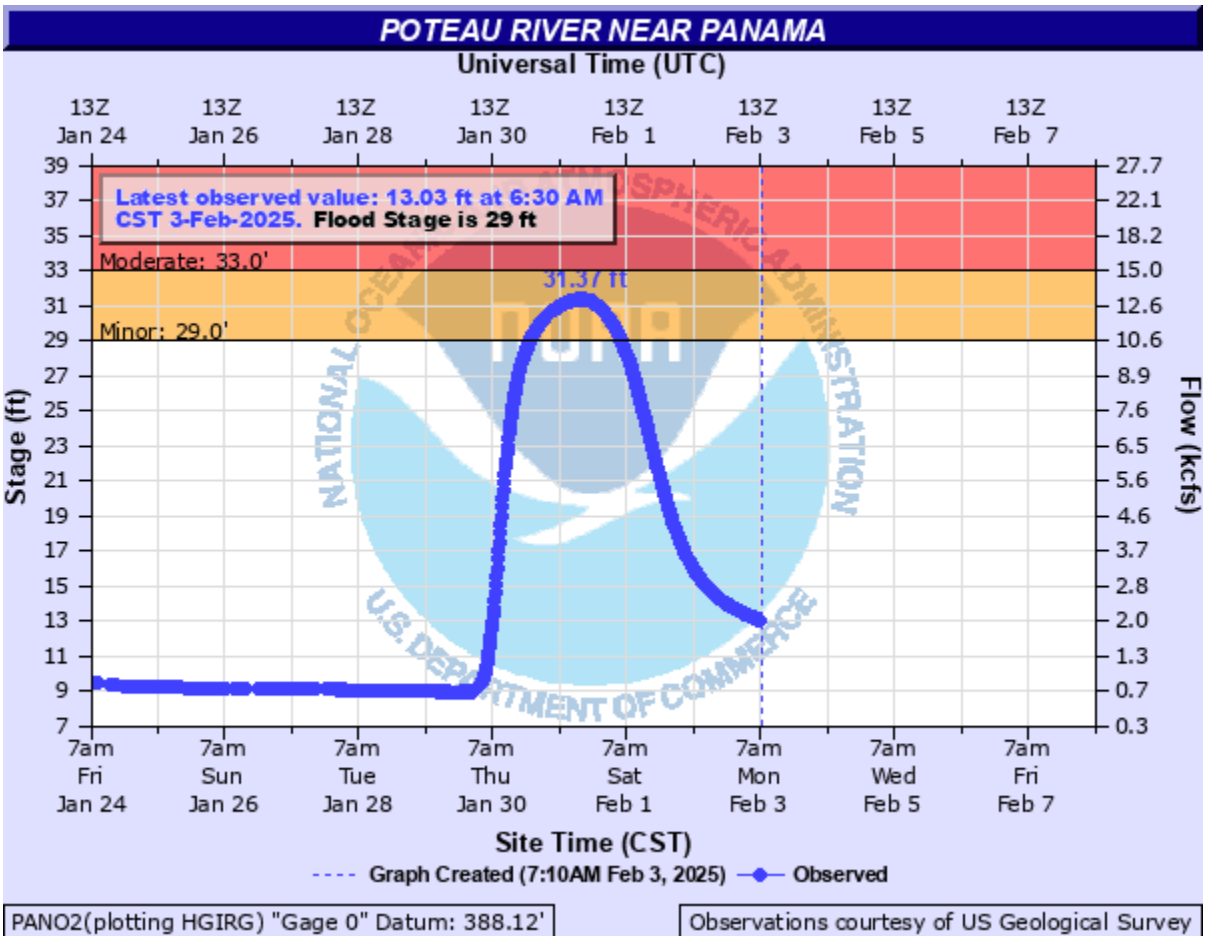
Service Hydrologist
WFO Tulsa

Products issued in January 2025:

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




POTEAU RIVER NEAR PANAMA
Universal Time (UTC)
13Z Jan 24
13Z Jan 26
13Z Jan 28
13Z Jan 30
13Z Feb 1
13Z Feb 3
13Z Feb 5
13Z Feb 7
Latest observed value: 13.03 ft at 6:30 AM CST 3-Feb-2025. Flood Stage is 29 ft
Moderate: 33.0'
Minor: 29.0'
31.37 ft
Stage (ft)
Flow (kcfs)
39 37 35 33 31 29 27 25 23 21 19 17 15 13 11 9 7
27.7 22.1 18.2 15.0 12.6 10.6 8.9 7.6 6.5 5.6 4.6 3.7 2.8 2.0 1.3 0.7 0.3
7am Fri Jan 24
7am Sun Jan 26
7am Tue Jan 28
7am Thu Jan 30
7am Sat Feb 1
7am Mon Feb 3
7am Wed Feb 5
7am Fri Feb 7
Site Time (CST)
Graph Created (7:10AM Feb 3, 2025)
Observed
PANO2(plotting HGIRG) "Gage 0" Datum: 388.12'
Observations courtesy of US Geological Survey