

**MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS**

REPORT FOR:

MONTH

YEAR

**October**

**2012**

SIGNATURE

**Steven F. Piltz**

(Meteorologist-in-Charge)

DATE

**November 1, 2012**

TO: Hydrometeorological Information Center, W/OH2  
 NOAA / National Weather Service  
 1325 East West Highway, Room 7230  
 Silver Spring, MD 20910-3283

*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 the HSA had below normal rainfall for the start of the new water year, though a couple of heavy rain events brought much needed rain to a portion of the area. October 2012 was the first month with below normal temperatures since September 2011. October is climatologically the fourth wettest month for most the Tulsa HSA, except the Ozark region which stays a little drier than the rest of the Hydrologic Service Area (HSA). Normal rainfall for October ranges from 2.9 inches in Pawnee County to 4.4 inches in Sequoyah County. 3.7 inches is normal across the Ozark region of northwest Arkansas. West central Arkansas averages just under 4 inches, while southeast Oklahoma averages slightly higher amounts of 4.5 inches.

**Monthly Summary**

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 1a), rainfall totals for October 2012 ranged from less than 0.10" in southern Tulsa, northern Okmulgee, and eastern Kay Counties to around 5" in northern Tulsa, Rogers, and eastern Franklin Counties. Most of the HSA received 0.5" to 3" of rain this month. Only Rogers, northern Creek, northern Tulsa, southeastern Ottawa, eastern Benton, and Carroll Counties received above normal rainfall this October, while the remainder of the area saw less than 75% of the normal rainfall for October (Fig. 1b). Eastern Kay, southern Tulsa, western Wagoner, and northern Okmulgee Counties in eastern OK were very dry, only getting 5% or less of the normal rainfall this month! There was a very large rainfall gradient across Tulsa County due to the heavy rain event on October 13<sup>th</sup>.

Tulsa, OK (TSA): October, 2012 Monthly Observed Precipitation  
 Valid at 11/1/2012 1200 UTC- Created 11/1/12 13:42 UTC

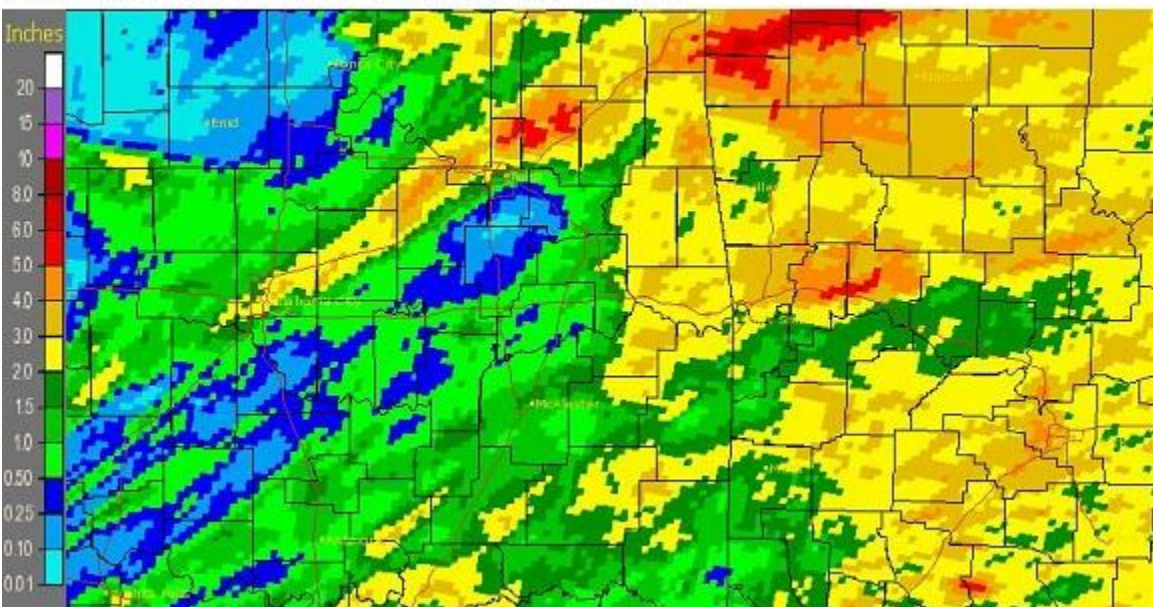


Fig. 1a. Estimated Observed Rainfall for October 2012

Tulsa, OK (TSA): October, 2012 Monthly Percent of Normal Precipitation  
 Valid at 11/1/2012 1200 UTC- Created 11/1/12 13:45 UTC

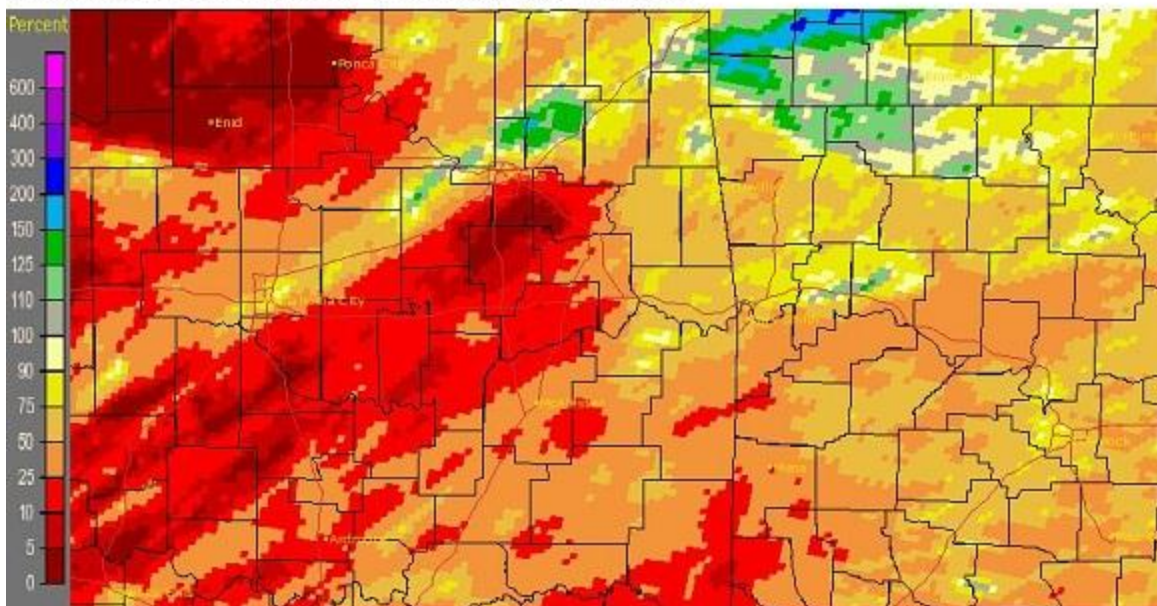


Fig. 1b. Estimated % of Normal Rainfall for October 2012

In Tulsa, OK, October 2012 ranked as the 23<sup>rd</sup> coldest October (60.7°F, tied 1936, 1911; since records began in 1905) and the 62<sup>nd</sup> driest and wettest October (2.75", tied with 2008, 1977; since records began in 1888). Fort Smith, AR was the 48<sup>th</sup> coldest October (62.0°F, tied with 1968, 1974) and the 57<sup>th</sup> driest October (2.65") since records began in 1882. Fayetteville, AR was the 11<sup>th</sup> coldest October (56.1°F, tied with 1970) and the 27<sup>th</sup> driest (2.98") since records began in 1949. In 2012, Tulsa, Fort Smith, and Fayetteville all have the record warmest year-to-date temperature (January 1 – October 31) for their respective periods of history.

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

Ozark, AR (coop)	5.45	Oilton, OK (meso)	4.68	St. Paul, AR (coop)	4.42
Claremore 2ENE, OK (coop)	4.22	Claremore, OK (meso)	4.11	Miami, OK (meso)	3.82
Fanshawe, OK (coop)	3.74	Mountainburg 2NE, AR (coop)	3.73	Bartlesville, OK (ASOS)	3.43

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

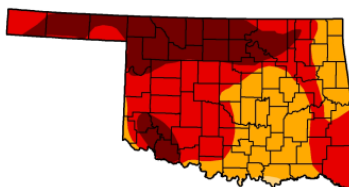
Hectorville, OK (meso)	0.09	Bixby, OK (meso)	0.14	Bristow, OK (meso)	0.35
Okmulgee, OK (meso)	0.37	Pawnee, OK (meso)	0.39	Ralston, OK (coop)	0.56
Jenks/Riverside Apt, OK (ASOS)	0.67	Okemah, OK (meso)	0.73	Porter, OK (coop)	0.73

## U.S. Drought Monitor

October 30, 2012  
Valid 7 a.m. EST

Oklahoma

	Drought Conditions (Percent Area)						
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	
Current	0.00	100.00	100.00	99.43	67.64	27.13	
Last Week (10/23/2012 map)	0.00	100.00	100.00	99.43	66.76	27.13	
3 Months Ago (07/31/2012 map)	0.00	100.00	100.00	98.99	71.60	5.20	
Start of Calendar Year (12/27/2011 map)	14.83	85.17	78.76	50.55	27.48	3.33	
Start of Water Year (09/25/2012 map)	0.00	100.00	100.00	99.98	95.33	42.09	
One Year Ago (10/25/2011 map)	0.00	100.00	100.00	99.89	86.26	54.84	



**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, November 1, 2012  
Michael Brewer, National Climatic Data Center/NOAA

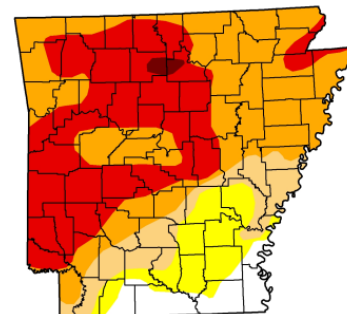
Fig. 2. Drought Monitor for Oklahoma

## U.S. Drought Monitor

October 30, 2012  
Valid 7 a.m. EST

Arkansas

	Drought Conditions (Percent Area)						
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	
Current	6.44	93.56	83.34	73.01	35.62	0.63	
Last Week (10/23/2012 map)	6.52	93.48	83.34	73.01	35.63	0.63	
3 Months Ago (07/31/2012 map)	0.00	100.00	99.66	96.12	80.63	44.46	
Start of Calendar Year (12/27/2011 map)	86.20	13.80	3.95	1.06	0.23	0.00	
Start of Water Year (09/25/2012 map)	0.11	99.89	91.37	73.93	41.99	8.74	
One Year Ago (10/25/2011 map)	4.08	95.92	69.87	33.69	16.37	2.22	



**Intensity:**

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

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Fig. 3. Drought Monitor for Arkansas

According to the [U.S. Drought Monitor](http://droughtmonitor.unl.edu) (USDM) from October 30, 2012 (Figs 2, 3), all of eastern OK and northwest AR was in Severe to Exceptional drought. Exceptional (D4) drought was occurring over portions of

Osage, Pawnee, and southern Washington Counties in eastern OK. Extreme (D3) drought was present across portions of Osage, northern Washington, Tulsa, Nowata, Rogers, Wagoner, Muskogee, western Haskell, Latimer, eastern Pushmataha, and Le Flore Counties in eastern OK, and eastern Washington, southern Carroll, Madison, Sebastian, and southern Franklin Counties in northwest AR. Severe drought (D2) conditions existed across the remainder of the area.

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

Rank since 1921	Oct. 2012	Autumn-to-Date (Sep 1 – Oct 31)	Last 90 Days (Aug 3 – Oct 31)	Last 120 Days (Jul 4 – Oct 31)	Last 180 Days (May 5 – Oct 31)	Year-to-Date (Jan 1 – Oct 31)	Last 365 Days (Nov 2, 2011 – Oct 31, 2012)
Northeast OK	31 <sup>st</sup> driest	21 <sup>st</sup> driest	24 <sup>th</sup> driest	8 <sup>th</sup> driest	2 <sup>nd</sup> driest	15 <sup>th</sup> driest	30 <sup>th</sup> driest
East Central OK	23 <sup>rd</sup> driest	25 <sup>th</sup> driest	26 <sup>th</sup> driest	19 <sup>th</sup> driest	5 <sup>th</sup> driest	8 <sup>th</sup> driest	20 <sup>th</sup> driest
Southeast OK	22 <sup>nd</sup> driest	17 <sup>th</sup> driest	24 <sup>th</sup> driest	25 <sup>th</sup> driest	8 <sup>th</sup> driest	16 <sup>th</sup> driest	41 <sup>st</sup> driest
Statewide	15 <sup>th</sup> driest	16 <sup>th</sup> driest	16 <sup>th</sup> driest	11 <sup>th</sup> driest	3 <sup>rd</sup> driest	8 <sup>th</sup> driest	26 <sup>th</sup> driest

Most of the major reservoirs in the Tulsa HSA were operating below 90% of their conservation pools as of November 1, 2012. However, 1 reservoir was operating above its conservation pool: Hudson Lake 103%. Reservoirs reporting conservation pool deficits below 90% as of November 1, 2012: Hugo Lake 41%, Birch Lake 56%, Hulah Lake 58%, Skiatook Lake 69%, Beaver Lake 71%, Eufaula Lake 72%, Tenkiller Lake 74%, Keystone Lake 75%, Copan Lake 80%, and Oologah Lake 84%.

## **Outlooks**

The [Climate Prediction Center \(CPC\)](#) outlook for November 2012 (issued October 31, 2012) indicates a slightly enhanced chance for above normal temperatures across all of eastern OK and northwest AR. This outlook also indicates an enhanced chance for below median precipitation for northeast and east central OK and northwest AR and equal chances for above, near, and below median precipitation across southeast OK and west central AR. This outlook is based on short- and extended-range computer models.

For the 3-month period Nov-Dec-Jan 2012-13, CPC is forecasting an equal chance for above, near, and below average temperatures across eastern OK and northwest AR. This outlook also calls for a slightly enhanced chance for below median precipitation north of I-40 and equal chances of above, near, and below median precipitation south of I-40 (outlook issued October 18, 2012). This outlook is based primarily on dynamic computer model output and long term trends. ENSO neutral to borderline El Niño conditions continued through October. According to CPC, computer models indicated that sea surface temperatures in the equatorial Pacific Ocean will either remain steady or increase slightly, leading to weak El Niño conditions, during the upcoming winter. An El Niño watch remains in effect.

## **Summary of Precipitation Events**

### **October 1 – 15**

A few light showers brought around 0.25" or less to Creek County on the 1<sup>st</sup> of the month. Pleasant near to above normal temperatures during the first few days of the month were quickly replaced by very cold temperatures as a strong cold front moved across eastern OK and northwest AR on the 4<sup>th</sup>-5<sup>th</sup>. A thin line of showers and thunderstorms developed on the 5<sup>th</sup> in the wake of the front, bringing less than 0.50" to far east central OK and northwest AR. However, heavier rain of 0.75" to 2" did fall across portions of southern Crawford and Franklin Counties. Periods of light post-frontal rain continued on the 6<sup>th</sup>, with only a few hundredths of an inch in most areas. A portion of Benton and Carroll Counties received around 0.25". Due to the cold air in place, several areas reported sleet along with the rain. Tulsa, OK dropped down to 32°F on the 7<sup>th</sup>, setting the record for earliest freeze (previous record earliest freeze was October 8 in 2000 and 1952). An upper-level trof rotated through the region on the 7<sup>th</sup>, with light rain developing over east central OK and west central AR, generally along and a county or two north of I-40. Rainfall totals were only around 0.10" to around 0.25".

Showers and thunderstorms, which developed across southern KS and southern MO within an area of strong warm air advection, spread south into the HSA during the morning and afternoon hours of the 12<sup>th</sup>. This widespread activity brought 1"-2" of much needed rain to northeast OK and northwest AR, generally northeast of a Pawhuska to Owasso to Stigler line (see Fig. 4). A few isolated locations in far northeast OK and far northwest AR received around 3" of rain. 3.78" was measured 2E Bella Vista, AR.

Tulsa, OK (TSA): 10/13/2012 1-Day Observed Precipitation  
Valid at 10/13/2012 1200 UTC- Created 10/15/12 15:30 UTC

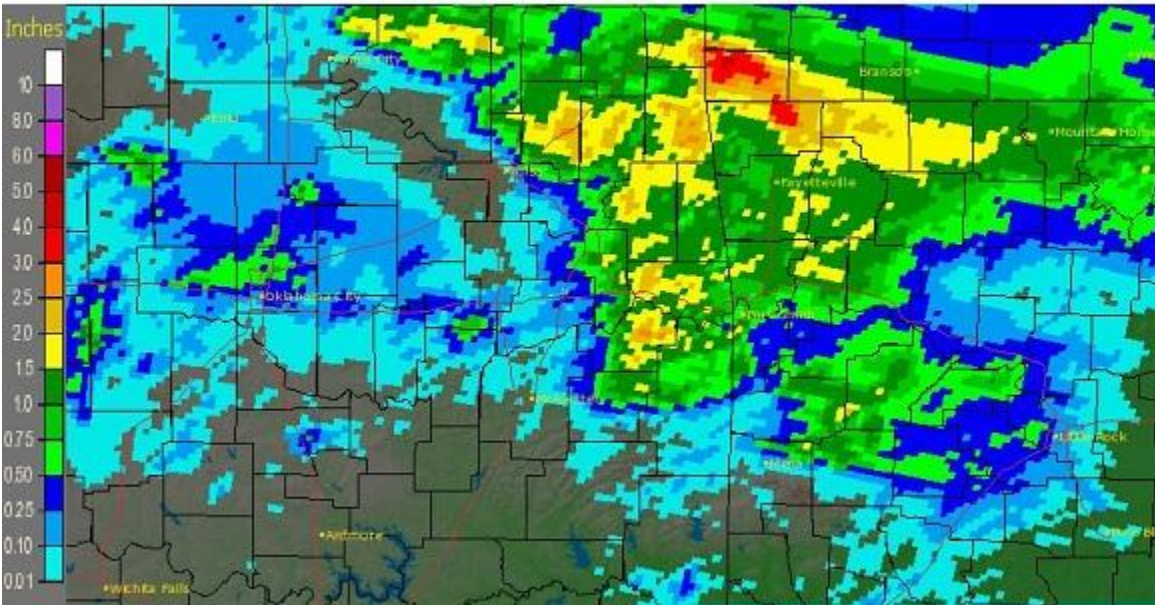
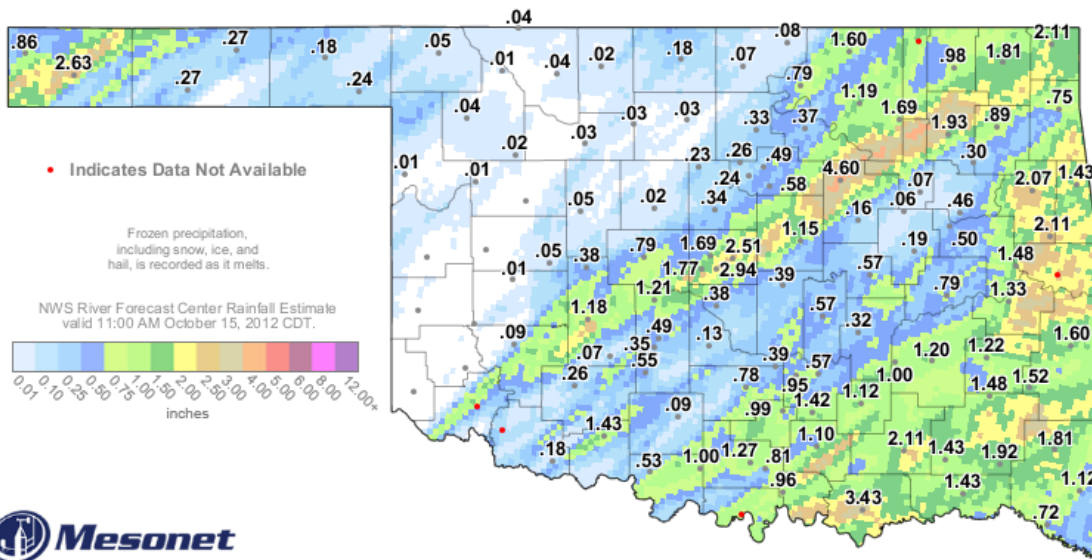


Fig. 4. Estimated Observed 24-hour Rainfall ending at 7am CDT 10/13/2012.

A strong upper-level storm system and accompanying cold front moved into the Southern Plains on the 13<sup>th</sup>, bringing widespread thunderstorms during the afternoon and evening hours as a squall line traversed eastern OK and northwest AR. Training of storms just north of I-44 led to 3"-5" of rain from northern Creek County, through northern Tulsa County and into Rogers County (see Fig. 5, 6). Once the line of storms moved eastward, most of the HSA received between 0.75" and 1.5" of rain. The mesonet station in Oilton, OK measured 4.60", 4.32" was measured 3SE Sperry, OK, and 3.66" was measured 1S Honobia, OK. Unfortunately, a teenage boy died when he drowned while playing near Coal Creek in north Tulsa. He was trying to rescue his friend who was in the swollen creek, but ultimately lost his own life. This storm system also produced damaging winds to 70mph in Osage County, and an EF-1 tornado in Benton County.



**Mesonet**  
3-Day Rainfall (inches)

11:40 AM October 15, 2012 CDT  
Created 11:45:07 AM October 15, 2012 CDT. © Copyright 2012

Fig. 5. Estimated and Observed 24-hour 3-day Rainfall ending at 11:40am CDT 10/15/2012.

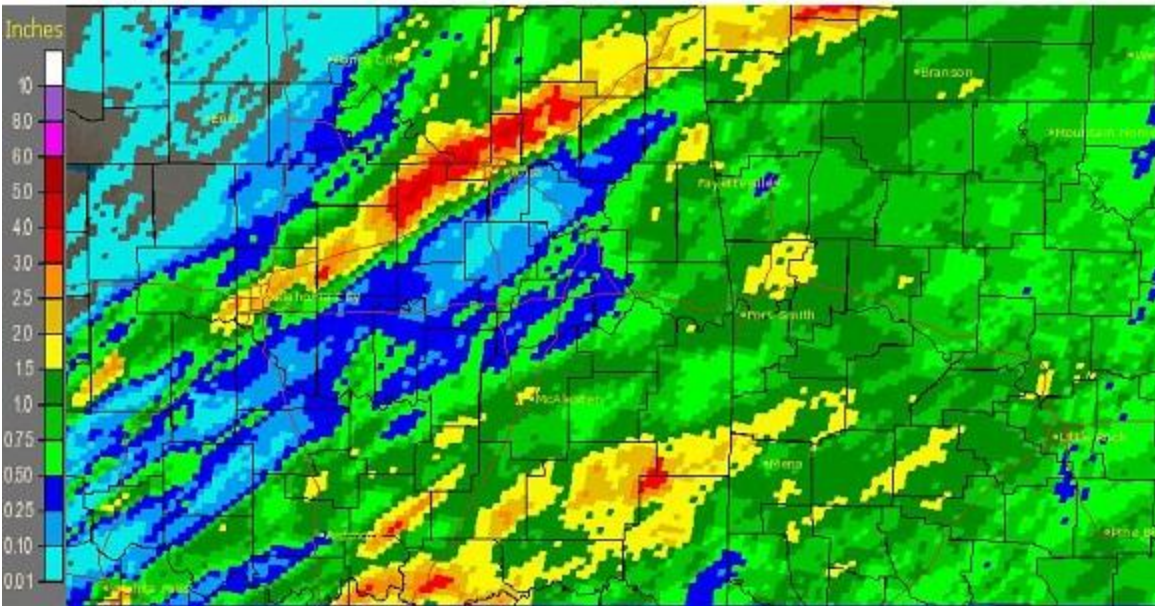


Fig. 6. Estimated Observed 24-hour Rainfall ending at 7am CDT 10/14/2012.

### **October 16 – 31**

Light showers and isolated thunderstorms developed along a cold front on the 17<sup>th</sup>. This activity brought around 0.10" to around 0.50" of rain to Ottawa County in northeast OK and portions of northwest AR.

Scattered thunderstorms brought some rain to southeast OK on the 22<sup>nd</sup> as a shortwave moved through the region. Isolated showers and thunderstorms also occurred over portions of northeast OK and northwest AR. Overall rainfall totals were light, with most affected locations receiving around 0.25" or less. A few spots did get 0.5"-0.75".

A strong cold front moved through eastern OK and northwest AR during the morning and afternoon hours of the 25<sup>th</sup>. A thin line of showers developed along the front, bringing a few hundredths to around a tenth of an inch of rain to far eastern OK and western AR. Temperatures dropped 30 degrees in an hour, and the Oklahoma Mesonet station in Skiatook dropped from 70°F to 54°F in only 15 minutes! Temperatures moderated through the remainder of the month, ending with perfect weather conditions for trick-or-treaters on the 31<sup>st</sup>.

Written by:

Nicole McGavock  
Service Hydrologist  
WFO Tulsa

### **Products issued in October 2012:**

- 1 Flash Flood Warnings (FFW)
- 2 Flash Flood Statements (FFS)
- 1 Flash/Areal Flood Watches (FFA) (2 Watch FFA CON/EXT/CAN)
- 2 Urban and Small Stream Advisories (FLS)
- 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)
- 2 Drought Information Statements (DGT)

### **Preliminary Hydrographs:**

No river flooding occurred this month.