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 **May** YEAR **2015**
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 25, 2015**

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.**

Widespread, devastating flooding occurred across eastern OK and northwest AR this month. Locations along and south of I-40 received nearly half a year's worth of rainfall during a 3 week period. 7 fatalities occurred this month in eastern OK and northwest AR due to flooding. Normal precipitation values climatologically rank May as the wettest month of the year. These averages range from 5.0 - 5.5 inches across northeast Oklahoma to 5.5 - 6.0 inches across southeast Oklahoma. The Ozark region of northwest Arkansas averages 5.8 inches for the month. This report, past E-5 reports, and monthly hydrology and climatology summaries can be found at http://www.srh.noaa.gov/tsa/?n=hydro-monthly-summary.

Monthly Summary

Using the radar-derived estimated observed precipitation from the RFCs (Figs. 1a, 2, 3), rainfall totals for May 2015 were 10" to 25" across most of the HSA. A portion of Osage, Pawnee, Washington (OK), Nowata, Benton, Carroll, northern Washington (AR), and northern Madison Counties were the low spots with *only* 6"-10" of rain this month. The entire area received above normal rainfall (Fig. 1b), with portions of eastern OK and west central AR getting 300%-600% of the normal May rain. The January 1 – May 31, 2015 total ranges from 15" in and around Osage County to 43" in southeast OK (Figs. 4a, 5). This is 5" to over 20" above the normal year-to-date rainfall (Fig. 4b).

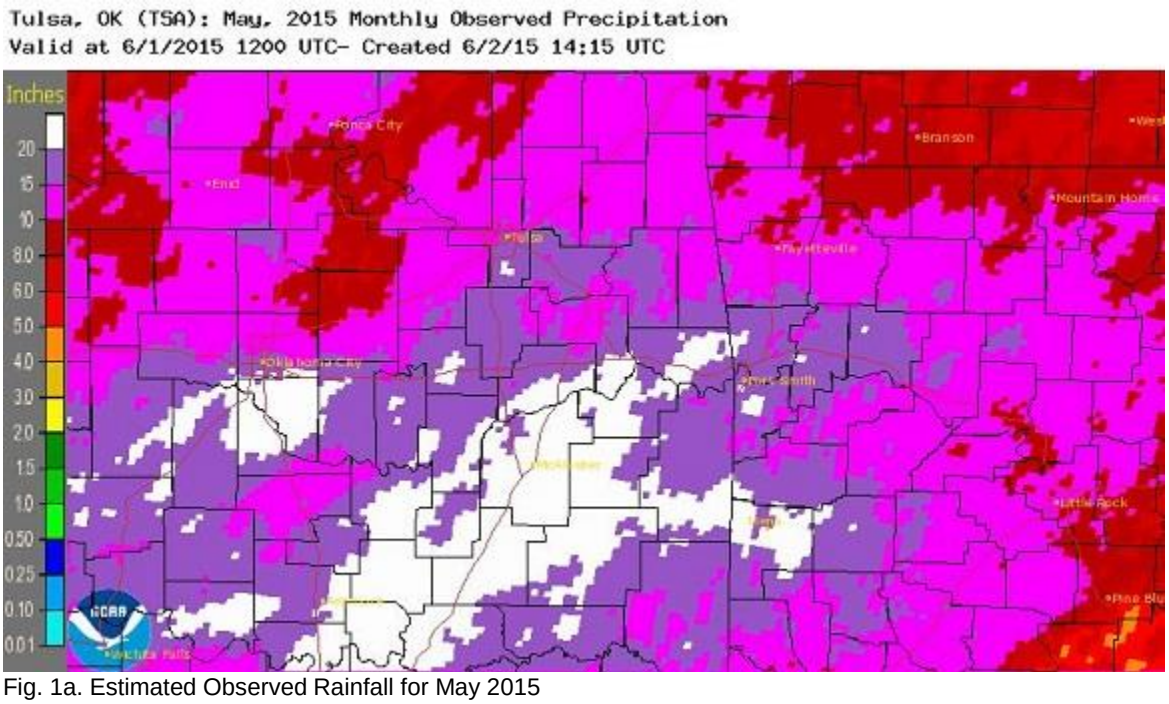


Fig. 1a. Estimated Observed Rainfall for May 2015

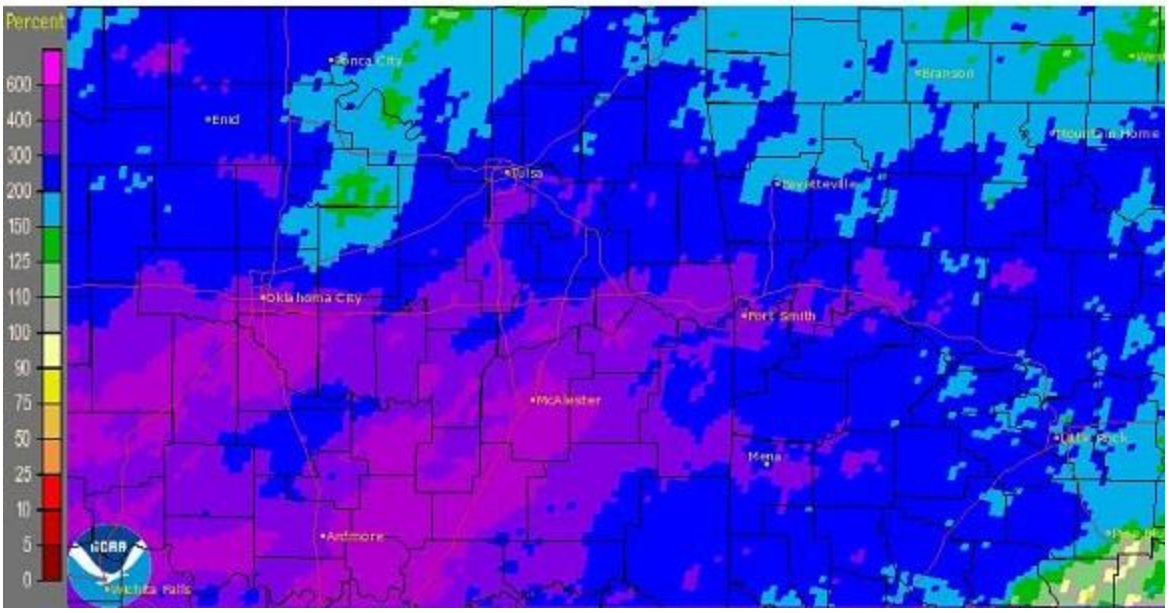


Fig. 1b. Estimated % of Normal Rainfall for May 2015

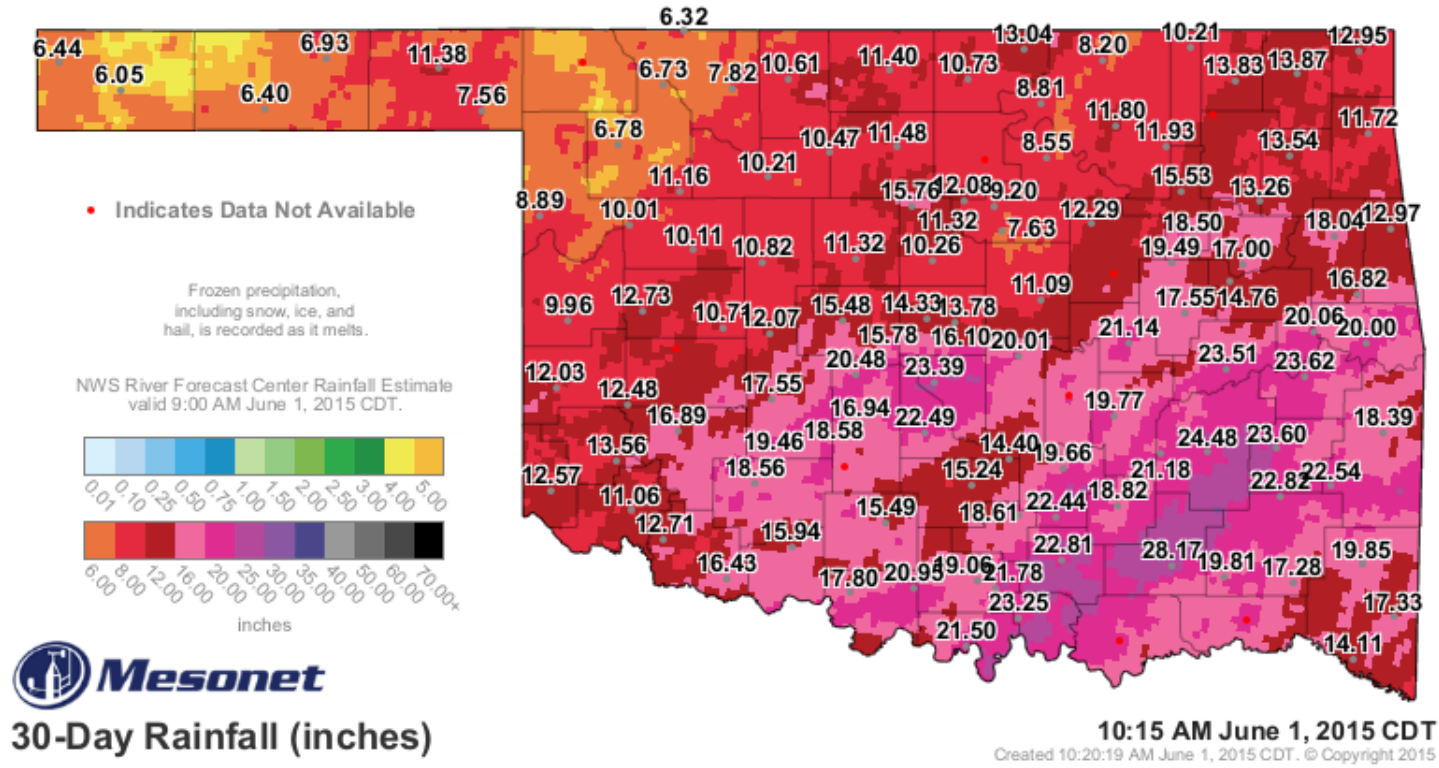


Fig. 2. 30-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 10:15am CDT 06/01/2015

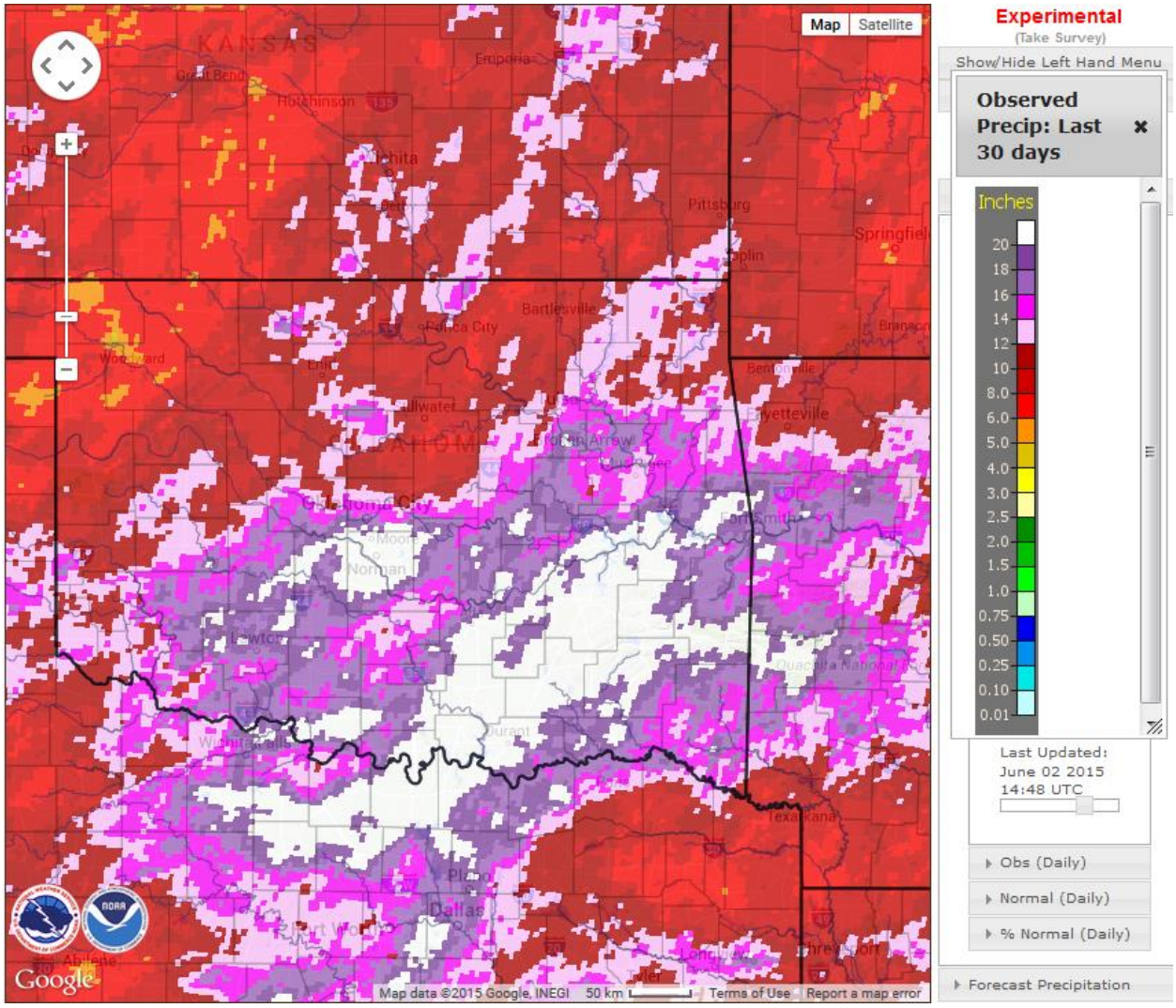


Fig. 3. Estimated Observed Rainfall for May 2015

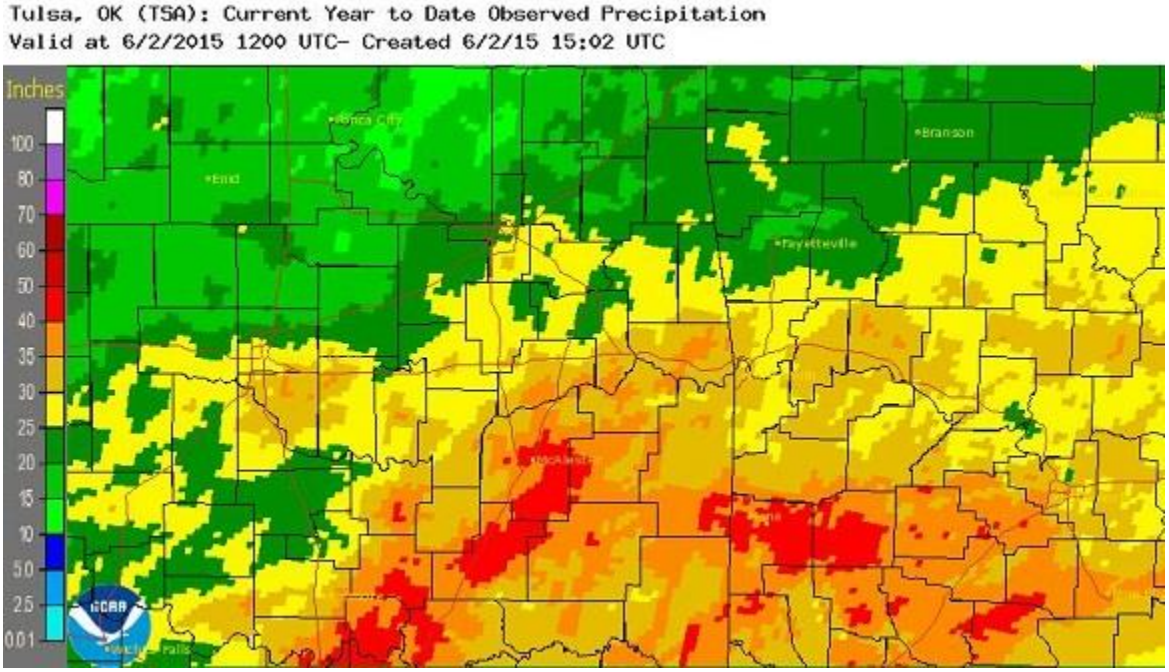


Fig. 4a. Estimated Observed Rainfall for Year-to-Date Jan. 1-May 31 2015

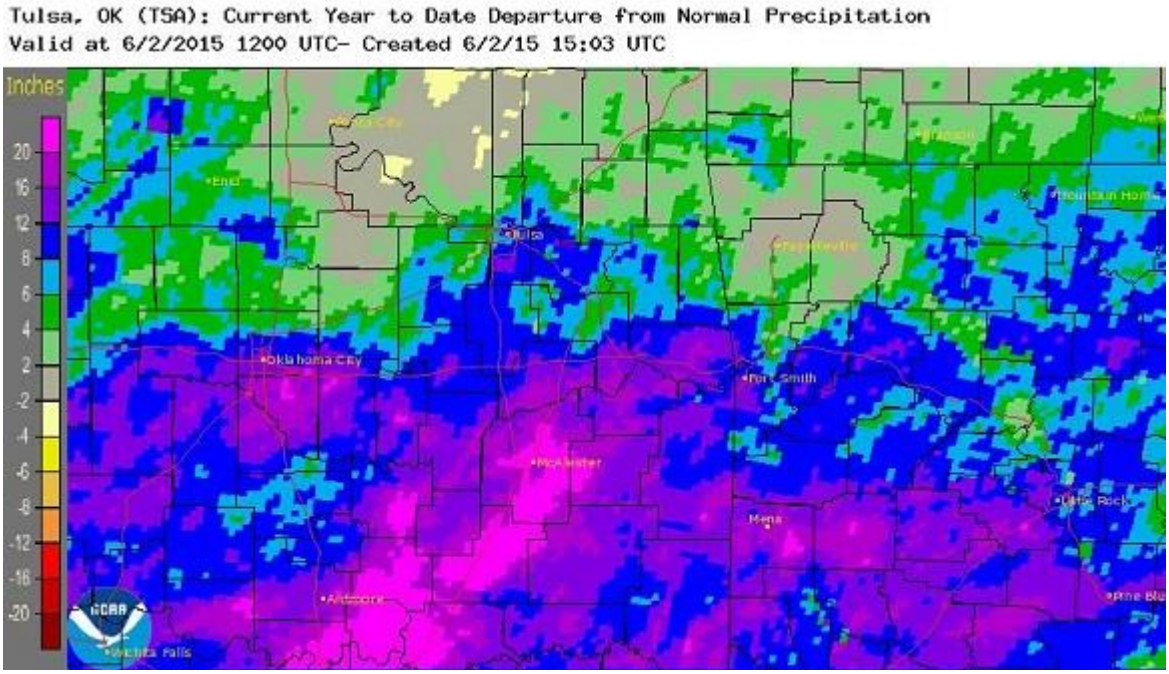


Fig. 4b. Estimated Observed Departure from Normal Rainfall for Year-to-Date Jan. 1-May 31 2015

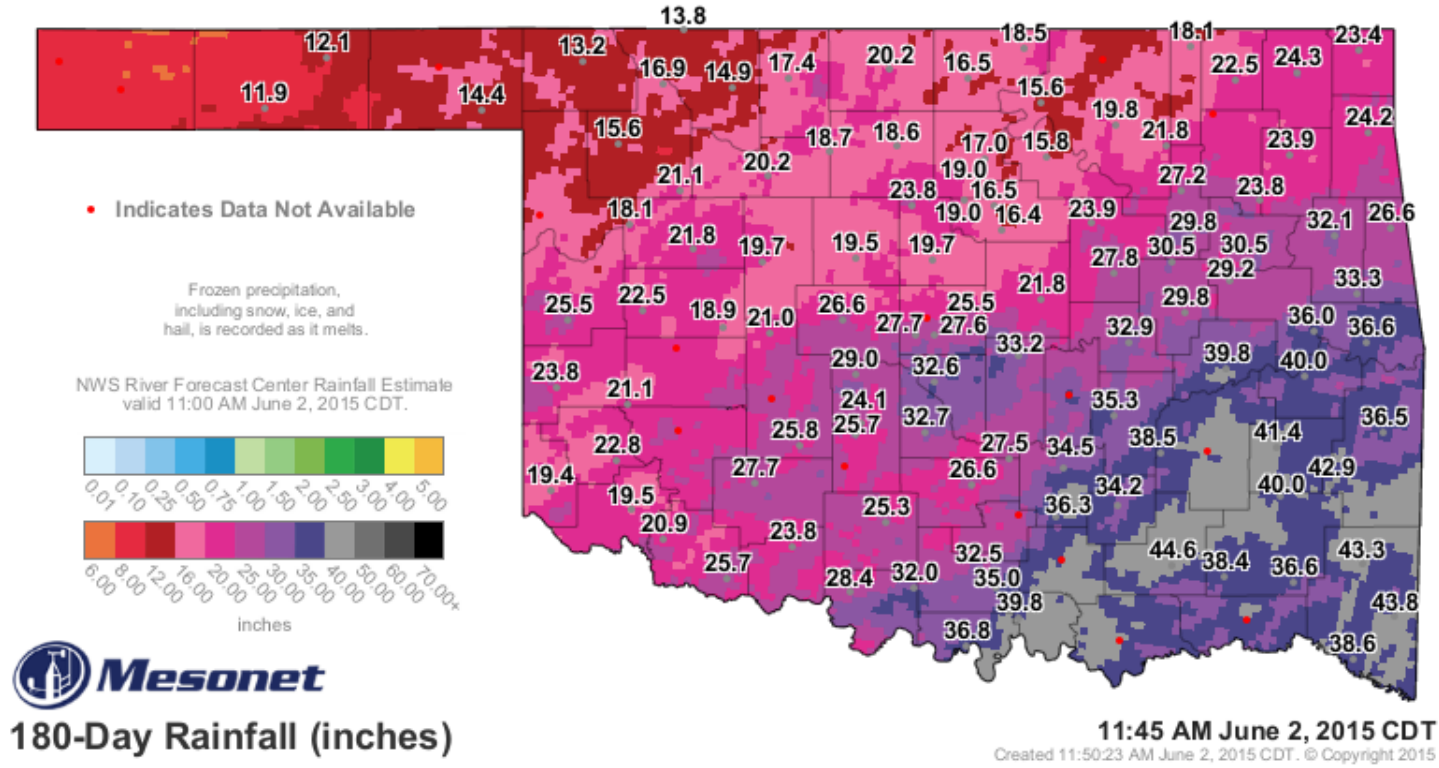


Fig. 5. 180-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 11:45am CDT 06/02/2015

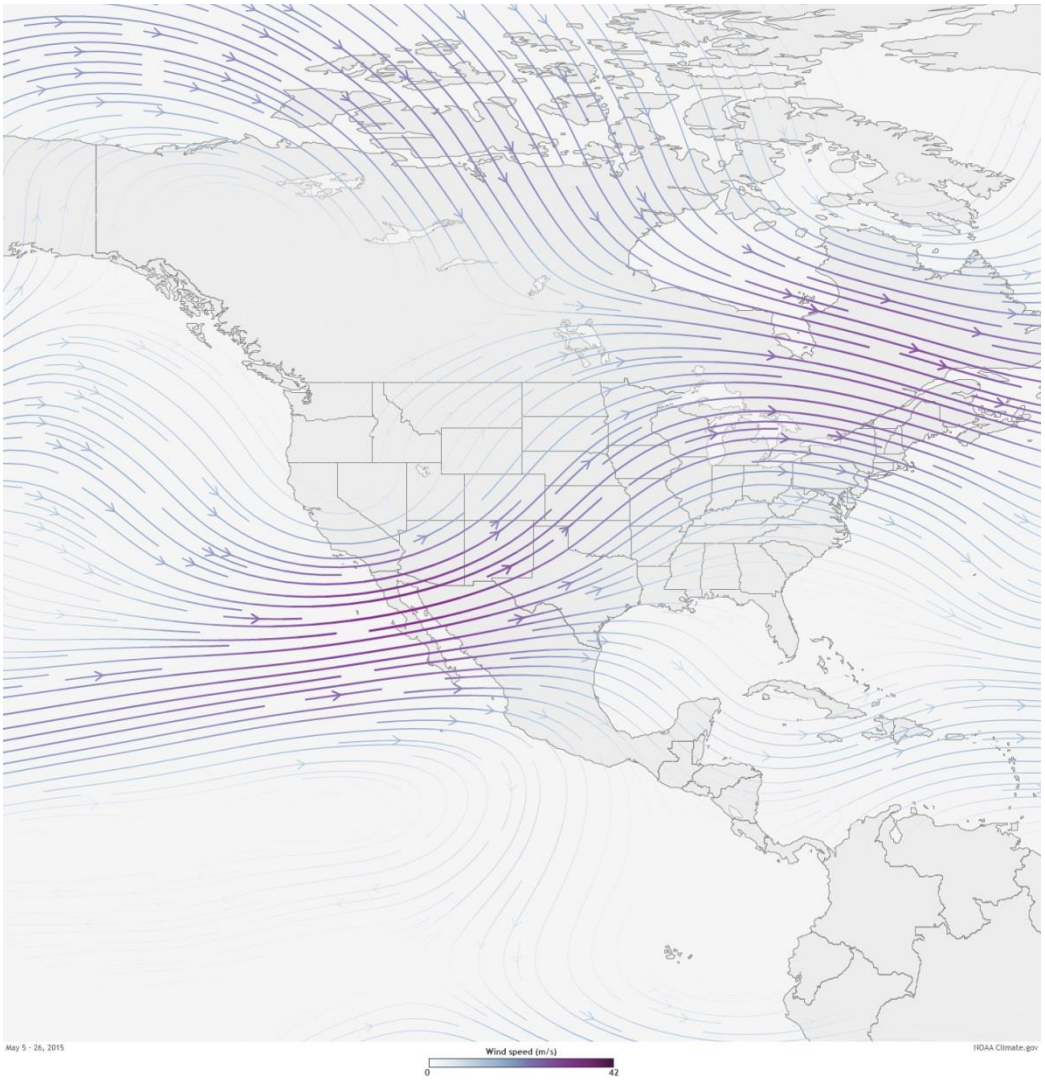


Fig. 6. Average wind speed (color) and direction (arrows) at the 300-millibar atmospheric pressure level for May 5-26, 2015. The jet stream persistently steered storms full of moisture into the Southern Plains states of Texas and Oklahoma. NOAA Climate.gov map by Hunter Allen, based on NCEP/NCAR Reanalysis data provided by NOAA ESRL.

According to Tom Di Liberto with the NWS Climate Prediction Center, “The culprit for these events has been a parade of slow moving storms and a very moist air mass courtesy of the Gulf of Mexico. On a seasonal climate timescale, above-average rains during the spring across the southern tier of the U.S., including Texas and Oklahoma, is a pattern often seen during El Niño events. During El Niños, the jet stream (an area of fast moving winds high in the atmosphere) can extend across the southern US, helping to track storms across the south, including the type of storm systems capable of producing the severe thunderstorms that soaked the region (compare the above Fig. 6 to the wintertime El Niño pattern). During May, this was exactly what happened, leaving Texas and Oklahoma in a prime location for stormy weather. Of course, El Niño alone cannot account for the record-breaking nature of the rains. We cannot discount the influence of natural variability of our atmosphere (extreme weather sometimes just happens), as well as some influence from climate change, since extreme precipitation events are likely to increase and have increased as the planet warms and the atmosphere gets wetter.”

For the month of May as a whole, the subtropical jet was abnormally strong across northern Mexico, with downstream troughing, resulting in abnormally strong southerly flow across the Southern Plains (Fig. 7). Further, there was a broad region of abnormally strong upward motion for May across the Southern Plains and south Texas (Fig. 8). Low-level moisture was abnormally high for the last two weeks of May along the corridor of heaviest flooding (Fig. 9). The precipitable water anomalies for the month as a whole surprisingly did not show a strong signal. The abnormally low upper-level pressure across the southern California area favors a storm track from over the moisture rich Baja Peninsula Mexico, northeast into the Southern Plains (Fig. 10). The anomalous ridge over the eastern U.S. promotes moisture rich flow from the Gulf of Mexico into the southern Plains. The significantly anomalous high pressure over the Gulf of Alaska and anomalous low pressure over southern California, combined, is indicative of a blocking pattern over the west coast/eastern Pacific Ocean, resulting in this persistent pattern of moisture rich flow into the Southern Plains.

Fig. 7. 300mb vector wind anomaly for May 2015 shows the abnormally strong subtropical jet spreading across northern Mexico with downstream troughing, resulting in abnormally strong southerly flow across the Southern Plains.

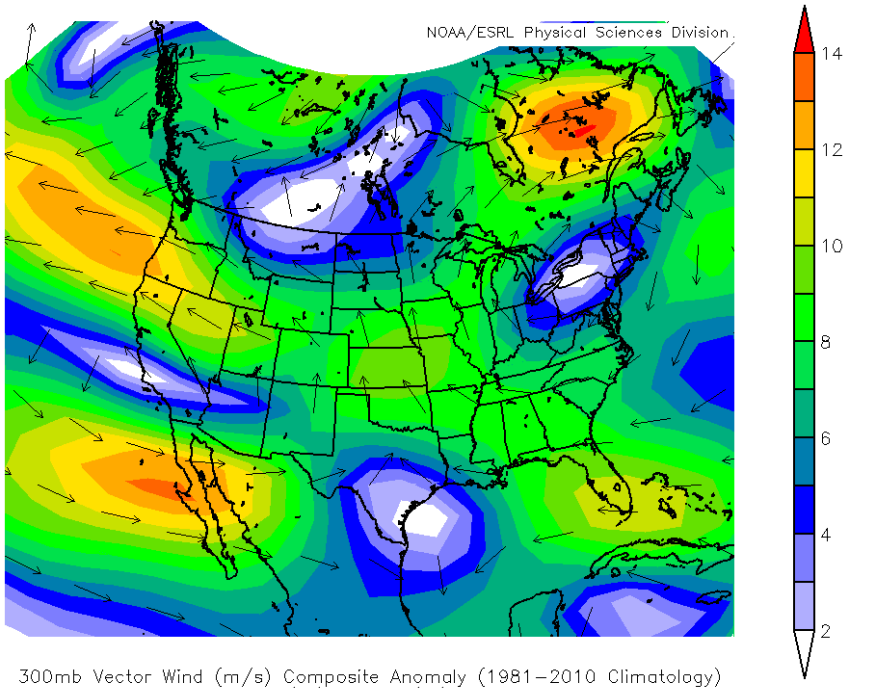


Fig. 8. 700mb Omega anomaly for May 2015. Broad region of abnormally strong upward motion for May across the Southern Plains and south Texas.

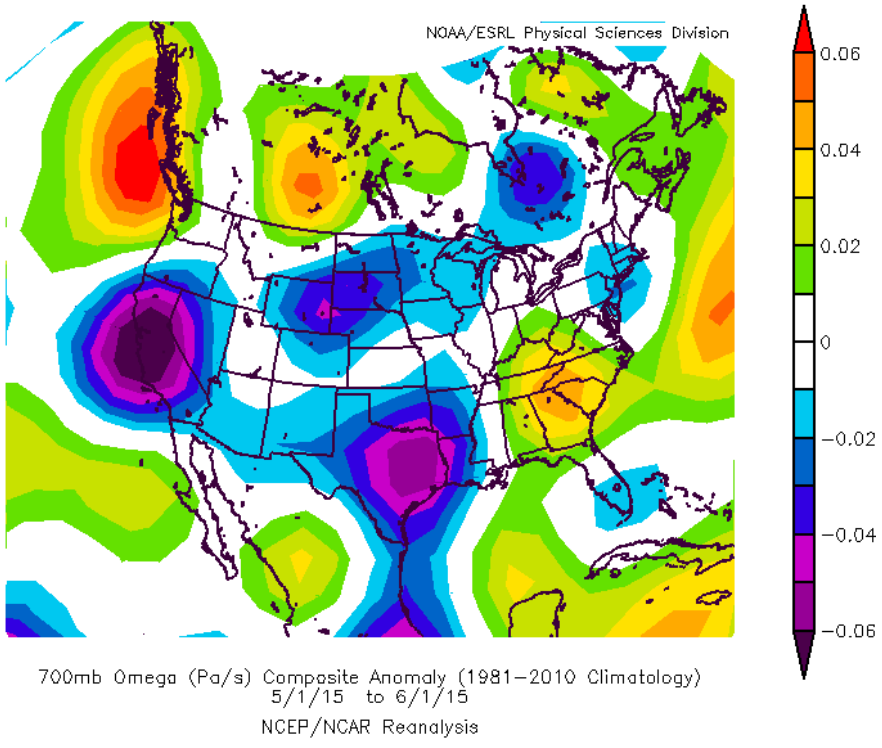


Fig. 9. 1000mb Specific Humidity anomaly for May 15-31, 2015. Low-level moisture was abnormally high for the last two weeks of May along the corridor of heaviest flooding. The precipitable water anomalies for the month surprisingly did not show a strong signal.

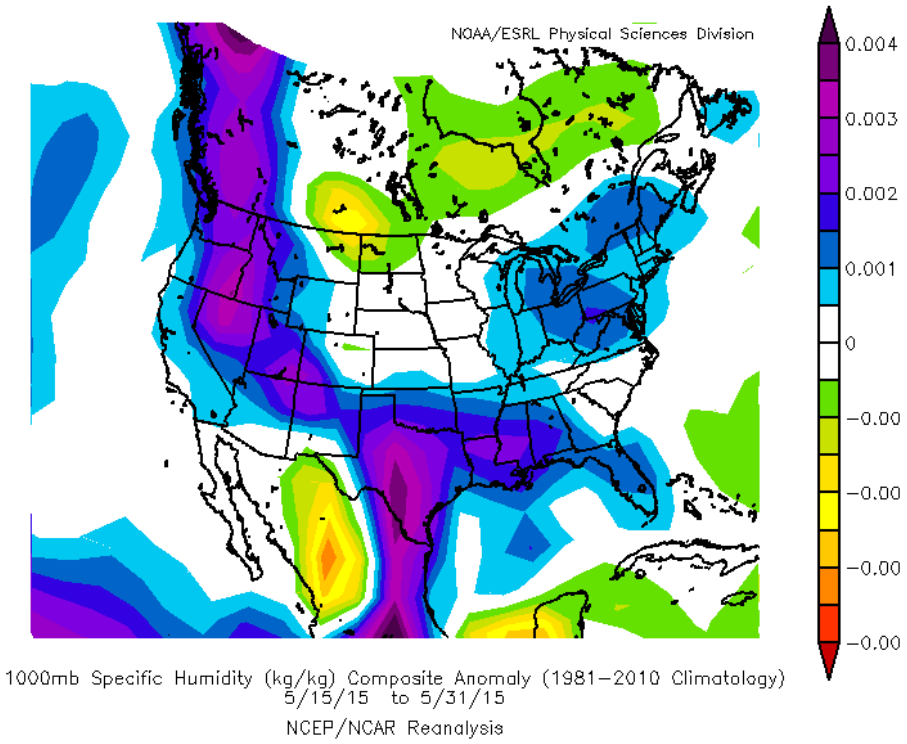
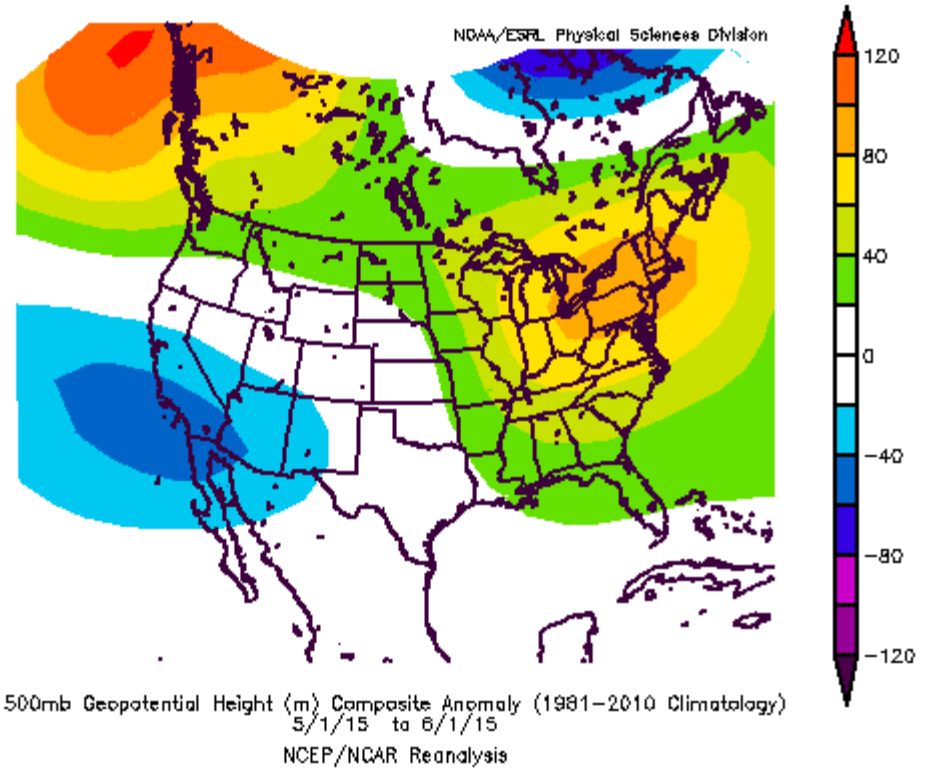


Fig. 10. 500 mb Height anomaly for May 2015. The abnormally low upper-level pressure across the southern California area favors a storm track from over the moisture rich Baja Peninsula Mexico, northeast into the Southern Plains. The anomalous ridge over the eastern U.S. promotes moisture rich flow from the Gulf of Mexico into the southern Plains. The significantly anomalous high pressure over the Gulf of Alaska and anomalous low pressure over southern California is indicative of a blocking pattern over the west coast/eastern Pacific Ocean, resulting in this persistent pattern of moisture rich flow into the Southern Plains.



Rainfall

For the entire state of Oklahoma, the average rainfall for May 2015 was 14.06", setting the new record for not only the wettest May, but for the wettest of any month on record. The previous record was 10.75" in October 1941. The entire state of Arkansas recorded its second wettest May on record with 10.35". Fort Smith, AR also set both its wettest May and wettest of any month records with a total of 19.85" in May 2015. The previous May record was 13.67" in 1943 and the previous wettest month record was 15.02" in June 1945. An analysis by the NWS Hydrometeorological Design Studies Center determined that several areas along and south of I-40 in OK had precipitation totals with less than a 0.1% annual chance (1,000-year event) of occurring (Fig. 11). The highest rainfall total in the HSA this month occurred in Hartshorne 4ESE, OK (Pittsburg County) with 27.70". The average 0.1% annual occurrence (1,000-year event) is 25.6" (but can range from 19.3"-32.2"; see http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ok)

In Tulsa, OK, May 2015 ranked as the 39th coolest May (67.9°F, tied 1972, 1923; since records began in 1905) and the 2nd wettest May (14.77"; since records began in 1888). The May rainfall in Tulsa was 8.86" above normal, but still several inches short of the record wettest May of 18.00" set in 1943. Fort Smith, AR had the 65th warmest May (69.8°F, tied 1975; since records began in 1883) and the RECORD wettest May (19.85"; since records began in 1883). The May rainfall in Fort Smith was 14.38" above normal! The previous record wettest May in Fort Smith was 13.67" in 1943. Fayetteville, AR had the 28th coldest (64.8°F) and the 3rd wettest (13.01") May since records began in 1950. The May rainfall in Fayetteville was 6.97" above normal. The record wettest May in Fayetteville is 13.39" in 1957.

In Tulsa, OK, Spring 2015 ranked as the 34th warmest Spring (61.2°F, tied 2010, 2000, 1959; since records began in 1905) and the 3rd wettest Spring (22.58"; since records began in 1888). The record Spring rainfall in Tulsa is 24.46" in 1973. Fort Smith, AR had the 43rd coldest Spring (61.9°F, tied 1964; since records began in 1883) and the RECORD wettest Spring (28.64"; since records began in 1883). The previous record wettest Spring in Fort Smith was 26.54" in 1990. Fayetteville, AR had the 28th warmest (57.2°F) and the 6th wettest (20.40") Spring since records began in 1950. The record wettest Spring in Fayetteville is 28.81" in 2011.

Some of the larger precipitation reports (in inches) for May 2015 included:

Hartshorne 4ESE, OK (DCP)	27.70	Big Cedar 2E, OK (DCP)	25.01	McAlester, OK (meso)	24.48
Stigler, OK (meso)	23.62	Wilburton, OK (meso)	23.60	Eufaula, OK (meso)	23.51
Antlers, OK (coop)	23.48	McAlester, OK (ASOS)	22.98	Whitefield, OK (DCP)	22.86
Clayton, OK (meso)	22.82	Talihina, OK (meso)	22.54	Okemah, OK (meso)	21.13

Some of the lowest precipitation reports (in inches) for May 2015 included:

Bartlesville, OK (ASOS)	7.76	Foraker, OK (meso)	8.20	Pawnee, OK (meso)	8.55
Burbank, OK (meso)	8.81	Hindsville 10 NNE, AR (coop)	9.99	Copan, OK (meso)	10.21
Jay, OK (meso)	11.71	Wynona, OK (meso)	11.80	Skiatook, OK (meso)	11.93

According to statistics from the Oklahoma Climatological Survey (OCS) Mesonet:

Rank since 1921	Last 30 Days (May 2 – 31)	Last 60 Days (Apr 2 – May 31)	Spring 2015 (Mar 1 – May 31)	Last 120 Days (Feb 1 – May 31)	Year-to-Date (Jan 1 – May 31)	Last 180 Days (Dec 3 – May 31)	Water Year-to-Date (Oct 1, 2014 – May 31, 2015)	Last 365 Days (Jun 1, 2014 – May 31, 2015)
Northeast OK	2nd wettest	5th wettest	8th wettest	11th wettest	14th wettest	18th wettest	13th wettest	19th wettest
East Central OK	1st wettest	1st wettest	2nd wettest	3rd wettest	3rd wettest	3rd wettest	1st wettest	5th wettest
Southeast OK	1st wettest	1st wettest	1st wettest	3rd wettest	2nd wettest	3rd wettest	4th wettest	6th wettest
Statewide	1st wettest	1st wettest	2nd wettest	2nd wettest	3rd wettest	3rd wettest	3rd wettest	5th wettest

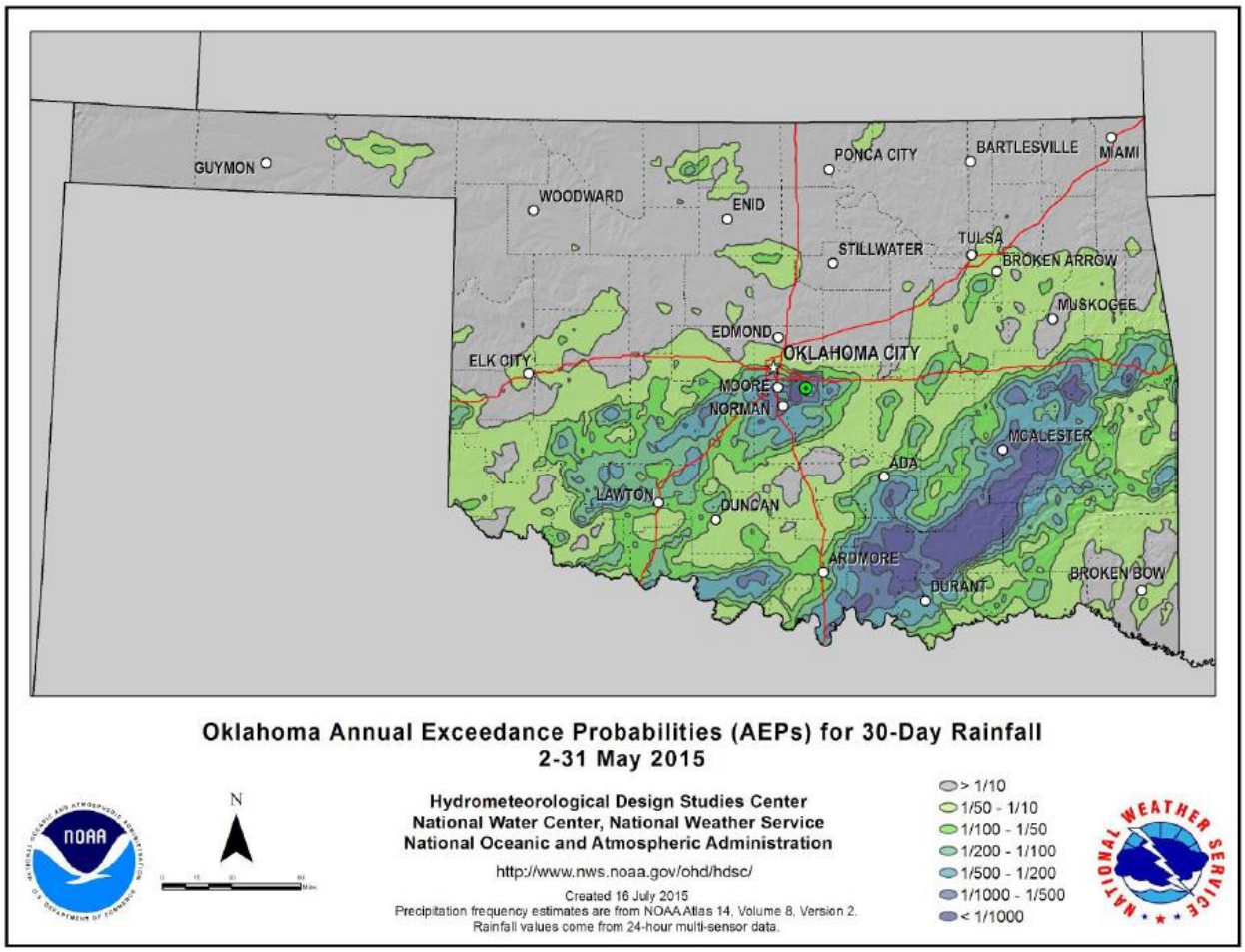


Fig. 11. Annual exceedance probabilities for the 30-day rainfall from 2 to 31 May 2015.

Rivers

Just in May alone, there were 36 river floods and 46 crests for 18 river forecast points (out of 33 in the HSA). Of these 46 crests, 8 were major, 27 were moderate, and 11 were minor. 9 floods continued into June, with one additional major flooding crest in June from the rain in May. The NWS Tulsa office issued 1,045 total products during the entire event, including both river and flash flood watches, warnings, advisories, and follow up statements. Figs. 12 and 13 show before and after satellite images of flooding along the Arkansas River and Red River. Figs. 14 and 15 show damage at Hugo and Eufaula Lakes.

Flooding occurred at the following locations:
Verdigris River Basin: Polecat Creek near Sapulpa; Caney River near Ramona and Collinsville; Bird Creek near Sperry and Owasso
Grand-Neosho River Basin: Neosho River near Commerce; Spring River near Quapaw
Lower Arkansas River Basin: Illinois River near Watts and Tahlequah; Arkansas River near Muskogee, Van Buren, and Ozark Lock and Dam; Lee Creek near Van Buren; Poteau River near Poteau and Panama
Canadian River Basin: Deep Fork River near Beggs
Lower Red River Basin: Kiamichi River near Antlers; Red River near Arthur City

The Poteau River flooded 3 times in May 2015. The first flood led to moderate flooding near Poteau, but major flooding and one fatality near Panama. The third flood, which lasted 9 days near Poteau and 11 days near Panama, caused major flooding along the river downstream of Wister Lake, as measured by the gages at Poteau and Panama. The Arkansas River at Van Buren exceeded flood stage 4 times in May. The river crested twice above major flood stage during the last, 11-day, flood of the month. Likewise, the Arkansas River at Ozark Lock and Dam exceeded flood stage 3 times in May, with two crests above major flood stage during the last flood, which lasted 12 days, at the end of May/beginning of June. The Red River at Arthur City flooded twice in May, with two crests above major flood stage during the second flood that lasted 17 days. The

Kiamichi River near Antlers had three floods. The second flood lasted 8 days and included 4 crests, all above moderate flood stage. The Neosho River near Commerce flooded twice, with three crests above moderate flood stage during the 10-day second flood. Preliminary hydrographs for the river flooding is available at the end of this report and detailed information on the timing of the flooding is available in the E3 Report.

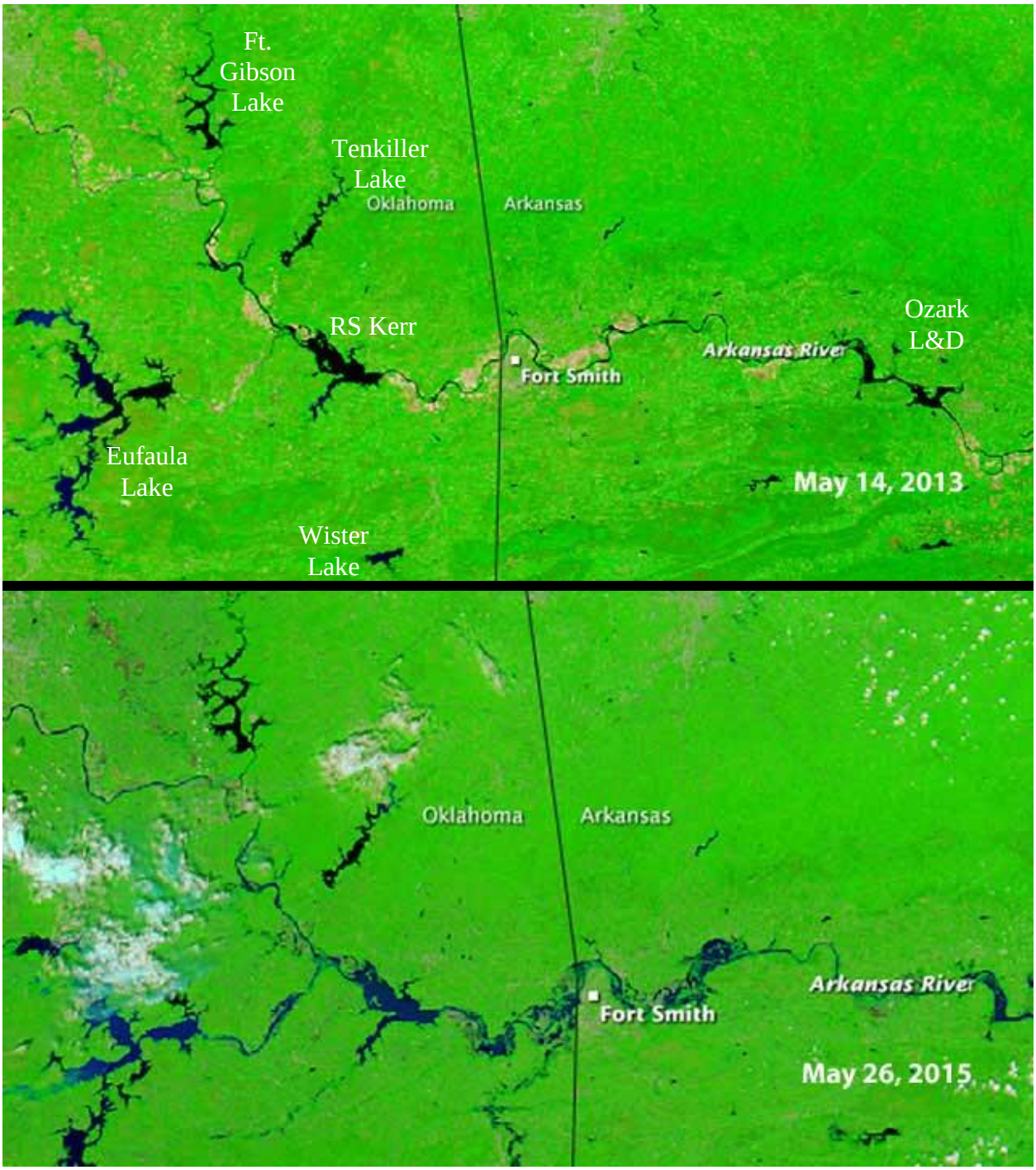


Fig. 12. NASA MODIS satellite images showing the flooding along the Arkansas River on May 26, 2015 (bottom) compared to non-flood conditions on May 14, 2013 (top).

Fig. 13. Satellite image of the Red River on December 6, 2014 (top) and June 19, 2015 (bottom).

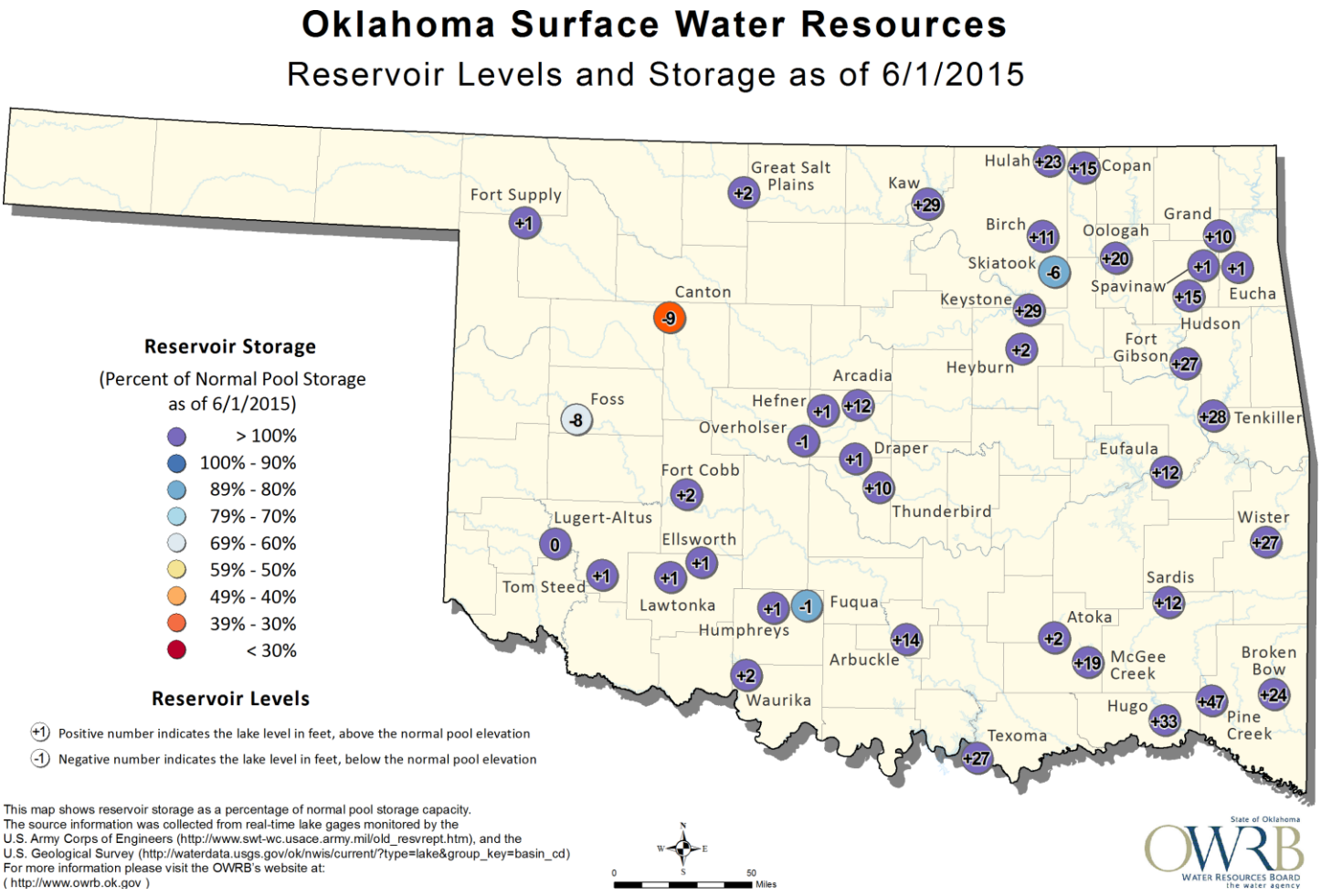
Fig. 14. Flood damage at Wilson Point Recreation Area on Hugo Lake 8/17/2015. USACE Tulsa District

Fig. 15. Lake Eufaula. USACE Tulsa

Reservoirs

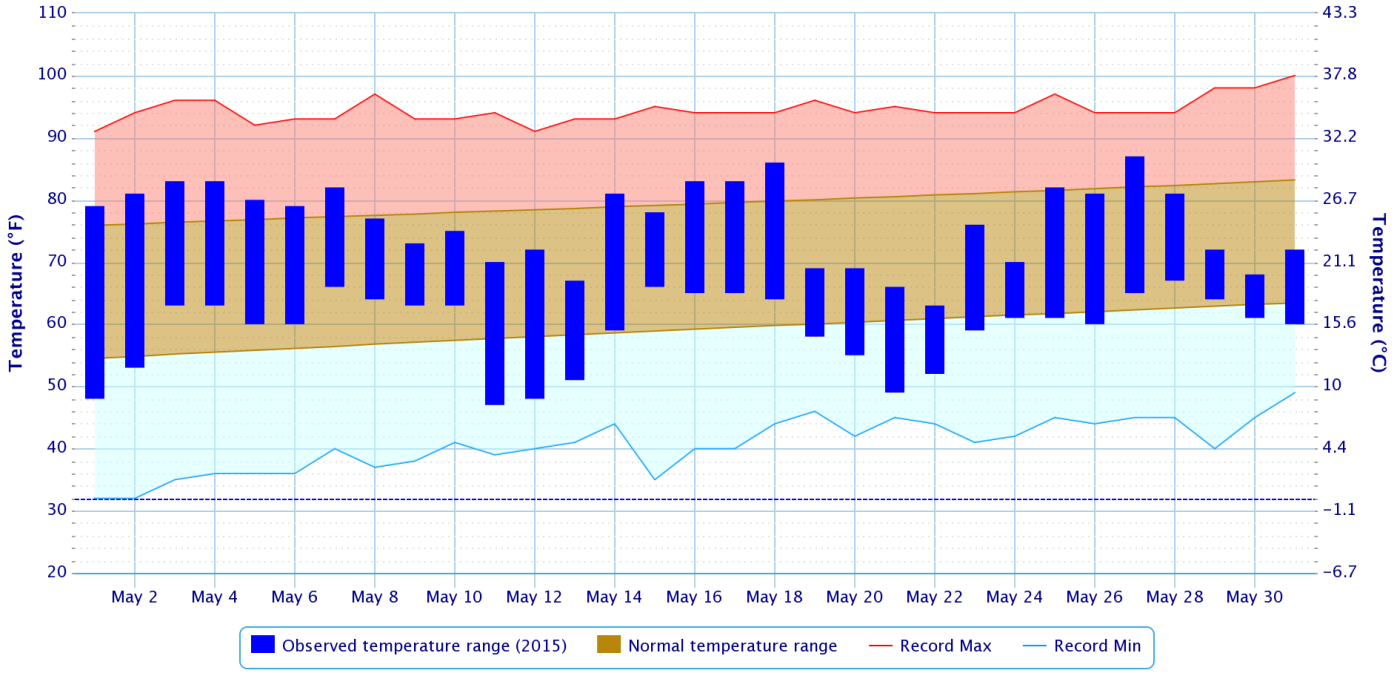
According to the USACE, all of the major reservoirs in the HSA were operating well into their flood pools as of 5/31/2015, except for Skiatook Lake, which was at 81% of its conservation pool (but up from 53% at the end up April). The following lakes were operating in their flood control pools (percentage of flood pool listed) as of 5/31/15: Sardis Lake 158%, Wister Lake 122%, Hugo Lake 102%, Eufaula Lake 100%, Ft. Gibson Lake 96%, Grand/Pensacola Lake 96%, Hudson Lake 95%, Beaver Lake 94%, Keystone Lake 93%, Kaw Lake 89%, Oologah Lake 81%, Tenkiller Lake 74%, Hulah Lake 58%, Copan Lake 52%, Birch Lake 37%, Heyburn Lake 2%.

A couple of lakes set new pool records this month: Wister Lake 508.35' (prev. record 508.22') and Hugo Lake 440.11' (prev. record 440.05'). By the early morning hours of the 12th, Eufaula Lake exceeded the top of its flood control pool and went into surcharge. The lake remained in surcharge until May 31. The highest lake elevation was 599.68' (128% of flood pool) during the afternoon of the 26th. For reference, the record pool elevation for Eufaula Lake is 599.77' and the top of the surcharge pool is 600.00'. Eufaula Dam was completed in 1964 and impounds one of the world's largest man-made lakes (covering 102,500 acres).



Daily Temperature Data – Tulsa Area, OK (ThreadEx)

Period of Record – 1905-01-06 to 2015-06-01. Normals period: 1981-2010. Click and drag to zoom chart.



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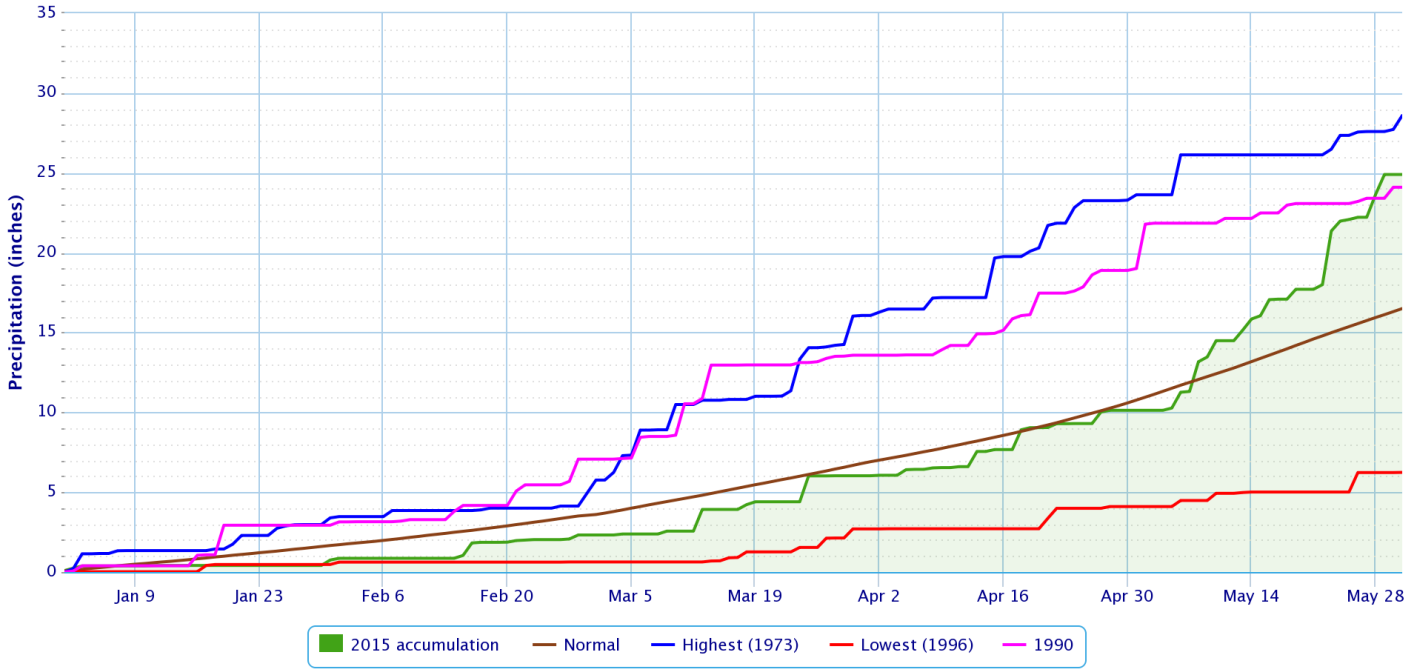
Accumulated Precipitation – Tulsa Area, OK (ThreadEx)

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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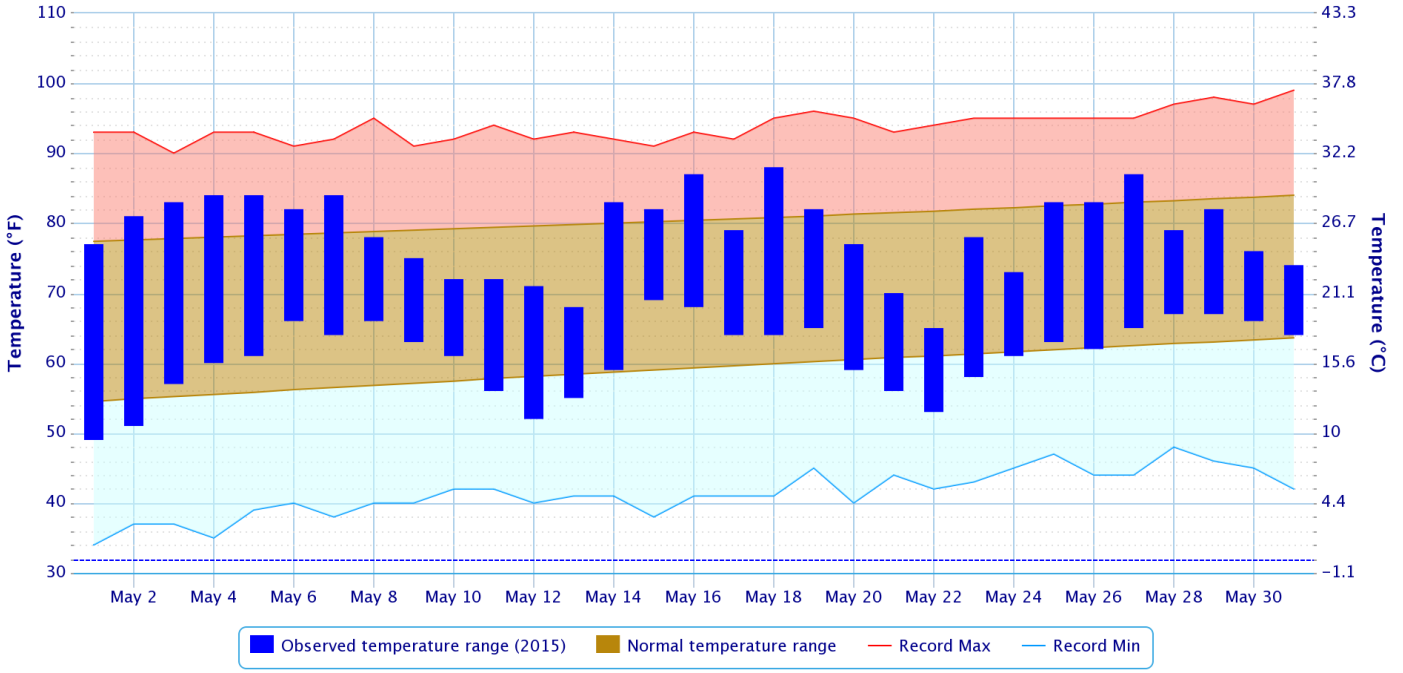
Daily Temperature Data – Fort Smith Area, AR (ThreadEx)

Period of Record – 1882-06-01 to 2015-06-01. Normals period: 1981-2010. Click and drag to zoom chart.



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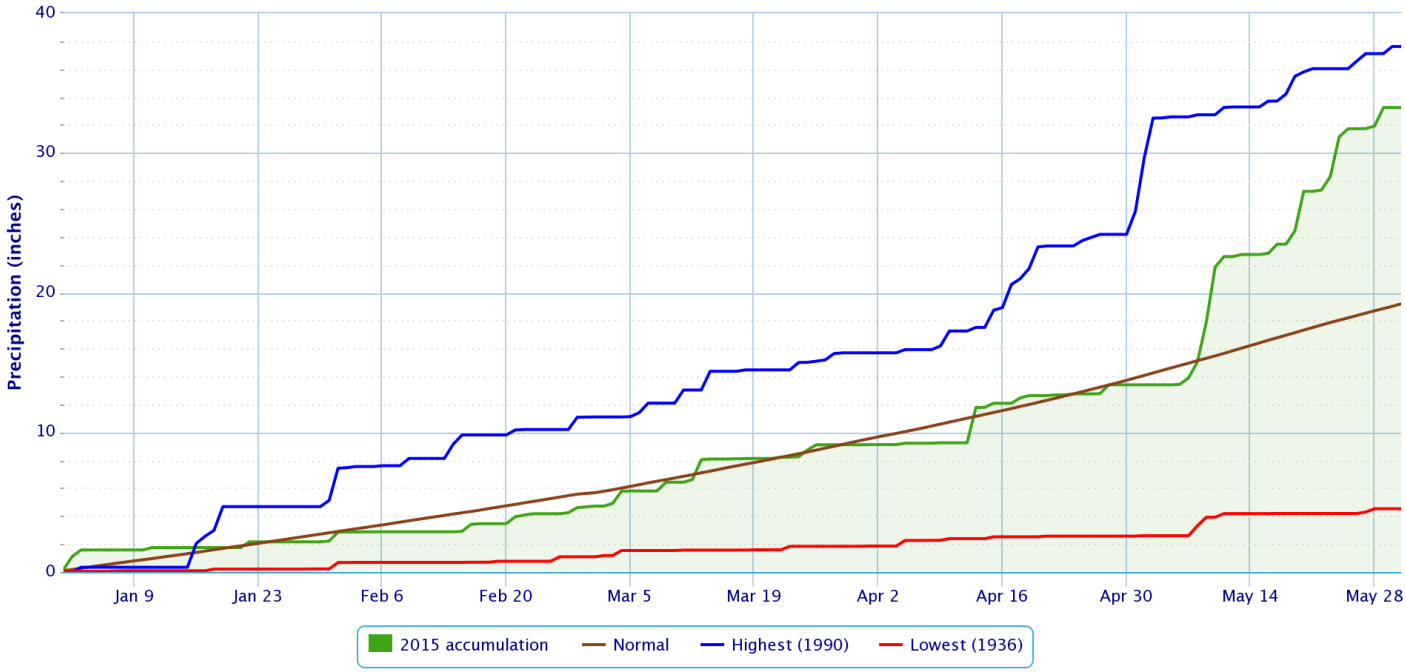
Accumulated Precipitation – Fort Smith Area, AR (ThreadEx)

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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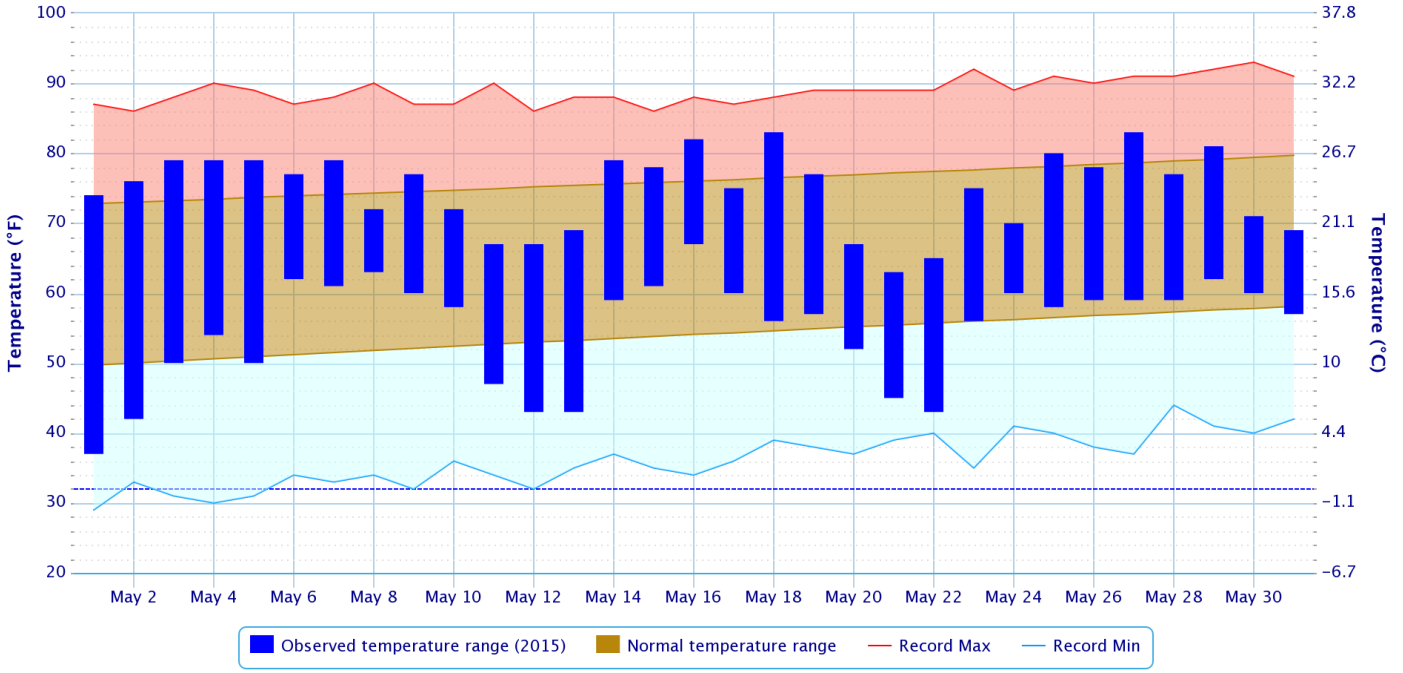
Daily Temperature Data – FAYETTEVILLE DRAKE FLD, AR

Period of Record – 1949-07-14 to 2015-06-01. Normals period: 1981-2010. Click and drag to zoom chart.



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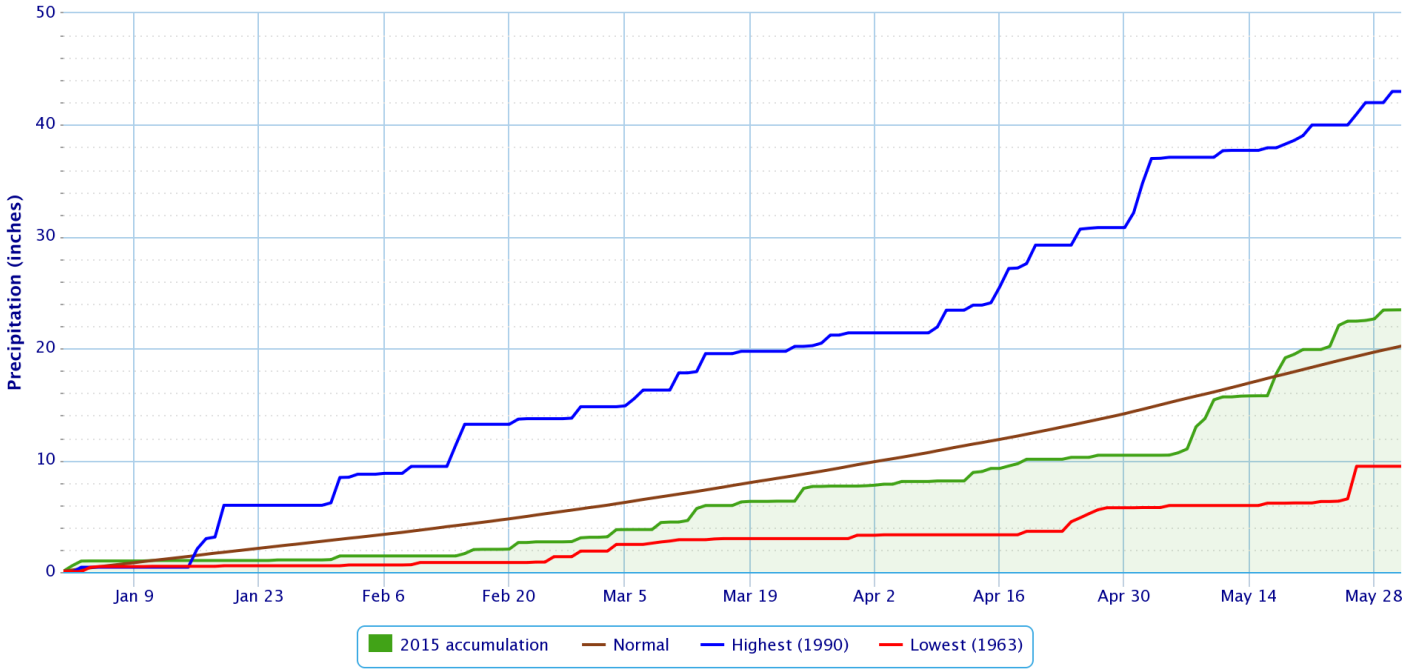
Accumulated Precipitation – FAYETTEVILLE DRAKE FLD, AR

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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Drought

According to the U.S. Drought Monitor (USDM) from June 2, 2015 (Figs 16, 17), the entire drought that had been plaguing the area is gone due to the excessive rainfall this month. According to the Oklahoma Climatological Survey, “It's been … 239 straight weeks of having at least D1 (Moderate) drought somewhere within the state of Oklahoma's borders, all the way back to October 26, 2010, some 1673 days ago.”

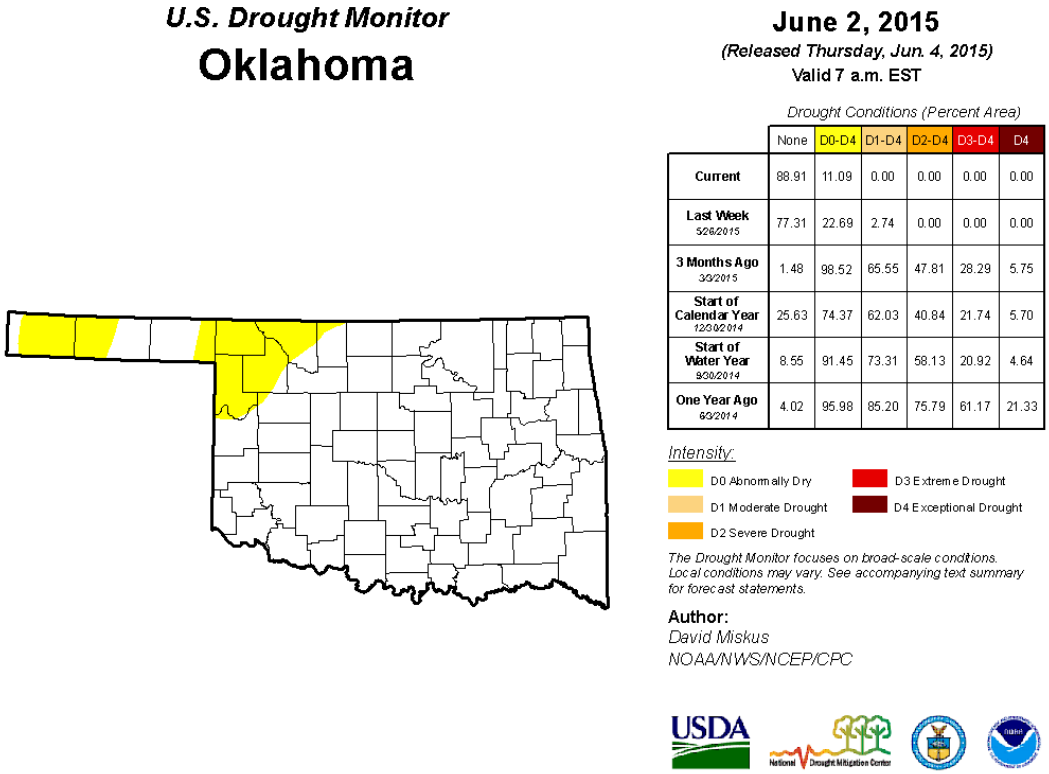


Fig. 16. Drought Monitor for Oklahoma

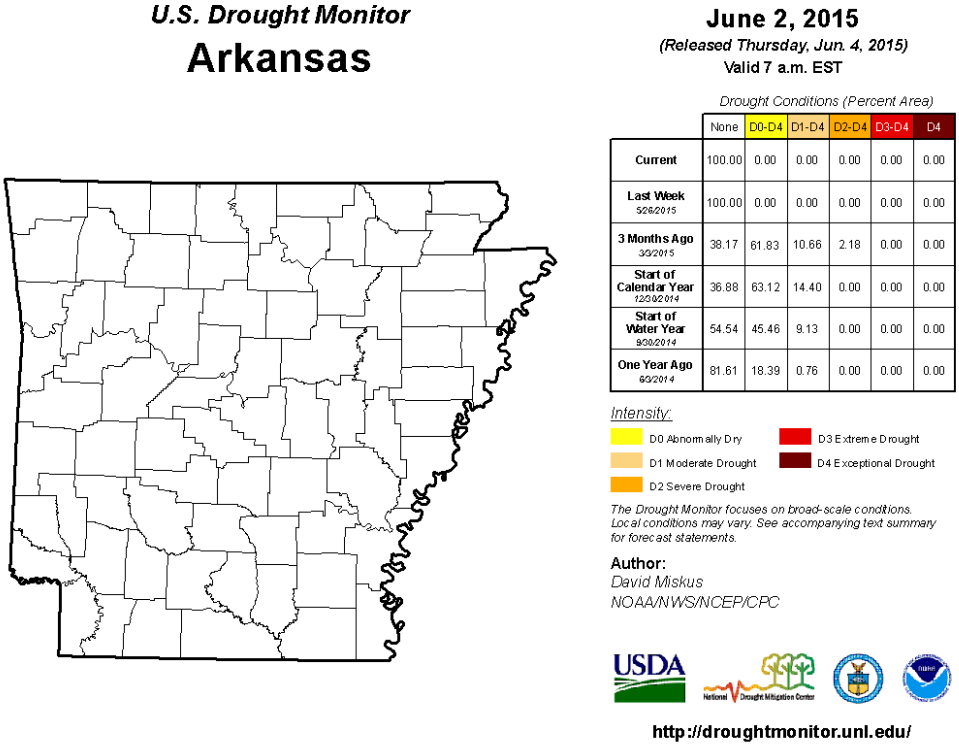


Fig. 17. Drought Monitor for Arkansas

Outlooks

The Climate Prediction Center (CPC) outlook for June 2015 (issued May 31, 2015) indicates an enhanced chance for below normal temperatures across all of eastern OK and northwest AR . This outlook also calls for a slightly enhanced chance for above median rainfall across Choctaw County, with an equal chance for above, near, and below median precipitation elsewhere. This outlook is based on short- and extended-range computer models. The largest signal for below normal temperatures is centered over north TX and OK, where soil moisture currently exceeds the 90th percentile.

For the 3-month period June-July-August 2015, CPC is forecasting an enhanced chance for below normal temperatures and above median precipitation across all of eastern OK and northwest AR (outlook issued May 21, 2015). According to CPC, El Niño conditions continue to strengthen and are currently on the border line of weak to moderate strength. These conditions are favored to continue through at least the next few months and likely into the later part of the year. The coupling between the ocean and atmosphere remains strong over the tropical Pacific. However, El Niño impacts are generally most significant during the cold seasons. Therefore, this outlook is based on both statistical and dynamical forecast tools and considering El Niño conditions.

Summary of Precipitation Events Daily quality controlled rainfall maps can be found at: http://water.weather.gov/precip/index.php?location_type=wfo&location_name=tsa

May 1-15

The pleasant start to May didn't last too long as an unsettled weather pattern brought several days of rain to eastern OK and northwest AR starting on the 5th. Widely scattered showers and thunderstorms developed during the early afternoon of the 5th across eastern OK and northwest AR. Additional storms spread east into eastern OK during the evening and overnight hours as a mid-level low spun over southeast Colorado. The activity was enhanced by a 60kt southerly low-level jet over the area. A brief EF0 tornado occurred near Kellyville during the late night hours. By 7am on the 6th, rainfall totals across all of eastern OK, except Le Flore County, ranged from around 0.25" to around 3" of rain. Most of eastern OK received 0.50"-1.5". The highest totals of 2"-3" occurred west of Hwy 75 and across Wagoner County (Figs. 18, 19). The activity weakened by sunrise, with widely scattered showers and isolated thunderstorms continuing through the remainder of the morning hours. Additional storms developed during the afternoon and evening in central OK as another shortwave moved over the region. These storms produced copious rainfall (3rd highest 1-day total in Oklahoma City's record) leading to flash flooding and river flooding in the Oklahoma City metro area. Evaporation below the anvil from the OKC storms created very strong damaging wind gusts of 40-60mph across portions of Pawnee, Osage, Tulsa, Creek, and Rogers County (Fig. 21). Eventually, these storms moved east into eastern OK and northwest AR during the overnight and morning hours of the 7th. However, the storms had weakened and did not bring any severe weather or flooding to the HSA. Rainfall totals were generally around 0.25" to around 1" southeast of I-44 in eastern OK and northwest AR (Fig. 20).

Highest 24-hr rainfall ending 7am CDT 5/6/2015:

Okemah 3E, OK	3.11"	Kaw Lake, OK	3.08"	Burbank, OK	2.17"	Hallett 3WSW, AR	2.14"

Another mid-level low over the northwest U.S. dove south on the 7th-8th and then moved into the Plains on the 9th-10th, resulting in several rounds of rain over the region. A complex of thunderstorms developed over western OK during the afternoon of the 7th. These storms propagated east into eastern OK and western AR during the evening and through the early morning hours of the 8th. Locations southeast of an Okmulgee to Jay line received around 0.50" to around 2" of rain. Western Choctaw, the southeastern half of Pushmataha, and southern Le Flore Counties had the highest totals of 2"-5" of rain (Fig. 22).

Highest 24-hr rainfall ending 7am CDT 5/8/2015:

Big Cedar 2E, OK	4.87"	Page 5N, OK	3.43"	Cloudy 5ENE, OK	3.23"	Antlers 2NE, OK	2.54"

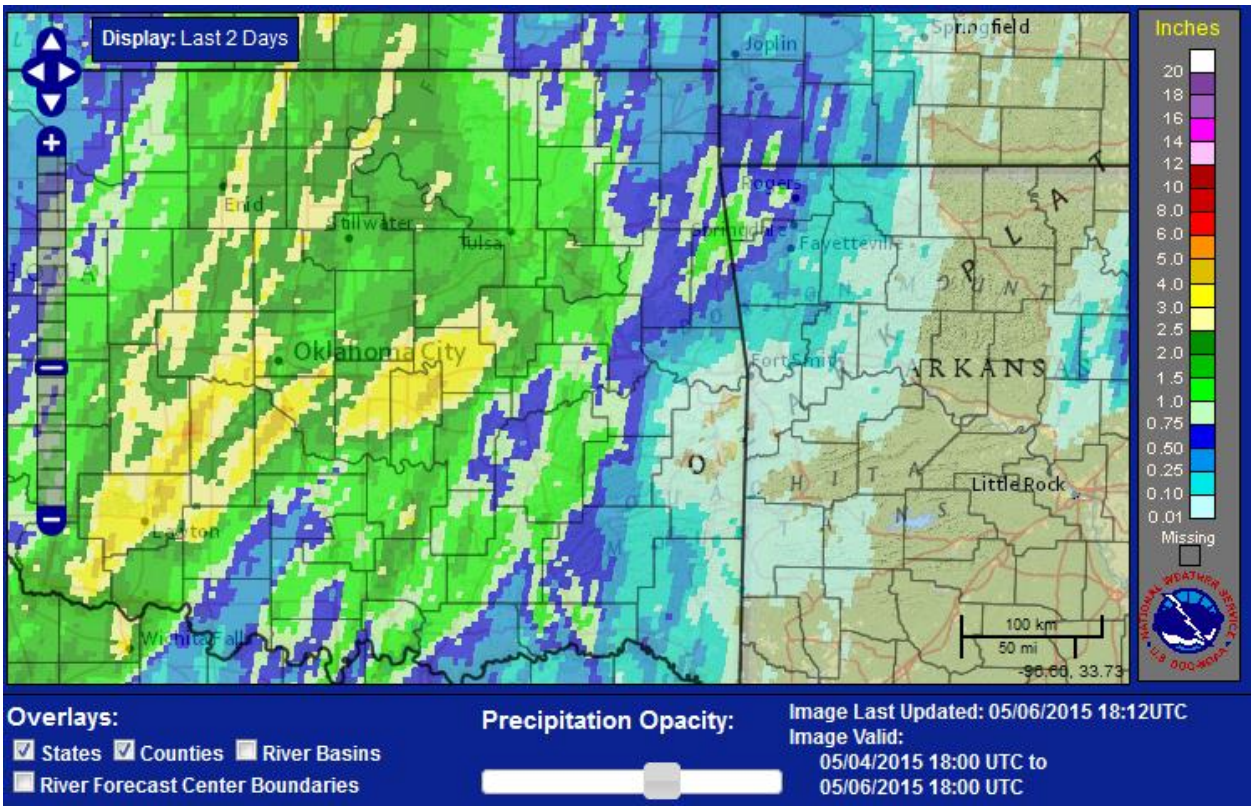


Fig. 18. 2-day Estimated Observed Rainfall ending at 1pm CDT 05/6/2015

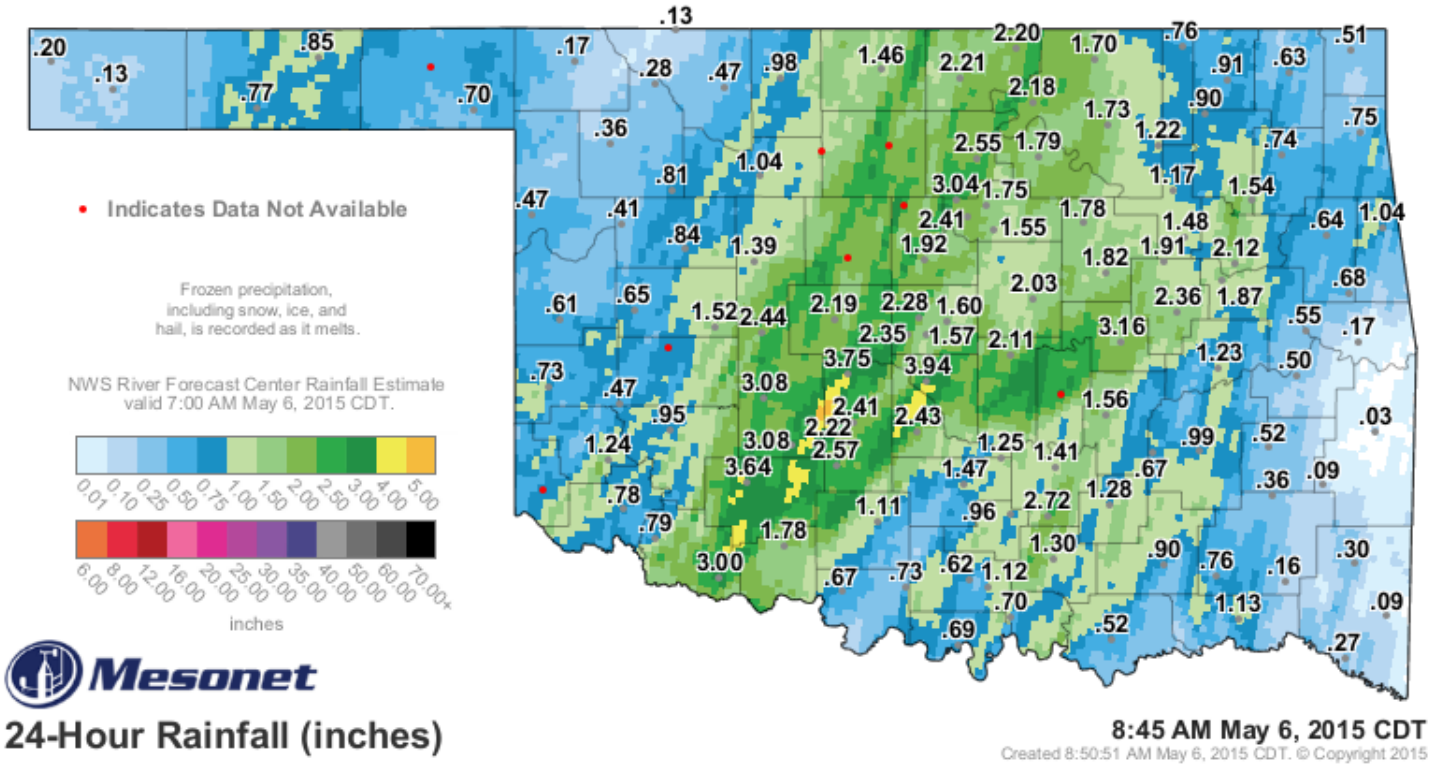


Fig. 19. 24-hr Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 8:45am CDT 05/06/2015

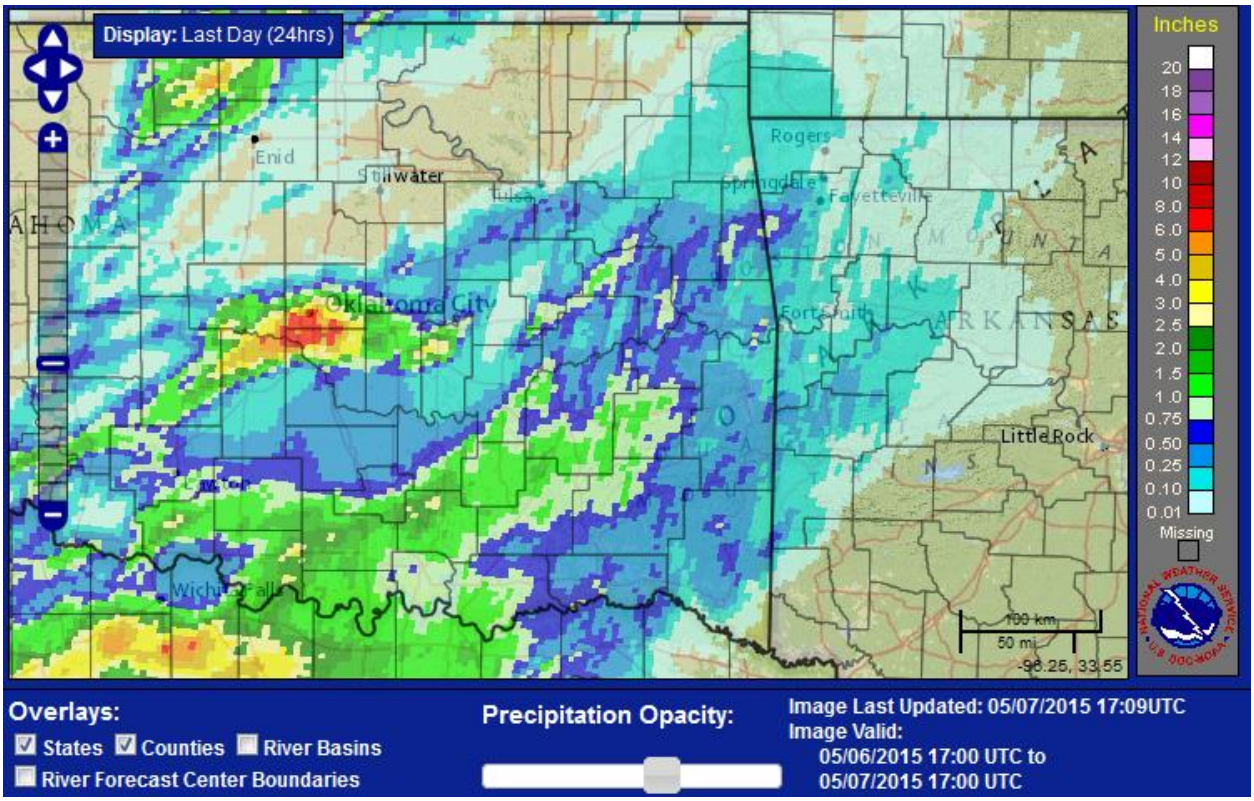


Fig. 20. 24-hour Estimated Observed Rainfall ending at Noon CDT 05/7/2015

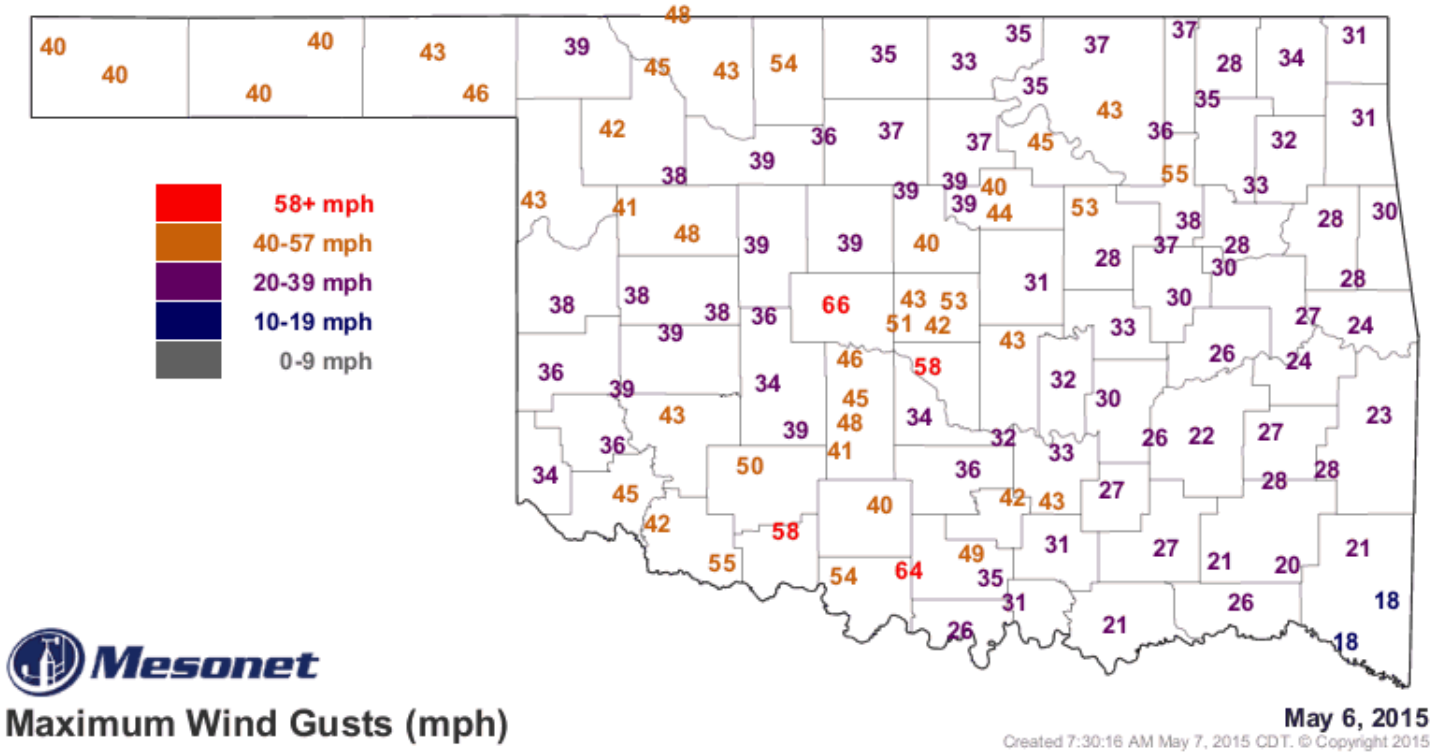


Fig. 21. Maximum Wind Gusts as measured by the Oklahoma Mesonet for 05/06/2015

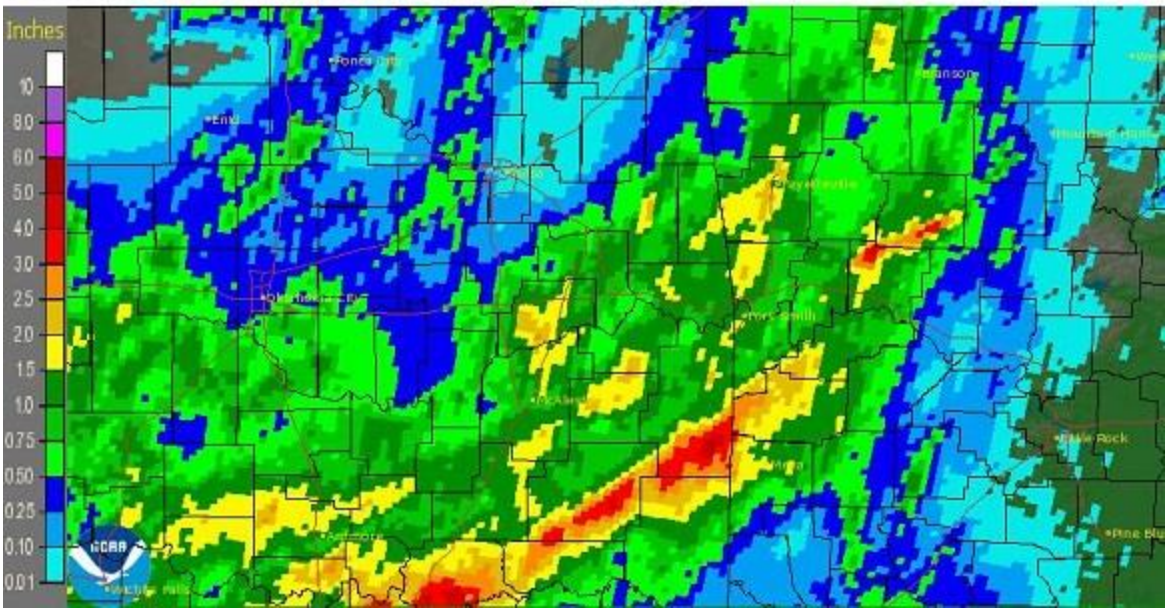


Fig. 22. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/8/2015

Thunderstorms developed near a frontal boundary across southwest OK and spread east into the area during the evening of the 8th through the morning of the 9th. Some storms lingered during the day on the 9th, while additional thunderstorms developed during the afternoon and evening hours across western/central OK and moved east into the HSA that night. The final round of showers and thunderstorms affected eastern OK and northwest AR on the 10th as the cold front associated with the mid-level low moved across the region. The rain finally came to an end by the 11th as the cold front exited to the east. Due to the subtropical flow over the Southern Plains, moisture was plentiful and each of these rounds of storms brought copious amounts of rain. Both widespread flash flooding and river flooding occurred.

By 7am on the 9th, most of eastern OK and northwest AR had received 0.50" to around 2" of rain, with portions of eastern OK receiving 2"-5" of rain (Fig. 23). The hardest hit areas were in Okfuskee, Tulsa, and Wagoner Counties, where flash flooding was reported. Okemah 3E, OK measured 4.58" and Big Cabin 5NE, OK measured 3.38". Okemah measured 2.91" of rain in only 1 hour, and the emergency manager reported some homes and several roads were flooded (roads were flooded throughout the county). Sections of I-44 were closed during the evening of the 8th due to water covering the roadway and stalled vehicles.

Training thunderstorms brought 2"-4" of rain to most of Choctaw County on the 9th. However, even heavier rain affected locations in east central OK and west central AR. In this area, widespread 2"-6" of rain fell (Fig. 24), creating widespread flash flooding during the evening and overnight hours: several bridges were washed out in Boley (Okfuskee Co.); swift water rescues were reported in Ozark, Vernon, and Sallisaw; 1'-2' of water was over some roads that rarely flood in Onapa (McIntosh Co.); 2' of water covering a road in Fort Smith; and numerous road closures or wash outs throughout the impacted area.

Highest 24-hr rainfall ending 7am CDT 5/10/2015:

Sallisaw 2SSW, OK	4.92"	Stigler 4WNW, OK	4.62"	Panama 2E, OK	4.47"
Stuart 3SE, OK	4.45"	Fort Smith, AR	4.39"	Kerr L&D 15, OK	4.31"
Riverdale 4.2E, AR	4.30"	Eufaula 5W, OK	4.29"	Van Buren 2.1NNW, AR	4.14"
Mayo L&D 14, OK	4.07"	Trimble/Barling L&D 13, OK	3.84"	Van Buren 0.7SSE, AR	3.82"

Much of the HSA received over 0.50" of rain by the morning of the 11th, with widespread 1.5" to 4" totals once again. This time the highest rain impacted locations southeast of a McAlester, OK to Fayetteville, AR line (Fig. 25), causing far east central OK and west central AR to be hit by very heavy rain two days in a row. Numerous roads were once again impacted by flash flooding. Four tornadoes also occurred on the 10th: an EF-0 near Moyers; an EF2 and an EF-0 both near Red Oak; and an EF1 near the McAlester airport.

Highest 24-hr rainfall ending 7am CDT 5/11/2015:

Daisy 4ENE, OK	4.09”	Page 5N, OK	3.64”	Wilburton 2SW, OK	3.63”
Fanshawe, OK	3.54”	Kerr L&D 15, OK	3.39”	Greenwood 1.9WNW, AR	3.22”
Panama 2E, OK	3.11”	Ozark 3WNW, AR	3.00”	Trimble/Barling L&D 13, OK	2.98”

All of the rain from the 6th-11th resulted in moderate to major flooding of several mainstem rivers. Figures 26-31 illustrate the multi-day rainfall totals ending on the 11th. The one week rainfall total, from 1pm CDT 5/4/2015 through 1pm CDT 5/11/2015, ranged from 3”-11.5” of rain (Figs. 30, 31)! Locations south of Hwy 412 received over 4” of rain and widespread 7”-10” of rain fell near and south of I-40. For reference, this is approximately twice the normal rainfall for this area for the entire month of May. This rainfall led to 1 Major, 6 Moderate, and 2 Minor floods on area rivers (Fig. 36). Preliminary hydrographs are available at the end of this report and detailed river crest information can be found in the May E3 Report. The Poteau River near Panama crested at 43.54 feet, based on the USGS high water mark measurement on the 12th. This (preliminary) crest is the 6th highest on record for this location. One flood related fatality occurred near Spiro, where a 60 year old male of Spiro drowned in the Poteau River while attempting to rescue cattle that had been inundated by rapidly rising flood waters around 3:30am CDT May 11. His body was recovered May 13. A total of five homes received minor flood damages. Between the river flooding and flash flooding, initial estimates on damages to roads and bridges are in the $500,000 range for Le Flore County (Figs. 32-35). Moderate flooding occurred along the Arkansas River at Van Buren and at Ozark Lock & Dam; Lee Creek near Van Buren; the Poteau River near Poteau; the Deep Fork River near Beggs; and the Kiamichi River near Antlers. Another fatality occurred on the 12th in Rudy, AR when 19 year old Skylar Combs drowned while trying to swim in the falling but still swollen and fast flowing Frog Bayou (Grotto Hole). In addition to high river levels, lake levels also rose from this rain. By the early morning hours of the 12th, Eufaula Lake exceeded the top of its flood control pool and went into surcharge. This was due not only to the repeated heavy rain in the immediate vicinity of the lake, but also inflow from the heavy rains in central OK. Combined with the additional rainfall later in the month, the lake remained in surcharge until May 31.

Highest 5-day rainfall ending 5/11/2015:

Uniontown 2.1ESE, AR	10.50”	Sallisaw 1SE, OK	10.21”	Krebs 0.3WNW, OK	10.10”
Antlers 6.3SE, OK	9.94”	Wilburton 9.4N, OK	9.93”	Bengal, OK	9.80”
Panama, OK	9.60”	Kerr L&D 15, OK	9.55”	Hartshorne 3.9NNE, OK	9.20”
Fort Smith, AR	9.18”	Red Oak, OK	9.14”	Greenwood 1.9WNW, AR	9.09”
Van Buren 2.1NNW, AR	8.99”	Page 5N, OK	8.86”	Short 1N, OK	8.81”
Fanshawe, OK	8.81”	Riverdale 4.2E, AR	8.69”	Big Cedar, OK	8.56”
Poteau, OK	8.53”	Stigler, OK	8.53”	Short 4S, OK	8.52”
Trimble/Barling L&D 13, OK	8.35”	Antlers, OK	8.12”	Mulberry, AR	8.08”
Vian 5.3 ENE, OK	8.07”	Mayo L&D 14, OK	8.02”	Charleston 1.7E, AR	8.00”

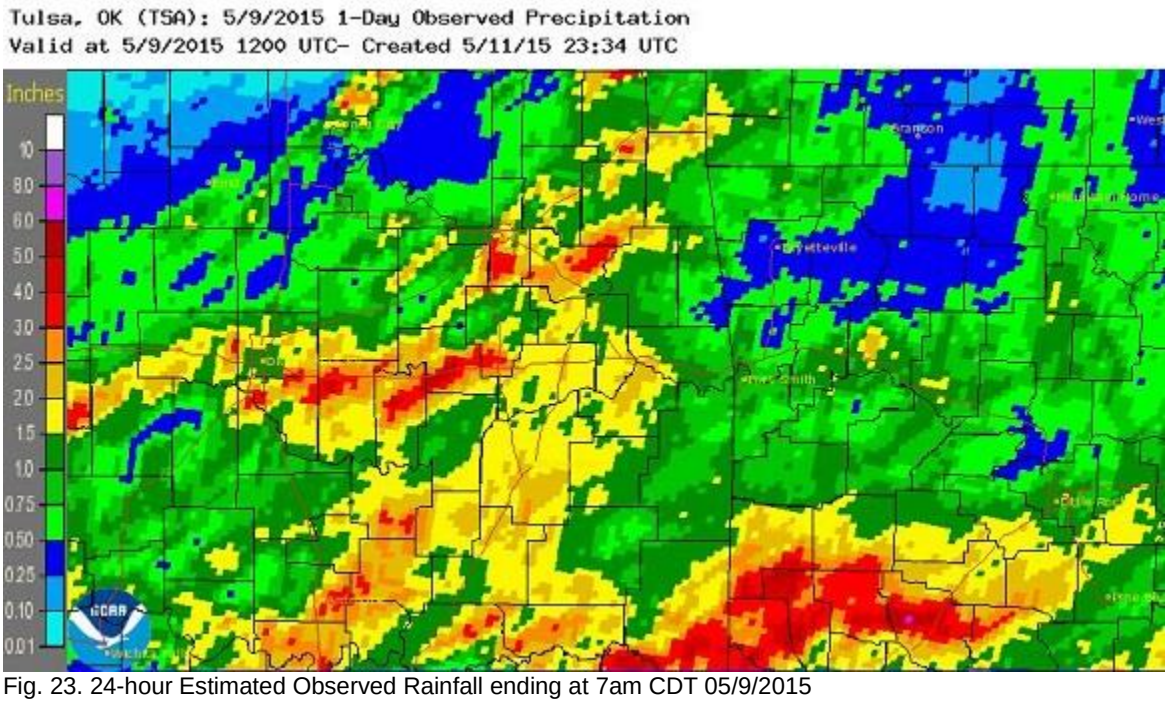


Fig. 23. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/9/2015

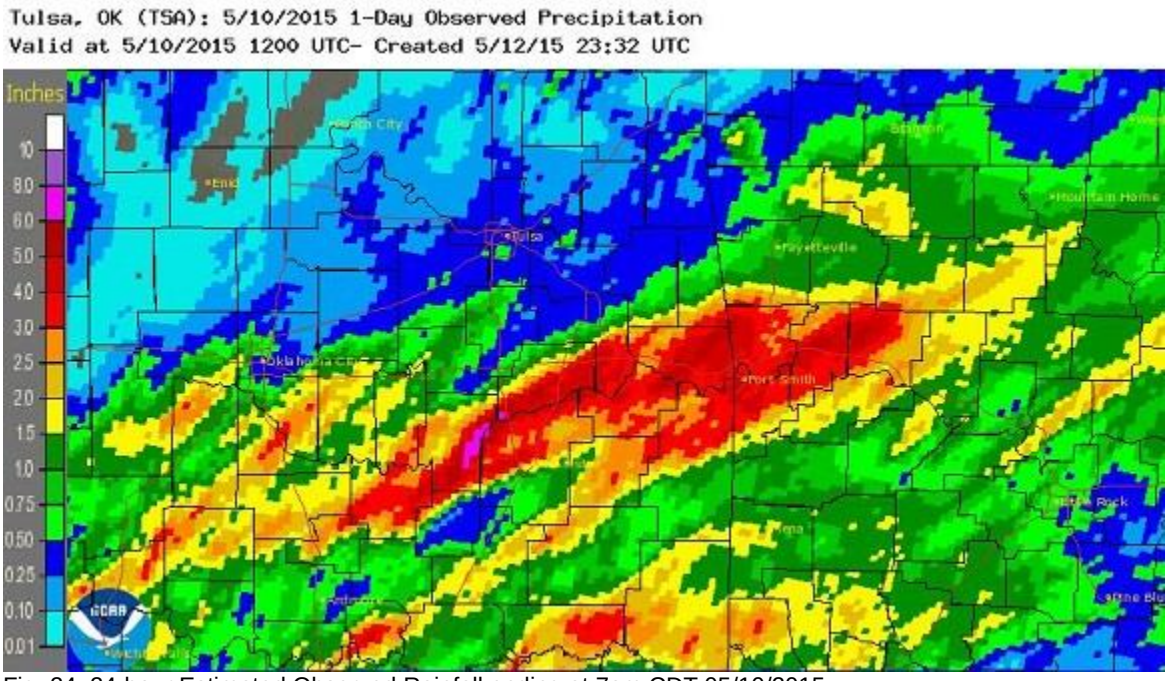


Fig. 24. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/10/2015

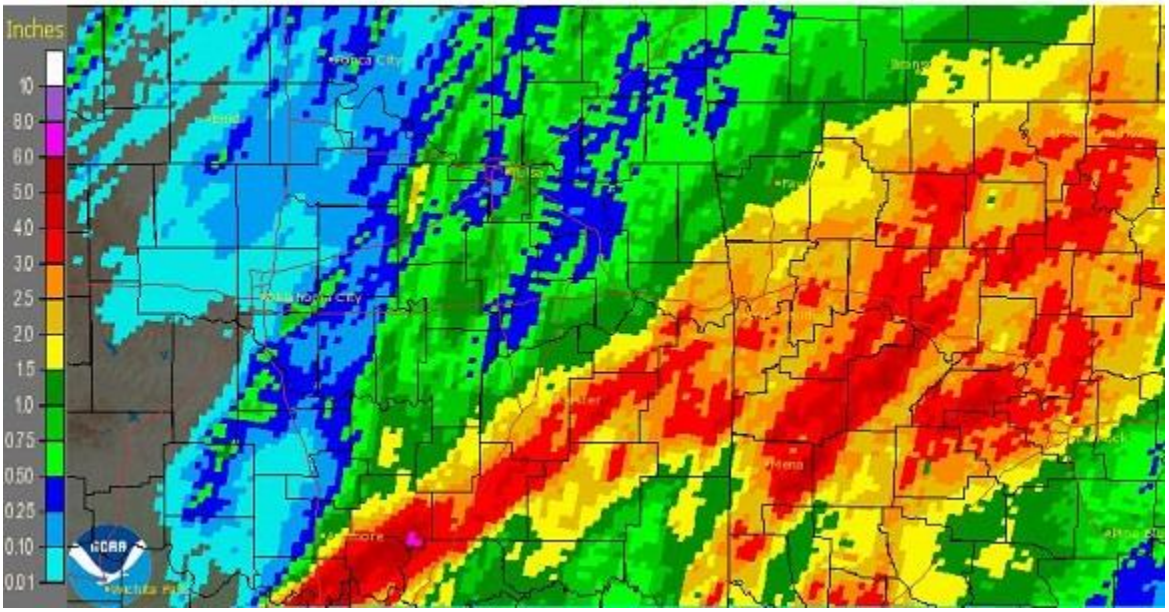


Fig. 25. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/11/2015

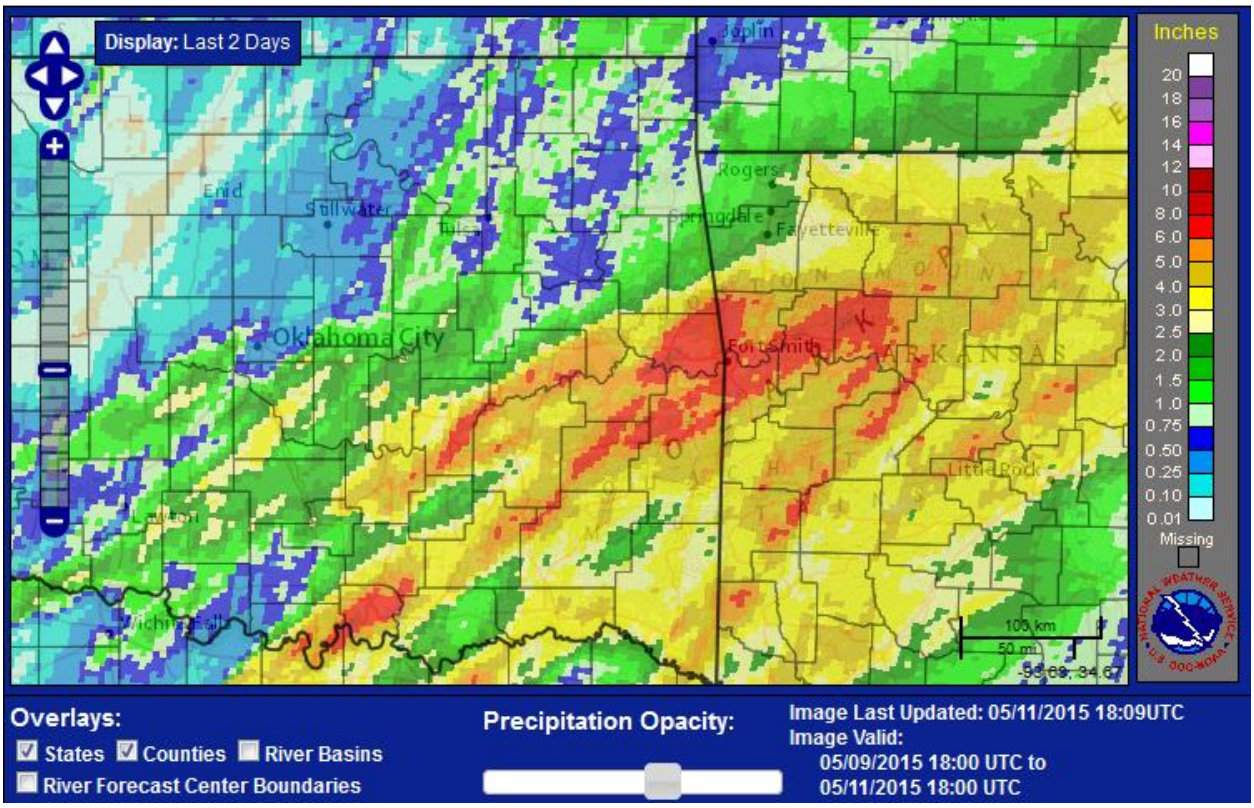


Fig. 26a. 2-day Estimated Observed Rainfall ending at 1pm CDT 05/11/2015

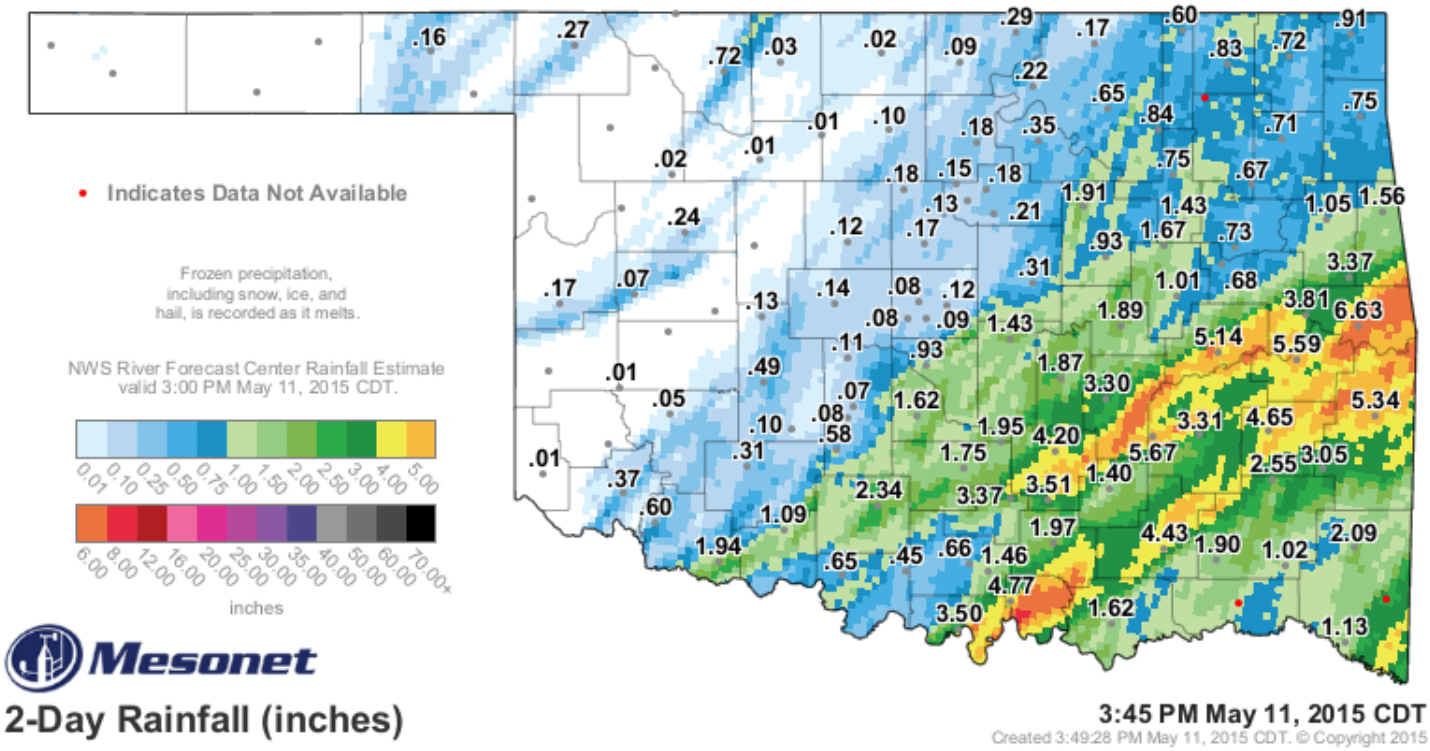


Fig. 26b. 2-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 3:45pm CDT 05/11/2015

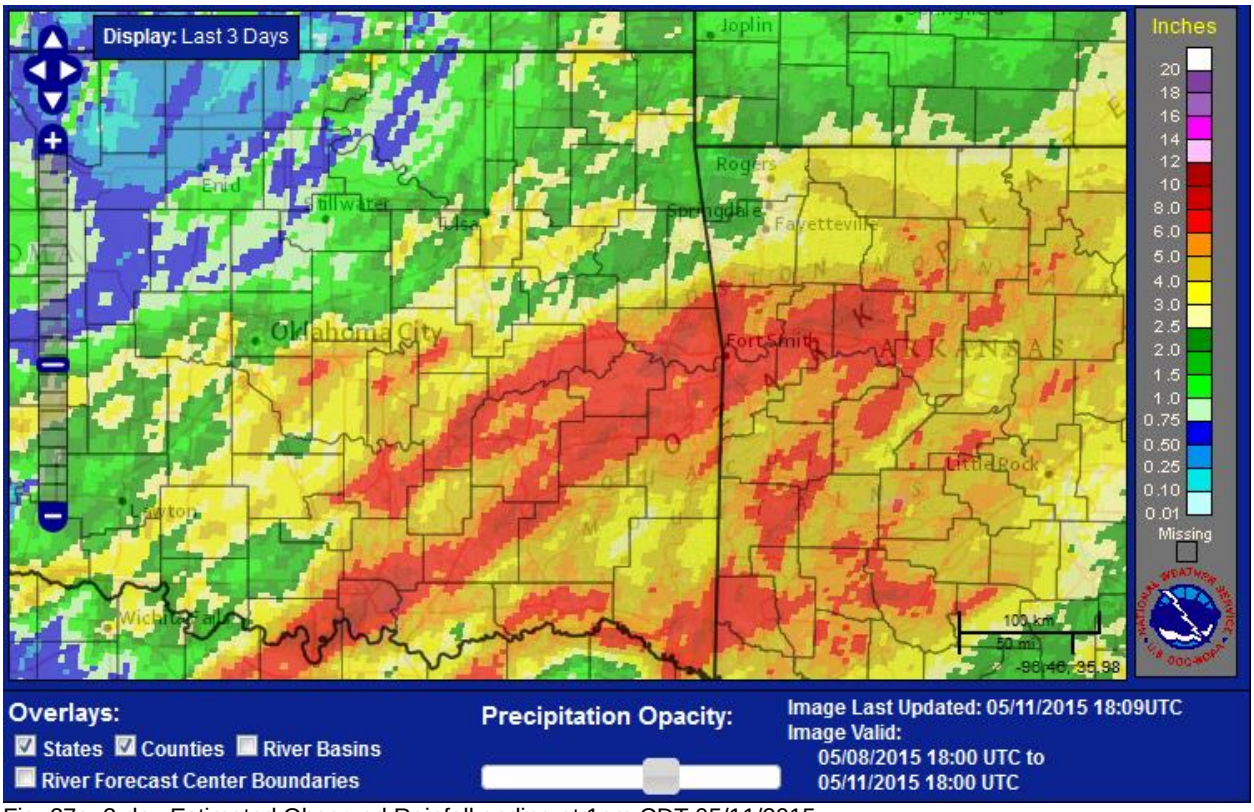


Fig. 27a. 3-day Estimated Observed Rainfall ending at 1pm CDT 05/11/2015

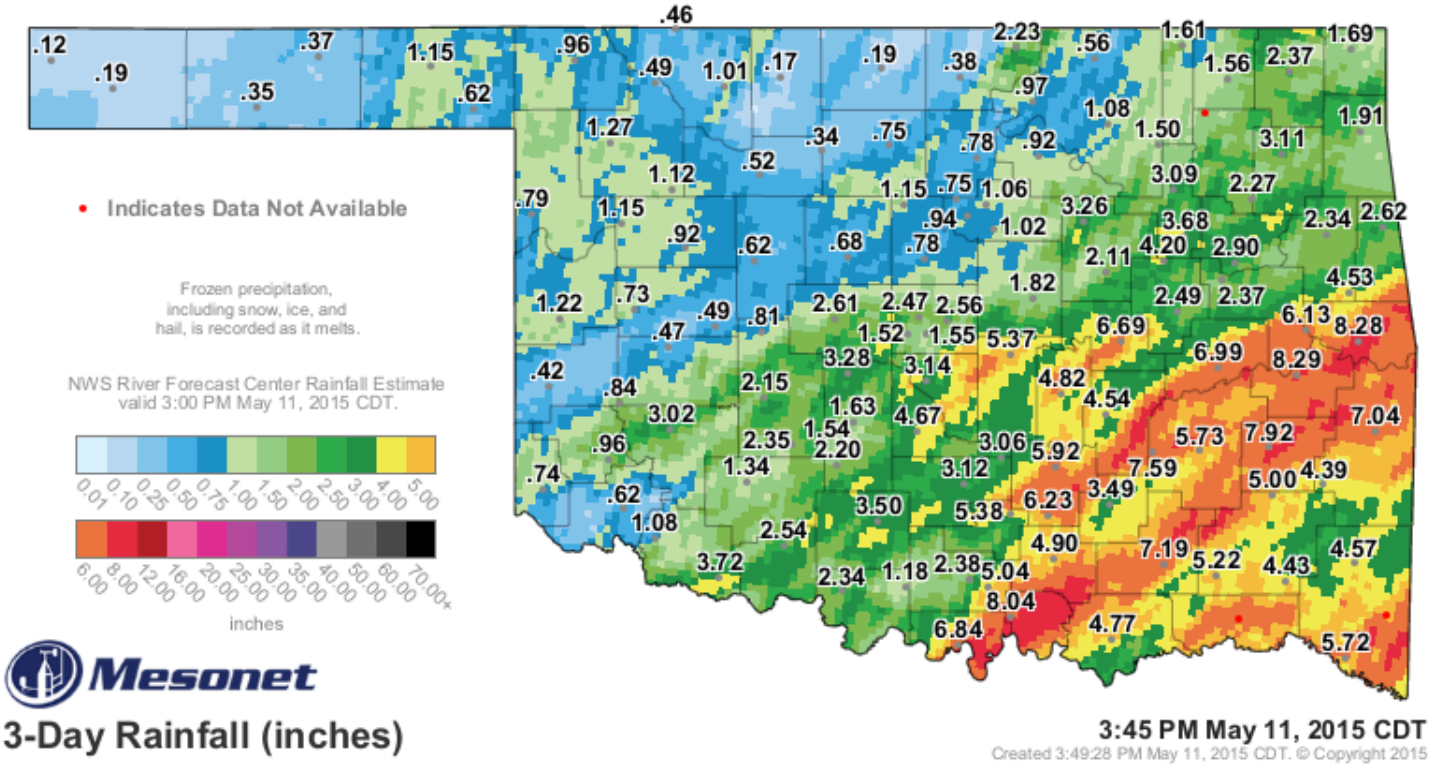


Fig. 27b. 3-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 3:45pm CDT 05/11/2015

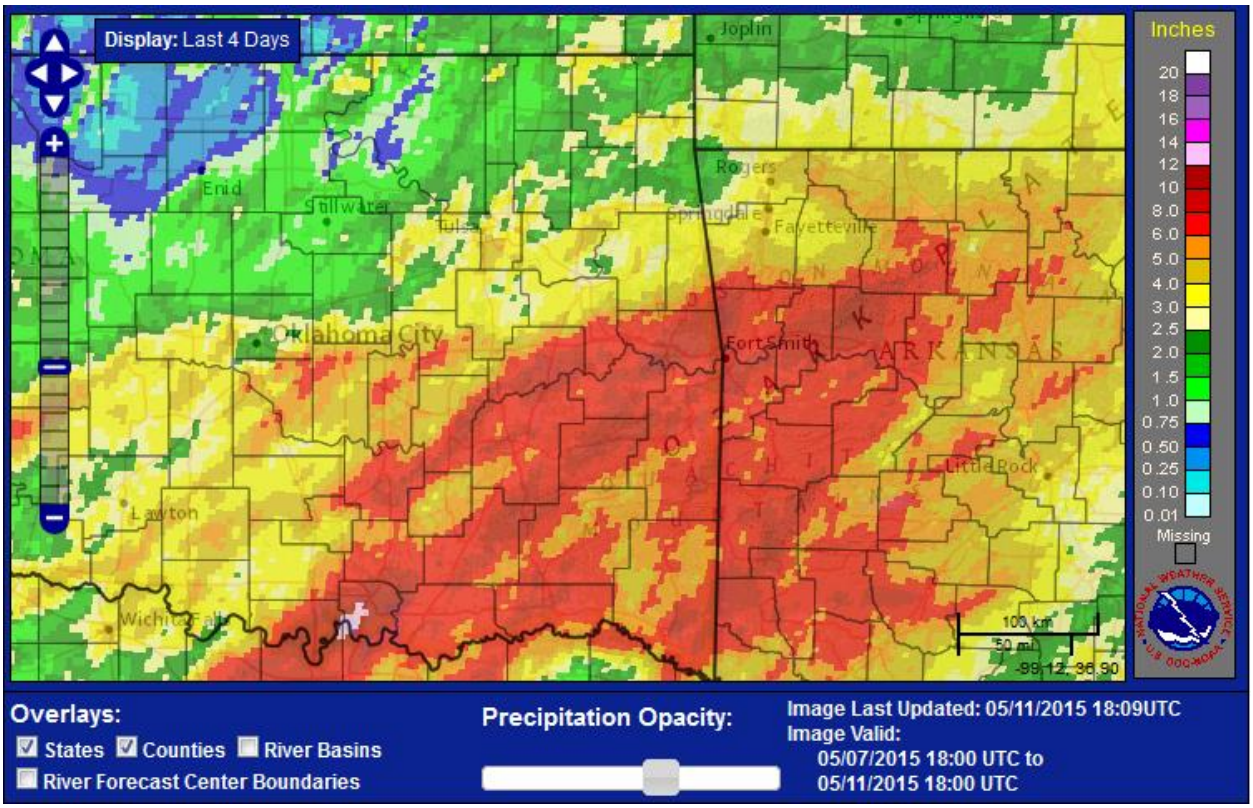


Fig. 28a. 4-day Estimated Observed Rainfall ending at 1pm CDT 05/11/2015

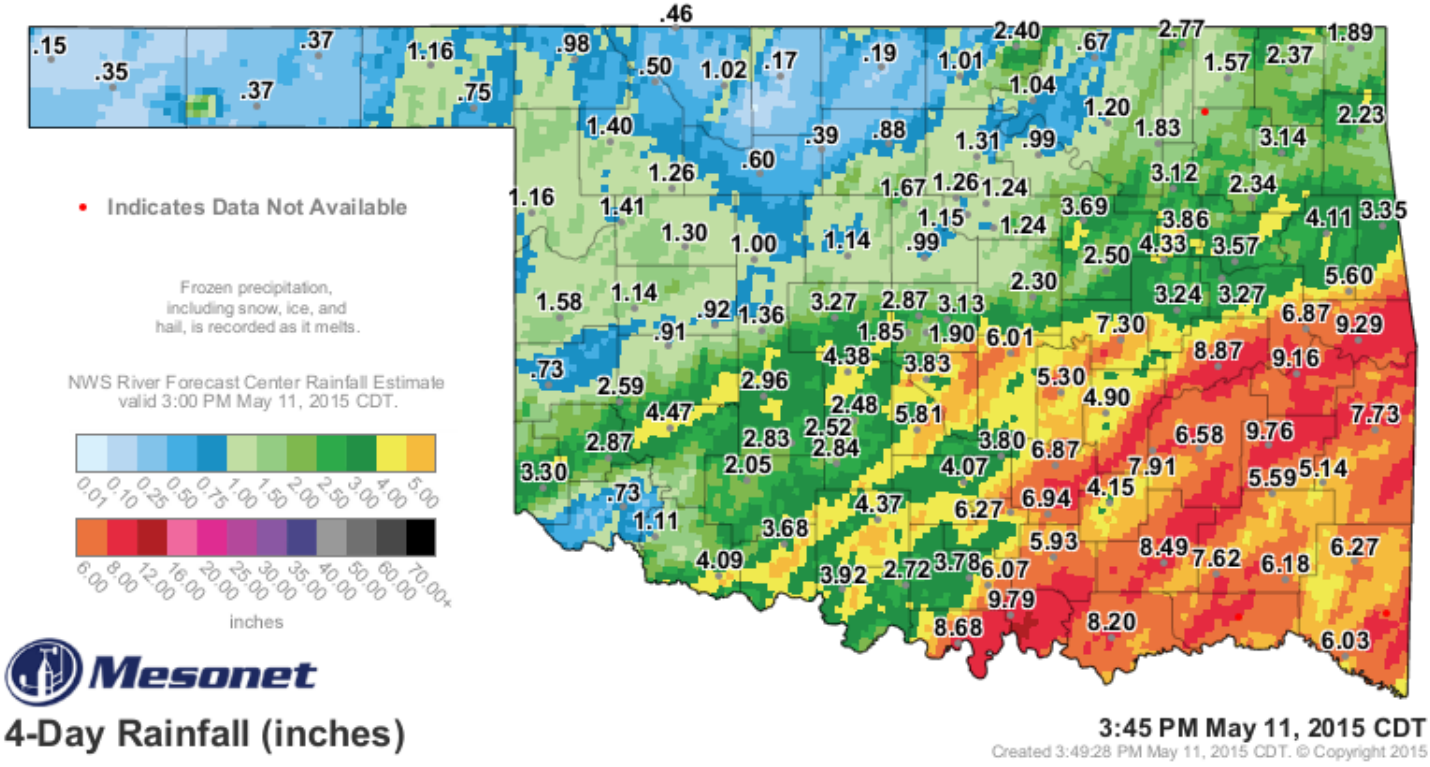


Fig. 28b. 4-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 3:45pm CDT 05/11/2015

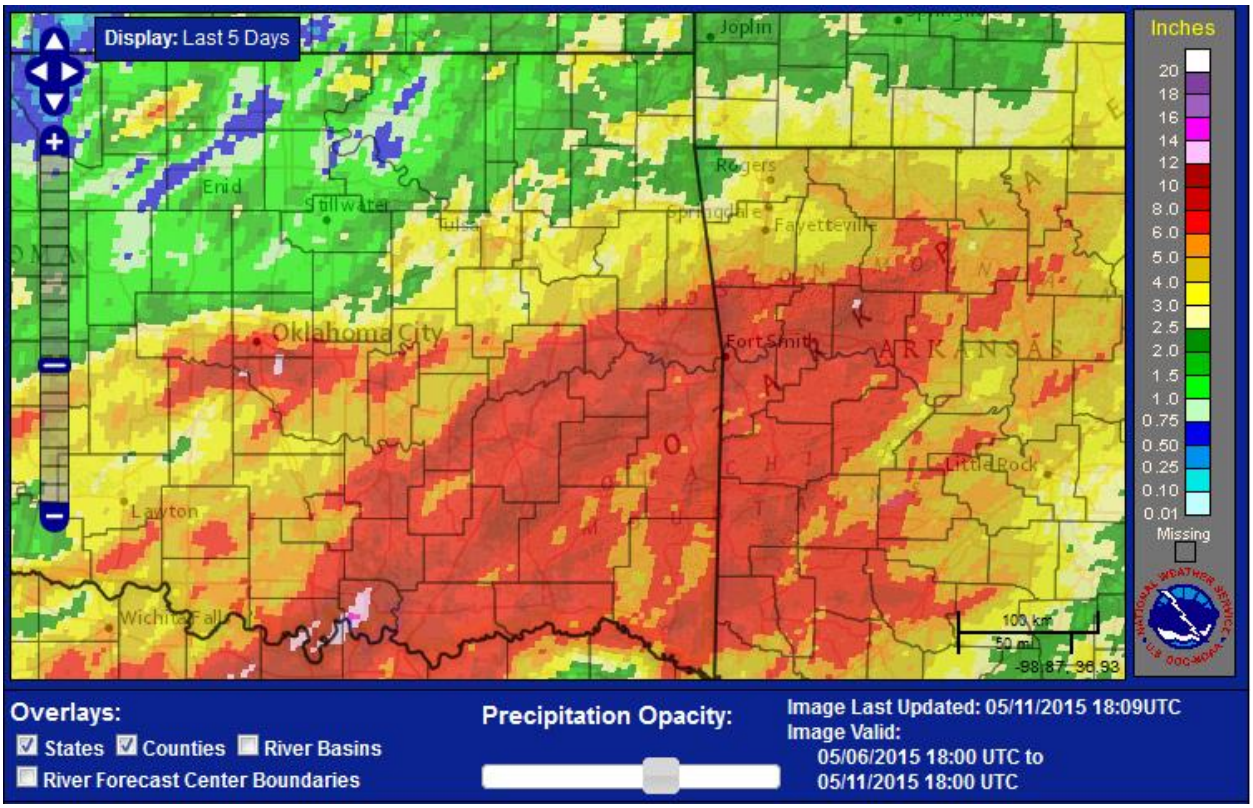


Fig. 29a. 5-day Estimated Observed Rainfall ending at 1pm CDT 05/11/2015

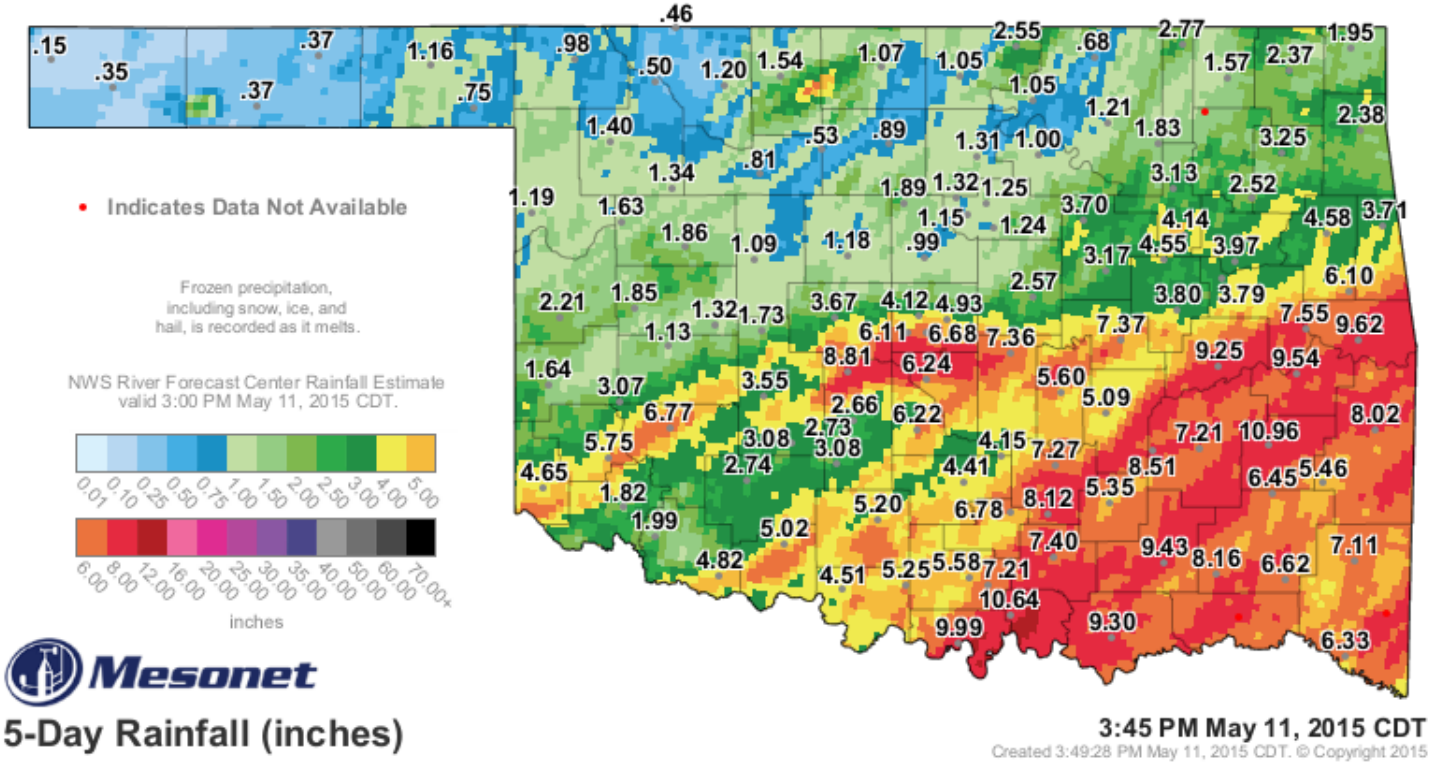


Fig. 29b. 5-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 3:45pm CDT 05/11/2015

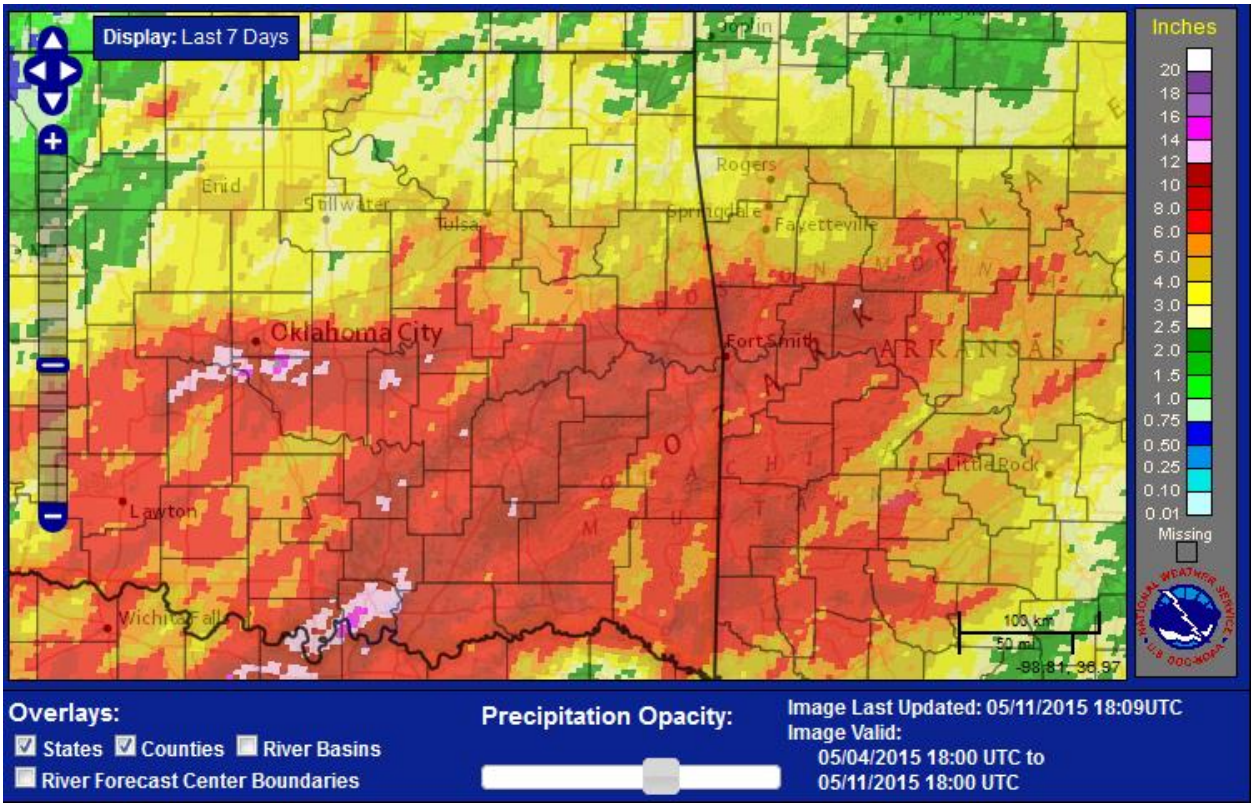


Fig. 30. 7-day Estimated Observed Rainfall ending at 1pm CDT 05/11/2015

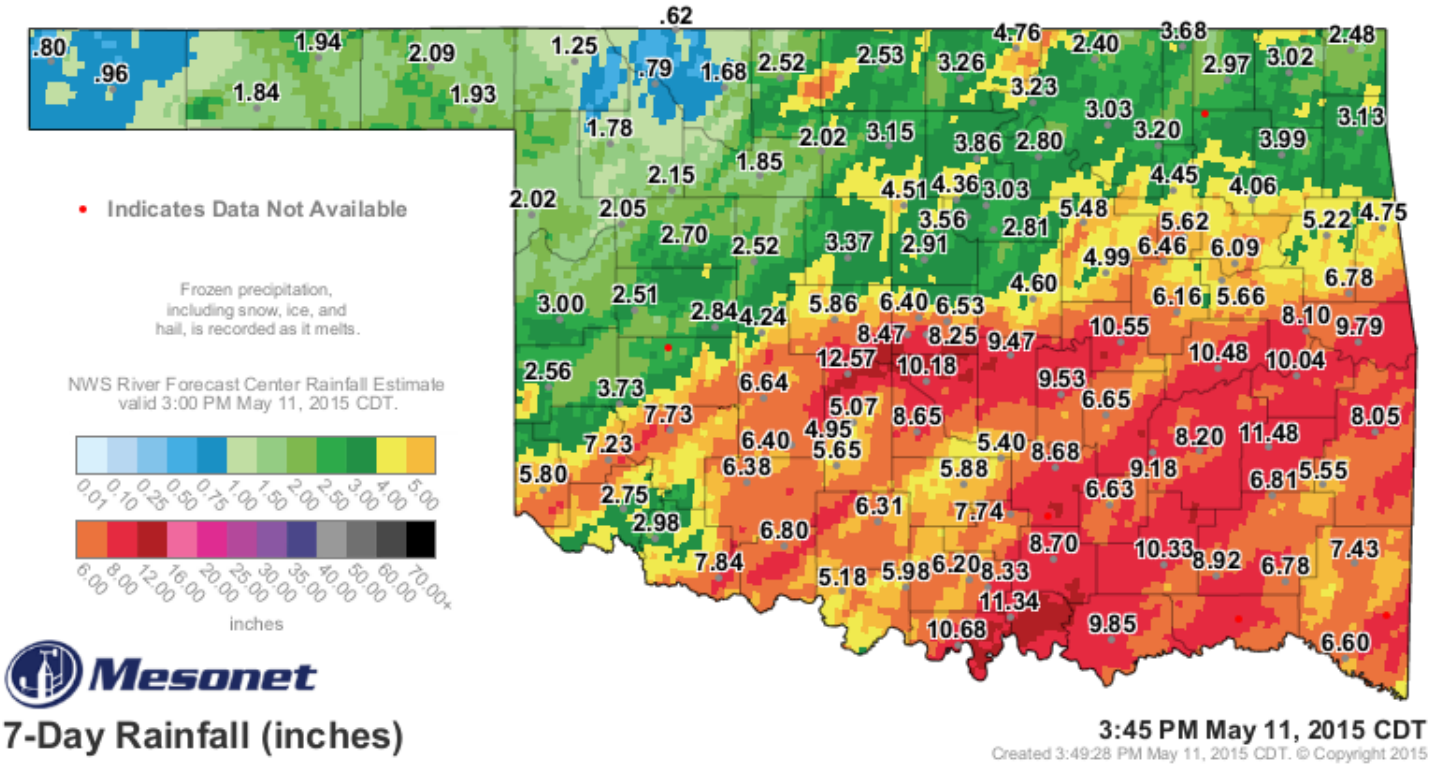


Fig. 31. 7-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 3:45pm CDT 05/11/2015

Fig. 32. PANO2 gage site from the air at 2:30pm CDT 5/12/2015. Stage is 42.11'. Photo: Michael Davidson

Fig. 34. Poteau River from the air at ~2:30pm CDT 5/12/2015. Photo: Michael Davidson

Fig. 33. Poteau River 5/12/2015 2:30pm CDT (PANO2 42.11')
"This is the water treatment facility mentioned in the impact statements. The water was less than a foot from going over the berms. (Michael Davidson, Image)"
"The pond to the north is pond 1 raw sewage. The pond in the right corner is pond 4. It's the one that is pumped to the river, but in this case, the river almost came to it (David Fox, takes care of the pumps there)."

Fig. 35. Poteau River from the air at ~2:30pm CDT 5/12/2015. Photo: Michael Davidson

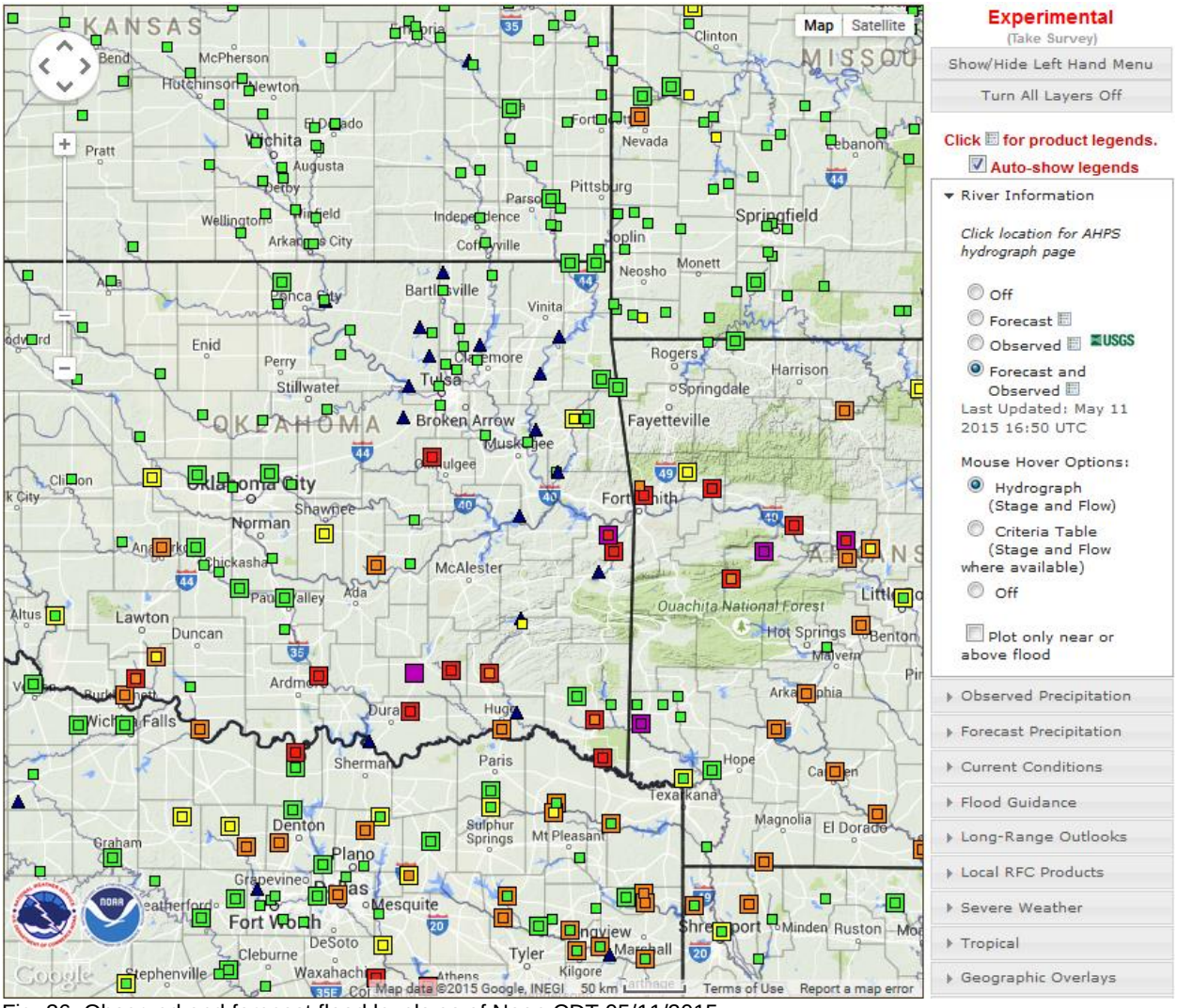


Fig. 36. Observed and forecast flood levels as of Noon CDT 05/11/2015

Showers and isolated thunderstorms developed during the afternoon on the 13th as an upper-level wave in the subtropical westerlies approached the Southern Plains from the southwest. While the majority of the HSA saw rain on the 13th, locations west of a Vinita to McAlester to Hugo line received around 0.50" to 2" of rain. The highest totals occurred in northern Creek, southeast Osage, Tulsa, western Rogers, and far southern Washington (OK) Counties. Rain lingered into the morning of the 14th and brought an additional 0.25" to around 1" to portions of Rogers, Nowata, Craig, and Ottawa Counties.

A line of thunderstorms moved into eastern OK from the west on the 15th before diminishing during the afternoon hours. Additional scattered storms developed during the afternoon in Madison and Franklin Counties. 0.25" to near 0.75" of rain fell west of a Bartlesville to Muskogee to Hugo line in eastern OK and over Madison and Franklin Counties in northwest AR.

May 16-31

On the large scale, a persistent split-flow block continued in the west on the 16th, with ridging centered over Florida. The Central/Southern Plains was in the storm track laid out between the two primary upper features and remained that way for over a week.

On the 16th, early morning storms lingered across northwest AR through the mid-morning hours. Thunderstorms, some of which were supercells, developed along a Pacific cold front and dryline in western OK as the main upper trough swung into the Central Plains. These storms merged into a large quasi-linear convective system (QLCS) as they moved east into the HSA during the evening, though a few discrete supercells formed ahead of the QLCS. Strengthening wind fields aloft supported severe weather, and 9 tornadoes occurred with this activity: EF1 near Okemah; EF2 in Broken Arrow; EF2 near Inola; EF1 Claremore Airport; EF1 near Pryor; EF1 near Adair; EF1 from near Ketchum to near Afton; EF1 near Fairland; and EF1

near Wyandotte. Well above normal precipitable water values and training thunderstorms, in conjunction with antecedent conditions, led to additional flash flooding. The entire HSA received around 0.50" to around 2" of rain, with pockets of 2"-3" (Fig. 37). Flash flooding occurred along the corridor of heaviest rain from Pittsburg County, OK to southern Washington County, AR. Several state and US highways were closed due to high water. Minor flooding occurred along the Arkansas River at Van Buren following this rain. The rain had shifted east of the area by sunrise on the 17th.

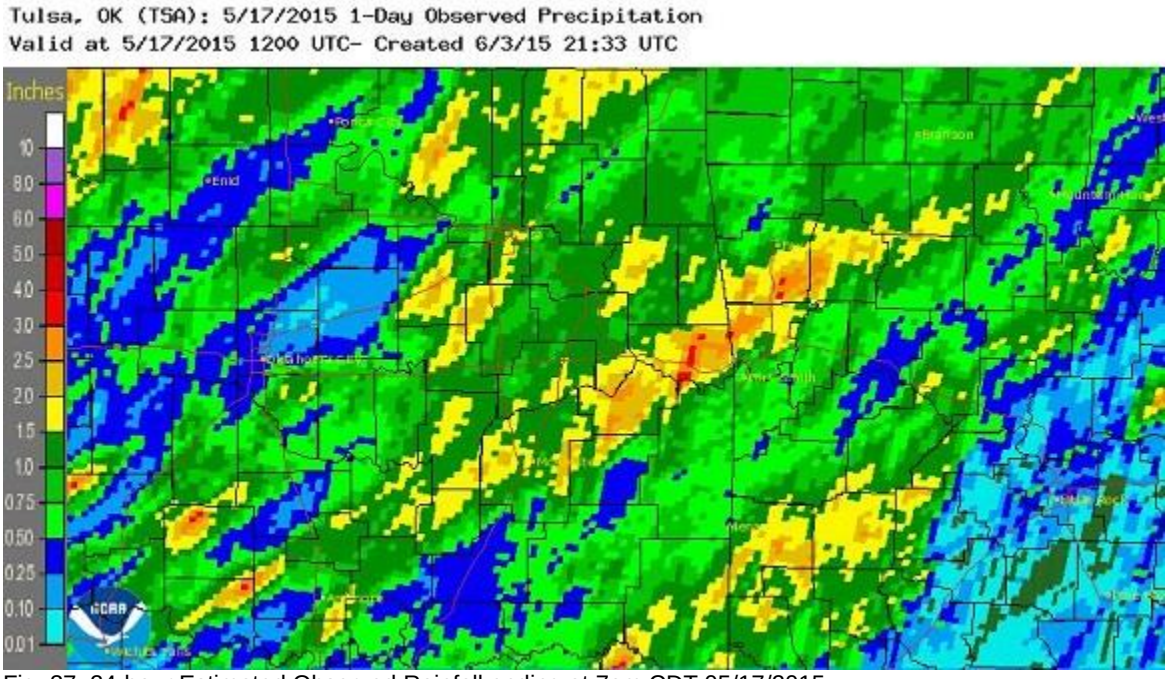


Fig. 37. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/17/2015

A few isolated storms brought localized 0.25" to 1.5" of rain during the afternoon of the 18th, with southern Delaware County getting 1.5"-2.5", as a cold front sagged south. The front stalled near the Red River, then began to lift northward on the 19th. The warm front stalled near I-40 during the evening due to reinforcing rain cooled outflow over northeast OK and northwest AR. Widespread thunderstorms developed as an upper-level trough ejected into the Plains. While the entire region saw rain, the heaviest rainfall was focused near the warm front along and south of I-40 as the MCS moved across southeast OK and west central AR. A smaller area of showers and thunderstorms affected far northeast OK near the surface low and a cold front. Precipitable water values of 1.75"-2" once again yielded storms very efficient at making rain. Along and south of the I-40 corridor, widespread 1.5" to 4" of rain fell. Portions of Haskell, Le Flore, Latimer, Pushmataha, and Pittsburg Counties saw 4" to 7" of rain (Fig. 38). The OK Mesonet station near Clayton measured 6.01" and the Talihina station measured 5.64" (Fig. 39). North of I-40, rainfall totals were 0.25" to 1.5". The heavy rain on top of saturated soils led to widespread, extensive flash flooding along and south of I-40. This was the same area that received very heavy rain 1-2 weeks prior. Flood waters inundated numerous buildings in Talihina (Le Flore Co.), including the housing authority, the Choctaw Nation Hospital, the high school, and a nursing home. Numerous roads were under water across the area as well. Mainstem river flooding also resulted from all of this rain. The Poteau River near Poteau and Panama both reached moderate flood stage, while the Arkansas River at Van Buren and Ozark Lock and Dam had minor flooding (see preliminary hydrographs at the end of this report). Area lakes, which were already mostly full from the rainfall in the weeks prior, filled further and both Sardis and Wister Lakes went into surcharge according to data from the USACE Tulsa District. Water began going through the uncontrolled auxiliary spillway at Wister Lake by late on the 20th, and continued to flow on the spillway until the morning of June 8, 2015. Eufaula Lake was still in surcharge and the rainfall from the 19th caused the lake to rise higher still. On the night of May 21, 2015, William Gamblin, 34, of Hugo, OK was driving his pickup truck when it became stuck in flood water 4 miles north of Hugo on Ballpark Rd. He walked out and got help, then walked back to the truck to get some personal items. Local media reports Mr. Gamblin walked about 100 yards when he hit a dip in the road and went under water. He did not resurface.

Highest 24-hr rainfall ending 7am CDT 5/20/2015:

Clayton 4NNE, OK	6.01"	Talihina 4SE, OK	5.63"	Ratcliff, AR	5.05"

Charleston 1.7E, AR	4.84”	Big Cedar E, OK	4.78”	Talihina 3ENE, OK	4.74”
Page 5N, OK	4.62”	Eufaula 4.6ENE, OK	3.86”	Stigler 4WNW, OK	3.79”

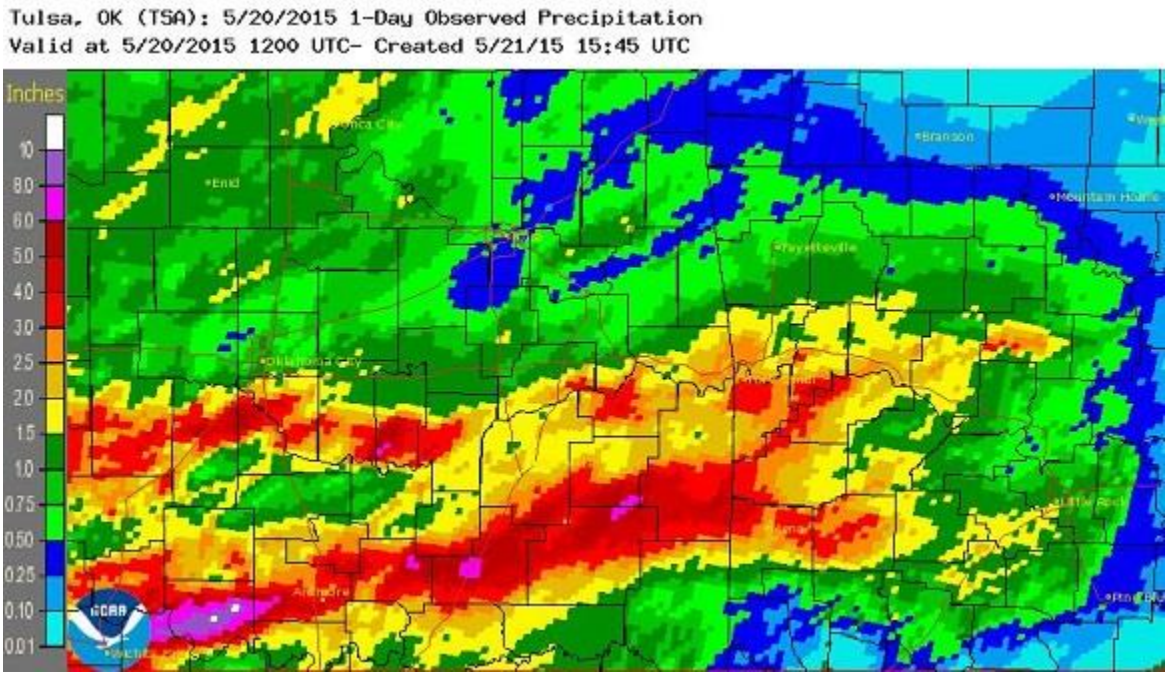


Fig. 38. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/20/2015

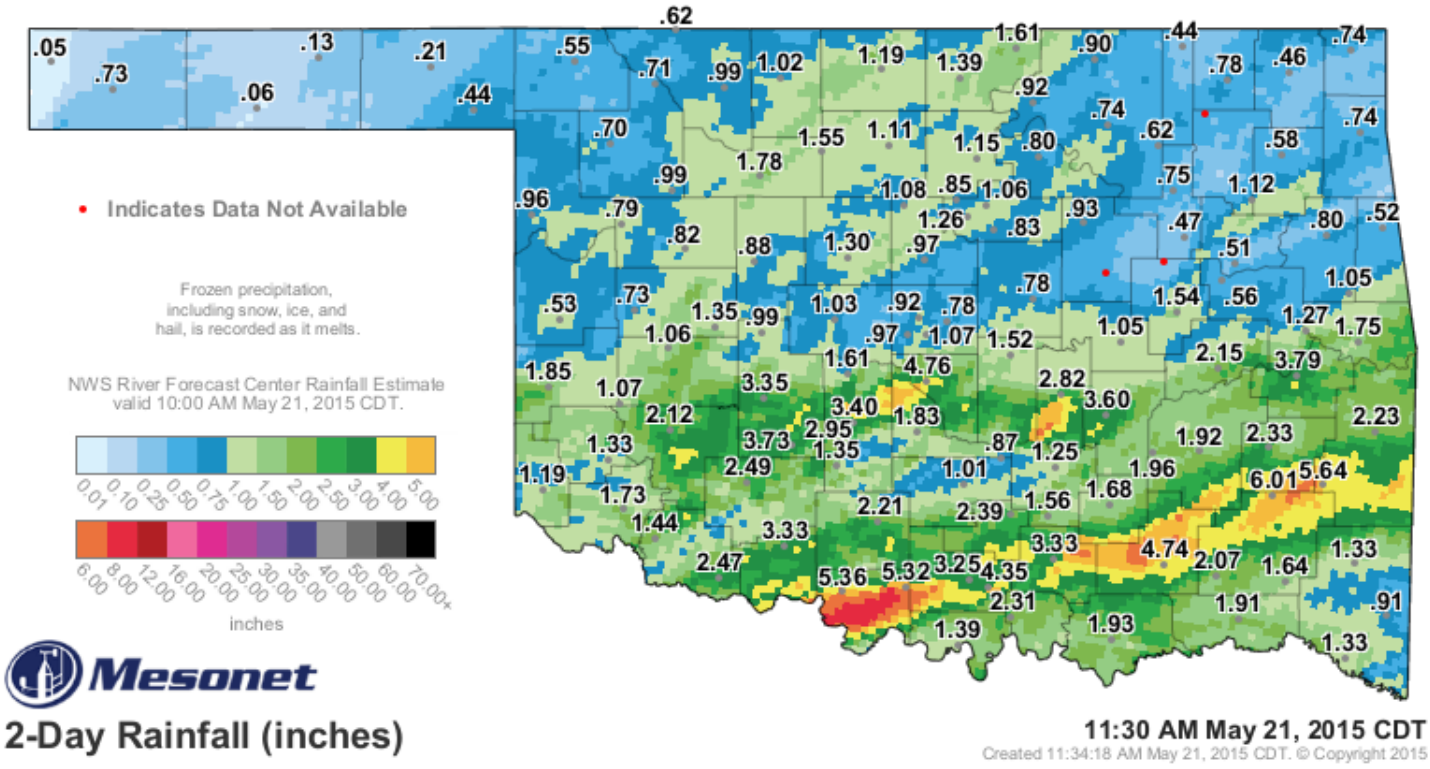


Fig. 39. 2-day Mesonet Rainfall Measurements and Estimated Observed Rainfall (image, from RFC) ending at 11:30am CDT 05/21/2015

There was only a short break as the rain stayed just south of the Red River, and then heavy rain once again inundated the region beginning on the 22nd. The rain continued over the Memorial Day weekend, tragically leading to four additional fatalities. Deep moisture returned to the region, with precipitable water values between 1.5 and 2 inches in the atypical deep tropical airmass. Several disturbances moved through the deepening meridional flow. A zone of upper-level divergence set up across the Plains over Memorial Day weekend, allowing for the training of storms. Convection began along and north of the Red River on the 22nd due to persistent upglide north of the surface front in northern TX. By 7am on the 23rd, rainfall totals south of I-

40 ranged from 0.25” to around 3”, with the highest totals of 1.5”-3” occurring across southern Pittsburg, southern Latimer, southern Le Flore, and Pushmataha Counties in southeast OK (Fig. 40). Along and north of I-40, totals were around 0.50” or less.

The front then began to lift north into the HSA during the overnight hours and on the 23rd. Convection focused mainly west of the area during the day of the 23rd, with scattered activity across eastern OK and northwest AR. By the evening of the 23rd, however, the line of storms from the west had moved into the HSA. The convection slowly moved east during the evening and overnight hours as the upper-level flow backed from an approaching trough and diffluent flow spread east over the region. An EF0 tornado occurred near Red Oak, OK (Latimer Co.) The biggest impact, though, was the deadly flooding that occurred. Saturated soils, along with many of the larger rivers near or already in flood, allowed for rapid onset of flash flooding. Most of the activity was very efficient at producing rain, with some rain rates as much as 1.5”-2.5” per hour. However, due to the antecedent conditions, flash flooding occurred even with rainfall rates not typically associated with flash flooding. Widespread 1.5”-4” of rain fell over most of eastern OK by 7am on the 24th, with many areas seeing totals of 4”-7” (Fig. 41). The rainfall axis shifted further east during the morning and afternoon on the 24th as convection renewed along the outflow boundary from the overnight storms, impacting western AR and southeast OK. Dangerous flooding continued in these areas, which also experienced widespread 1”-5” of rain (Fig. 42). In just a 2-day period, the entire HSA had received around 2” to nearly 8” of rain (Figs. 43, 44) and around 2.5”-12” of rain in just 5 days (Figs. 45, 46), ending at 8:15pm 5/24/2015.

Highest 24-hr rainfall ending 7am CDT 5/24/2015 (≥3.5”):

McAlester 2.2ENE, OK	6.32”	McAlester 4S, OK	6.23”	Hectorville 4W, OK	6.12”
McAlester Airport, OK	5.73”	Krebs 0.3WNW, OK	5.59”	Broken Arrow 2SSW, OK	5.50”
Webbers Falls Dam, OK	5.45”	Broken Arrow 1.5SW, OK	5.35”	Broken Arrow 2.7SSW,OK	5.30”
Bixby 2ENE, OK	5.22”	Broken Arrow 7ENE, OK	5.18”	Jenks 4.5ENE, OK	5.16”
Bristow 4SSE, OK	5.14”	Glenpool 0.6S, OK	5.11”	Webbers Falls 1.5S, OK	5.09”
Broken Arrow 3NNW, OK	5.05”	Tulsa, OK	4.85”	Whitefield, OK	4.72”
Webbers Falls, OK	4.47”	Bunch 0.8N, OK	4.47”	Tahlequah 4NNW, OK	4.46”
Pensacola Dam, OK	4.31”	Claremore 5W, OK	4.20”	Jenks Riverside Arpt, OK	4.01”
Claremore 7.5W, OK	3.91”	Spavinaw, OK	3.90”	Spavinaw Dam, OK	3.66”
Tulsa Intl. Arpt., OK	3.65”	Tahlequah 2ENE, OK	3.61”	Claremore 7.5W, OK	3.60”
Okemah 3E, OK	3.60”	Tenkiller Ferry Dam, OK	3.59”	Muskogee 2ENE, OK	3.55”
Oologah Lake, OK	3.54”	Eufaula 4.6ENE, OK	3.52”	Okemah 5W, OK	3.50”

Highest 24-hr rainfall ending 7am CDT 5/25/2015:

Greenwood 1.4W, AR	4.65”	Page 5N, OK	4.13”	Riverdale 4.2E, AR	3.97”
Big Cedar 2E, OK	3.72”	Fort Smith, AR	2.80”	Cloudy 6SSE, OK	2.70”
Charleston 1.7E, AR	2.58”	Van Buren 2.1NNW, AR	2.57”	Poteau 1ENE, OK	2.56”

Many Flash Flood Warnings were issued, with a Flash Flood Emergency issued for the Tulsa metro area. The City of Tulsa alone made 55 water-related emergency responses between 9 and 11pm. Widespread roads in the Tulsa metro area and suburbs had water over them, some to several feet, and numerous stalled cars. Homes were flooded in Sapulpa, OK, Catoosa, OK, and Beggs, OK, and likely elsewhere. Many roads, including state and U.S. highways, were flooded from around Okemah, OK, northeast across the Tulsa area into the northeast corner of the state. Many roadways were damaged or washed out (Figs. 53, 55 – 64).

Four fatalities occurred from the heavy rain on the 23rd. The first fatality was 44 year old Claremore Fire Captain Jason Farley, who fell into a rapidly flowing drain pipe on Archer Court at Highway 20 just west of Claremore, OK. Captain Farley had been part of the response to rescue people inside several duplexes when the water was high. As the rescues were wrapping up, he fell into the drain pipe. He helped rescue a woman and 6 small children. Quinton Spradley, 37 years old, drowned in a drainage ditch in Sapulpa, OK. He was found on the morning of the 24th. Finally, two 20 year old men, Cody Parrick and Benjamin Baber, were driving back home to Okmulgee after the Rocklahoma (Pryor, OK Mayes Co.) concert ended late on May 23, 2015, but never made it home. The men had been missing until June 7, 2015, when their vehicle was found submerged on the Oneta boat ramp on Lake Eufaula (McIntosh Co., about 42 miles south of their homes). The Medical Examiner determined the cause of death to be accidental drowning.

The heavy rain also led to widespread mainstem river flooding across eastern OK and west central AR. Of the 33 river forecast points in the HSA, 19 rose above flood stage, or if already flooded, rose higher from the additional rain through the 24th (Fig. 47). These included rivers in the following basins: Bird Creek, Polecat

Creek, Caney River, Verdigris River, Illinois River, Lower Arkansas River, Poteau River, Lee Creek, Deep Fork River, Kiamichi River, and the Red River. See the E3 Flood Stage Report for details and the preliminary hydrographs at the end of this report. Many of these points reached moderate and major flooding, and several remained above flood stage for a week or more. A couple of additional forecast points reached action stage, and a couple points rose but remained just below flood stage. Many of these points continued to rise later in the month due to additional rainfall and routed flow from upstream.

A large convective complex developed on the 25th in northern TX and southern OK, tracking eastward along and south of the Red River. As strong wind fields spread downstream of a mid-level wave, the storm complex remained organized and maintained rapid east-northeast development through the evening from southeast OK into northwest AR. Mesovortices developed along some of the linear convective segments, and four tornadoes occurred: EF2 from near Clayton to near Yanush; EF1 near Whitesboro; EF1 near Fanshawe; and EF2 from near Wister to near Panama. Rainfall was once again heavy across portions of east central and southeast OK. Along and south of I-44, rainfall totals ranged from around 0.25" to around 3" (Fig. 48). Without time for recovery from the last heavy rain, this additional rainfall resulted in more rapid-onset flash flooding and sustained or higher river flooding (Figs. 54, 52). The combined rain over the Poteau River basin on the 24th-25th caused major flooding along the river as indicated by the forecast points at Poteau and Panama. Wister Dam was holding back a record amount of water, and the downstream flooding would have been worse had the reservoir not been in place. This rain event led to the 4th and highest crest of the long duration moderate flood along the Kiamichi River near Antlers. According to USGS data, the 7-day average streamflow ending May 26, 2015 was well above normal (above the 90th percentile) compared to historical streamflow for that day of the year for almost all of the river gages in eastern OK and northwest AR. All of the gages with available data along and south of I-40 in the HSA measured the highest 7-day average streamflow on record for May 26 (Fig. 51).

Lake levels continued to rise after all of the rain from the 22nd- 25th. According to data from the USACE Tulsa District, Wister Lake set a new pool of record late on the 25th, when the pool elevation peaked at 508.35' (previous record was 508.22'). Hugo Lake also reached its new pool of record late on the 25th, with a pool elevation of 440.11' (previous record 440.05'). Inflow into Eufaula Lake reached 250,000 cfs on the 24th, and the lake reached its highest pool level on the 26th. USACE Tulsa District pie charts of flood control pools on May 26, 2015 for the Lower Arkansas River Basin and the Lower Red River Basin show just how full the system was, with all reservoirs operating in the flood pool (Figs. 49, 50). Most of the flood pools were more than half way full, with several over 70% full.

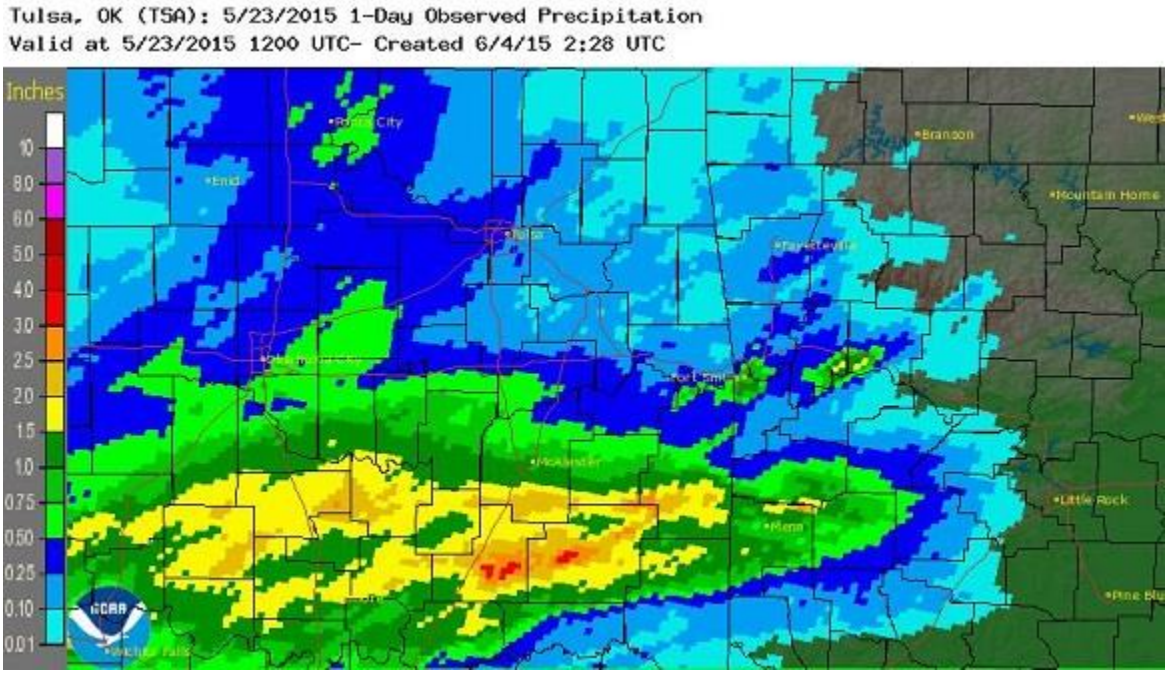


Fig. 40. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/23/2015

Tulsa, OK (TSA): 5/24/2015 1-Day Observed Precipitation
Valid at 5/24/2015 1200 UTC- Created 6/4/15 3:17 UTC

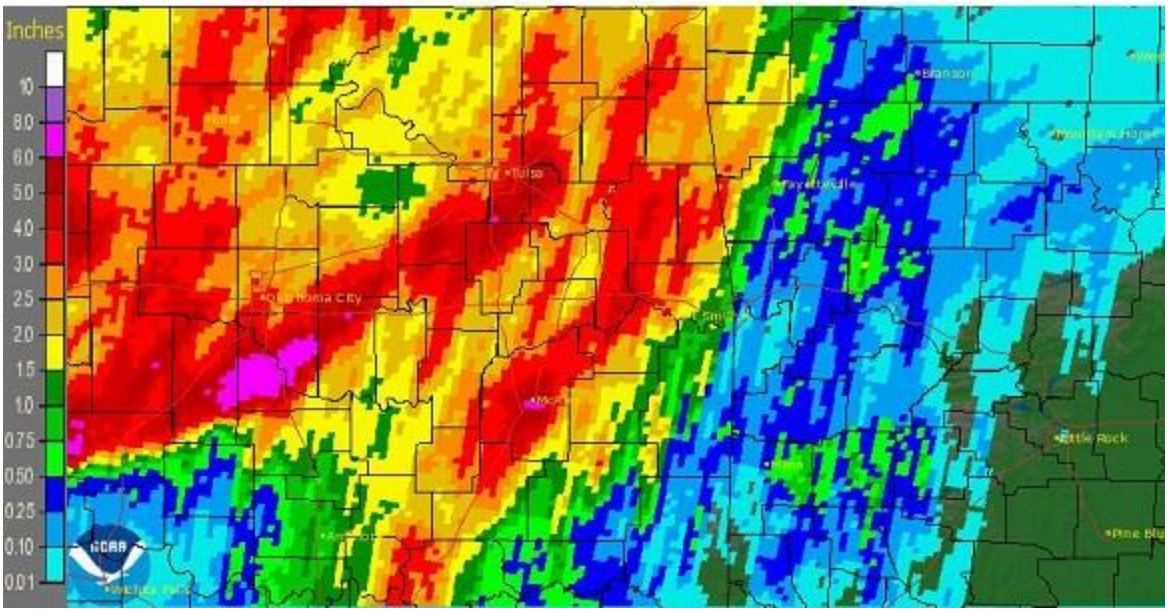


Fig. 41. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/24/2015

Tulsa, OK (TSA): 5/25/2015 1-Day Observed Precipitation
Valid at 5/25/2015 1200 UTC- Created 6/4/15 4:05 UTC

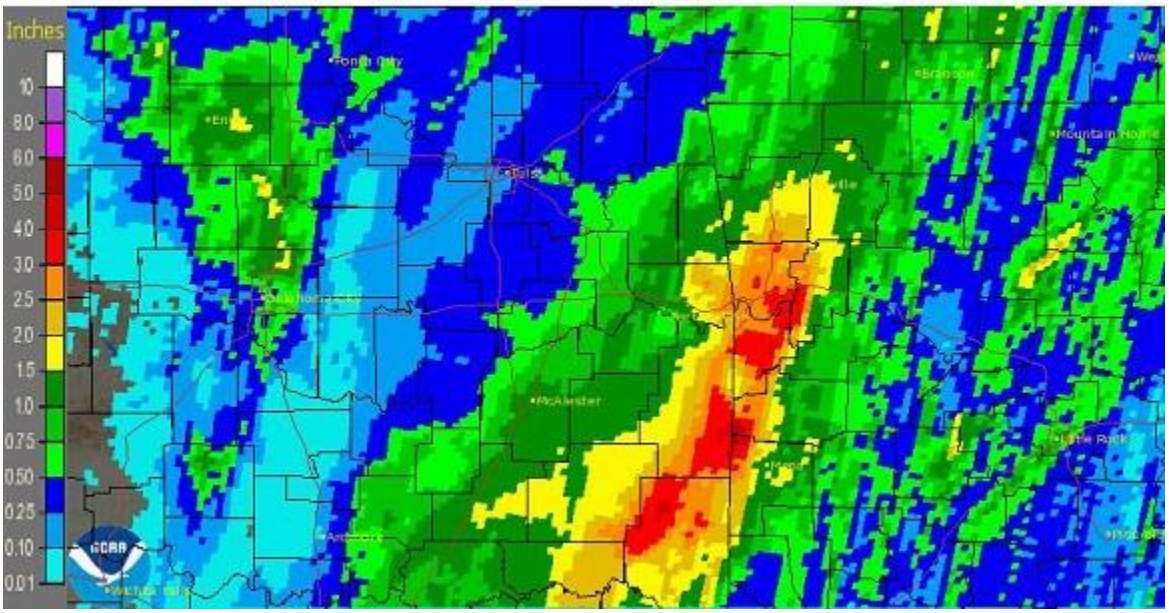


Fig. 42. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/25/2015

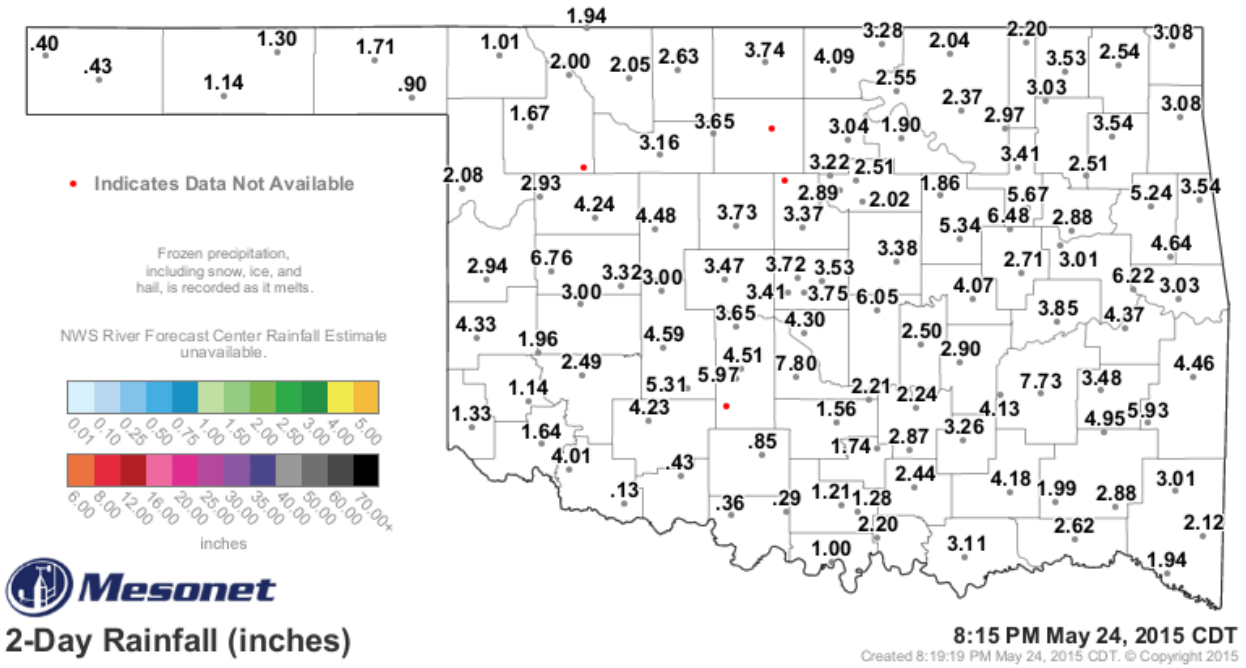


Fig. 43. 48-hour Observed Rainfall from the Oklahoma Mesonet ending at 8:15pm CDT 05/24/2015

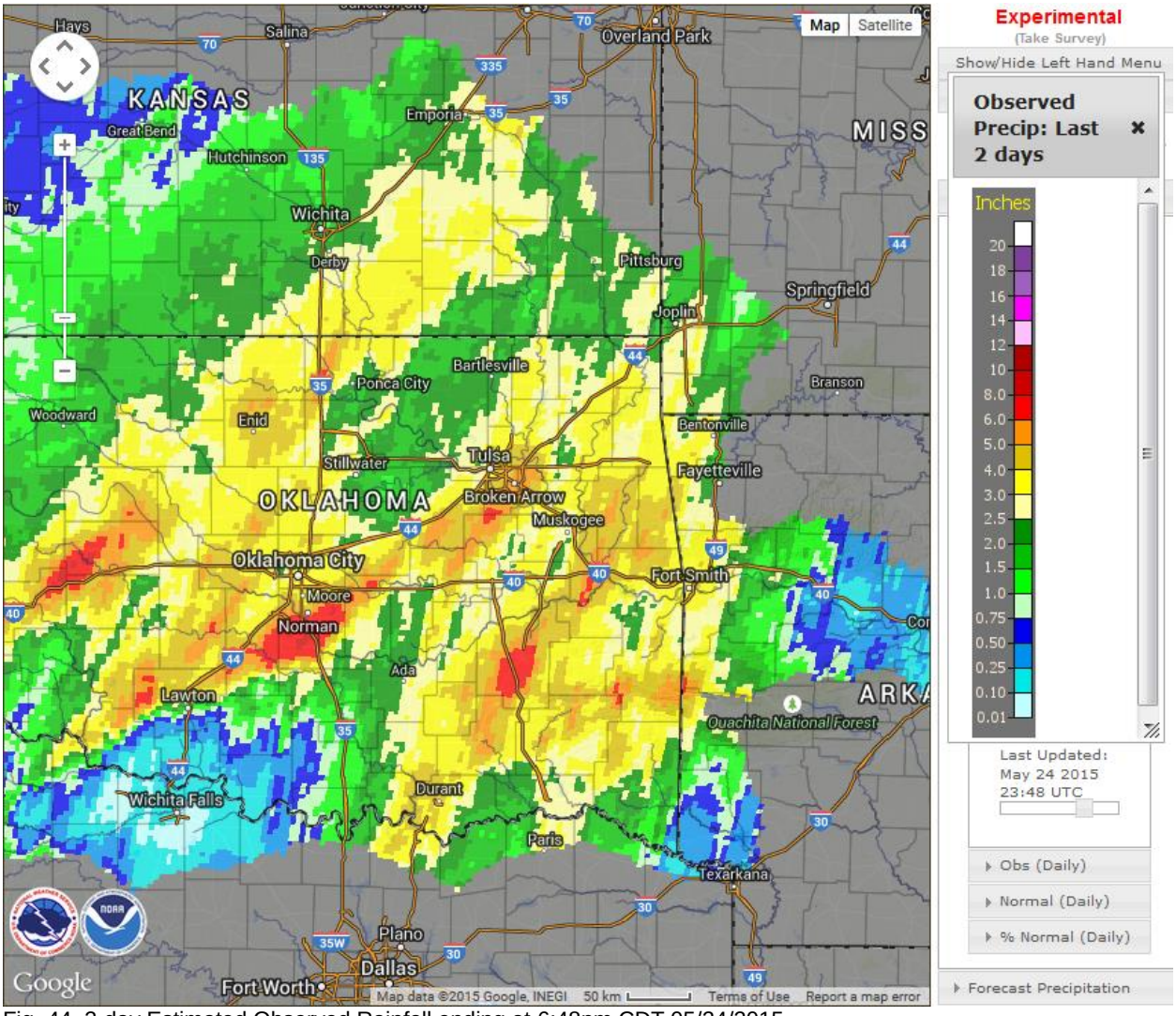


Fig. 44. 2-day Estimated Observed Rainfall ending at 6:48pm CDT 05/24/2015

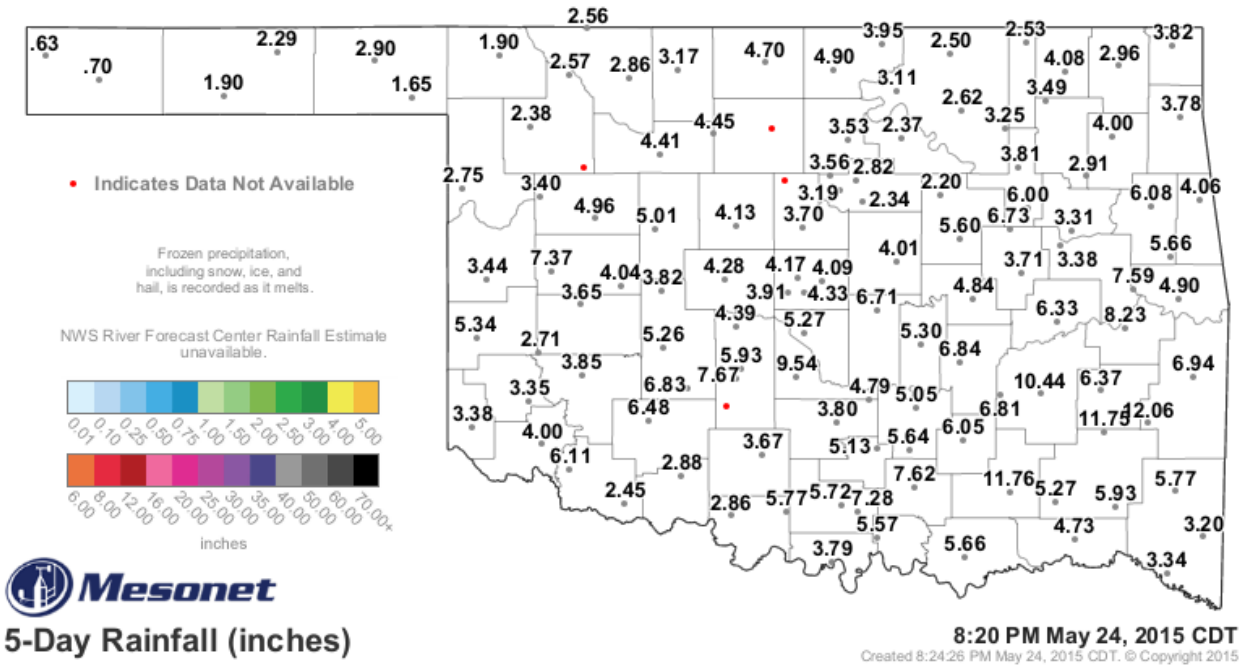


Fig. 45. 5-day Observed Rainfall from the Oklahoma Mesonet ending at 8:20pm CDT 05/24/2015

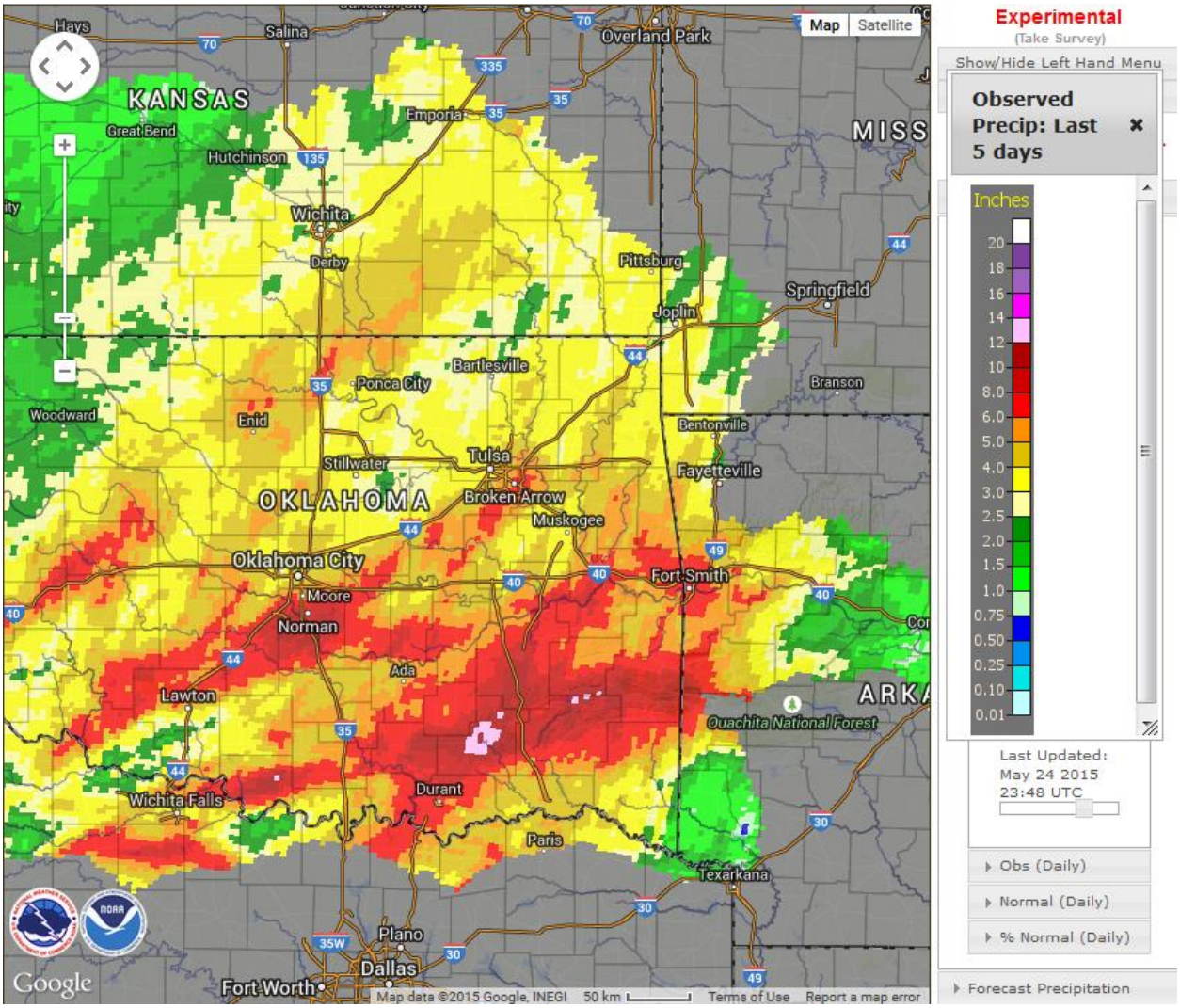


Fig. 46. 5-day Estimated Observed Rainfall ending at 6:48pm CDT 05/24/2015

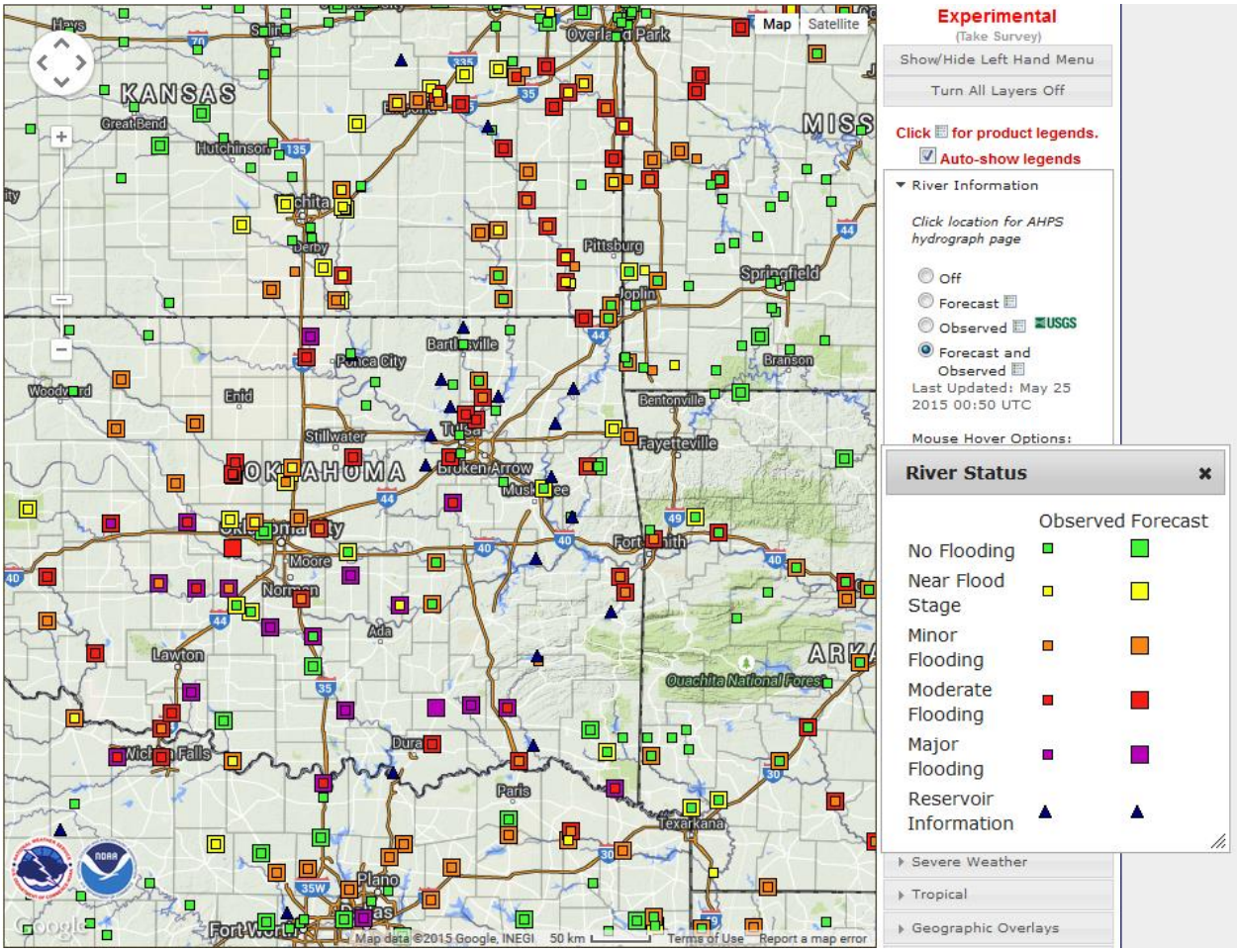


Fig. 47. Observed and forecast flood levels as of 7:50pm CDT 05/24/2015

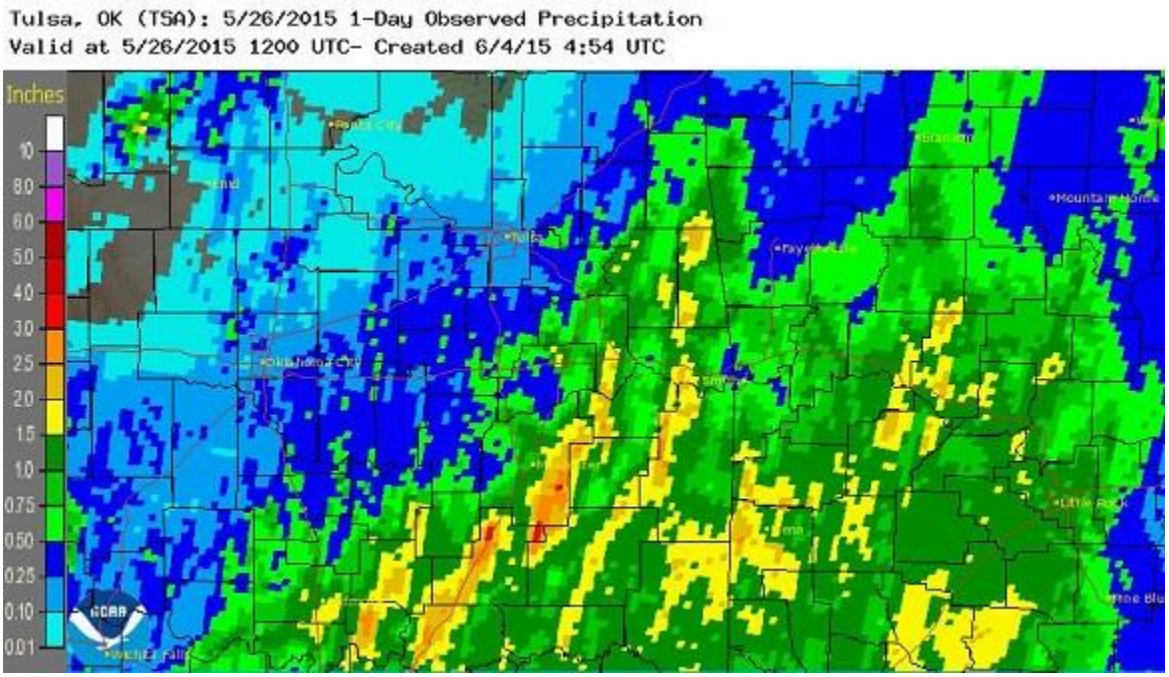
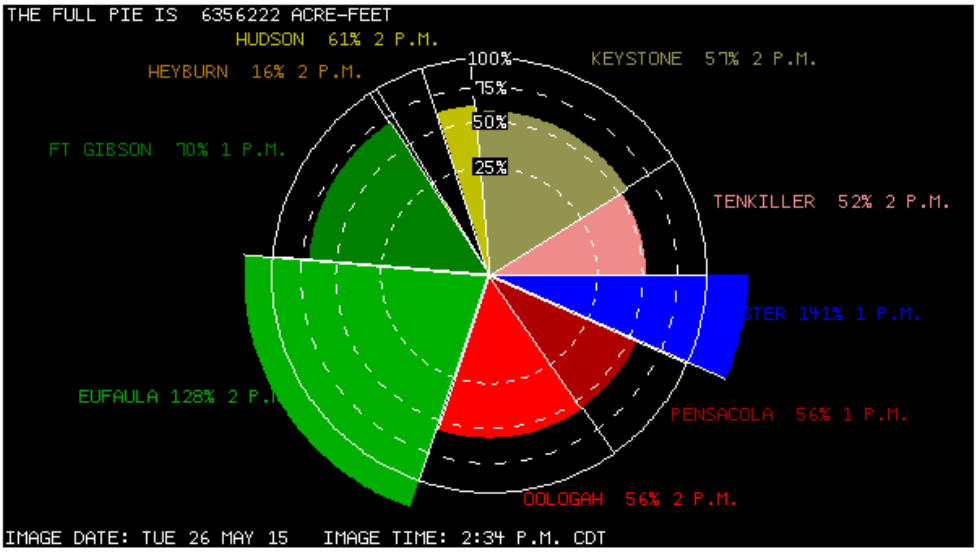


Fig. 48. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/26/2015

LOWER ARKANSAS RIVER BASIN

Pie Chart of Flood Control Pools

Click on a lake name to get graphical data.



The size of the pie slice is proportionate to the lake's share of the total flood control storage in the Lower Arkansas River basin.

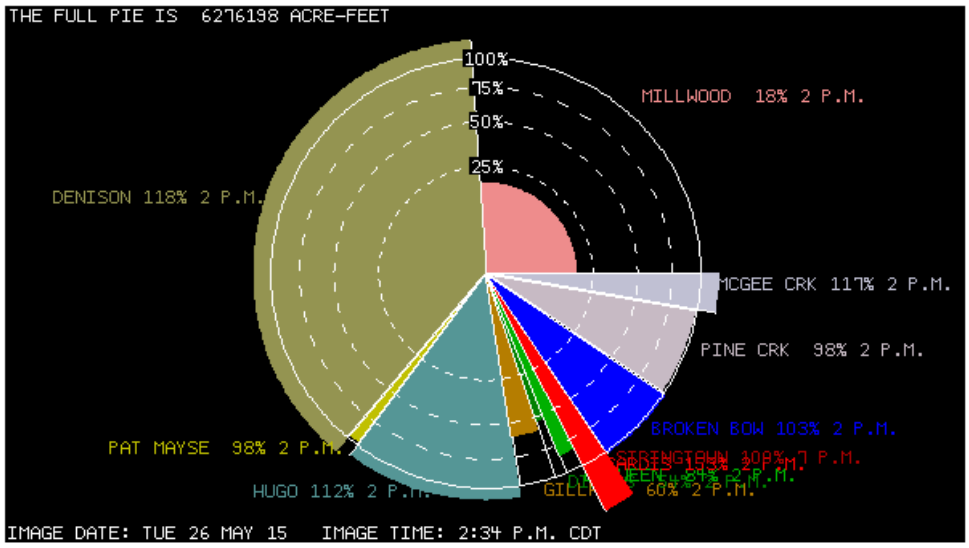
The radius of the pie slice indicates the percent of the lake's flood control storage that is filled at the time indicated.

Fig. 49. USACE Tulsa District pie chart of flood control pools for the Lower Arkansas River Basin at 2:34pm CDT 5/26/2015.

LOWER RED RIVER BASIN

Pie Chart of Flood Control Pools

Click on a lake name to get graphical data.



The size of the pie slice is proportionate to the lake's share of the total flood control storage in the Lower Red River basin.

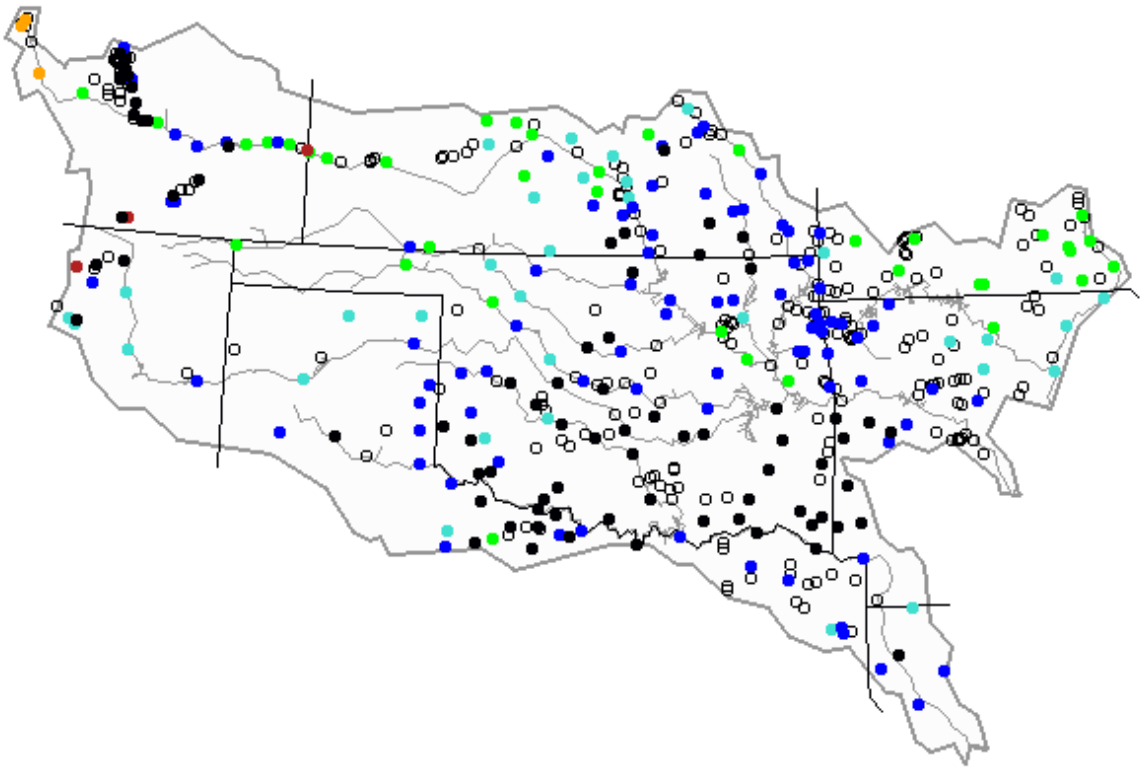
The radius of the pie slice indicates the percent of the lake's flood control storage that is filled at the time indicated.

Fig. 50. USACE Tulsa District pie chart of flood control pools for the Lower Red River Basin at 2:34pm CDT 5/26/2015.

Map of 7-day average streamflow compared to historical streamflow for the day of the year (Arkansas-White-Red)

State or 11 Arkansas-White-Red All Days

Tuesday, May 26, 2015



USGS

Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

High = the estimated streamflow is the highest value ever measured for the day of the year.

Fig. 51. USGS map of 7-day average streamflow compared to historical streamflow for the day of the year, 5/26/2015.

Fig. 52. ODOT: This rock slide impacted the safety of the road bed of US-259 about five miles south of SH-63 in LeFlore County on May 25, 2015. http://www.ok.gov/odot/Flooding2015.html

Fig. 53. ODOT: US-271 near Clayton closed May 23, 2015, after heavy rains and erosion caused extensive cracking in the highway. Repairs, which are designed to slow further erosion, are estimated at $500,000. http://www.ok.gov/odot/Flooding2015.html

Fig. 54. ODOT: SH-3 west of Rattan at Rattan Landing was under water May 25, 2015, in Pushmataha County. http://www.ok.gov/odot/Flooding2015.html

Fig. 55. Flooding in Sapulpa at Park St. and Washington where a car is submerged and two homes were evacuated on May 23, 2015. JOEY JOHNSON/ for the Tulsa World

Flooding is seen in Sapulpa at Park Street and Washington Avenue, where a car is submerged and two homes were evacuated Saturday. JOEY JOHNSON/ for the Tulsa World

Fig. 56.

Fig. 57. Woodland Acres Bixby, OK via Mike Collier Ch. 8 Twitter May 24, 2015

Fig. 58. “Sand Springs Cinemark Theater last night” - Jeremy Allen via Mike Collier Ch. 8 twitter May 24, 2015

Fig. 59. Locust Grove, OK via Verla Fletcher Twitter May 24, 2015

Fig. 60. Bixby, OK via Sarah Armstrong Twitter May 24, 2015

Fig. 61. Cole Strang Road 5 miles east of Pryor, OK via Will Carroll Facebook May 25, 2015

Fig. 62. Haikey Creek Park in Bixby, OK via Mike Collier Ch. 8 Twitter May 24, 2015

Fig. 63. Part of 61st Street between 209th and 193rd in Broken Arrow, OK was washed out by flood water. Fox23 5/24/2015

Fig. 64. Hwy 3 closed between Antlers and Rattan at the Kiamichi River around 6 p.m. 5/26/2015. USACE Tulsa District

Several upper-level waves moved over the region within the southwest flow aloft, bringing additional rounds of showers and thunderstorms. First, elevated storms moved across northeast OK during the afternoon of the 26th. Convection then developed during the evening and overnight hours of the 26th the outflow boundary from the earlier storms, affecting portions of northeast OK and northwest AR. Most of the scattered storms affected locations from Stillwater to Tulsa to Tahlequah to Sallisaw. This area received around 0.25" to near 2" of rain, with the highest totals across southern Tulsa and Wagoner Counties. Lighter rain fell north of this line. Minor street flooding was reported in Glenpool. Some afternoon storms on the 27th brought around 0.25" to around 1" of rain to portions of Benton, far northeast Washington, Madison, and far southern Carroll Counties in northwest AR.

During the early morning hours of the 28th, a convective complex was moving east across south central OK. Ahead of the main line, scattered storms developed in southeast OK. This activity brought 0.10" to near 1.5" to portions of McIntosh, Pittsburg, and Pushmataha Counties before being taken over by the main line. Additional overnight storms over north central OK moved east into northeast OK during the early morning of the 28th, bringing some light rain, around 0.50" or less, to portions of Osage, Pawnee, and Washington Counties. Eastern Kay Co. received the most rain, getting 0.75" to near 2.5". The MCS continued to move east across eastern OK and into western AR through the morning of the 28th. All of eastern OK and the AR counties that border OK had widespread rain from the MCS. This rain once again led to rapid-onset flash flooding. Sand bagging was required in Talihina to protect some businesses. Numerous roads throughout the region were closed due to high water. Three tornadoes also occurred within the line of storms on the 28th: EF1 near Talihina; EF1 near Highfill; and EF0 near Bentonville. Another MCS developed over northern TX/southern OK and tracked east along the Red River late on the 28th into the early morning of the 29th. Largely meridional upper flow aided in the northward expansion of the precipitation. High precipitable water values near 2" again supported heavy rain. This MCS once again brought heavy rain to southeast OK and scattered rain to eastern OK and counties along the OK/AR state line. 24-hr rainfall totals by 7am on the 29th ranged from around 0.50" to around 4" (Fig. 65). A large area of McIntosh, Pittsburg, and Latimer Counties had the highest totals of 2"-4" of rain. The highest 24-hr rainfall totals ending at 7am CDT 7/29/2015 were 4.02" measured 3.9NNE of Hartshorne, OK and 3.27" measured 5W of Eufaula, OK. Isolated locations elsewhere in eastern OK saw 1.5"-2.5" of rain. This rainfall led to additional moderate flood crests along the Neosho River near Commerce. The Kiamichi River near Antlers had finally fallen below flood stage, but this rainfall caused the river to rise once again to moderate flood levels.

A few storms lingered through the early morning of the 29th, with renewed convection occurring over eastern OK by late-morning. Widespread showers and thunderstorms, including supercells, moved east through the afternoon and late evening hours. Three tornadoes also occurred on the afternoon of the 29th: EF1 near Webbers Falls; EF0 near Gore; and EF1 from near Spavinaw to near Eucha. Precipitable water values remained at 1.5"-2", yielding more heavy rain. Most of eastern Kay, Pawnee, and Osage Counties saw little to no rain, while elsewhere, rainfall totals ranged from 0.25" to 3" (Fig. 66). Much of the affected area saw 0.75" to 2" of rain from these storms. 24-hour rainfall measurements ending at 7am CDT 7/30/2015 included: 3.08" in Porter, OK; 3.04" 5SE of Okmulgee, OK; and 2.57" in Antlers, OK. Significant flooding once again occurred, with extensive street flooding and water rescues in and around Pryor, OK and evacuations from homes in Wagoner. Significant street flooding was also reported in the Tulsa and Fort Smith areas, as well as numerous other towns in eastern OK and northwest AR. The Arkansas River continued to rise with this additional rainfall, resulting in multiple crests of major flooding at Van Buren and Ozark Lock and Dam, and moderate flooding near Muskogee. Lee Creek near Van Buren also experienced two crests of moderate flooding, and the Kiamichi River near Antlers had moderate flooding as well. According to data from the USACE Tulsa District, water likely flowed over the spillway briefly at Sardis Lake from late on the 29th until early on the 31st.

Once again, an MCS developed over northern TX and tracked east-northeast along the Red River in far southern OK. By the time it reached Choctaw Co. on the 30th, most of the rain had dissipated north of the Red River. Choctaw Co. got 0.10"-0.25" of rain; however, upstream along the Red River, south central OK received 0.75" to 2" of rain. This water flowed eastward, and combined with the rain over the previous couple of days, caused the Red River at Arthur City, which was already experiencing major flooding, to climb even higher. The river crested at 36.99 feet, the second highest crest on record since the upstream Lake Texoma was impounded.

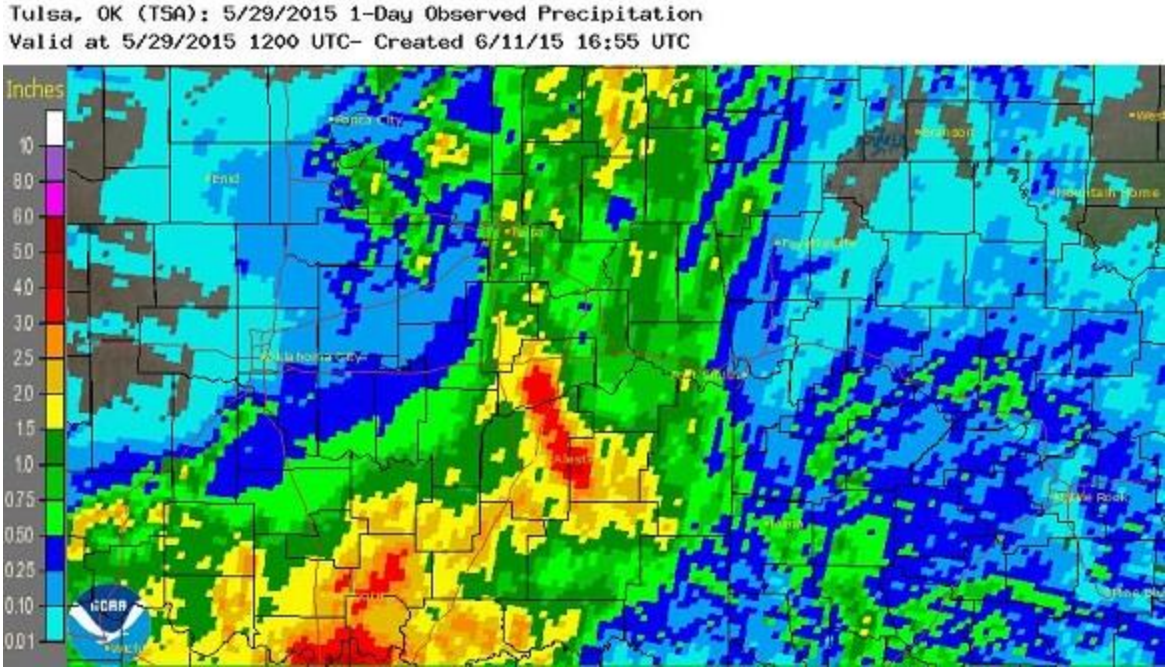


Fig. 65. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/29/2015

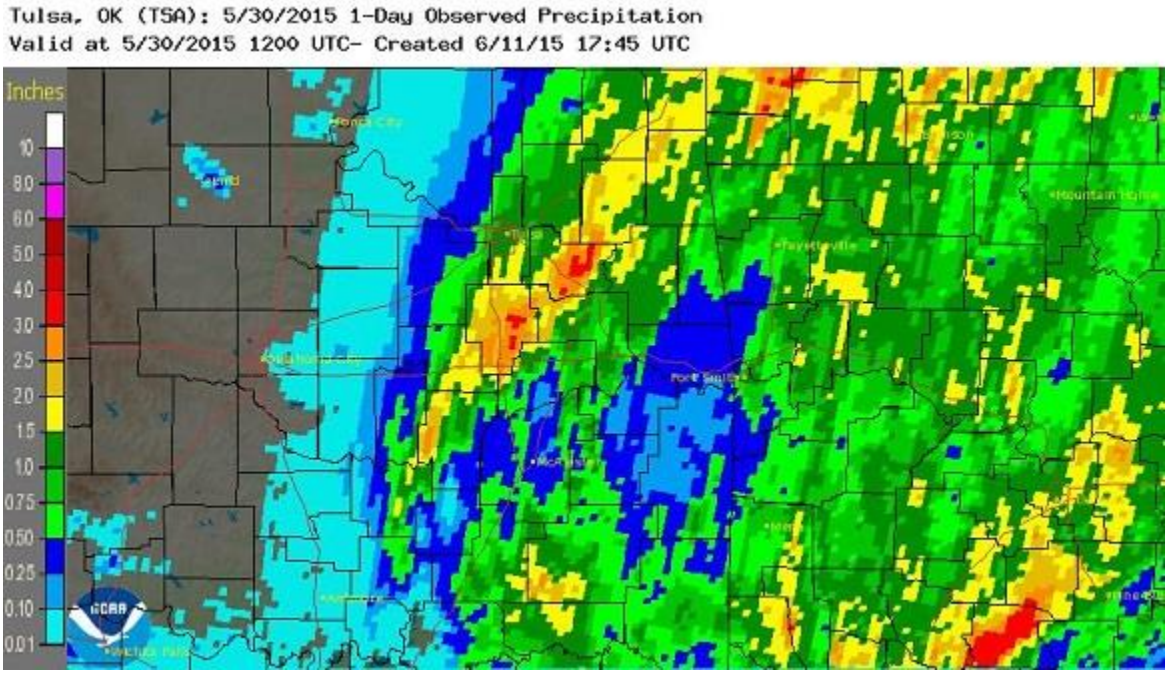


Fig. 66. 24-hour Estimated Observed Rainfall ending at 7am CDT 05/30/2015

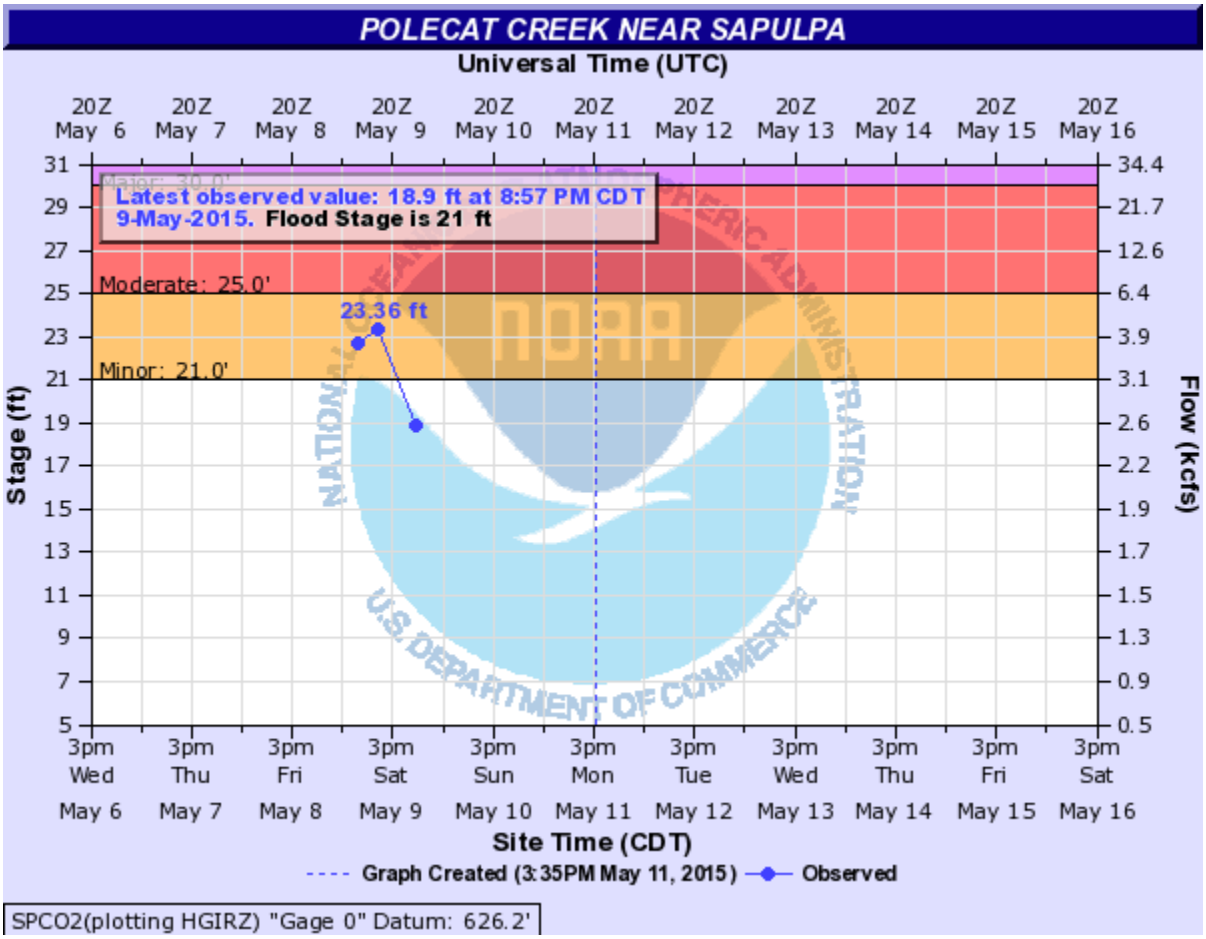
Written by:
Nicole McGavock
Service Hydrologist
WFO Tulsa

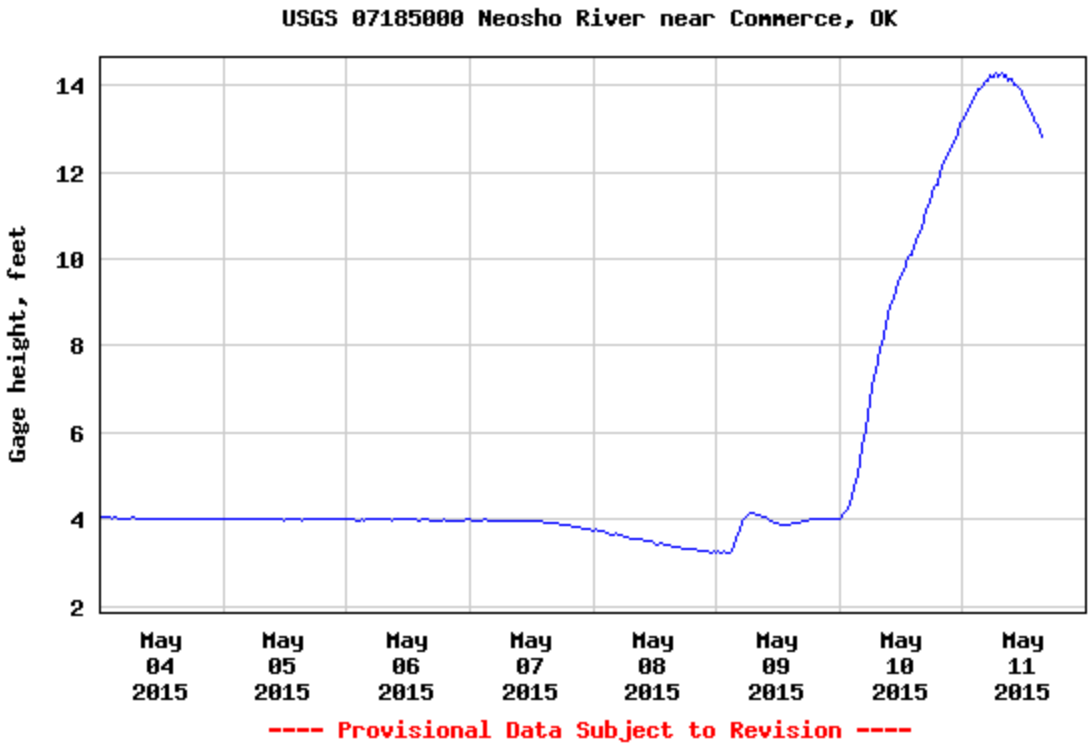
Products issued in May 2015:

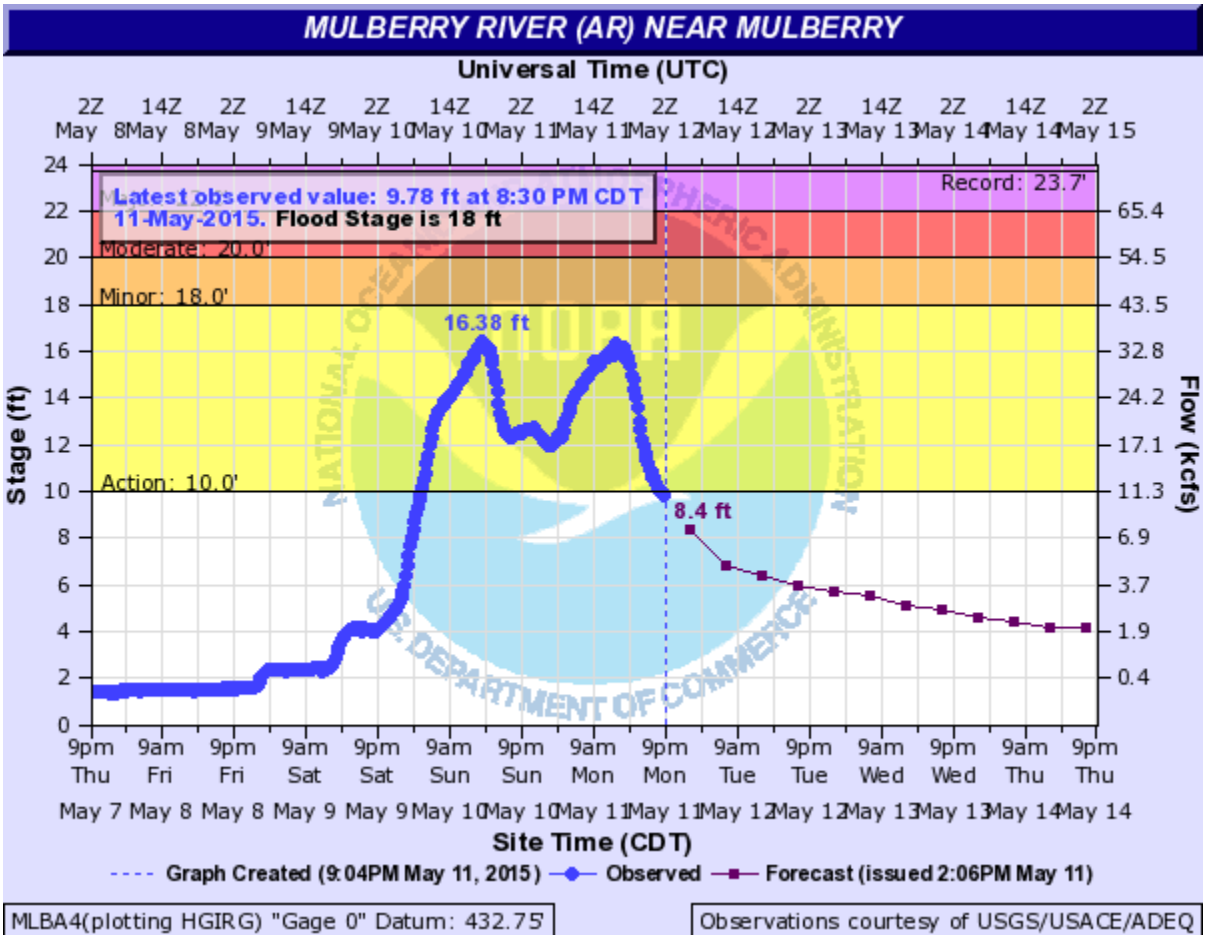
*MLBA4 and OZGA4 transferred to NWS Tulsa HSA February 5, 2014
*Mixed case River Flood products began July 31, 2013

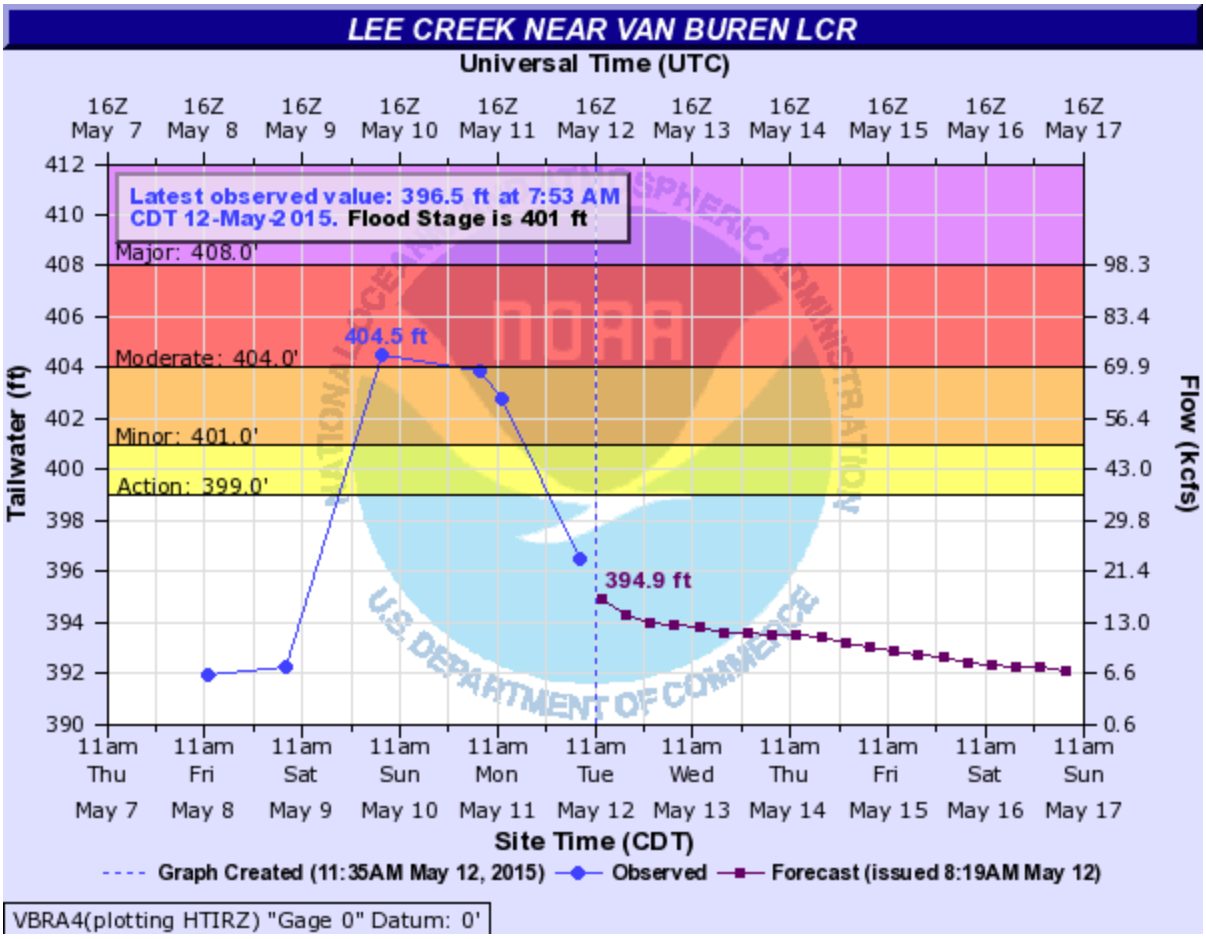
72 Flash Flood Warnings (FFW)
66 Flash Flood Statements (FFS)
7 Flash/Areal Flood Watches (FFA) (32 Watch FFA CON/EXT/EXA/EXB/CAN)
51 Urban and Small Stream Advisories (FLS)
30 Areal Flood Warnings (FLW)
2 Areal Flood Statements (FLS)
78 River Flood Warnings (FLW)
527 River Flood Statements (FLS)
12 River Flood Advisories (FLS) (39 Advisory FLS CON/EXT/CAN)
0 River Flood Watches (FFA) (0 Watch FFA CON/EXT/CAN)
0 River Statements (RVS)
0 Hydrologic Outlooks (ESF)
0 Drought Information Statements (DGT)

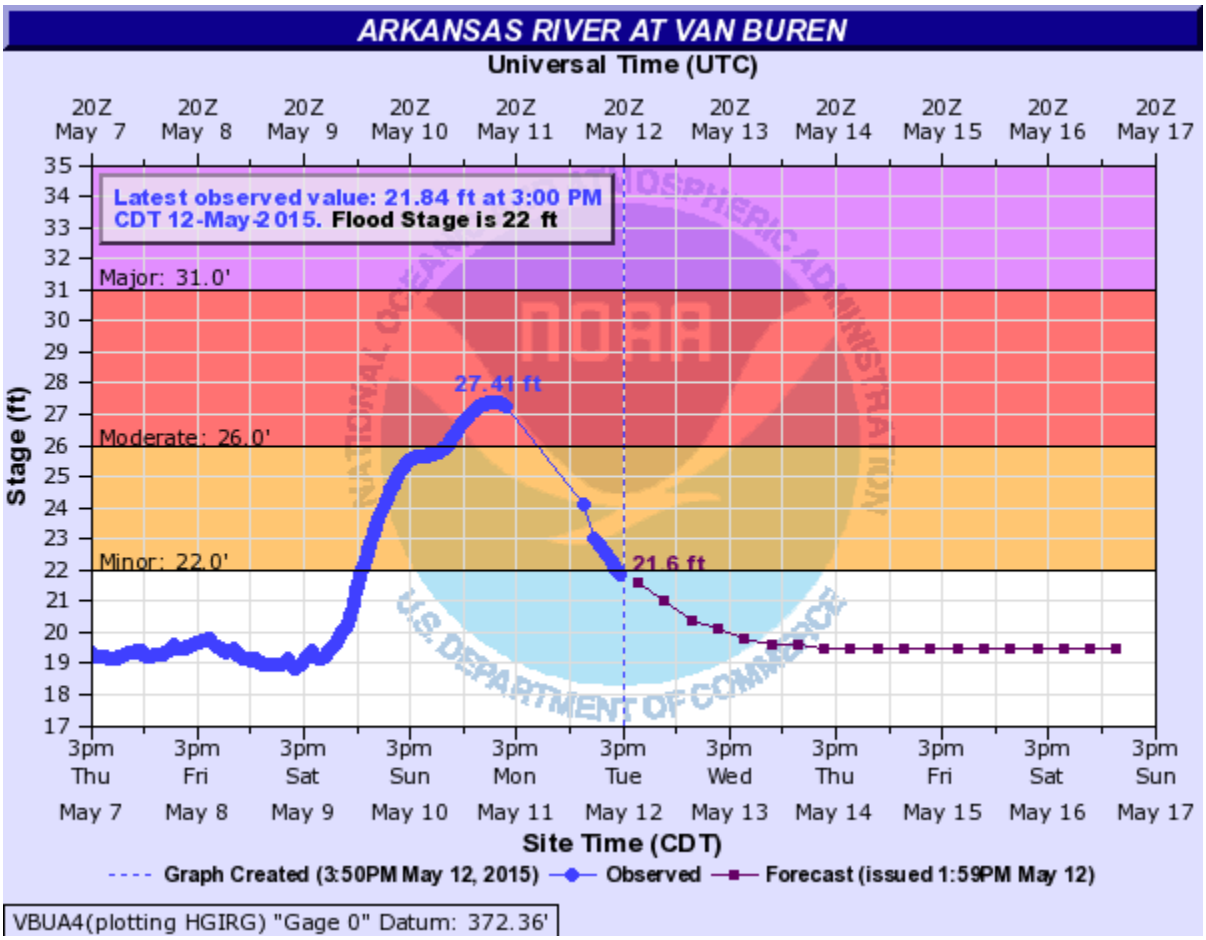
Preliminary Hydrographs:

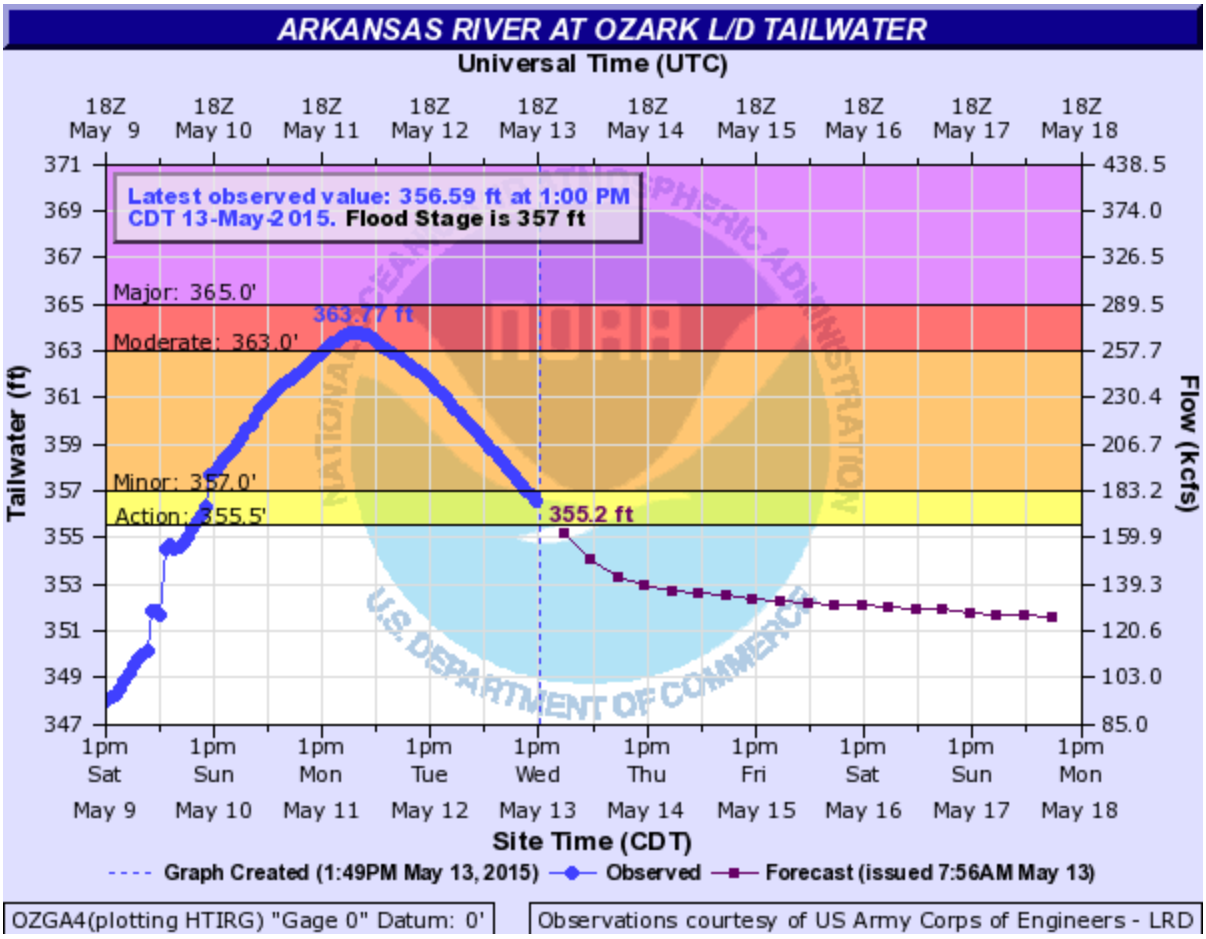


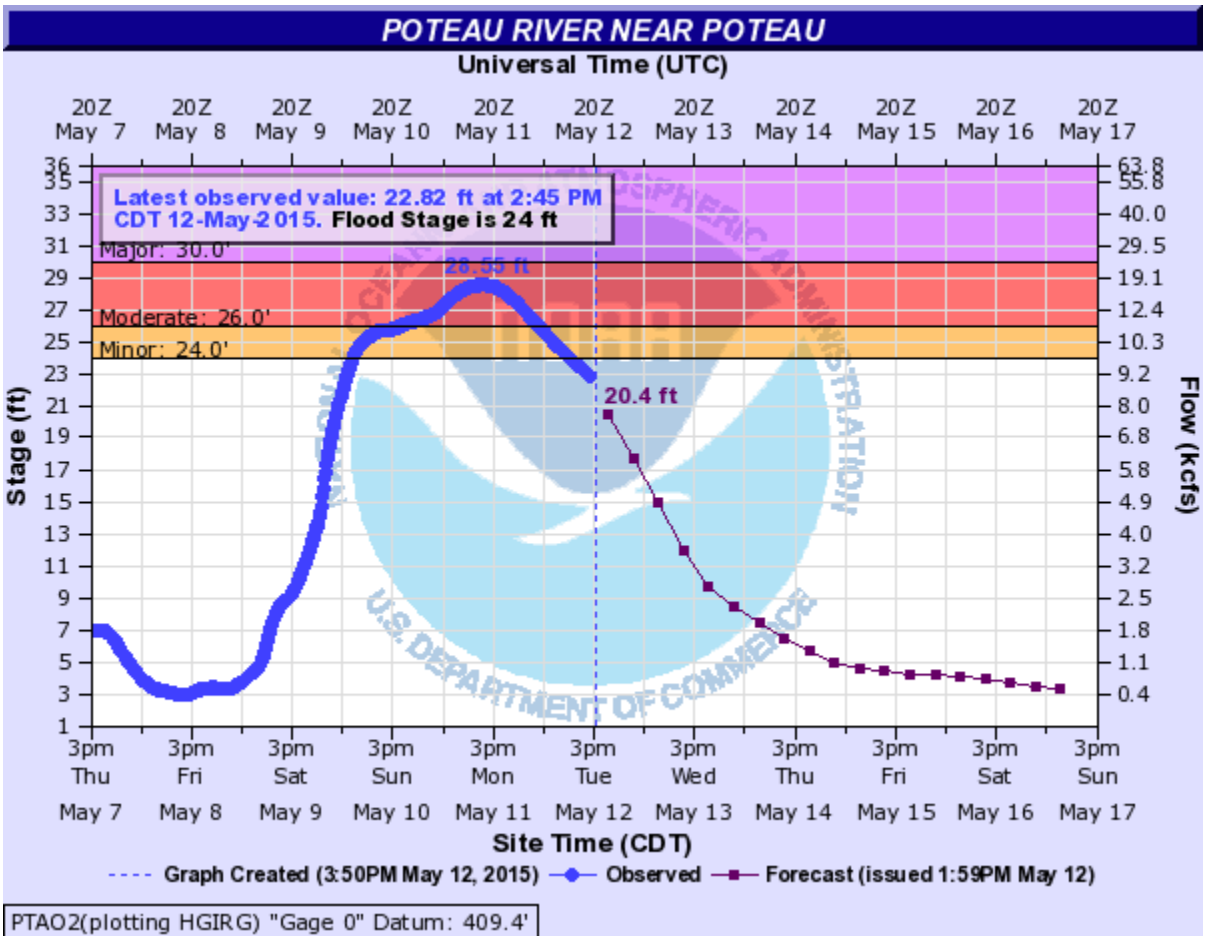

USGS 07185000 Neosho River near Commerce, OK
Gage height, feet
14
12
10
8
6
4
2
May 04 2015
May 05 2015
May 06 2015
May 07 2015
May 08 2015
May 09 2015
May 10 2015
May 11 2015
---- Provisional Data Subject to Revision ----

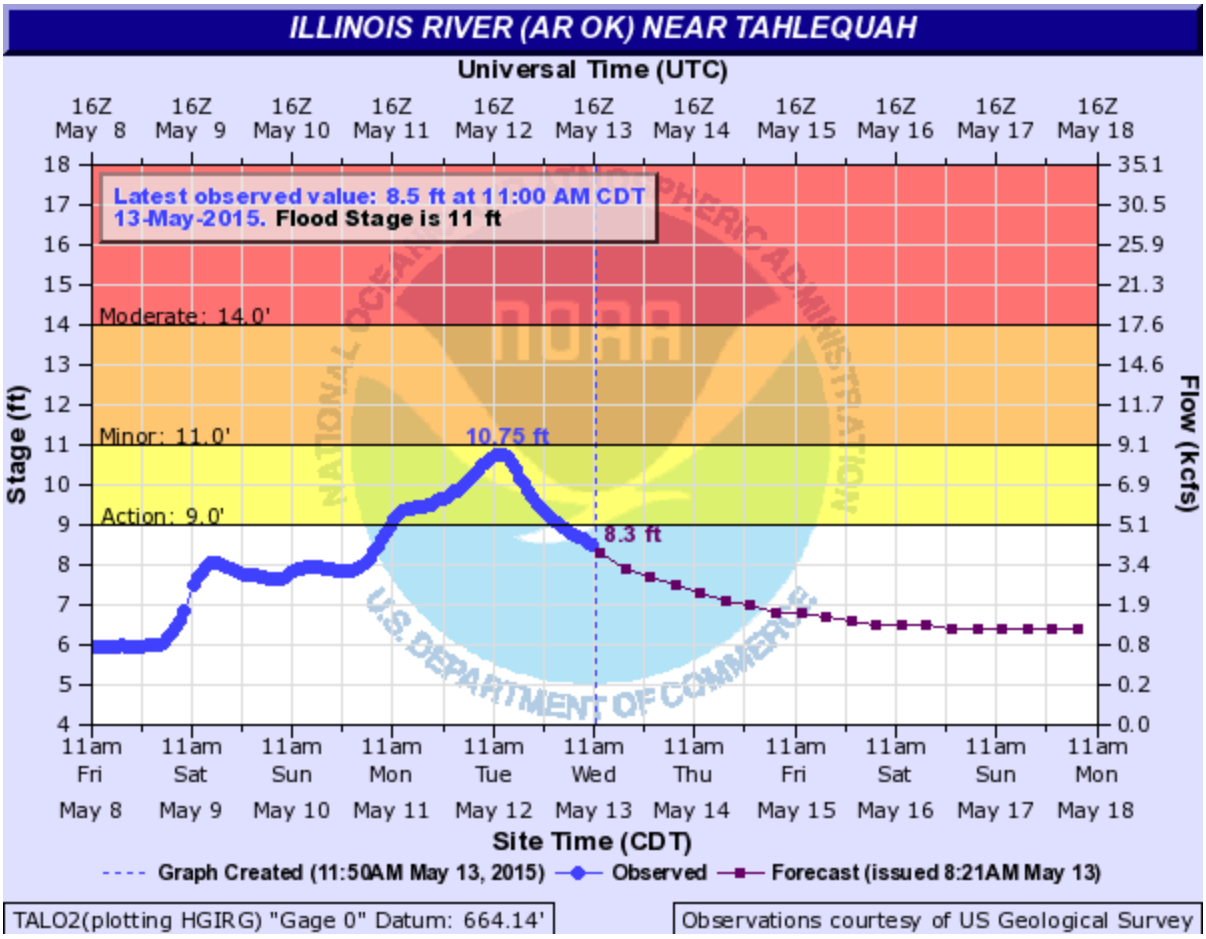

MULBERRY RIVER (AR) NEAR MULBERRY
Universal Time (UTC)
Latest observed value: 9.78 ft at 8:30 PM CDT 11-May-2015. Flood Stage is 18 ft
Record: 23.7'
Moderate: 20.0'
Minor: 18.0'
Action: 10.0'
16.38 ft
8.4 ft
Stage (ft)
Flow (kcfs)
Site Time (CDT)
Graph Created (9:04PM May 11, 2015)
Observed
Forecast (issued 2:06PM May 11)
MLBA4(plotting HGIRG) "Gage 0" Datum: 432.75'
Observations courtesy of USGS/USACE/ADEQ

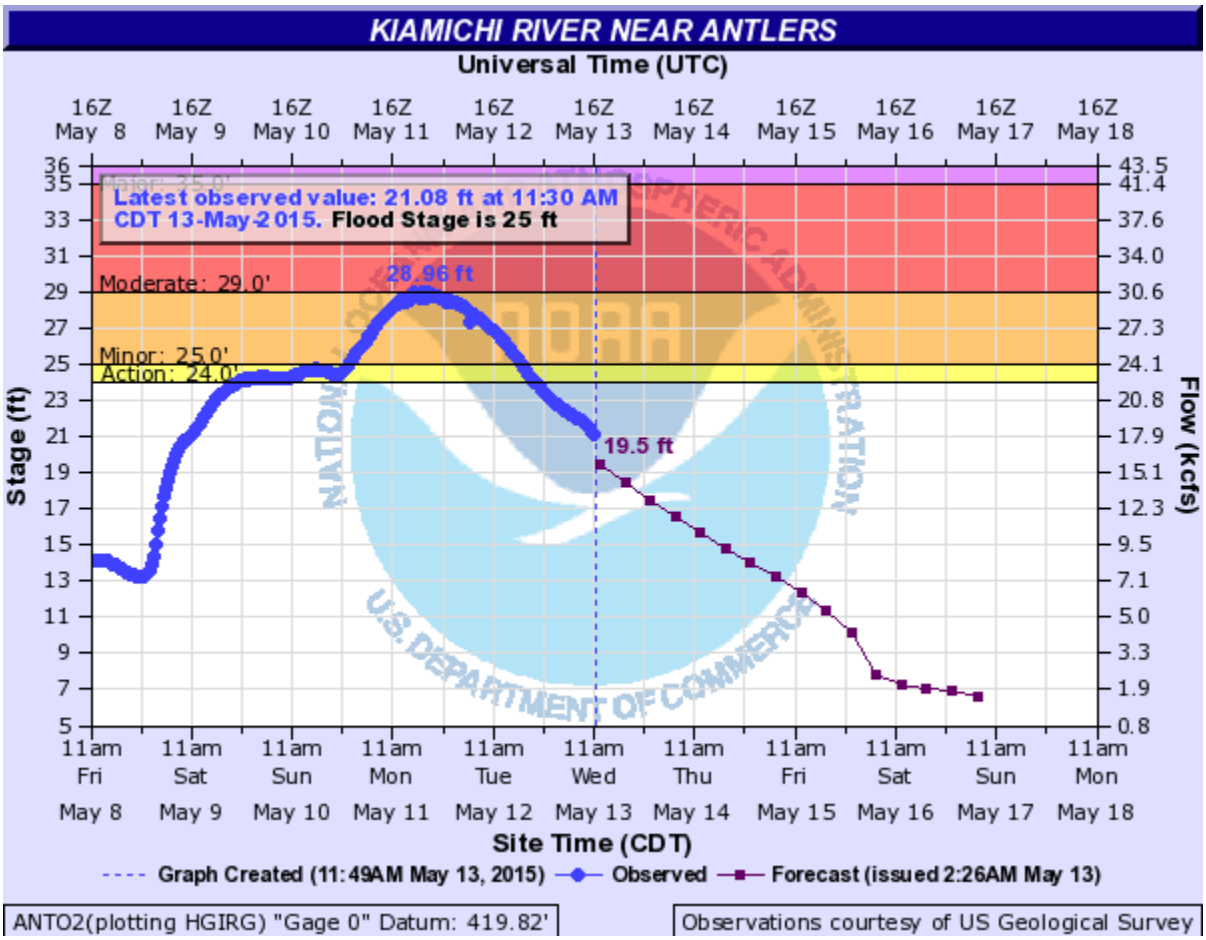

LEE CREEK NEAR VAN BUREN LCR
Universal Time (UTC)
16Z May 7
16Z May 8
16Z May 9
16Z May 10
16Z May 11
16Z May 12
16Z May 13
16Z May 14
16Z May 15
16Z May 16
16Z May 17
Latest observed value: 396.5 ft at 7:53 AM CDT 12-May-2015. Flood Stage is 401 ft
Major: 408.0'
Moderate: 404.0'
Minor: 401.0'
Action: 399.0'
404.5 ft
394.9 ft
Tailwater (ft)
Flow (kcfs)
412
410
408
406
404
402
400
398
396
394
392
390
98.3
83.4
69.9
56.4
43.0
29.8
21.4
13.0
6.6
0.6
11am Thu May 7
11am Fri May 8
11am Sat May 9
11am Sun May 10
11am Mon May 11
11am Tue May 12
11am Wed May 13
11am Thu May 14
11am Fri May 15
11am Sat May 16
11am Sun May 17
Site Time (CDT)
Graph Created (11:35AM May 12, 2015)
Observed
Forecast (issued 8:19AM May 12)
VBRA4(plotting HTIRZ) "Gage 0" Datum: 0'

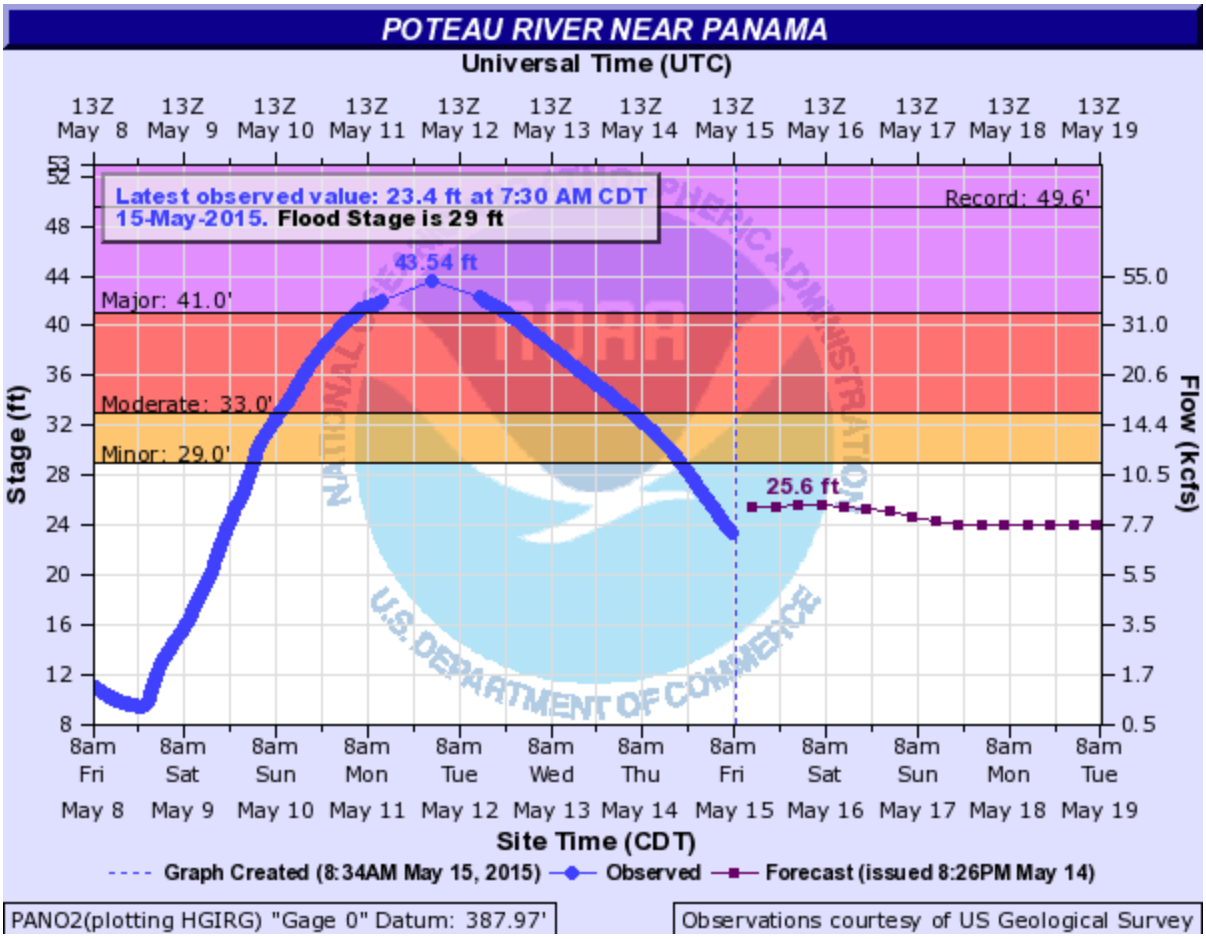

ARKANSAS RIVER AT VAN BUREN
Universal Time (UTC)
20Z May 7
20Z May 8
20Z May 9
20Z May 10
20Z May 11
20Z May 12
20Z May 13
20Z May 14
20Z May 15
20Z May 16
20Z May 17
Latest observed value: 21.84 ft at 3:00 PM CDT 12-May-2015. Flood Stage is 22 ft
Major: 31.0'
Moderate: 26.0'
Minor: 22.0'
27.41 ft
21.6 ft
Stage (ft)
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
3pm Thu May 7
3pm Fri May 8
3pm Sat May 9
3pm Sun May 10
3pm Mon May 11
3pm Tue May 12
3pm Wed May 13
3pm Thu May 14
3pm Fri May 15
3pm Sat May 16
3pm Sun May 17
Site Time (CDT)
Graph Created (3:50PM May 12, 2015)
Observed
Forecast (issued 1:59PM May 12)
VBUA4(plotting HGIRG) "Gage 0" Datum: 372.36'

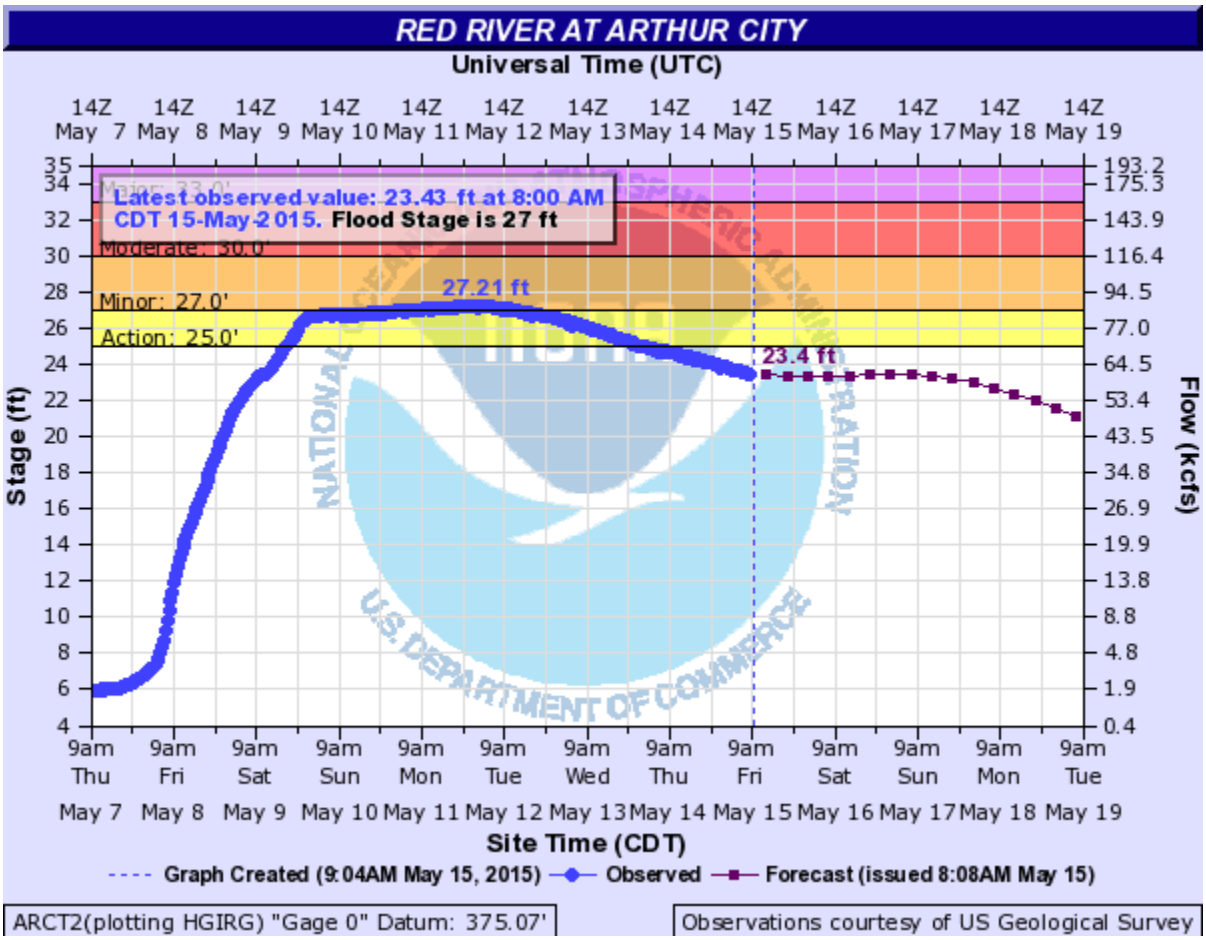

ARKANSAS RIVER AT OZARK L/D TAILWATER
Universal Time (UTC)
18Z May 9
18Z May 10
18Z May 11
18Z May 12
18Z May 13
18Z May 14
18Z May 15
18Z May 16
18Z May 17
18Z May 18
Latest observed value: 356.59 ft at 1:00 PM CDT 13-May-2015. Flood Stage is 357 ft
Major: 365.0'
Moderate: 363.0'
Minor: 357.0'
Action: 355.5'
363.77 ft
355.2 ft
Tailwater (ft)
Flow (kcfs)
371
369
367
365
363
361
359
357
355
353
351
349
347
438.5
374.0
326.5
289.5
257.7
230.4
206.7
183.2
159.9
139.3
120.6
103.0
85.0
1pm Sat May 9
1pm Sun May 10
1pm Mon May 11
1pm Tue May 12
1pm Wed May 13
1pm Thu May 14
1pm Fri May 15
1pm Sat May 16
1pm Sun May 17
1pm Mon May 18
Site Time (CDT)
Graph Created (1:49PM May 13, 2015)
Observed
Forecast (issued 7:56AM May 13)
OZGA4(plotting HTIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers - LRD

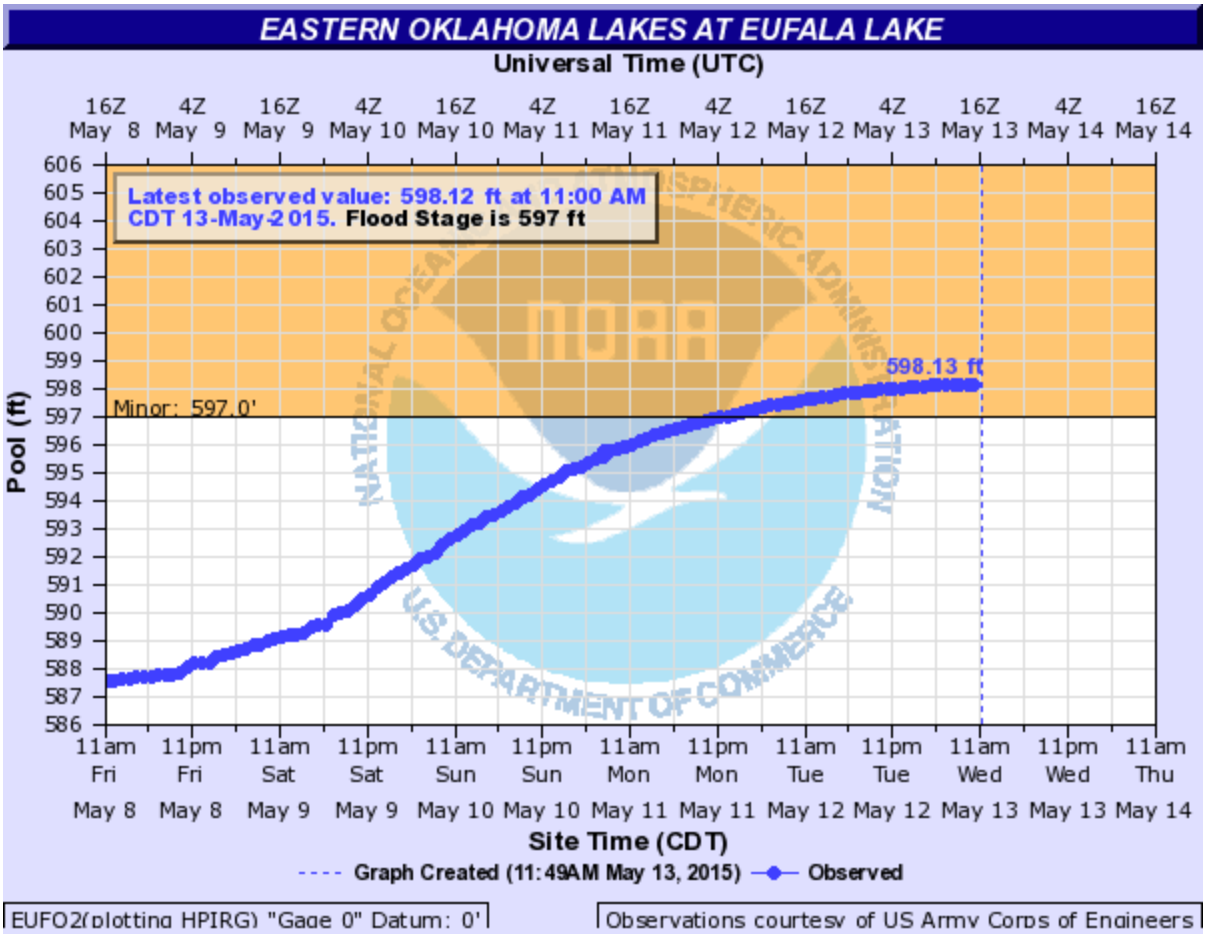

POTEAU RIVER NEAR POTEAU
Universal Time (UTC)
20Z May 7
20Z May 8
20Z May 9
20Z May 10
20Z May 11
20Z May 12
20Z May 13
20Z May 14
20Z May 15
20Z May 16
20Z May 17
Latest observed value: 22.82 ft at 2:45 PM CDT 12-May-2015. Flood Stage is 24 ft
Major: 30.0'
Moderate: 26.0'
Minor: 24.0'
28.55 ft
20.4 ft
Stage (ft)
Flow (kcfs)
36
35
33
31
29
27
25
23
21
19
17
15
13
11
9
7
5
3
1
63.8
55.8
40.0
29.5
19.1
12.4
10.3
9.2
8.0
6.8
5.8
4.9
4.0
3.2
2.5
1.8
1.1
0.4
3pm Thu May 7
3pm Fri May 8
3pm Sat May 9
3pm Sun May 10
3pm Mon May 11
3pm Tue May 12
3pm Wed May 13
3pm Thu May 14
3pm Fri May 15
3pm Sat May 16
3pm Sun May 17
Site Time (CDT)
Graph Created (3:50PM May 12, 2015)
Observed
Forecast (issued 1:59PM May 12)
PTAO2(plotting HGIRG) "Gage 0" Datum: 409.4'

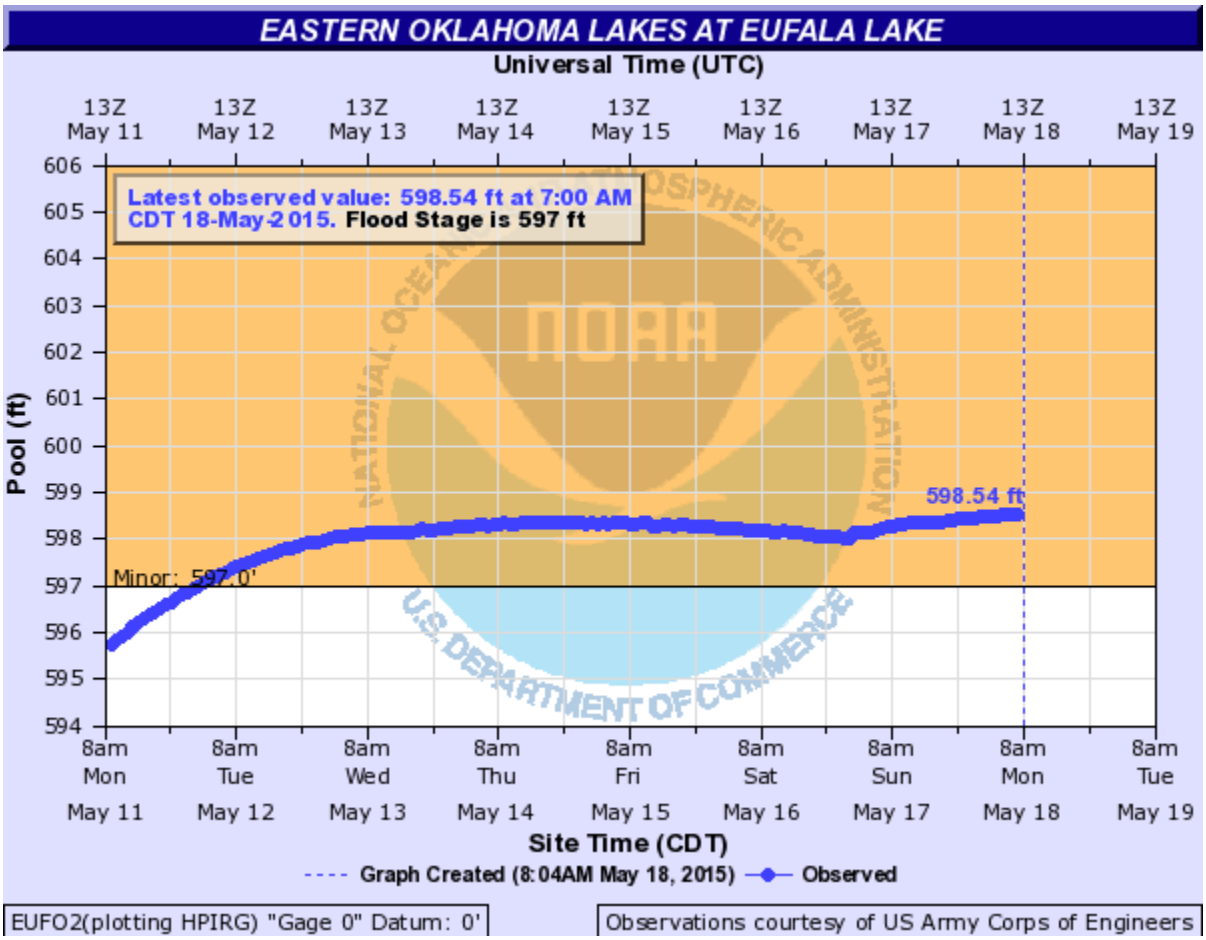

ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH
Universal Time (UTC)
16Z May 8
16Z May 9
16Z May 10
16Z May 11
16Z May 12
16Z May 13
16Z May 14
16Z May 15
16Z May 16
16Z May 17
16Z May 18
Latest observed value: 8.5 ft at 11:00 AM CDT 13-May-2015. Flood Stage is 11 ft
Moderate: 14.0'
Minor: 11.0'
Action: 9.0'
10.75 ft
8.3 ft
Stage (ft)
Flow (kcfs)
11am Fri May 8
11am Sat May 9
11am Sun May 10
11am Mon May 11
11am Tue May 12
11am Wed May 13
11am Thu May 14
11am Fri May 15
11am Sat May 16
11am Sun May 17
11am Mon May 18
Site Time (CDT)
Graph Created (11:50AM May 13, 2015)
Observed
Forecast (issued 8:21AM May 13)
TALO2(plotting HGIRG) "Gage 0" Datum: 664.14'
Observations courtesy of US Geological Survey

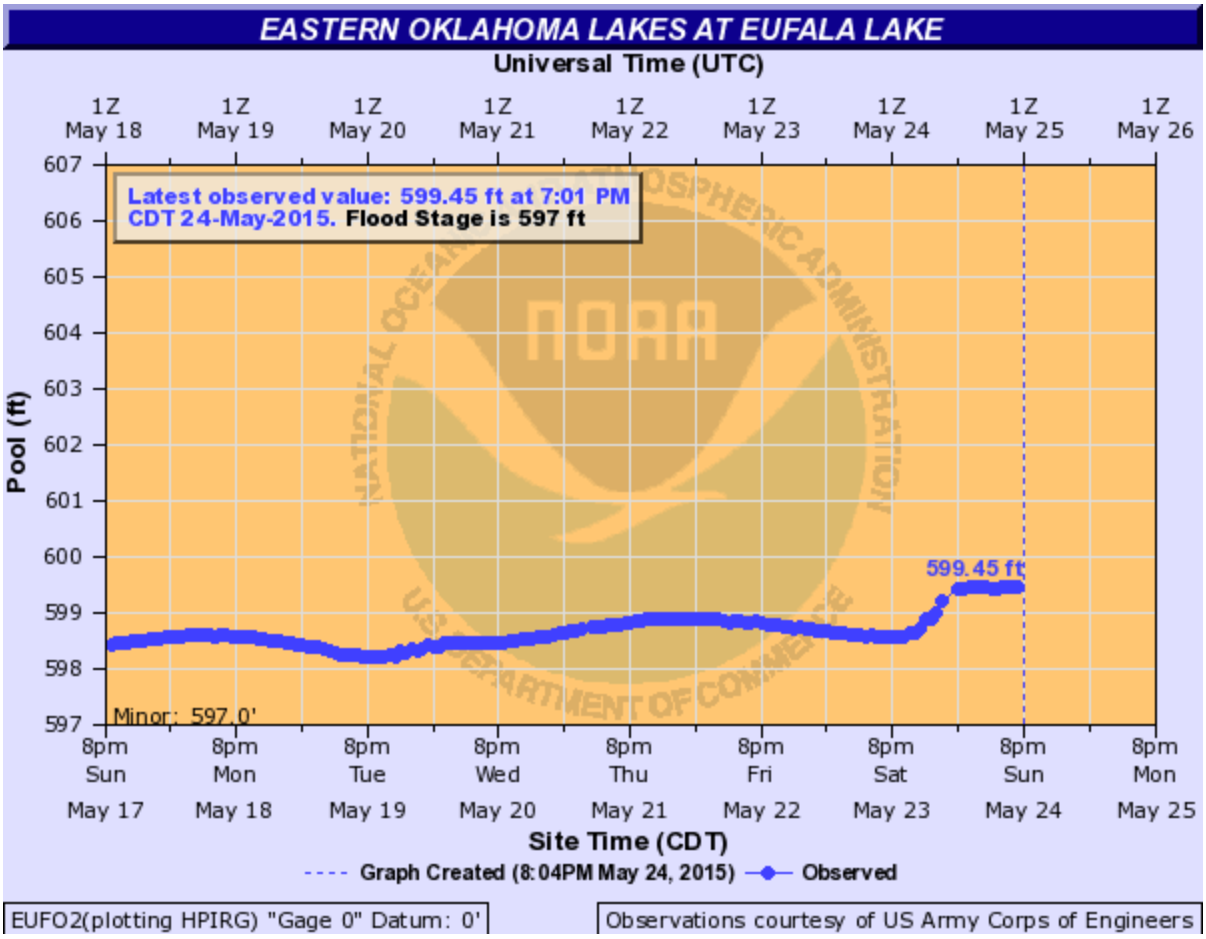

KIAMICHI RIVER NEAR ANTLERS
Universal Time (UTC)
16Z May 8
16Z May 9
16Z May 10
16Z May 11
16Z May 12
16Z May 13
16Z May 14
16Z May 15
16Z May 16
16Z May 17
16Z May 18
Latest observed value: 21.08 ft at 11:30 AM CDT 13-May-2015. Flood Stage is 25 ft
Moderate: 29.0'
Minor: 25.0'
Action: 24.0'
28.96 ft
19.5 ft
Stage (ft)
Flow (kcfs)
11am Fri May 8
11am Sat May 9
11am Sun May 10
11am Mon May 11
11am Tue May 12
11am Wed May 13
11am Thu May 14
11am Fri May 15
11am Sat May 16
11am Sun May 17
11am Mon May 18
Site Time (CDT)
Graph Created (11:49AM May 13, 2015)
Observed
Forecast (issued 2:26AM May 13)
ANTO2(plotting HGIRG) "Gage 0" Datum: 419.82'
Observations courtesy of US Geological Survey

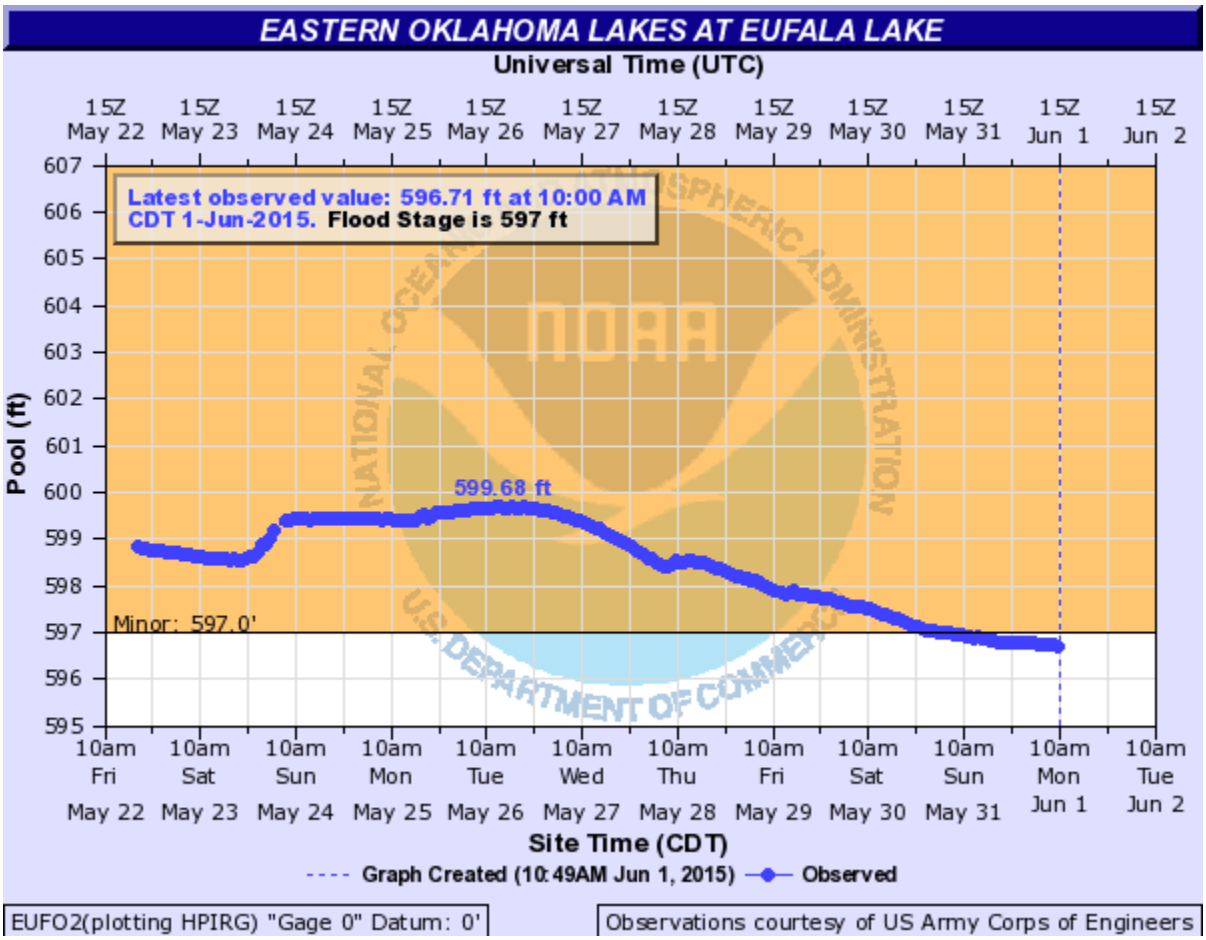

POTEAU RIVER NEAR PANAMA
Universal Time (UTC)
13Z May 8
13Z May 9
13Z May 10
13Z May 11
13Z May 12
13Z May 13
13Z May 14
13Z May 15
13Z May 16
13Z May 17
13Z May 18
13Z May 19
Latest observed value: 23.4 ft at 7:30 AM CDT 15-May-2015. Flood Stage is 29 ft
Record: 49.6'
43.54 ft
Major: 41.0'
Moderate: 33.0'
Minor: 29.0'
25.6 ft
Stage (ft)
Flow (kcfs)
8am Fri May 8
8am Sat May 9
8am Sun May 10
8am Mon May 11
8am Tue May 12
8am Wed May 13
8am Thu May 14
8am Fri May 15
8am Sat May 16
8am Sun May 17
8am Mon May 18
8am Tue May 19
Site Time (CDT)
Graph Created (8:34AM May 15, 2015)
Observed
Forecast (issued 8:26PM May 14)
PANO2(plotting HGIRG) "Gage 0" Datum: 387.97'
Observations courtesy of US Geological Survey

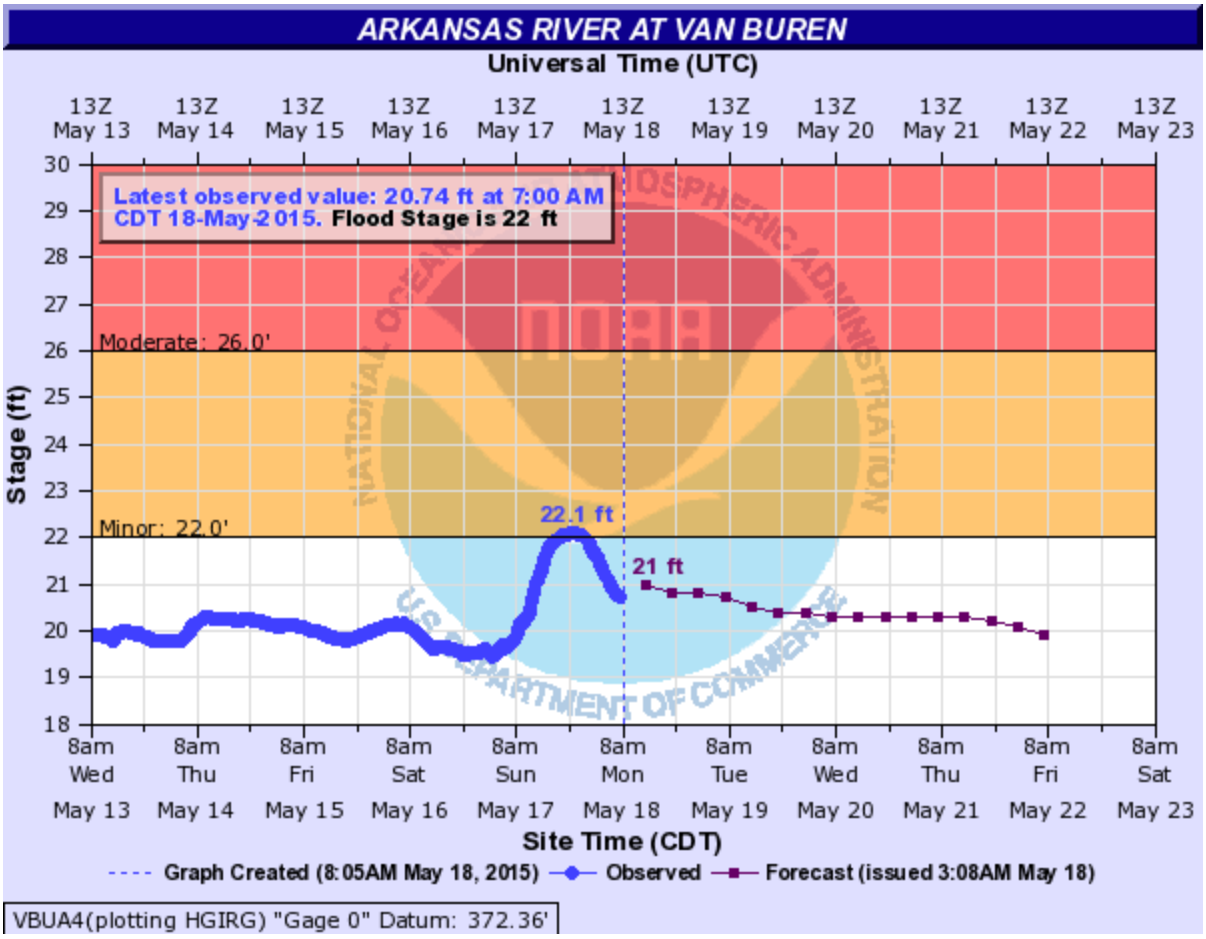

RED RIVER AT ARTHUR CITY
Universal Time (UTC)
14Z May 7
14Z May 8
14Z May 9
14Z May 10
14Z May 11
14Z May 12
14Z May 13
14Z May 14
14Z May 15
14Z May 16
14Z May 17
14Z May 18
14Z May 19
Latest observed value: 23.43 ft at 8:00 AM CDT 15-May-2015. Flood Stage is 27 ft
Moderate: 30.0'
27.21 ft
Minor: 27.0'
Action: 25.0'
23.4 ft
Stage (ft)
Flow (kcfs)
9am Thu May 7
9am Fri May 8
9am Sat May 9
9am Sun May 10
9am Mon May 11
9am Tue May 12
9am Wed May 13
9am Thu May 14
9am Fri May 15
9am Sat May 16
9am Sun May 17
9am Mon May 18
9am Tue May 19
Site Time (CDT)
Graph Created (9:04AM May 15, 2015)
Observed
Forecast (issued 8:08AM May 15)
ARCT2(plotting HGIRG) "Gage 0" Datum: 375.07'
Observations courtesy of US Geological Survey


EASTERN OKLAHOMA LAKES AT EUFALA LAKE
Universal Time (UTC)
16Z May 8
4Z May 9
16Z May 9
4Z May 10
16Z May 10
4Z May 11
16Z May 11
4Z May 12
16Z May 12
4Z May 13
16Z May 13
4Z May 14
16Z May 14
Latest observed value: 598.12 ft at 11:00 AM CDT 13-May-2015. Flood Stage is 597 ft
598.13 ft
Minor: 597.0'
Pool (ft)
606 605 604 603 602 601 600 599 598 597 596 595 594 593 592 591 590 589 588 587 586
11am Fri May 8
11pm Fri May 8
11am Sat May 9
11pm Sat May 9
11am Sun May 10
11pm Sun May 10
11am Mon May 11
11pm Mon May 11
11am Tue May 12
11pm Tue May 12
11am Wed May 13
11pm Wed May 13
11am Thu May 14
Site Time (CDT)
Graph Created (11:49AM May 13, 2015)
Observed
EUFO2(plotting HPIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers

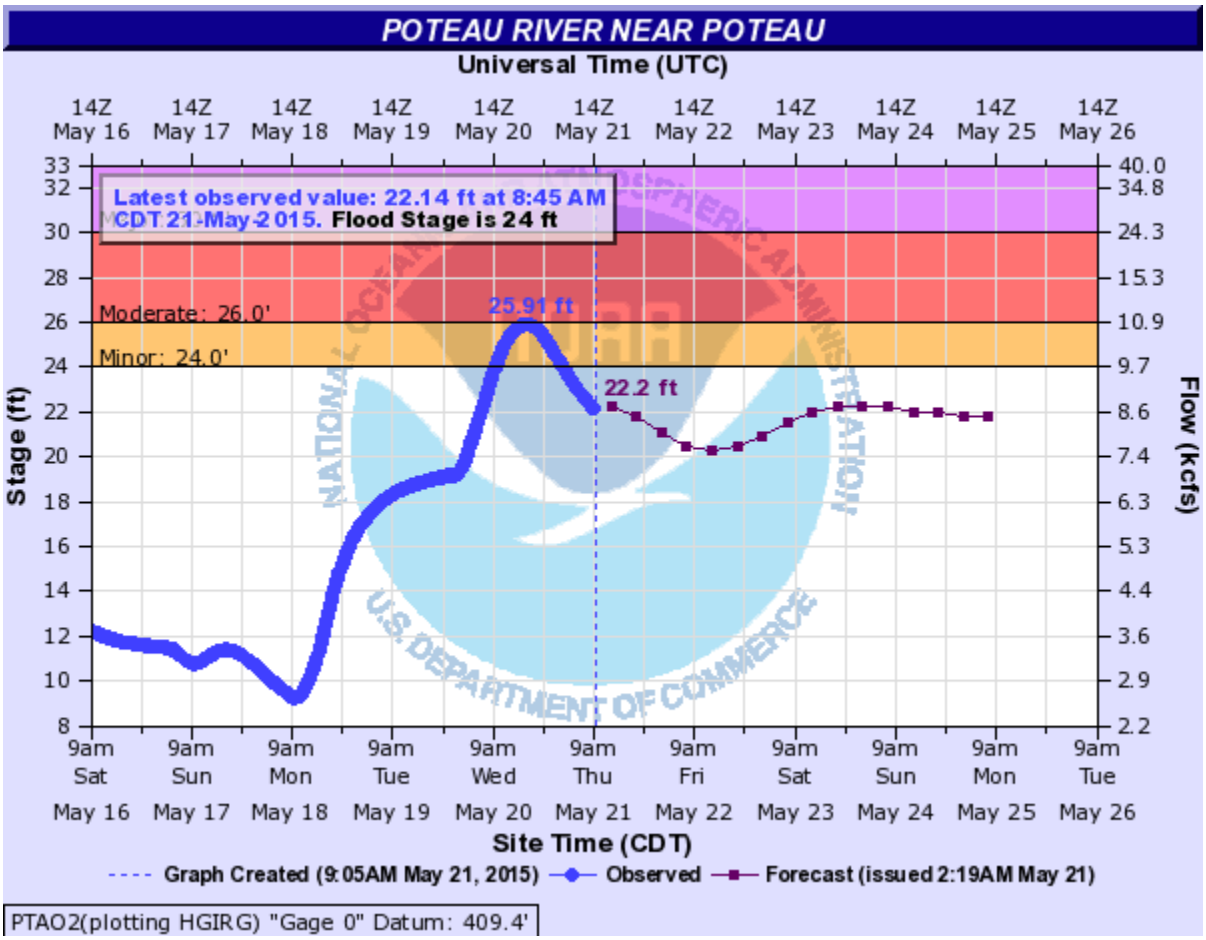

EASTERN OKLAHOMA LAKES AT EUFALA LAKE
Universal Time (UTC)
13Z May 11
13Z May 12
13Z May 13
13Z May 14
13Z May 15
13Z May 16
13Z May 17
13Z May 18
13Z May 19
Latest observed value: 598.54 ft at 7:00 AM CDT 18-May-2015. Flood Stage is 597 ft
598.54 ft
Minor: 597.0'
Pool (ft)
606 605 604 603 602 601 600 599 598 597 596 595 594
8am Mon May 11
8am Tue May 12
8am Wed May 13
8am Thu May 14
8am Fri May 15
8am Sat May 16
8am Sun May 17
8am Mon May 18
8am Tue May 19
Site Time (CDT)
Graph Created (8:04AM May 18, 2015)
Observed
EUFO2(plotting HPIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers


EASTERN OKLAHOMA LAKES AT EUFALA LAKE
Universal Time (UTC)
1Z May 18
1Z May 19
1Z May 20
1Z May 21
1Z May 22
1Z May 23
1Z May 24
1Z May 25
1Z May 26
Latest observed value: 599.45 ft at 7:01 PM CDT 24-May-2015. Flood Stage is 597 ft
Pool (ft)
607
606
605
604
603
602
601
600
599
598
597
599.45 ft
Minor: 597.0'
8pm Sun May 17
8pm Mon May 18
8pm Tue May 19
8pm Wed May 20
8pm Thu May 21
8pm Fri May 22
8pm Sat May 23
8pm Sun May 24
8pm Mon May 25
Site Time (CDT)
Graph Created (8:04PM May 24, 2015)
Observed
EUFO2(plotting HPIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers

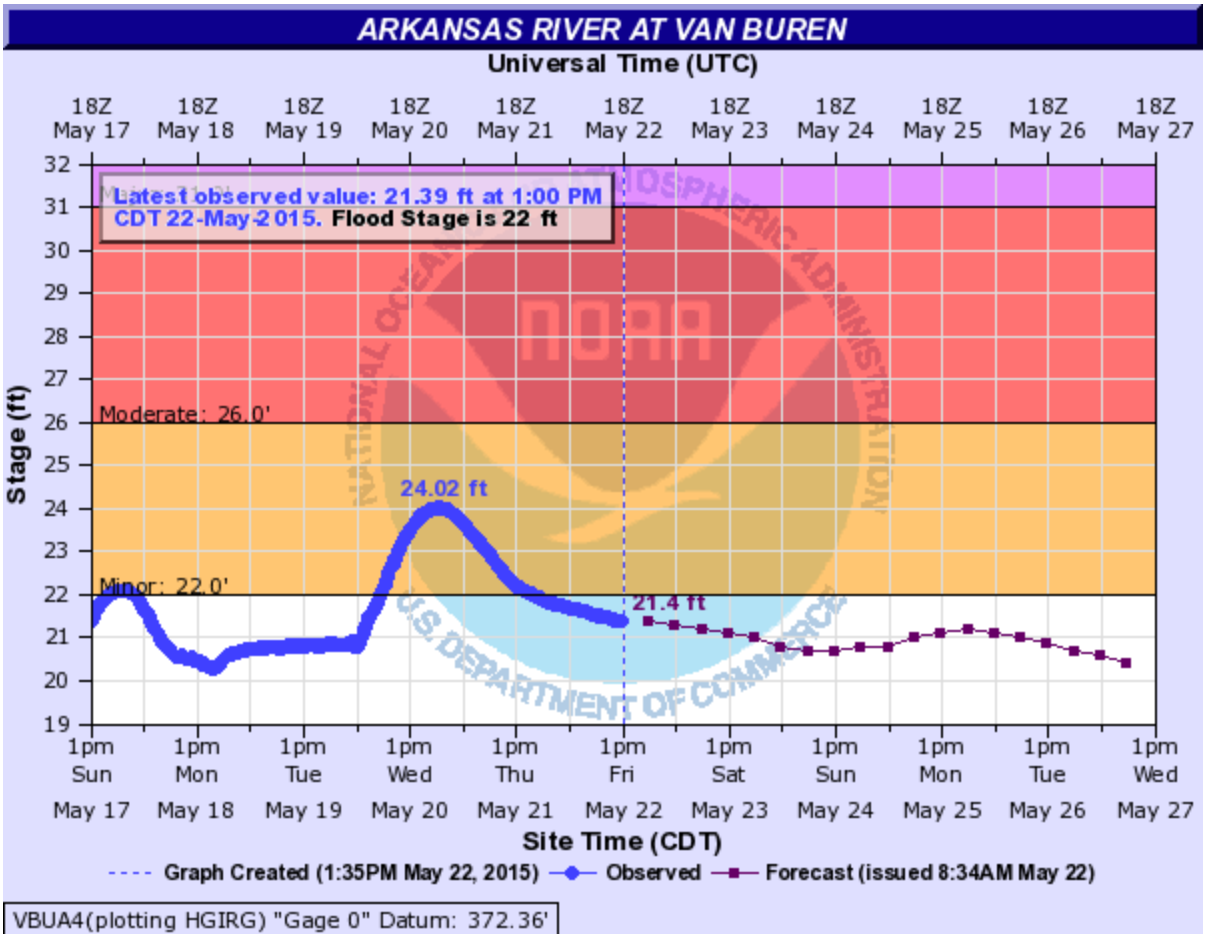

EASTERN OKLAHOMA LAKES AT EUFALA LAKE
Universal Time (UTC)
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
15Z Jun 1
15Z Jun 2
Latest observed value: 596.71 ft at 10:00 AM CDT 1-Jun-2015. Flood Stage is 597 ft
Pool (ft)
607
606
605
604
603
602
601
600
599
598
597
596
595
599.68 ft
Minor: 597.0'
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
10am Mon Jun 1
10am Tue Jun 2
Site Time (CDT)
Graph Created (10:49AM Jun 1, 2015)
Observed
EUFO2(plotting HPIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers

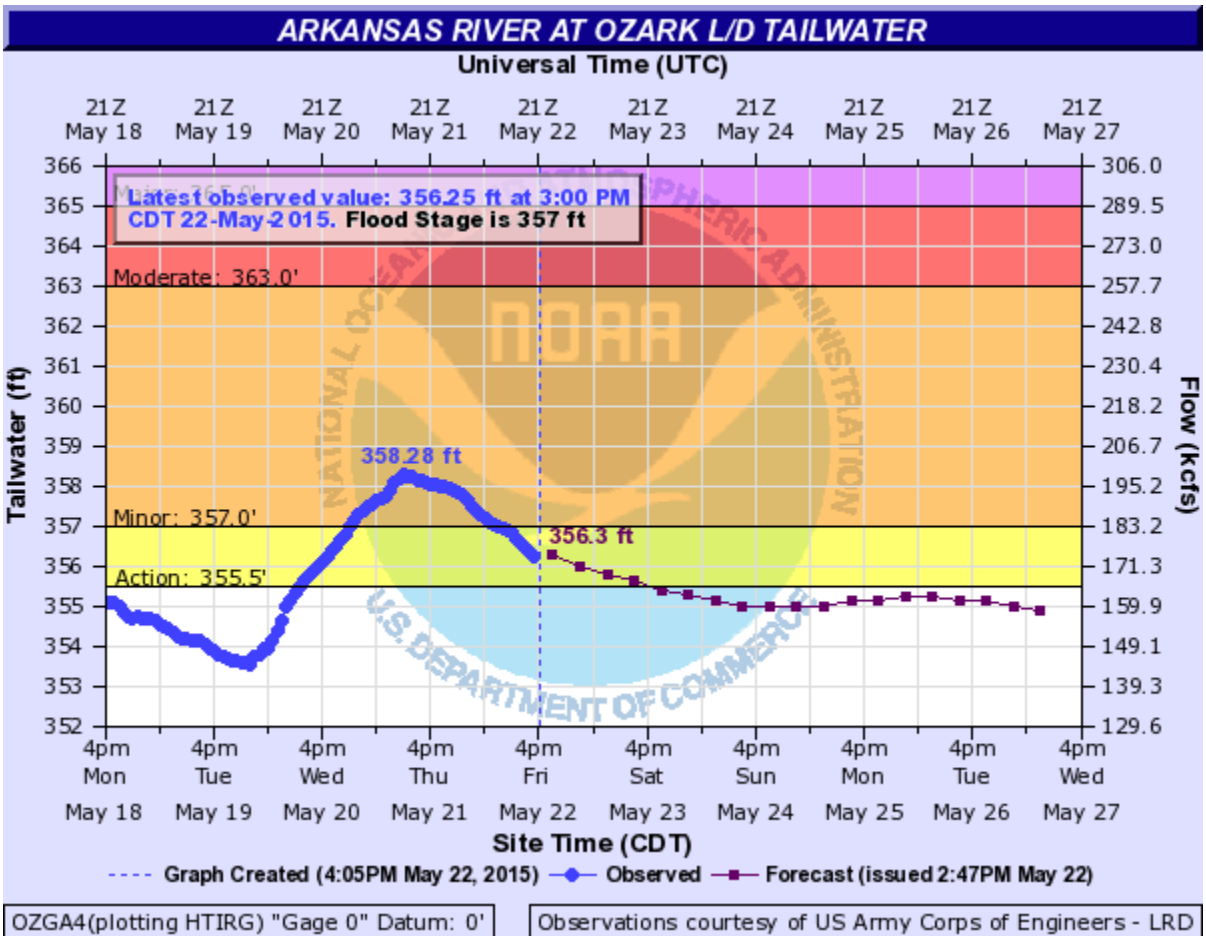


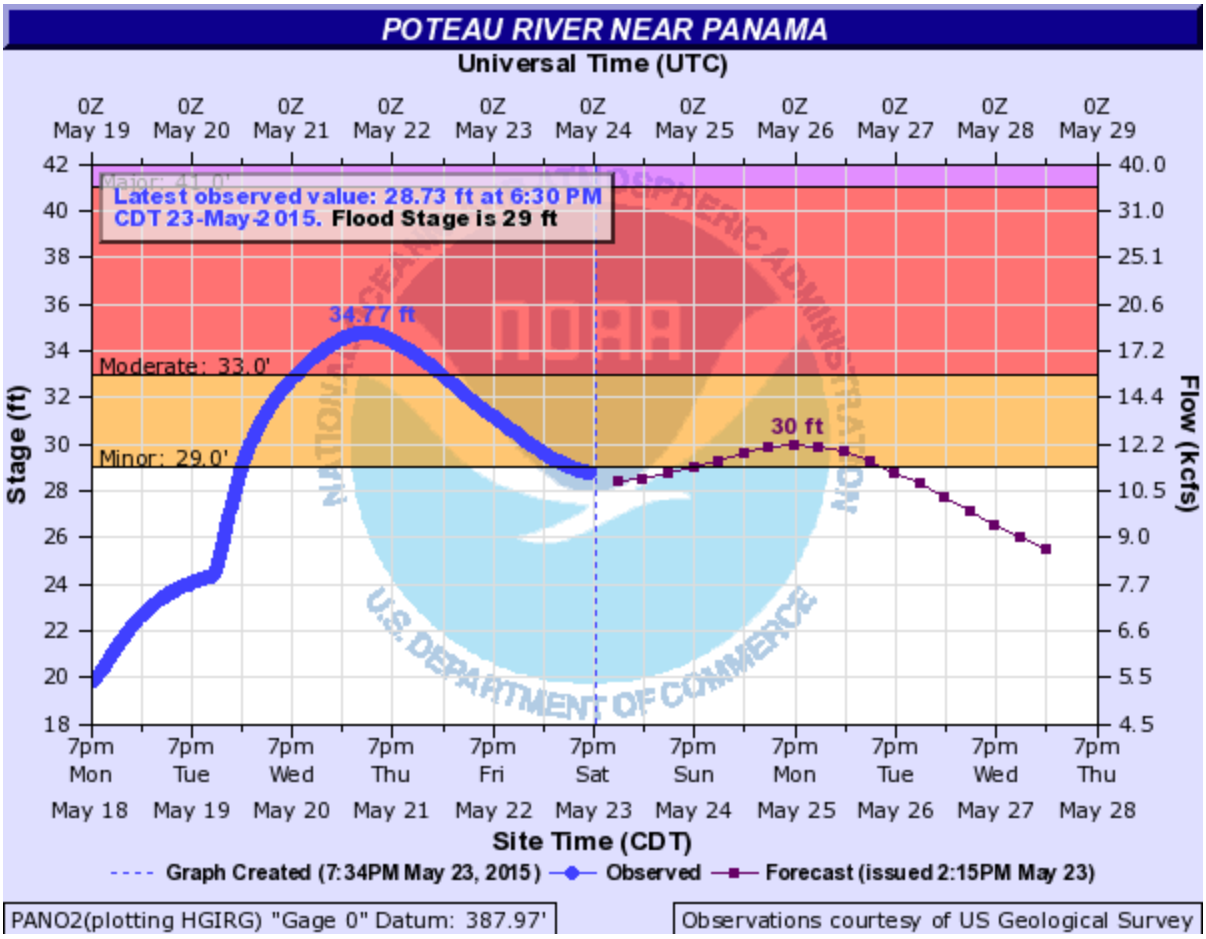
VBUA4(plotting HGIRG) "Gage 0" Datum: 372.36'

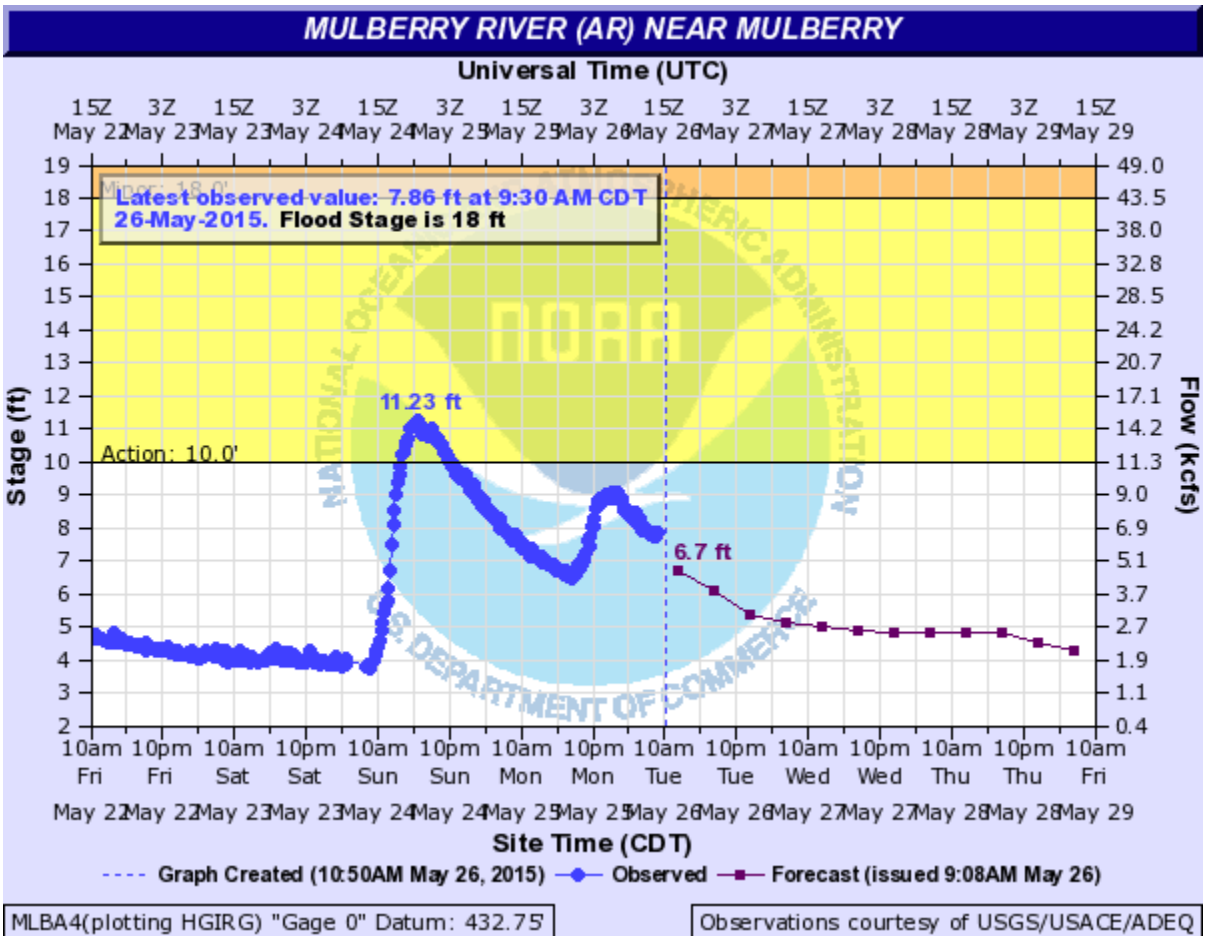


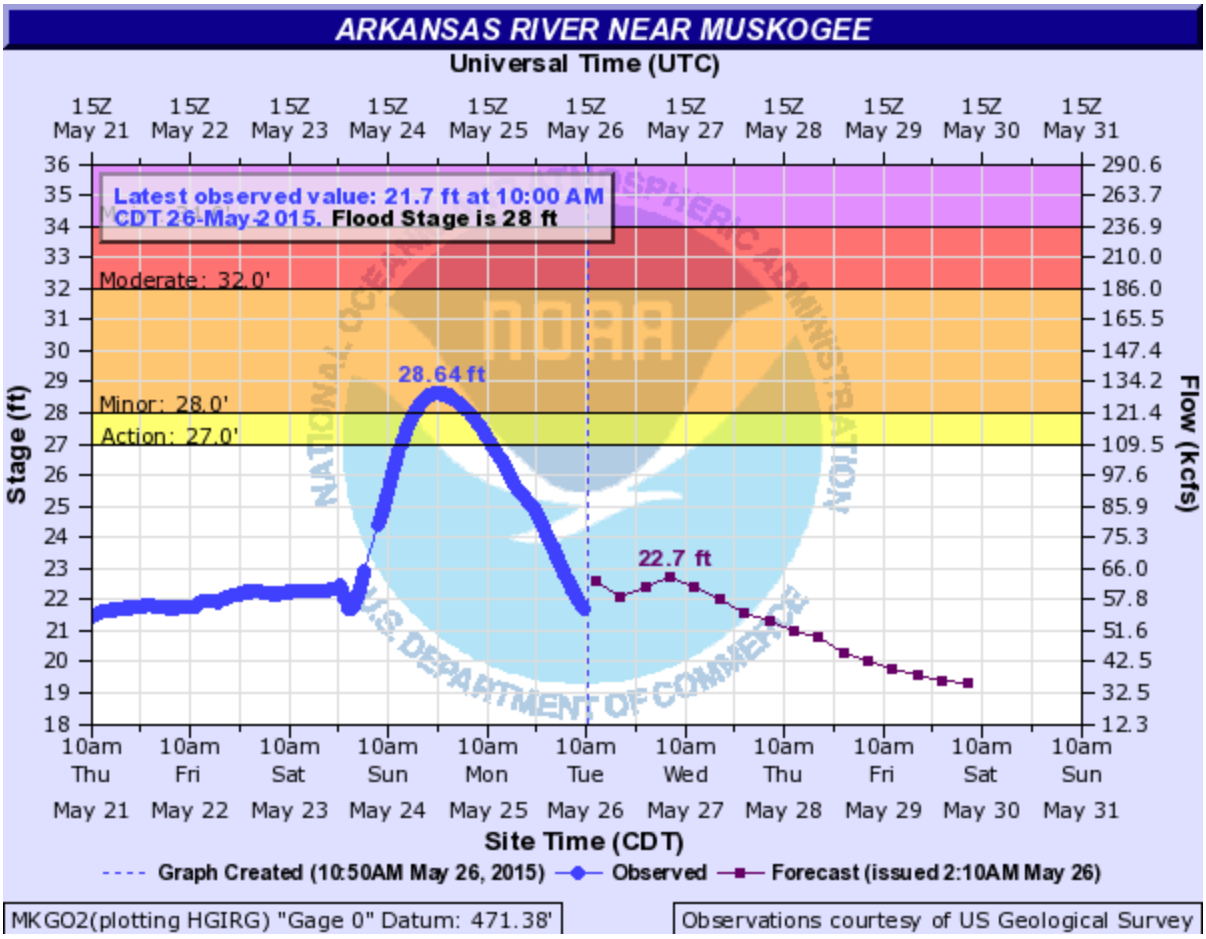
PTAO2(plotting HGIRG) "Gage 0" Datum: 409.4'

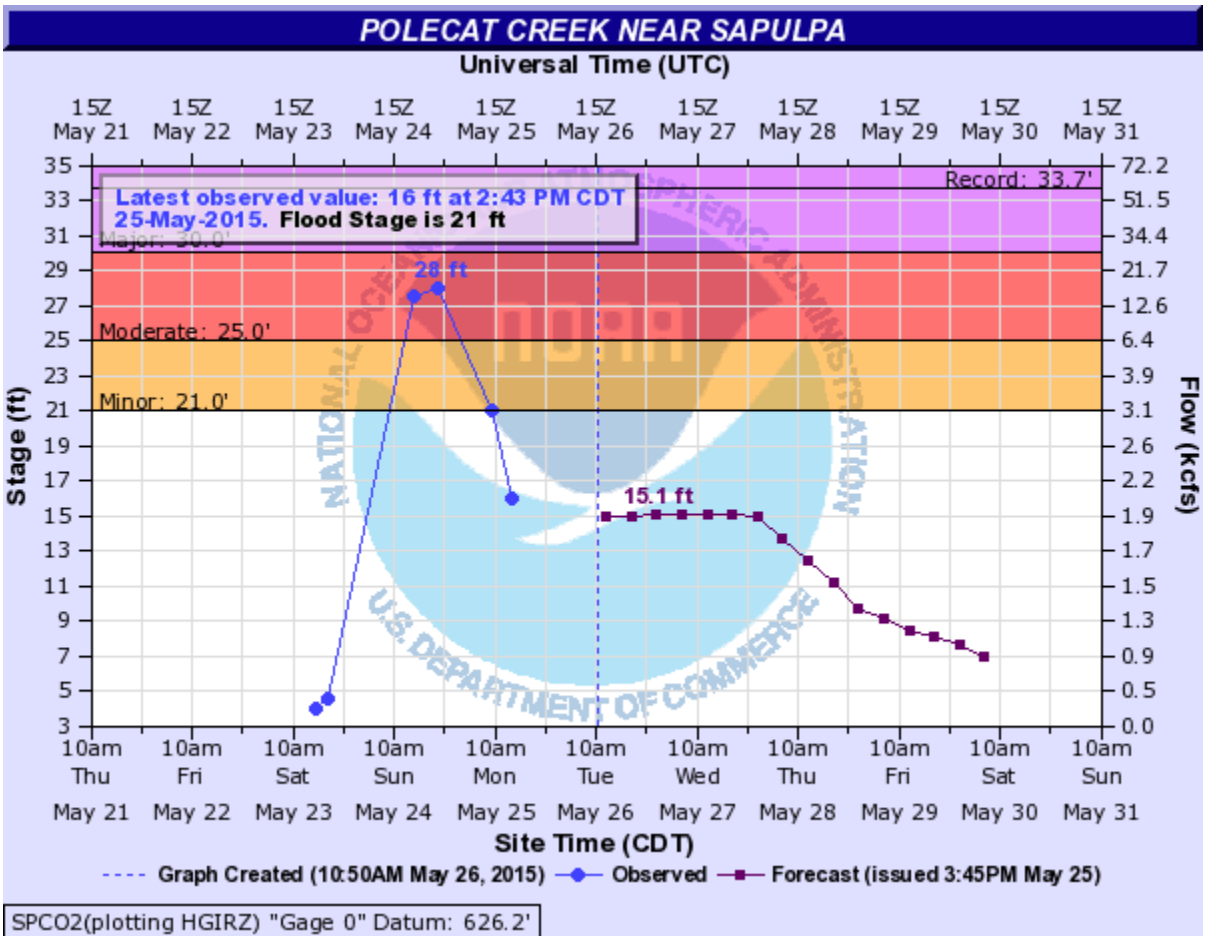

ARKANSAS RIVER AT VAN BUREN
Universal Time (UTC)
18Z May 17
18Z May 18
18Z May 19
18Z May 20
18Z May 21
18Z May 22
18Z May 23
18Z May 24
18Z May 25
18Z May 26
18Z May 27
Latest observed value: 21.39 ft at 1:00 PM CDT 22-May-2015. Flood Stage is 22 ft
Moderate: 26.0'
Minor: 22.0'
24.02 ft
21.4 ft
Stage (ft)
32
31
30
29
28
27
26
25
24
23
22
21
20
19
1pm Sun May 17
1pm Mon May 18
1pm Tue May 19
1pm Wed May 20
1pm Thu May 21
1pm Fri May 22
1pm Sat May 23
1pm Sun May 24
1pm Mon May 25
1pm Tue May 26
1pm Wed May 27
Site Time (CDT)
Graph Created (1:35PM May 22, 2015)
Observed
Forecast (issued 8:34AM May 22)
VBUA4(plotting HGIRG) "Gage 0" Datum: 372.36'

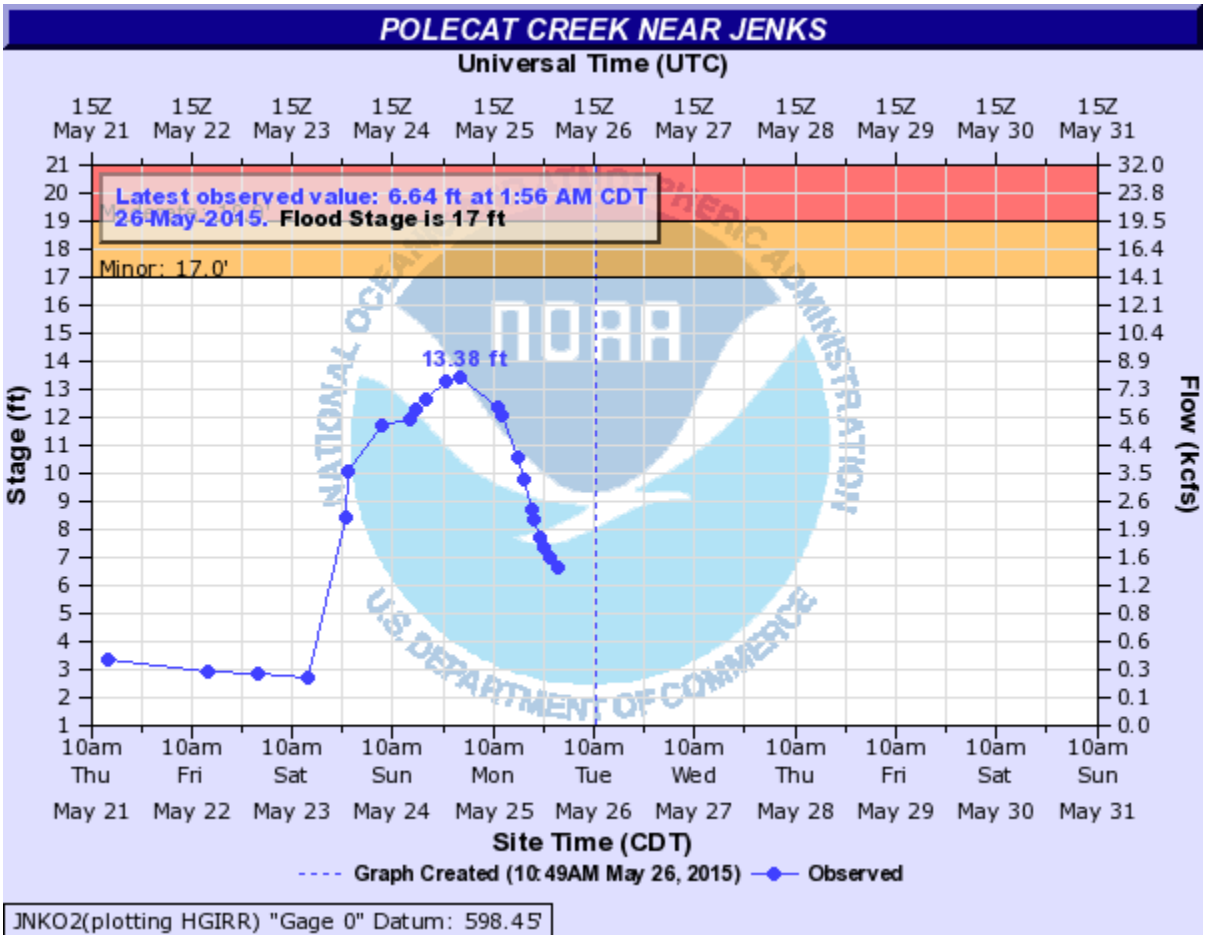

ARKANSAS RIVER AT OZARK L/D TAILWATER
Universal Time (UTC)
21Z May 18
21Z May 19
21Z May 20
21Z May 21
21Z May 22
21Z May 23
21Z May 24
21Z May 25
21Z May 26
21Z May 27
Latest observed value: 356.25 ft at 3:00 PM CDT 22-May-2015. Flood Stage is 357 ft
Moderate: 363.0'
Minor: 357.0'
Action: 355.5'
358.28 ft
356.3 ft
Tailwater (ft)
366
365
364
363
362
361
360
359
358
357
356
355
354
353
352
Flow (kcfs)
306.0
289.5
273.0
257.7
242.8
230.4
218.2
206.7
195.2
183.2
171.3
159.9
149.1
139.3
129.6
4pm Mon May 18
4pm Tue May 19
4pm Wed May 20
4pm Thu May 21
4pm Fri May 22
4pm Sat May 23
4pm Sun May 24
4pm Mon May 25
4pm Tue May 26
4pm Wed May 27
Site Time (CDT)
Graph Created (4:05PM May 22, 2015)
Observed
Forecast (issued 2:47PM May 22)
OZGA4(plotting HTIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers - LRD

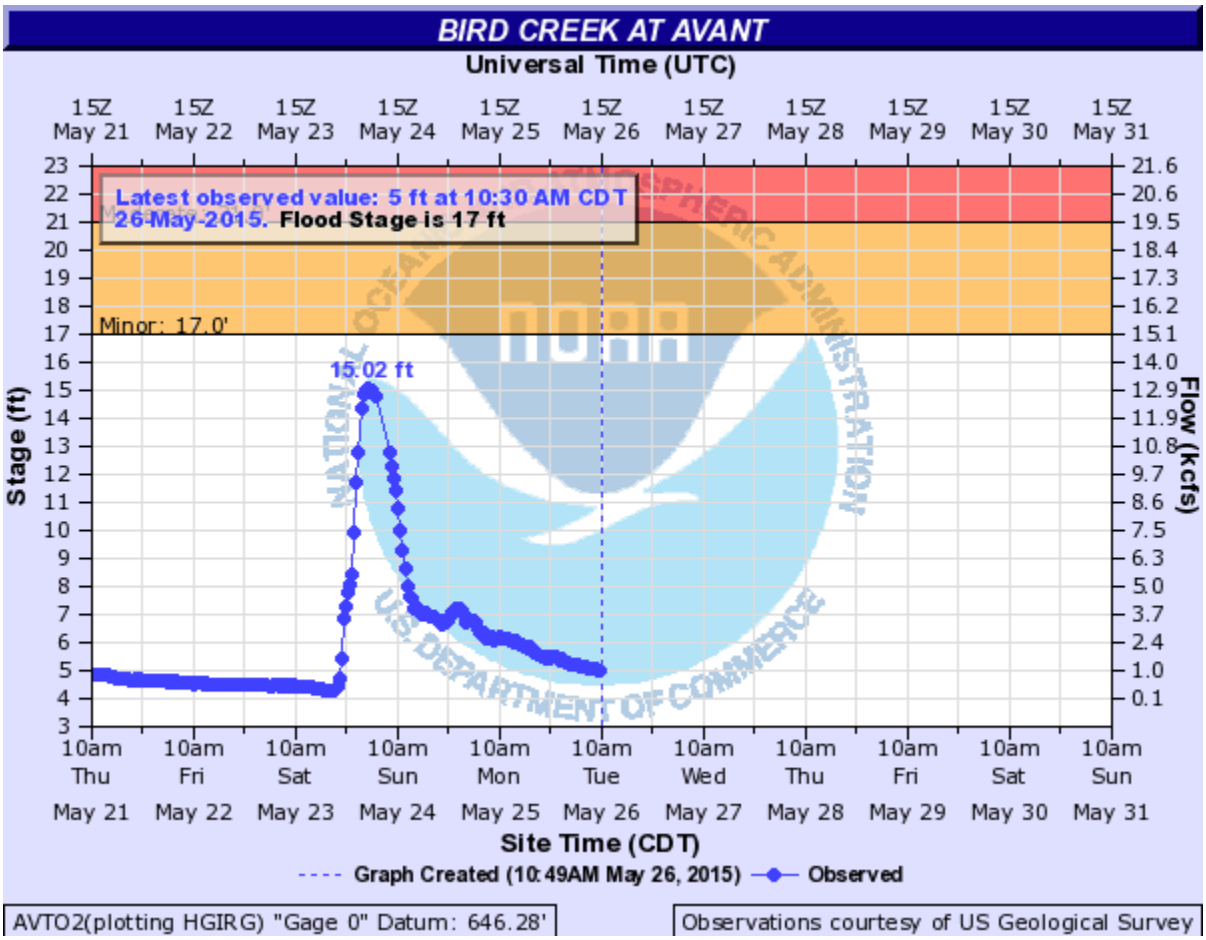

POTEAU RIVER NEAR PANAMA
Universal Time (UTC)
0Z May 19
0Z May 20
0Z May 21
0Z May 22
0Z May 23
0Z May 24
0Z May 25
0Z May 26
0Z May 27
0Z May 28
0Z May 29
Latest observed value: 28.73 ft at 6:30 PM CDT 23-May-2015. Flood Stage is 29 ft
34.77 ft
30 ft
Moderate: 33.0'
Minor: 29.0'
Stage (ft)
Flow (kcfs)
42
40
38
36
34
32
30
28
26
24
22
20
18
40.0
31.0
25.1
20.6
17.2
14.4
12.2
10.5
9.0
7.7
6.6
5.5
4.5
7pm Mon May 18
7pm Tue May 19
7pm Wed May 20
7pm Thu May 21
7pm Fri May 22
7pm Sat May 23
7pm Sun May 24
7pm Mon May 25
7pm Tue May 26
7pm Wed May 27
7pm Thu May 28
Site Time (CDT)
Graph Created (7:34PM May 23, 2015)
Observed
Forecast (issued 2:15PM May 23)
PANO2(plotting HGIRG) "Gage 0" Datum: 387.97'
Observations courtesy of US Geological Survey

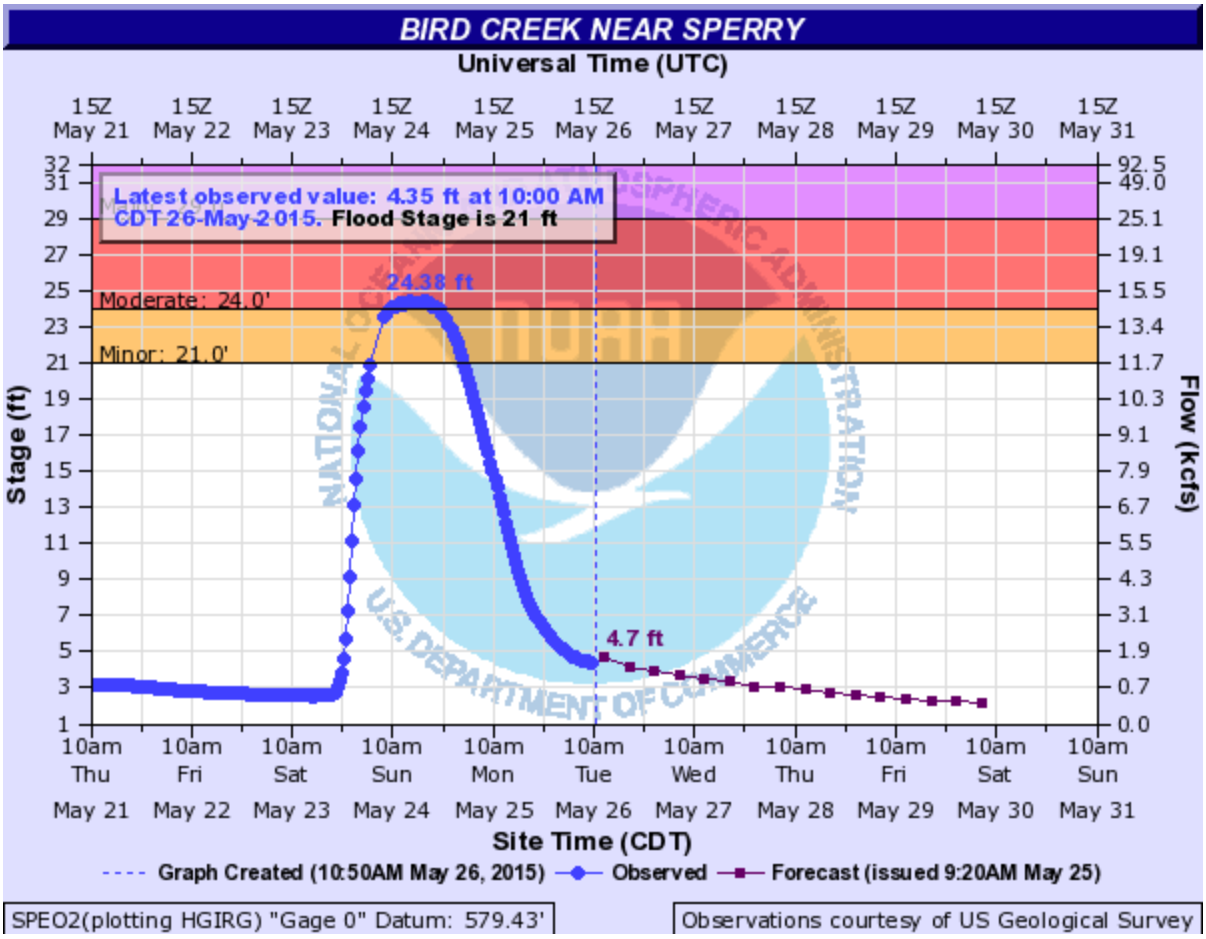

MULBERRY RIVER (AR) NEAR MULBERRY
Universal Time (UTC)
15Z May 22
3Z May 23
15Z May 23
3Z May 24
15Z May 24
3Z May 25
15Z May 25
3Z May 26
15Z May 26
3Z May 27
15Z May 27
3Z May 28
15Z May 28
3Z May 29
15Z May 29
Latest observed value: 7.86 ft at 9:30 AM CDT 26-May-2015. Flood Stage is 18 ft
11.23 ft
6.7 ft
Action: 10.0'
Stage (ft)
Flow (kcfs)
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
49.0
43.5
38.0
32.8
28.5
24.2
20.7
17.1
14.2
11.3
9.0
6.9
5.1
3.7
2.7
1.9
1.1
0.4
10am Fri May 22
10pm Fri May 22
10am Sat May 23
10pm Sat May 23
10am Sun May 24
10pm Sun May 24
10am Mon May 25
10pm Mon May 25
10am Tue May 26
10pm Tue May 26
10am Wed May 27
10pm Wed May 27
10am Thu May 28
10pm Thu May 28
10am Fri May 29
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 9:08AM May 26)
MLBA4(plotting HGIRG) "Gage 0" Datum: 432.75'
Observations courtesy of USGS/USACE/ADEQ

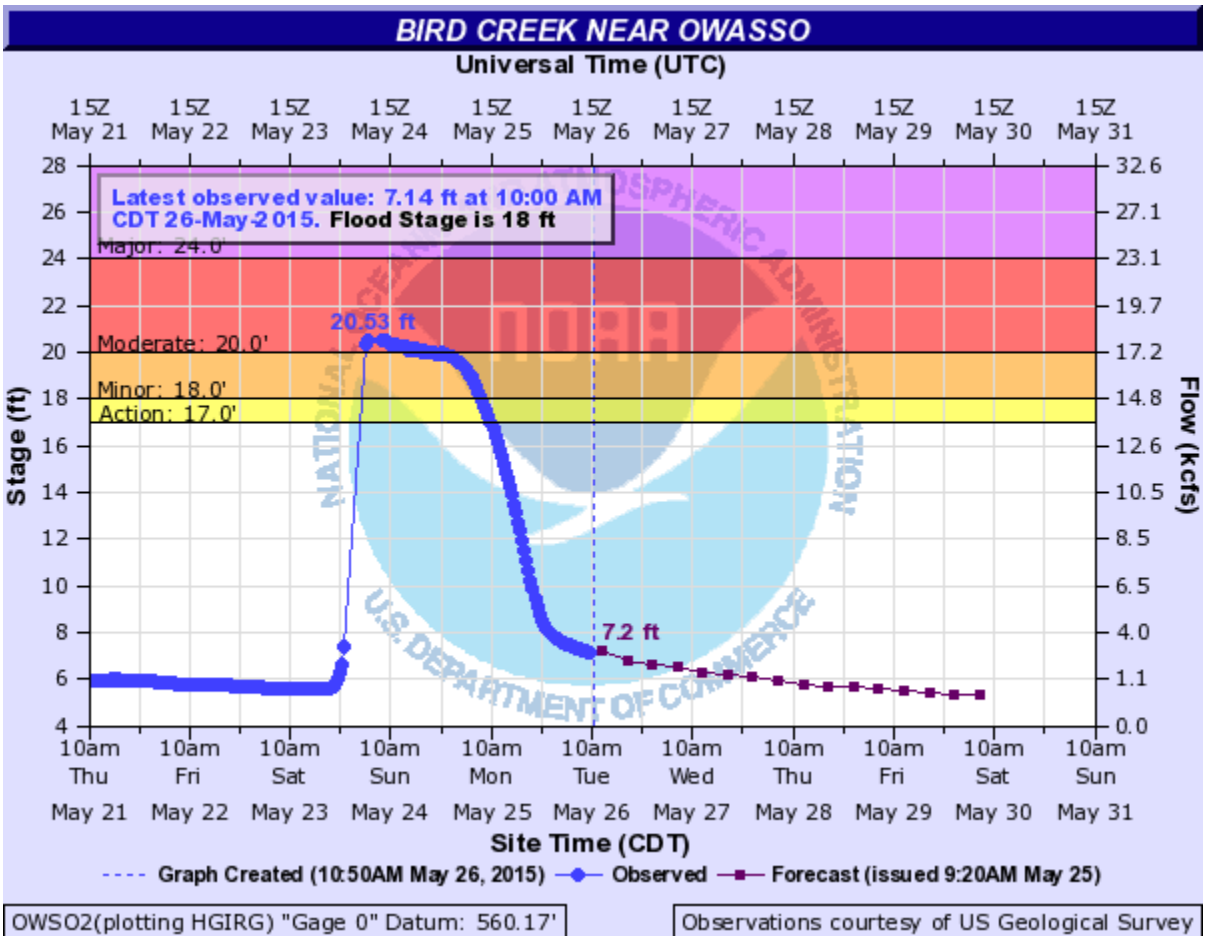

ARKANSAS RIVER NEAR MUSKOGEE
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 21.7 ft at 10:00 AM CDT 26-May-2015. Flood Stage is 28 ft
Moderate: 32.0'
Minor: 28.0'
Action: 27.0'
28.64 ft
22.7 ft
Stage (ft)
Flow (kcfs)
36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18
290.6 263.7 236.9 210.0 186.0 165.5 147.4 134.2 121.4 109.5 97.6 85.9 75.3 66.0 57.8 51.6 42.5 32.5 12.3
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 2:10AM May 26)
MKGO2(plotting HGIRG) "Gage 0" Datum: 471.38'
Observations courtesy of US Geological Survey

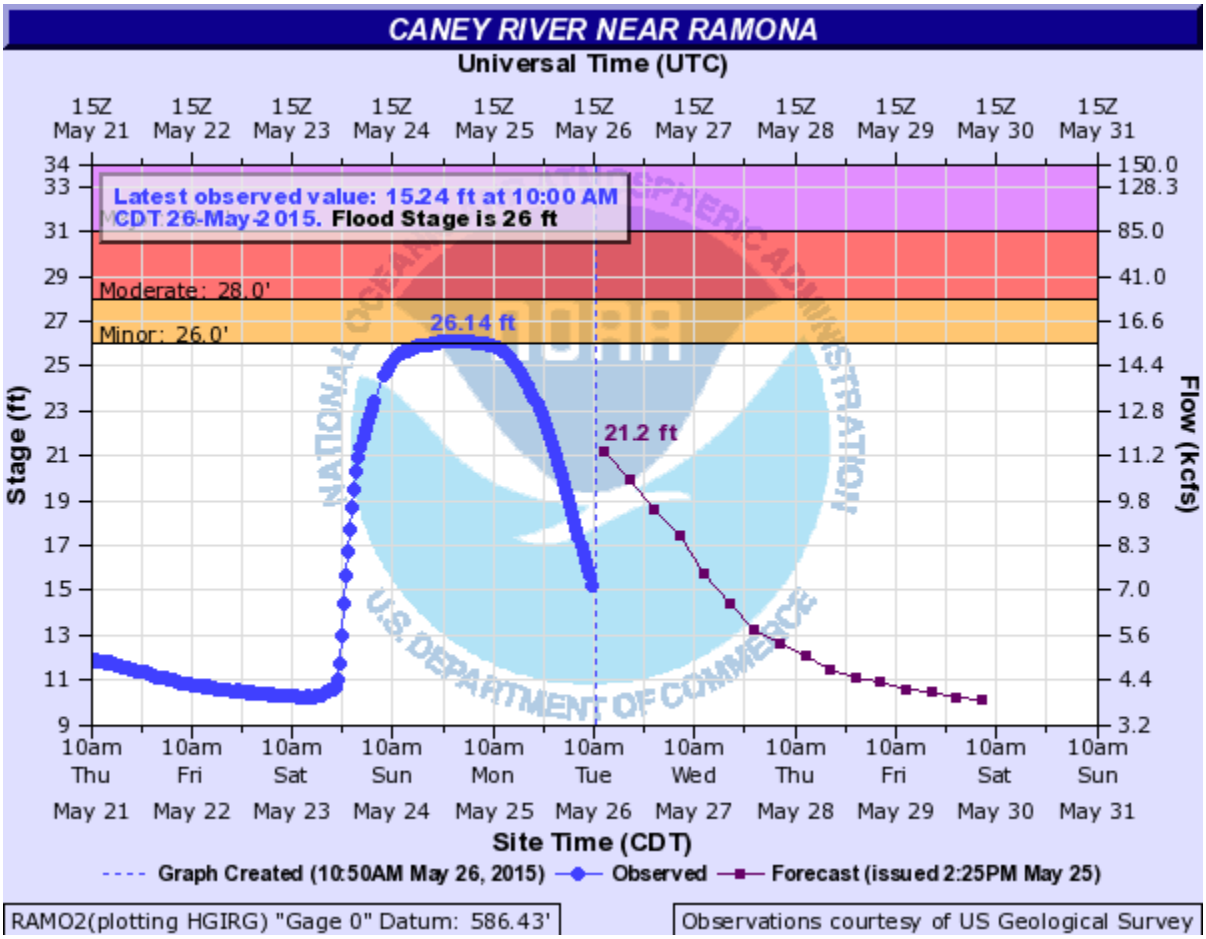

POLECAT CREEK NEAR SAPULPA
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Record: 33.7'
Latest observed value: 16 ft at 2:43 PM CDT 25-May-2015. Flood Stage is 21 ft
Major: 30.0'
Moderate: 25.0'
Minor: 21.0'
28 ft
15.1 ft
Stage (ft)
Flow (kcfs)
35 33 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3
72.2 51.5 34.4 21.7 12.6 6.4 3.9 3.1 2.6 2.2 1.9 1.7 1.5 1.3 0.9 0.5 0.0
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 3:45PM May 25)
SPCO2(plotting HGIRZ) "Gage 0" Datum: 626.2'

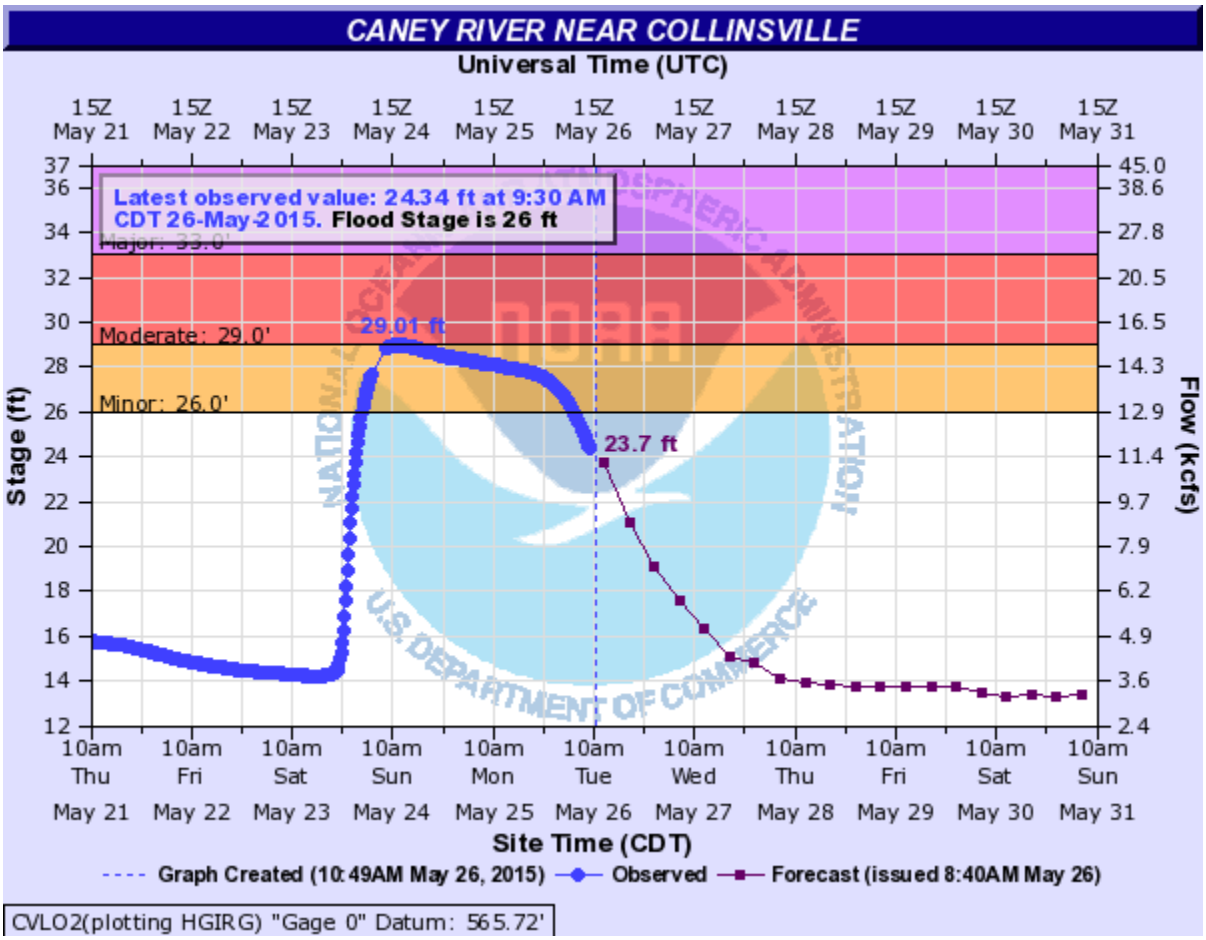

POLECAT CREEK NEAR JENKS
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 6.64 ft at 1:56 AM CDT 26-May-2015. Flood Stage is 17 ft
Minor: 17.0'
13.38 ft
Stage (ft)
Flow (kcfs)
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:49AM May 26, 2015)
Observed
JNKO2(plotting HGIRR) "Gage 0" Datum: 598.45'

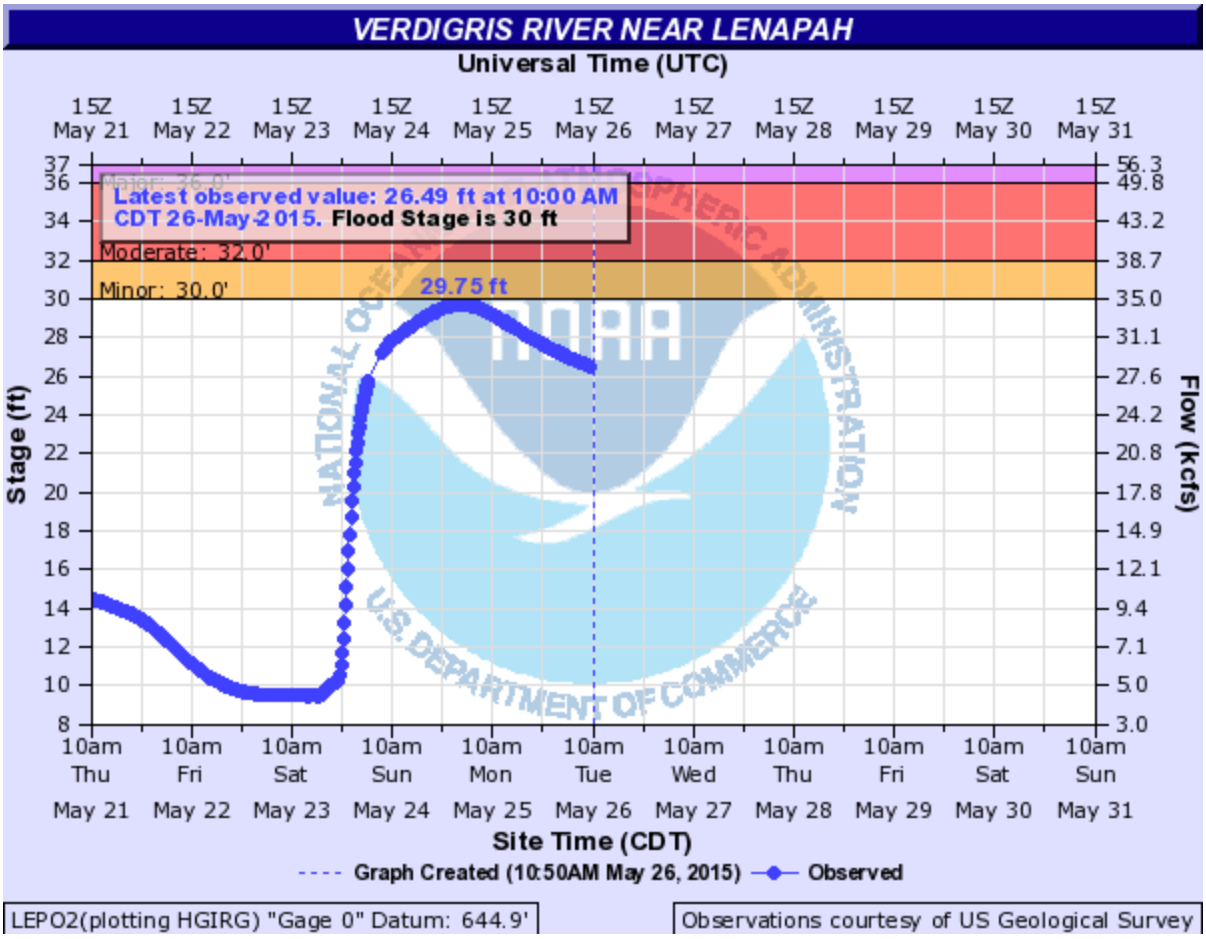

BIRD CREEK AT AVANT
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 5 ft at 10:30 AM CDT 26-May-2015. Flood Stage is 17 ft
Minor: 17.0'
15.02 ft
Stage (ft)
Flow (kcfs)
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:49AM May 26, 2015)
Observed
AVTO2(plotting HGIRG) "Gage 0" Datum: 646.28'
Observations courtesy of US Geological Survey


BIRD CREEK NEAR SPERRY
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 4.35 ft at 10:00 AM CDT 26-May-2015. Flood Stage is 21 ft
24.38 ft
Moderate: 24.0'
Minor: 21.0'
4.7 ft
Stage (ft)
Flow (kcfs)
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 9:20AM May 25)
SPEO2(plotting HGIRG) "Gage 0" Datum: 579.43'
Observations courtesy of US Geological Survey


BIRD CREEK NEAR OWASSO
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 7.14 ft at 10:00 AM CDT 26-May-2015. Flood Stage is 18 ft
Major: 24.0'
20.53 ft
Moderate: 20.0'
Minor: 18.0'
Action: 17.0'
7.2 ft
Stage (ft)
Flow (kcfs)
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 9:20AM May 25)
OWSO2(plotting HGIRG) "Gage 0" Datum: 560.17'
Observations courtesy of US Geological Survey

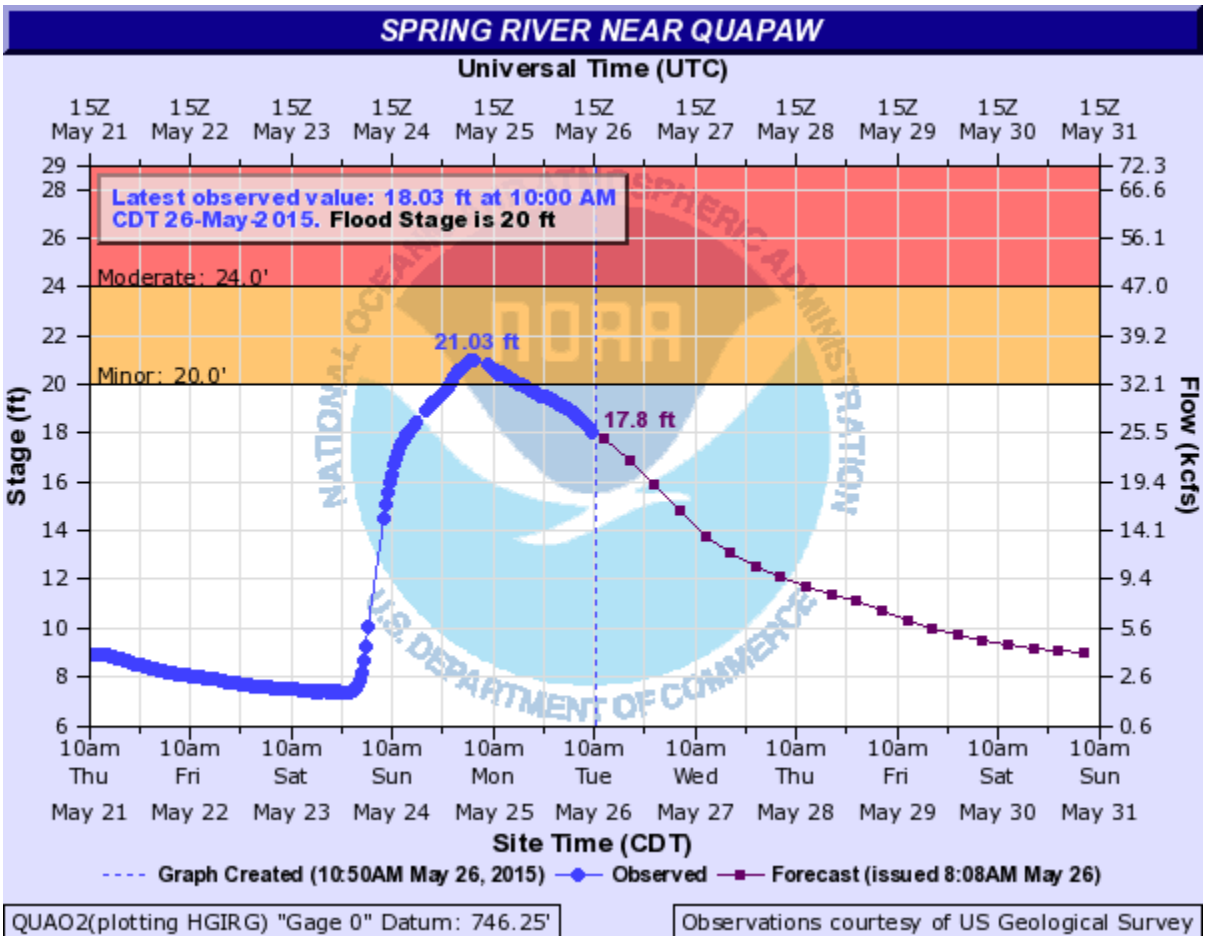

CANEY RIVER NEAR RAMONA
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 15.24 ft at 10:00 AM CDT 26-May-2015. Flood Stage is 26 ft
Moderate: 28.0'
Minor: 26.0'
26.14 ft
21.2 ft
Stage (ft)
Flow (kcfs)
34
33
31
29
27
25
23
21
19
17
15
13
11
9
150.0
128.3
85.0
41.0
16.6
14.4
12.8
11.2
9.8
8.3
7.0
5.6
4.4
3.2
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 2:25PM May 25)
RAMO2(plotting HGIRG) "Gage 0" Datum: 586.43'
Observations courtesy of US Geological Survey


CANEY RIVER NEAR COLLINSVILLE
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 24.34 ft at 9:30 AM CDT 26-May-2015. Flood Stage is 26 ft
Major: 33.0'
Moderate: 29.0'
Minor: 26.0'
29.01 ft
23.7 ft
Stage (ft)
Flow (kcfs)
37
36
34
32
30
28
26
24
22
20
18
16
14
12
45.0
38.6
27.8
20.5
16.5
14.3
12.9
11.4
9.7
7.9
6.2
4.9
3.6
2.4
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:49AM May 26, 2015)
Observed
Forecast (issued 8:40AM May 26)
CVLO2(plotting HGIRG) "Gage 0" Datum: 565.72'



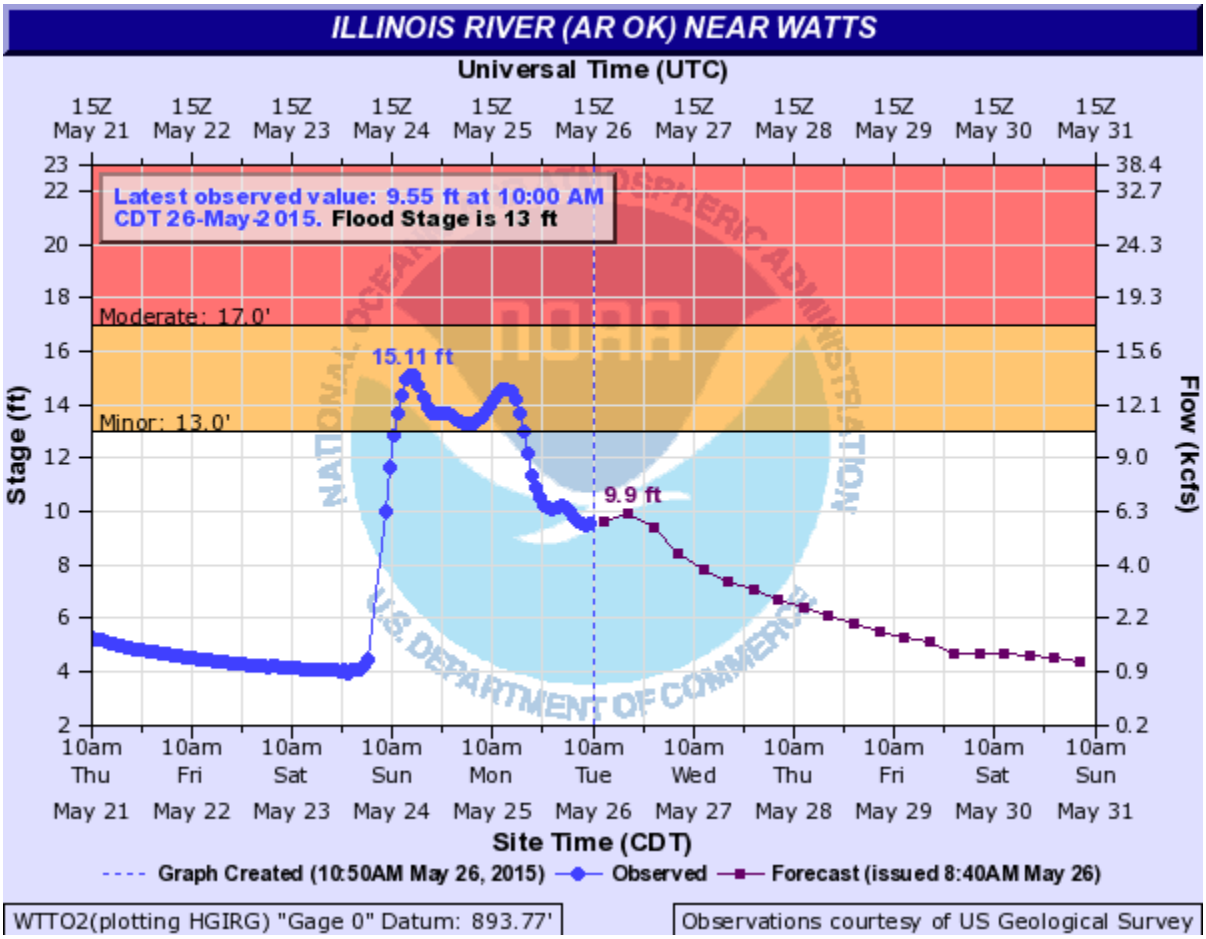
LEPO2(plotting HGIRG) "Gage 0" Datum: 644.9'

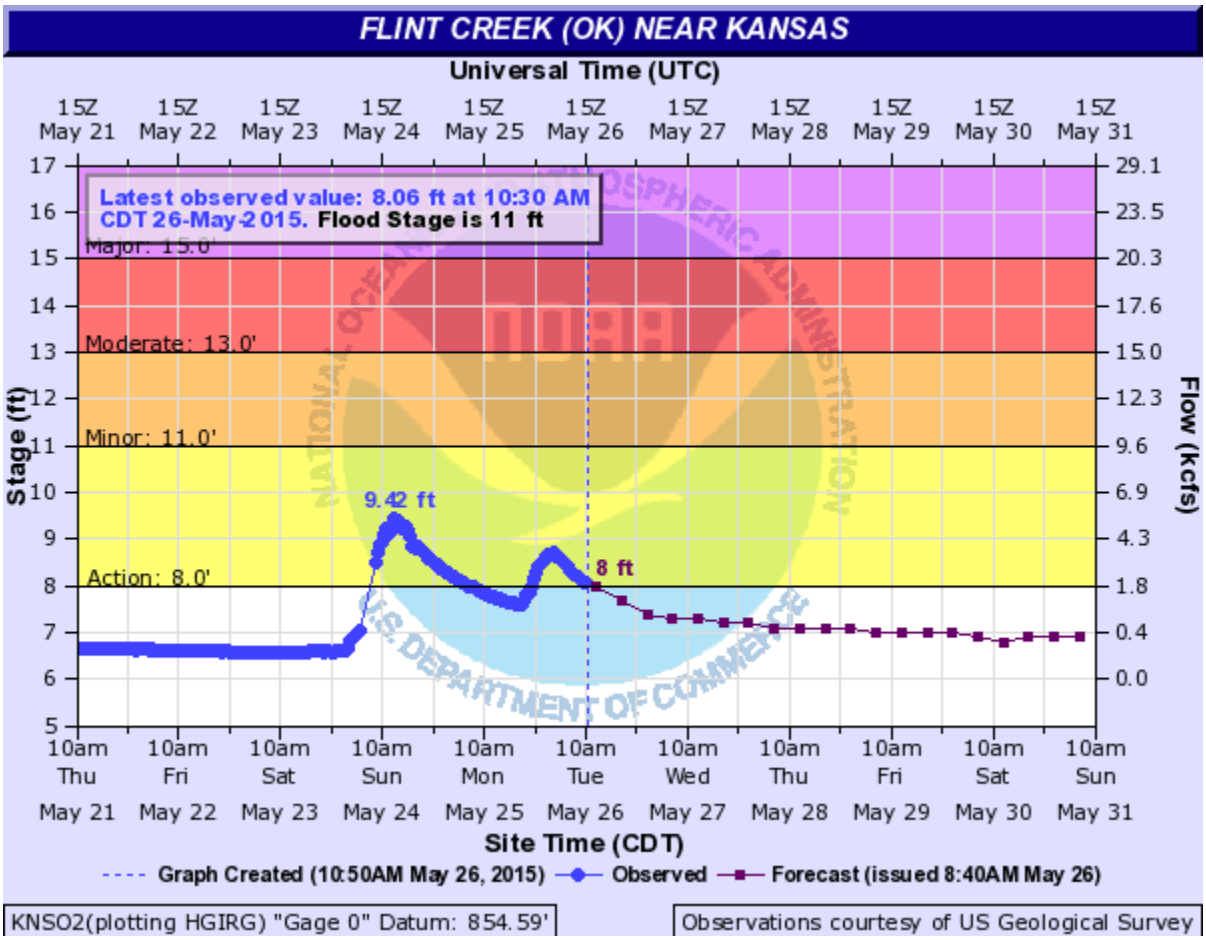
Observations courtesy of US Geological Survey



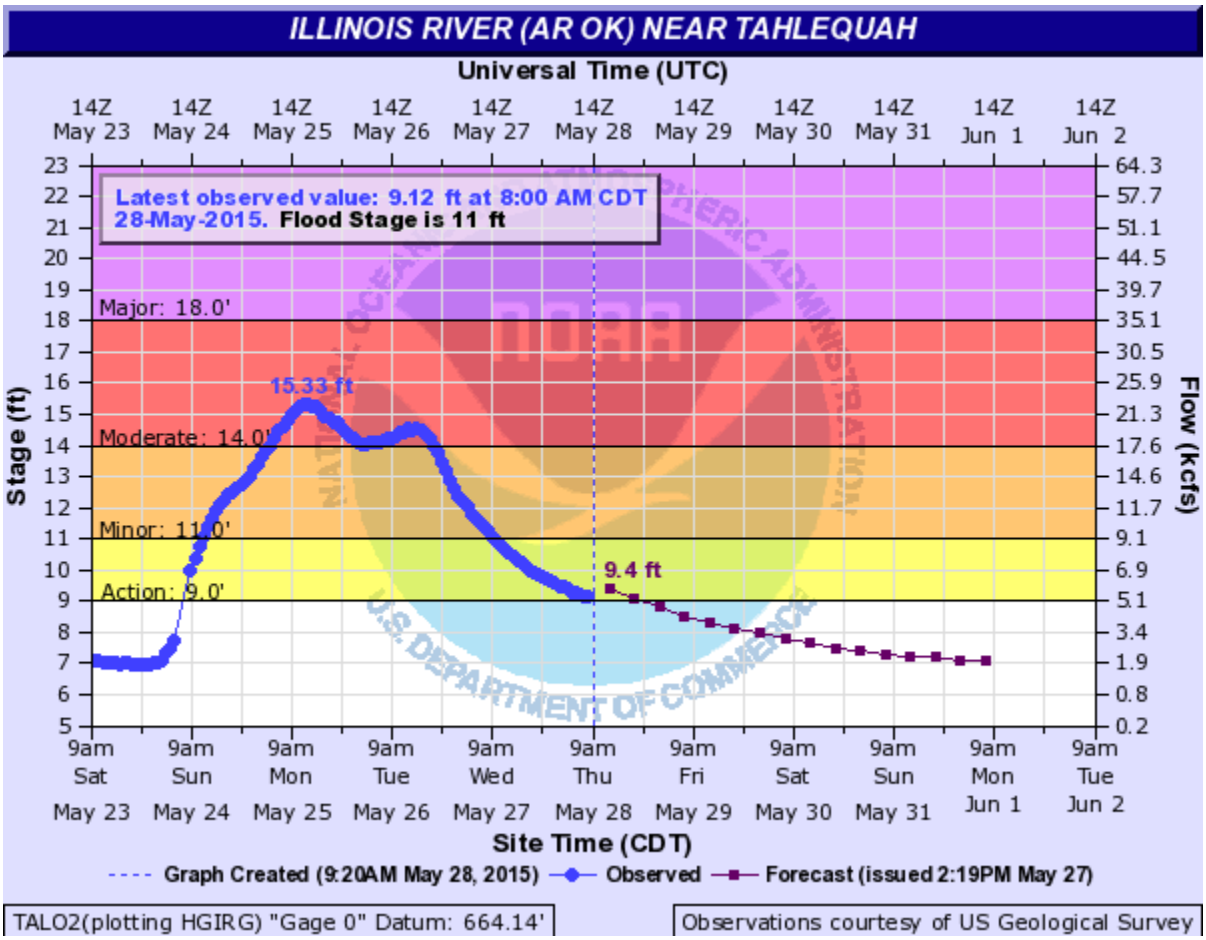
QUAO2(plotting HGIRG) "Gage 0" Datum: 746.25'

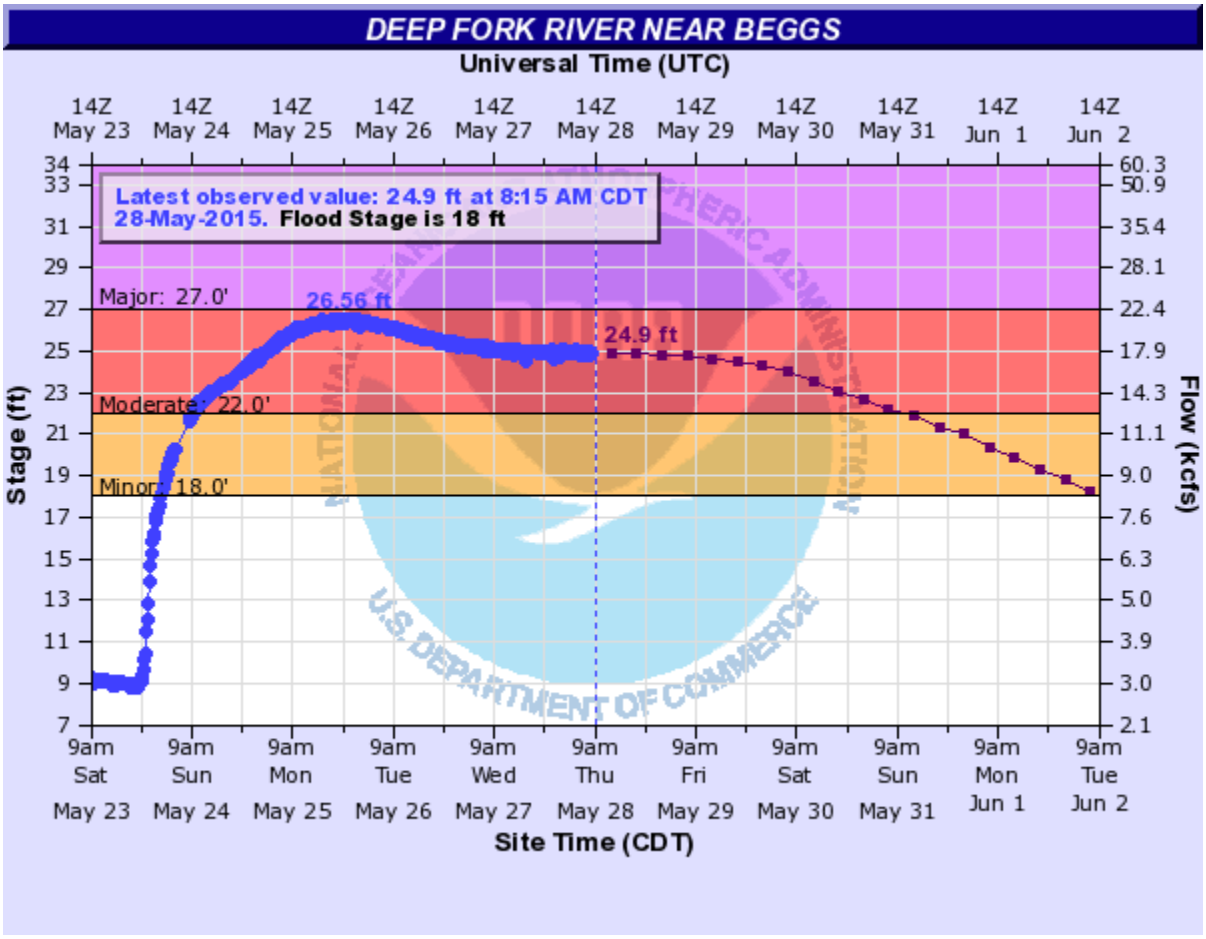
Observations courtesy of US Geological Survey

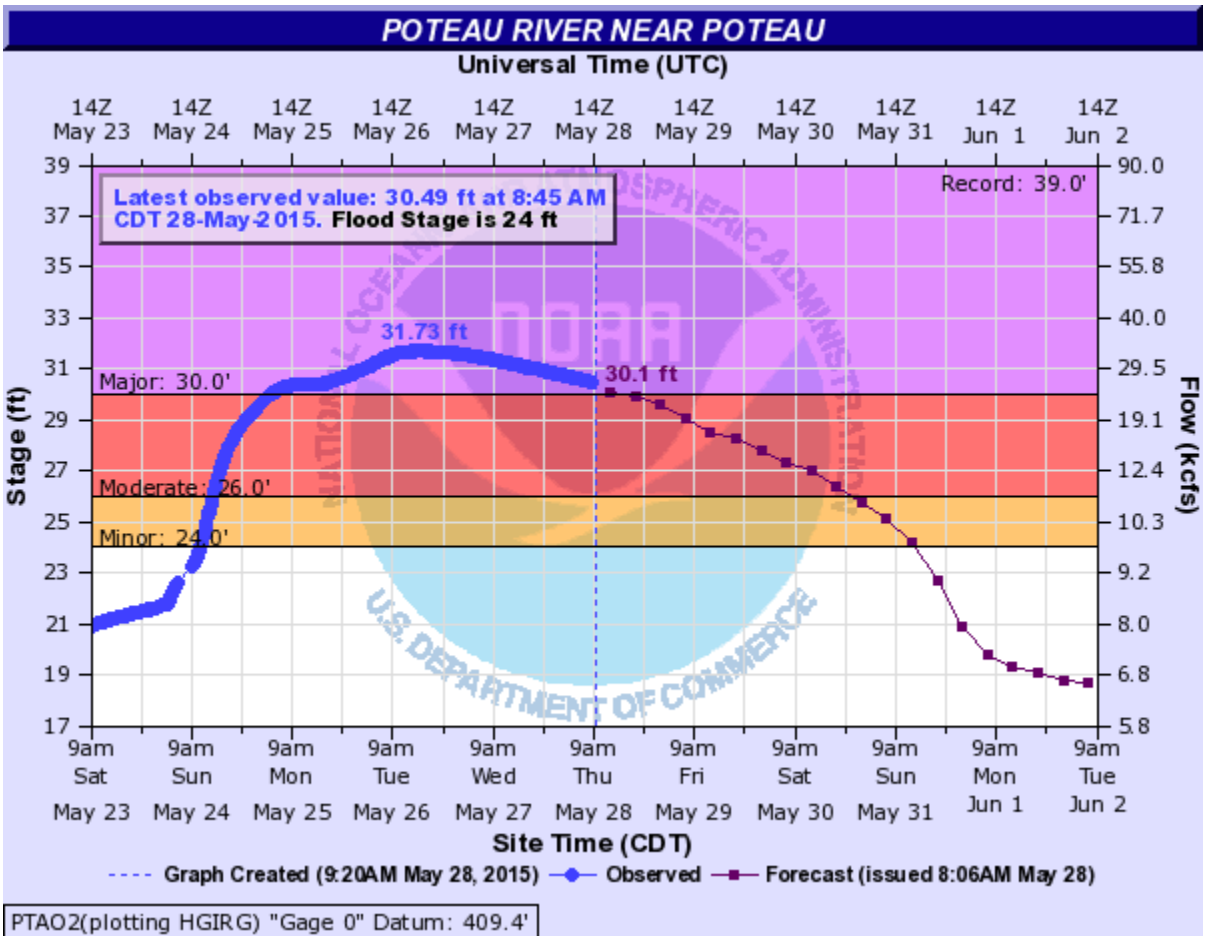

ILLINOIS RIVER (AR OK) NEAR WATTS
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 9.55 ft at 10:00 AM CDT 26-May-2015. Flood Stage is 13 ft
Moderate: 17.0'
Minor: 13.0'
15.11 ft
9.9 ft
Stage (ft)
Flow (kcfs)
23
22
20
18
16
14
12
10
8
6
4
2
38.4
32.7
24.3
19.3
15.6
12.1
9.0
6.3
4.0
2.2
0.9
0.2
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 8:40AM May 26)
WTTO2(plotting HGIRG) "Gage 0" Datum: 893.77'
Observations courtesy of US Geological Survey


FLINT CREEK (OK) NEAR KANSAS
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 8.06 ft at 10:30 AM CDT 26-May-2015. Flood Stage is 11 ft
Major: 15.0'
Moderate: 13.0'
Minor: 11.0'
Action: 8.0'
9.42 ft
8 ft
Stage (ft)
Flow (kcfs)
17
16
15
14
13
12
11
10
9
8
7
6
5
29.1
23.5
20.3
17.6
15.0
12.3
9.6
6.9
4.3
1.8
0.4
0.0
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:50AM May 26, 2015)
Observed
Forecast (issued 8:40AM May 26)
KNSO2(plotting HGIRG) "Gage 0" Datum: 854.59'
Observations courtesy of US Geological Survey

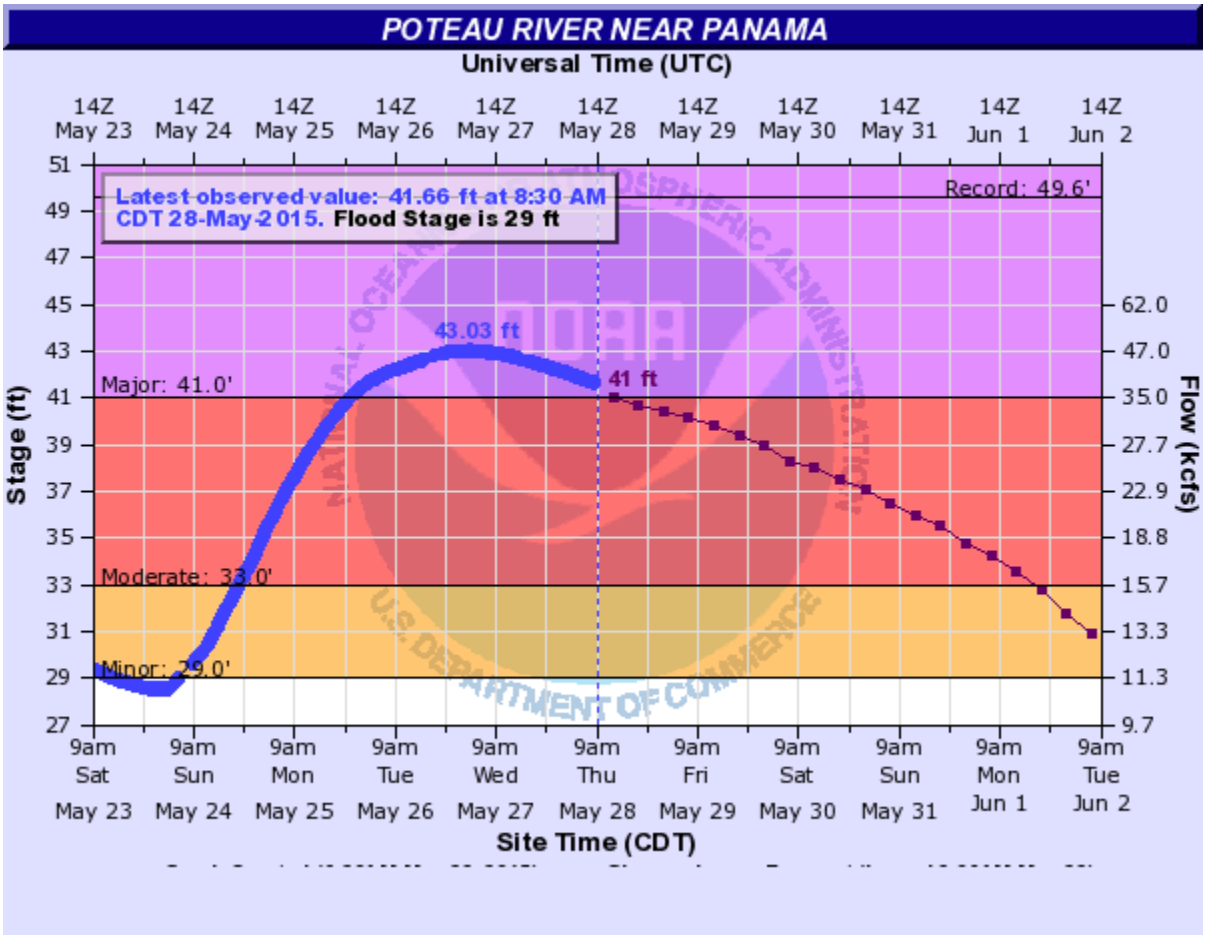

BARON FORK AT ELDON
Universal Time (UTC)
15Z May 21
15Z May 22
15Z May 23
15Z May 24
15Z May 25
15Z May 26
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
Latest observed value: 12.33 ft at 9:30 AM CDT 26-May-2015. Flood Stage is 18 ft
Moderate: 20.0'
Minor: 18.0'
17.24 ft
12 ft
Stage (ft)
Flow (kcfs)
10am Thu May 21
10am Fri May 22
10am Sat May 23
10am Sun May 24
10am Mon May 25
10am Tue May 26
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
Site Time (CDT)
Graph Created (10:49AM May 26, 2015)
Observed
Forecast (issued 8:40AM May 26)
ELDO2(plotting HGIRG) "Gage 0" Datum: 701.14'
Observations courtesy of US Geological Survey

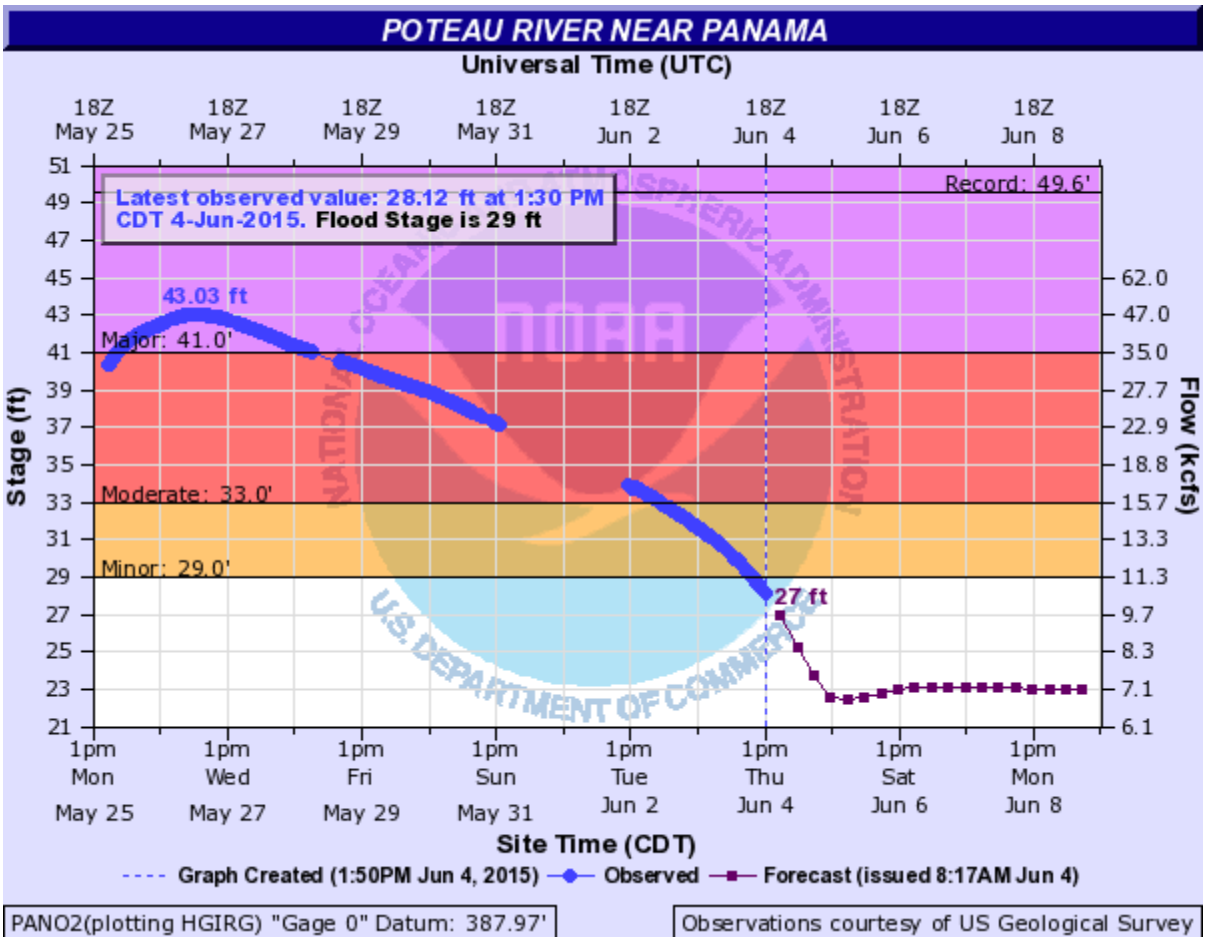

ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH
Universal Time (UTC)
14Z May 23
14Z May 24
14Z May 25
14Z May 26
14Z May 27
14Z May 28
14Z May 29
14Z May 30
14Z May 31
14Z Jun 1
14Z Jun 2
Latest observed value: 9.12 ft at 8:00 AM CDT 28-May-2015. Flood Stage is 11 ft
Major: 18.0'
Moderate: 14.0'
Minor: 11.0'
Action: 9.0'
15.33 ft
9.4 ft
Stage (ft)
Flow (kcfs)
9am Sat May 23
9am Sun May 24
9am Mon May 25
9am Tue May 26
9am Wed May 27
9am Thu May 28
9am Fri May 29
9am Sat May 30
9am Sun May 31
9am Mon Jun 1
9am Tue Jun 2
Site Time (CDT)
Graph Created (9:20AM May 28, 2015)
Observed
Forecast (issued 2:19PM May 27)
TALO2(plotting HGIRG) "Gage 0" Datum: 664.14'
Observations courtesy of US Geological Survey

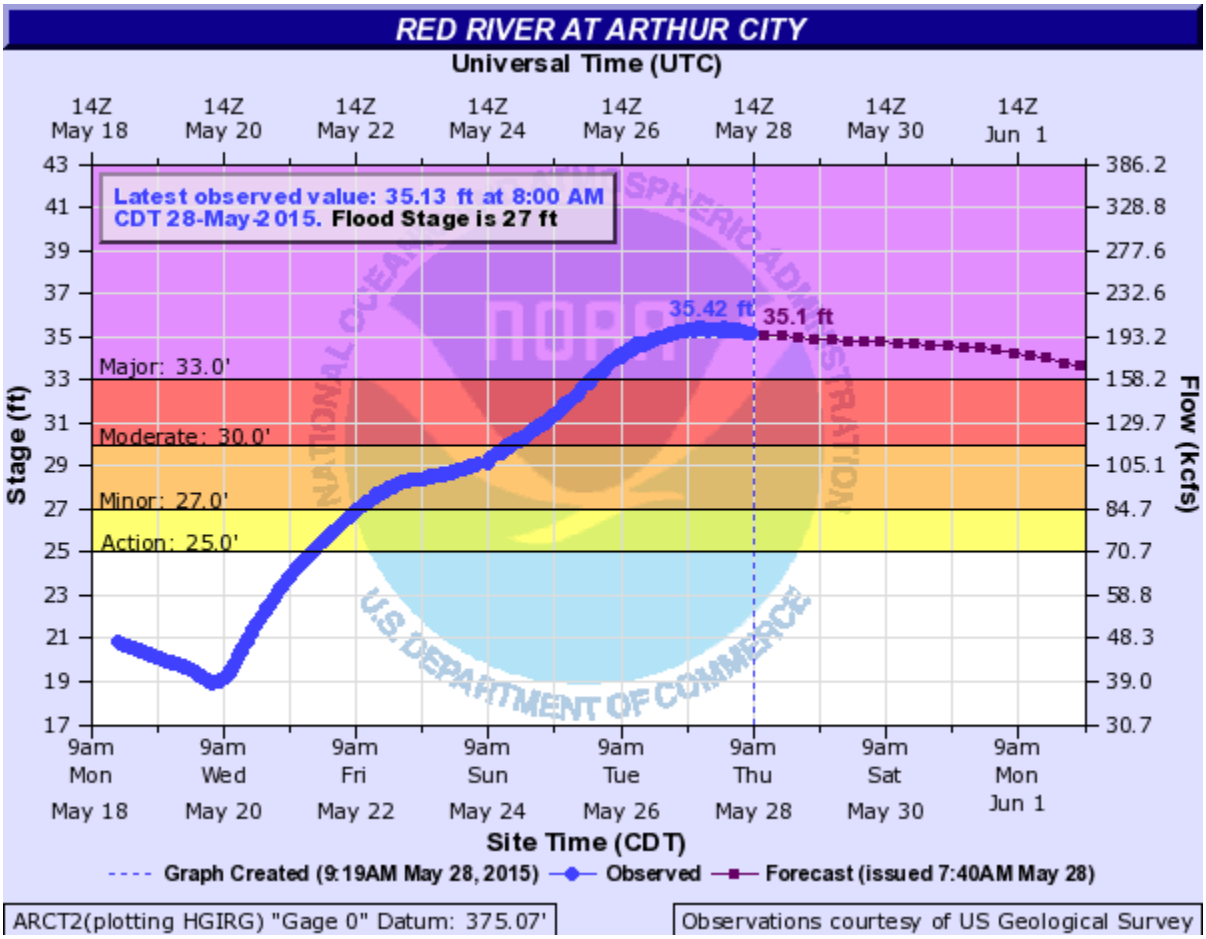


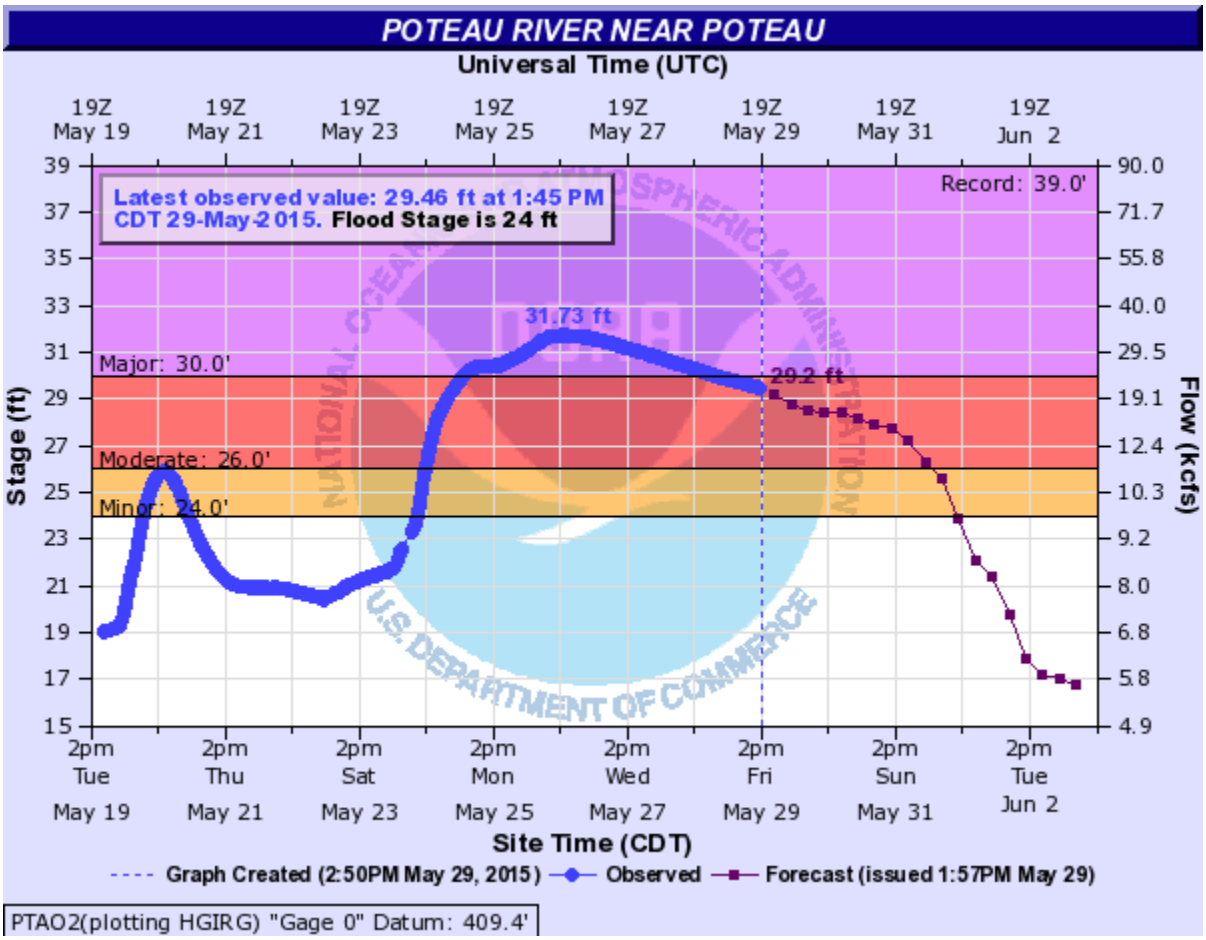


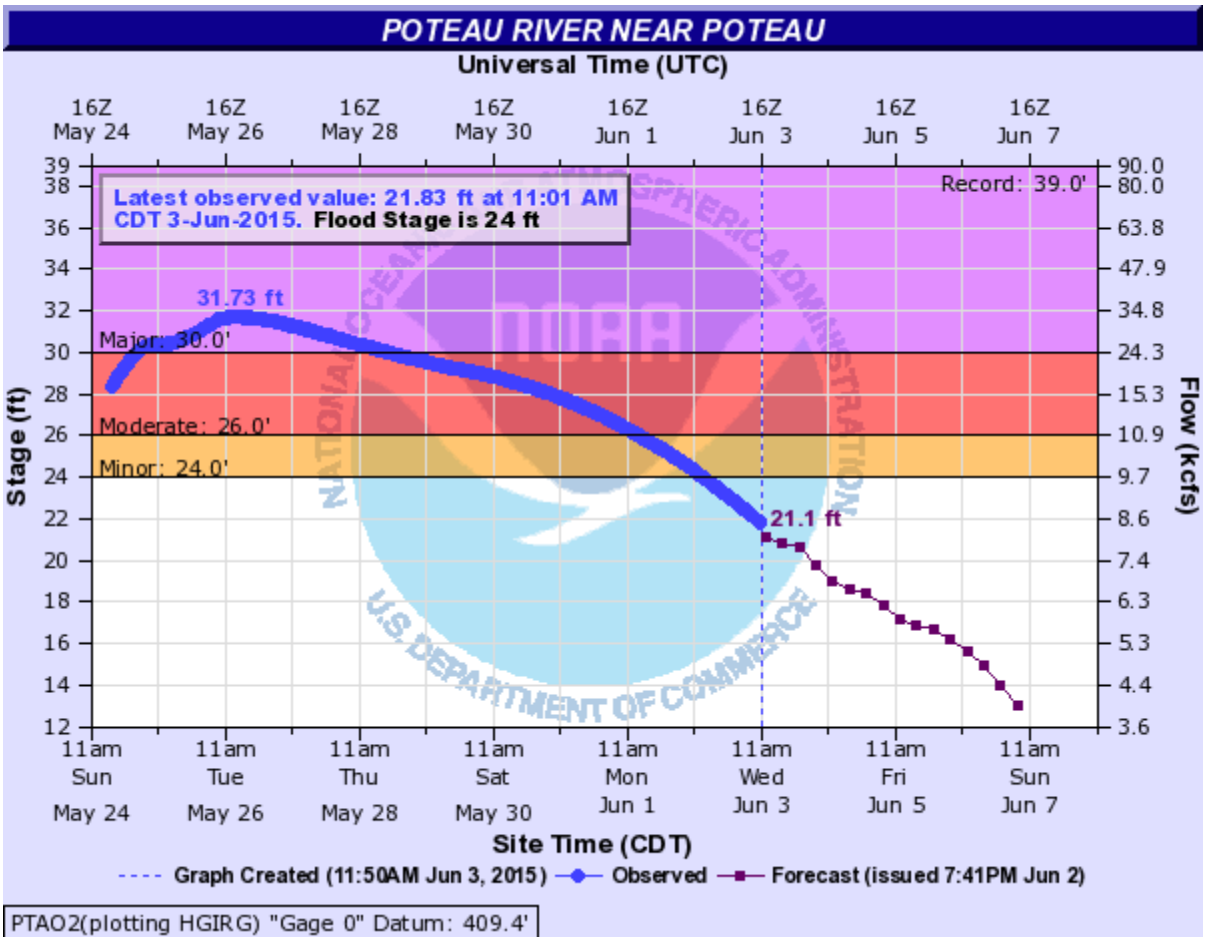
PTAO2(plotting HGIRG) "Gage 0" Datum: 409.4'

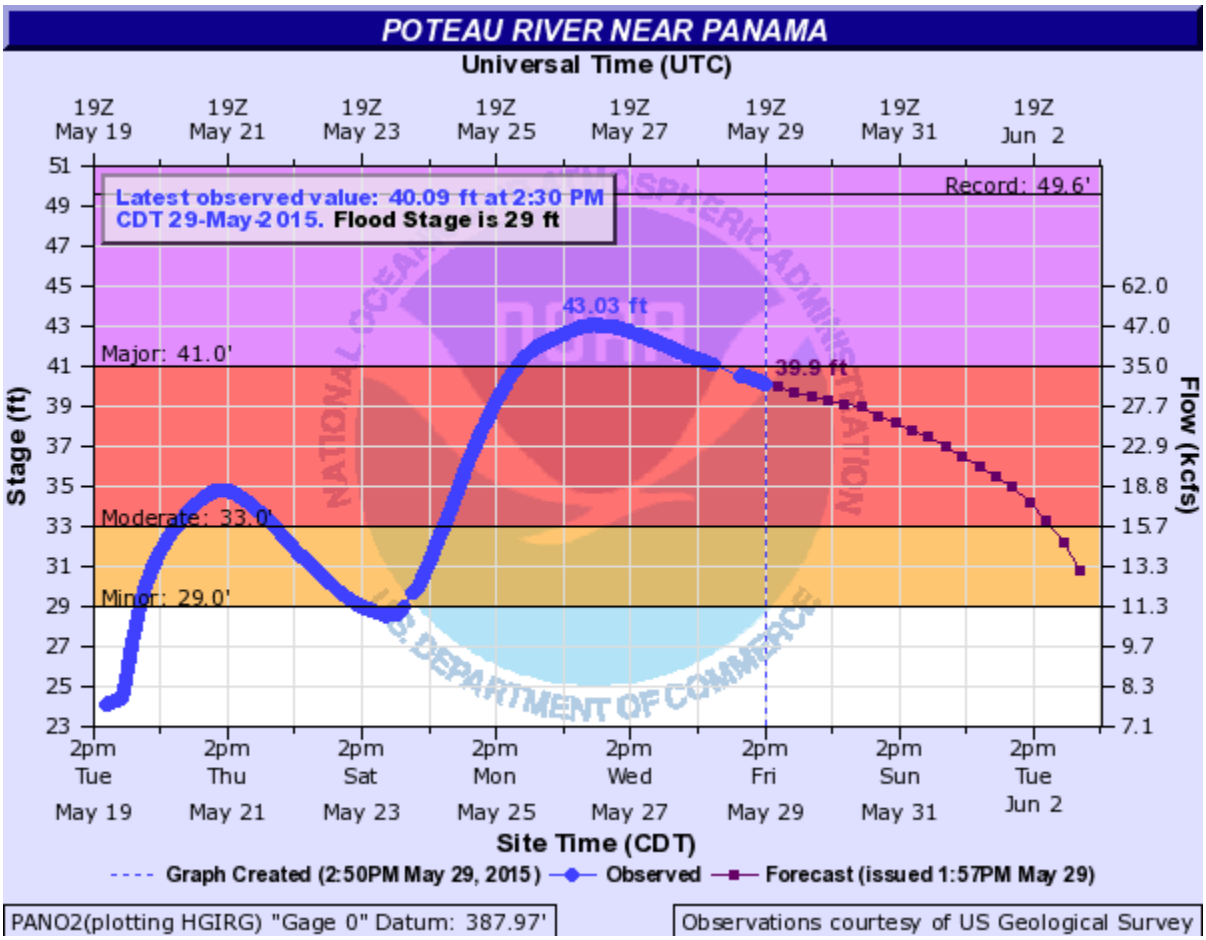

POTEAU RIVER NEAR PANAMA
Universal Time (UTC)
14Z May 23
14Z May 24
14Z May 25
14Z May 26
14Z May 27
14Z May 28
14Z May 29
14Z May 30
14Z May 31
14Z Jun 1
14Z Jun 2
Latest observed value: 41.66 ft at 8:30 AM CDT 28-May-2015. Flood Stage is 29 ft
Record: 49.6'
43.03 ft
41 ft
Major: 41.0'
Moderate: 33.0'
Minor: 29.0'
Stage (ft)
Flow (kcfs)
51
49
47
45
43
41
39
37
35
33
31
29
27
62.0
47.0
35.0
27.7
22.9
18.8
15.7
13.3
11.3
9.7
9am Sat May 23
9am Sun May 24
9am Mon May 25
9am Tue May 26
9am Wed May 27
9am Thu May 28
9am Fri May 29
9am Sat May 30
9am Sun May 31
9am Mon Jun 1
9am Tue Jun 2
Site Time (CDT)

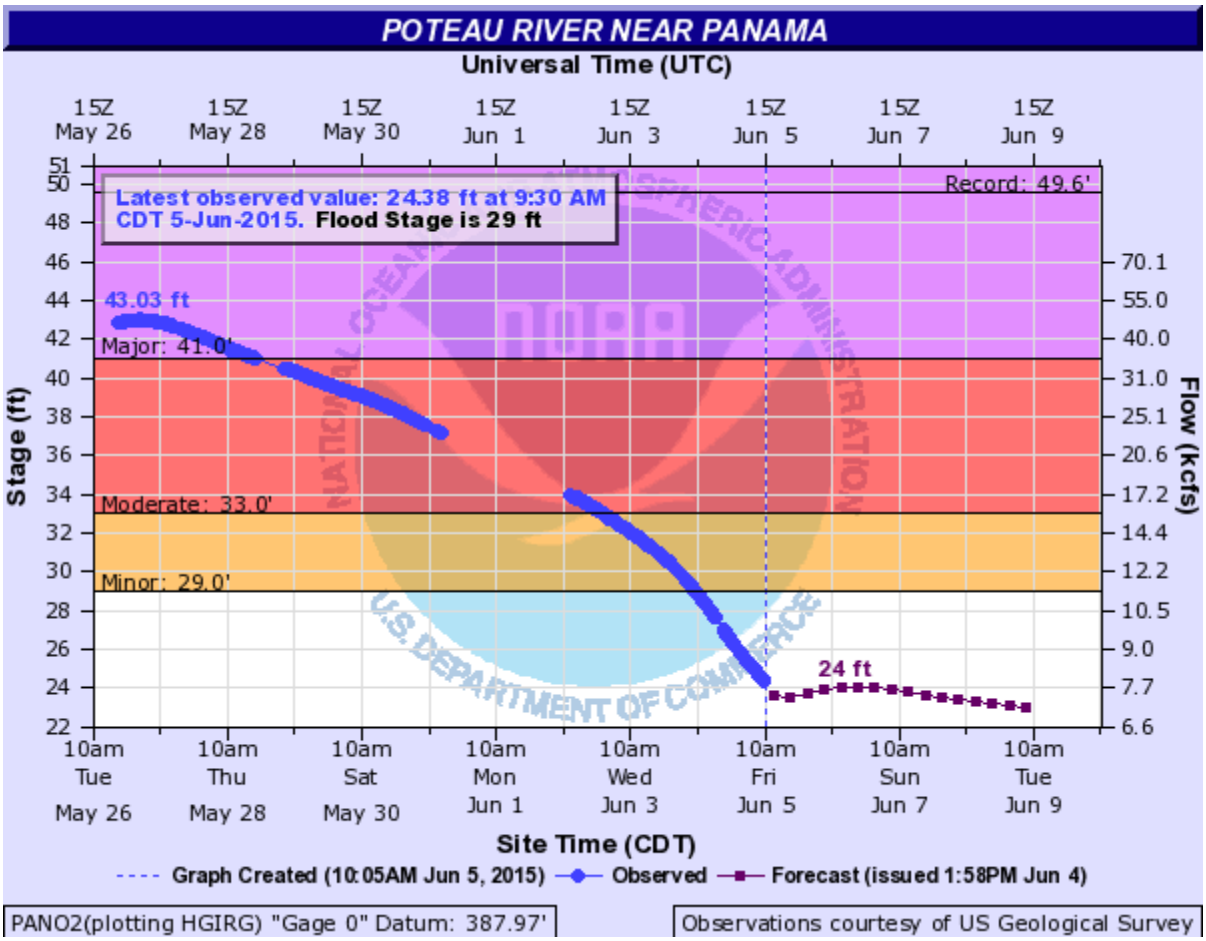

POTEAU RIVER NEAR PANAMA
Universal Time (UTC)
18Z May 25
18Z May 27
18Z May 29
18Z May 31
18Z Jun 2
18Z Jun 4
18Z Jun 6
18Z Jun 8
Latest observed value: 28.12 ft at 1:30 PM CDT 4-Jun-2015. Flood Stage is 29 ft
Record: 49.6'
43.03 ft
27 ft
Major: 41.0'
Moderate: 33.0'
Minor: 29.0'
Stage (ft)
Flow (kcfs)
51
49
47
45
43
41
39
37
35
33
31
29
27
25
23
21
62.0
47.0
35.0
27.7
22.9
18.8
15.7
13.3
11.3
9.7
8.3
7.1
6.1
1pm Mon May 25
1pm Wed May 27
1pm Fri May 29
1pm Sun May 31
1pm Tue Jun 2
1pm Thu Jun 4
1pm Sat Jun 6
1pm Mon Jun 8
Site Time (CDT)
Graph Created (1:50PM Jun 4, 2015)
Observed
Forecast (issued 8:17AM Jun 4)
PANO2(plotting HGIRG) "Gage 0" Datum: 387.97'
Observations courtesy of US Geological Survey

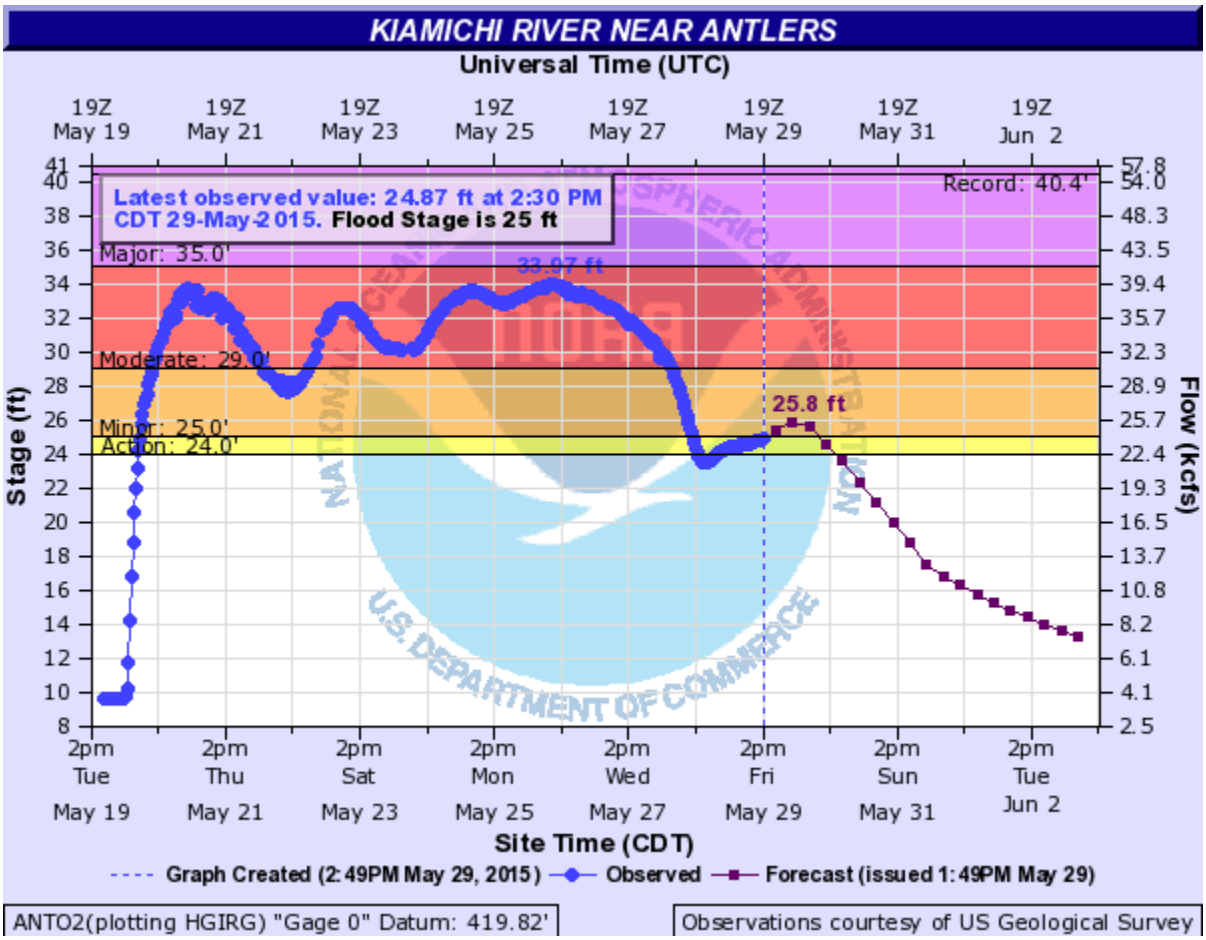

RED RIVER AT ARTHUR CITY
Universal Time (UTC)
14Z May 18
14Z May 20
14Z May 22
14Z May 24
14Z May 26
14Z May 28
14Z May 30
14Z Jun 1
Latest observed value: 35.13 ft at 8:00 AM CDT 28-May-2015. Flood Stage is 27 ft
35.42 ft
35.1 ft
Major: 33.0'
Moderate: 30.0'
Minor: 27.0'
Action: 25.0'
Stage (ft)
Flow (kcfs)
43
41
39
37
35
33
31
29
27
25
23
21
19
17
386.2
328.8
277.6
232.6
193.2
158.2
129.7
105.1
84.7
70.7
58.8
48.3
39.0
30.7
9am Mon May 18
9am Wed May 20
9am Fri May 22
9am Sun May 24
9am Tue May 26
9am Thu May 28
9am Sat May 30
9am Mon Jun 1
Site Time (CDT)
Graph Created (9:19AM May 28, 2015)
Observed
Forecast (issued 7:40AM May 28)
ARCT2(plotting HGIRG) "Gage 0" Datum: 375.07'
Observations courtesy of US Geological Survey

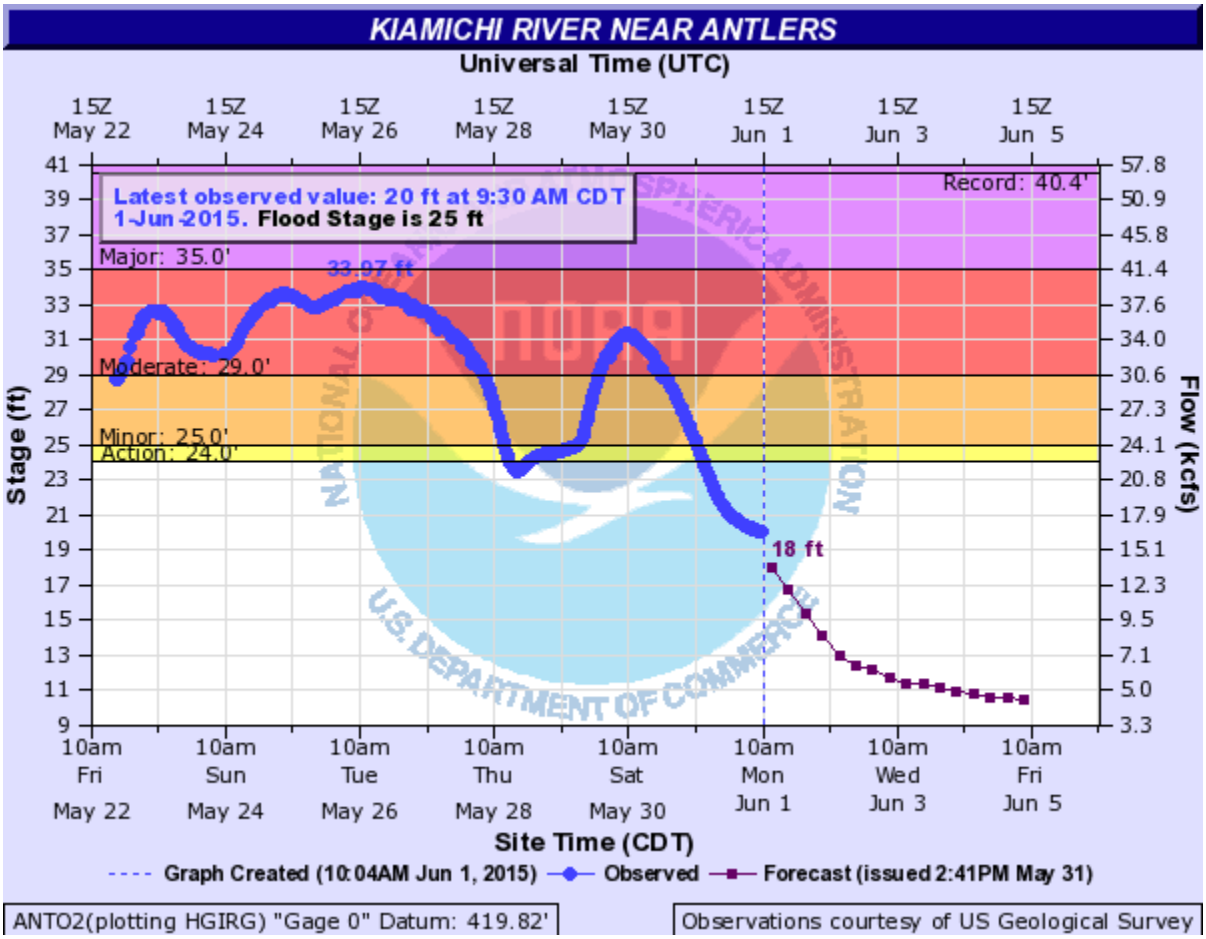

POTEAU RIVER NEAR POTEAU
Universal Time (UTC)
19Z May 19
19Z May 21
19Z May 23
19Z May 25
19Z May 27
19Z May 29
19Z May 31
19Z Jun 2
Latest observed value: 29.46 ft at 1:45 PM CDT 29-May-2015. Flood Stage is 24 ft
Record: 39.0'
31.73 ft
29.2 ft
Major: 30.0'
Moderate: 26.0'
Minor: 24.0'
Stage (ft)
Flow (kcfs)
39
37
35
33
31
29
27
25
23
21
19
17
15
90.0
71.7
55.8
40.0
29.5
19.1
12.4
10.3
9.2
8.0
6.8
5.8
4.9
2pm Tue May 19
2pm Thu May 21
2pm Sat May 23
2pm Mon May 25
2pm Wed May 27
2pm Fri May 29
2pm Sun May 31
2pm Tue Jun 2
Site Time (CDT)
Graph Created (2:50PM May 29, 2015)
Observed
Forecast (issued 1:57PM May 29)
PTAO2(plotting HGIRG) "Gage 0" Datum: 409.4'

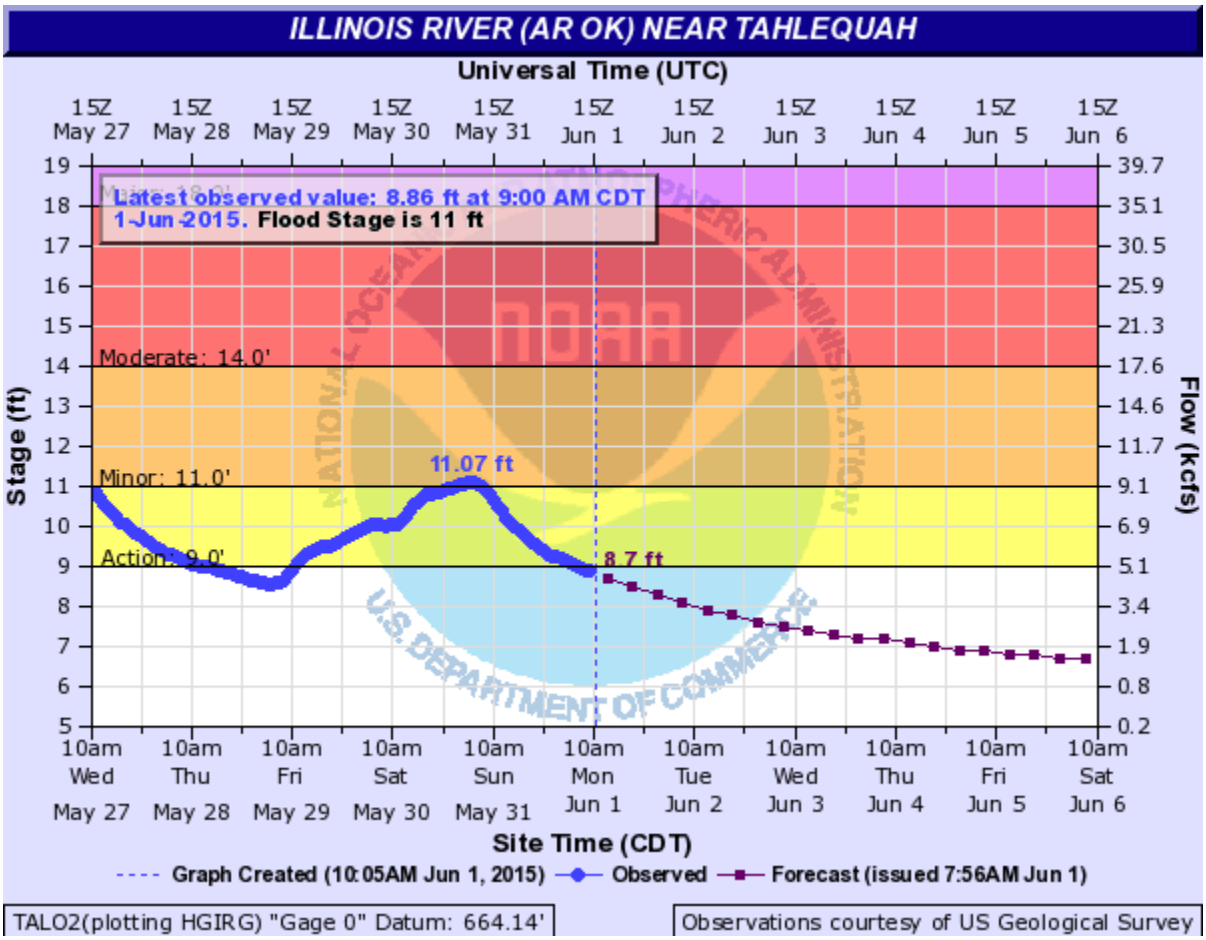

POTEAU RIVER NEAR POTEAU
Universal Time (UTC)
16Z May 24
16Z May 26
16Z May 28
16Z May 30
16Z Jun 1
16Z Jun 3
16Z Jun 5
16Z Jun 7
Latest observed value: 21.83 ft at 11:01 AM CDT 3-Jun-2015. Flood Stage is 24 ft
Record: 39.0'
31.73 ft
Major: 30.0'
Moderate: 26.0'
Minor: 24.0'
21.1 ft
Stage (ft)
Flow (kcfs)
11am Sun May 24
11am Tue May 26
11am Thu May 28
11am Sat May 30
11am Mon Jun 1
11am Wed Jun 3
11am Fri Jun 5
11am Sun Jun 7
Site Time (CDT)
Graph Created (11:50AM Jun 3, 2015)
Observed
Forecast (issued 7:41PM Jun 2)
PTAO2(plotting HGIRG) "Gage 0" Datum: 409.4'

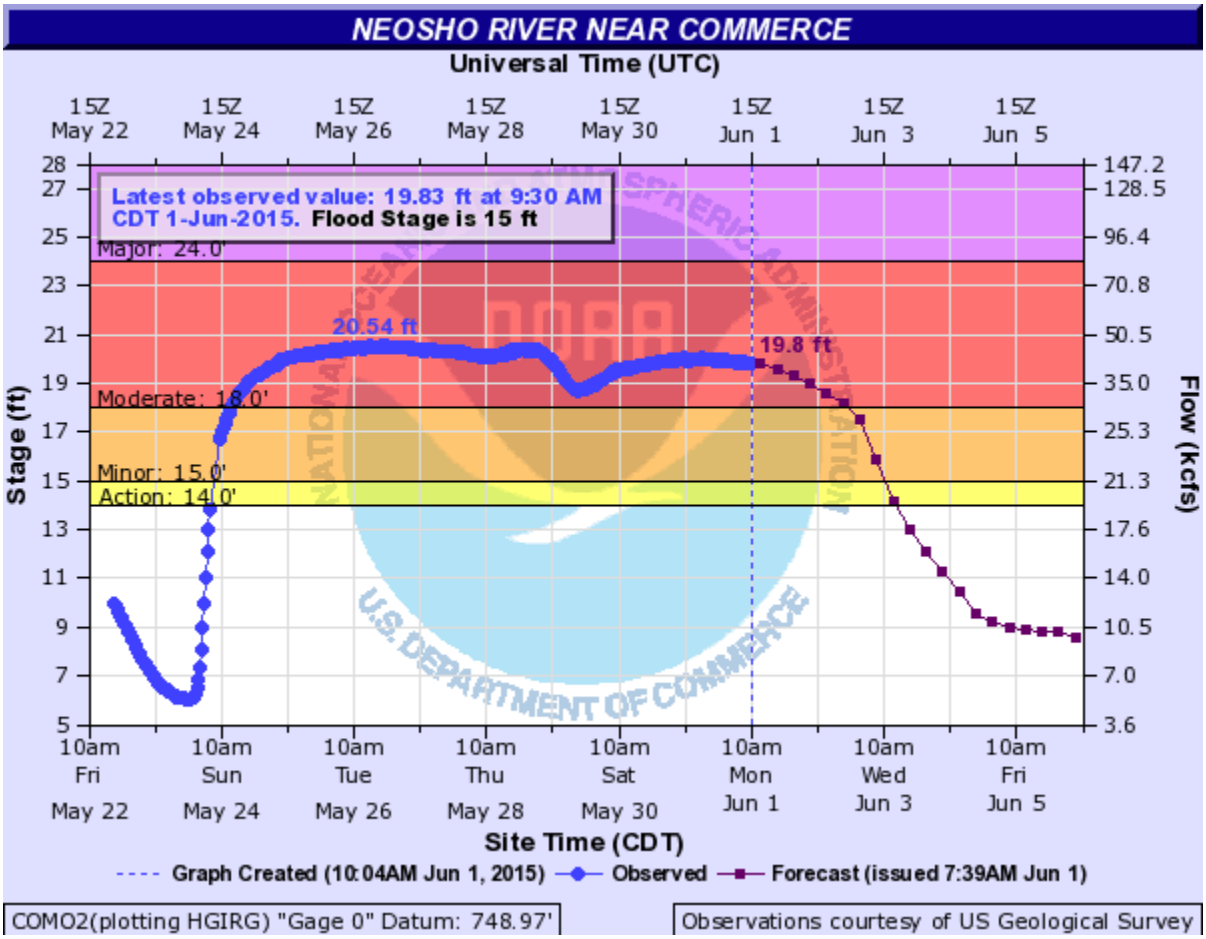

POTEAU RIVER NEAR PANAMA
Universal Time (UTC)
19Z May 19
19Z May 21
19Z May 23
19Z May 25
19Z May 27
19Z May 29
19Z May 31
19Z Jun 2
Latest observed value: 40.09 ft at 2:30 PM CDT 29-May-2015. Flood Stage is 29 ft
Record: 49.6'
43.03 ft
39.9 ft
Major: 41.0'
Moderate: 33.0'
Minor: 29.0'
Stage (ft)
Flow (kcfs)
2pm Tue May 19
2pm Thu May 21
2pm Sat May 23
2pm Mon May 25
2pm Wed May 27
2pm Fri May 29
2pm Sun May 31
2pm Tue Jun 2
Site Time (CDT)
Graph Created (2:50PM May 29, 2015)
Observed
Forecast (issued 1:57PM May 29)
PANO2(plotting HGIRG) "Gage 0" Datum: 387.97'
Observations courtesy of US Geological Survey

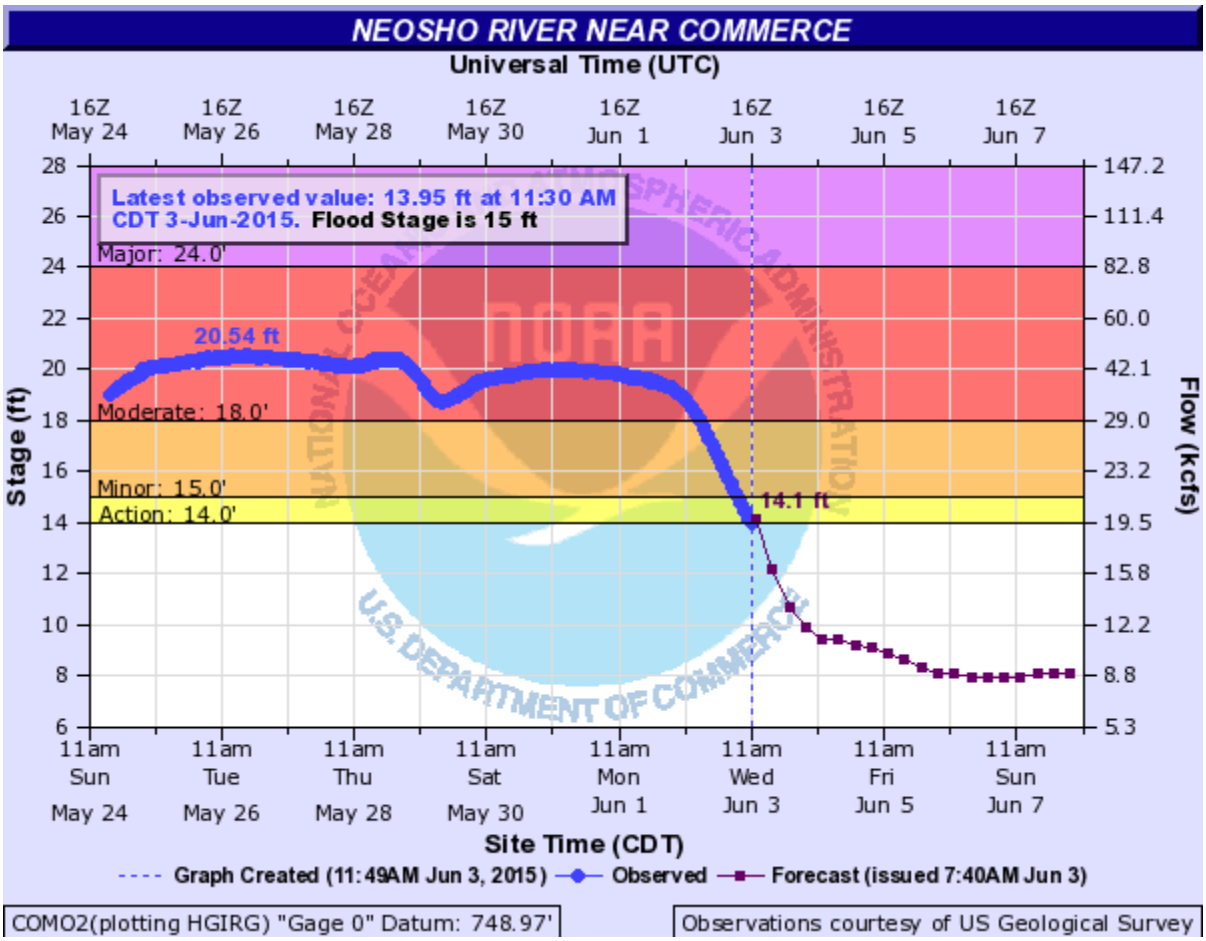

POTEAU RIVER NEAR PANAMA
Universal Time (UTC)
15Z May 26
15Z May 28
15Z May 30
15Z Jun 1
15Z Jun 3
15Z Jun 5
15Z Jun 7
15Z Jun 9
Latest observed value: 24.38 ft at 9:30 AM CDT 5-Jun-2015. Flood Stage is 29 ft
Record: 49.6'
43.03 ft
Major: 41.0'
Moderate: 33.0'
Minor: 29.0'
24 ft
Stage (ft)
Flow (kcfs)
10am Tue May 26
10am Thu May 28
10am Sat May 30
10am Mon Jun 1
10am Wed Jun 3
10am Fri Jun 5
10am Sun Jun 7
10am Tue Jun 9
Site Time (CDT)
Graph Created (10:05AM Jun 5, 2015)
Observed
Forecast (issued 1:58PM Jun 4)
PANO2(plotting HGIRG) "Gage 0" Datum: 387.97'
Observations courtesy of US Geological Survey

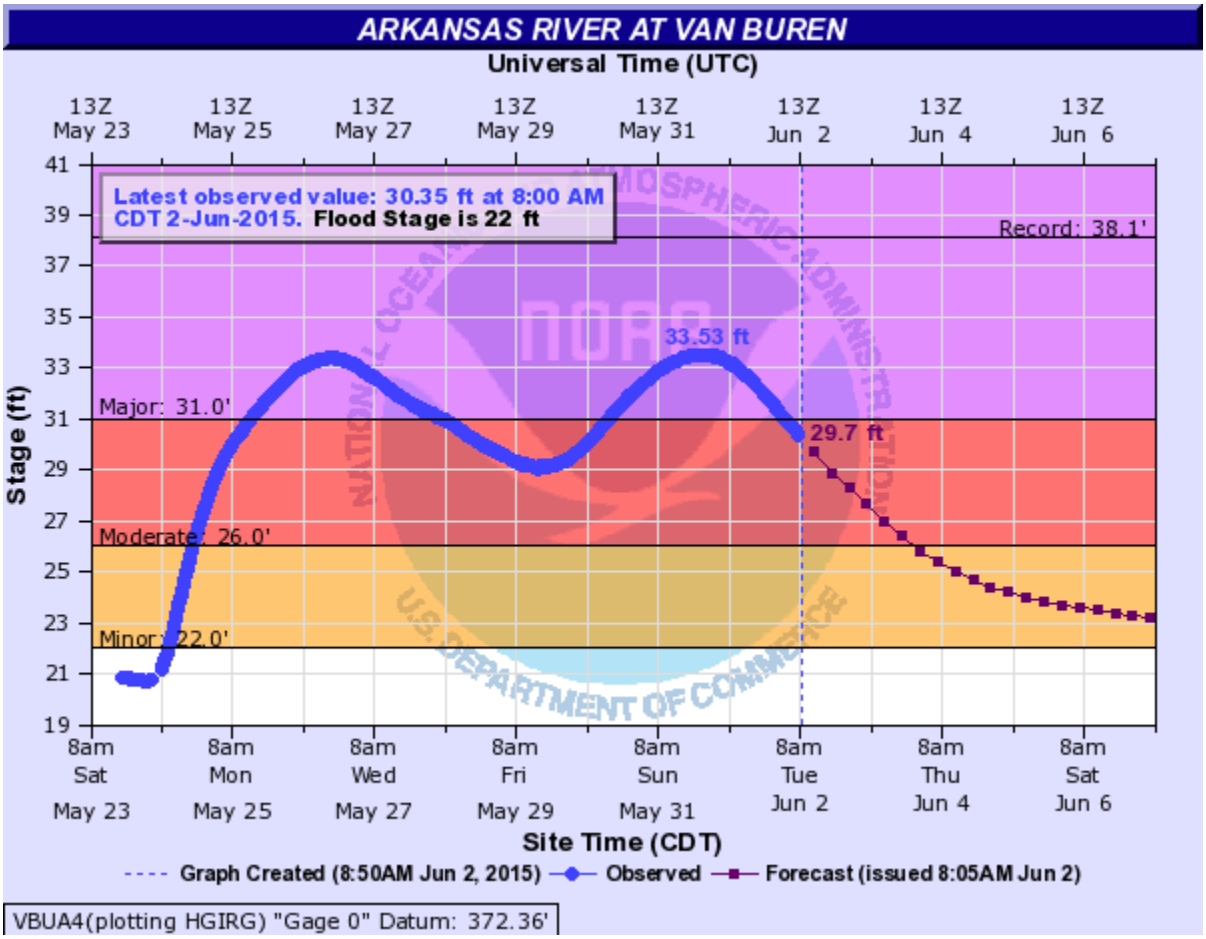

KIAMICHI RIVER NEAR ANTLERS
Universal Time (UTC)
19Z May 19
19Z May 21
19Z May 23
19Z May 25
19Z May 27
19Z May 29
19Z May 31
19Z Jun 2
Latest observed value: 24.87 ft at 2:30 PM CDT 29-May-2015. Flood Stage is 25 ft
Record: 40.4'
33.97 ft
Major: 35.0'
Moderate: 29.0'
Minor: 25.0'
Action: 24.0'
25.8 ft
Stage (ft)
Flow (kcfs)
2pm Tue May 19
2pm Thu May 21
2pm Sat May 23
2pm Mon May 25
2pm Wed May 27
2pm Fri May 29
2pm Sun May 31
2pm Tue Jun 2
Site Time (CDT)
Graph Created (2:49PM May 29, 2015)
Observed
Forecast (issued 1:49PM May 29)
ANTO2(plotting HGIRG) "Gage 0" Datum: 419.82'
Observations courtesy of US Geological Survey

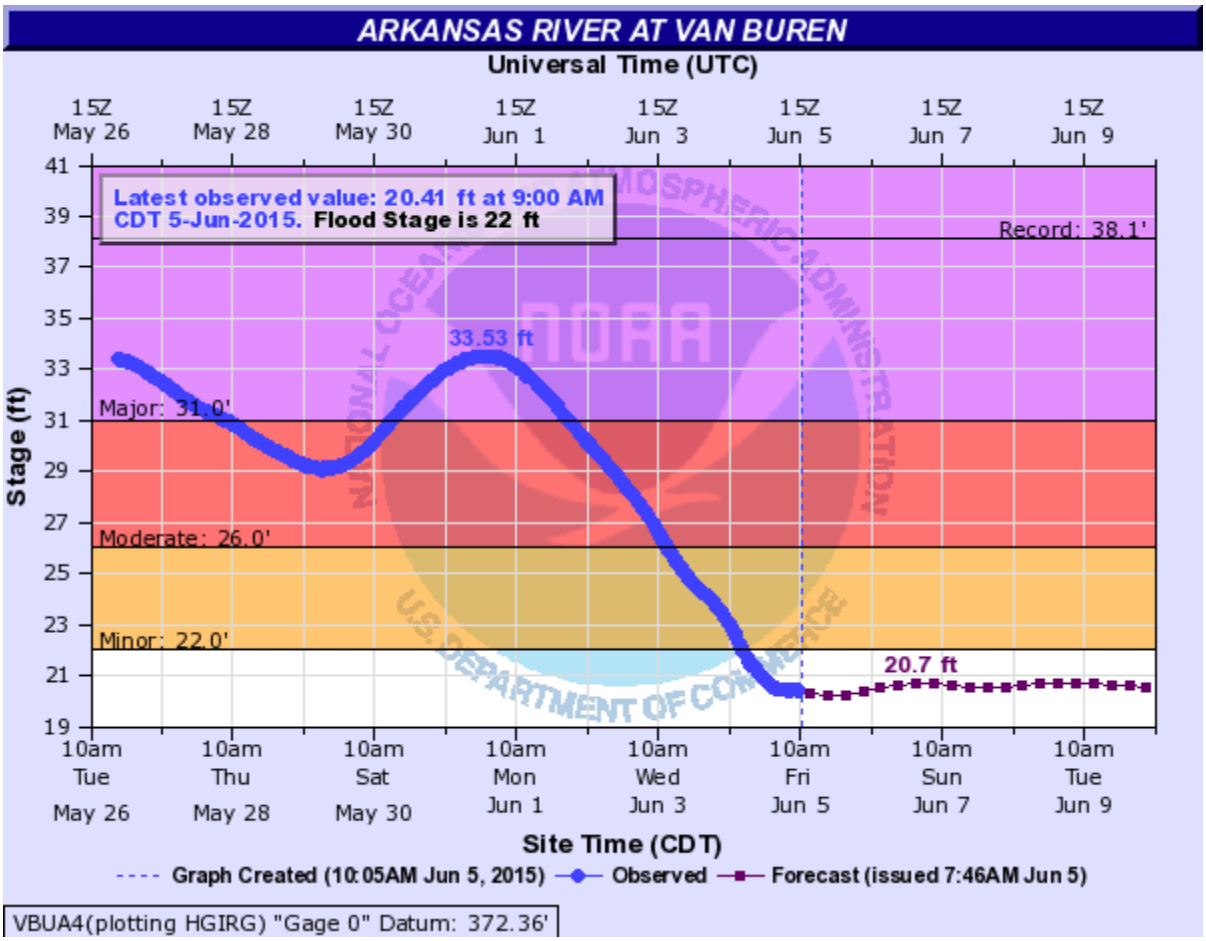

KIAMICHI RIVER NEAR ANTLERS
Universal Time (UTC)
15Z May 22
15Z May 24
15Z May 26
15Z May 28
15Z May 30
15Z Jun 1
15Z Jun 3
15Z Jun 5
Latest observed value: 20 ft at 9:30 AM CDT 1-Jun-2015. Flood Stage is 25 ft
Record: 40.4'
Major: 35.0'
Moderate: 29.0'
Minor: 25.0'
Action: 24.0'
33.07 ft
18 ft
Stage (ft)
Flow (kcfs)
10am Fri May 22
10am Sun May 24
10am Tue May 26
10am Thu May 28
10am Sat May 30
10am Mon Jun 1
10am Wed Jun 3
10am Fri Jun 5
Site Time (CDT)
Graph Created (10:04AM Jun 1, 2015)
Observed
Forecast (issued 2:41PM May 31)
ANTO2(plotting HGIRG) "Gage 0" Datum: 419.82'
Observations courtesy of US Geological Survey

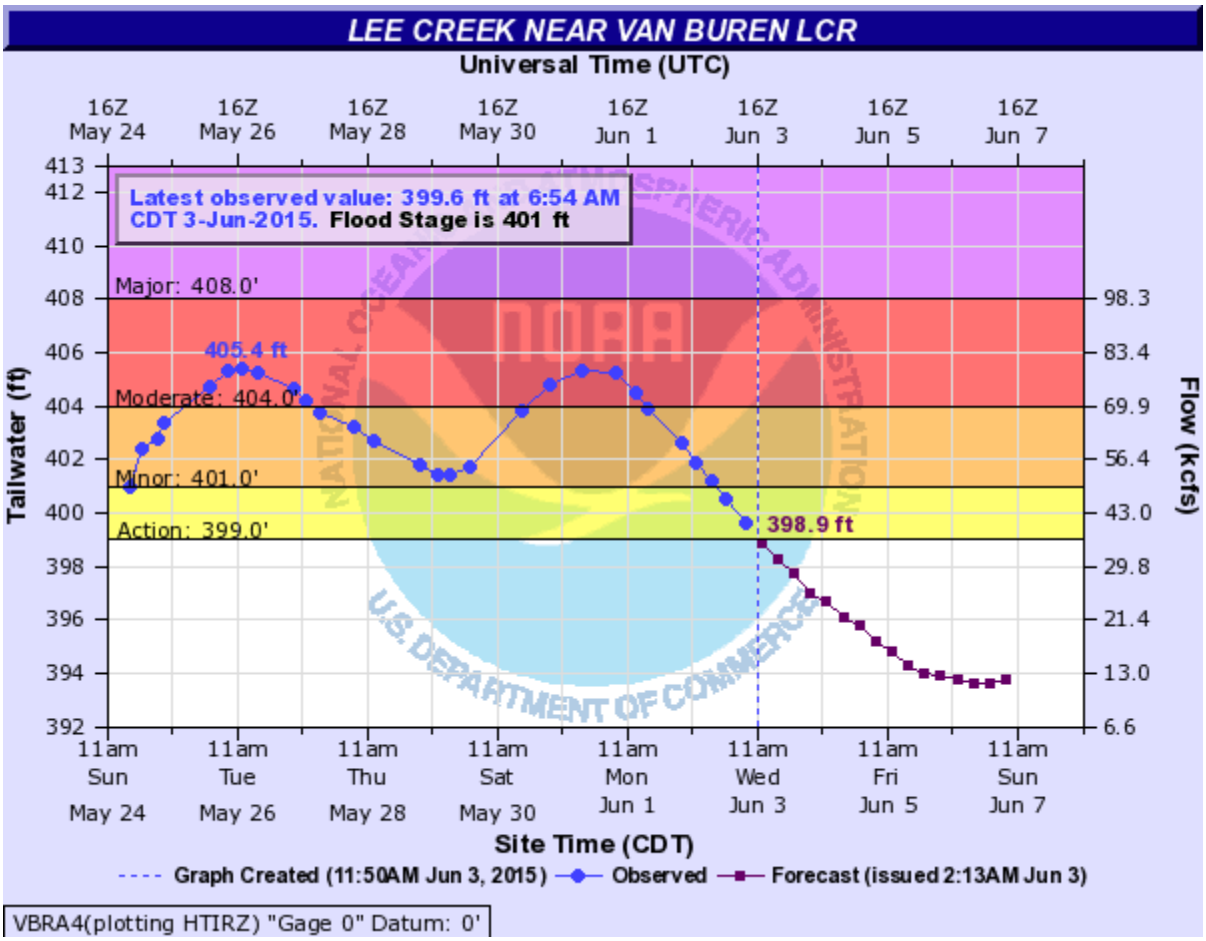

ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH
Universal Time (UTC)
15Z May 27
15Z May 28
15Z May 29
15Z May 30
15Z May 31
15Z Jun 1
15Z Jun 2
15Z Jun 3
15Z Jun 4
15Z Jun 5
15Z Jun 6
Latest observed value: 8.86 ft at 9:00 AM CDT 1-Jun-2015. Flood Stage is 11 ft
Moderate: 14.0'
Minor: 11.0'
Action: 9.0'
11.07 ft
8.7 ft
Stage (ft)
Flow (kcfs)
10am Wed May 27
10am Thu May 28
10am Fri May 29
10am Sat May 30
10am Sun May 31
10am Mon Jun 1
10am Tue Jun 2
10am Wed Jun 3
10am Thu Jun 4
10am Fri Jun 5
10am Sat Jun 6
Site Time (CDT)
Graph Created (10:05AM Jun 1, 2015)
Observed
Forecast (issued 7:56AM Jun 1)
TALO2(plotting HGIRG) "Gage 0" Datum: 664.14'
Observations courtesy of US Geological Survey

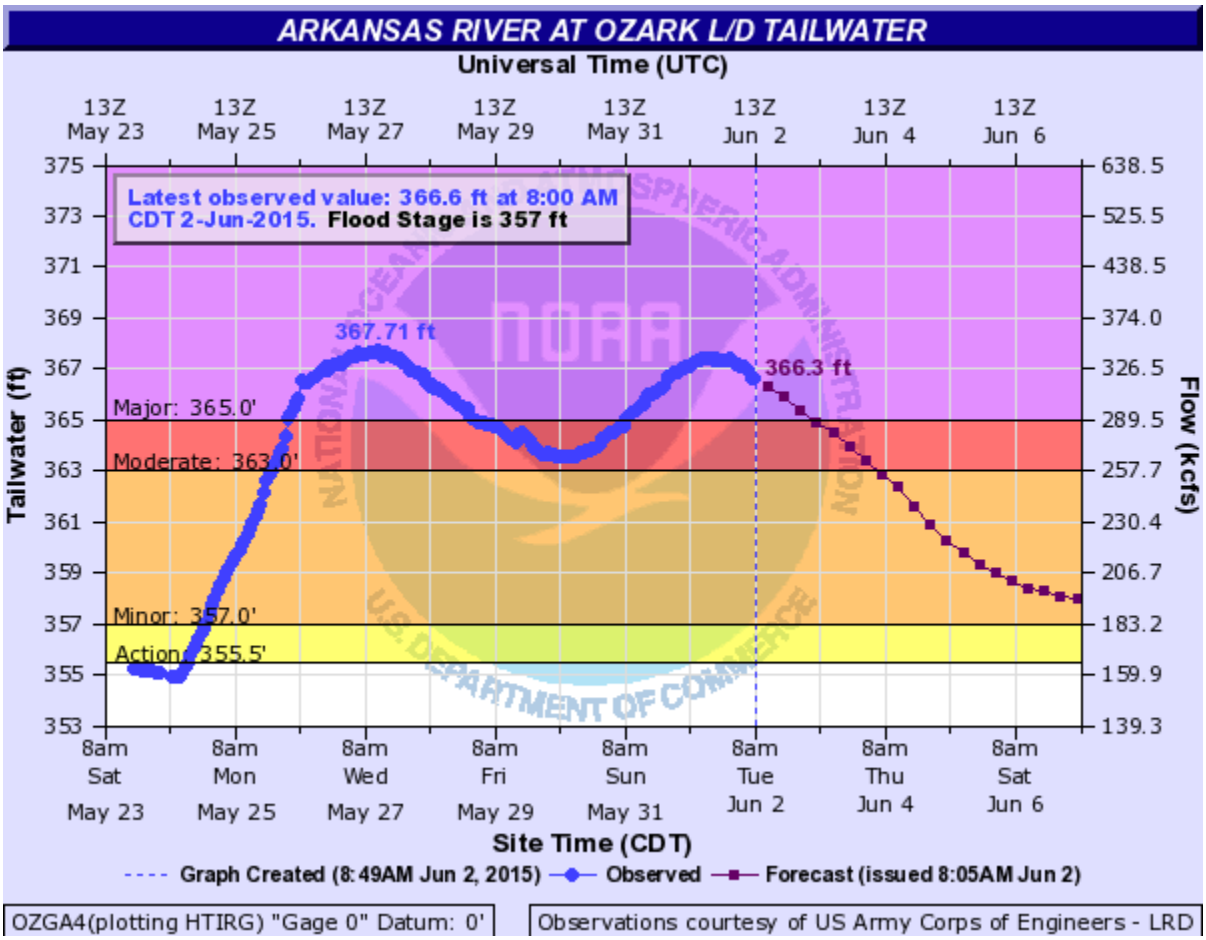

NEOSHO RIVER NEAR COMMERCE
Universal Time (UTC)
15Z May 22
15Z May 24
15Z May 26
15Z May 28
15Z May 30
15Z Jun 1
15Z Jun 3
15Z Jun 5
Latest observed value: 19.83 ft at 9:30 AM CDT 1-Jun-2015. Flood Stage is 15 ft
Major: 24.0'
Moderate: 18.0'
Minor: 15.0'
Action: 14.0'
20.54 ft
19.8 ft
Stage (ft)
Flow (kcfs)
28 27 25 23 21 19 17 15 13 11 9 7 5
147.2 128.5 96.4 70.8 50.5 35.0 25.3 21.3 17.6 14.0 10.5 7.0 3.6
10am Fri May 22
10am Sun May 24
10am Tue May 26
10am Thu May 28
10am Sat May 30
10am Mon Jun 1
10am Wed Jun 3
10am Fri Jun 5
Site Time (CDT)
Graph Created (10:04AM Jun 1, 2015)
Observed
Forecast (issued 7:39AM Jun 1)
COMO2(plotting HGIRG) "Gage 0" Datum: 748.97'
Observations courtesy of US Geological Survey

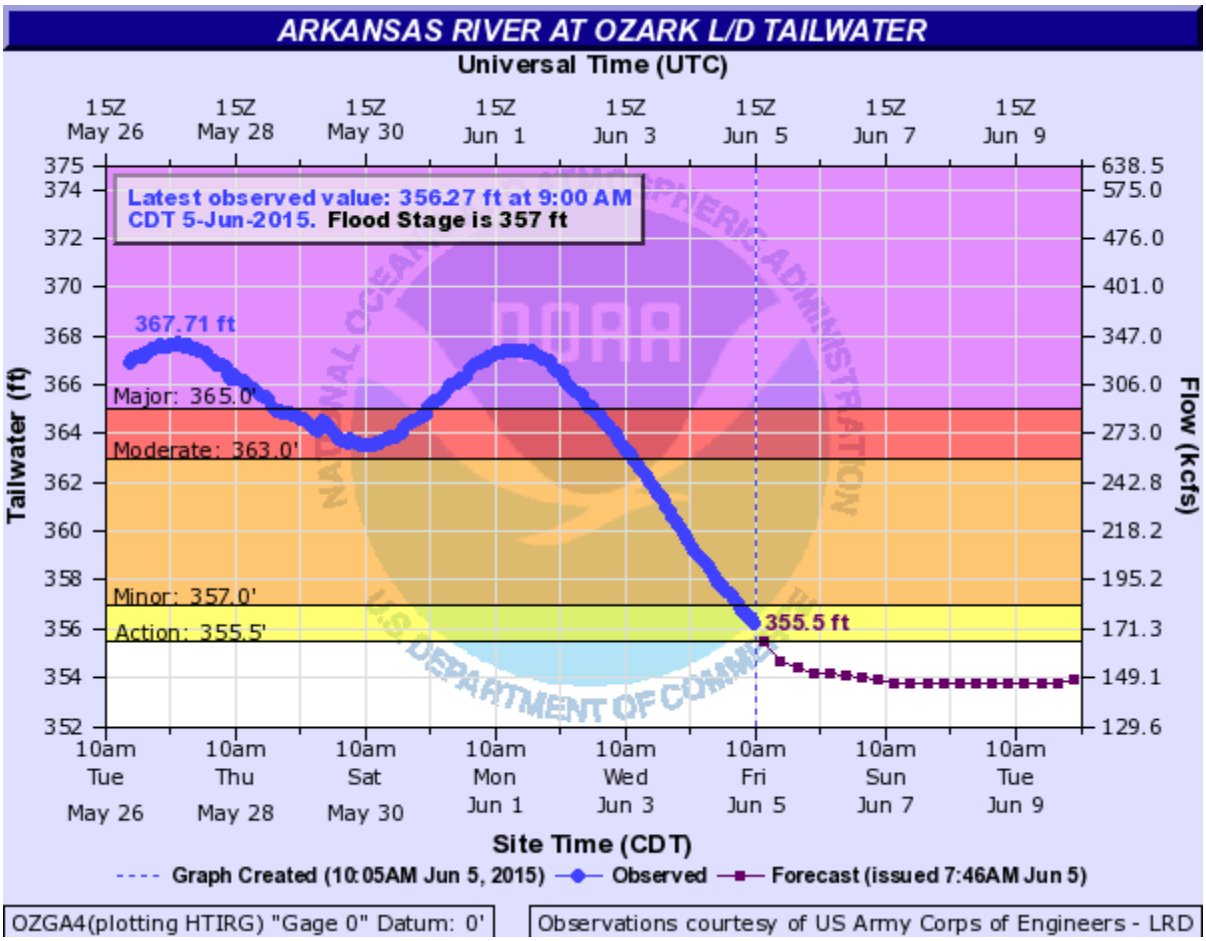

NEOSHO RIVER NEAR COMMERCE
Universal Time (UTC)
16Z May 24
16Z May 26
16Z May 28
16Z May 30
16Z Jun 1
16Z Jun 3
16Z Jun 5
16Z Jun 7
Latest observed value: 13.95 ft at 11:30 AM CDT 3-Jun-2015. Flood Stage is 15 ft
Major: 24.0'
Moderate: 18.0'
Minor: 15.0'
Action: 14.0'
20.54 ft
14.1 ft
Stage (ft)
Flow (kcfs)
28 26 24 22 20 18 16 14 12 10 8 6
147.2 111.4 82.8 60.0 42.1 29.0 23.2 19.5 15.8 12.2 8.8 5.3
11am Sun May 24
11am Tue May 26
11am Thu May 28
11am Sat May 30
11am Mon Jun 1
11am Wed Jun 3
11am Fri Jun 5
11am Sun Jun 7
Site Time (CDT)
Graph Created (11:49AM Jun 3, 2015)
Observed
Forecast (issued 7:40AM Jun 3)
COMO2(plotting HGIRG) "Gage 0" Datum: 748.97'
Observations courtesy of US Geological Survey

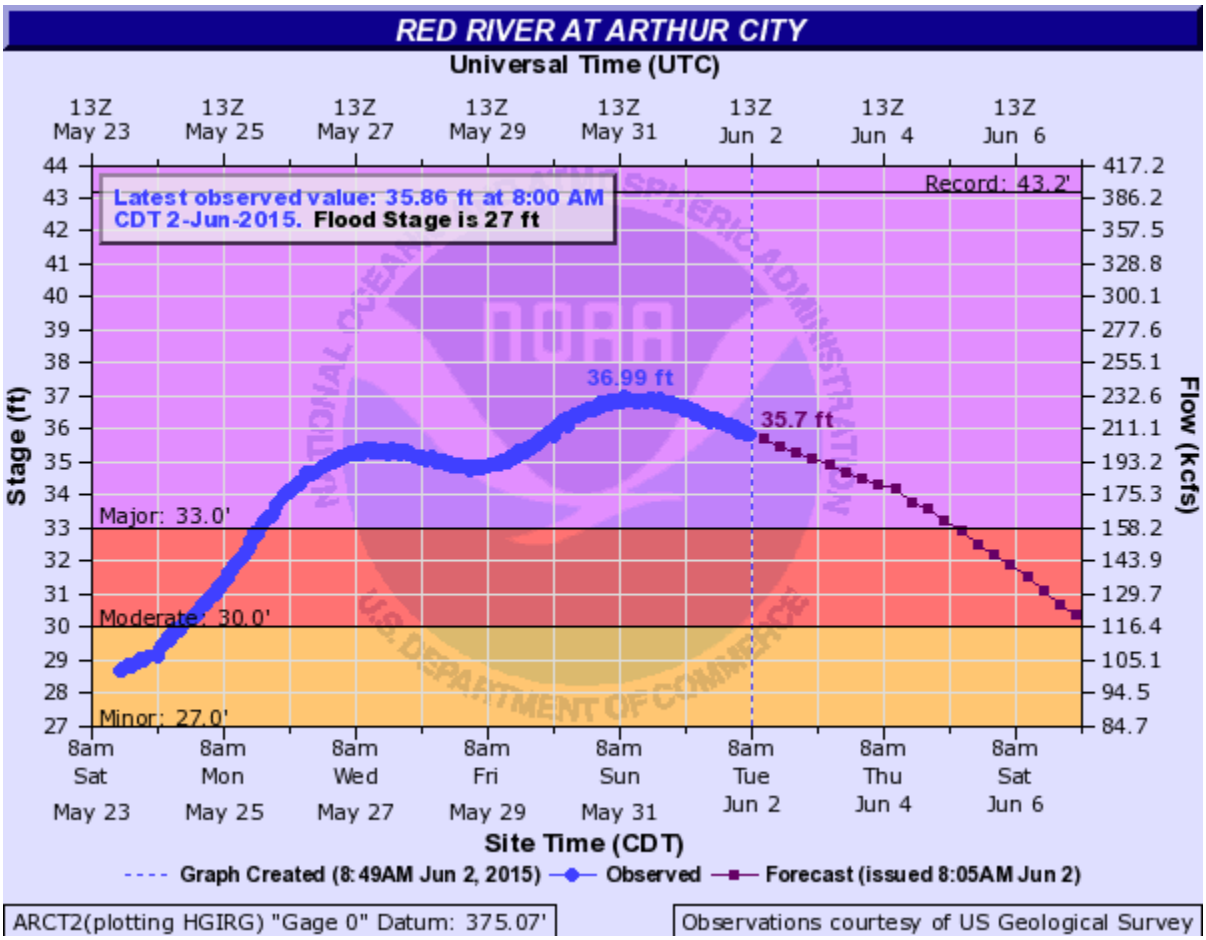

ARKANSAS RIVER AT VAN BUREN
Universal Time (UTC)
13Z May 23
13Z May 25
13Z May 27
13Z May 29
13Z May 31
13Z Jun 2
13Z Jun 4
13Z Jun 6
Latest observed value: 30.35 ft at 8:00 AM CDT 2-Jun-2015. Flood Stage is 22 ft
Record: 38.1'
33.53 ft
29.7 ft
Major: 31.0'
Moderate: 26.0'
Minor: 22.0'
Stage (ft)
41
39
37
35
33
31
29
27
25
23
21
19
8am Sat May 23
8am Mon May 25
8am Wed May 27
8am Fri May 29
8am Sun May 31
8am Tue Jun 2
8am Thu Jun 4
8am Sat Jun 6
Site Time (CDT)
Graph Created (8:50AM Jun 2, 2015)
Observed
Forecast (issued 8:05AM Jun 2)
VBUA4(plotting HGIRG) "Gage 0" Datum: 372.36'

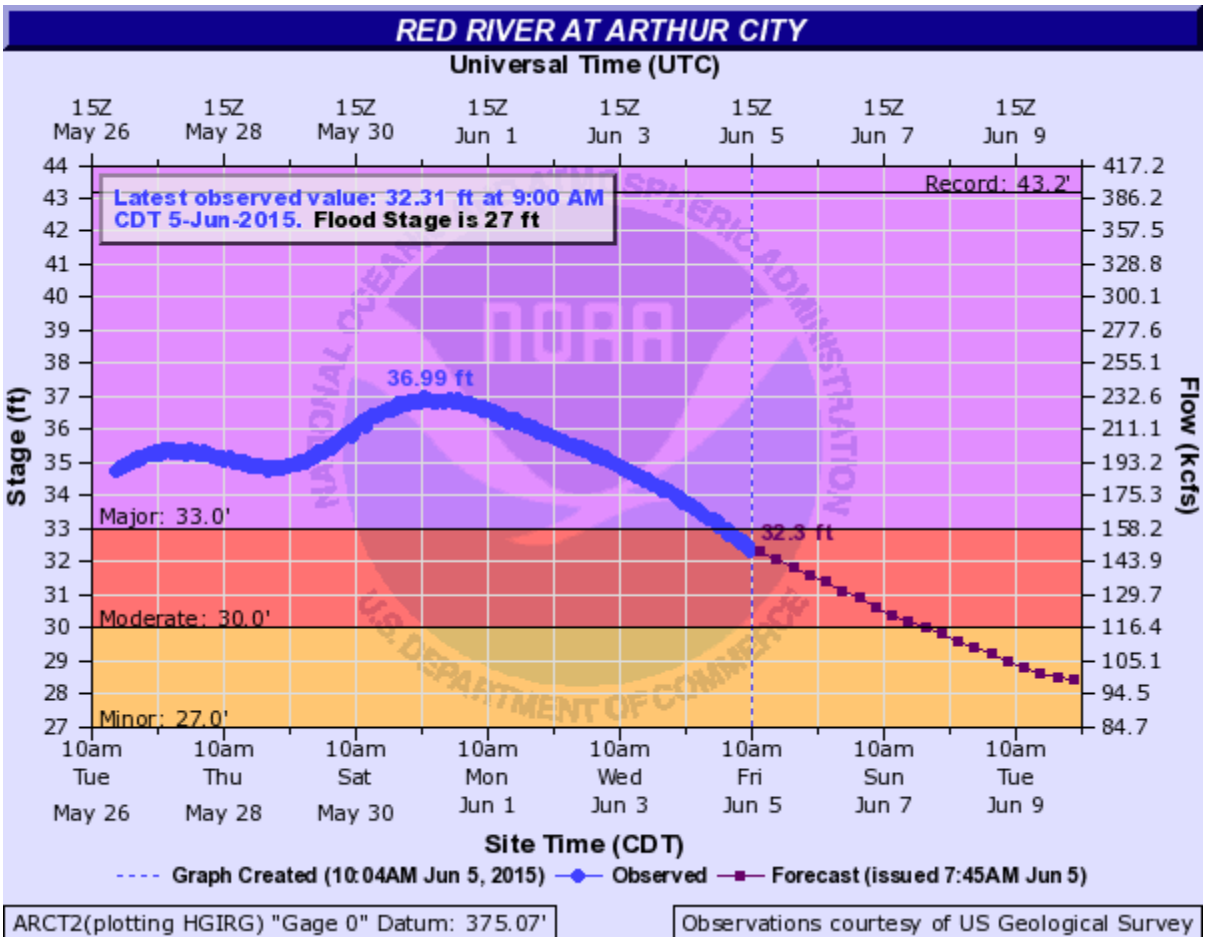

ARKANSAS RIVER AT VAN BUREN
Universal Time (UTC)
15Z May 26
15Z May 28
15Z May 30
15Z Jun 1
15Z Jun 3
15Z Jun 5
15Z Jun 7
15Z Jun 9
Latest observed value: 20.41 ft at 9:00 AM CDT 5-Jun-2015. Flood Stage is 22 ft
Record: 38.1'
33.53 ft
20.7 ft
Major: 31.0'
Moderate: 26.0'
Minor: 22.0'
Stage (ft)
41
39
37
35
33
31
29
27
25
23
21
19
10am Tue May 26
10am Thu May 28
10am Sat May 30
10am Mon Jun 1
10am Wed Jun 3
10am Fri Jun 5
10am Sun Jun 7
10am Tue Jun 9
Site Time (CDT)
Graph Created (10:05AM Jun 5, 2015)
Observed
Forecast (issued 7:46AM Jun 5)
VBUA4(plotting HGIRG) "Gage 0" Datum: 372.36'

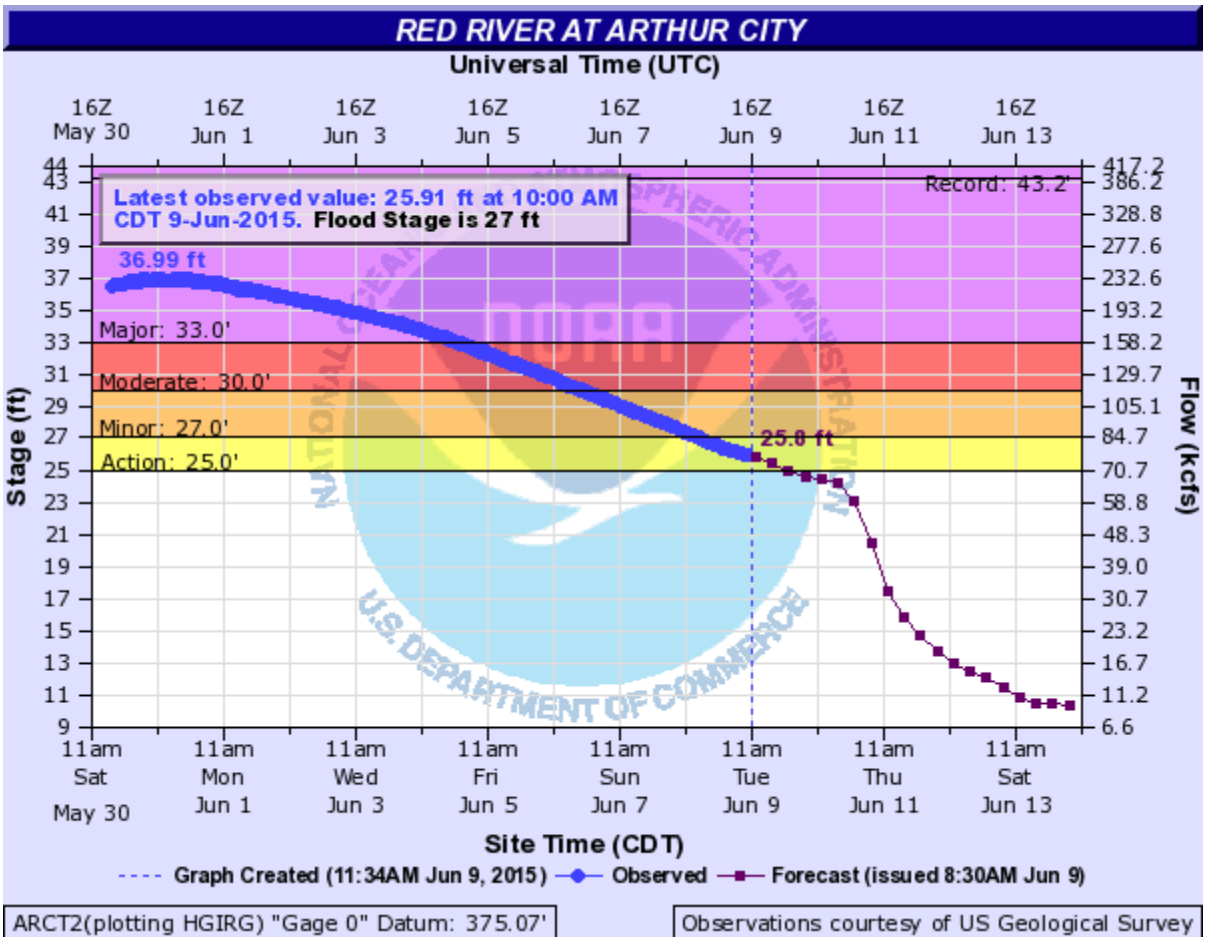

LEE CREEK NEAR VAN BUREN LCR
Universal Time (UTC)
16Z May 24
16Z May 26
16Z May 28
16Z May 30
16Z Jun 1
16Z Jun 3
16Z Jun 5
16Z Jun 7
Latest observed value: 399.6 ft at 6:54 AM CDT 3-Jun-2015. Flood Stage is 401 ft
Major: 408.0'
Moderate: 404.0'
Minor: 401.0'
Action: 399.0'
405.4 ft
398.9 ft
Tailwater (ft)
Flow (kcfs)
413
412
410
408
406
404
402
400
398
396
394
392
98.3
83.4
69.9
56.4
43.0
29.8
21.4
13.0
6.6
11am Sun May 24
11am Tue May 26
11am Thu May 28
11am Sat May 30
11am Mon Jun 1
11am Wed Jun 3
11am Fri Jun 5
11am Sun Jun 7
Site Time (CDT)
Graph Created (11:50AM Jun 3, 2015)
Observed
Forecast (issued 2:13AM Jun 3)
VBRA4(plotting HTIRZ) "Gage 0" Datum: 0'


ARKANSAS RIVER AT OZARK L/D TAILWATER
Universal Time (UTC)
13Z May 23
13Z May 25
13Z May 27
13Z May 29
13Z May 31
13Z Jun 2
13Z Jun 4
13Z Jun 6
Latest observed value: 366.6 ft at 8:00 AM CDT 2-Jun-2015. Flood Stage is 357 ft
Major: 365.0'
Moderate: 363.0'
Minor: 357.0'
Action: 355.5'
367.71 ft
366.3 ft
Tailwater (ft)
Flow (kcfs)
375
373
371
369
367
365
363
361
359
357
355
353
638.5
525.5
438.5
374.0
326.5
289.5
257.7
230.4
206.7
183.2
159.9
139.3
8am Sat May 23
8am Mon May 25
8am Wed May 27
8am Fri May 29
8am Sun May 31
8am Tue Jun 2
8am Thu Jun 4
8am Sat Jun 6
Site Time (CDT)
Graph Created (8:49AM Jun 2, 2015)
Observed
Forecast (issued 8:05AM Jun 2)
OZGA4(plotting HTIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers - LRD

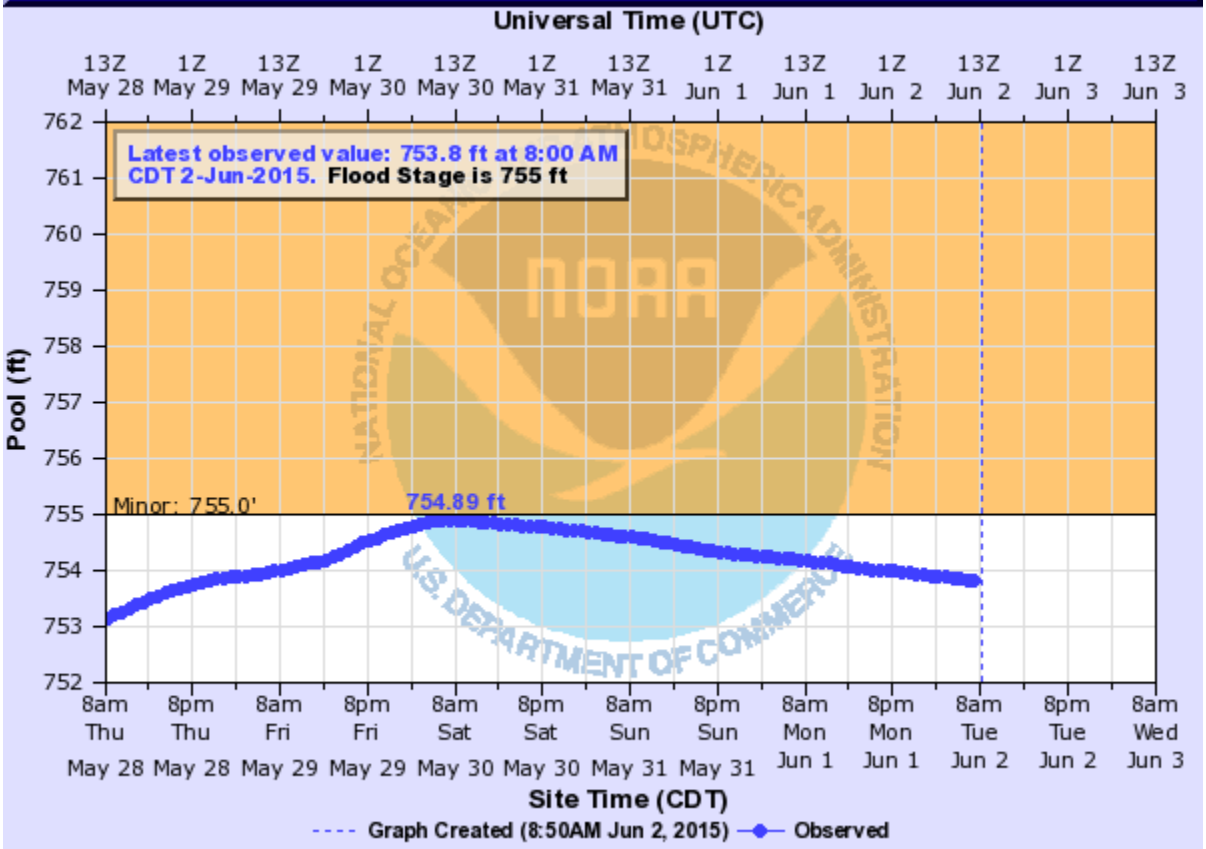

ARKANSAS RIVER AT OZARK L/D TAILWATER
Universal Time (UTC)
15Z May 26
15Z May 28
15Z May 30
15Z Jun 1
15Z Jun 3
15Z Jun 5
15Z Jun 7
15Z Jun 9
Latest observed value: 356.27 ft at 9:00 AM CDT 5-Jun-2015. Flood Stage is 357 ft
367.71 ft
Major: 365.0'
Moderate: 363.0'
Minor: 357.0'
Action: 355.5'
355.5 ft
Tailwater (ft)
Flow (kcfs)
375 374 372 370 368 366 364 362 360 358 356 354 352
638.5 575.0 476.0 401.0 347.0 306.0 273.0 242.8 218.2 195.2 171.3 149.1 129.6
10am Tue May 26
10am Thu May 28
10am Sat May 30
10am Mon Jun 1
10am Wed Jun 3
10am Fri Jun 5
10am Sun Jun 7
10am Tue Jun 9
Site Time (CDT)
Graph Created (10:05AM Jun 5, 2015)
Observed
Forecast (issued 7:46AM Jun 5)
OZGA4(plotting HTIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers - LRD


RED RIVER AT ARTHUR CITY
Universal Time (UTC)
13Z May 23
13Z May 25
13Z May 27
13Z May 29
13Z May 31
13Z Jun 2
13Z Jun 4
13Z Jun 6
Latest observed value: 35.86 ft at 8:00 AM CDT 2-Jun-2015. Flood Stage is 27 ft
Record: 43.2'
36.99 ft
35.7 ft
Major: 33.0'
Moderate: 30.0'
Minor: 27.0'
Stage (ft)
Flow (kcfs)
44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27
417.2 386.2 357.5 328.8 300.1 277.6 255.1 232.6 211.1 193.2 175.3 158.2 143.9 129.7 116.4 105.1 94.5 84.7
8am Sat May 23
8am Mon May 25
8am Wed May 27
8am Fri May 29
8am Sun May 31
8am Tue Jun 2
8am Thu Jun 4
8am Sat Jun 6
Site Time (CDT)
Graph Created (8:49AM Jun 2, 2015)
Observed
Forecast (issued 8:05AM Jun 2)
ARCT2(plotting HGIRG) "Gage 0" Datum: 375.07'
Observations courtesy of US Geological Survey


RED RIVER AT ARTHUR CITY
Universal Time (UTC)
15Z May 26
15Z May 28
15Z May 30
15Z Jun 1
15Z Jun 3
15Z Jun 5
15Z Jun 7
15Z Jun 9
Latest observed value: 32.31 ft at 9:00 AM CDT 5-Jun-2015. Flood Stage is 27 ft
Record: 43.2'
36.99 ft
32.3 ft
Major: 33.0'
Moderate: 30.0'
Minor: 27.0'
Stage (ft)
Flow (kcfs)
10am Tue May 26
10am Thu May 28
10am Sat May 30
10am Mon Jun 1
10am Wed Jun 3
10am Fri Jun 5
10am Sun Jun 7
10am Tue Jun 9
Site Time (CDT)
Graph Created (10:04AM Jun 5, 2015)
Observed
Forecast (issued 7:45AM Jun 5)
ARCT2(plotting HGIRG) "Gage 0" Datum: 375.07'
Observations courtesy of US Geological Survey


RED RIVER AT ARTHUR CITY
Universal Time (UTC)
16Z May 30
16Z Jun 1
16Z Jun 3
16Z Jun 5
16Z Jun 7
16Z Jun 9
16Z Jun 11
16Z Jun 13
Latest observed value: 25.91 ft at 10:00 AM CDT 9-Jun-2015. Flood Stage is 27 ft
Record: 43.2'
36.99 ft
25.8 ft
Major: 33.0'
Moderate: 30.0'
Minor: 27.0'
Action: 25.0'
Stage (ft)
Flow (kcfs)
11am Sat May 30
11am Mon Jun 1
11am Wed Jun 3
11am Fri Jun 5
11am Sun Jun 7
11am Tue Jun 9
11am Thu Jun 11
11am Sat Jun 13
Site Time (CDT)
Graph Created (11:34AM Jun 9, 2015)
Observed
Forecast (issued 8:30AM Jun 9)
ARCT2(plotting HGIRG) "Gage 0" Datum: 375.07'
Observations courtesy of US Geological Survey

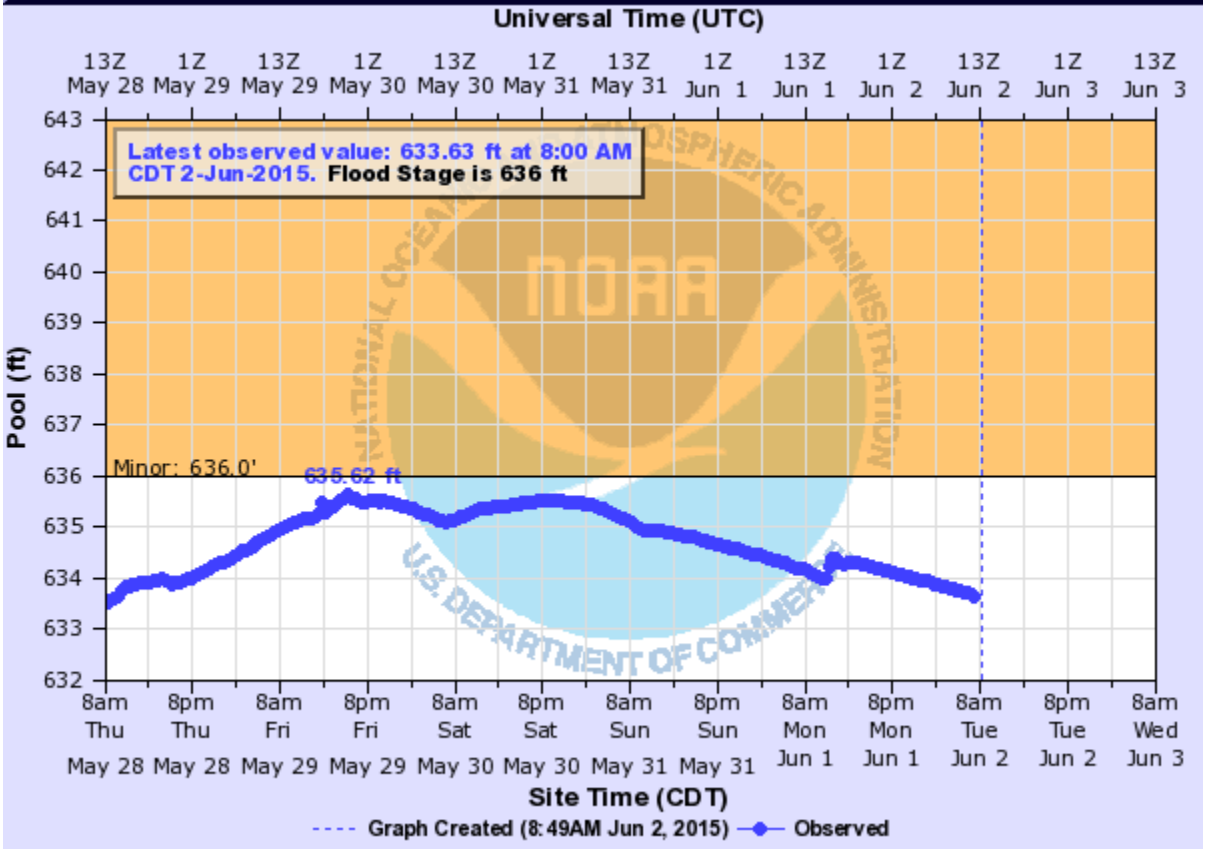
EASTERN OKLAHOMA LAKES AT GRAND LAKE



PENO2(plotting HPIRG) "Gage 0" Datum: 0'

Observations courtesy of US Army Corps of Engineers

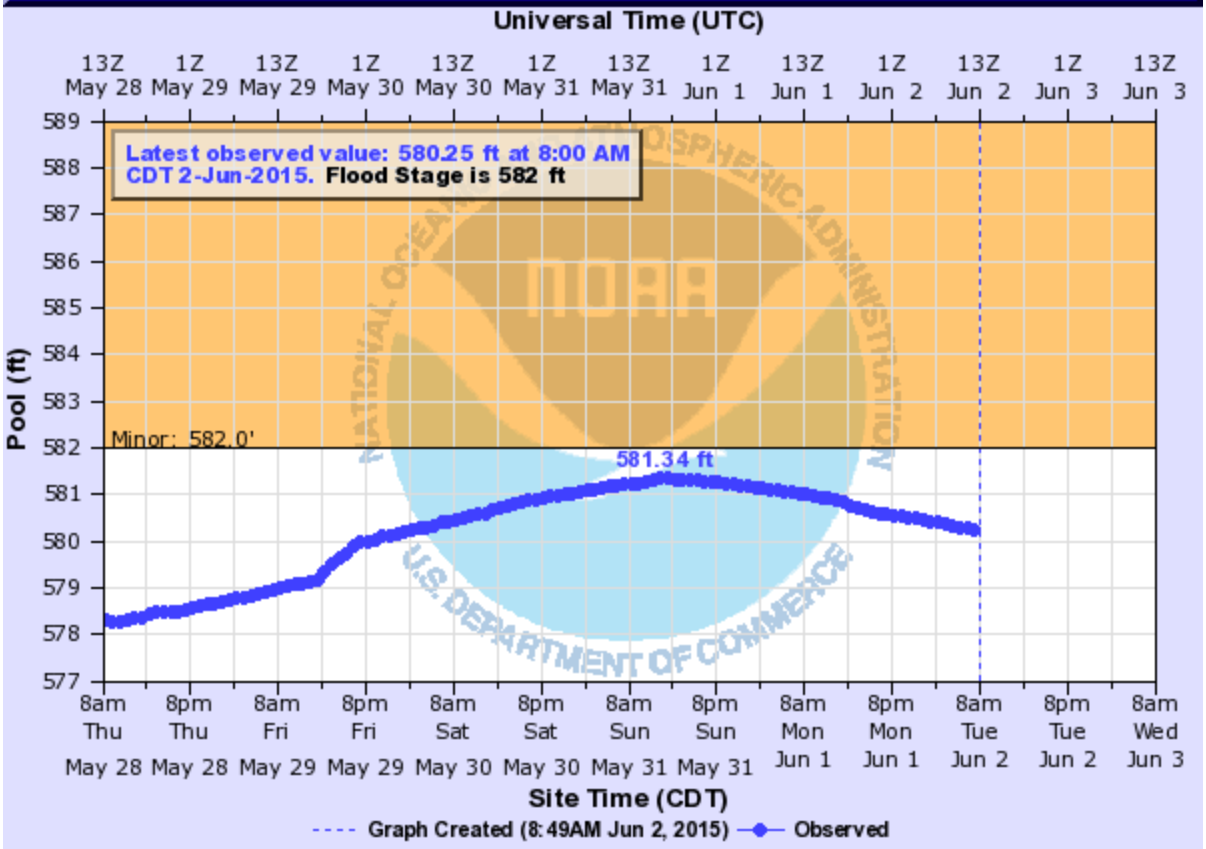
EASTERN OKLAHOMA LAKES AT HUDSON LAKE



MFDO2(plotting HPIRG) "Gage 0" Datum: 0'

Observations courtesy of US Army Corps of Engineers

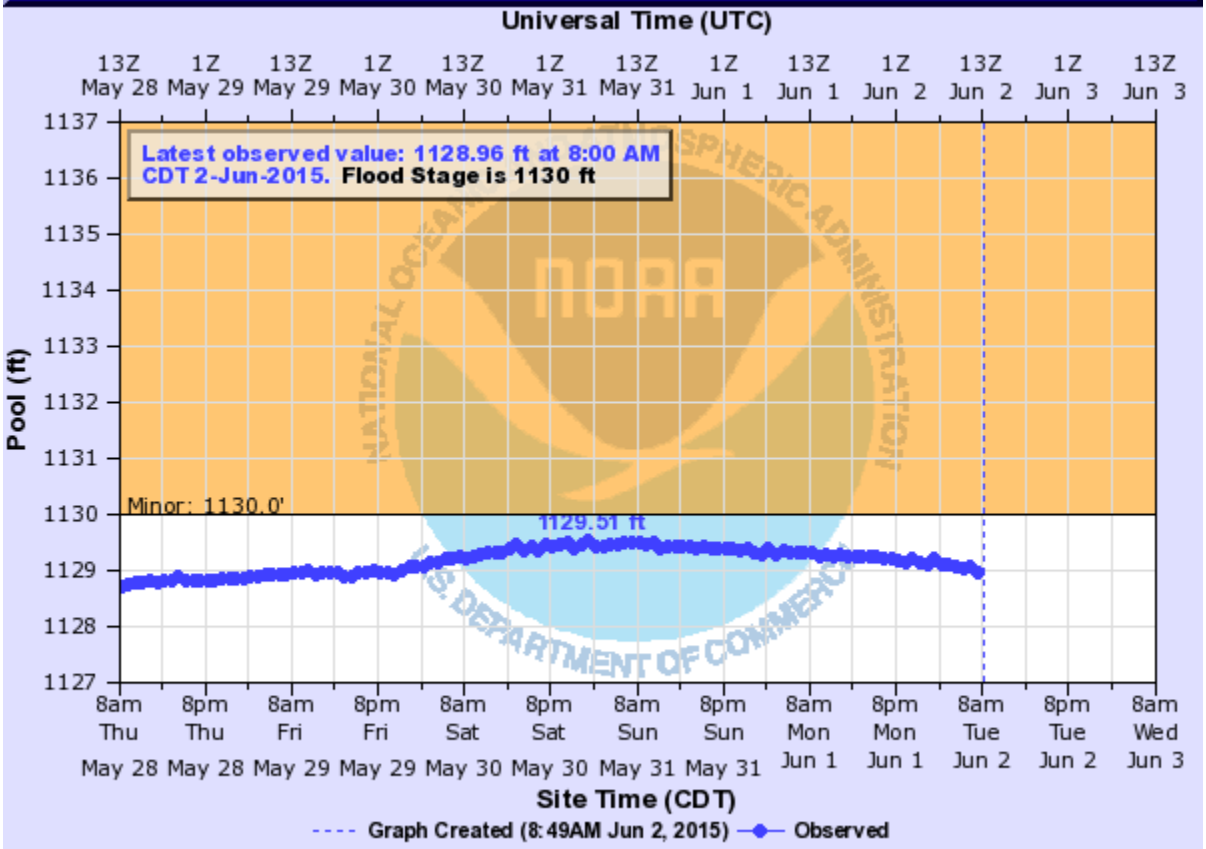
EASTERN OKLAHOMA LAKES AT FT. GIBSON LAKE



GIBO2(plotting HPIRG) "Gage 0" Datum: 0'

Observations courtesy of US Army Corps of Engineers

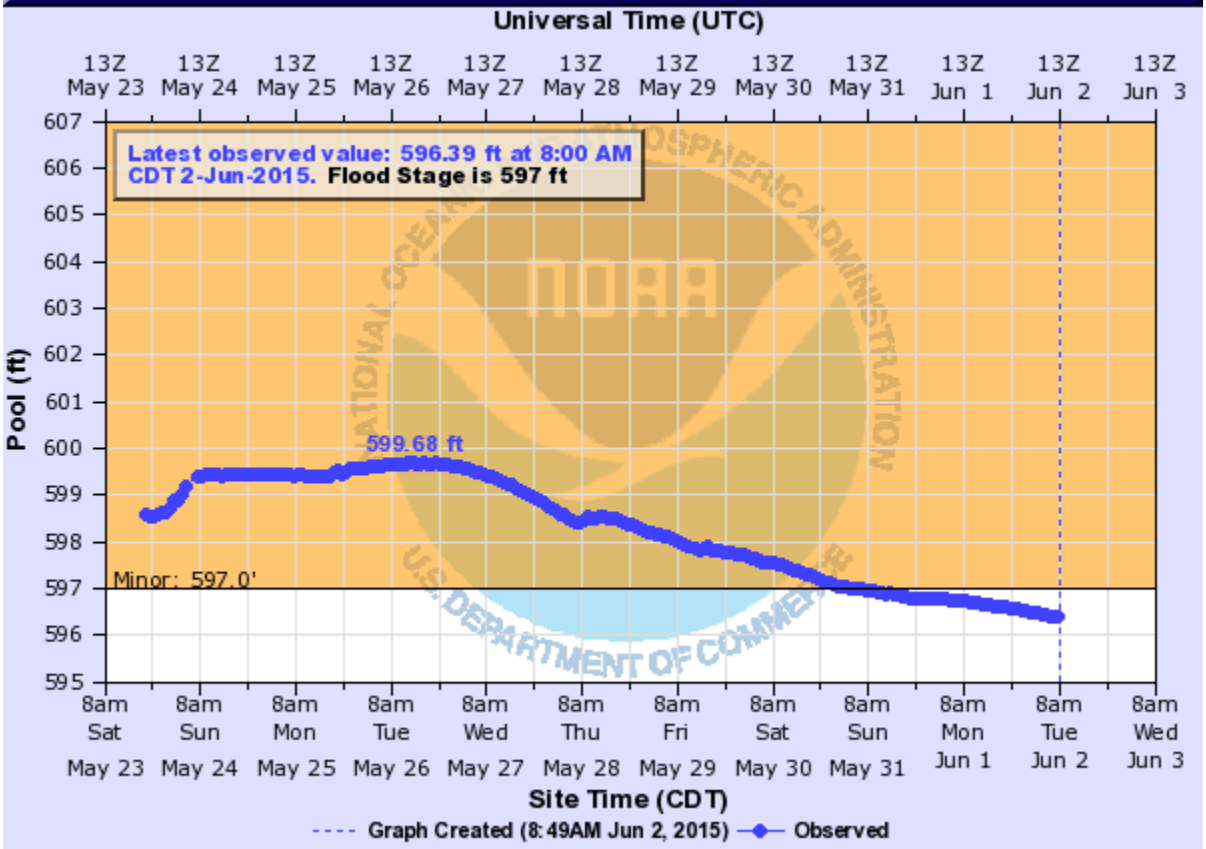
NORTHWEST ARKANSAS LAKES AT BEAVER LAKE



BVGA4(plotting HPIRG) "Gage 0" Datum: n/a

Observations courtesy of US Army Corps of Engineers

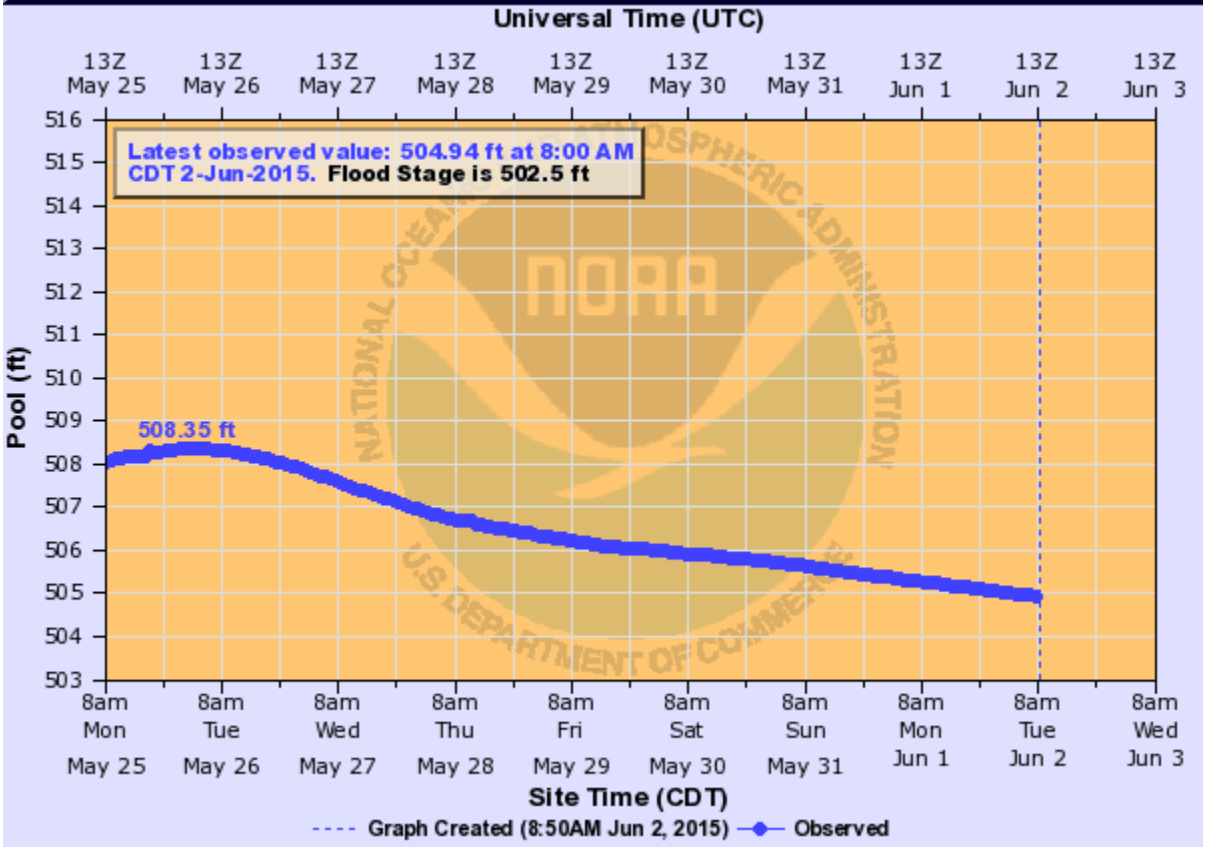
EASTERN OKLAHOMA LAKES AT EUFALA LAKE



EUFO2(plotting HPIRG) "Gage 0" Datum: 0'

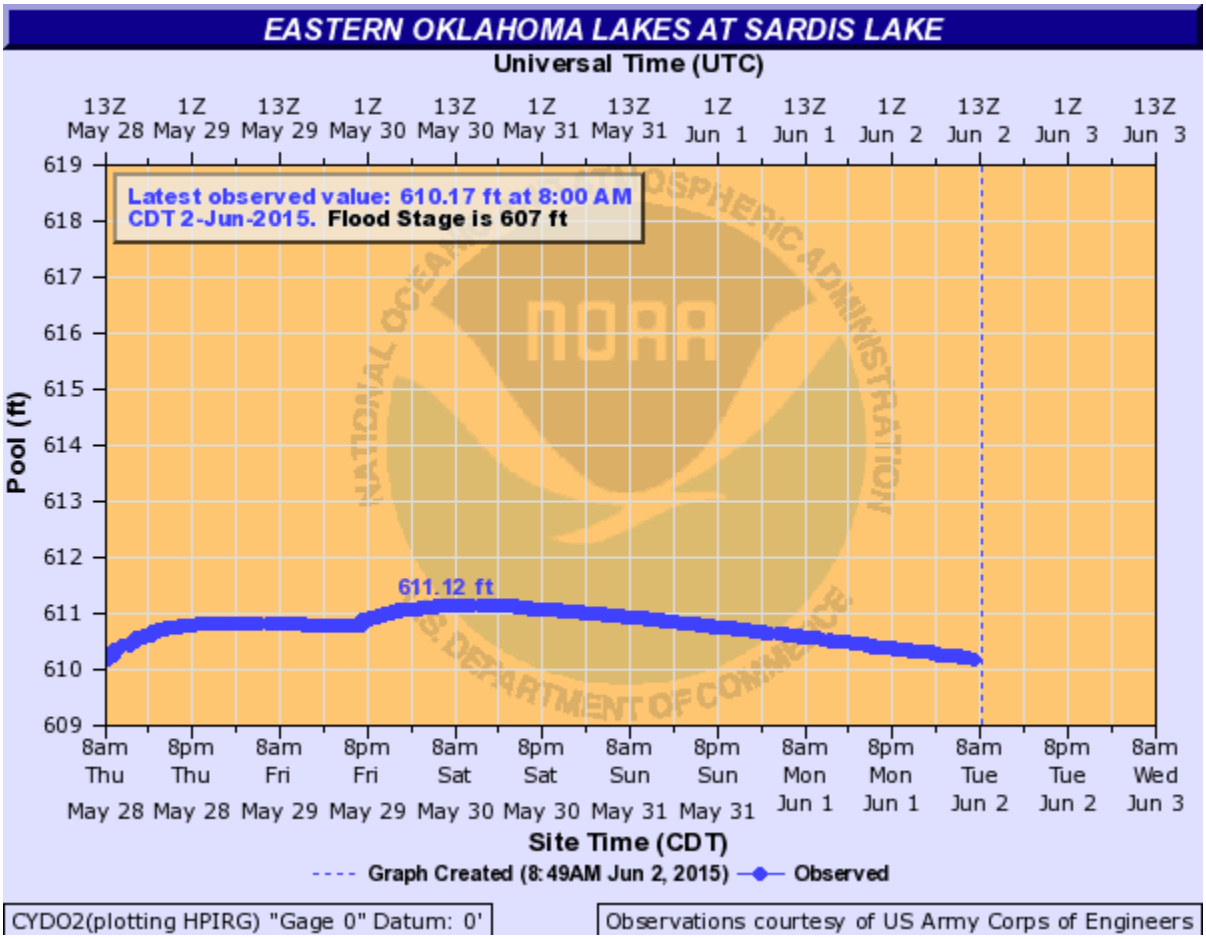
Observations courtesy of US Army Corps of Engineers

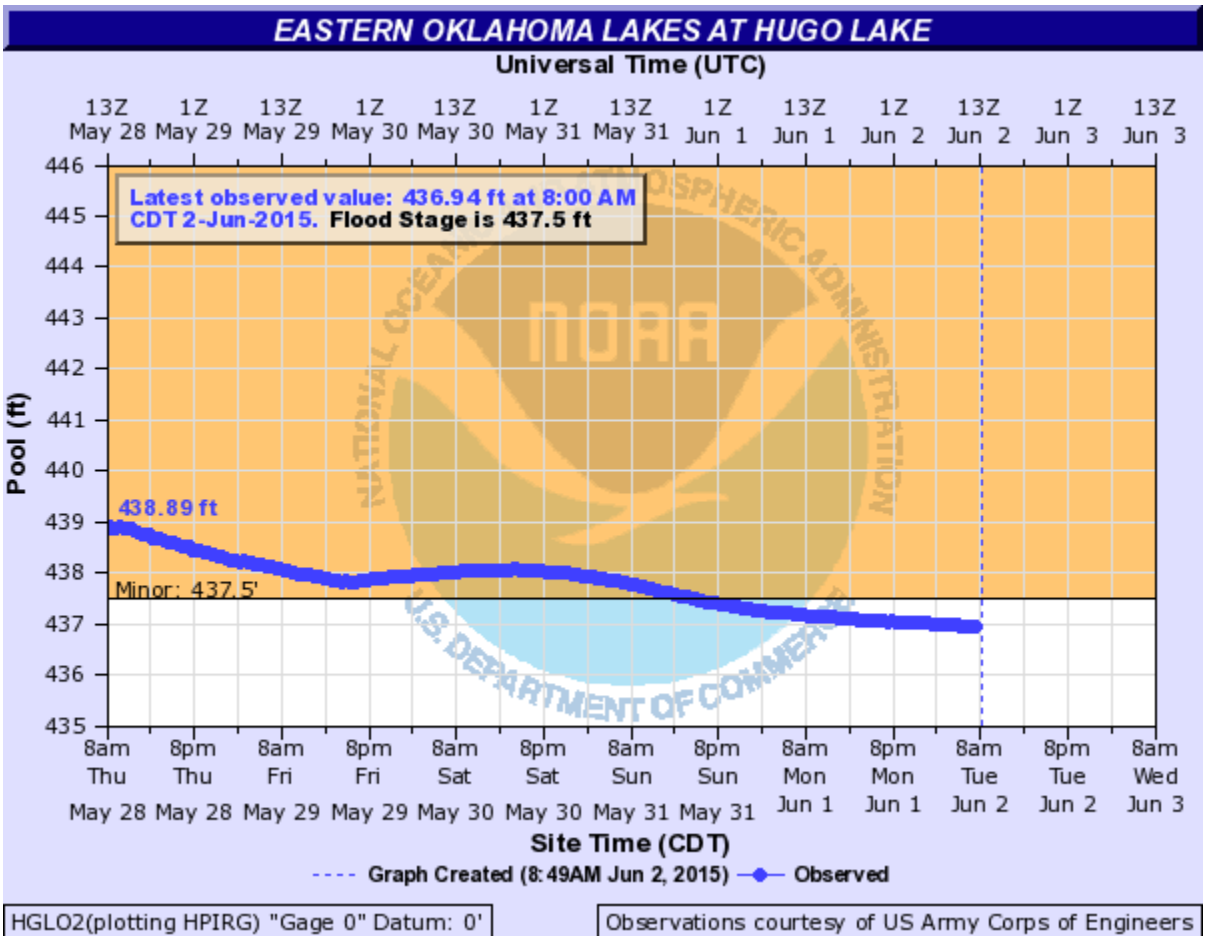
EASTERN OKLAHOMA LAKES AT WISTER LAKE



WSLO2(plotting HPIRG) "Gage 0" Datum: 0'

Observations courtesy of US Army Corps of Engineers


EASTERN OKLAHOMA LAKES AT SARDIS LAKE
Universal Time (UTC)
13Z May 28
1Z May 29
13Z May 29
1Z May 30
13Z May 30
1Z May 31
13Z May 31
1Z Jun 1
13Z Jun 1
1Z Jun 2
13Z Jun 2
1Z Jun 3
13Z Jun 3
Latest observed value: 610.17 ft at 8:00 AM CDT 2-Jun-2015. Flood Stage is 607 ft
Pool (ft)
619
618
617
616
615
614
613
612
611
610
609
611.12 ft
8am Thu May 28
8pm Thu May 28
8am Fri May 29
8pm Fri May 29
8am Sat May 30
8pm Sat May 30
8am Sun May 31
8pm Sun May 31
8am Mon Jun 1
8pm Mon Jun 1
8am Tue Jun 2
8pm Tue Jun 2
8am Wed Jun 3
Site Time (CDT)
Graph Created (8:49AM Jun 2, 2015)
Observed
CYDO2(plotting HPIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers


EASTERN OKLAHOMA LAKES AT HUGO LAKE
Universal Time (UTC)
13Z May 28
1Z May 29
13Z May 29
1Z May 30
13Z May 30
1Z May 31
13Z May 31
1Z Jun 1
13Z Jun 1
1Z Jun 2
13Z Jun 2
1Z Jun 3
13Z Jun 3
Latest observed value: 436.94 ft at 8:00 AM CDT 2-Jun-2015. Flood Stage is 437.5 ft
Pool (ft)
446
445
444
443
442
441
440
439
438
437
436
435
438.89 ft
Minor: 437.5'
8am Thu May 28
8pm Thu May 28
8am Fri May 29
8pm Fri May 29
8am Sat May 30
8pm Sat May 30
8am Sun May 31
8pm Sun May 31
8am Mon Jun 1
8pm Mon Jun 1
8am Tue Jun 2
8pm Tue Jun 2
8am Wed Jun 3
Site Time (CDT)
Graph Created (8:49AM Jun 2, 2015)
Observed
HGLO2(plotting HPIRG) "Gage 0" Datum: 0'
Observations courtesy of US Army Corps of Engineers