

Some of the larger precipitation reports (in inches) for September 2011 included:

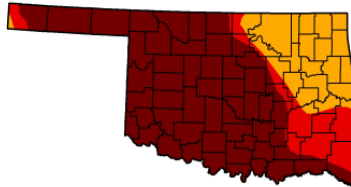
Berryville 5NW, AR (coop)	6.91	Oilton, OK (meso)	4.47	Westville, OK (meso)	4.26
Miami, OK (meso)	4.04	St. Paul, AR (coop)	3.98	NW AR Reg. Arprt (ASOS)	3.96
Jay, OK (meso)	3.92	Bixby, OK (meso)	3.90	Stigler, OK (meso)	3.79
Jenks/Riverside Arprt (ASOS)	3.79				

According to the [U.S. Drought Monitor](#) (USDM) from September 27, 2011, exceptional drought (D4) conditions continued across portions of east central and southeast Oklahoma, encompassing far southwest Creek, southwest Okfuskee, far southern Pushmataha, and Choctaw Counties. Extreme drought (D3) conditions were found across far western Pawnee, southwest Creek, northwest Okfuskee, far southwest Okmulgee, far western McIntosh, Pittsburg, Latimer, Pushmataha, and Le Flore Counties. Severe drought (D2) conditions stretched across the remainder of northeast Oklahoma as well as western Sebastian, western Crawford, Washington, Benton, Carroll, and Madison Counties in northwest Arkansas. Moderate drought (D1) conditions were found across eastern Sebastian, eastern Crawford, far southern Madison, and Franklin Counties in northwest Arkansas (see Figs. 2 & 3).

U.S. Drought Monitor Oklahoma

September 27, 2011
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	100.00	78.97	66.42
Last Week (09/20/2011 map)	0.00	100.00	100.00	100.00	90.00	66.42
3 Months Ago (06/29/2011 map)	0.13	99.87	75.59	55.96	41.22	32.55
Start of Calendar Year (12/28/2010 map)	13.82	86.18	47.90	1.50	0.00	0.00
Start of Water Year (09/28/2010 map)	66.26	33.72	4.21	0.00	0.00	0.00
One Year Ago (09/21/2010 map)	58.82	41.18	4.21	0.00	0.00	0.00



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://drought.unl.edu/dm>

Fig. 2. Drought Monitor for Oklahoma

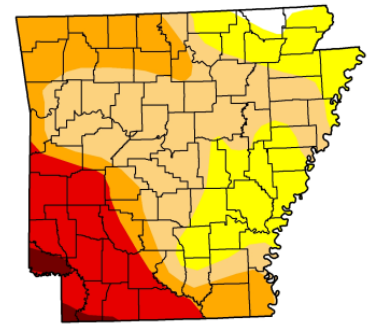


Released Thursday, September 29, 2011
Michael Brewer, National Climatic Data Center, NOAA

U.S. Drought Monitor Arkansas

September 27, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1.21	98.79	75.99	39.48	18.92	1.53
Last Week (09/20/2011 map)	2.18	97.82	76.51	32.02	15.82	1.53
3 Months Ago (06/29/2011 map)	4.34	95.66	14.28	10.57	2.34	0.00
Start of Calendar Year (12/28/2010 map)	0.00	100.00	85.33	69.74	13.26	0.00
Start of Water Year (09/28/2010 map)	25.16	74.84	50.68	25.16	0.00	0.00
One Year Ago (09/21/2010 map)	33.32	66.68	43.74	12.50	0.00	0.00



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://drought.unl.edu/dm>

Fig. 3. Drought Monitor for Arkansas



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

Rank since 1921 ("Last XX days" ending October 2, 2011)	September 2011	Last 60 days (Aug 4, 2011 – Oct 2, 2011)	Last 120 days (Jun 5, 2011 – Oct 2, 2011)	Last 180 days (Apr 6, 2011 – Oct 2, 2011)	Year-to-Date (Jan 1, 2011 – Oct 2, 2011)	Water Year (Oct 1, 2010 – Sep 30, 2011)
Northeast OK	31 st driest	37 th driest	9 th driest	24 th driest	17 th driest	9 th driest
East Central OK	30 th driest	37 th driest	6 th driest	44 th driest	19 th driest	10 th driest
Southeast OK	10 th driest	6 th driest	1 st driest	18 th driest	6 th driest	3 rd driest
Statewide	13 th driest	16 th driest	2 nd driest	2 nd driest	2 nd driest	2 nd driest

Most of the major reservoirs in the Tulsa HSA were showing deficits in their conservation pool by the end of September 2011, with most lakes reporting lower storages than at the end of August. Only Hudson Lake had levels in excess of its conservation pool, with 3% of flood control storage in use as of October 3, 2011. The following reservoirs were reporting conservation pool deficits below 90% as of October 3, 2011: Heyburn Lake 63%, Birch Lake 64%, Skiatook Lake 67%, Hugo Lake 72%, Eufaula Lake 74%, Fort Gibson Lake 75%, Wister Lake 76%, Keystone Lake 78%, Hulah Lake 80%, Tenkiller Lake 84%, Copan Lake 88%, Sardis Lake 89%, and Oologah Lake 89%.

Water Year 2011

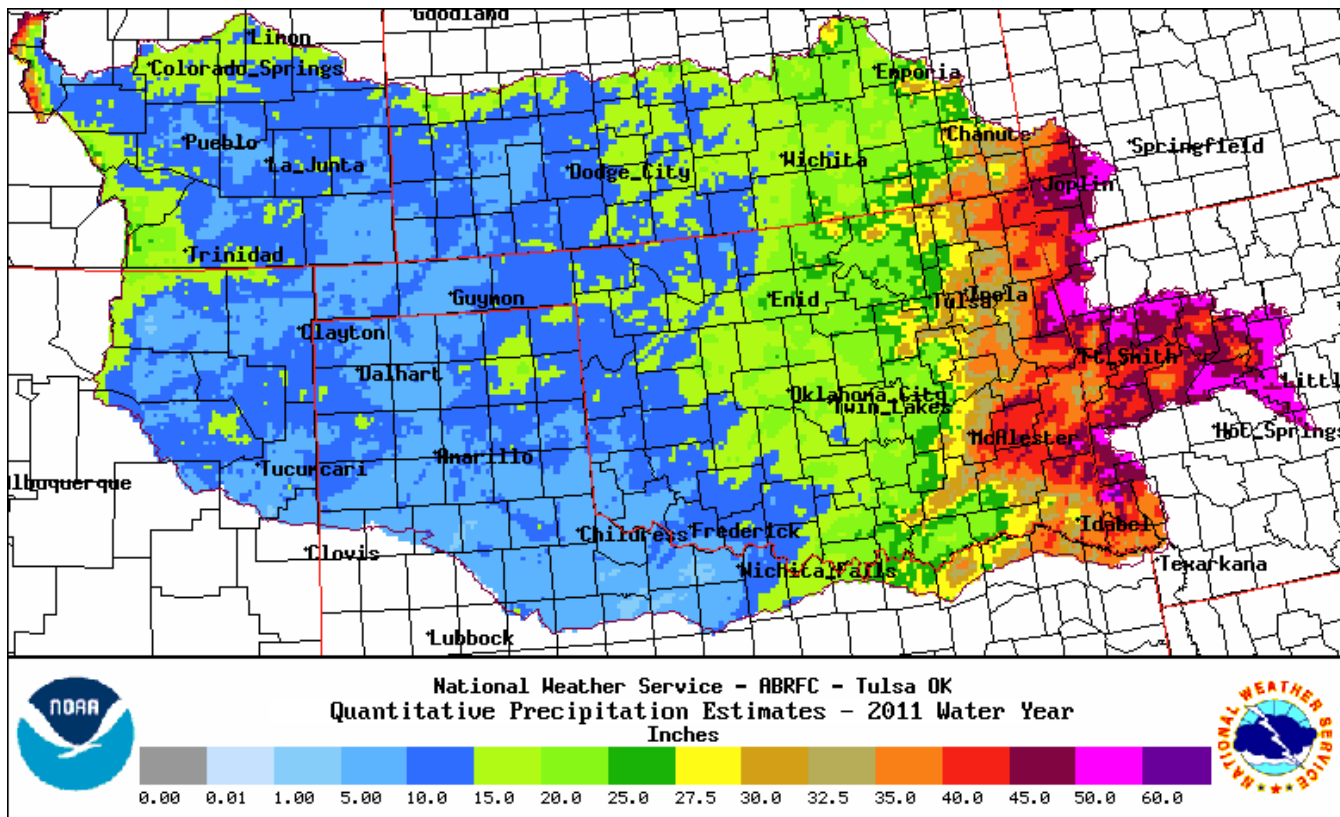


Fig. 4a. ABRFC Estimated Observed Rainfall for Water Year 2011 .

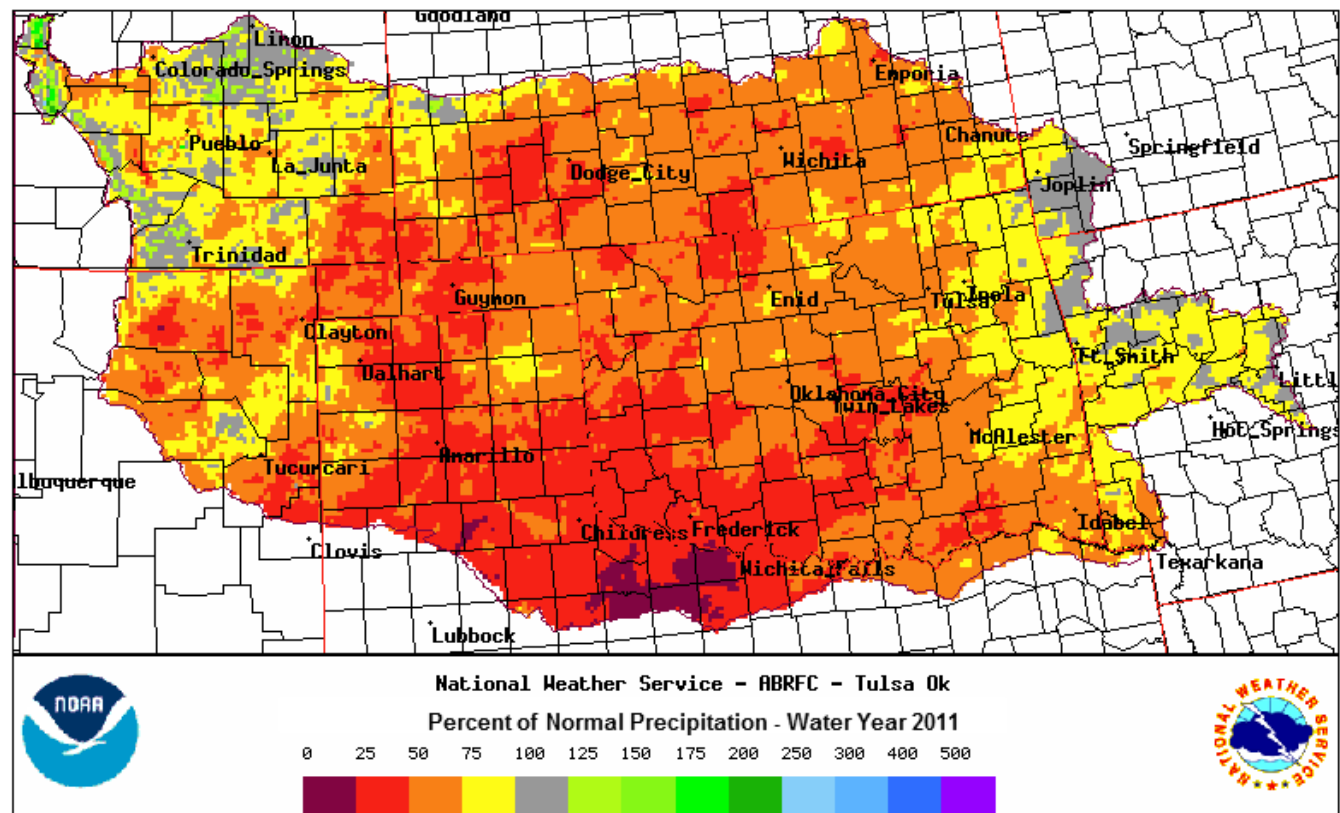


Fig. 4b. ABRFC Estimated Percent of Normal Rainfall for Water Year 2011 .

A large gradient in precipitation totals occurred across the region during Water Year 2011, going from very dry to not as dry as one moves west to east across eastern Oklahoma and into western Arkansas. Rainfall totals for Water Year 2011 (Fig. 4a) ranged from 20" across Osage, Pawnee, Kay, Creek, Okfuskee, and Choctaw

Counties in eastern OK to around 55" in northwest AR (some areas of southwest OK and the OK panhandle received less than 10" during the entire water year!). These rainfall totals correspond to near normal rainfall in northwest AR to only 25%-50% of normal rainfall for portions of Pushmataha, Choctaw, and Okfuskee Counties in eastern OK (Fig. 4b).

Tulsa received 27.04" of rain during Water Year 2011, ranking as the 10th driest Water Year on record (since 1894). Fort Smith received 38.52" of rain during Water Year 2011, ranking as the 52nd driest Water Year on record (since 1883).

Outlooks

The [Climate Prediction Center](#) (CPC) outlook for October 2011 (issued September 30, 2011) indicates a slightly enhanced chance for above normal temperatures and above median precipitation across all of eastern Oklahoma and northwest Arkansas. This outlook was based primarily on long-range dynamical computer models with possible La Niña impacts considered. For the 3-month period Oct-Nov-Dec 2011, CPC is forecasting an enhanced chance for above average temperatures and below median precipitation across all of eastern Oklahoma and northwest Arkansas (outlook issued September 15, 2011). This is consistent with a La Niña pattern, as well as long-range computer model output.

According to CPC, weak La Niña conditions were in place by the end of September. La Niña conditions are forecast to continue into Fall 2011, peak through the upcoming Winter, and begin to wane during Spring 2012.

Summary of Precipitation Events

September 1 – 15:

As a cold front moved into the area from the northwest, showers and thunderstorms developed northwest of a Pawnee to Bartlesville line late on the 3rd and into the 4th. Rainfall amounts were less than 0.10", though western Kay County received near 0.50" in some locations. Additional rainfall of a few hundredths to near 0.25" affected far northeast OK on the 4th.

Widely scattered showers and thunderstorms affected eastern OK and northwest AR during the afternoon of the 10th as an upper-level wave moved across the area. Rainfall totals were around 0.10" or less. Showers and isolated thunderstorms developed during the morning hours of the 13th within a zone of warm air advection and affected northeast OK and northwest and west central AR. Rainfall totals remained light, with most locations receiving less than 0.25". Scattered light showers continued across southeast OK during the afternoon, bringing around 0.10" or less of rain.

As a mid-level low tracked along the OK-KS border on the 14th, showers moved east across the HSA along the associated cold front from early morning into the early afternoon. The highest rainfall totals occurred north of Hwy 412, where up to 0.25" fell. Elsewhere, only a few hundredths of an inch fell. Additional rainfall developed on the 15th, but due to very dry low levels, much of the rain evaporated before reaching the ground, limiting accumulations. Most areas saw only a few hundredths, with a few locations receiving around 0.10" in southeast OK.

September 16 – 30:

A strong upper-level wave moved across the southern plains on the 16-17th, helping to lift a warm front north through the HSA and bringing widespread showers and thunderstorms. Most of the region received 0.10" to 0.75" of rain, with southern Pittsburg County receiving near 1.5", on the 16th. As the lower levels moistened, higher rainfall totals occurred on the 17th. A bow echo moved northwest to southeast across eastern OK during the late evening of the 17th, bringing strong winds and small hail, in addition to 1"-2" of rain. Isolated areas of Pawnee and Creek Counties had near 4" of rain from this system. Additional heavy rain affected far northeast OK and northwest AR as another storm complex moved southeast. Rainfall totals ranged from 1"-3" with isolated totals of 3"-5" in Ottawa and Carroll Counties. A cold front then moved southeast across the HSA on the 18th, bringing more showers and thunderstorms, some of which were severe. Most of the rainfall occurred southeast of I-44, where most locations had rainfall totals ranging from a few hundredths to near 1". Higher

totals of around 1.5" to around 3" occurred in southern Pittsburg, Haskell, southern Sequoyah, northern Le Flore, northern Washington, and southern Benton Counties. The widespread 1"-3" rainfall from September 13-18 helped with the short-term drought and dangerous fire conditions (see figs. 5, 6). However, much more rain is needed to alleviate the on-going severe to exceptional drought.

Tulsa, OK (TSA): Current 7-Day Observed Precipitation
Valid at 9/19/2011 1200 UTC- Created 9/19/11 15:57 UTC

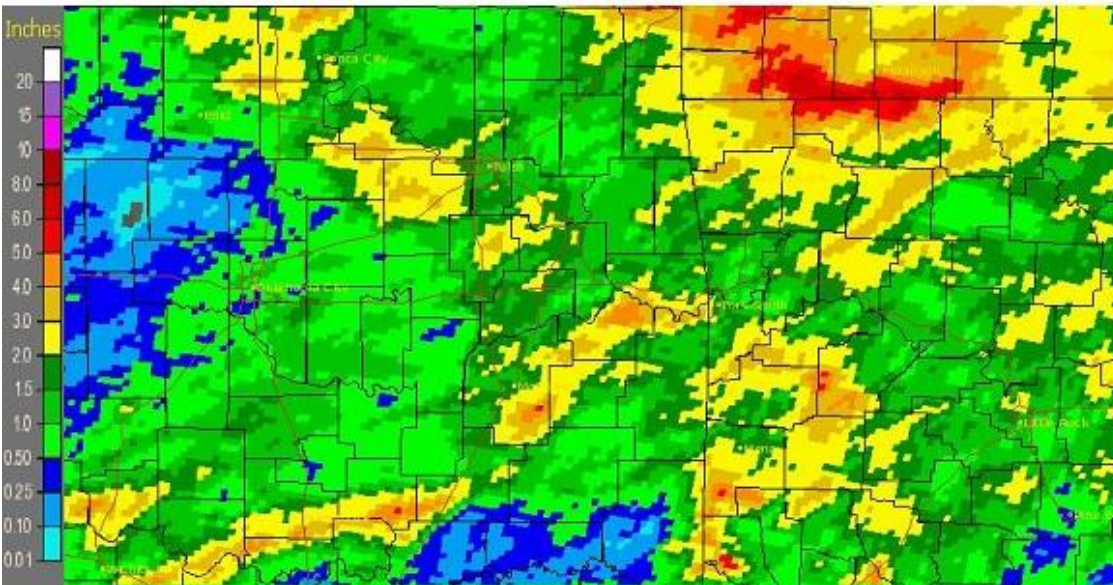
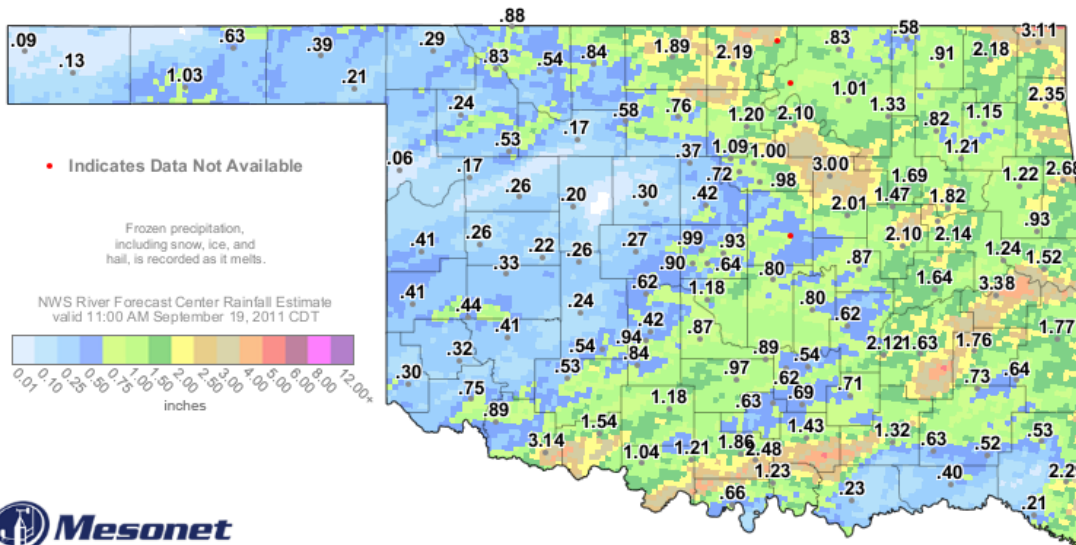


Fig. 5. Estimated Observed 7-day Rainfall ending 7am 9/19/2011



7-Day Rainfall (inches)

11:25 AM September 19, 2011 CDT

Created 11:29:56 AM September 19, 2011 CDT. © Copyright 2011

Fig. 6. Observed 7-day Rainfall ending 11:25 am 9/19/2011 courtesy of the OK Mesonet.

A cold front moved through the region on the 21st. As a strong upper-level wave moved into the southern plains, post-frontal precipitation expanded across northeast OK late on the 21st and continued across the remainder of the area through the early evening of the 22nd. The heaviest rainfall occurred along and north of I-40, where most locations received around 1" or more. A narrow swath along Hwy 412 in northeast OK and northwest AR received between 1.5" and 3" of rain from this event. Locations south of I-40 measured near one quarter to one half inch of rain (see Figs. 7, 8). With the on-going severe to exceptional drought conditions, most of this precipitation was absorbed into the ground, with little runoff to help recharge area lakes and streams. Dry conditions then persisted through the end of September 2011.

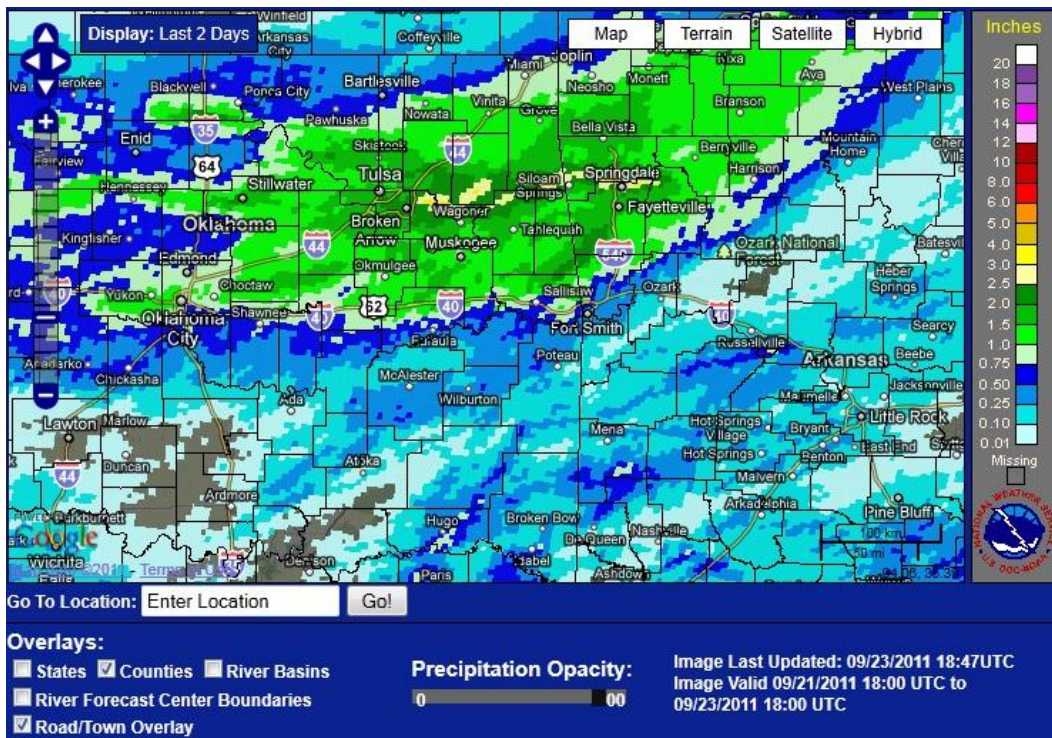


Fig. 7. Estimated 2-day Rainfall ending 1 pm 9/23/2011.

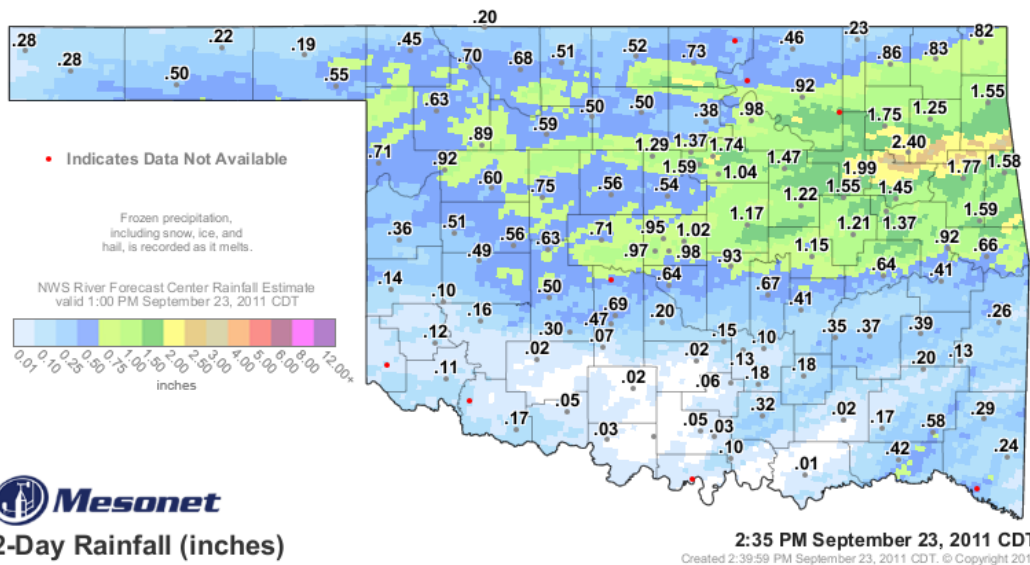


Fig. 8. Observed 2-day Rainfall ending 2:35 pm 9/23/2011 courtesy of the OK Mesonet.

Written by:

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 WFO Tulsa

Products issued:

- 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)
- 2 Drought Information Statements (DGT)