

**MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS**

REPORT FOR:

MONTH **May** YEAR **2012**

SIGNATURE

**Steven F. Piltz**  
 (Meteorologist-in-Charge)

DATE

**June 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.

May, normally the wettest month of the year, was very dry across the region, with Tulsa, Fort Smith, and Fayetteville ending May 2012 in the top 4 driest May's on record. Normal precipitation ranges from 4.4 inches in Washington (OK) County to 6.4 inches in Le Flore County. The Ozark region of northwest Arkansas averages 5.1 inches for the month. Spring 2012 was exceptionally warm, smashing the previous record hottest Spring in Tulsa and Fort Smith.

**Monthly Summary**

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 1a), rainfall totals for May 2012 ranged from a meager 0.25" in isolated areas to around 5" in a few spots. Most of the HSA received 0.5"-2". These rainfall totals were woefully below normal, with almost all of the area receiving less than half of the normal May rainfall (Fig. 1b). A large portion of northeast OK and northwest and west central AR had less than 25% of the normal May rain, with a large portion of Franklin County, AR receiving less than 5%!

Tulsa, OK (TSA): May, 2012 Monthly Observed Precipitation  
 Valid at 6/1/2012 1200 UTC- Created 6/1/12 13:42 UTC

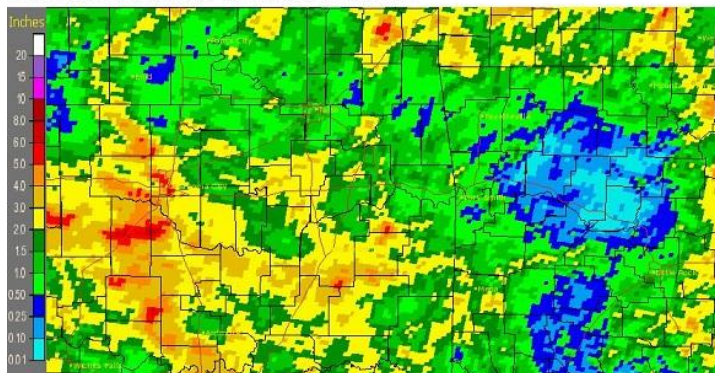


Fig. 1a. Estimated Observed Rainfall for May 2012

Tulsa, OK (TSA): May, 2012 Monthly Percent of Normal Precipitation  
 Valid at 6/1/2012 1200 UTC- Created 6/1/12 13:46 UTC

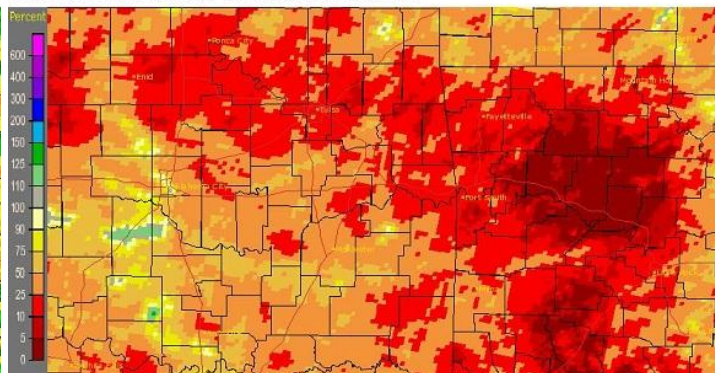


Fig. 1b. Estimated % of Normal Rainfall for May 2012

In Tulsa, OK, May 2012 ranked as the 2<sup>nd</sup> warmest May (74.3°F; since records began in 1905) and the 4<sup>th</sup> driest May (1.18"; since records began in 1888). Fort Smith, AR, was the record warmest May (75.8°F, tied with 1962) and the 3<sup>rd</sup> driest May (1.15") since records began in 1883. Fayetteville, AR (Drake Field) recorded its record driest May (1.05"; previous record 1.24" in 1977) since records began in 1950.

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

Vinita, OK (meso)	5.86	Clayton, OK (meso)	4.57	Tuskahoma, OK (coop)	3.75
Foraker, OK (meso)	3.26	McAlester, OK (meso)	3.07	Miami, OK (meso)	3.00
Talihina, OK (meso)	2.96	Oktaha, OK (coop)	2.90	Miami, OK (coop)	2.88

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

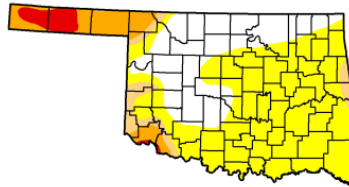
Claremore, OK (meso)	0.78	Oilton, OK (meso)	0.79	Fayetteville, AR (ASOS)	1.05
Westville, OK (meso)	1.07	Tahlequah, OK (meso)	1.10	Pawnee, OK (coop)	1.12
Ft. Smith, AR (ASOS)	1.15	Tulsa, OK (ASOS)	1.18	Sallisaw, OK (meso)	1.27

# U.S. Drought Monitor

Oklahoma

May 29, 2012  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.30	72.70	16.50	11.14	3.26	0.00
Last Week (05/22/2012 map)	31.44	68.56	13.99	9.34	3.54	0.00
3 Months Ago (02/28/2012 map)	24.91	75.09	66.46	41.79	19.03	3.78
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 (05/24/2011 map)	32.30	67.70	55.37	41.31	29.09	10.26



**Intensity:**



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



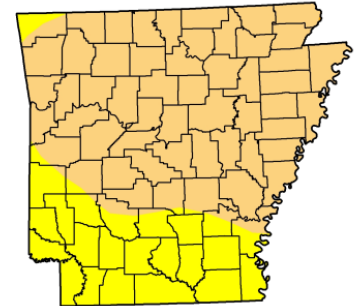
Released Thursday, May 31, 2012  
Brad Rippey, U.S. Department of Agriculture

# U.S. Drought Monitor

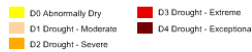
Arkansas

May 29, 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	71.14	0.02	0.00	0.00
Last Week (05/22/2012 map)	5.59	94.41	11.63	0.02	0.00	0.00
3 Months Ago (02/28/2012 map)	94.01	5.99	1.16	0.05	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	16.92	1.53
One Year Ago (05/24/2011 map)	83.08	16.92	14.31	10.80	2.34	0.00



**Intensity:**



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

<http://droughtmonitor.unl.edu>

Fig. 3. Drought Monitor for Arkansas



Released Thursday, May 31, 2012  
Brad Rippey, U.S. Department of Agriculture

According to the [U.S. Drought Monitor](http://droughtmonitor.unl.edu) (USDM) from May 29, 2012 (Figs 2, 3), moderate (D1) drought conditions had returned to northwest AR and portions of east central OK. Abnormally dry (D0) conditions existed across all of eastern OK except near the OK/KS state line.

According to statistics from the [Oklahoma Climatological Survey](http://ocscatalog.com) (OCS):

Rank since 1921	Last 30 Days (May 2 – 31, 2012)	Spring (Mar 1- May 31, 2012)	Year-to-Date (Jan 1 – May 31, 2012)	Water Year (Oct 1, 2011 – May 31, 2012)	Last 60 Days (Apr 2 – May 31, 2012)	Last 180 Days (Dec 3, 2011 – May 31, 2012)	Last 365 days (Jun 2, 2011– May 31, 2012)
Northeast OK	<b>3<sup>rd</sup> driest</b>	23 <sup>rd</sup> wettest	34 <sup>th</sup> wettest	31 <sup>st</sup> wettest	29 <sup>th</sup> driest	33 <sup>rd</sup> wettest	30 <sup>th</sup> driest
East Central OK	<b>4<sup>th</sup> driest</b>	20 <sup>th</sup> driest	26 <sup>th</sup> driest	42 <sup>nd</sup> driest	<b>5<sup>th</sup> driest</b>	20 <sup>th</sup> driest	19 <sup>th</sup> driest
Southeast OK	<b>7<sup>th</sup> driest</b>	25 <sup>th</sup> driest	42 <sup>nd</sup> driest	39 <sup>th</sup> wettest	<b>2<sup>nd</sup> driest</b>	44 <sup>th</sup> driest	<b>15<sup>th</sup> driest</b>
Statewide	<b>4<sup>th</sup> driest</b>	36 <sup>th</sup> driest	42 <sup>nd</sup> wettest	30 <sup>th</sup> wettest	<b>14<sup>th</sup> driest</b>	43 <sup>rd</sup> driest	17 <sup>th</sup> driest

Most of the major reservoirs in the Tulsa HSA were operating within  $\pm 5\%$  of the top of their conservation pools as of May 31, 2012. A few reservoirs were reporting conservation pool deficits as of May 31, 2012: Skiatook Lake 82%, Hugo Lake 86%, Beaver Lake 91%, and Heyburn Lake 93%.

## Spring (March-April-May) Summary

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 4a), rainfall totals for Spring 2012 were 10"-15" across much of eastern OK and northwest AR, which corresponds to 50%-100% of normal (Fig. 4b) for Spring time. However, some locations only received 6"-10" this Spring, which is around 50% of normal. Locations along the OK/KS state line, along with a small portion of southern Haskell County, ended this Spring with rainfall totals of 12"-22" or 110% to near 200% of the normal Spring rainfall.

In Tulsa, OK, Spring 2012 ranked as the record warmest Spring (67.2°F, previous record was 64.9°F in 1936; since records began in 1905) and the 52<sup>nd</sup> driest Spring (11.04"; since records began in 1888). Fort Smith, AR, was the record warmest Spring (69.0°F, previous record was 64.7°F in 2006) and the 57<sup>th</sup> wettest Spring (12.20") since records began in 1883. Fayetteville, AR (Drake Field) recorded its 3<sup>rd</sup> driest Spring (7.90") since records began in 1950.



Tulsa, OK (TSA): Current 90-Day Observed Precipitation  
Valid at 6/1/2012 1200 UTC- Created 6/1/12 14:15 UTC

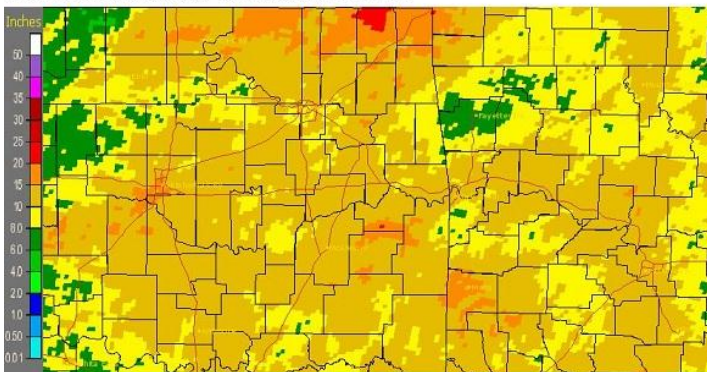


Fig. 4a. Estimated Observed Rainfall for Spring 2012

Tulsa, OK (TSA): Current 90-Day Percent of Normal Precipitation  
Valid at 6/1/2012 1200 UTC- Created 6/1/12 14:19 UTC

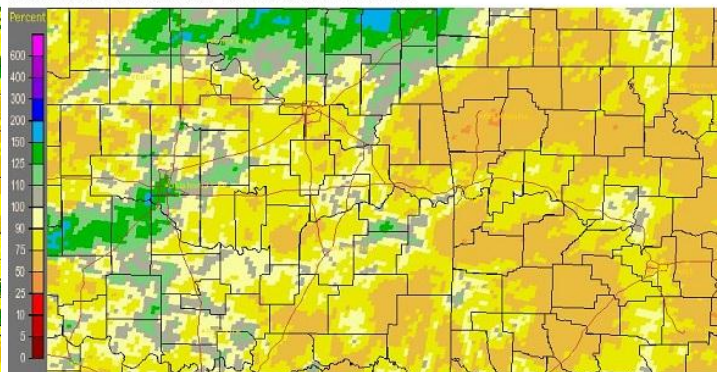


Fig. 4b. Estimated % of Normal Rainfall for Spring 2012

## **Outlooks**

The [Climate Prediction Center](#) (CPC) outlook for June 2012 (issued May 31, 2012) indicates an enhanced chance for above normal temperatures and equal chances for above, near, and below median precipitation for the entire area. This outlook was based primarily on short-term dynamic computer models, which are indicating a persistent ridge pattern over the central U.S.

For the 3-month period Jun-Jul-Aug 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 May 17, 2012). This outlook is based on dynamic computer model output and statistical forecast tools. According to CPC, ENSO neutral conditions are ongoing and there is an equal chance for either neutral conditions or El Niño conditions by late this summer and this autumn (a return to La Niña is highly unlikely).

## **Summary of Precipitation Events**

### **April 28 – May 1: (excerpt from the April 2012 E5 report)**

A nearly stationary front located along a line from near Stillwater to near Bartlesville provided the focus for showers and thunderstorms during the overnight and morning hours of April 29<sup>th</sup>. 0.5" to around 2" of rain fell northwest of I-44 from this activity. The same areas of north central and northeast OK that had the moderate rain on the 29<sup>th</sup> experienced repeated rounds of additional heavy rain during the late evening of the 29<sup>th</sup> through the morning hours of the 30<sup>th</sup>. The highest rainfall totals within the HSA were 5"-8", occurring over eastern Kay, northern Osage, and far northern Washington Counties. The line of showers and thunderstorms finally moved southeast during the day on the 30<sup>th</sup>, affecting the remainder of eastern OK and northwest AR. Outside of the heaviest rain axis already discussed, rainfall totals ranged from around 2" in northeast OK to around 0.3"-1" across most of eastern OK and northwest AR.

A third round of nocturnal thunderstorms affected locations along the OK-KS state line from the evening of the 30<sup>th</sup> to the early morning hours of May 1<sup>st</sup>. This round of storms brought widespread 0.25"-1" of rain to eastern OK and northwest AR, with some areas receiving around 2" of rain. Higher amounts of 2"-6" fell over northern Nowata and northern Craig Counties (and extended further north into southeast KS). These high amounts combined with the antecedent rainfall from the previous two nights, led to more flash flooding and exacerbated the ongoing river flooding. The greatest flooding impact for this last round of rain occurred across Nowata and Craig Counties, with reports of flooded homes in South Coffeyville and in Welch. Media reports indicated around 17 people were rescued by boat from flooded homes on the west side of Welch. GRDA patrolmen and a Centralia volunteer fire fighter rescued 7 adults, 5 children, and 5 family dogs, in flood waters that were reported to be as high as 15' in some places. High water also washed out the State Highway 10 bridge west of Welch. In addition to the flooding, 7 confirmed tornadoes also occurred. These storms formed a line that moved through the remainder of eastern OK and northwest AR during the early morning hours of May 1<sup>st</sup>, bringing an additional 0.25" of rain with isolated areas around 0.75".

Widespread 5"-6" of rain fell across the Verdigris River basin upstream of Lenapah, with areas of over 7" in the upper reaches through the morning of the 30<sup>th</sup>. After the additional rainfall April 30-May 1, widespread storm total rainfall of 6"-10" with an isolated 12" occurred over the Verdigris River basin upstream of Lenapah. This

led to near major flooding along the Verdigris River near Lenapah. Moderate flooding occurred along the Neosho River near Commerce due to widespread 3" and isolated areas of over 5" of rain across the basin in southeast KS through the morning of the 30<sup>th</sup> and widespread 3"-5" with isolated 7" from the last round of storms. Additional minor river flooding occurred along the Neosho River near Quapaw (refer to the April and May E3 reports for specific information on all river floods) and several other river forecast points rose to within inches of flood stage. Preliminary hydrographs are available at the end of this report.

Tulsa, OK (TSA): Current 7-Day Observed Precipitation  
Valid at 5/1/2012 1200 UTC- Created 5/1/12 17:56 UTC

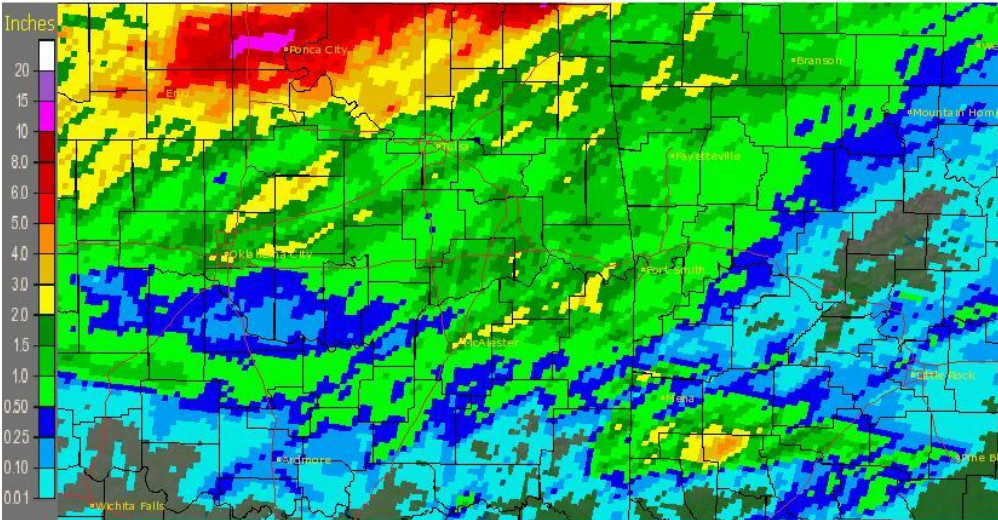


Fig. 5. Storm total rainfall from April 29-May 1, 2012.

After 3 days of thunderstorms, most locations northwest of I-44 received a total of 2" to 10" of rain (fig. 5). For the rest of the HSA, rainfall totals across all but far southeast OK were 0.5" to 2". All of this rain led to widespread damage, especially to many roads and several homes, across northeast OK. Thankfully, no fatalities were reported, thanks in part to the efforts of swift water rescue teams. Information on this 3-day event can also be found at: [http://www.srh.noaa.gov/tsa/?n=weather-event\\_2012aprfflood](http://www.srh.noaa.gov/tsa/?n=weather-event_2012aprfflood)

### **May 2 – 15**

On May 5<sup>th</sup>, isolated showers and thunderstorms affected locations from near western Cherokee County south through Haskell County and into northeast Choctaw County. Rainfall totals ranged from around 0.25" to near 2" in a couple of spots.

As a cold front slowly approached the region on the 6<sup>th</sup>, showers and thunderstorms developed in northeast OK and northwest AR during the afternoon hours ahead of the front and in the vicinity of outflow boundaries from storms in KS/MO. A cluster of storms then developed overnight as the front moved into eastern OK, affecting far northeast OK. Portions of Ottawa County received around 2" of rainfall, while the other locations which were affected by the day's storms had around 0.25" to 0.75" of rain. The cold front moved southward before slowing down again near the Red River and causing shower and thunderstorm activity south of I-40 from the afternoon of the 7<sup>th</sup> through early evening on the 8<sup>th</sup>. A large portion of this area received 0.5" to 1" of rain, with some locations receiving as much as 2.5".

Widespread showers moved northwest across the HSA on the 11<sup>th</sup> in response to an upper-level low spinning over northwest TX/southwest OK. Rain continued through the evening and overnight hours across much of the area as the low tracked east along the Red River Valley. Most of the rain, 0.25" to around 1.5", remained southwest of a Tulsa to Fort Smith line. Drier air moving into northeast OK and northwest AR kept totals around one tenth of an inch or less. Afternoon heating and a weak mid-level disturbance sparked isolated showers and thunderstorms on Mother's Day, May 13<sup>th</sup>. Locations affected by precipitation received around 0.25" or less.

### **May 16 – 31**



A weak, nearly stationary boundary languished over eastern OK May 19-21. Isolated showers and thunderstorms developed near the boundary, bringing localized rain of around 0.5" or less.

During the evening and late night hours of May 28, scattered showers and thunderstorms developed along a weak frontal boundary and moved east into northeast OK and northwest AR. This activity affected areas along and north of I-40 and generally brought between 0.25" and 1" of rainfall. A few locations received up to 2" of rain. The highest rainfall occurred over a large portion of Craig Co., where 1"-4" of rain fell. The mesonet location in Vinita measured 3.29" of rain (see Fig. 6).

On the 29<sup>th</sup>, a large thunderstorm complex affected much of eastern OK along and south of Hwy 412, with widely scattered storms elsewhere across northeast OK and northwest AR. Rainfall totals were generally around 0.25" to around 1", with isolated higher amounts near 2" (see Fig. 7). Through May 29, 2012, Tulsa International Airport had measured 0.40" of rain. The driest May on record (since 1888) is 0.80", which occurred in 1897, and the 1981-2010 rainfall normal for May is 5.87". Another mesoscale convective complex developed on the 30<sup>th</sup> in KS and moved into northeast OK and northwest AR during the evening and late night hours. These storms brought widespread 0.25"-1" of rain to locations north of I-40, with isolated areas receiving 1" - 2.5". Tulsa measured 0.78" during this event, bringing the May total to 1.18". Because of this rain on the last day of the month, May 2012 will rank as the 4<sup>th</sup> driest May on record instead of the record driest. Fort Smith did not measure any rain with this last event, and therefore ranked as the 3<sup>rd</sup> driest May on record. Fayetteville ended the month as the driest since records began in 1950.

Tulsa, OK (TSA): 5/29/2012 1-Day Observed Precipitation  
Valid at 5/29/2012 1200 UTC- Created 5/29/12 17:41 UTC



Fig. 6. Rainfall from May 28-29, 2012.

Tulsa, OK (TSA): Current 1-Day Observed Precipitation  
Valid at 5/30/2012 1200 UTC- Created 5/30/12 17:41 UTC

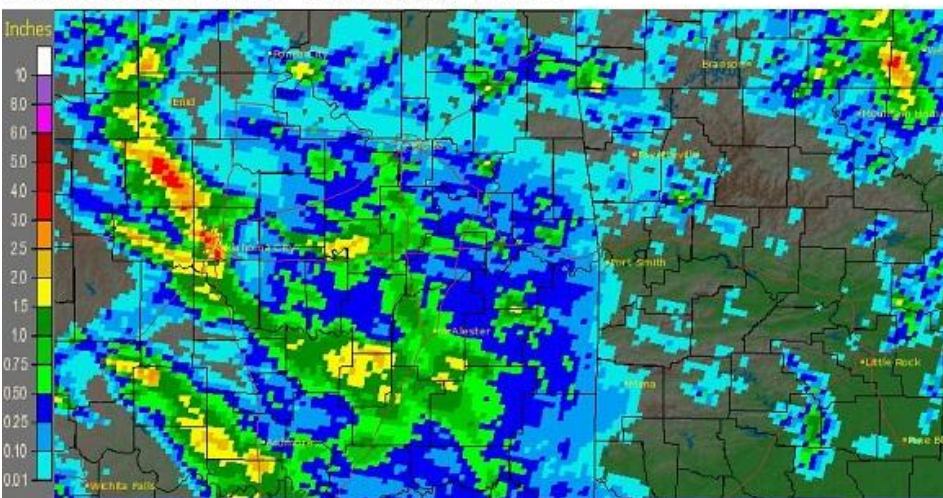


Fig. 7. Rainfall from May 29, 2012.

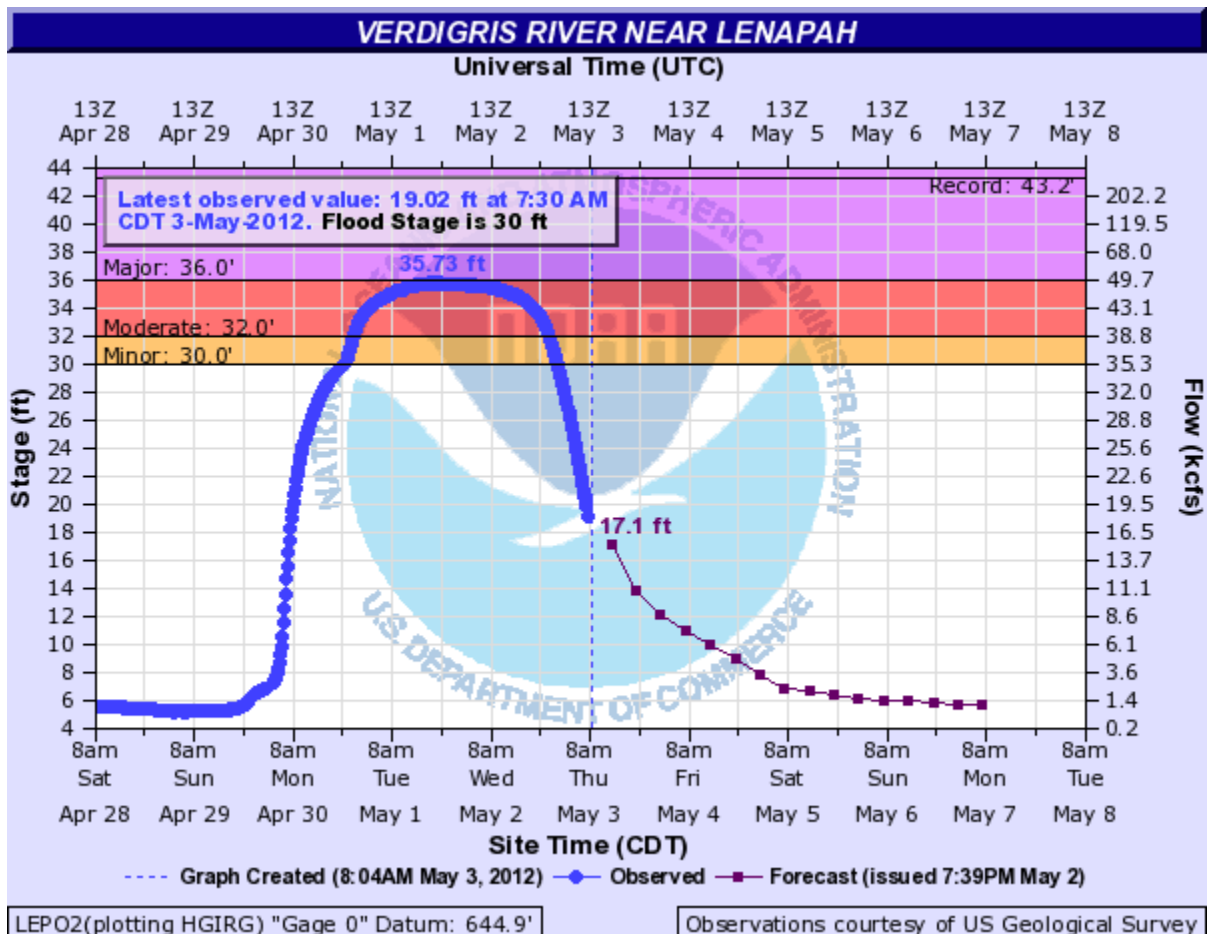
Written by:

Nicole McGavock  
Service Hydrologist  
WFO Tulsa

Products issued in May 2012:

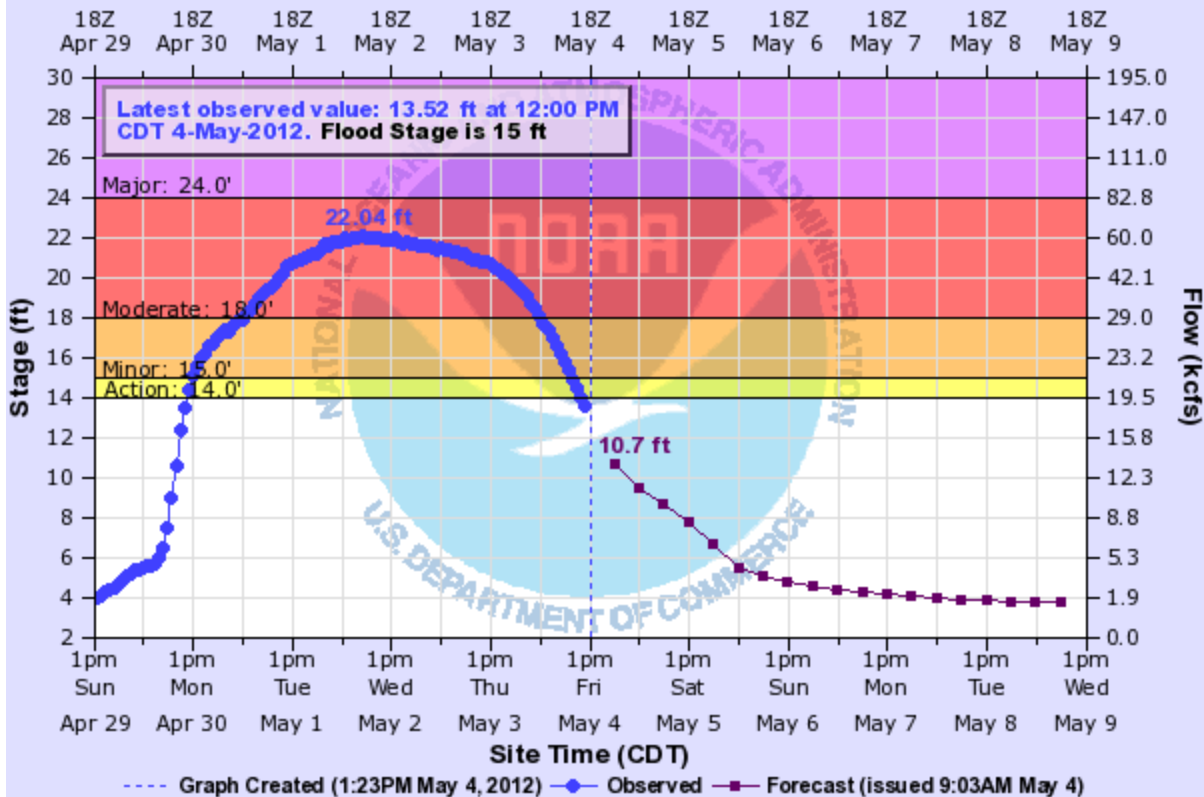
- 1 Flash Flood Warnings (FFW)
- 5 Flash Flood Statements (FFS)
- 0 Flash/Areal Flood Watches (FFA) (1 Watch FFA CON/EXT/CAN)
- 3 Urban and Small Stream Advisories (FLS) (0 Advisory FLS CON/EXT/CAN)
- 3 Areal Flood Warnings (FLW)
- 1 Areal Flood Statements (FLS)
- 2 River Flood Warnings (FLW)
- 31 River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

Preliminary Hydrographs:



## NEOSHO RIVER NEAR COMMERCE

Universal Time (UTC)

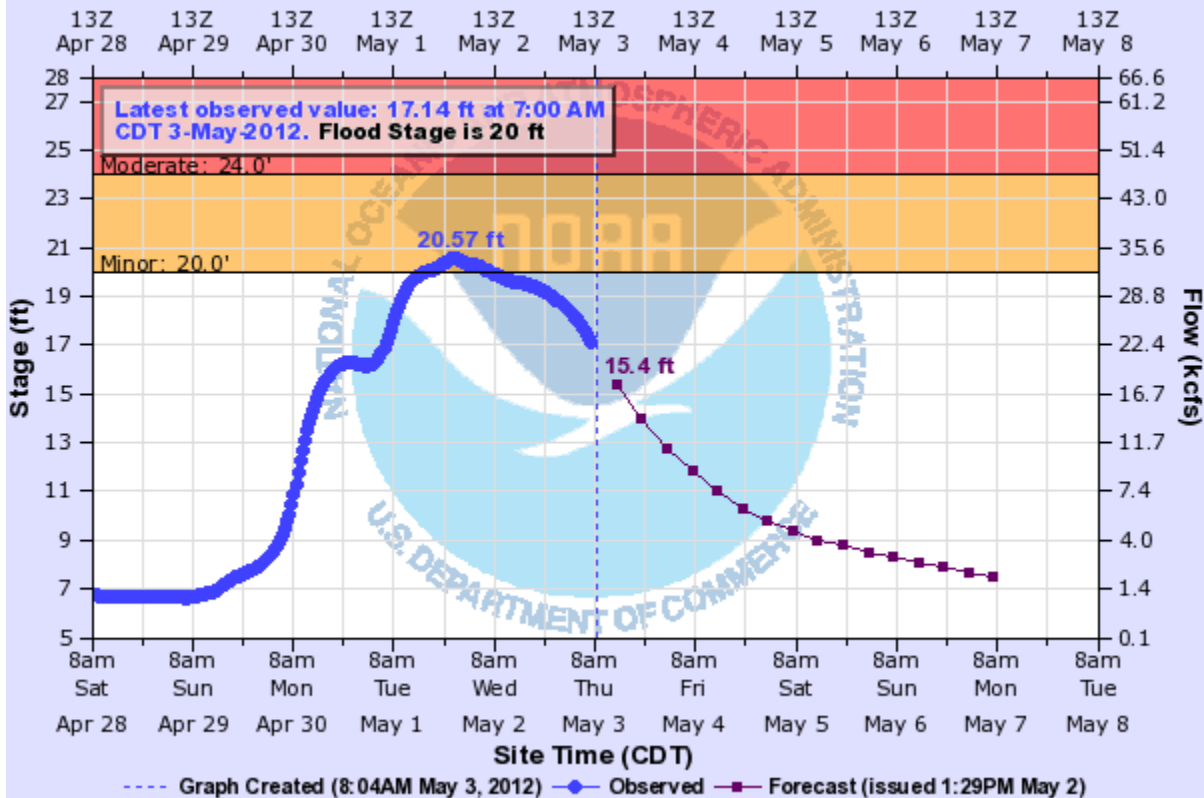


COMO2(plotting HGIRG) "Gage 0" Datum: 748.97'

Observations courtesy of US Geological Survey

## SPRING RIVER NEAR QUAPAW

Universal Time (UTC)

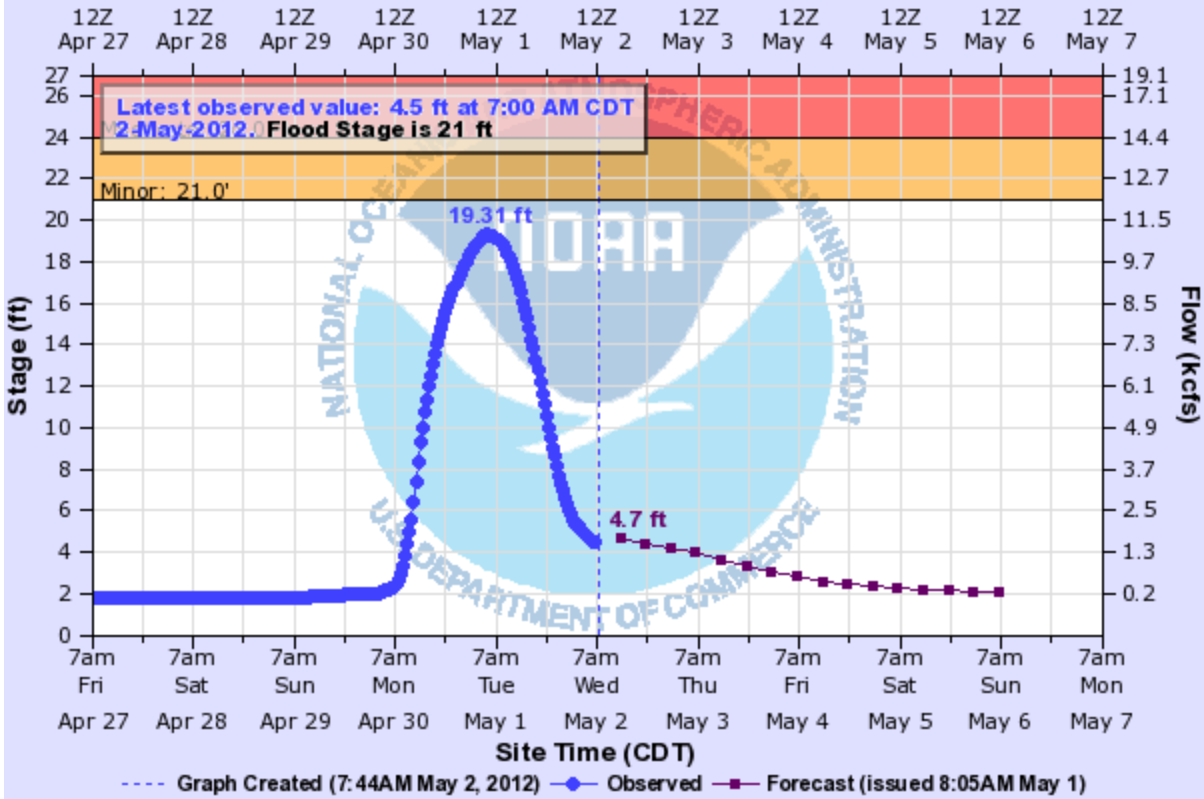


QUAO2(plotting HGIRG) "Gage 0" Datum: 746.25'

Observations courtesy of US Geological Survey

## BIRD CREEK NEAR SPERRY

Universal Time (UTC)

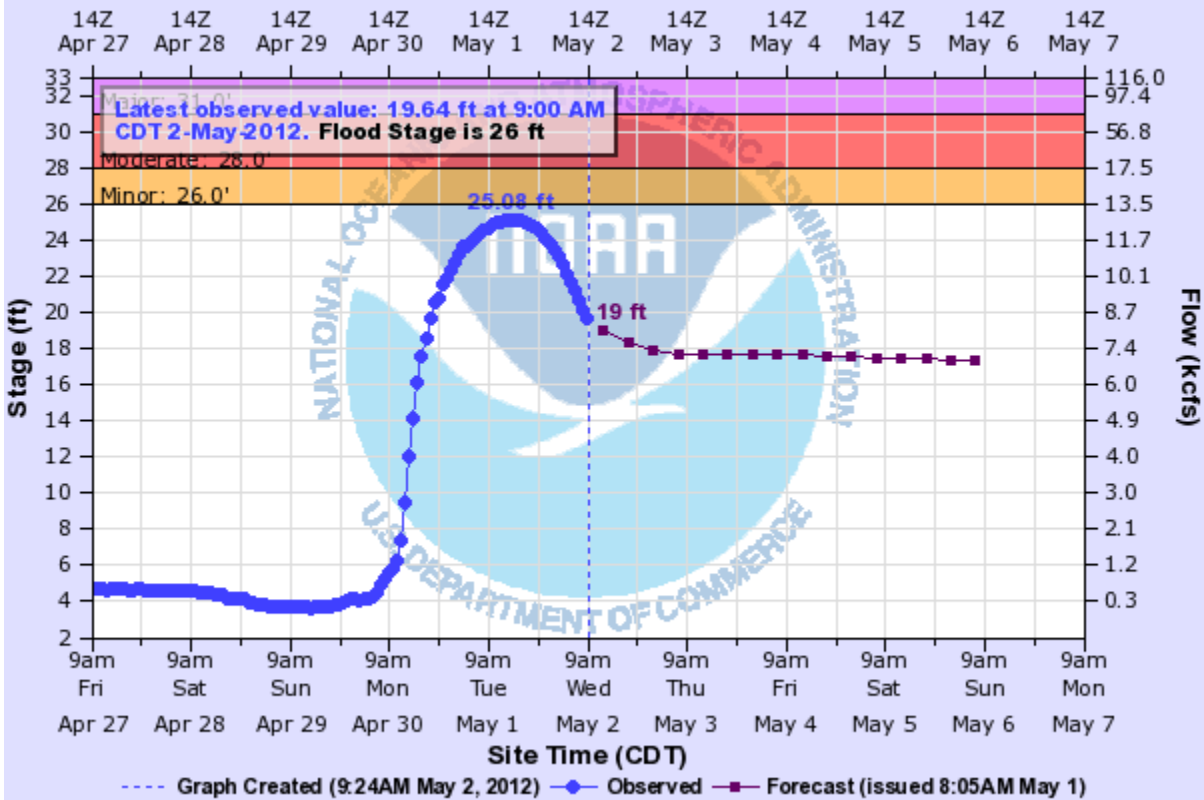


SPEO2(plotting HGIRG) "Gage 0" Datum: 579.43'

Observations courtesy of US Geological Survey

## CANEY RIVER NEAR RAMONA

Universal Time (UTC)



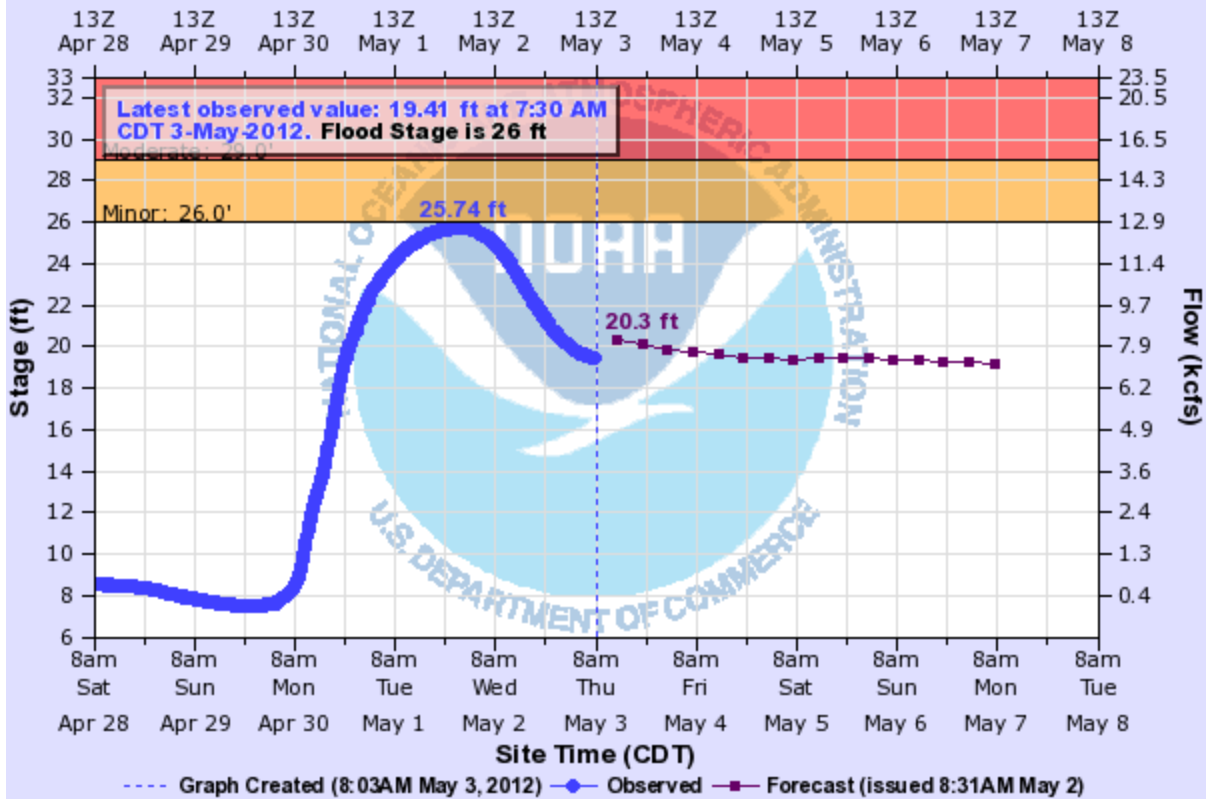
RAMO2(plotting HGIRG) "Gage 0" Datum: 586.43'

Observations courtesy of US Geological Survey



# CANEY RIVER NEAR COLLINSVILLE

Universal Time (UTC)



CVL02(plotting HGIRG) "Gage 0" Datum: 565.72'