

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 July	YEAR 2012
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 August 2, 2012	

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)

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

Very hot temperatures coupled with little precipitation caused drought conditions to intensify rapidly in July 2012 across eastern OK and northwest AR. July is climatologically one of the drier months of the year across the Tulsa HSA. Normal rainfall for the month of July ranges from 2.6 inches in McIntosh County to 3.4 inches in Ottawa County. The Ozark region of northwest Arkansas averages 3.1 inches for the month.

Monthly Summary

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 1a), rainfall totals for July 2012 ranged from less than 0.25" in isolated areas of northeast OK to near 6" across portions of southeast OK and west central AR. Most of northeast OK received less than 25% of the normal July rainfall this month, with several areas below 5%. Most of the remainder of the HSA received around 25%-75% of the normal July rain, with isolated portions of far southeast OK and west central AR benefiting from above normal rainfall (Fig. 1b).

Tulsa, OK (TSA): July, 2012 Monthly Observed Precipitation
 Valid at 8/1/2012 1200 UTC- Created 8/2/12 13:40 UTC

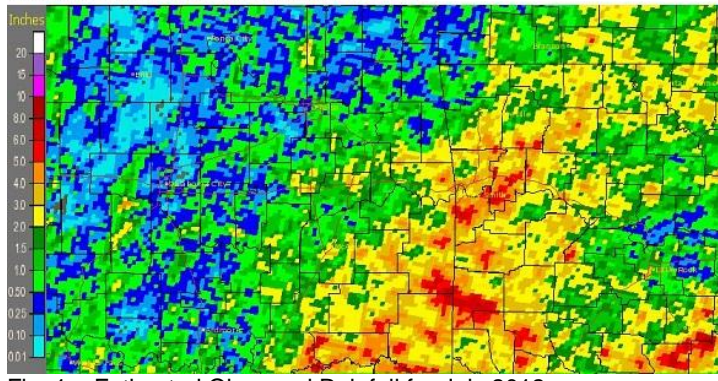


Fig. 1a. Estimated Observed Rainfall for July 2012

Tulsa, OK (TSA): July, 2012 Monthly Percent of Normal Precipitation
 Valid at 8/1/2012 1200 UTC- Created 8/2/12 13:44 UTC

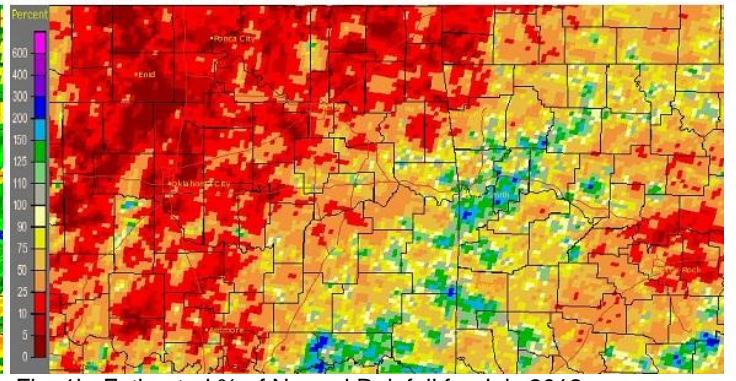


Fig. 1b. Estimated % of Normal Rainfall for July 2012

In Tulsa, OK, July 2012 ranked as the 6th warmest July (88.9°F; since records began in 1905) and the 36th driest July (1.38"; since records began in 1888). Fort Smith, AR was the 4th warmest July (88.0°F) and the 36th wettest July (3.91") since records began in 1882. Fort Smith was ≥100°F on 19 days, ranking as the 4th most number of days in July; Tulsa had 18 days ≥100°F, ranking as the 7th highest number of days.

Some of the larger precipitation reports (in inches) for July 2012 included:

Ozark, AR (coop)	6.12	Cloudy, OK (meso)	5.41	St. Paul, AR (coop)	5.23
Hugo, OK (meso)	4.20	Wister, OK (meso)	3.98	Antlers, OK (meso)	3.95
Fort Smith, AR (ASOS)	3.91	Talihina, OK (meso)	3.64	Greenwood, AR (coop)	3.24

Some of the lowest precipitation reports (in inches) for July 2012 included:

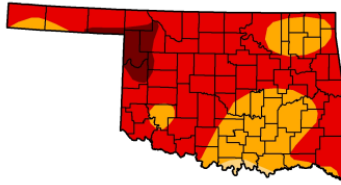
Vinita, OK (meso)	0.05	Copan, OK (meso)	0.07	Claremore 2ENE, OK (coop)	0.16
Pawnee, OK (coop)	0.17	Claremore, OK (meso)	0.18	Jay, OK (meso)	0.19
Hectorville, OK (meso)	0.24	Porter, OK (meso)	0.25	Oilton, OK (meso)	0.35

U.S. Drought Monitor

Oklahoma

July 31, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	98.99	71.60	5.20
Last Week (07/24/2012 map)	0.00	100.00	99.90	91.24	50.39	2.71
3 Months Ago (05/01/2012 map)	75.68	24.32	14.11	9.78	3.27	0.00
Start of Calendar Year (12/27/2011 map)	14.83	85.17	78.76	50.55	27.48	3.33
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	100.00	78.97	66.42
One Year Ago (07/26/2011 map)	0.00	100.00	100.00	95.45	67.69	52.20



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, August 2, 2012

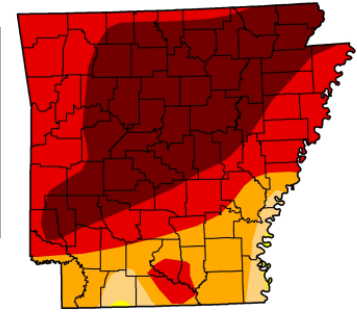
Mark Svoboda, National Drought Mitigation Center

U.S. Drought Monitor

Arkansas

July 31, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	99.66	96.12	80.63	44.46
Last Week (07/24/2012 map)	0.00	100.00	99.66	96.12	75.94	33.64
3 Months Ago (05/01/2012 map)	89.23	10.77	0.00	0.00	0.00	0.00
Start of Calendar Year (12/27/2011 map)	86.20	13.80	3.95	1.06	0.23	0.00
Start of Water Year (09/27/2011 map)	1.21	98.79	75.99	39.48	18.92	1.53
One Year Ago (07/26/2011 map)	4.43	95.57	86.05	14.64	6.41	0.00



Intensity:

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Mark Svoboda, National Drought Mitigation Center

Fig. 2. Drought Monitor for Oklahoma

Fig. 3. Drought Monitor for Arkansas

Significant deterioration in drought conditions occurred during July 2012. According to the [U.S. Drought Monitor](#) (USDM) from July 31, 2012 (Figs 2, 3), all of eastern OK and northwest AR was in severe to extreme drought. Severe (D2) drought was present across portions of southern Choctaw, northwest Pushmataha, Pittsburg, Latimer, southern Okfuskee, McIntosh, far eastern Haskell, eastern Osage, Washington (OK), Nowata, Craig, Rogers, Mayes, and western Delaware Counties. Extreme drought (D3) conditions existed across the remainder of the area. The drought has caused significant hardship to the agricultural industry across the county, and the USDA Disaster Designation area so far this year is the largest in history (Fig. 4).

SECRETARIAL DISASTER DESIGNATIONS - CY2012
PRIMARY & CONTIGUOUS COUNTIES designated for 2012 crop disaster losses
 As of 08/01/2012 - through Designation No. S3319

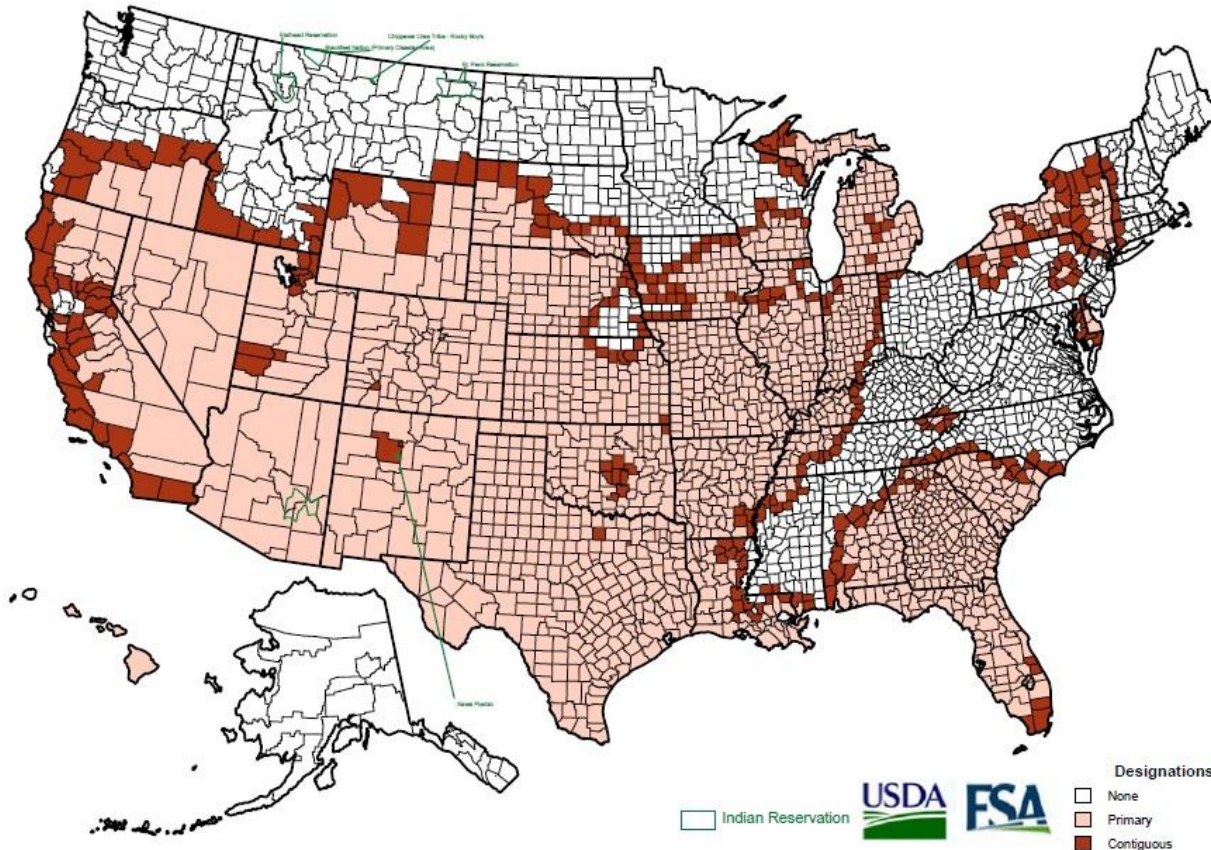


Fig. 4. Map showing the counties the USDA declared as natural disaster areas due to drought as of 8/01/2012.

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

Rank since 1921	Last 30 Days (July 2 – 31)	Summer (Jun 1 – Jul 31)	Last 90 Days (May 3 – Jul 31)	Last 120 Days (Apr 3 – Jul 31)	Warm Growing Season (Mar 1 – Jul 31)	Year-to-Date (Jan 1 – Jul 31)	Water Year (Oct 1, 2011 – Jul 31, 2012)	Last 365 days (Aug 2, 2011– Jul 31, 2012)
Northeast OK	9 th driest	6 th driest	1 st driest	9 th driest	25 th driest	20 th driest	35 th wettest	37 th driest
East Central OK	23 rd driest	6 th driest	2 nd driest	2 nd driest	6 th driest	10 th driest	26 th driest	25 th driest
Southeast OK	34 th wettest	27 th driest	10 th driest	6 th driest	18 th driest	29 th driest	43 rd wettest	31 st driest
Statewide	15 th driest	7 th driest	1 st driest	4 th driest	12 th driest	22 nd driest	40 th driest	30 th driest

Most of the major reservoirs in the Tulsa HSA were operating below 96% of their conservation pools as of July 31, 2012. Reservoirs reporting conservation pool deficits as of July 31, 2012: Ft. Gibson Lake 47%, Heyburn Lake 57%, Hugo Lake 61%, Beaver Lake 78%, Keystone Lake 80%, Skiatook Lake 80%, Eufaula Lake 80%, Tenkiller Lake 83%, Birch Lake 84%, Hulah Lake 88%, Copan Lake 92%, Wister Lake 92%, Pensacola Lake 94%, and Oologah Lake 94%.

Outlooks

The [Climate Prediction Center](#) (CPC) outlook for August 2012 (issued July 31, 2012) indicates an enhanced chance for above normal temperatures and below normal rainfall. This outlook is based on consistent signatures from climate model forecasts, very low soil moisture conditions, long-term temperature trends, and temperature trends over the past 30 days. The very low soil moisture values and severe reductions in evapotranspiration can result in perpetuating the regional drought.

For the 3-month period Aug-Sep-Oct 2012, CPC is forecasting an enhanced chance for above average temperatures and equal chances for above, near, and below median precipitation across the region (outlook issued July 19, 2012). This outlook is based on dynamic computer model output and long term trends. Initial soil moisture conditions are drier than normal going into Aug-Sep-Oct, increasing the chances for above normal temperatures. According to CPC, ENSO neutral conditions continued through July, but El Niño conditions should develop by the end of summer. Weak to moderate El Niño conditions will likely be in place by the end of the year.

Summary of Precipitation Events

July 1 – 15

A few isolated afternoon showers and thunderstorms developed on both July 1 and 2 as low-level moisture increased some and a weak upper-level disturbance moved through the region. While much of the area remained dry, a few locations received a few sprinkles to around 0.25" of rain. The Owasso area in Tulsa/Rogers Counties was the only location to receive near 0.75" of rain on the 2nd.

The central U.S. upper-level high that brought very hot temperatures and kept the rain at bay, shifted further west beginning on the 6th, allowing moisture to increase across the region. Isolated to widely scattered showers and thunderstorms developed during the heat of the day on the 6th and lasted through much of the 7th. Some of these storms produced damaging downburst winds, typical for this time of year. Areas that did receive rainfall generally saw between 0.25" and 1" of rain. A slow moving frontal boundary was able to move through the HSA on the 8th through the 10th, bringing additional widely scattered showers and thunderstorms. While most locations received little to no rain, a few localized spots got a welcome 2"-3". Figure 5 illustrates the July 6-10 rainfall total across the region.

Isolated to widely scattered showers and thunderstorms developed during the afternoon hours on the 11th-15th. The higher terrain areas of southeast OK into northwest AR received the most activity. Localized rainfall totals of 1" to around 2.5" occurred, however most locations that did see storm activity only received around 0.25" or less. Figure 6 illustrates the July 11-15 rainfall total across the region.

Tulsa, OK (TSA): Current 7-Day Observed Precipitation
Valid at 7/11/2012 1200 UTC- Created 7/11/12 15:57 UTC

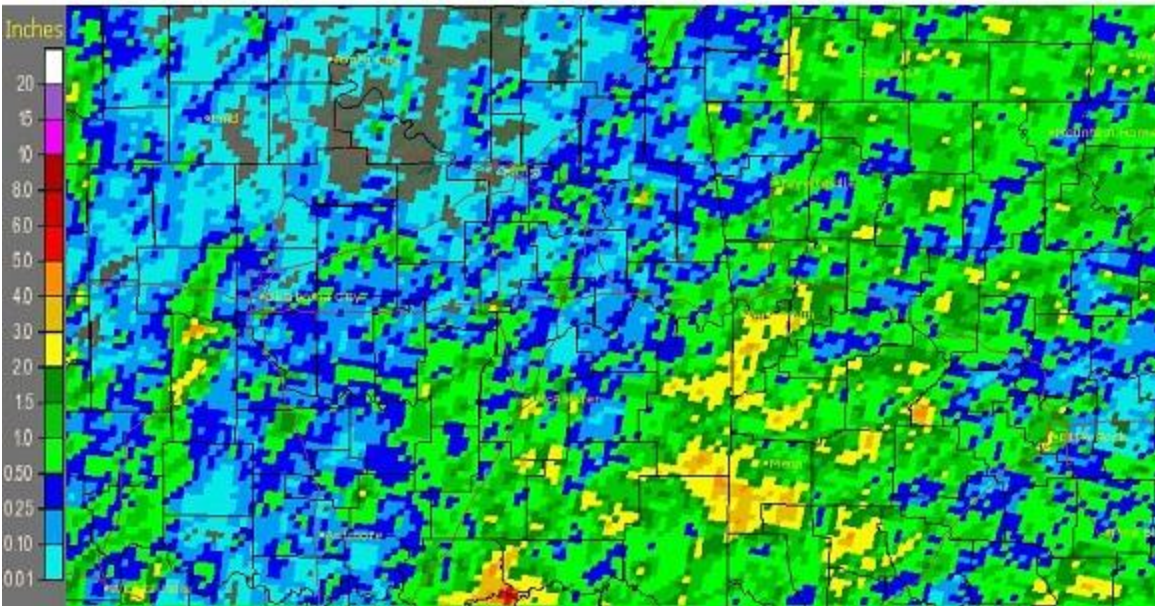


Fig. 5. 7-day rainfall total ending 7am CDT 7/11/2012.

Tulsa, OK (TSA): Current 7-Day Observed Precipitation
Valid at 7/18/2012 1200 UTC- Created 7/18/12 23:57 UTC

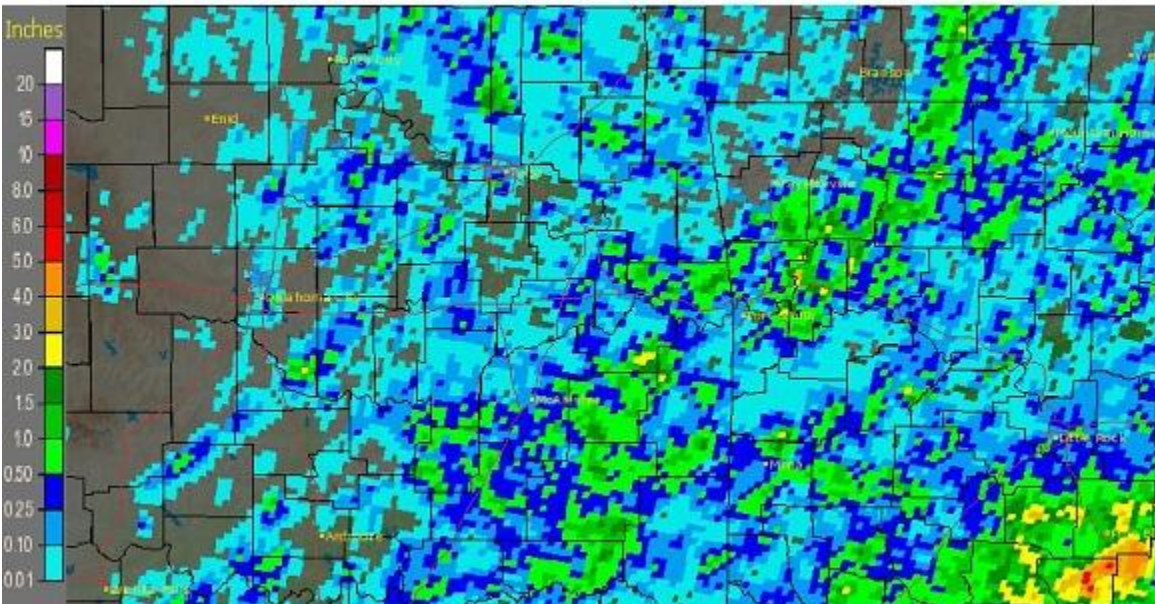


Fig. 6. 7-day rainfall total ending 7am CDT 7/18/2012.

July 16 – 31

On the 19th, widely scattered showers and thunderstorms occurred north of I-40 as a shortwave trough moved down the eastern side of a developing high plains ridge. While isolated locations in Muskogee, Crawford, Franklin, and Madison Counties received 1.5"-2" of rain, most of this activity only brought around 0.75" or less.

A ridge of high pressure brought a return to hot and dry conditions to the HSA. Temperatures $\geq 100^{\circ}\text{F}$ led to further depletion of soil moisture and drought conditions continued to deteriorate across eastern OK and northwest AR. The number of wildfires also increased across the area, including a 5,580 acre fire reported 1 mile north of Depew, OK (Creek Co.) on the 20th (no known structures lost). Another large wildfire of 1,700 acres occurred near Oologah (Rogers. Co.) on the 19th.

A weak cold front moved into northeast OK and stalled on the 26th. Showers and thunderstorms developed

near the front during the afternoon hours, with additional development occurring as an outflow boundary propagated southeast. The heaviest rain occurred across east central and southeast OK, and west central AR, where widespread 0.5"-1" of rain fell. Some areas had totals of 1"-2" and a few spots in Washington (OK), Choctaw, Le Flore, and Latimer Counties saw upwards of 2.5"-3.5" of rain during this event (fig. 7). These storms also produced damaging winds to near 70 mph and hail to the size of golf balls.

After one day with some rain, very hot and dry conditions quickly returned. Wildfires were again a big concern, and a 350 acre wildfire on the 29th near Morse (Okfuskee Co.) threatened 7 residences and burned 8 outbuildings. Tulsa, OK broke its all-time warmest minimum temperature two days in a row on July 30 and July 31 when the temperature only dropped to 88°F (the previous record was 87°F set August 2, 2011 and July 16, 1980). Tulsa also tied its all-time warmest mean temperature of 100°F on July 31 (ties with August 2, 2011). Both Tulsa and Fort Smith have had the hottest January 1 – July 31 period on record.

Tulsa, OK (TSA): 7/27/2012 1-Day Observed Precipitation
Valid at 7/27/2012 1200 UTC- Created 7/29/12 23:31 UTC

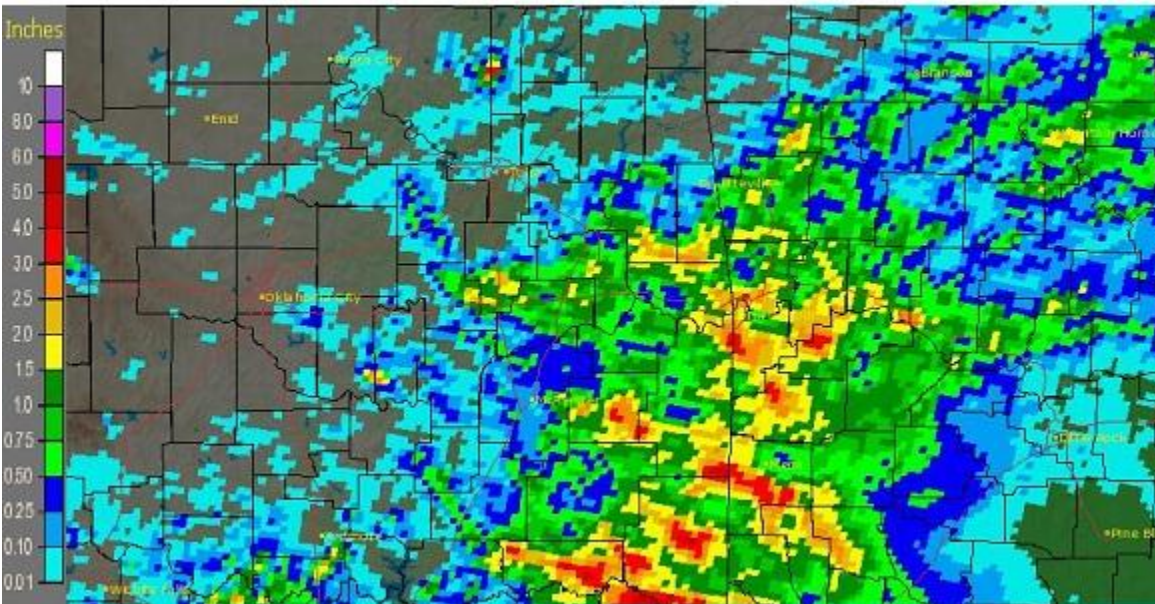


Fig. 7. 24-hr rainfall total ending 7am CDT 7/27/2012.

Written by:

Nicole McGavock
Service Hydrologist
WFO Tulsa

Products issued in July 2012:

- 0 Flash Flood Warnings (FFW)
- 0 Flash Flood Statements (FFS)
- 0 Flash/Areal Flood Watches (FFA) (1 Watch FFA CON/EXT/CAN)
- 0 Urban and Small Stream Advisories (FLS) (0 Advisory FLS CON/EXT/CAN)
- 0 Areal Flood Warnings (FLW)
- 0 Areal Flood Statements (FLS)
- 0 River Flood Warnings (FLW)
- 0 River Flood Statements (FLS)
- 0 River Flood Advisories (FLS) (0 Advisory FLS CON/EXT/CAN)
- 0 River Flood Watches (FFA) (0 Watch FFA CON/EXT/CAN)
- 0 River Statements (RVS)
- 0 Hydrologic Outlooks (ESF)
- 1 Drought Information Statements (DGT)

Preliminary Hydrographs:

No river flooding occurred this month.