

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)
		REPORT FOR: MONTH June YEAR 2022
MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS		SIGNATURE Steven F. Piltz (Meteorologist-in-Charge)
TO: Hydrometeorological Information Center, W/OH2 NOAA / National Weather Service 1325 East West Highway, Room 7230 Silver Spring, MD 20910-3283		DATE July 7, 2022

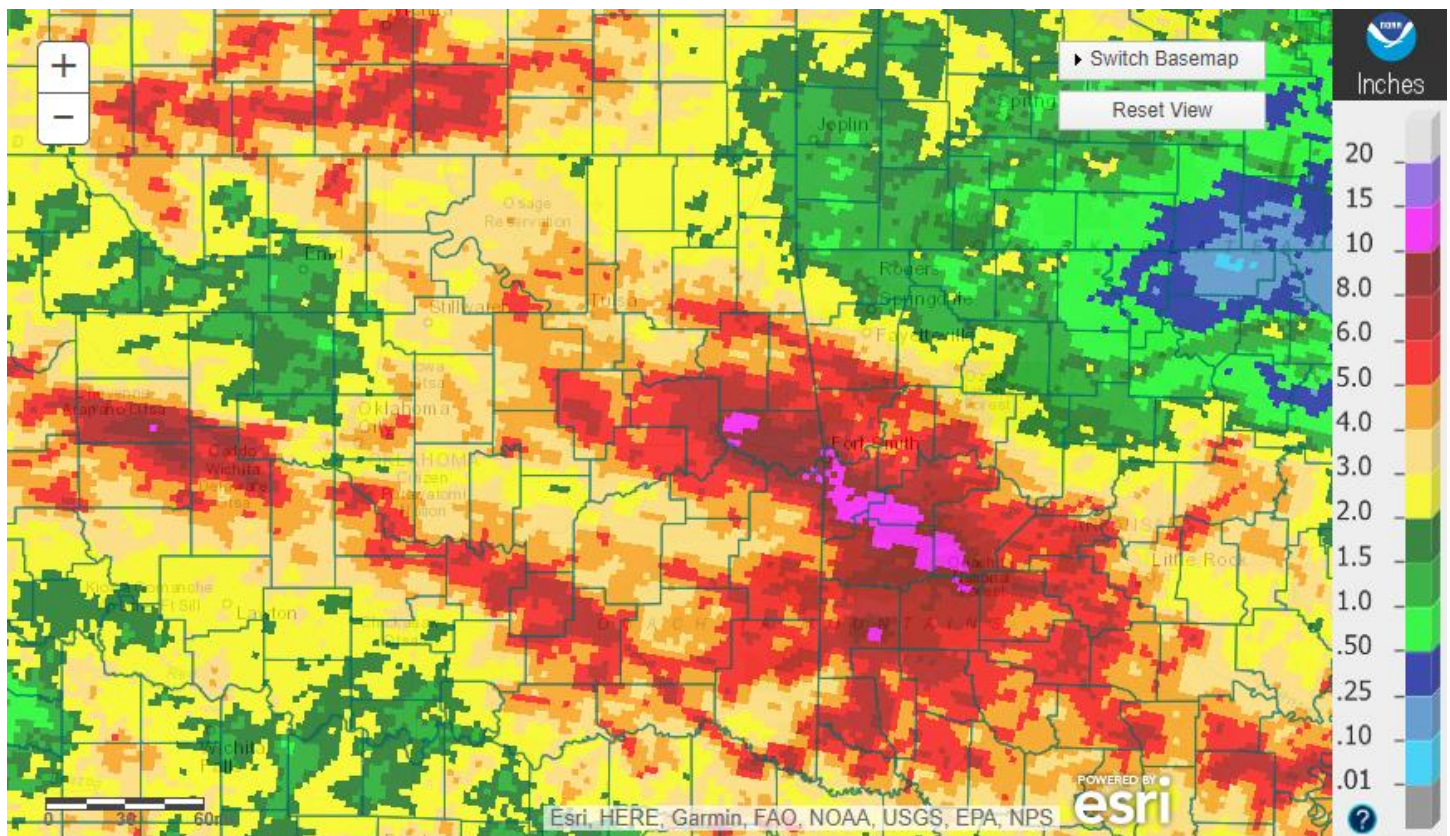
When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924)

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

Several rounds of thunderstorms brought some minor to moderate river flooding and flash flooding during the first half of the month, while little to no rain fell during the last half. Normal rainfall in the month of June ranges from 3.9 inches in McIntosh County to 5.9 inches in Wagoner County. The Ozark region of northwest Arkansas averages 5.1 inches for the month. This report, past E-5 reports, and monthly hydrology and climatology summaries can be found at https://www.weather.gov/tsa/climo_summary_e5list.

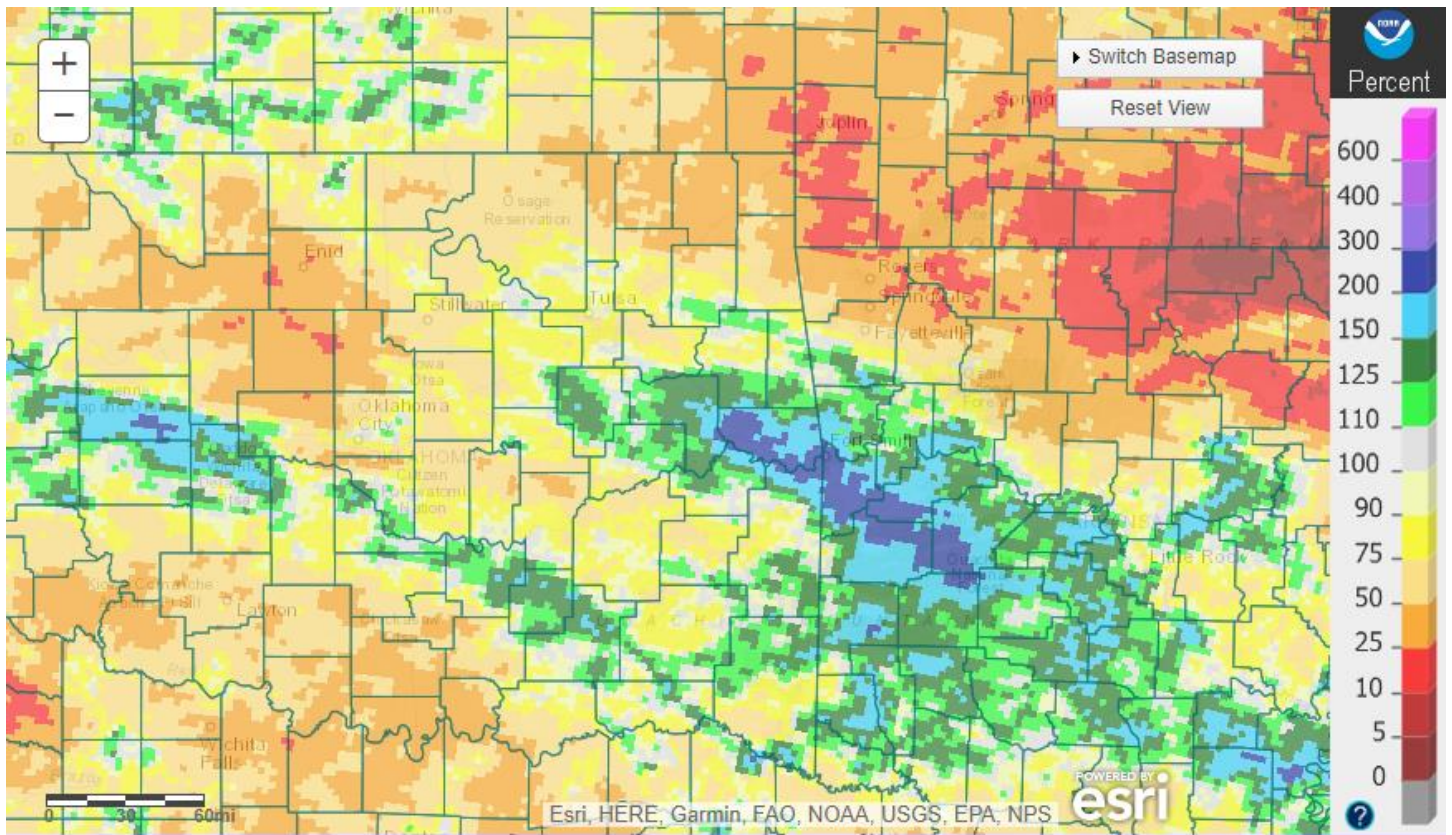
Monthly Summary

Using the radar-derived estimated observed precipitation from the RFCs (Fig. 1a), rainfall totals for June 2022 ranged from 1" to around 12" across eastern OK and northwest AR, with much of the area receiving 2"-5". These rainfall totals correspond to 110% to near 300% of the normal June rainfall in east central OK and west central AR, and around 25% to around 90% elsewhere in eastern OK and northwest AR (Fig. 1b).



Tulsa, OK: June, 2022 Monthly Observed Precipitation
 Valid on: July 01, 2022 12:00 UTC

Fig. 1a. Estimated Observed Rainfall for June 2022



Tulsa, OK: June, 2022 Monthly Percent of Normal Precipitation
Valid on: July 01, 2022 12:00 UTC

Fig. 1b. Estimated % of Normal Rainfall for June 2022

In Tulsa, OK, June 2022 ranked as the 22nd warmest June (80.7°F, tied 2012; since records began in 1905) and the 46th driest June (3.18"; since records began in 1888). Fort Smith, AR had the 21st warmest June (80.5°F, tied 1963, 2009; since records began in 1882) and the 2nd wettest June (11.02"; since records began in 1882). Fayetteville, AR had the 10th warmest (76.5°F, tied 2018) and the 26th driest (3.25") June since records began in 1950.

Some of the larger precipitation reports (in inches) for June 2022 included:

Fort Smith, AR (ASOS)	11.02	Vian 5.3ENE, OK (coco)	9.89	Greenwood 0.9S, AR (coco)	9.83
Sallisaw 1.0SE, OK (coco)	9.80	Webbers Falls, OK (meso)	9.13	Sallisaw, OK (meso)	8.98
Rye Hill 1.1E, AR (coco)	8.65	Van Buren 0.7SSE, AR (coco)	8.27	Uniontown 2.1ESE, AR (coco)	7.90

Some of the lowest precipitation reports (in inches) for June 2022 included:

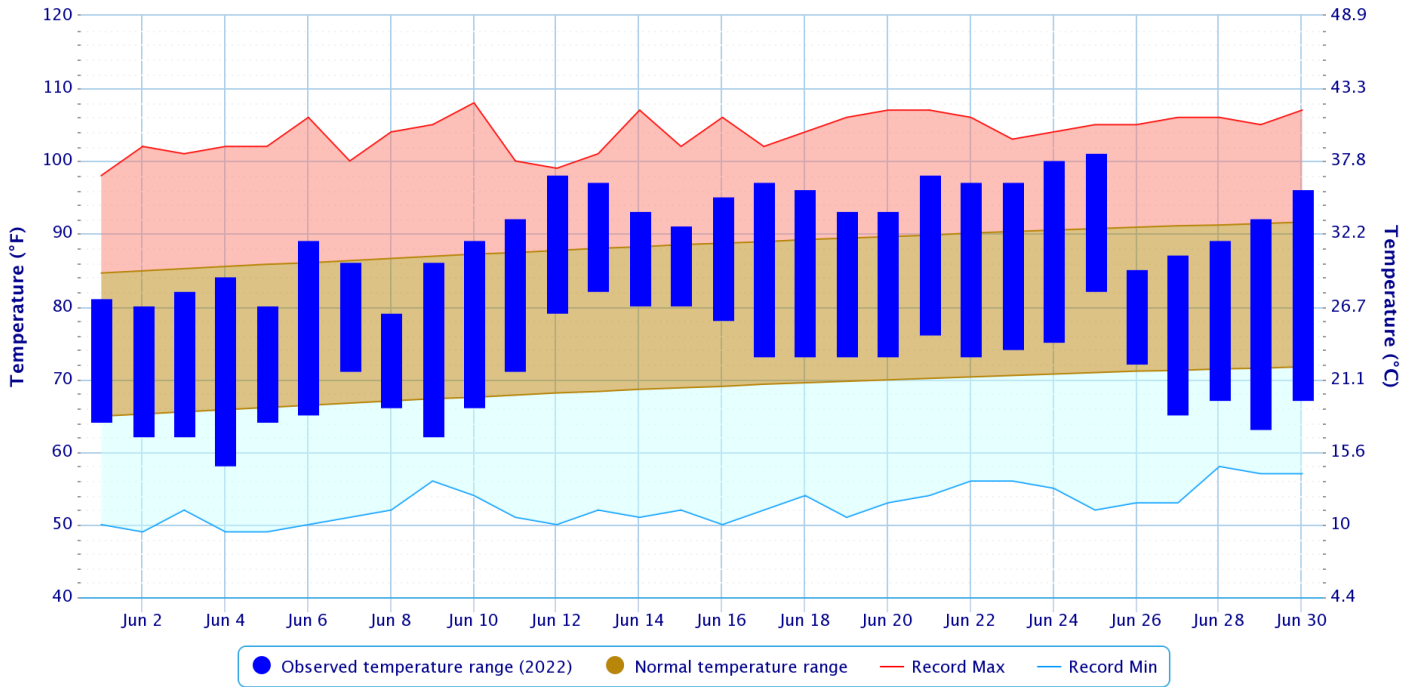
Bella Vista, AR (coco)	0.98	Bentonville, AR (AWOS)	1.21	Holiday Island 1.3SSW, AR (coco)	1.28
Centerton 1.0E, AR (coco)	1.38	Gravette, AR (coop)	1.42	Rogers 2.4SSW, AR (coco)	1.51
NW AR Regional Airport (ASOS)	1.88	Kingston 2S, AR (coop)	1.97	Vinita, OK (meso)	2.05

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

Rank since 1921	June 2022	Last 60 Days (May 2 – Jun 30)	Last 90 Days (Apr 2 – Jun 30)	Warm Growing Season (Mar 1 – Jun 30)	Year-to-Date (Jan 1 – Jun 30)	Water Year-to-Date (Oct 1, 2021 – Jun 30, 2022)	Last 365 Days (Jul 1, 2021 – Jun 30, 2022)
Northeast OK	37 th driest	16 th wettest	28 th wettest	30 th wettest	41 st wettest	49 th wettest	46 th driest
East Central OK	28 th wettest	15 th wettest	10th wettest	9th wettest	14 th wettest	23 rd wettest	41 st wettest
Southeast OK	45 th wettest	35 th driest	48 th driest	50 th driest	50 th driest	27 th driest	30 th driest
Statewide	46 th driest	32 nd wettest	47 th wettest	48 th wettest	47 th driest	37 th driest	28 th driest

Daily Temperature Data – Tulsa Area, OK (ThreadEx)

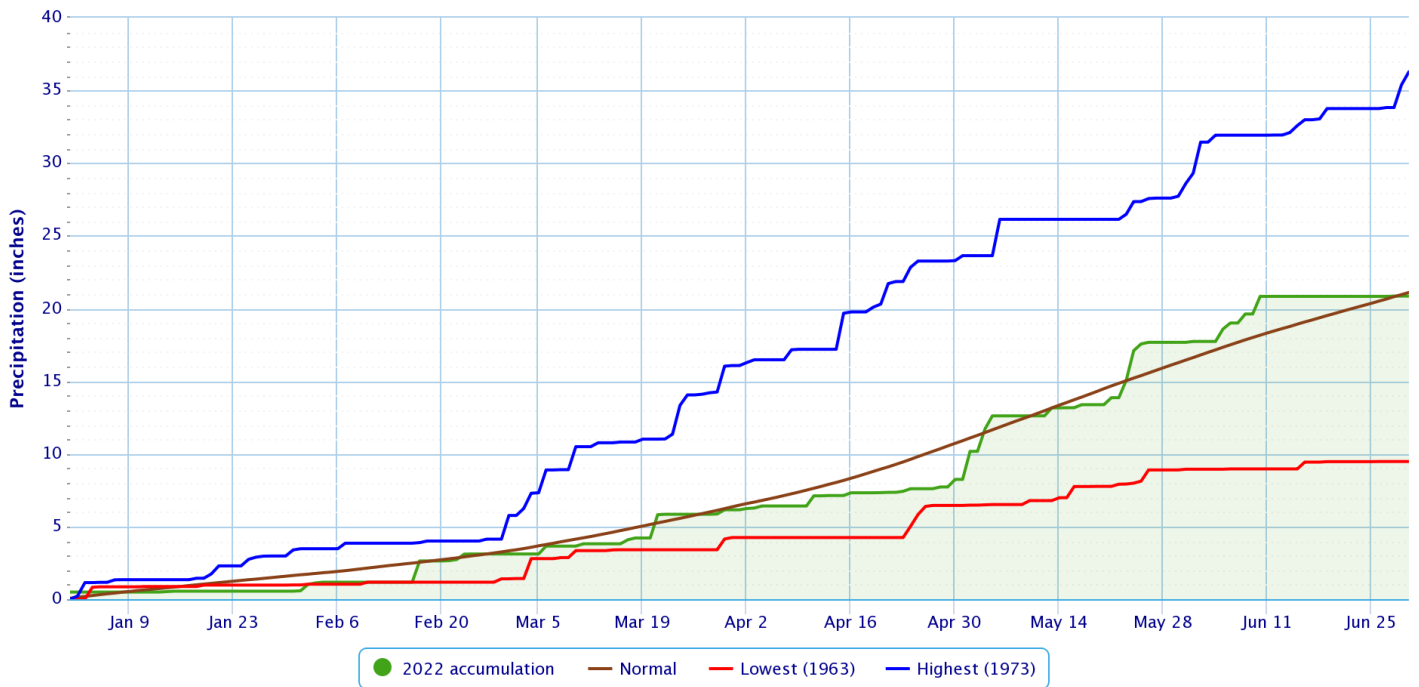
Period of Record – 1905-01-06 to 2022-06-30. Normals period: 1991-2020. Click and drag to zoom chart.



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Accumulated Precipitation – Tulsa Area, OK (ThreadEx)

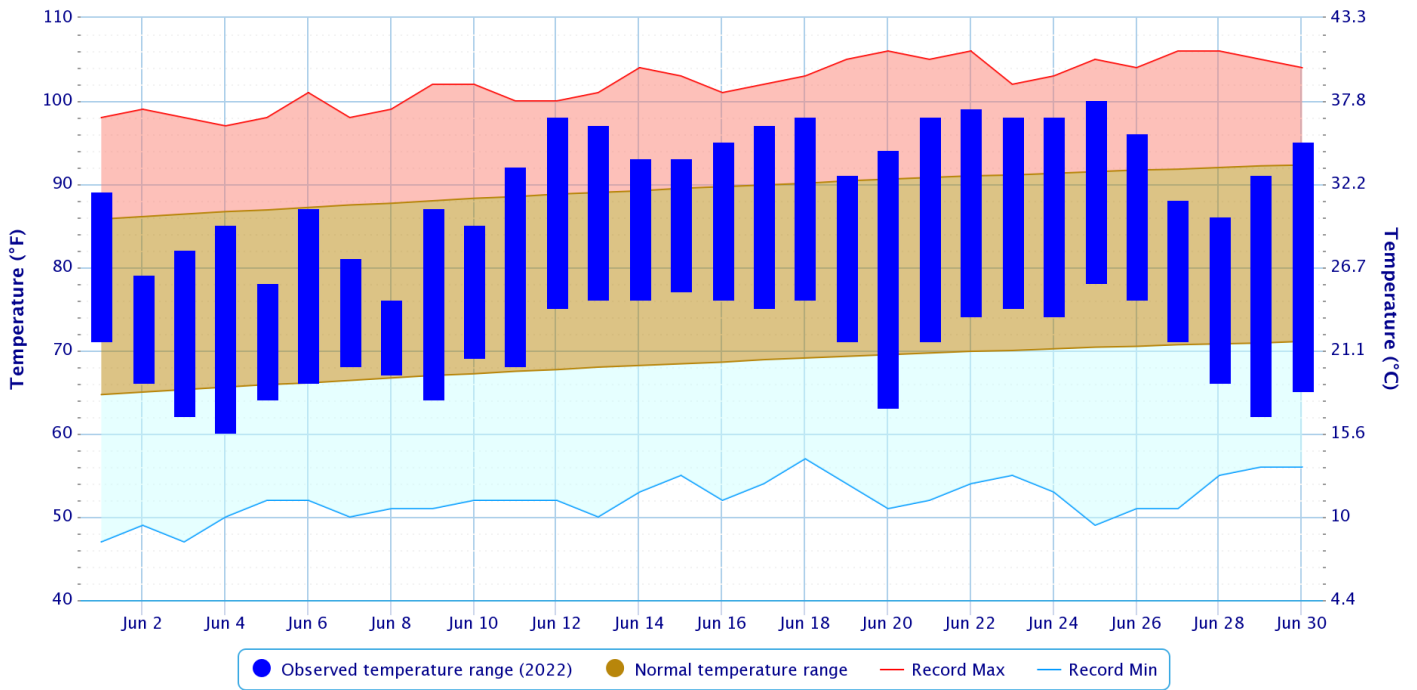
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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

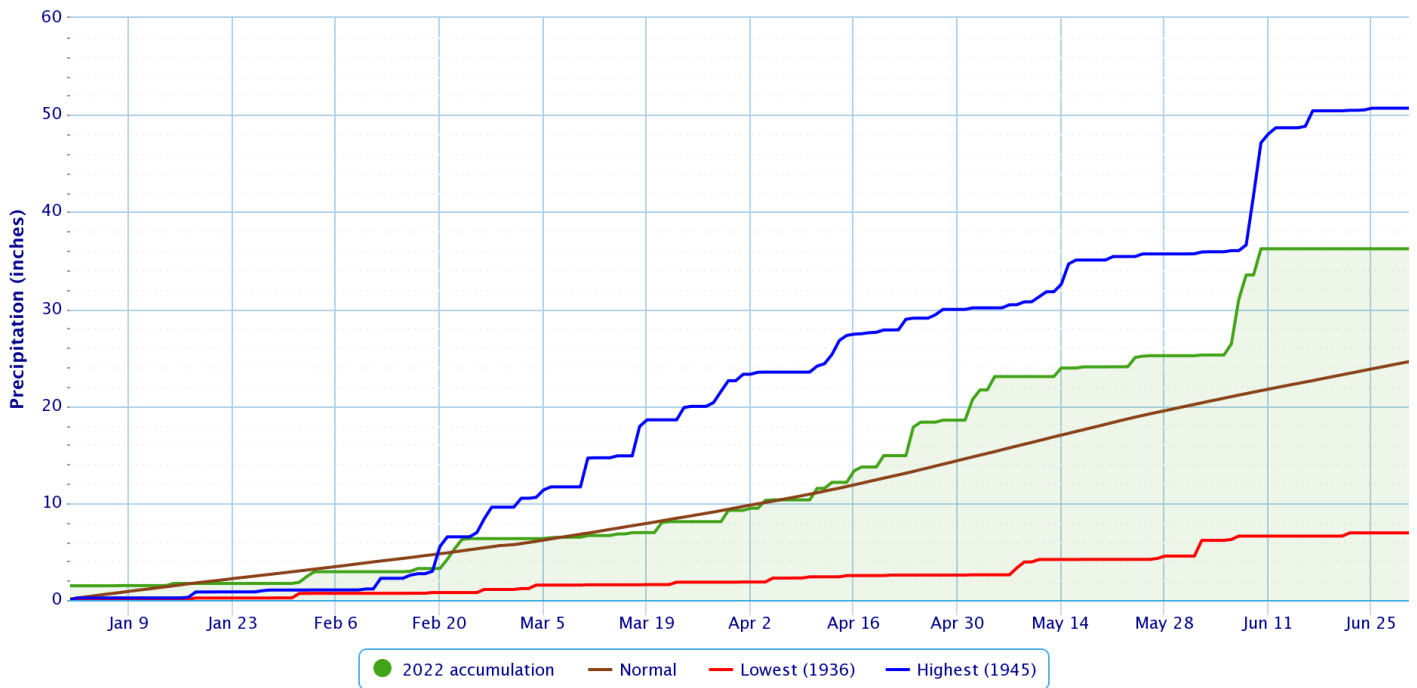
Period of Record – 1882-06-01 to 2022-06-30. Normals period: 1991-2020. Click and drag to zoom chart.



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Accumulated Precipitation – Fort Smith Area, AR (ThreadEx)

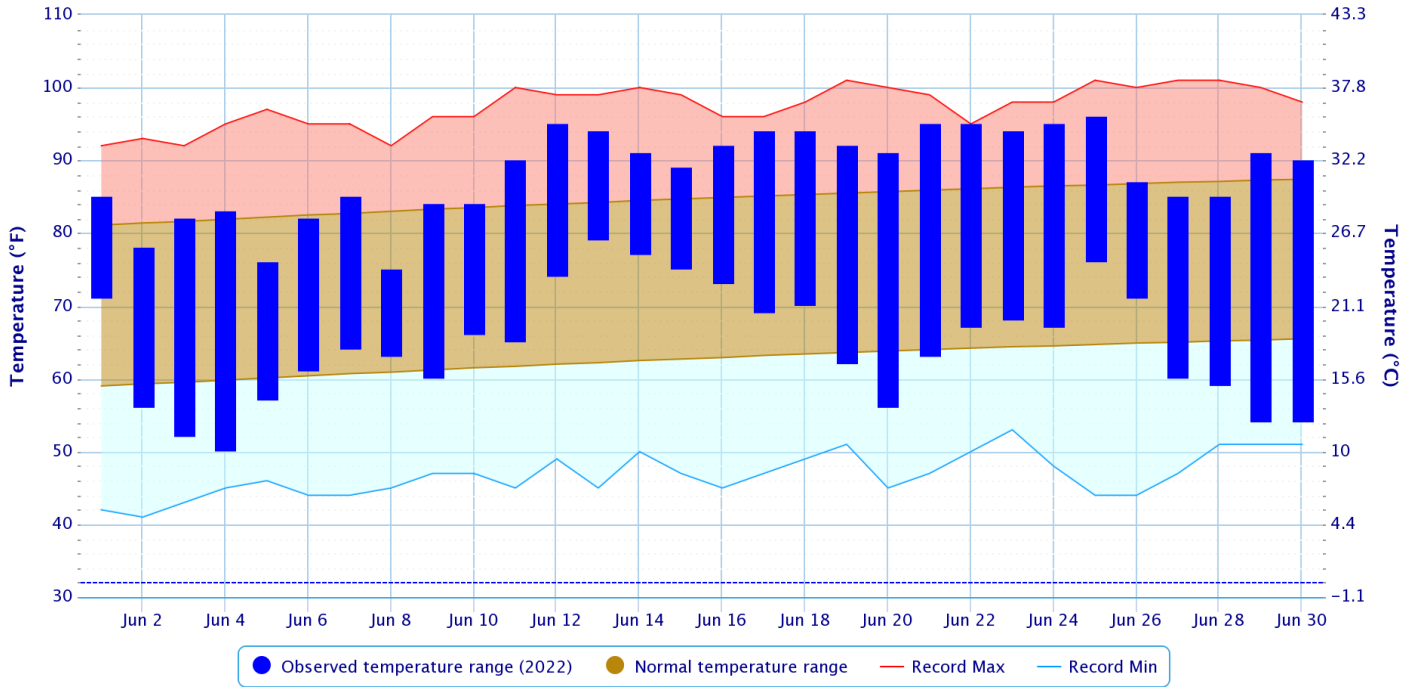
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



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Daily Temperature Data – FAYETTEVILLE DRAKE FIELD, AR

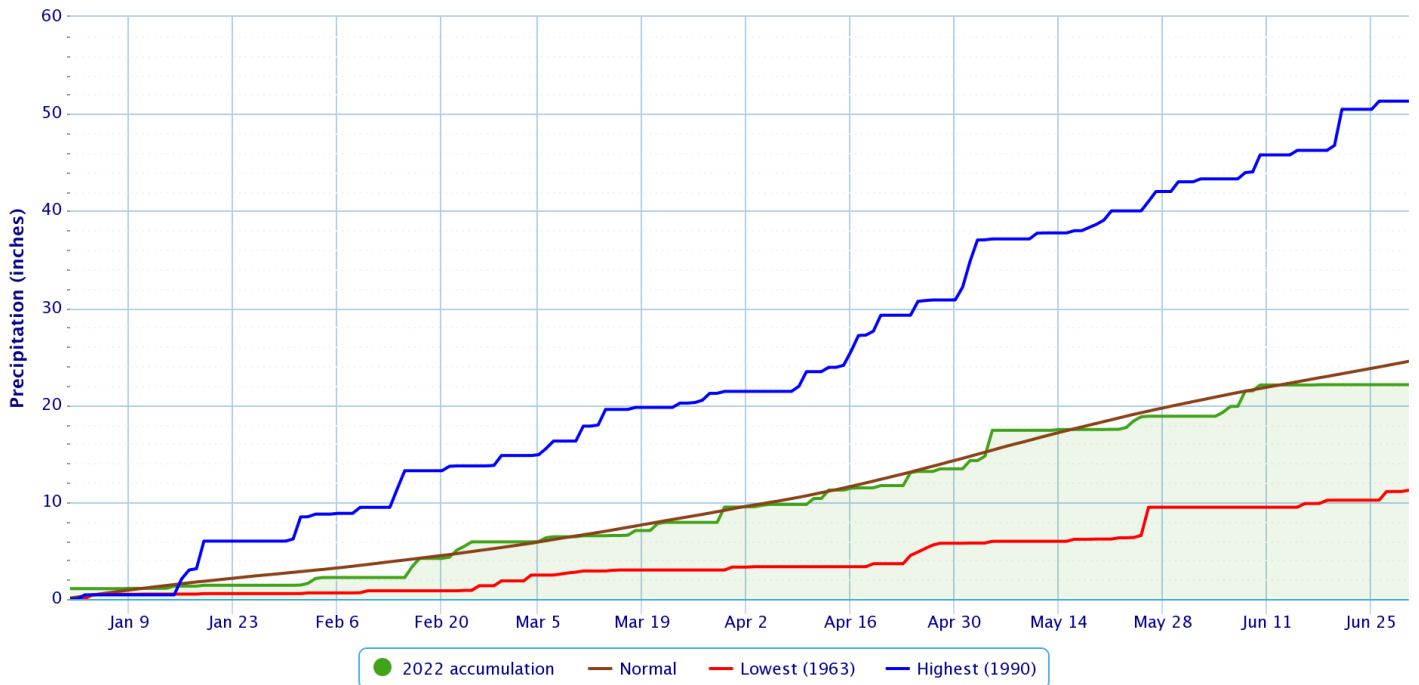
Period of Record – 1949-07-14 to 2022-06-30. Normals period: 1991-2020. Click and drag to zoom chart.



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Accumulated Precipitation – FAYETTEVILLE DRAKE FIELD, AR

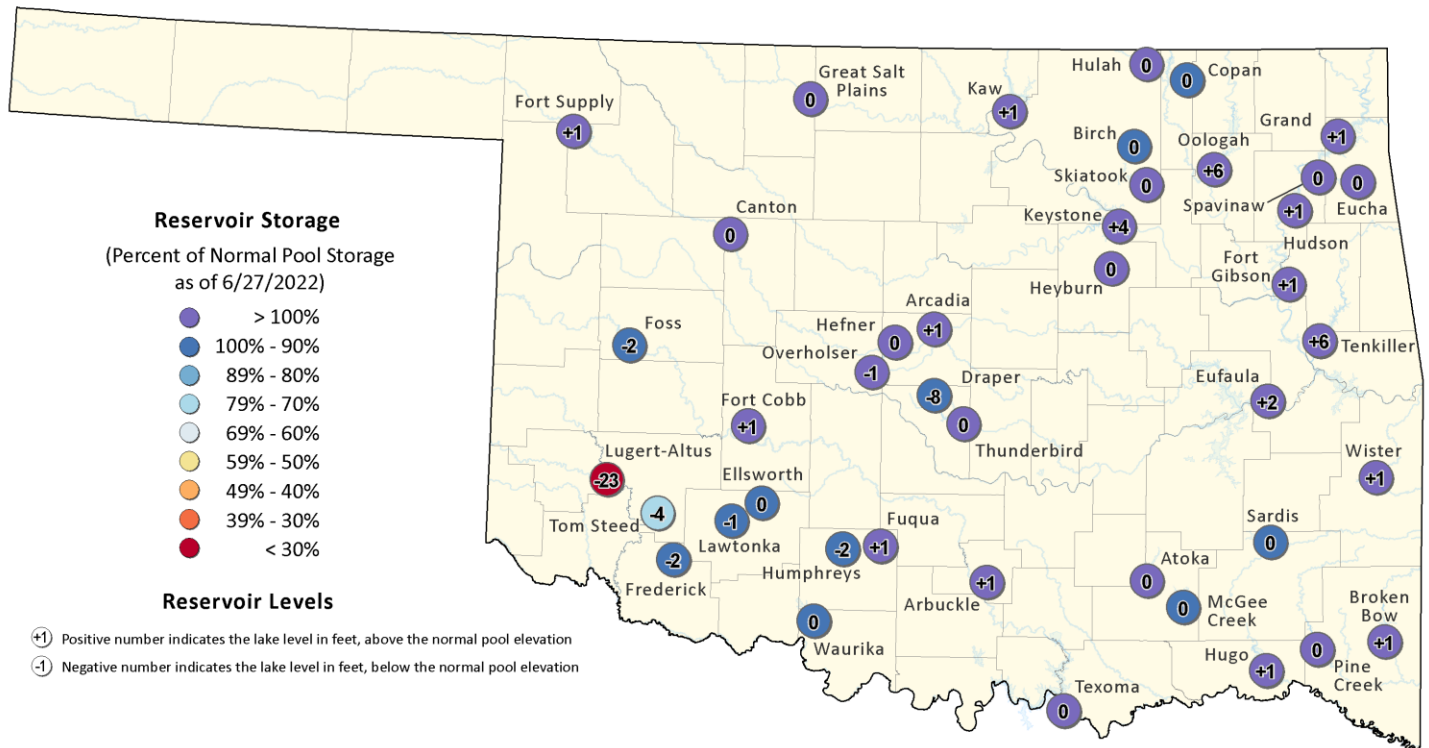
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



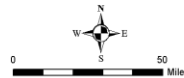
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Reservoirs

Oklahoma Reservoir Levels and Storage as of 6/27/2022



This map shows reservoir storage as a percentage of normal pool storage capacity. The source information was collected from real-time lake gages monitored by the U.S. Army Corps of Engineers (https://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf), and the U.S. Geological Survey (https://waterdata.usgs.gov/ok/nwis/current/?type=lake&group_key=basin_cd). For more information please visit the OWRB's website: (<https://www.owrb.ok.gov>).



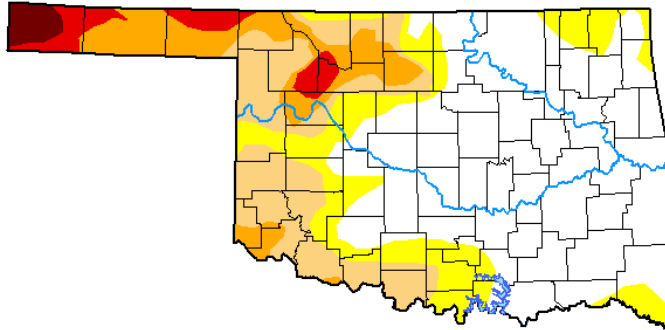
According to the USACE, most of the lakes in the HSA were above 3% of top of their conservation pools as of 6/30/2022: Beaver Lake 68%, Oologah Lake 17%, Lake Eufaula 15%, Lake Tenkiller 12%, Kaw Lake 8%, Hudson Lake 6%, and Keystone 6%.

Drought

According to the [U.S. Drought Monitor](#) (USDM) from June 28, 2022 (Figs. 2, 3), no drought conditions were occurring in eastern OK and northwest AR. However, Abnormally Dry (but not in drought) (D0) conditions were present over portions of Osage, Washington, Nowata, Craig, Rogers, Ottawa, Delaware, and Choctaw Counties in eastern OK, and Benton, Washington, Carroll, and Madison Counties in northwest AR.

U.S. Drought Monitor Oklahoma

June 28, 2022
(Released Thursday, Jun. 30, 2022)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	54.09	45.91	30.76	14.79	5.07	1.46
Last Week 06-21-2022	58.98	41.02	31.26	15.81	5.45	1.46
3 Months Ago 03-29-2022	13.76	86.24	76.49	63.34	33.90	8.32
Start of Calendar Year 01-04-2022	5.02	94.98	88.14	72.26	40.44	0.00
Start of Water Year 09-28-2021	6.45	93.55	73.23	23.72	2.65	0.00
One Year Ago 06-29-2021	84.11	15.89	1.77	0.24	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Curtis Riganti
National Drought Mitigation Center

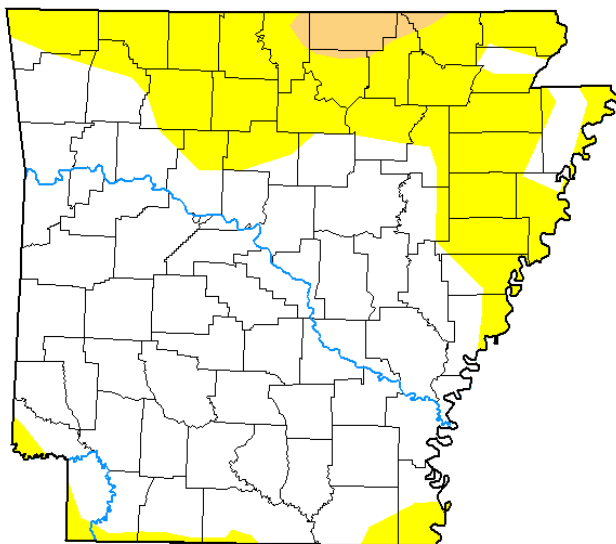


droughtmonitor.unl.edu

Fig. 2. Drought Monitor for Oklahoma

U.S. Drought Monitor Arkansas

June 28, 2022
(Released Thursday, Jun. 30, 2022)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	68.12	31.88	1.85	0.00	0.00	0.00
Last Week 06-21-2022	97.04	2.96	0.00	0.00	0.00	0.00
3 Months Ago 03-29-2022	69.31	30.69	24.61	12.04	0.00	0.00
Start of Calendar Year 01-04-2022	39.91	60.09	28.99	14.24	0.41	0.00
Start of Water Year 09-28-2021	51.41	48.59	5.17	0.00	0.00	0.00
One Year Ago 06-29-2021	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Curtis Riganti
National Drought Mitigation Center



droughtmonitor.unl.edu

Fig. 3. Drought Monitor for Arkansas

Outlooks

The [Climate Prediction Center](#) (CPC) outlook for July 2022 (issued June 30, 2022) indicates a likely chance for above normal temperatures and an enhanced chance for below median precipitation across all of eastern OK and northwest AR. This outlook was largely based on dynamical model output (in particular the predicted positive 500mb height anomalies), the reinforcement of La Niña impacts due to Madden-Julian Oscillation (MJO) activity, and soil moisture.

For the 3-month period July-August-September 2022, CPC is forecasting an enhanced chance for above normal temperatures across all of eastern OK and northwest AR. This outlook also indicates an equal chance for above, near, and below median precipitation across southeast OK and west central AR and an enhanced chance for below median precipitation elsewhere (outlook issued June 16, 2022). This outlook is based on long-term trends, La Niña impacts, current soil moisture, and incorporates both statistical and dynamical forecast tools. According to CPC, the combined effect of the ocean-atmosphere system remains consistent with La Niña conditions. La Niña conditions are expected to continue through summer 2022 (52% chance) and there is a 59% chance of La Niña continuing in the fall and early winter. CPC continues the La Niña Advisory.

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

Thunderstorms developed on May 31st across north central OK and south central KS near an outflow boundary and moved into southeast KS during the late evening hours. These storms increased in coverage and brought heavy rain to southeast KS, southwest MO, and far northeast OK during the overnight and early morning hours of June 1. By 7am, rainfall totals were 0.50" to around 4" across the Grand-Neosho River basin in northeast OK, southeast KS, and southwest MO (Fig. 4). Moderate flooding occurred along the Neosho River near Commerce (see E3 and preliminary hydrographs at the end of this report).

During the afternoon of the 1st, thunderstorms developed across an outflow boundary from southeast OK through west central AR and into northwest AR. This activity then dissipated during the early evening hours. By the early morning hours of the 2nd, a slow-moving cold front was positioned from northern TX into far southeast OK and extended northeast into central AR. At the same time, the 850-mb frontal boundary was located from southwest OK into northwest AR. Between these two features were widespread rain showers and thunderstorms mainly along and near the leading edge from north TX into southeast OK. Precipitable water (PWAT) values were 1.5", allowing for heavy rainfall. The leading edge moved southeast of the region before sunrise, but the trailing showers and thunderstorms continued until noon. Rainfall totals were 0.25" to 3" across southeast OK and in isolated locations in northwest AR (Figs. 5, 6).

Just before sunrise on the 5th, a mesoscale convective system (MCS) moved southeast out of KS into northeast OK. The MCS continued to move south-southeast over eastern OK and western AR through the afternoon. A second MCS, also coming out of KS, moved into northeast OK around midnight of the 6th. This MCS moved quickly southeast across northeast and east central OK and northwest and west central AR, ending by mid-morning of the 6th. Rainfall totals from the two thunderstorm complexes were 0.10" to around 3" (Figs. 7-10). The Grand-Neosho River basin once again received heavy rain from this activity, resulting in another rise and moderate flooding along the Neosho River near Commerce (see E3 and preliminary hydrographs at the end of this report).

As is typical in June, several days of MCS activity impacted eastern OK and northwest AR. An MCS moved out of central OK into southeast OK by mid-morning of the 7th, while additional showers and thunderstorms developed over east central OK and west central AR along a leftover outflow boundary from an MCS in KS. All of this activity quickly moved southeast and was out of the area by mid-afternoon. Rainfall totals were 0.25"-2.5" across the affected area, with localized 2.5"-4" in west central AR (Figs. 11, 12). Street flooding was reported in Crawford and Sebastian Counties due to the heavy rain.

In the pre-dawn hours of the 8th, showers and thunderstorms developed from northwest AR into northeast OK, north of a quasi-stationary front that stretched across east central OK and west central AR, as a shortwave moved across the area. These storms moved southeast across east central OK and west central AR through

the morning. Additional thunderstorms from an MCS in southern KS through south central OK moved southeast into eastern OK at mid-morning. This round of precipitation was more widespread as it moved east across eastern OK and western AR. These storms shifted east of the region by late afternoon. With PWAT values around 2.25", both rounds of storms produced heavy rain across primarily east central OK and west central AR where there were numerous reports of flooded roadways. Rainfall totals ranged from 0.10" to 4" (Figs. 13, 14). After already receiving heavy rain in the preceding days (4-day combined rainfall totals of 4"-8" across east central OK and west central AR, Fig. 15), this last round of rain caused rivers, such as the Illinois River, Lee Creek, and Arkansas River, in this area to rise. Most remained below flood stage, with the exception of the Arkansas River at Van Buren and at Ozark L&D, where minor flooding occurred (see E3 and preliminary hydrographs at the end of this report).

Around midnight of the 10th, an area of showers and thunderstorms developed over far northeast OK and quickly moved southeast through northwest and west central AR. At nearly the same time, two different MCSs (one from Nebraska and one from southwest OK) approached and entered eastern OK. These two storm complexes converged while moving to the east-southeast, bringing widespread showers and thunderstorms to much of eastern OK and northwest AR during the overnight and early morning hours. The strongest storms shifted east of the area around sunrise of the 11th, with the trailing precipitation ending by mid-morning. Rainfall totals ranged from 0.25" to around 6" across most of eastern OK and northwest AR (Figs.16, 17), with a significant portion of Sequoyah and Sebastian Counties receiving 3"-5" of rain in about 3 to 6 hours (Figs. 18-20). The Oklahoma Mesonet station in Sallisaw, OK measured 4.66", and personal weather stations reported 6.73" southeast of Greenwood, AR and 6.23" in Pocola, OK. This same area was already saturated from the previous days' rain, and widespread flash flooding was reported across Sequoyah and Sebastian Counties. Numerous road closures occurred due to high water, including several state highways. Flood waters reached homes and buildings in Sallisaw. Flash flooding also was reported in Muskogee. This heavy rain caused another rise along the Arkansas River at Van Buren and at Ozark L&D, with a higher minor flood crest than the flood a couple days prior. Minor flooding also happened along the Poteau River near Panama and the Deep Fork River near Beggs (see E3 and preliminary hydrographs at the end of this report). Large rises occurred along Bird Creek and Lee Creek, but they remained below flood stage.

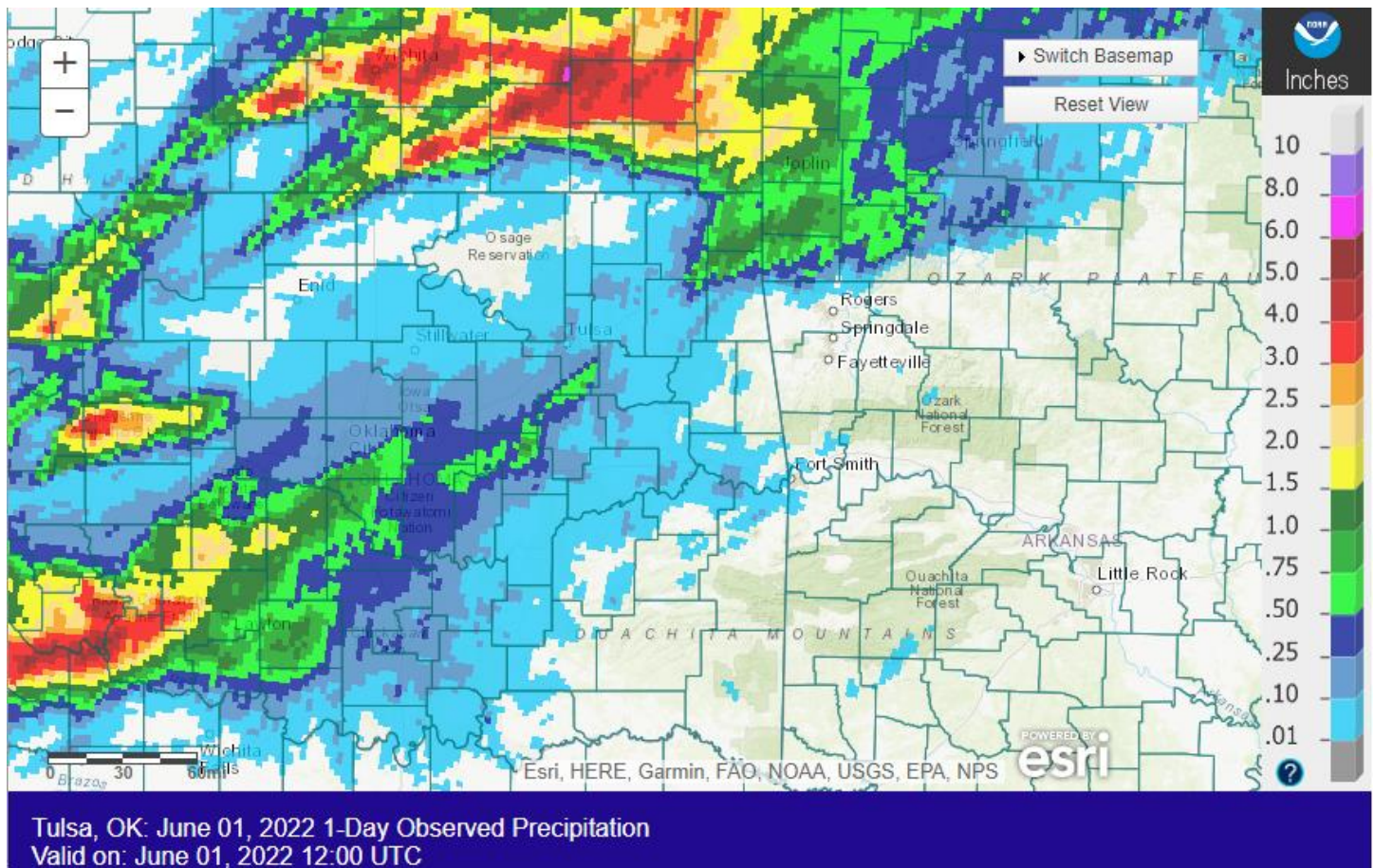
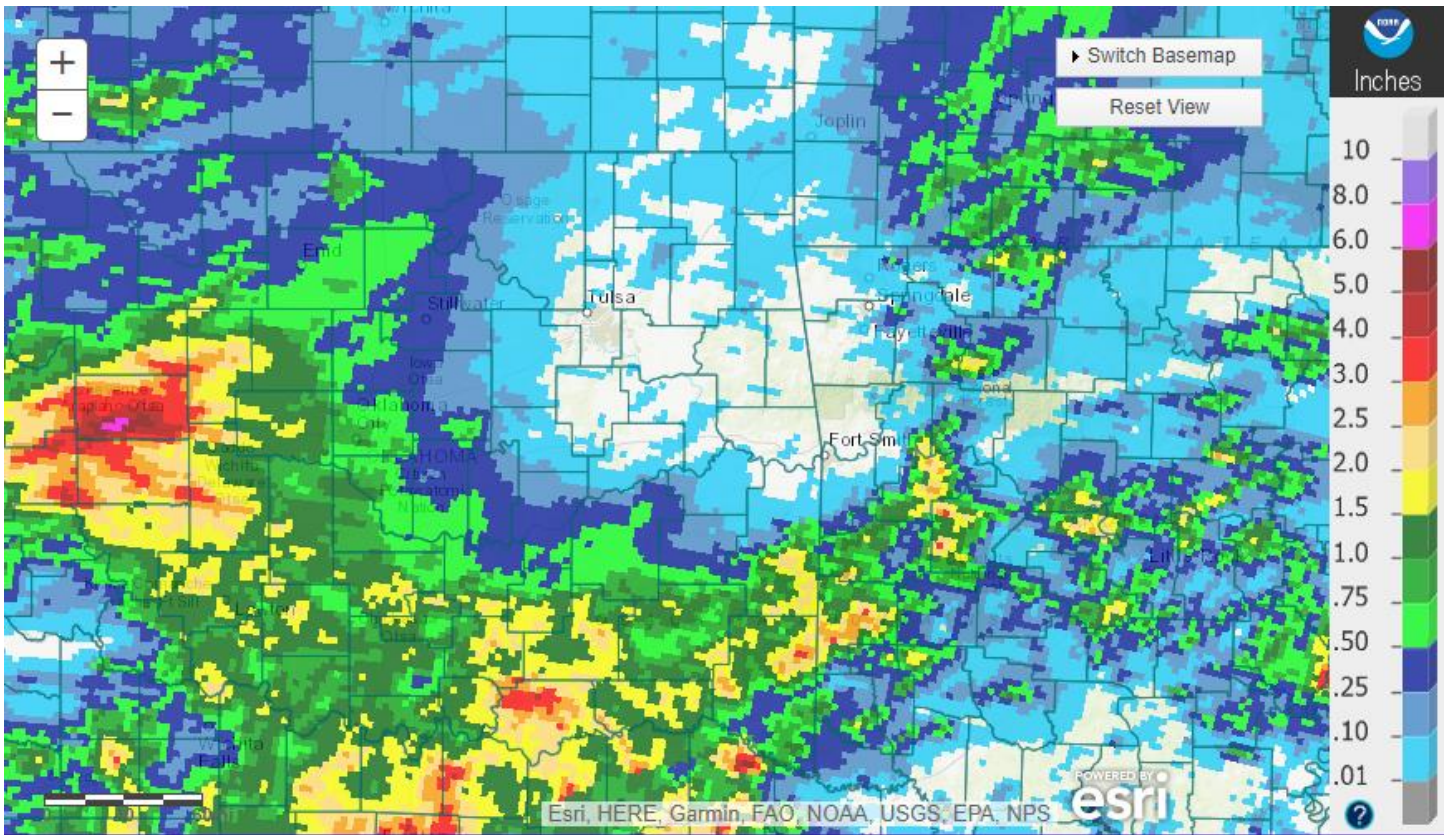
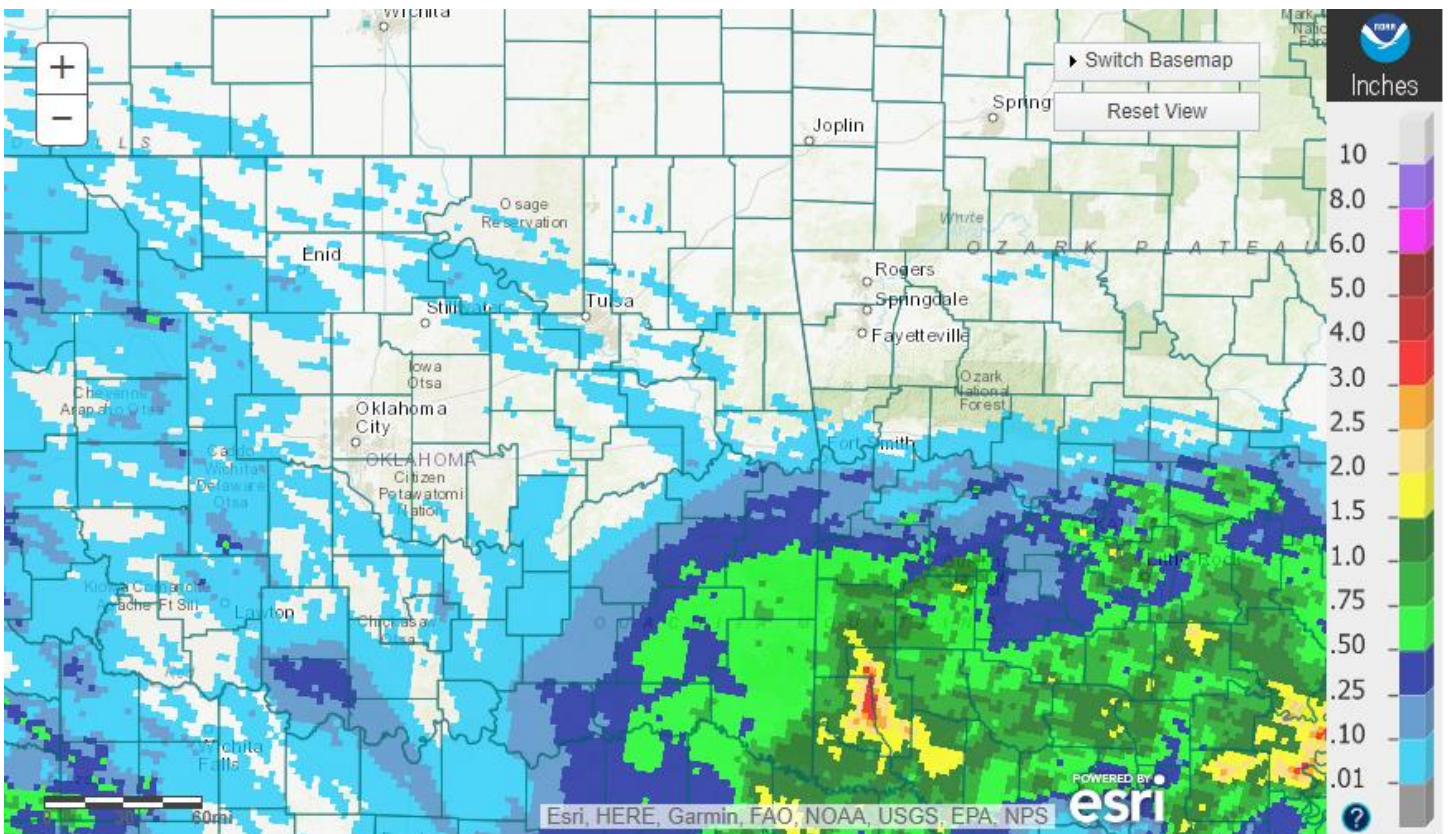


Fig. 4. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/01/2022.



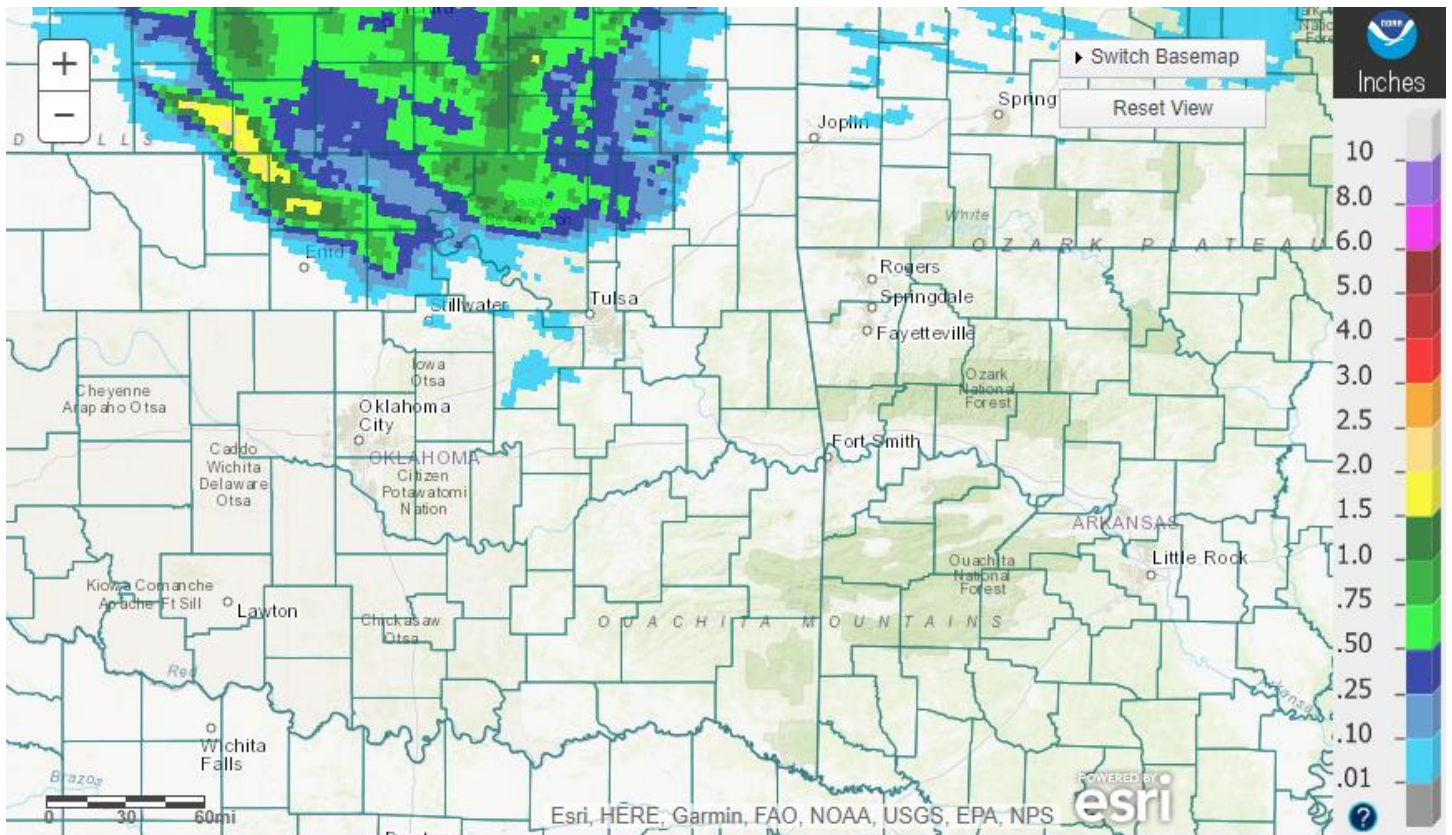
Tulsa, OK: June 02, 2022 1-Day Observed Precipitation
Valid on: June 02, 2022 12:00 UTC

Fig. 5. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/02/2022.



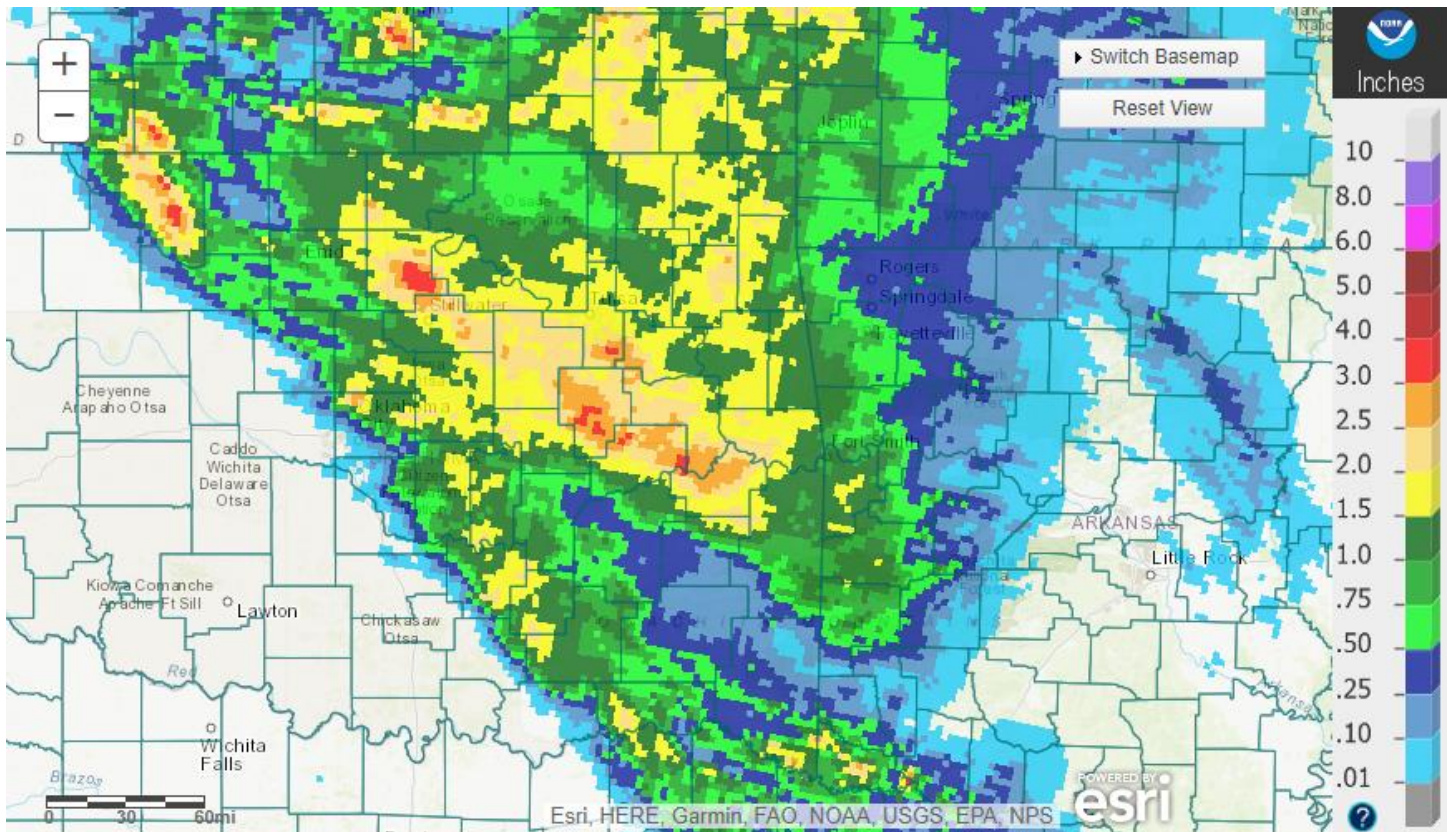
Tulsa, OK: June 03, 2022 1-Day Observed Precipitation
Valid on: June 03, 2022 12:00 UTC

Fig. 6. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/03/2022.



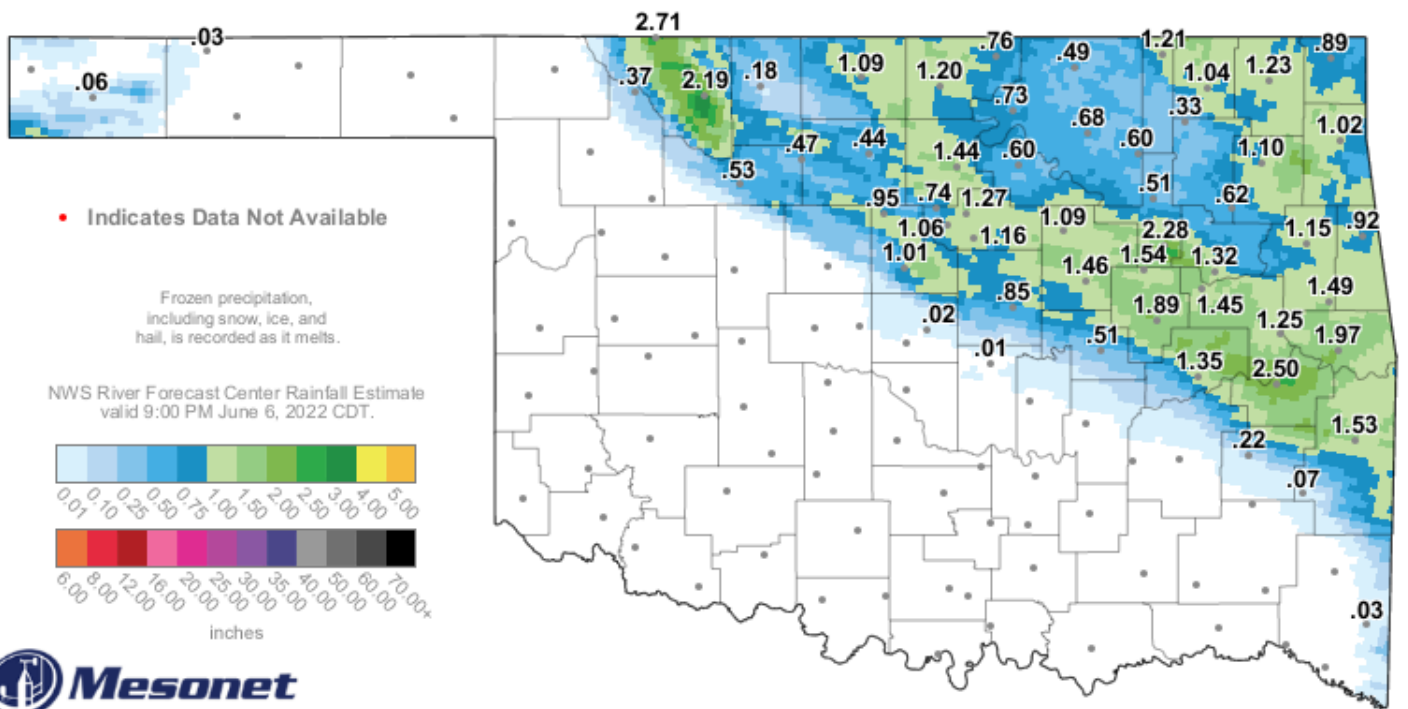
Tulsa, OK: June 05, 2022 1-Day Observed Precipitation
Valid on: June 05, 2022 12:00 UTC

Fig. 7. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/05/2022.



Tulsa, OK: June 06, 2022 1-Day Observed Precipitation
Valid on: June 06, 2022 12:00 UTC

Fig. 8. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/06/2022.

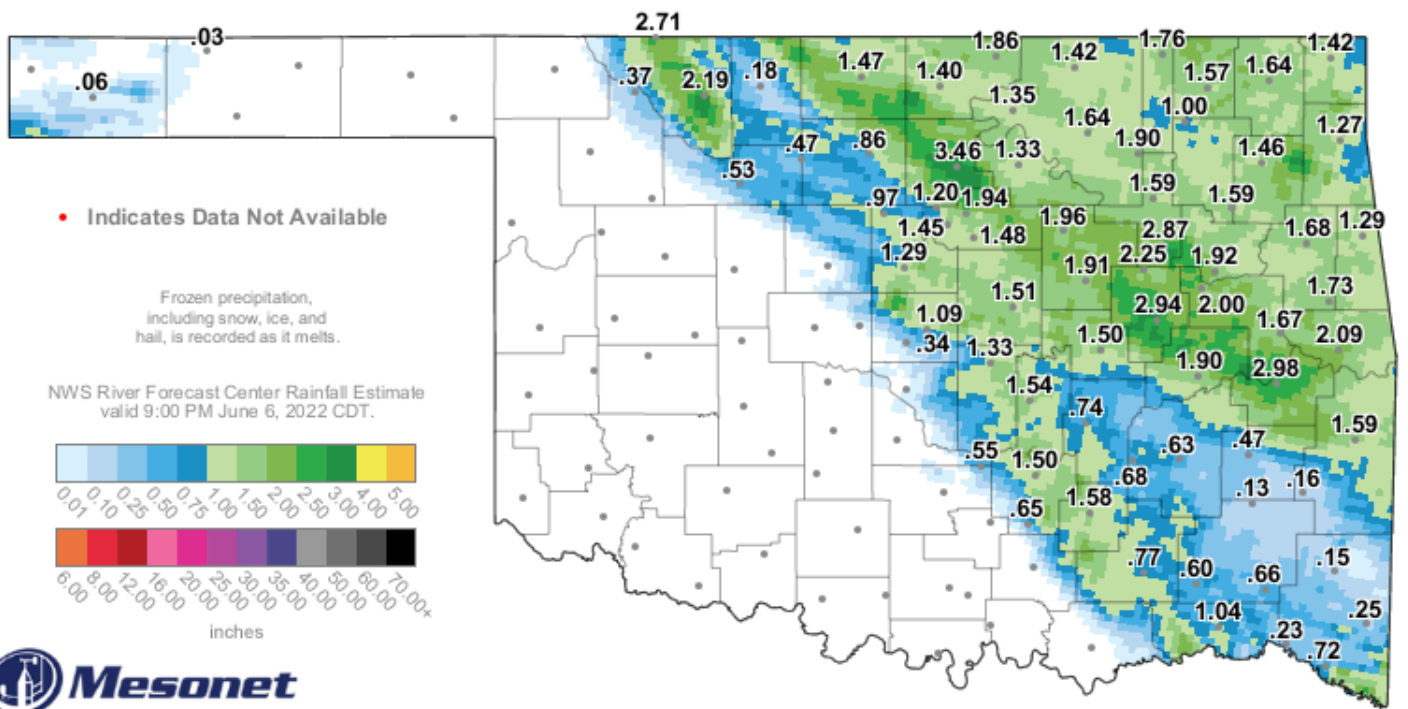


24-Hour Rainfall Accumulation (inches)

9:55 PM June 6, 2022 CDT

Created 10:00:52 PM June 6, 2022 CDT. © Copyright 2022

Fig. 9. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 9:55 pm CDT 6/06/2022.

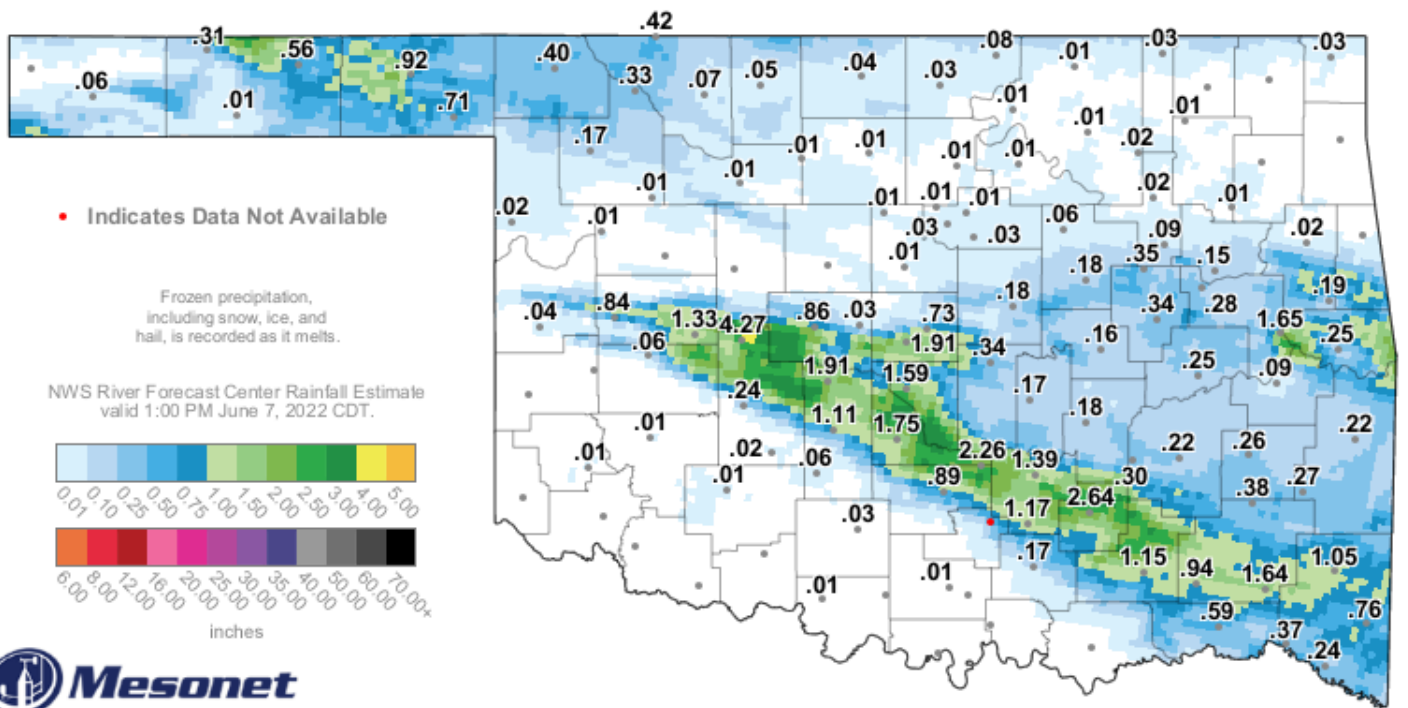


2-Day Rainfall Accumulation (inches)

9:55 PM June 6, 2022 CDT

Created 10:00:52 PM June 6, 2022 CDT. © Copyright 2022

Fig. 10. OK Mesonet (values) and NWS RFC rainfall estimate (image) 48-hour rainfall ending at 9:55 pm CDT 6/06/2022.

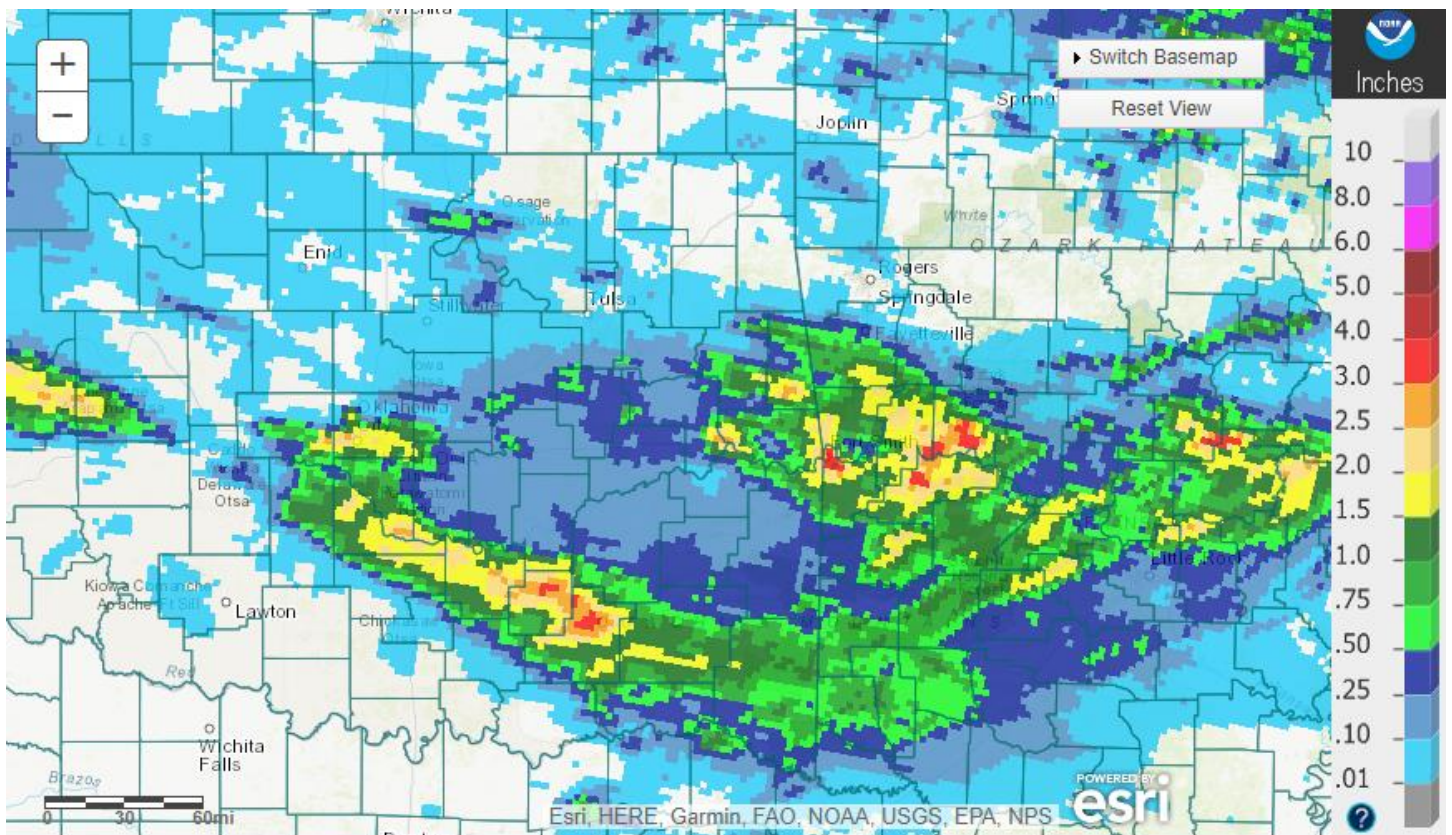


24-Hour Rainfall Accumulation (inches)

2:20 PM June 7, 2022 CDT

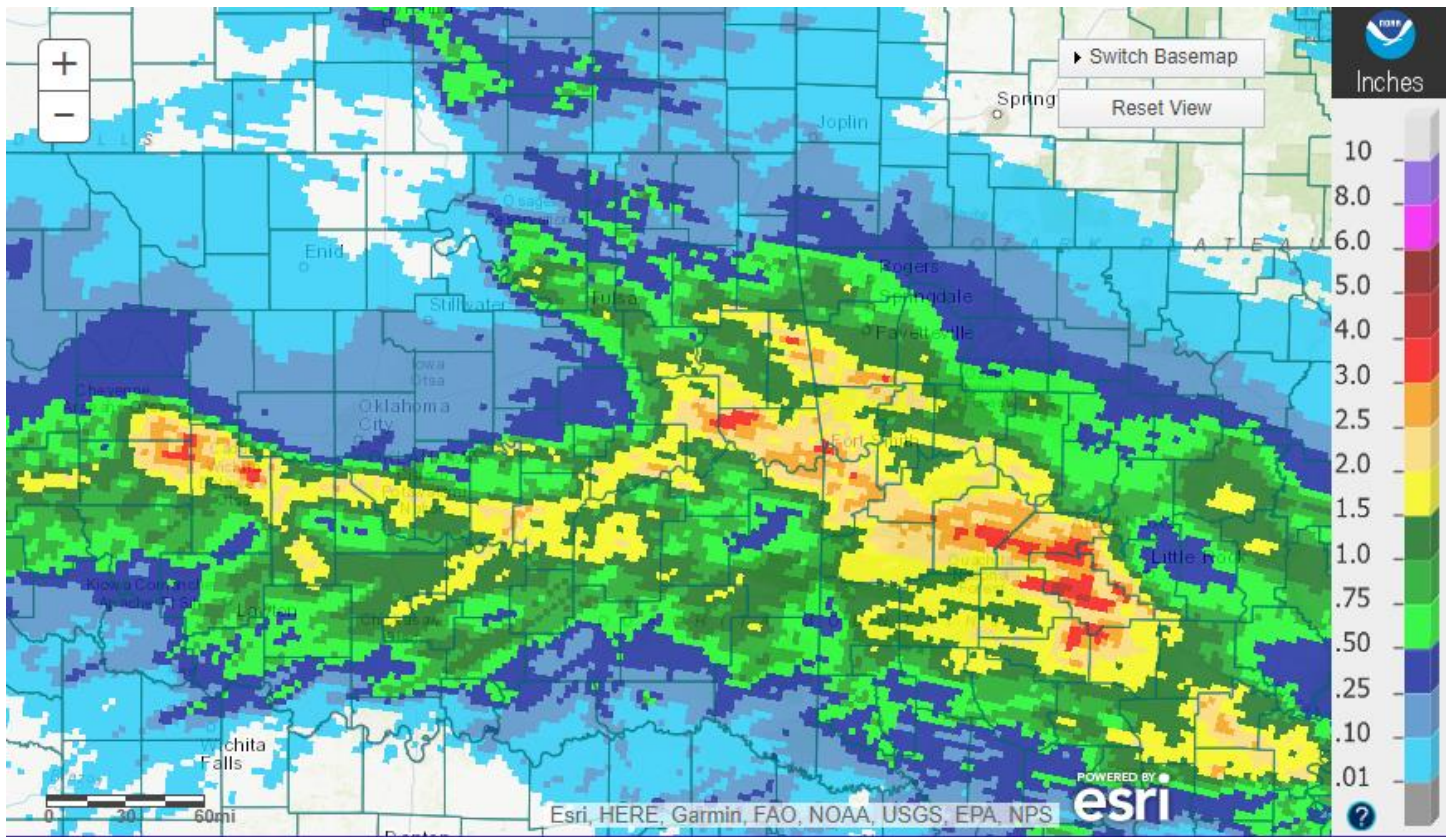
Created 2:25:47 PM June 7, 2022 CDT. © Copyright 2022

Fig. 11. OK Mesonet (values) and NWS RFC rainfall estimate (image) 24-hour rainfall ending at 2:20 pm CDT 6/07/2022.



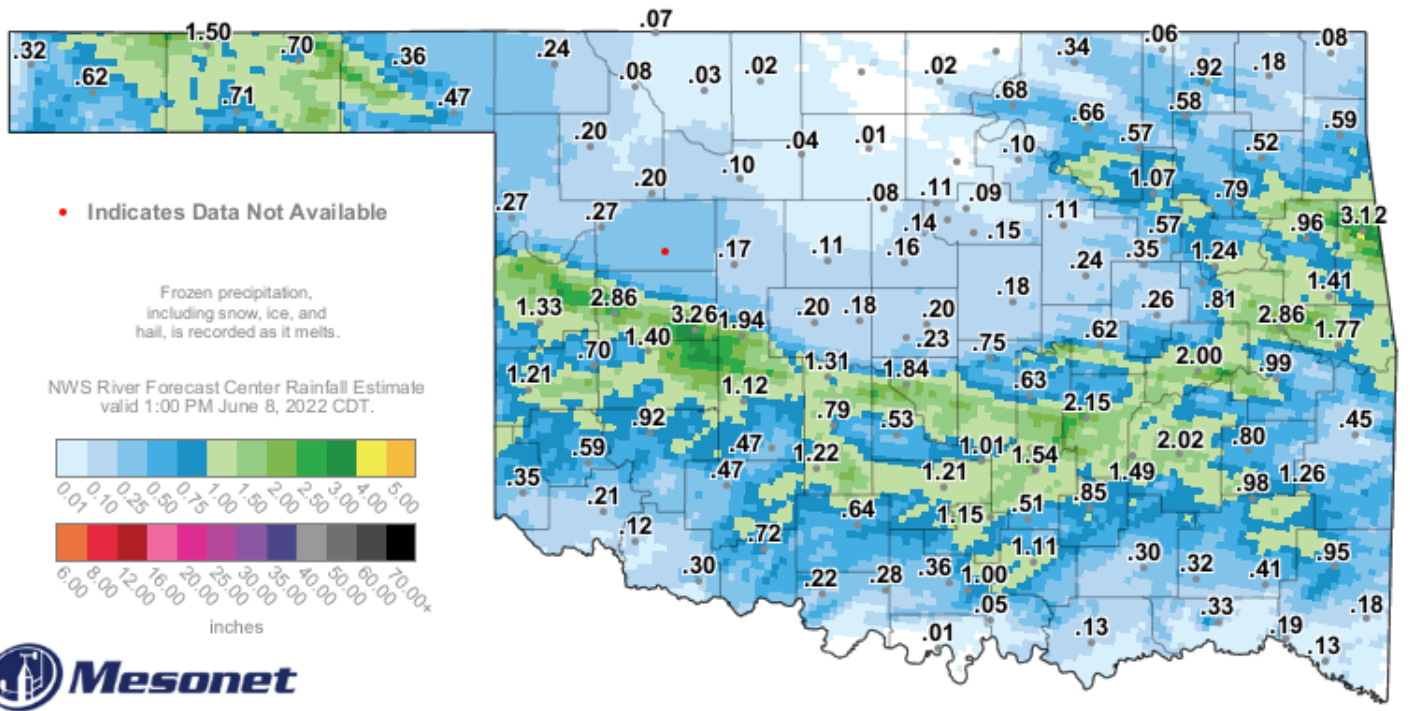
Tulsa, OK: June 08, 2022 1-Day Observed Precipitation
Valid on: June 08, 2022 12:00 UTC

Fig. 12. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/08/2022.



Tulsa, OK: June 09, 2022 1-Day Observed Precipitation
Valid on: June 09, 2022 12:00 UTC

Fig. 13. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/09/2022.

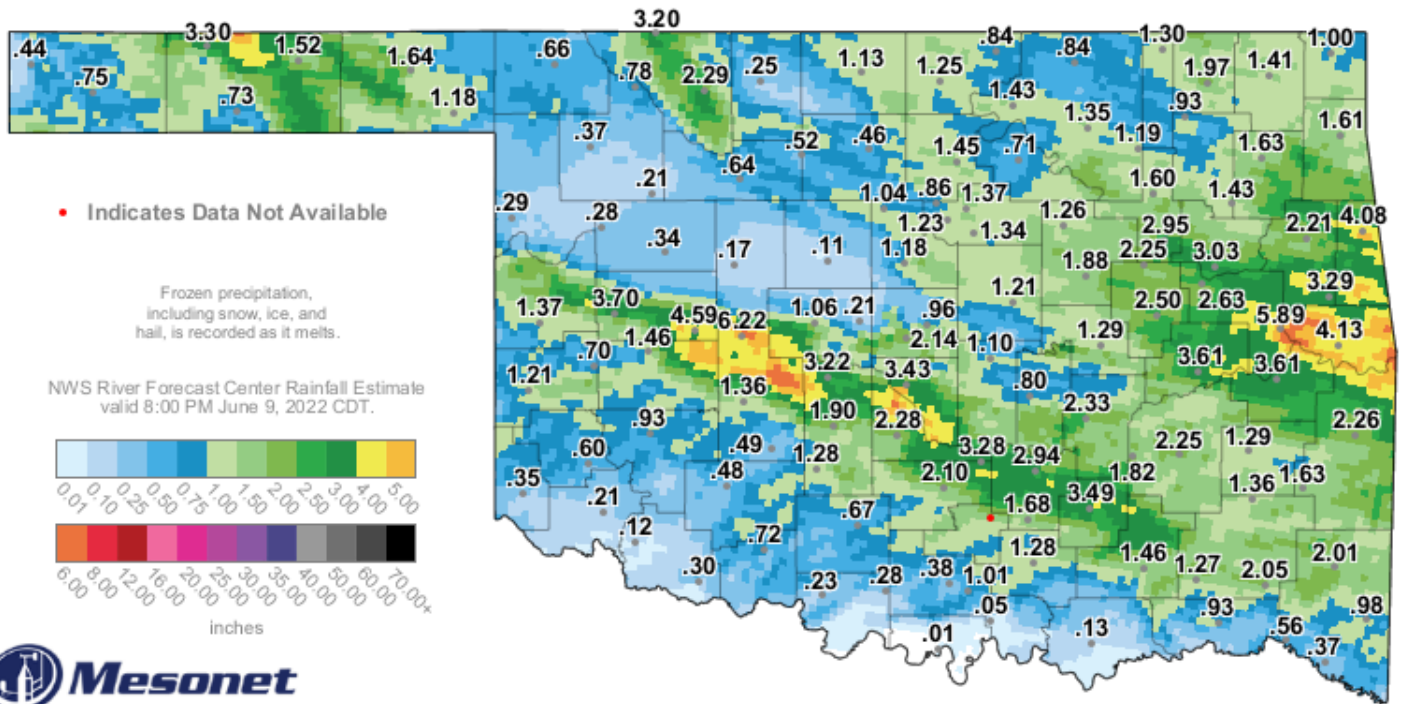


12-Hour Rainfall Accumulation (inches)

2:05 PM June 8, 2022 CDT

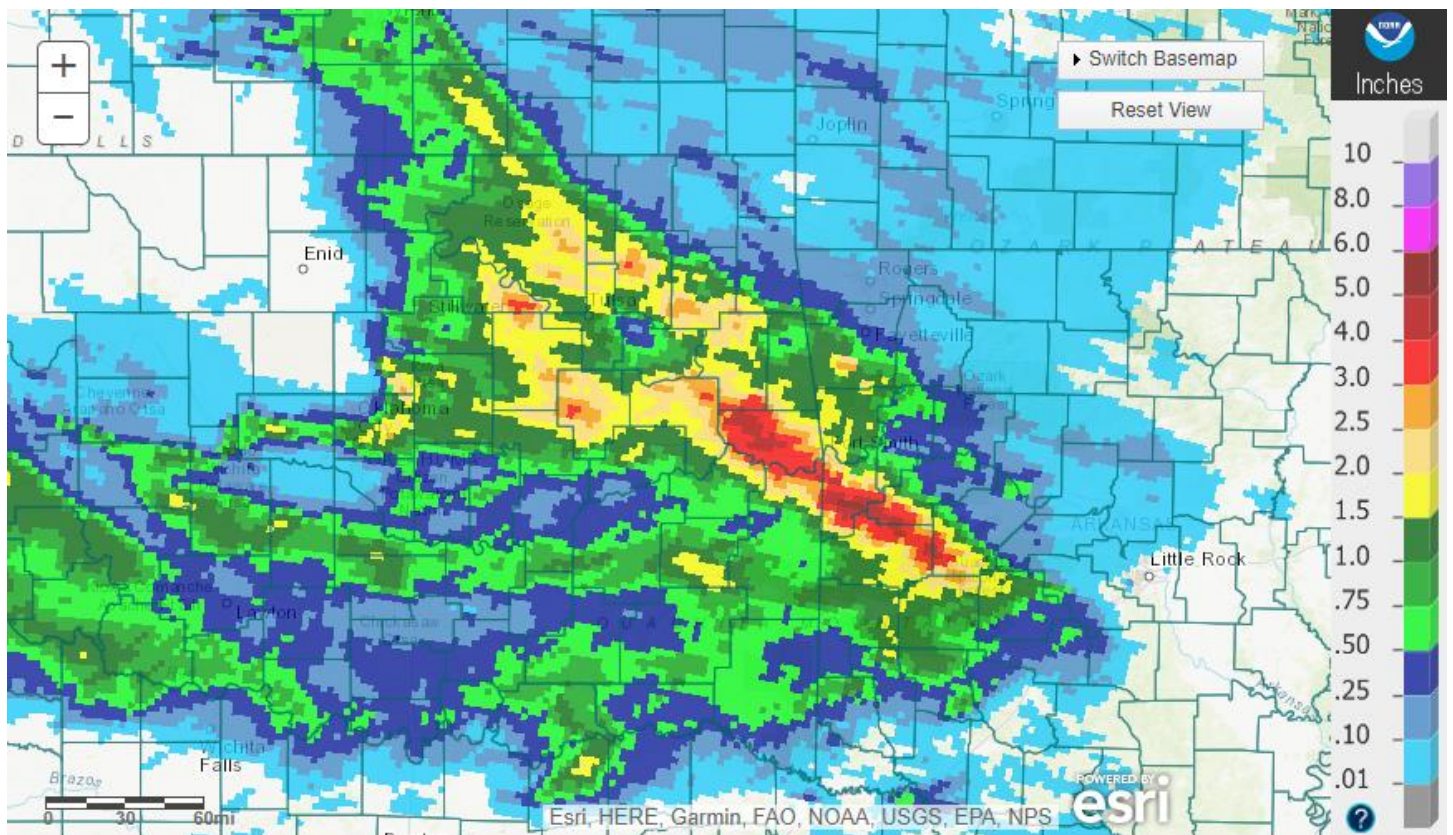
Created 2:09:35 PM June 8, 2022 CDT. © Copyright 2022

Fig. 14. OK Mesonet (values) and NWS RFC rainfall estimate (image) 12-hour rainfall ending at 2:05 pm CDT 6/08/2022.



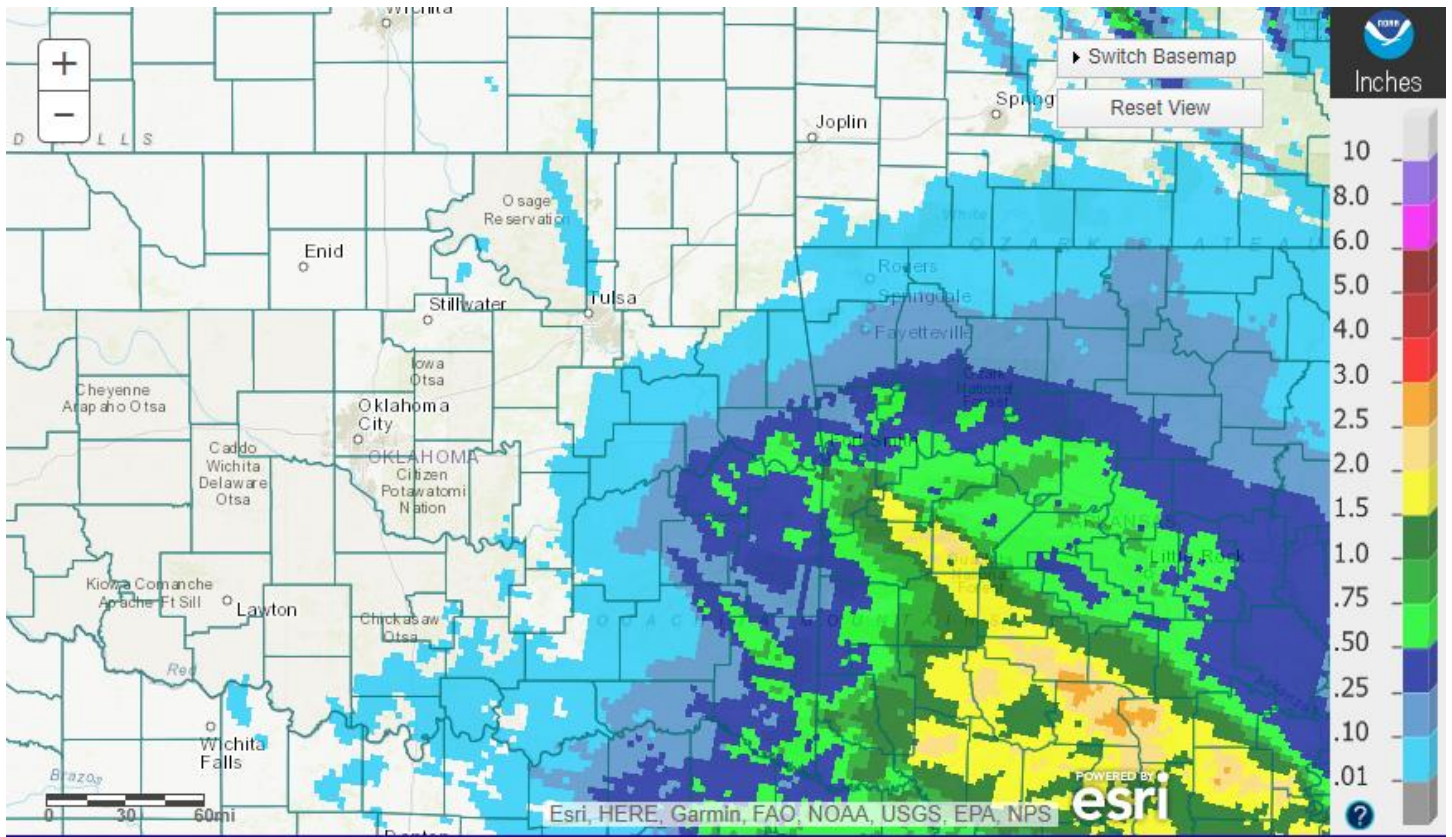
4-Day Rainfall Accumulation (inches)

Fig. 15. OK Mesonet (values) and NWS RFC rainfall estimate (image) 4-day rainfall ending at 9:15 pm CDT 6/09/2022.



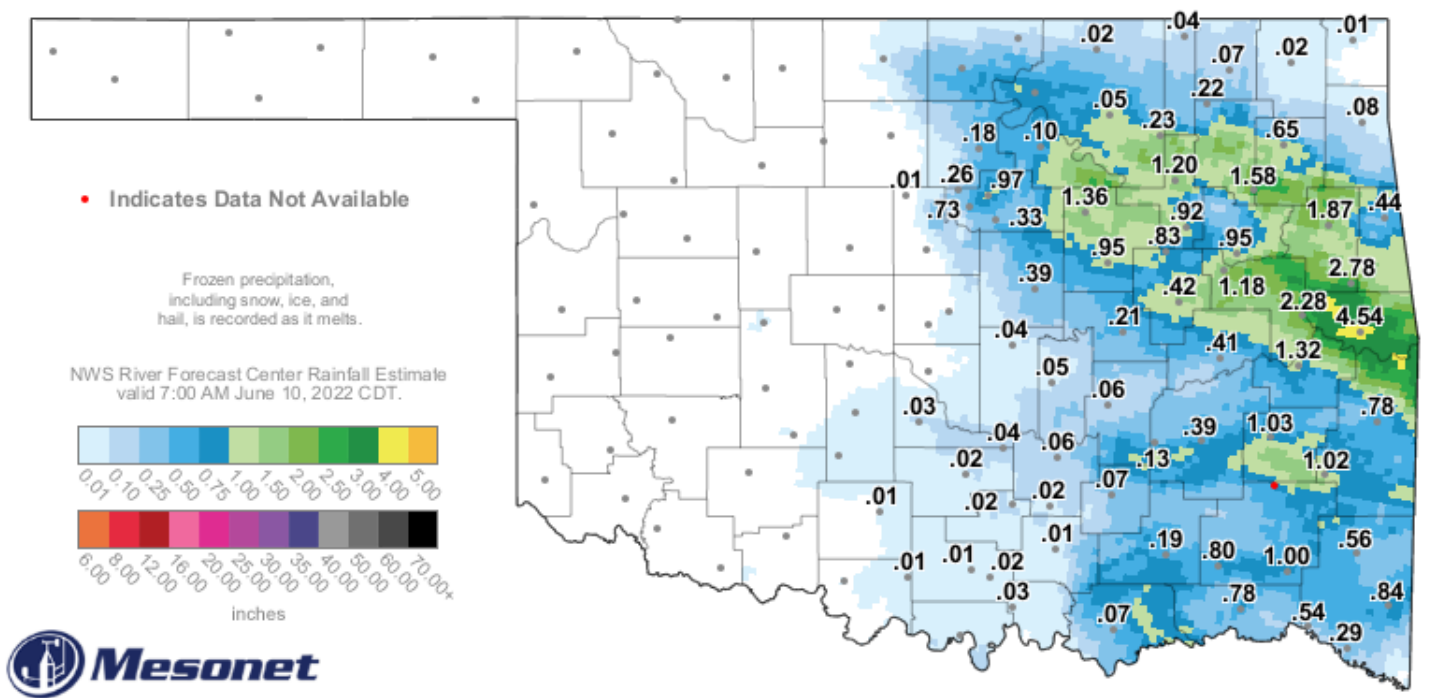
Tulsa, OK: June 10, 2022 1-Day Observed Precipitation
Valid on: June 10, 2022 12:00 UTC

Fig. 16. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/10/2022.



Tulsa, OK: June 11, 2022 1-Day Observed Precipitation
Valid on: June 11, 2022 12:00 UTC

Fig. 17. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/11/2022.

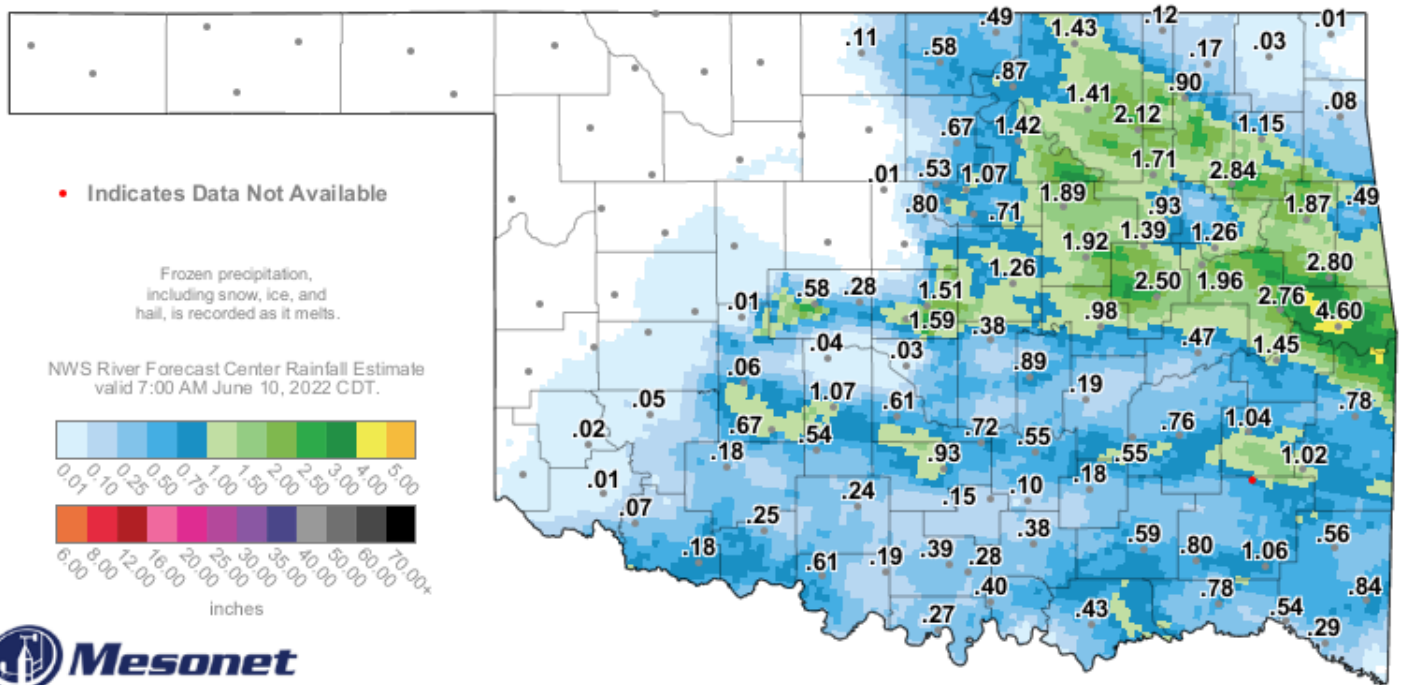


3-Hour Rainfall Accumulation (inches)

7:45 AM June 10, 2022 CDT

Created 7:50:28 AM June 10, 2022 CDT. © Copyright 2022

Fig. 18. OK Mesonet (values) and NWS RFC rainfall estimate (image) 3-hour rainfall ending at 7:45 am CDT 6/10/2022.

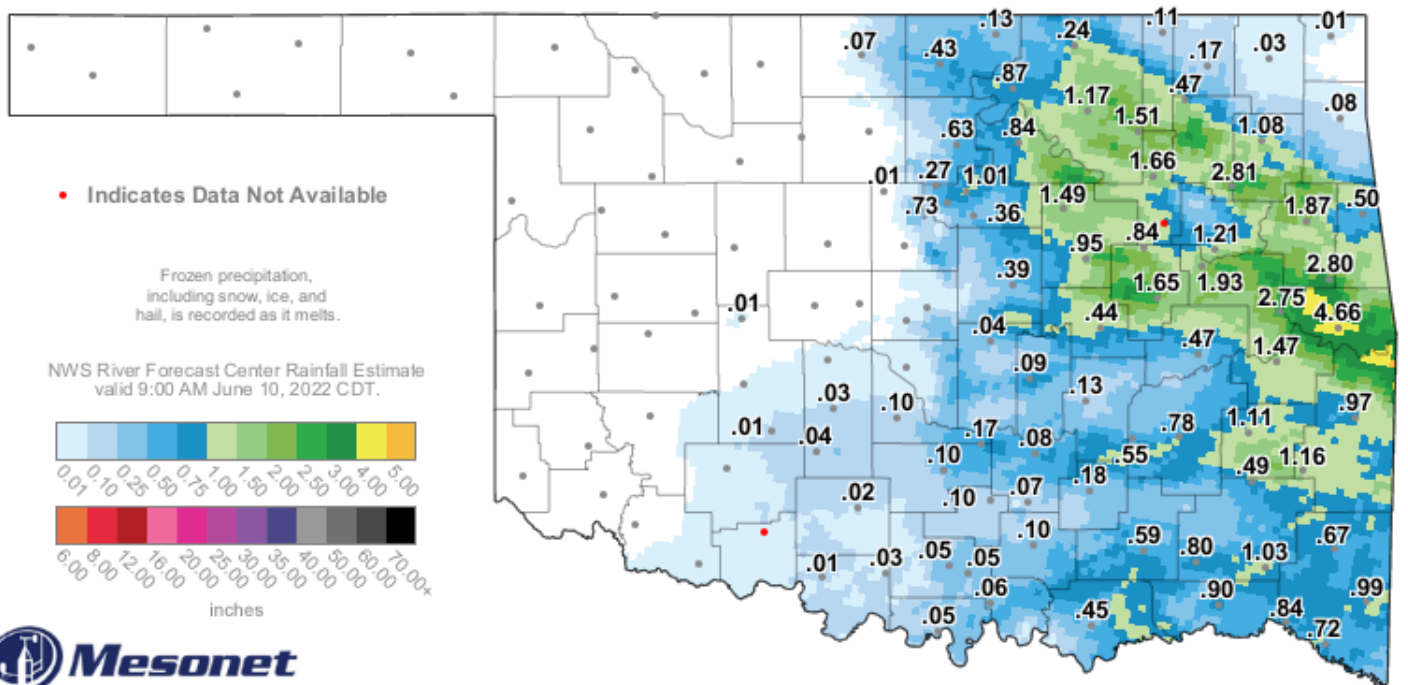


6-Hour Rainfall Accumulation (inches)

7:45 AM June 10, 2022 CDT

Created 7:50:28 AM June 10, 2022 CDT. © Copyright 2022

Fig. 19. OK Mesonet (values) and NWS RFC rainfall estimate (image) 6-hour rainfall ending at 7:45 am CDT 6/10/2022.

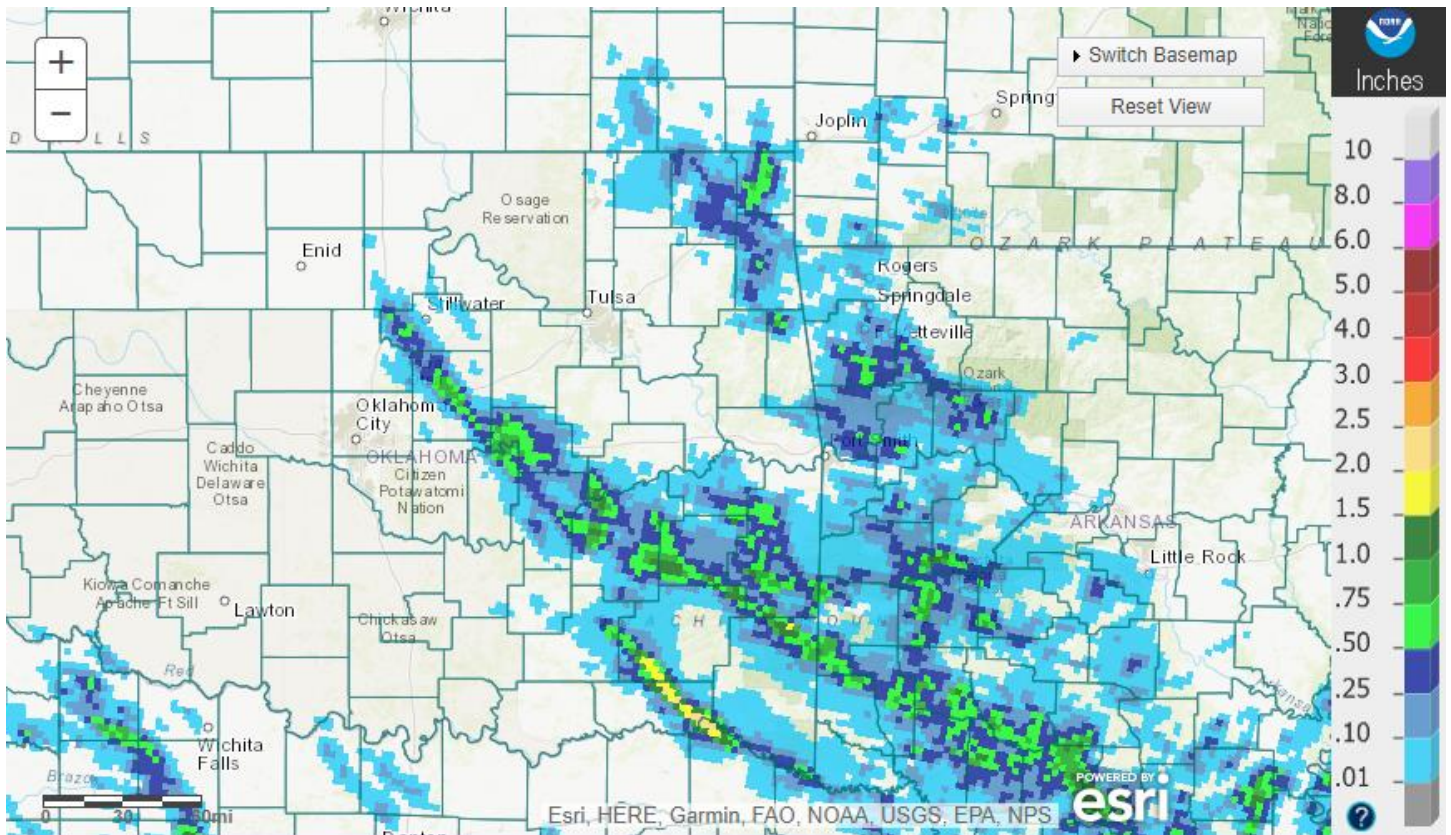


6-Hour Rainfall Accumulation (inches)

10:00 AM June 10, 2022 CDT

Created 10:06:08 AM June 10, 2022 CDT. © Copyright 2022

Fig. 20. OK Mesonet (values) and NWS RFC rainfall estimate (image) 6-hour rainfall ending at 10:00 am CDT 6/10/2022.



Tulsa, OK: June 19, 2022 1-Day Observed Precipitation
Valid on: June 19, 2022 12:00 UTC

Fig. 21. 24-hour Estimated Observed Rainfall ending at 7am CDT 6/19/2022.

A backdoor cold front helped to initiate showers and thunderstorms across the higher terrain of northwest and west central AR and southeast OK during the afternoon and evening of the 18th. This activity propagated to the west northwest before completely dissipating shortly after midnight. Rainfall totals ranged from around 0.10" to around 2" (Fig. 21).

Written by:

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Service Hydrologist
WFO Tulsa

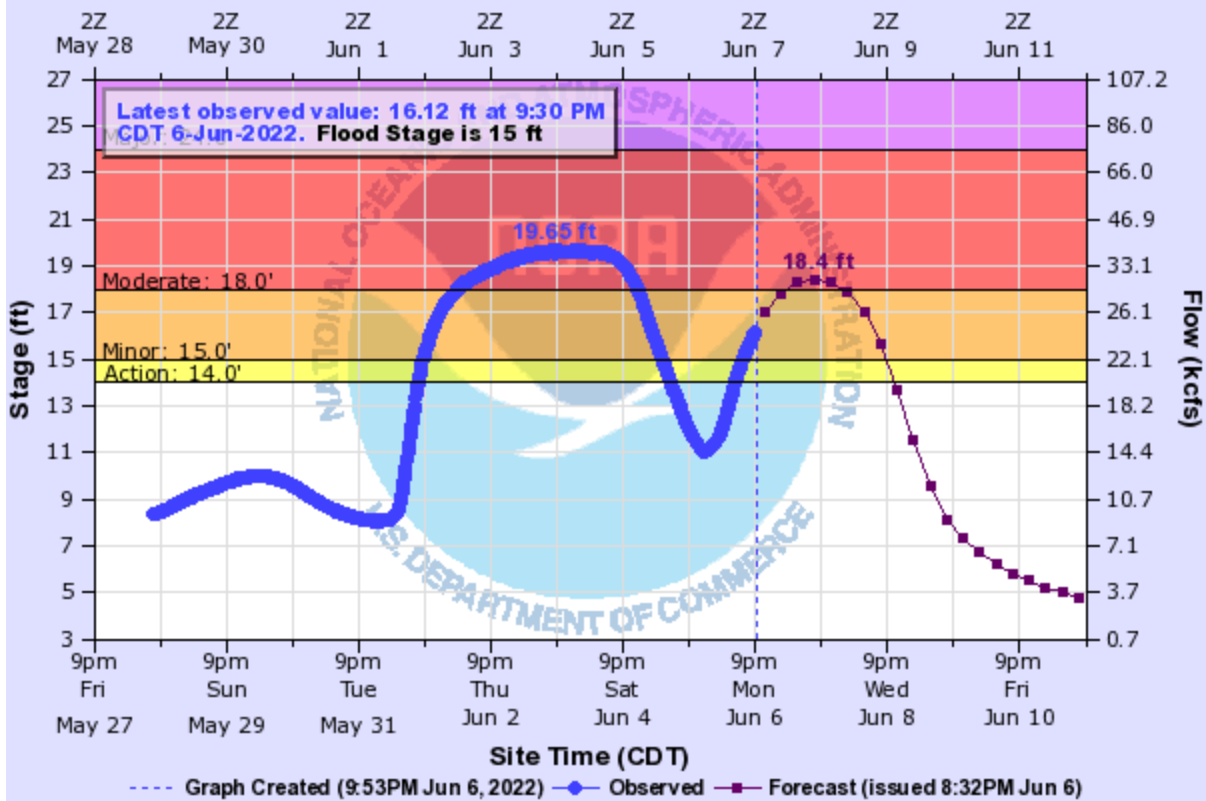
Products issued in June 2022:

- 6 Flash Flood Warnings (FFW)
- 6 Flash Flood Statements (FFS)
- 3 Flash/Areal Flood Watches (FFA) (9 Watch FFA CON/EXT/EXA/EXB/CAN)
- 22 Urban and Small Stream Advisories (FLS)
- 3 Areal Flood Warnings (FLW)
- 2 Areal Flood Statements (FLS)
- 9 River Flood Warnings (FLW) (includes category increases)
- 69 River Flood Statements (FLS)
- 3 River Flood Advisories (FLS) (25 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:

NEOSHO RIVER NEAR COMMERCE

Universal Time (UTC)

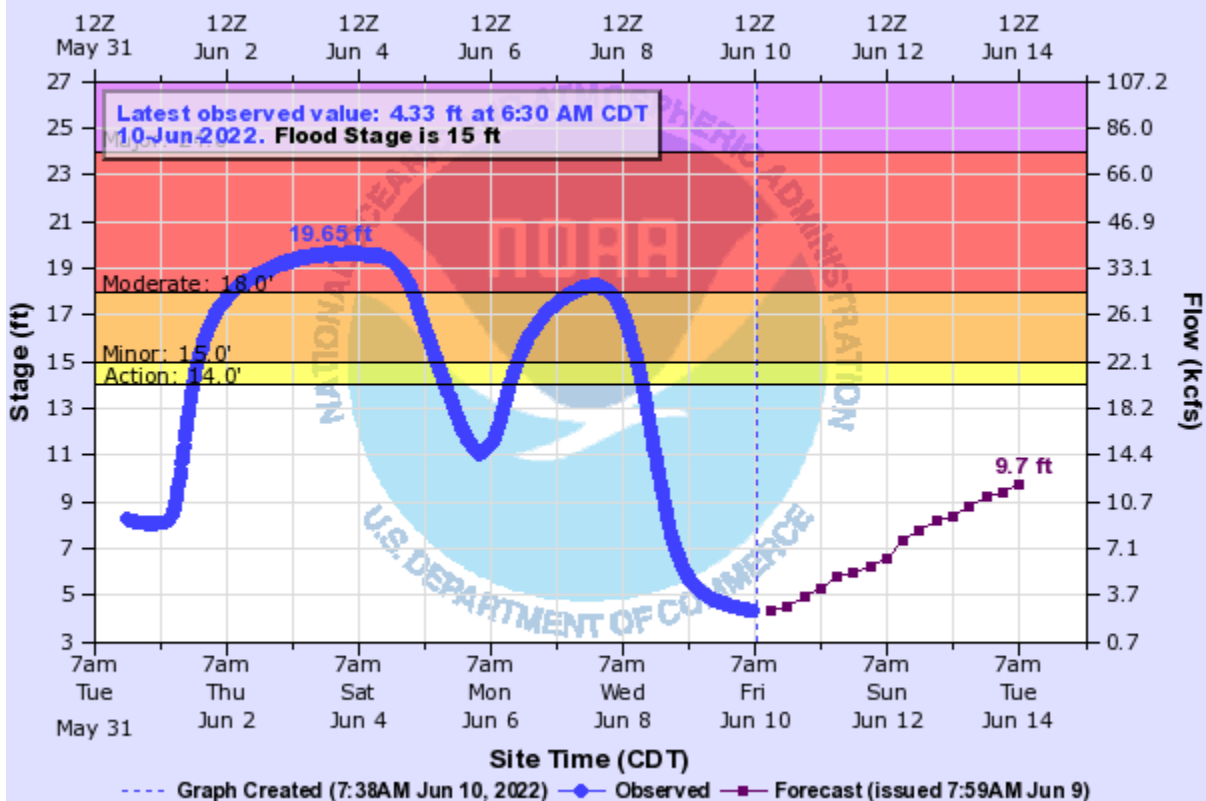


COMO2(plotting HGIRG) "Gage 0" Datum: 748.97'

Observations courtesy of US Geological Survey

NEOSHO RIVER NEAR COMMERCE

Universal Time (UTC)

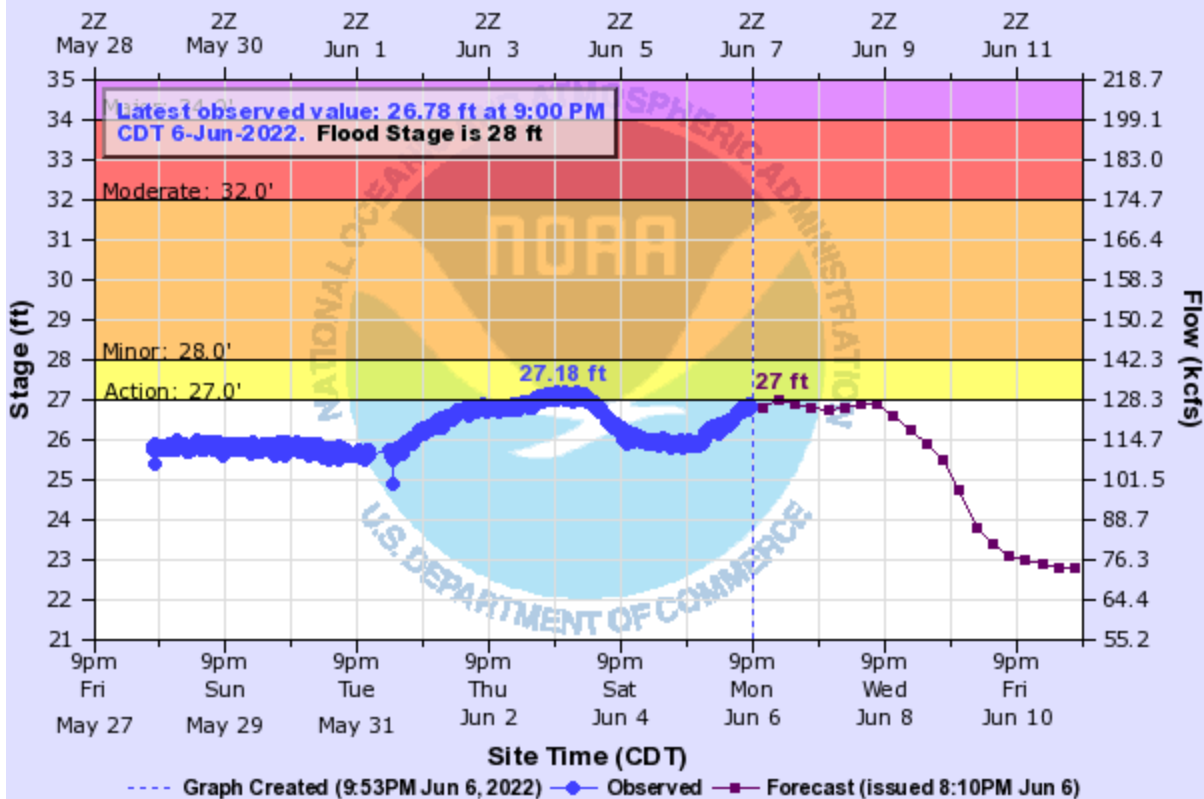


COMO2(plotting HGIRG) "Gage 0" Datum: 748.97'

Observations courtesy of US Geological Survey

ARKANSAS RIVER NEAR MUSKOGEE

Universal Time (UTC)

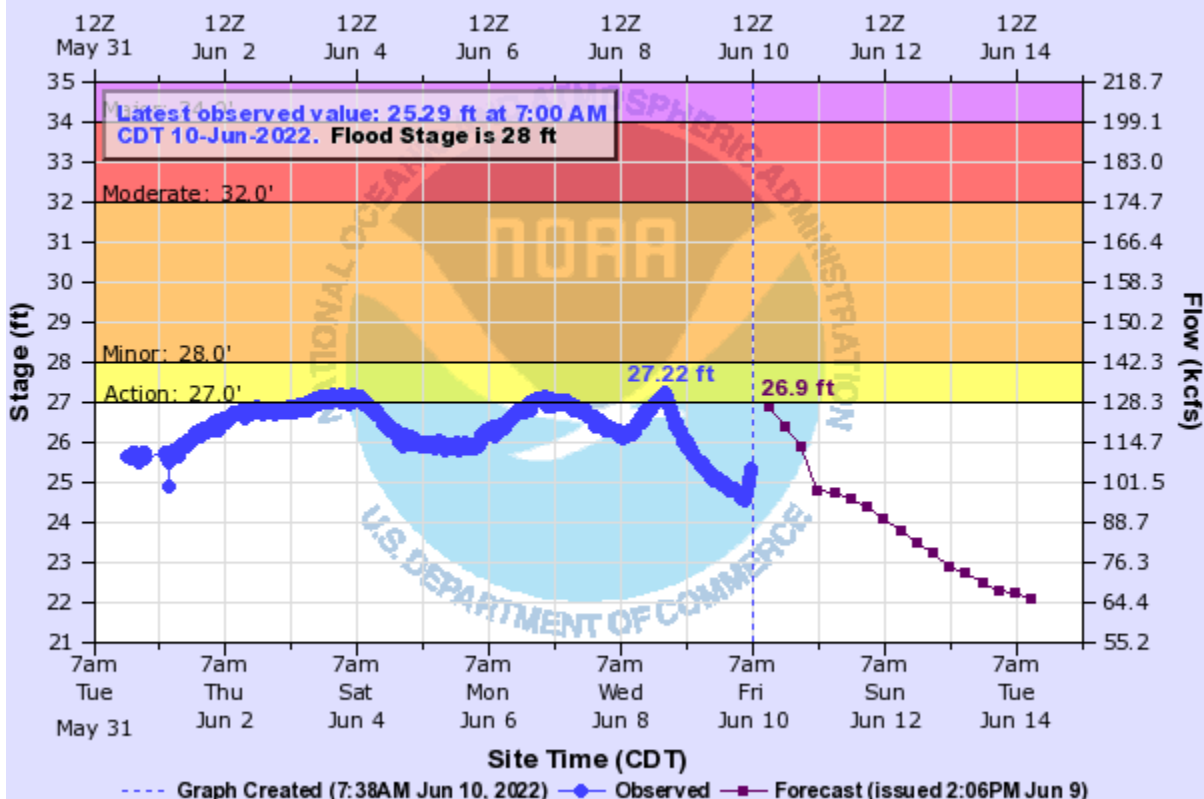


MKGO2(plotting HGIRG) "Gage 0" Datum: 471.38'

Observations courtesy of US Geological Survey

ARKANSAS RIVER NEAR MUSKOGEE

Universal Time (UTC)

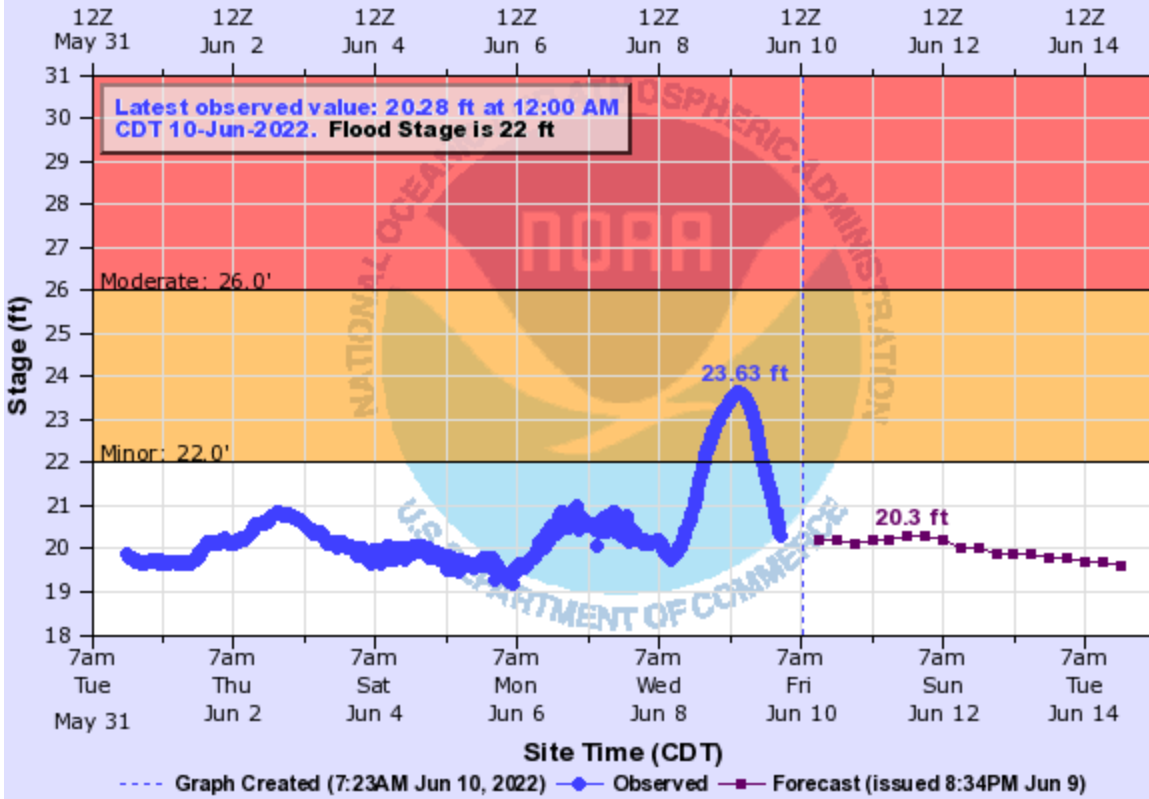


MKGO2(plotting HGIRG) "Gage 0" Datum: 471.38'

Observations courtesy of US Geological Survey

ARKANSAS RIVER AT VAN BUREN

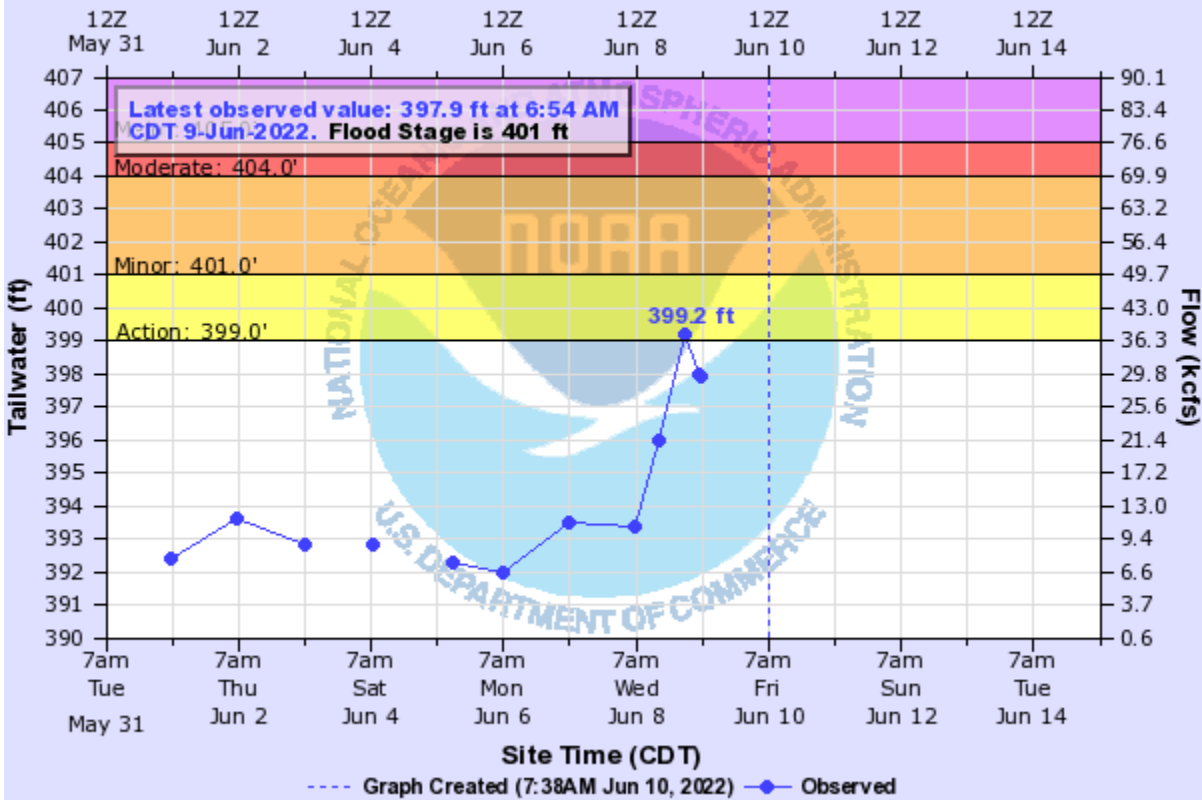
Universal Time (UTC)



VBUA4(plotting HGIRG) "Gage 0" Datum: 372.57'

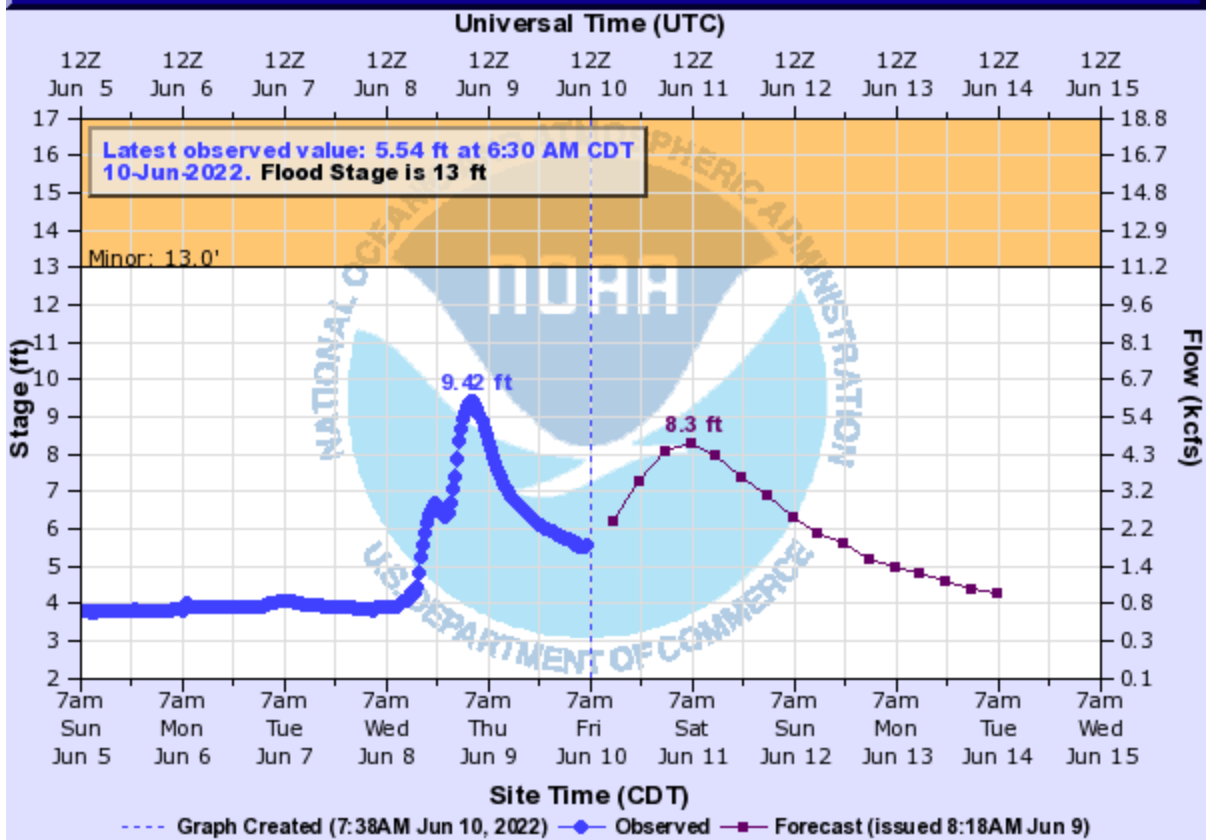
LEE CREEK NEAR VAN BUREN LCR

Universal Time (UTC)



VBRA4(plotting HTIRZ) "Gage 0" Datum: 0'

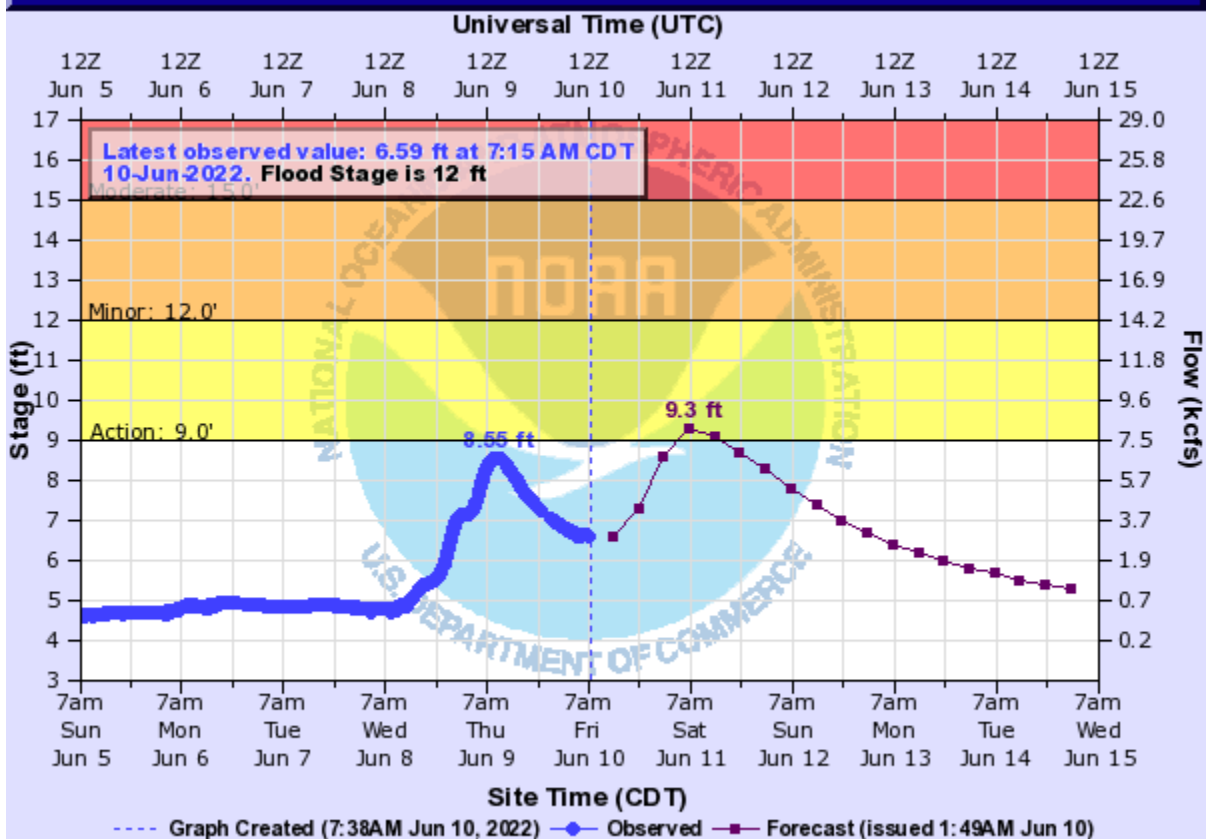
ILLINOIS RIVER (AR OK) NEAR WATTS



WT02(plotting HGIRG) "Gage 0" Datum: 893.78'

Observations courtesy of US Geological Survey

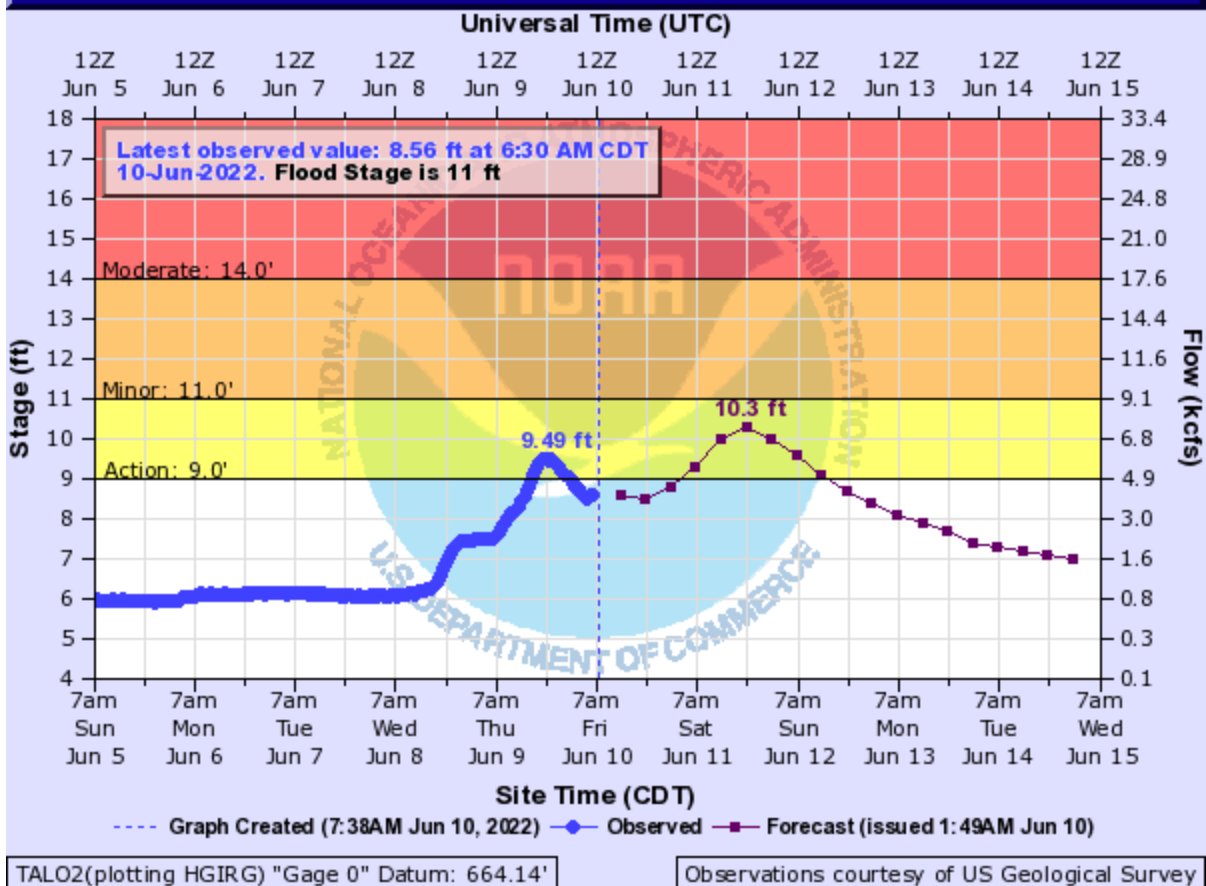
ILLINOIS RIVER (AR OK) AT CHEWEY



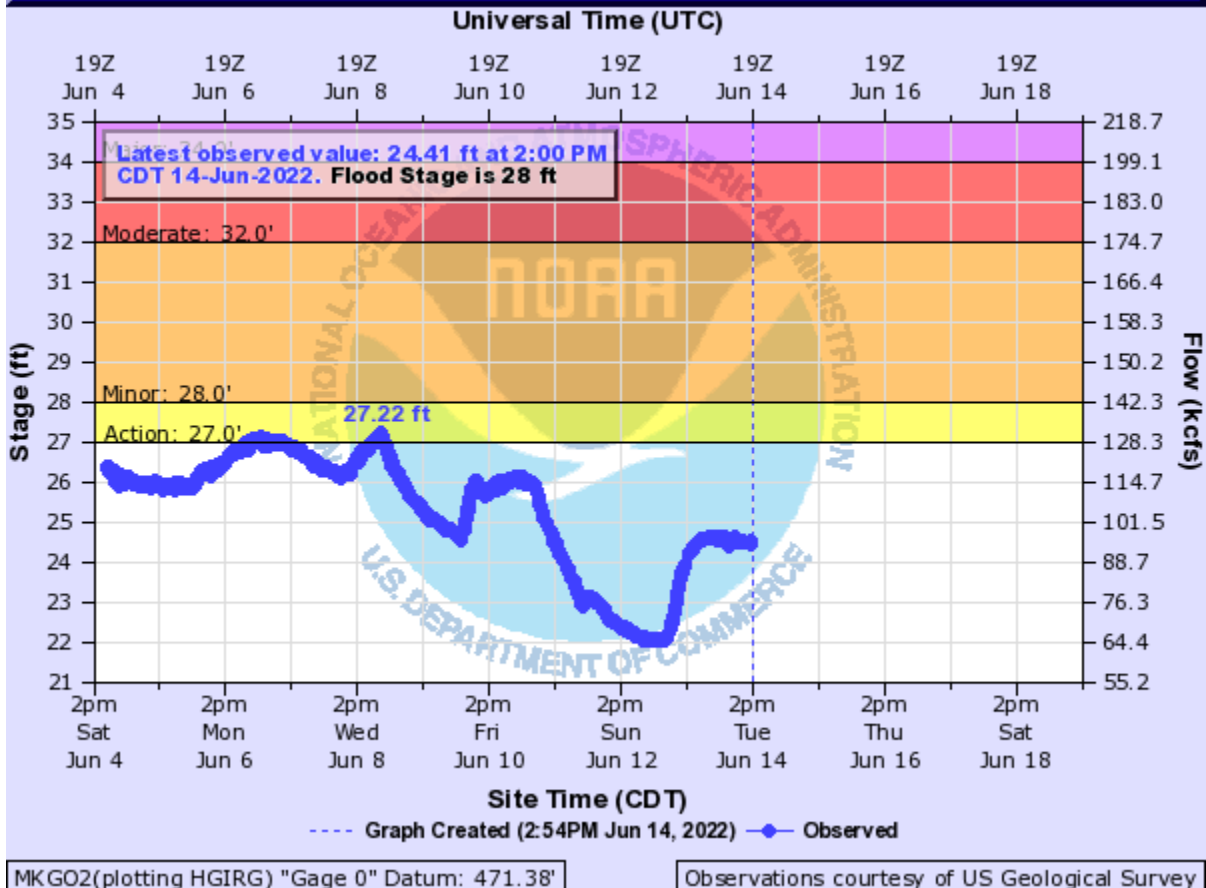
CWYO2(plotting HGIRG) "Gage 0" Datum: 800.88'

Observations courtesy of US Geological Survey

ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH

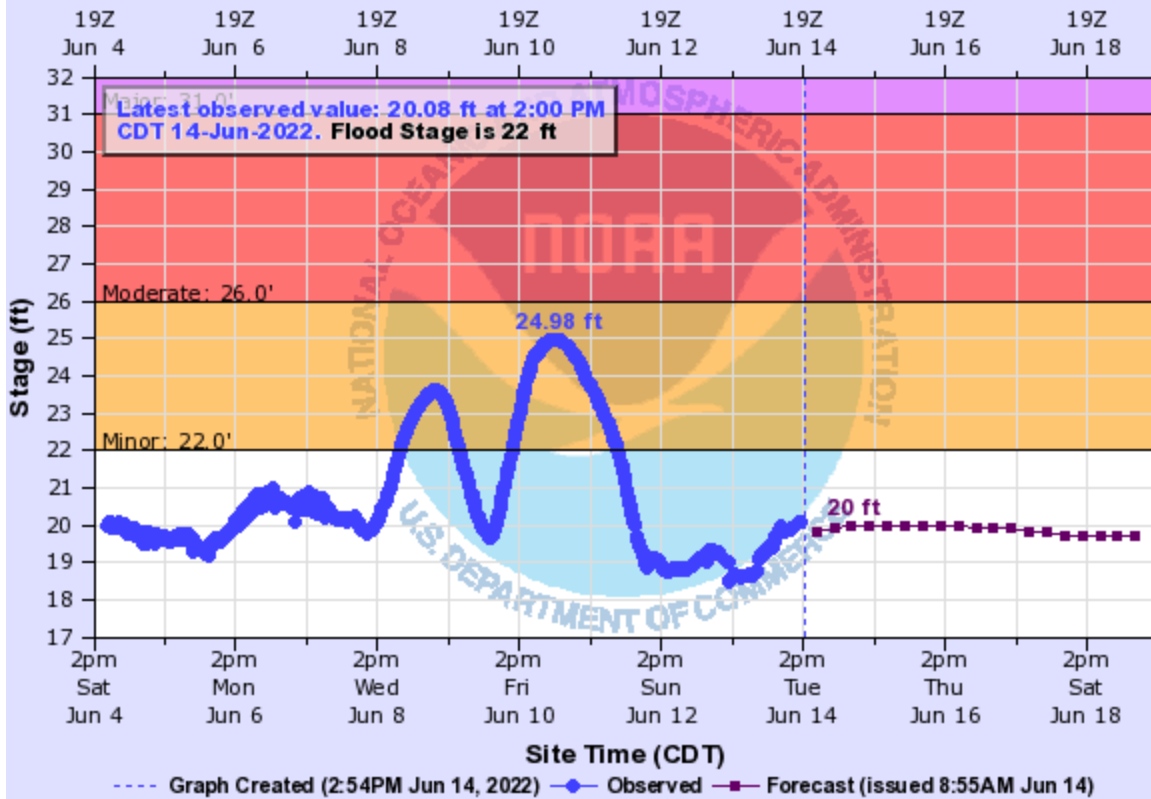


ARKANSAS RIVER NEAR MUSKOGEE



ARKANSAS RIVER AT VAN BUREN

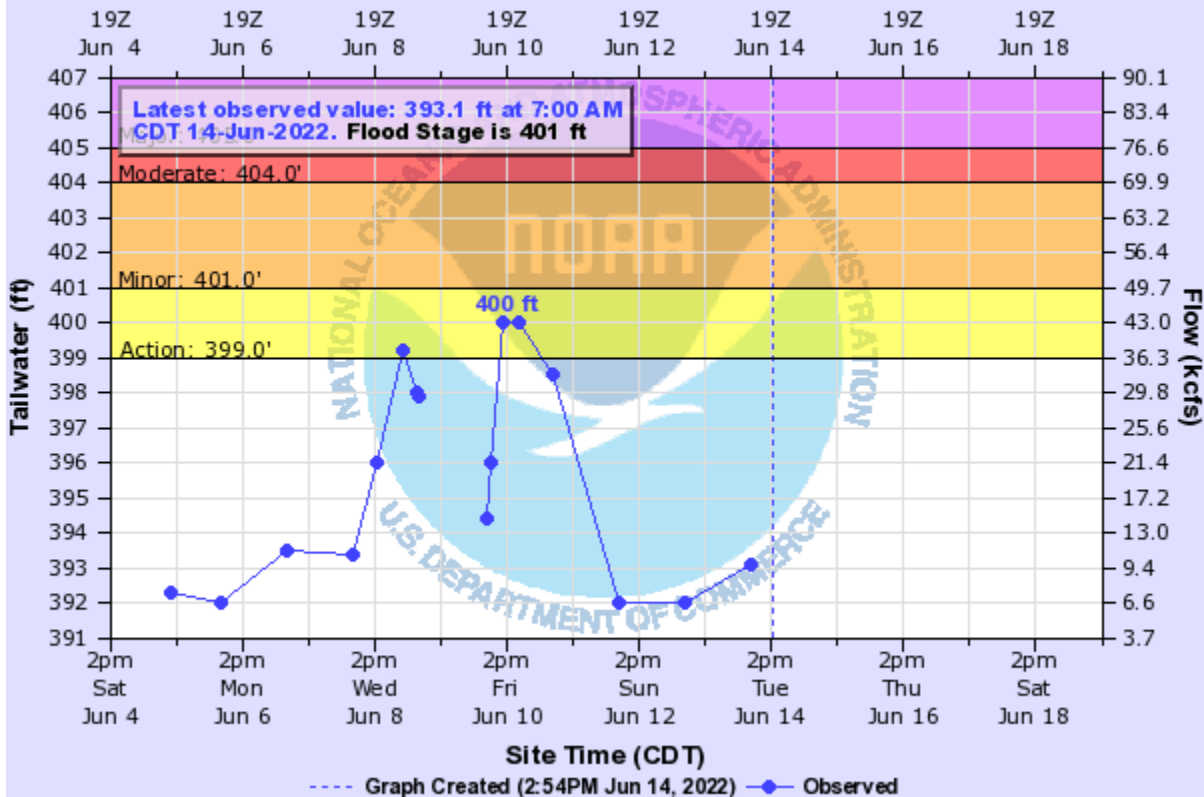
Universal Time (UTC)



VBUA4(plotting HGIRG) "Gage 0" Datum: 372.57'

LEE CREEK NEAR VAN BUREN LCR

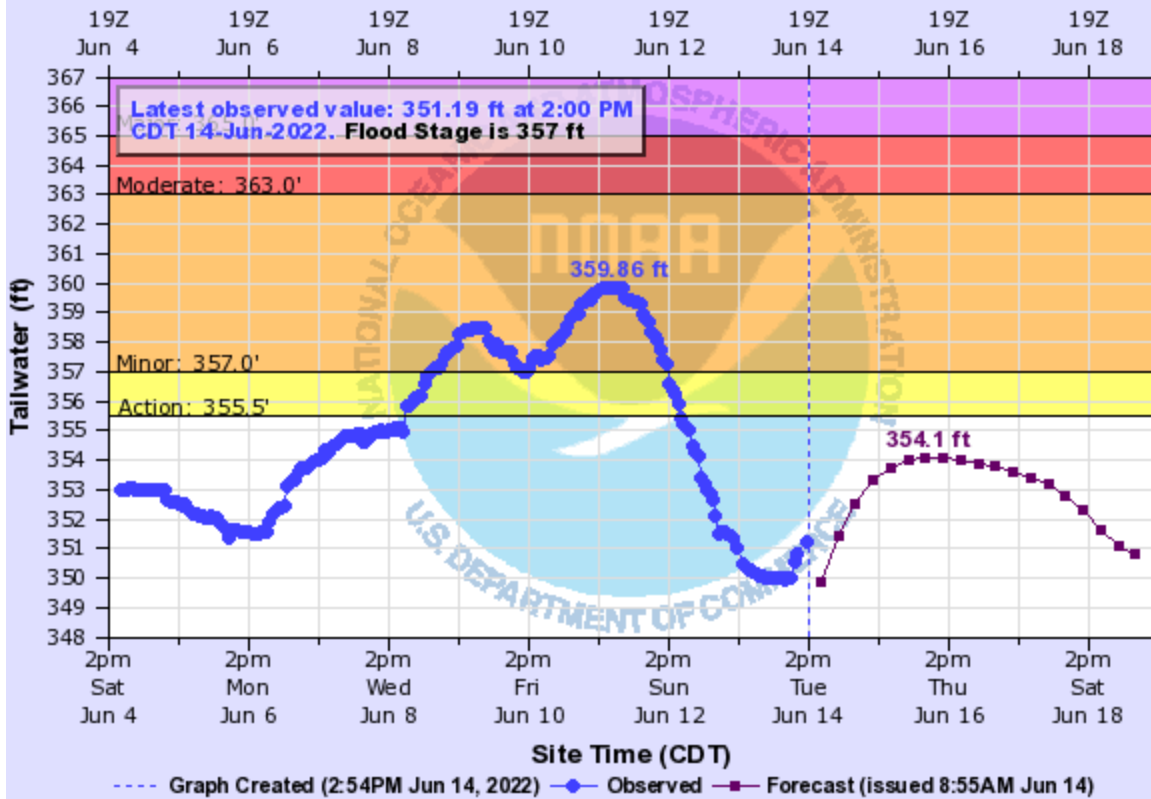
Universal Time (UTC)



VBRA4(plotting HTIRZ) "Gage 0" Datum: 0'

ARKANSAS RIVER AT OZARK L/D TAILWATER

Universal Time (UTC)

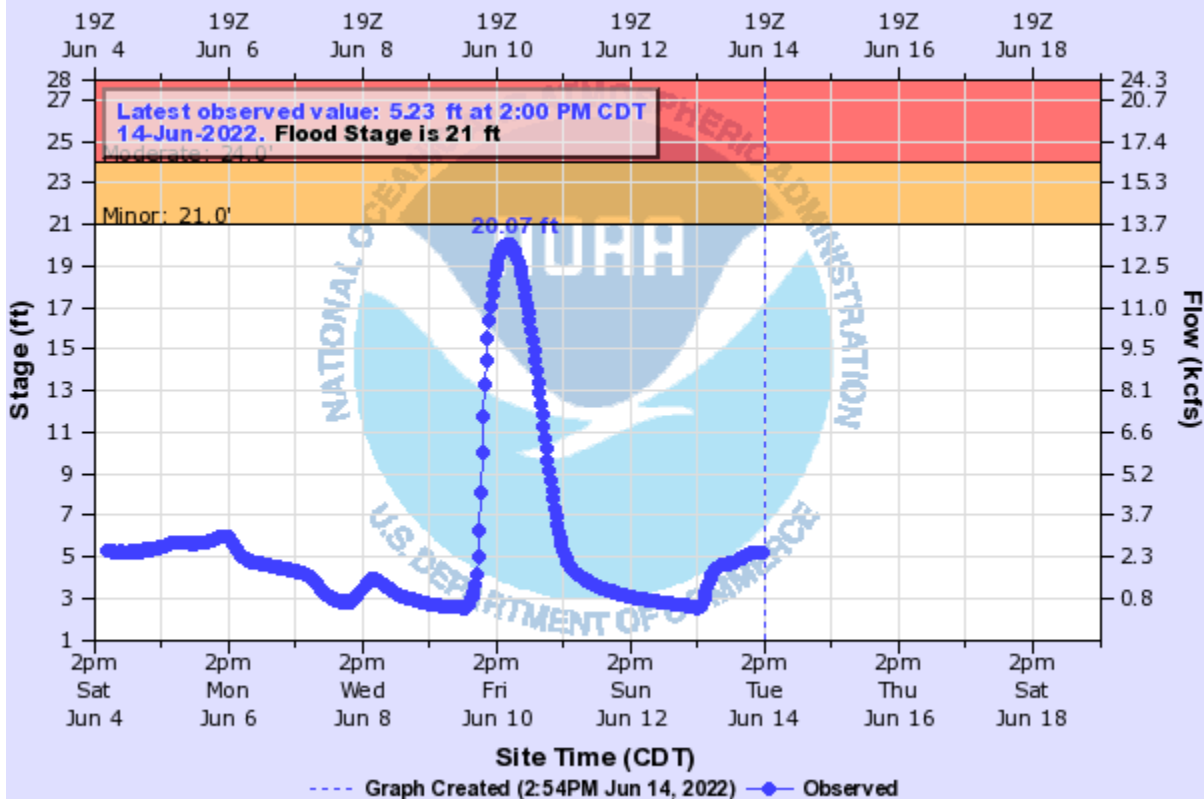


OZGA4(plotting HTIRG) "Gage 0" Datum: 0'

Observations courtesy of US Army Corps of Engineers - LRD

BIRD CREEK NEAR SPERRY

Universal Time (UTC)

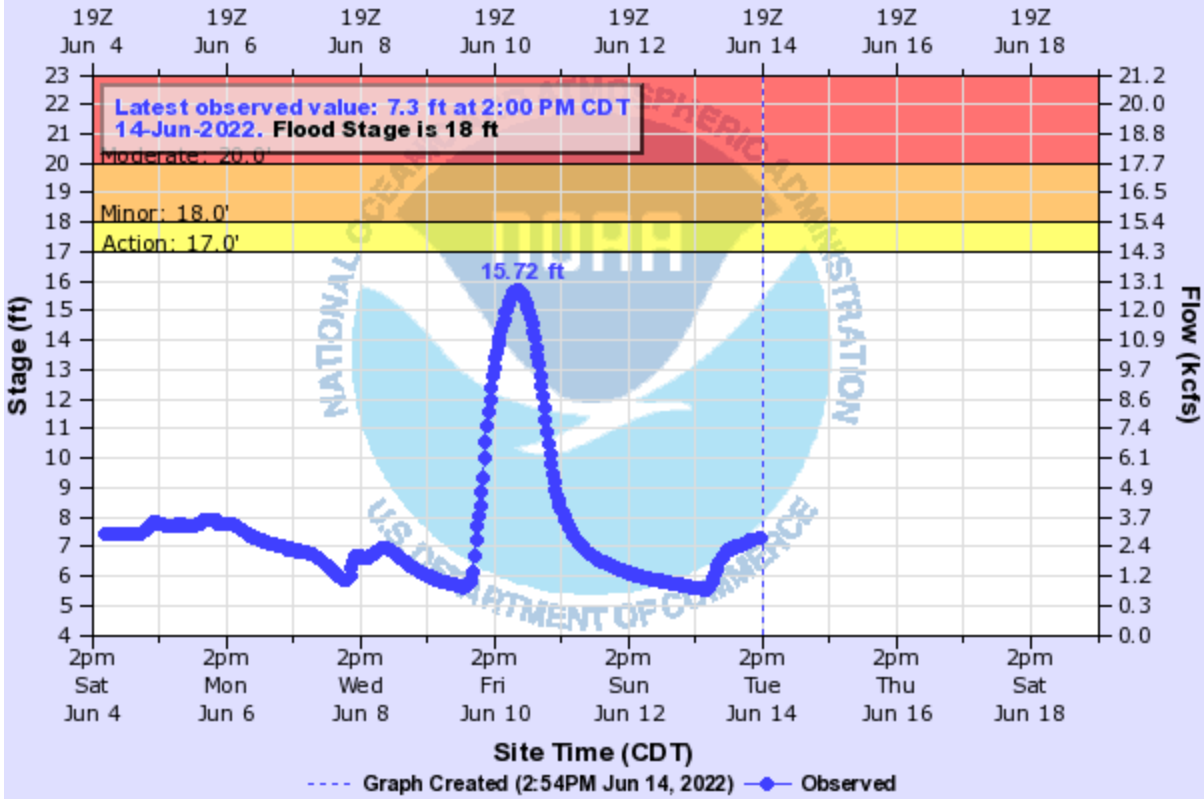


SPEO2(plotting HGIRG) "Gage 0" Datum: 579.43'

Observations courtesy of US Geological Survey

BIRD CREEK NEAR OWASSO

Universal Time (UTC)

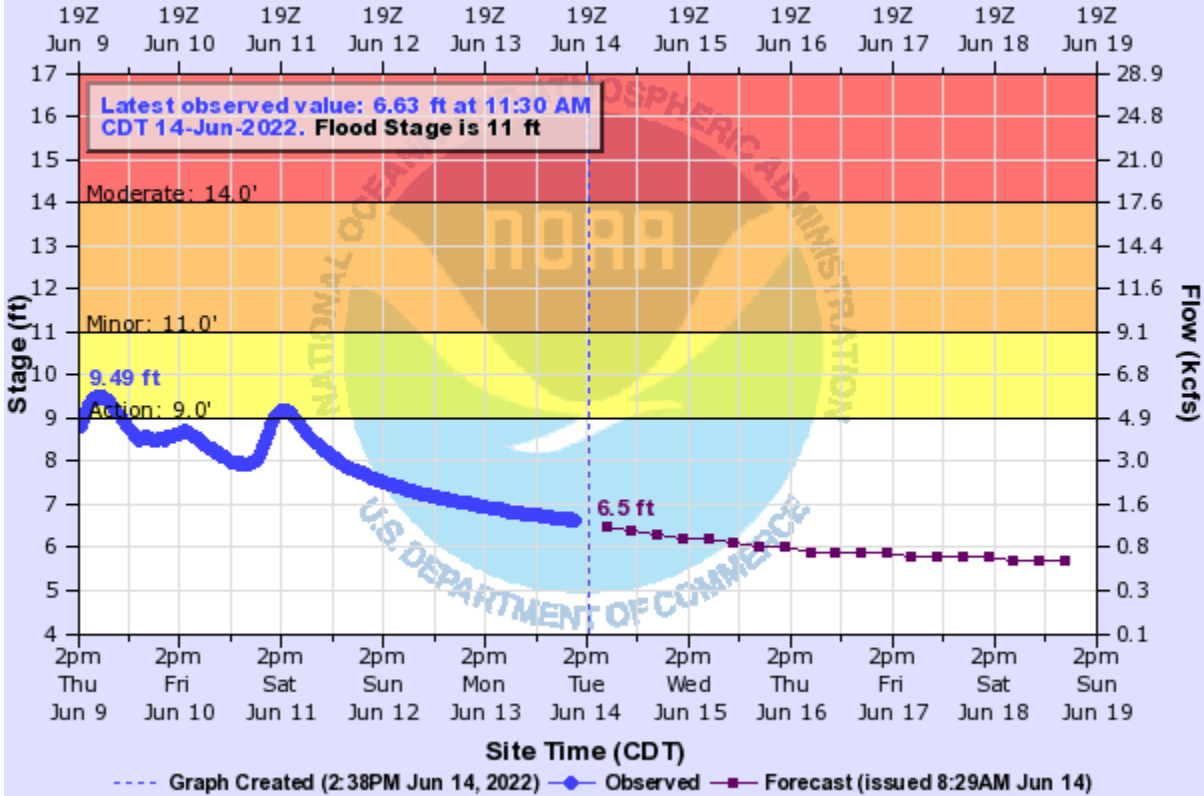


OWSO2(plotting HGIRG) "Gage 0" Datum: 560.17'

Observations courtesy of US Geological Survey

ILLINOIS RIVER (AR OK) NEAR TAHLEQUAH

Universal Time (UTC)

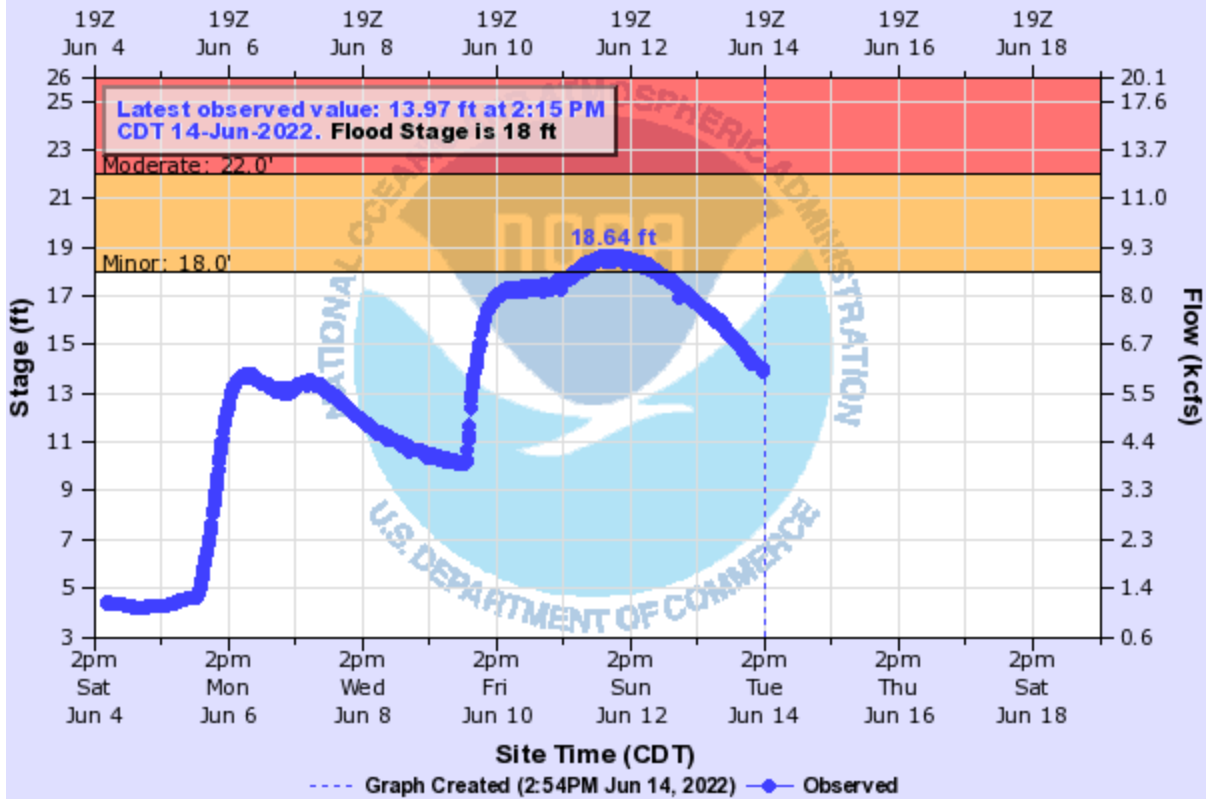


TALO2(plotting HGIRG) "Gage 0" Datum: 664.14'

Observations courtesy of US Geological Survey

DEEP FORK RIVER NEAR BEGGS

Universal Time (UTC)

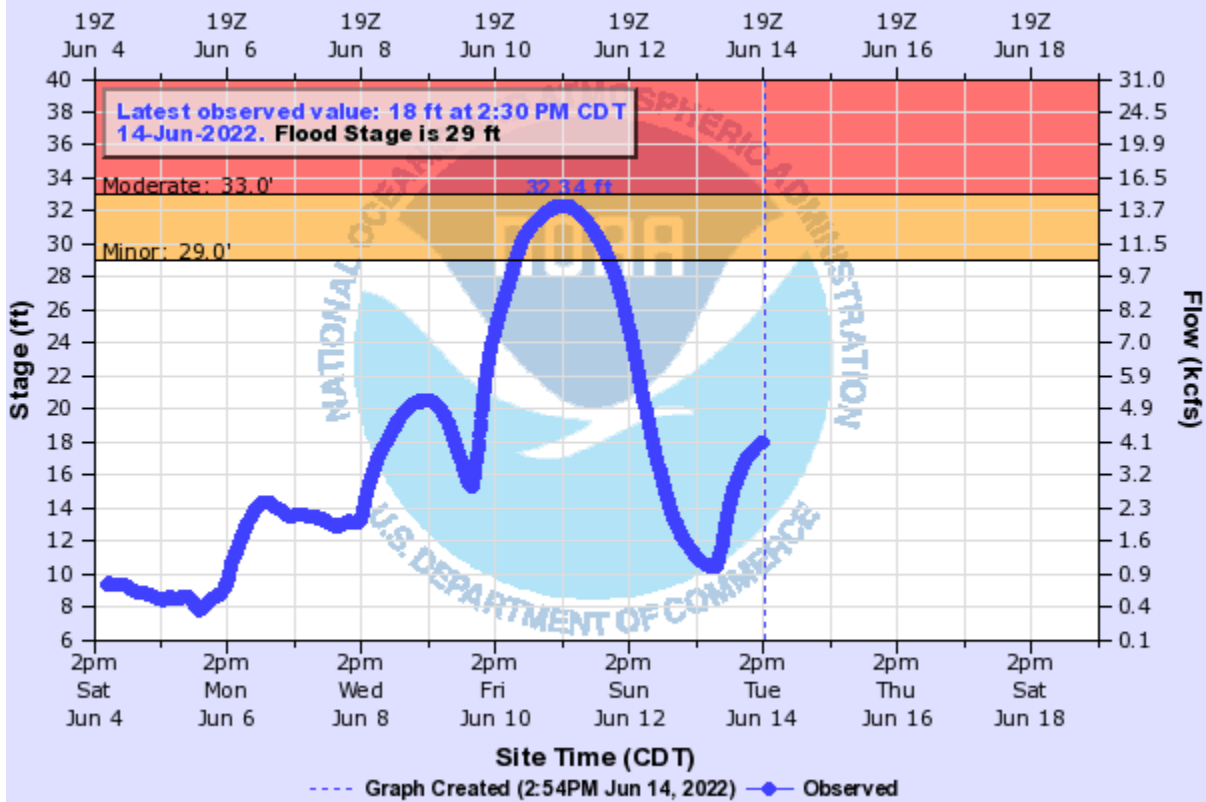


BGS02(plotting HGIRG) "Gage 0" Datum: 632.55'

Observations courtesy of US Geological Survey

POTEAU RIVER NEAR PANAMA

Universal Time (UTC)



PANO2(plotting HGIRG) "Gage 0" Datum: 387.96'

Observations courtesy of US Geological Survey