

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

REPORT FOR:

MONTH **October** YEAR **2011**

SIGNATURE

Steven F. Piltz
(Meteorologist-in-Charge)

DATE

November 3, 2011

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)

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

October 2011 was uneventful, with below normal rainfall and a continuation of exceptional drought conditions. 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 2011 ranged from less than 0.50" in Osage County in northeast OK to isolated areas near 5" near the I-40 corridor in east central OK and northwest AR. A large portion of eastern OK and northwest AR received between 1" and 3" of precipitation during the month, with the lowest totals occurring across far northeast OK and Choctaw County in southeast OK. All but a few locations along I-40 and across northwest AR received less than the normal October rainfall, with most of the area reporting only 25% to 75% of the normal amount of rain for the month (Fig. 1b). Northeast OK and far southeast OK had the largest deficits, receiving from near 0% to 25% of the normal October rainfall.

Tulsa, OK (TSA): October, 2011 Monthly Observed Precipitation
Valid at 11/1/2011 1200 UTC- Created 11/1/11 15:42 UTC

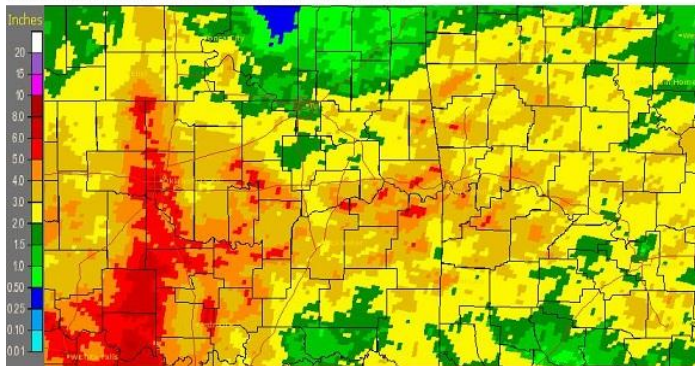


Fig. 1a. Estimated Observed Rainfall for October 2011

Tulsa, OK (TSA): October, 2011 Monthly Percent of Normal Precipitation
Valid at 11/1/2011 1200 UTC- Created 11/1/11 15:45 UTC

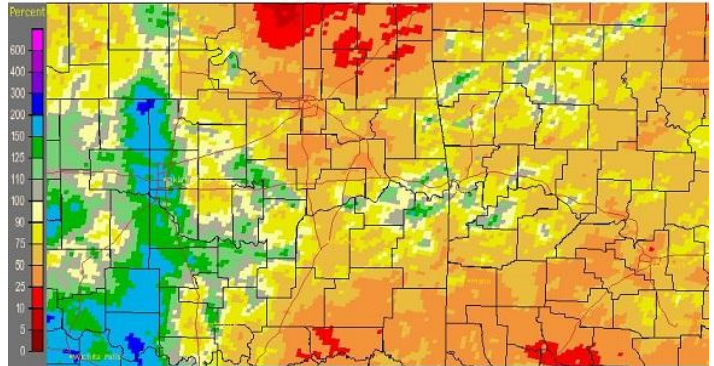


Fig. 1b. Estimated % of Normal Rainfall for October 2011

In Tulsa, OK, October 2011 ranked as the 42nd warmest October (6.4°F, tied with 1982; since records began in 1905) and the 42nd driest October (1.87"; since records began in 1888). Fort Smith, AR, was the 33rd warmest October (64.9°F) and the 52nd wettest October (3.72") since records began in 1882.

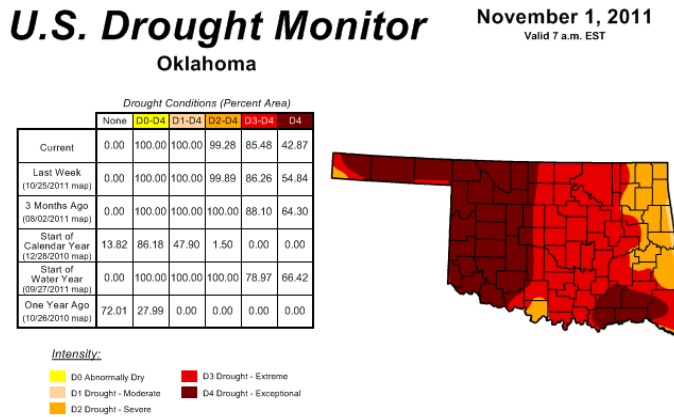
Some of the smaller precipitation reports (in inches) for October 2011 included:

Foraker, OK (meso)	0.65	Bartlesville, OK (ASOS)	0.75	Copan, OK (meso)	0.79
Vinita, OK (meso)	0.93	Miami, OK (meso)	0.99	Claremore, OK (coop)	0.99
Mannford 6NW, OK (coop)	1.19	Pryor, OK (meso)	1.23	Spavinaw, OK (coop)	1.28

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

Mountainburg, AR (coop)	5.44	Sallisaw, OK (meso)	5.35	Okemah, OK (coop)	5.06
Stigler, OK (meso)	4.76	Eufaula, OK (meso)	4.23	Westville, OK (meso)	4.19
Fayetteville, Drake Field, AR (ASOS)	4.11	Berryville 5NW, AR (coop)	3.89	Okemah, OK (meso)	3.89

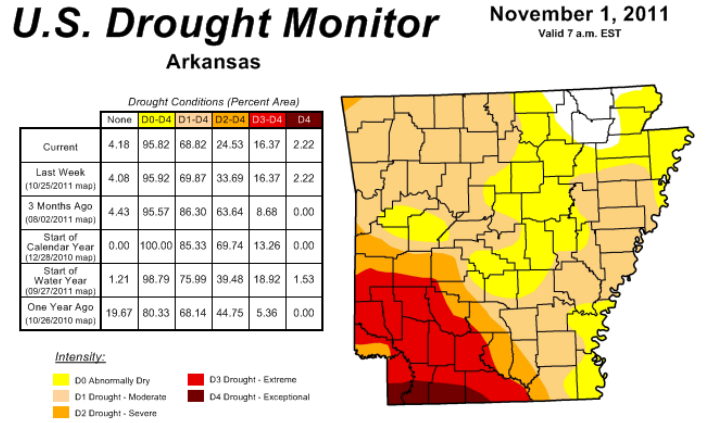
According to the [U.S. Drought Monitor](#) (USDM) from November 1, 2011, exceptional drought (D4) conditions continued across portions of southeast Oklahoma, encompassing southern Pushmataha and Choctaw Counties. Extreme drought (D3) conditions were found across Osage, Pawnee, Washington, Nowata, northwest Rogers, Tulsa, Creek, Okfuskee, Okmulgee, southern Wagoner, western Muskogee, McIntosh, Pittsburg, southern Latimer, and northern Pushmataha Counties. Severe drought (D2) conditions stretched across the remainder of northeast Oklahoma. Moderate drought (D1) conditions were found across Benton, Carroll, Washington, Sebastian, Crawford, Madison, and Franklin Counties in northwest Arkansas (see Figs. 2 & 3).



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

<http://droughtmonitor.unl.edu>

Fig. 2. Drought Monitor for Oklahoma



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<http://droughtmonitor.unl.edu>

Fig. 3. Drought Monitor for Arkansas



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

Rank since 1921 ("Last XX days" ending October 31, 2011)	October 2011	Cool Growing Season (Sep 1, 2011 – Oct 31, 2011)	Last 120 days (Jul 4, 2011 – Oct 31, 2011)	Last 180 days (May 5, 2011 – Oct 31, 2011)	Year-to-Date (Jan 1, 2011 – Oct 31, 2011)	Last 365 days (Nov 1, 2010 – Oct 31, 2011)
Northeast OK	21 st driest	17 th driest	14 th driest	10 th driest	11 th driest	10 th driest
East Central OK	43 rd driest	31 st driest	23 rd driest	7 th driest	21 st driest	14 th driest
Southeast OK	31 st driest	14 th driest	3 rd driest	3 rd driest	8 th driest	6 th driest
Statewide	40 th wettest	24 th driest	11 th driest	3 rd 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 October 2011, with most lakes reporting lower storages than at the end of September. The following reservoirs were reporting conservation pool deficits below 90% as of November 1, 2011: Birch Lake 49%, Fort Gibson Lake 53%, Hugo Lake 55%, Heyburn Lake 56%, Skiatook Lake 64%, Hulah Lake 69%, Eufaula Lake 73%, Keystone Lake 73%, Wister Lake 75%, Tenkiller Lake 83%, Copan Lake 83%, Oologah Lake 85%, and Sardis Lake 88%.

Outlooks

The [Climate Prediction Center](#) (CPC) outlook for November 2011 (issued October 31, 2011) indicates an enhanced chance for above normal temperatures across all of eastern Oklahoma and northwest Arkansas.

This outlook also indicates a slightly enhanced chance for below median precipitation for locations south of I-40, with an equal chance for above, near, or below median precipitation elsewhere. This outlook was based primarily on short-term dynamical computer models with possible La Niña impacts considered. For the 3-month period Nov-Dec-Jan 2011-12, CPC is forecasting an enhanced chance for above average temperatures and below median precipitation across all of eastern Oklahoma and northwest Arkansas (outlook issued October 20, 2011). This is consistent with a La Niña pattern, as well as long-range computer model output.

According to CPC, weak to moderate La Niña conditions were in place by the end of October. La Niña conditions are forecast to strengthen and continue through Winter 2011-12, with impacts lasting into early Spring 2012.

Summary of Precipitation Events

October 1 – 15:

The first rainfall event of the month brought some much needed rainfall to central and western OK; however, lesser amounts occurred across eastern OK and northwest AR. North-to-south oriented rainfall reached eastern Kay, Osage, and Pawnee Counties on the 9th, before slowly spreading east later in the day as an upper-level wave ejected into the region. Showers and isolated thunderstorms continued through the overnight hours and into the morning of the 10th across eastern OK and western AR. Most of the area measured around 0.50" or less, with higher amounts along the western fringe of the HSA. Eastern Kay, western Osage, western Pawnee, Creek, and western Okfuskee Counties received 0.75" to 1.5" of rain, with a few isolated locations getting around 2" (see Figs. 4, 5).

A few light showers developed over along the OK/AR border on the morning of the 11th within a deep moist axis. More widespread showers and isolated thunderstorms developed later in the day across far eastern OK and northwest AR. The highest rainfall totals occurred from east central OK into northwest AR, where 0.5" to 1.5" of rain fell (see Fig. 6). Isolated higher amounts of 1.5" to near 3" occurred in Adair, Benton, and Carroll Counties. Precipitation across central OK spread east during the overnight hours and continued across the region on the 12th ahead of a cold front. While most of the area received less than 0.5" of rain, most of Benton and Carroll Counties received 0.5" to 1.5".

Tulsa, OK (TSA): Current 7-Day Observed Precipitation
Valid at 10/11/2011 1200 UTC- Created 10/11/11 13:56 UTC

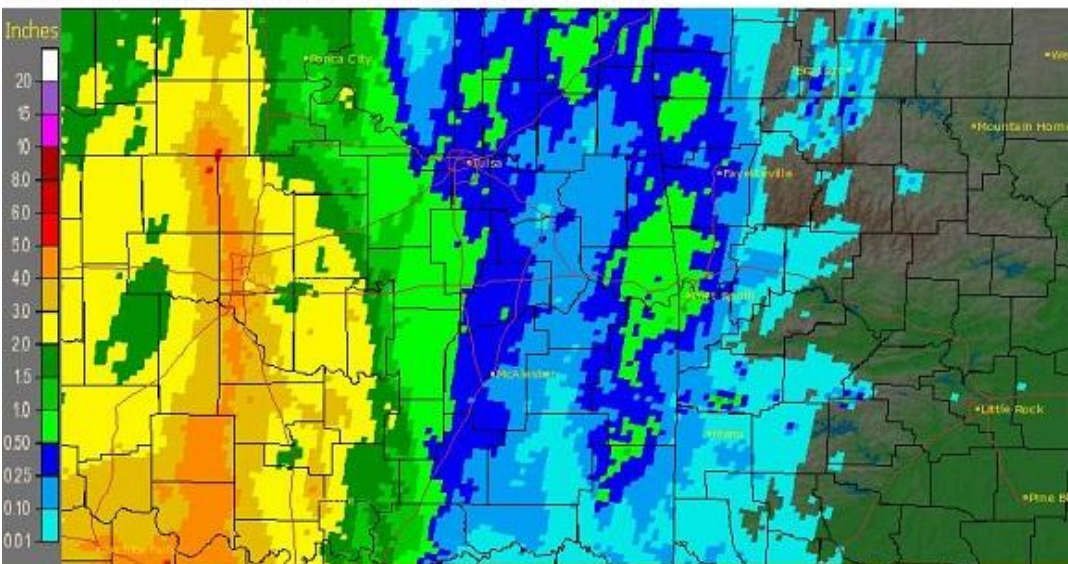


Fig. 4. Estimated 7-day Observed Rainfall for ending 7am CDT 10/11/2011

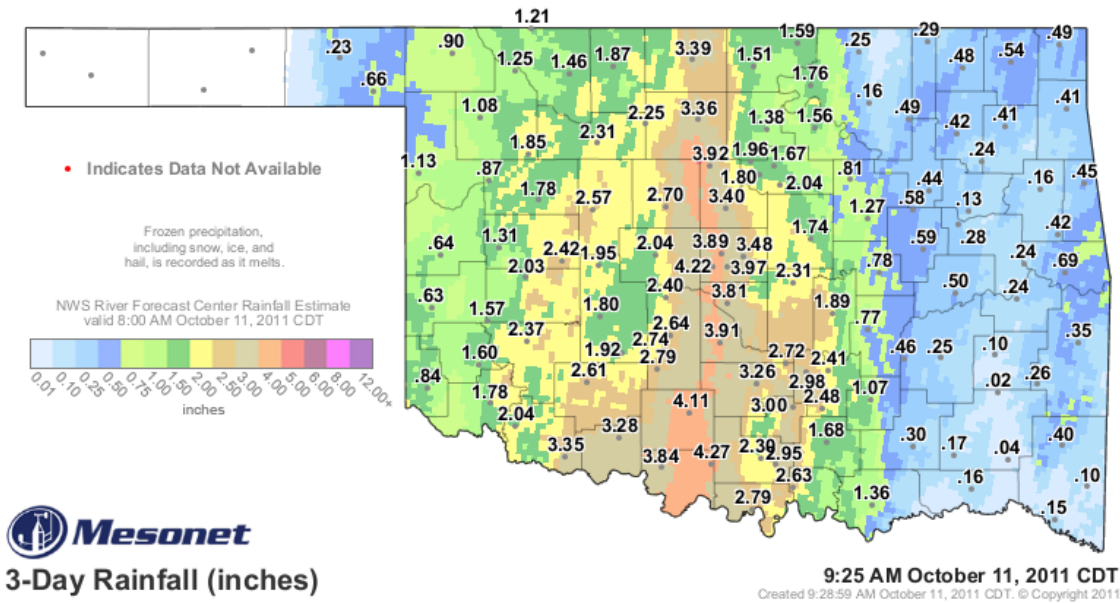


Fig. 5. 3-day Observed and Estimated Rainfall ending 9:25am CDT 10/11/2011

Tulsa, OK (TSA): 10/12/2011 1-Day Observed Precipitation
Valid at 10/12/2011 1200 UTC- Created 10/14/11 15:31 UTC

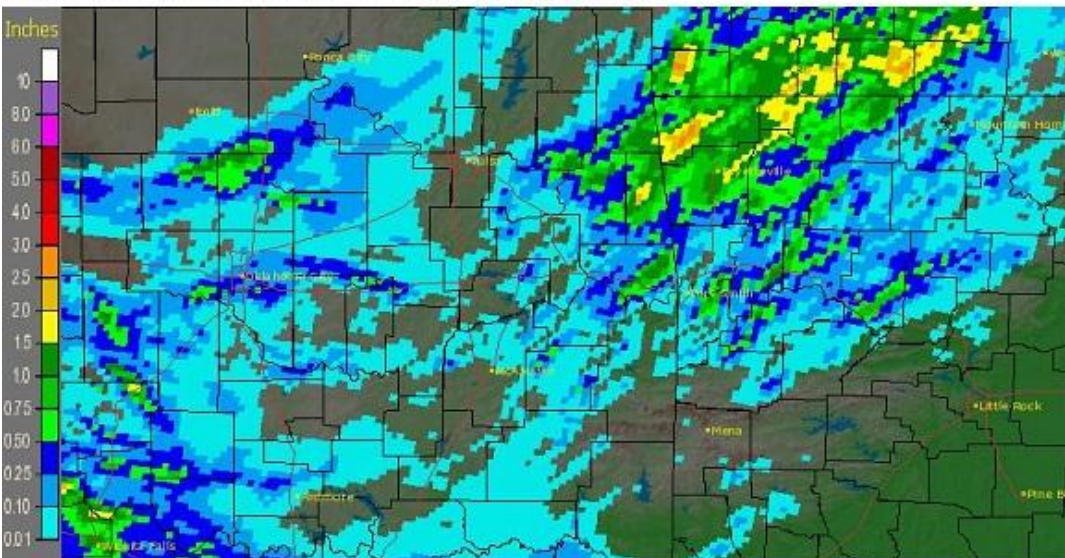


Fig. 6. Estimated 24-hr Observed Rainfall for ending 7am CDT 10/12/2011

October 16 – 31:

Showers and thunderstorms, some which were severe, developed along a strong cold front on the 17th, bringing rain to much of the HSA during the late afternoon through overnight hours. While most of the region received less than 0.50" of precipitation, some areas of southeast OK, far northeast OK and far northwest AR did get 0.50"-1.5" of much needed rain (see Fig. 7).

Strong to severe thunderstorms developed near a warm front during the evening of the 22nd. These storms then congealed into an MCS, moving southeast across the region. This activity brought 0.5" to 1.5" of rain to the entire HSA, except across far northeast OK and far northwest AR (see Figs. 8, 9). The highest rainfall totals occurred near and south of I-40, where several locations received 2"-3" of rain. The highest measured total was 3.65" in Okemah (COOP), followed by 2.78" in Mountainburg, AR (COOP), and 2.67" in Stigler, OK (mesonet). In addition to the heavy rain, 3" (teacup-sized) hail was reported in Okfuskee Co. A wind gust of 69 mph was measured in Okmulgee Co. (mesonet) and 67 mph gust was measured in Choctaw Co. (mesonet). Due to the dry soils and ongoing drought, this rain had little impact on area streams and rivers.

Tulsa, OK (TSA): 10/18/2011 1-Day Observed Precipitation
 Valid at 10/18/2011 1200 UTC- Created 10/20/11 19:31 UTC

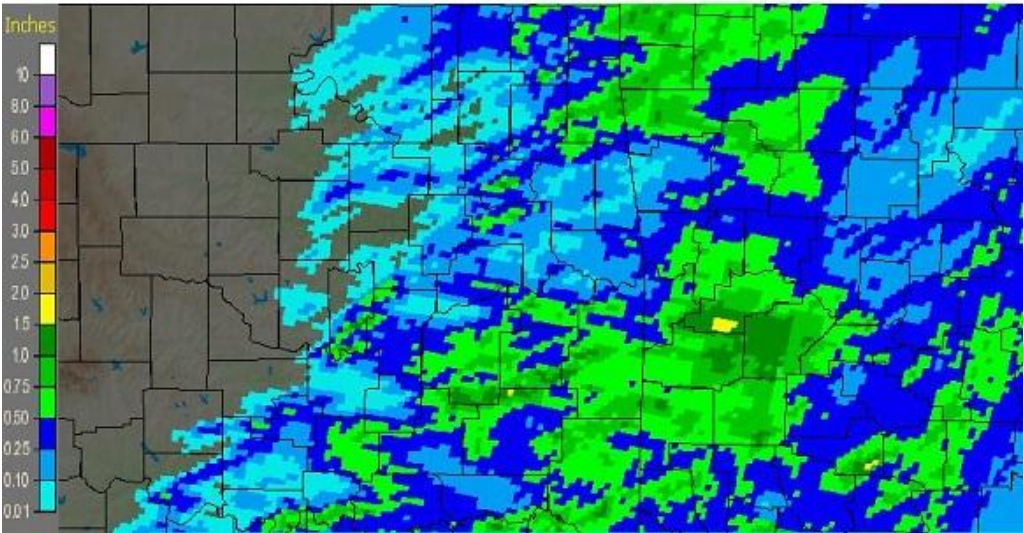


Fig. 7. Estimated 24-hr Observed Rainfall for ending 7am CDT 10/18/2011

Tulsa, OK (TSA): 10/23/2011 1-Day Observed Precipitation
 Valid at 10/23/2011 1200 UTC- Created 10/23/11 23:40 UTC

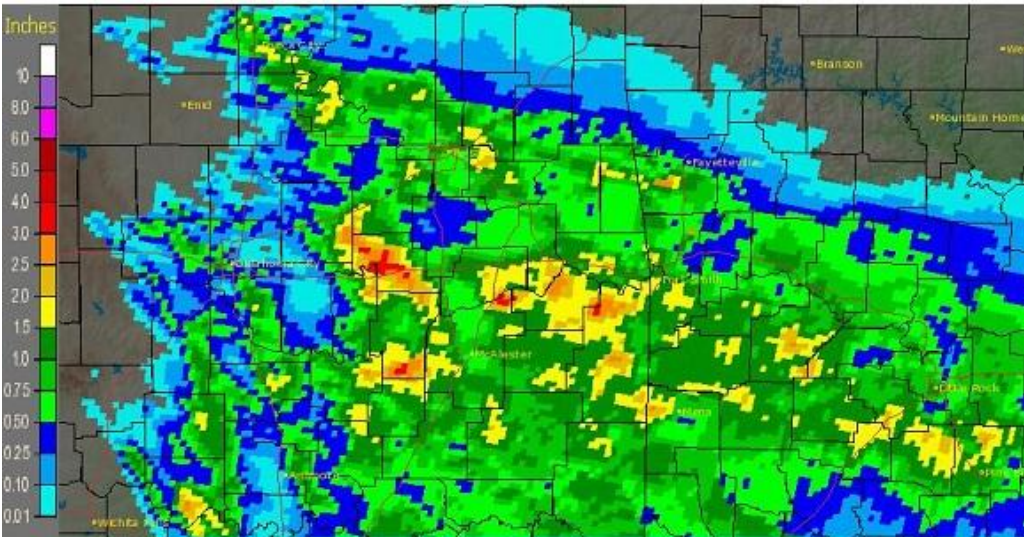


Fig. 8. Estimated 24-hr Observed Rainfall for ending 7am CDT 10/23/2011

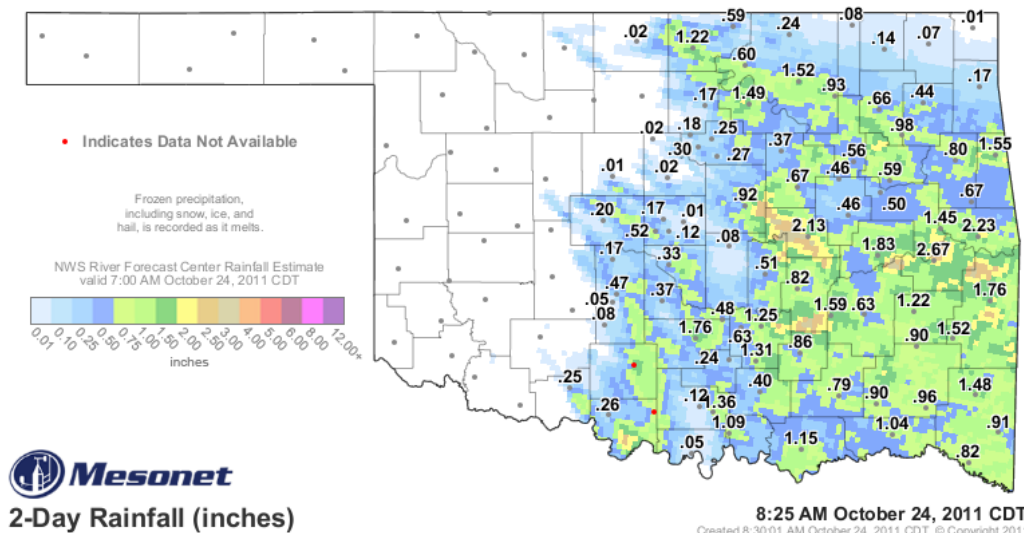


Fig. 9. 2-day Observed and Estimated Rainfall ending 8:25am CDT 10/24/2011

Showers and isolated thunderstorms developed during the early morning hours of the 26th along the HWY 412 corridor as a cold front slowly moved through the region. While most of the affected area received less than one tenth of an inch of rain, a few locations received 0.10" to near 0.50". Additional scattered storms continued near the cold front as it moved southeast through the day, bringing only additional light rain. More widespread showers and isolated thunderstorms developed during the early morning hours of the 27th and continued through the day as an upper-level wave moved through the southern plains. Locations north of I-44 unfortunately did not receive any rain during this event. However, the remainder of the HSA received around 0.10" to around 1.5" of rain (see Figs. 10, 11). The highest precipitation totals occurred from McAlester, OK to Sallisaw, OK to Huntsville, AR. This slow, steady rainfall was very beneficial for the drought-stricken area, through several events like this are still need to help alleviate the drought. Most of the rain soaked into the ground, as little to no response was observed in local rivers and streams.

Tulsa, OK (TSA): 10/28/2011 1-Day Observed Precipitation
Valid at 10/28/2011 1200 UTC- Created 10/28/11 13:41 UTC

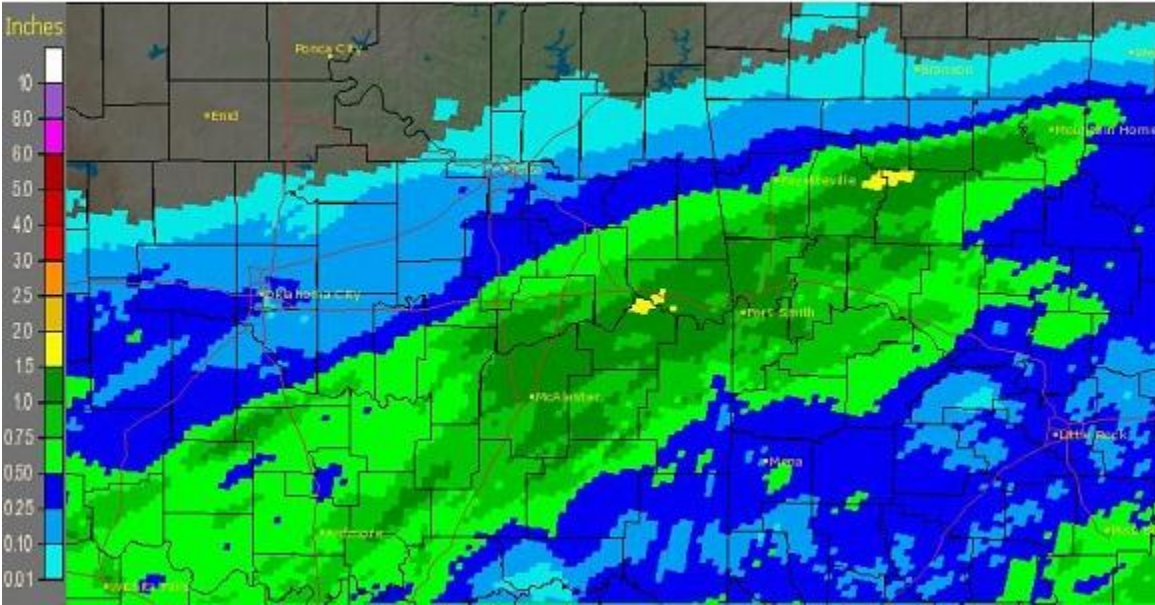
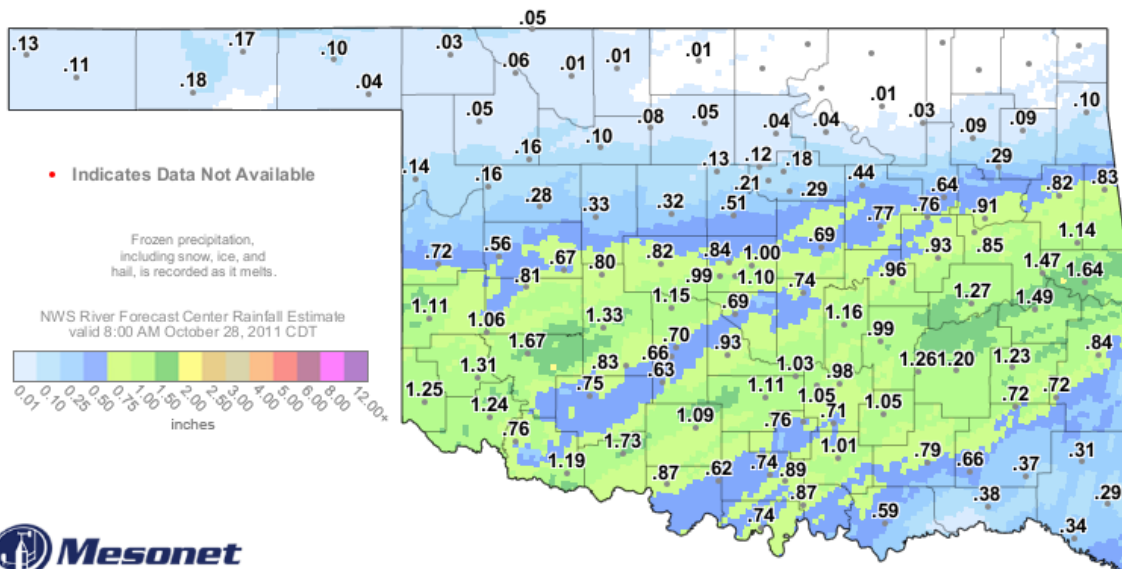


Fig. 10. Estimated 24-hr Observed Rainfall for ending 7am CDT 10/28/2011



9:25 AM October 28, 2011 CDT
Created 9:29:02 AM October 28, 2011 CDT. © Copyright 2011

Fig. 11. 2-day Observed and Estimated Rainfall ending 9:25am CDT 10/28/2011

Written by:

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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)