



DROUGHT CONDITIONS

IN CENTRAL OKLAHOMA

John Harrington

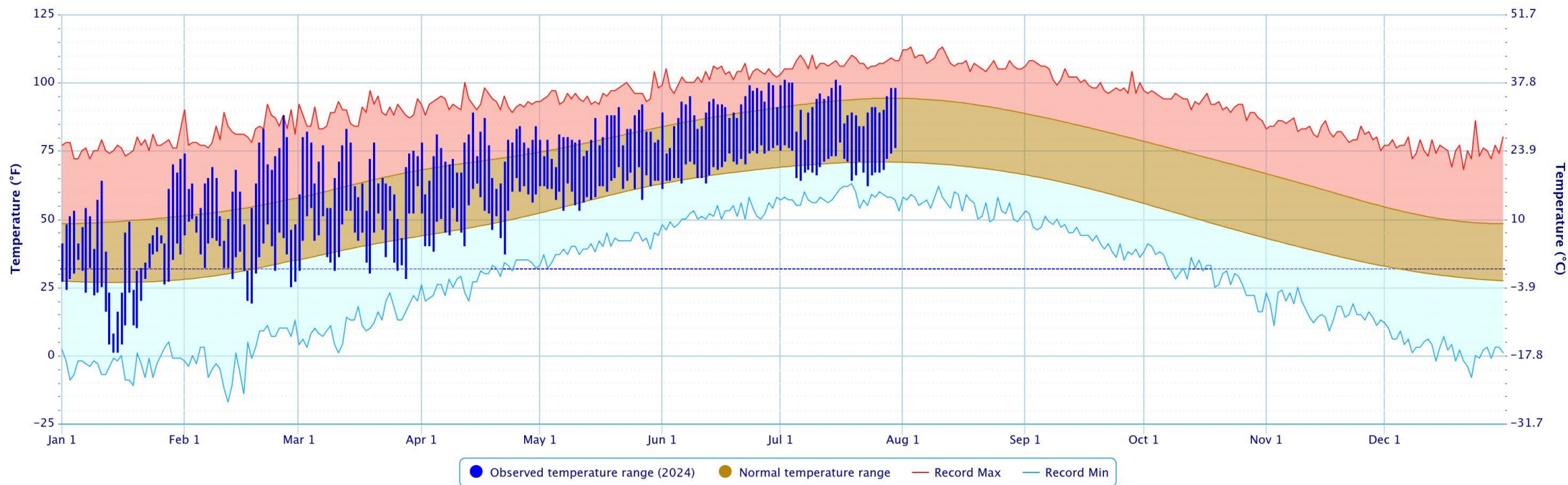
Water Resources Director

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August 1, 2024

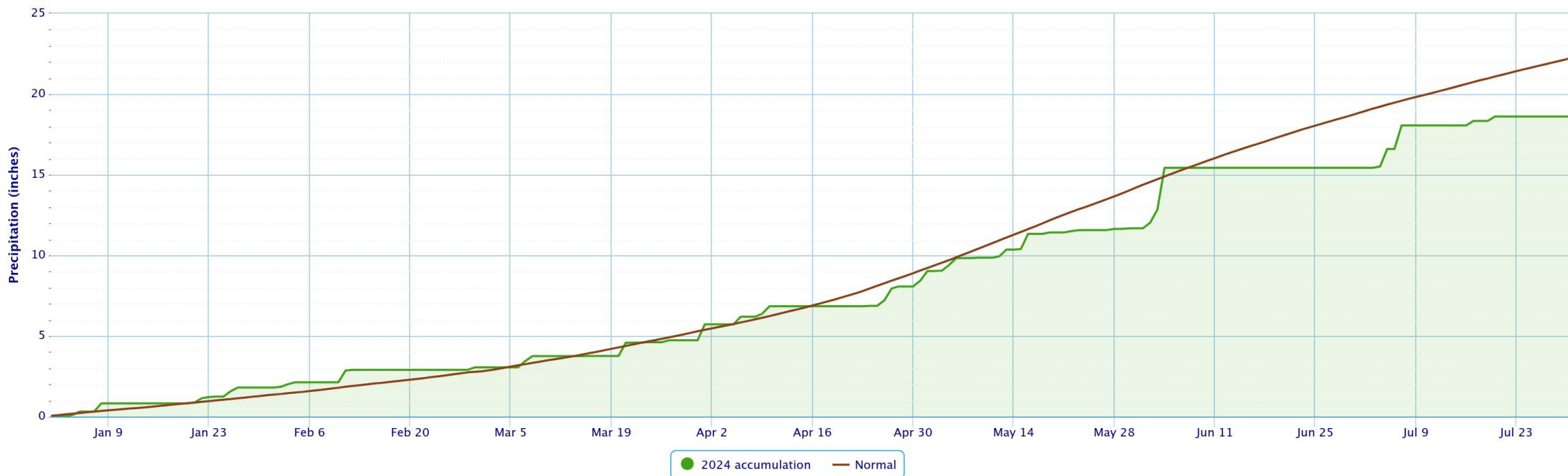
TEMPERATURE PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2024



Powered by ACIS



PRECIPITATION PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2024



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RAINFALL SUMMARIES BY OKLAHOMA CLIMATE DIVISION



Calendar Year: Jan 1, 2024 - Jul 30, 2024

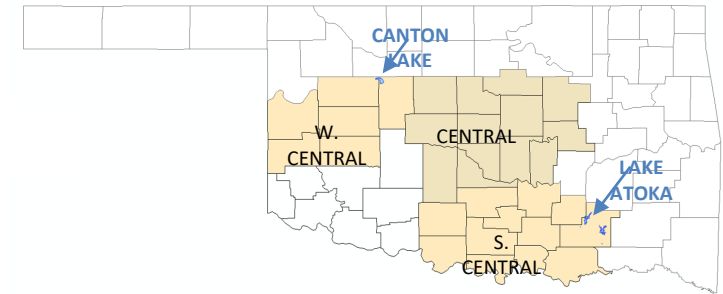
Climate Division	Total Rainfall	Departure from Normal	Percentage of Normal	Rank (since 1921)	Driest on Record	Wettest on Record
W. Central	13.42"	-3.56"	79%	26th driest	5.13" 2011	27.89" 2015
Central	20.57"	-1.92"	91%	51st driest	8.54" 1936	39.19" 2007
S. Central	27.11"	+2.75"	111%	22nd wettest	10.84" 2011	47.68" 2015
Statewide	21.22"	-0.58"	97%	50th wettest	9.76" 1936	34.18" 2015

Water Year: Oct 1, 2023 - Jul 30, 2024

Climate Division	Total Rainfall	Departure from Normal	Percentage of Normal	Rank (since 1921)	Driest on Record	Wettest on Record
W. Central	20.21"	-2.31"	90%	45th driest	9.67" 2010-11	35.76" 2018-19
Central	28.07"	-2.53"	92%	50th wettest	15.82" 1935-36	46.19" 2006-07
S. Central	37.88"	+3.83"	111%	22nd wettest	15.08" 1955-56	56.51" 2014-15
Statewide	29.23"	-0.65"	98%	50th wettest	16.84" 1955-56	41.02" 2014-15

Summer 2024: Jun 1, 2024 - Jul 30, 2024

Climate Division	Total Rainfall	Departure from Normal	Percentage of Normal	Rank (since 1921)	Driest on Record	Wettest on Record
W. Central	4.57"	-1.60"	74%	33rd driest	1.49" 2011	13.90" 2023
Central	5.81"	-1.87"	76%	43rd driest	1.88" 1954	18.87" 2007
S. Central	6.53"	-0.96"	87%	50th wettest	0.59" 2011	15.31" 1945
Statewide	6.35"	-0.96"	87%	42nd driest	1.93" 2011	14.10" 2007



The climate divisions shown include statewide totals, central Oklahoma totals, and totals for the two divisions which have Canton Lake and Lake Atoka—major water sources for central Oklahoma.

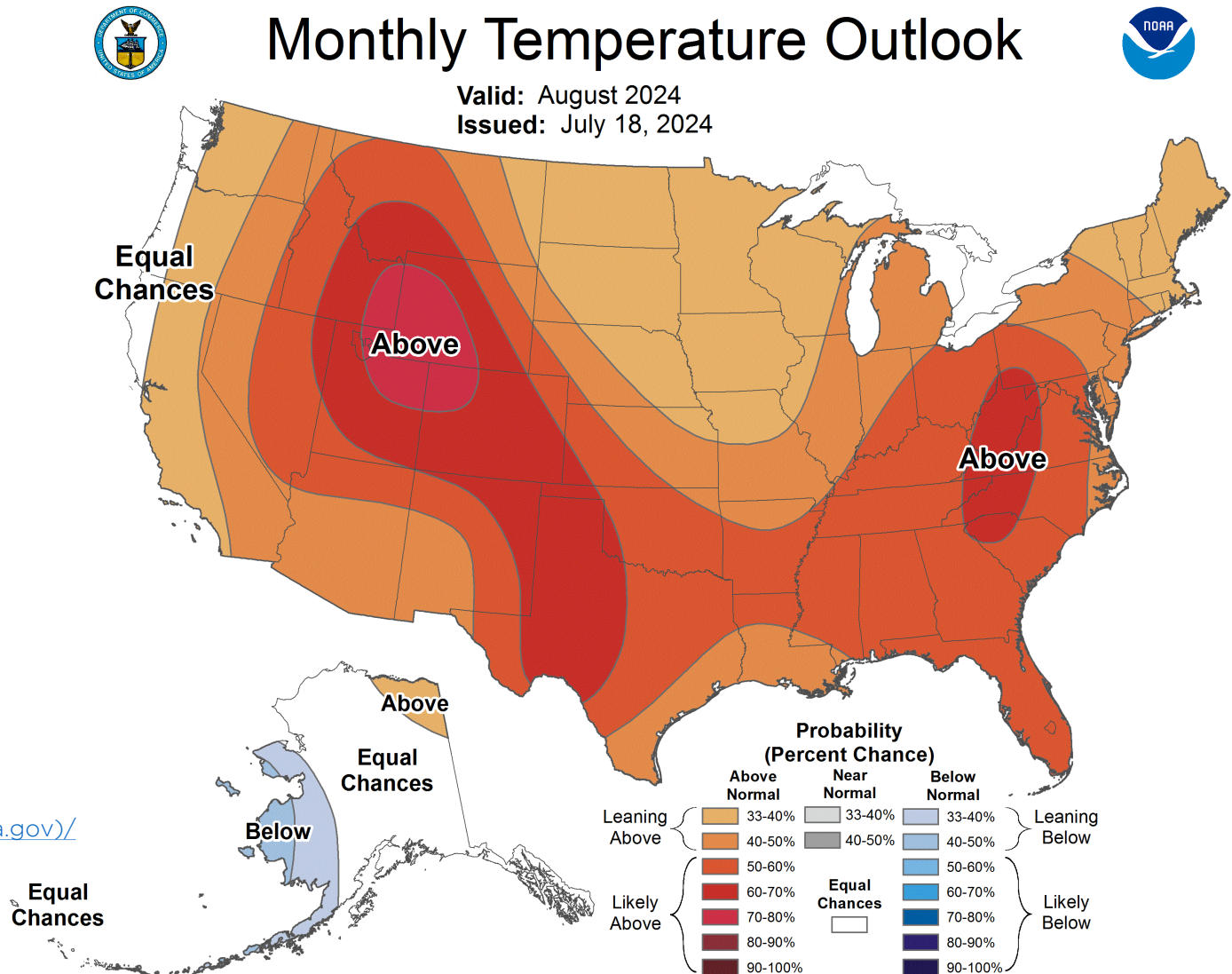
NOAA ONE-MONTH TEMPERATURE OUTLOOK



White areas are shown as EC (Equal Chance) on these maps represent areas where there are no strong climate signals from the climate tools to have skill in preferring one category over another.

That doesn't mean that there are equal chances of each of the categories occurring - it means that currently there is no skill in identifying the most likely category. In these areas, it is best to be prepared for all possibilities.

[Climate Prediction Center - Updated OFFICIAL 30-Day Forecasts \(noaa.gov\)/](https://www.noaa.gov/climate-prediction-center/updated-official-30-day-forecasts)



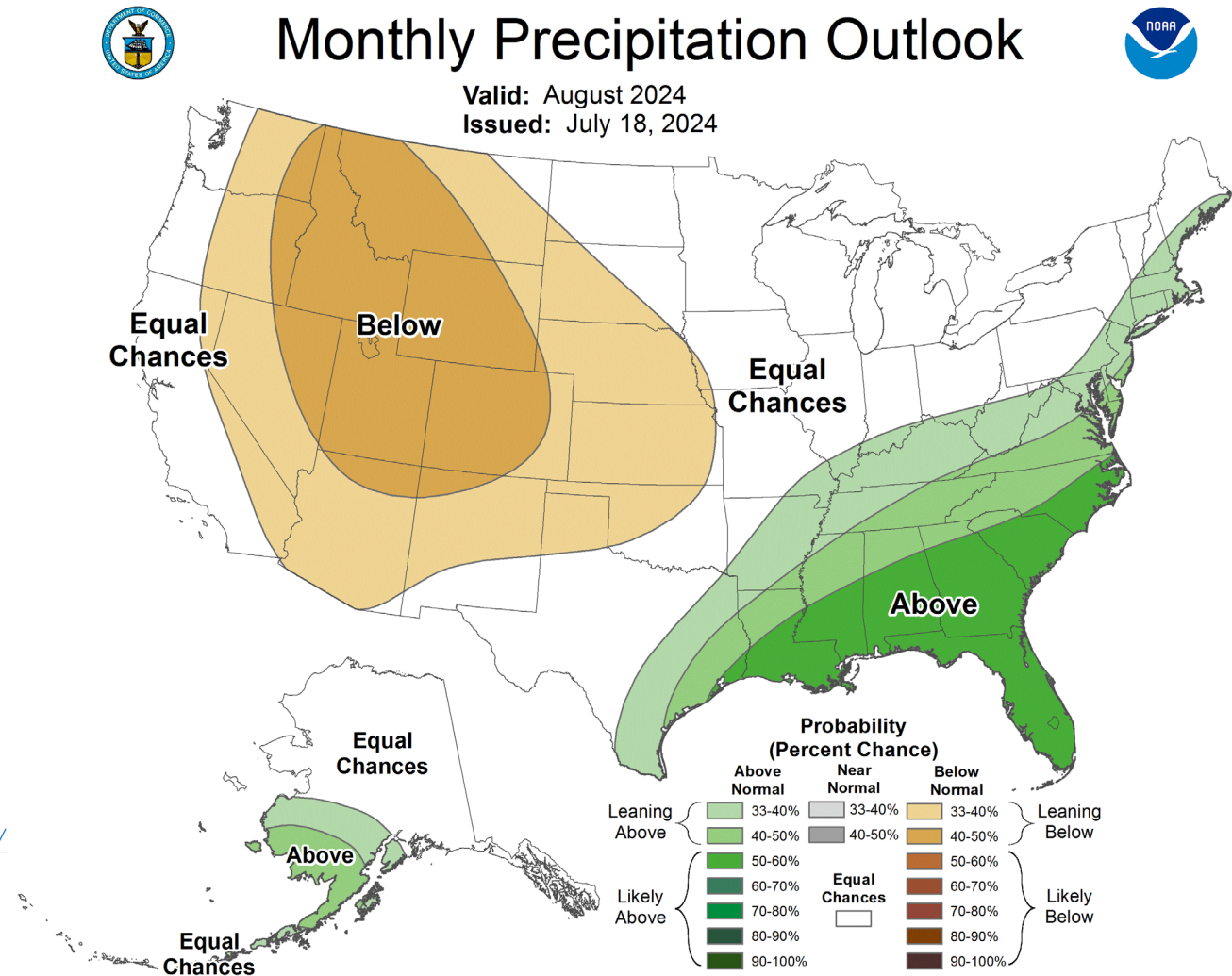
NOAA ONE-MONTH PRECIPITATION OUTLOOK



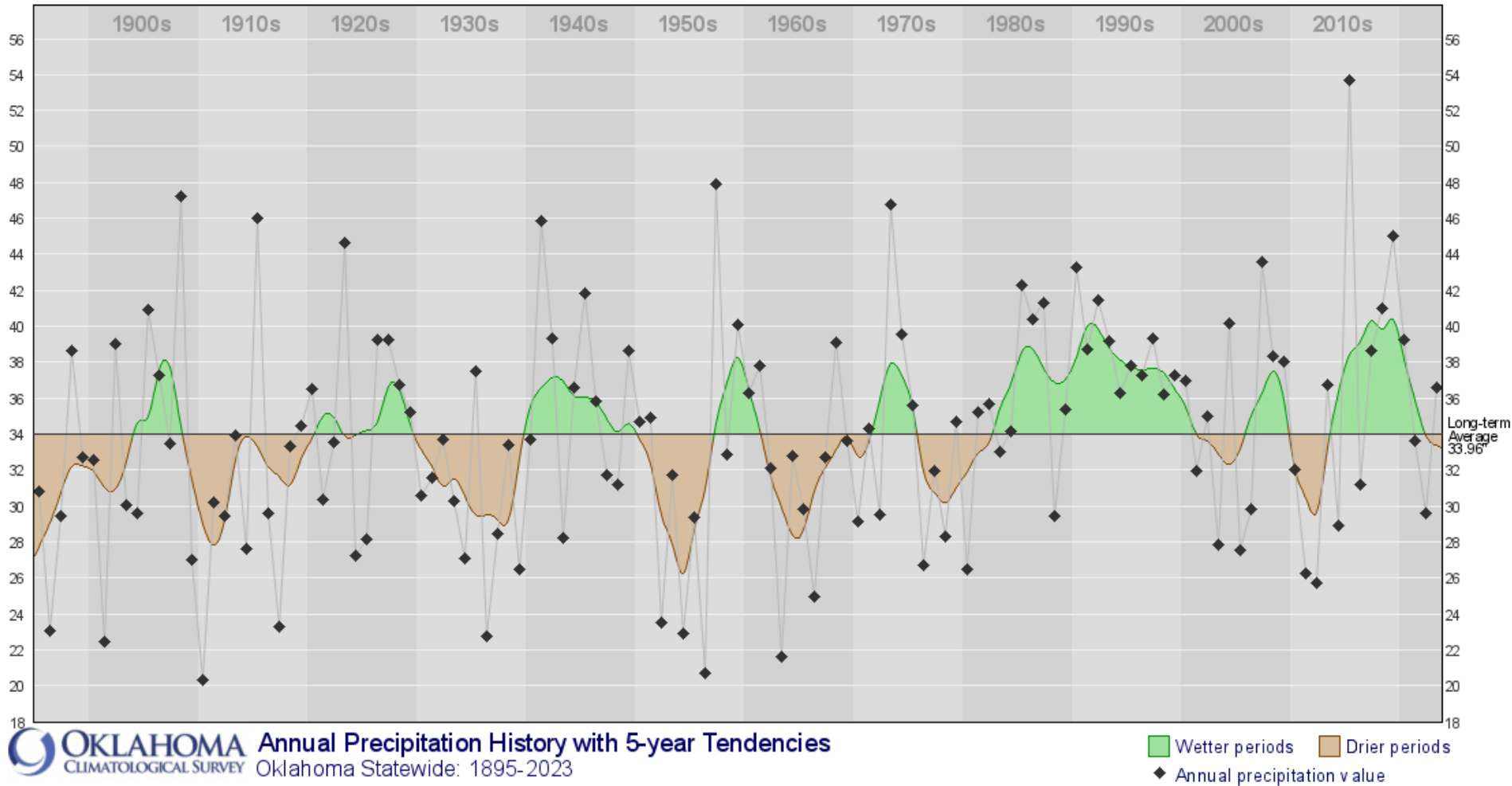
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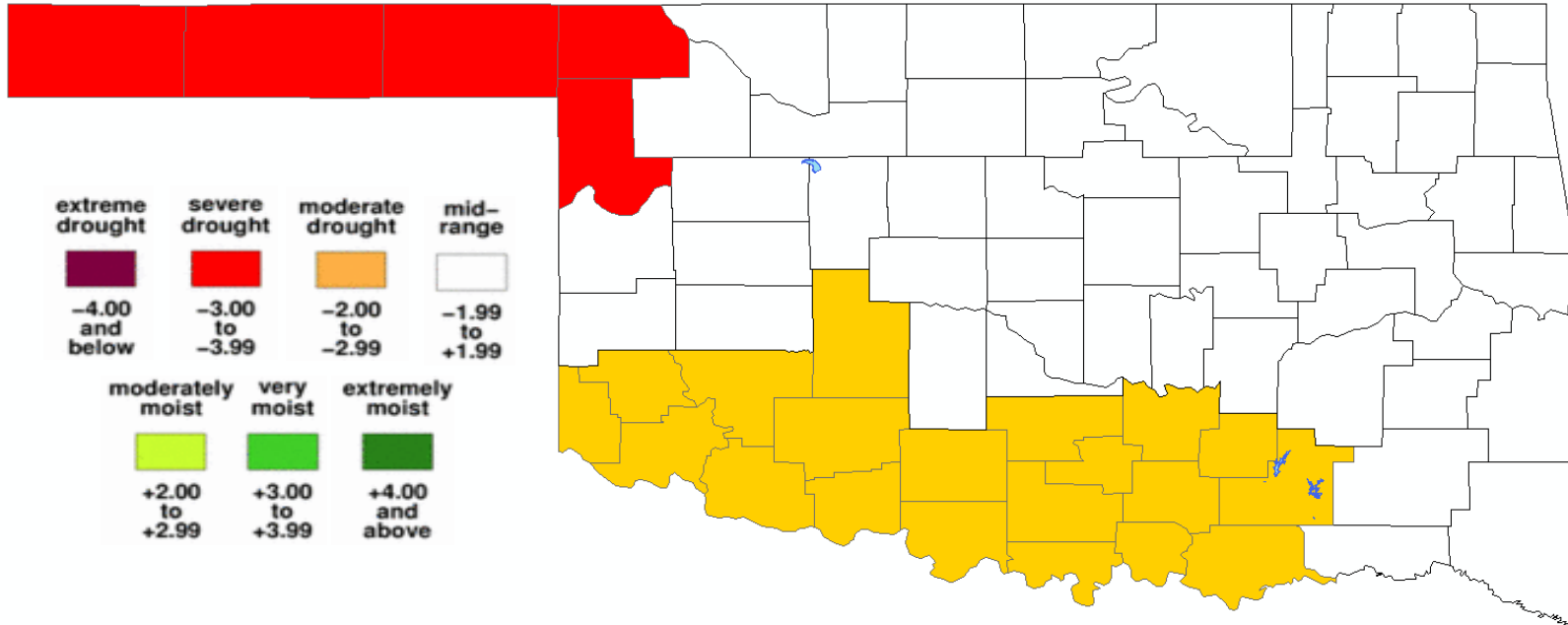
Annual Precipitation History with 5-Year Tendencies



This graph shows the cyclical nature of wet and drought periods in Oklahoma. The black dots represent the annual precipitation for that particular year. The line represents the annual precipitation data smoothed over five years.

This smoothed line shows well the wet periods (shaded green) and the drought periods (shaded brown). The drought cycles appear to average about five to eight years in length.

DROUGHT SEVERITY INDEX BY CLIMATE DIVISION



The Palmer Drought Index (PDI) maps show long-term (cumulative) meteorological drought and wet conditions.

The maps show how the geographical pattern of the long-term moisture conditions has changed over the last 12 months.

On these maps, the red shading denotes drought conditions while the green shading indicates wet conditions.

PALMER VALUE

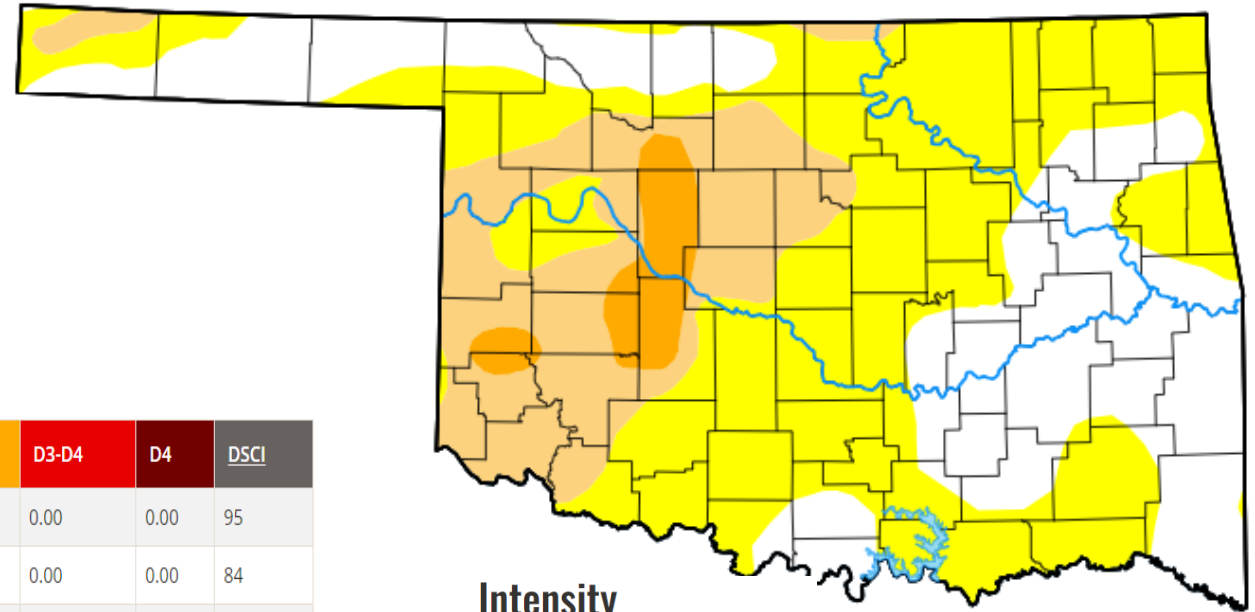
27 JUL 2024

U.S. DROUGHT MONITOR - OKLAHOMA



August 1, 2024

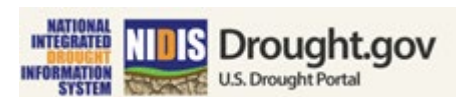
Abnormal dryness or drought is currently affecting approximately 409,424 people in Oklahoma.



Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	2024-07-30	30.79	69.21	22.00	3.78	0.00	0.00	95
Last Week to Current	2024-07-23	37.26	62.74	17.79	3.78	0.00	0.00	84
3 Months Ago to Current	2024-04-30	41.10	58.90	28.10	9.12	0.00	0.00	96
Start of Calendar Year to Current	2023-12-26	53.62	46.38	21.64	3.08	0.00	0.00	71
Start of Water Year to Current	2023-09-26	34.29	65.71	46.76	30.93	12.91	0.00	156
One Year Ago to Current	2023-08-01	52.33	47.67	17.90	7.58	2.58	0.00	76



U.S. DROUGHT MONITOR NATIONWIDE MAP



Map released: August 1, 2024

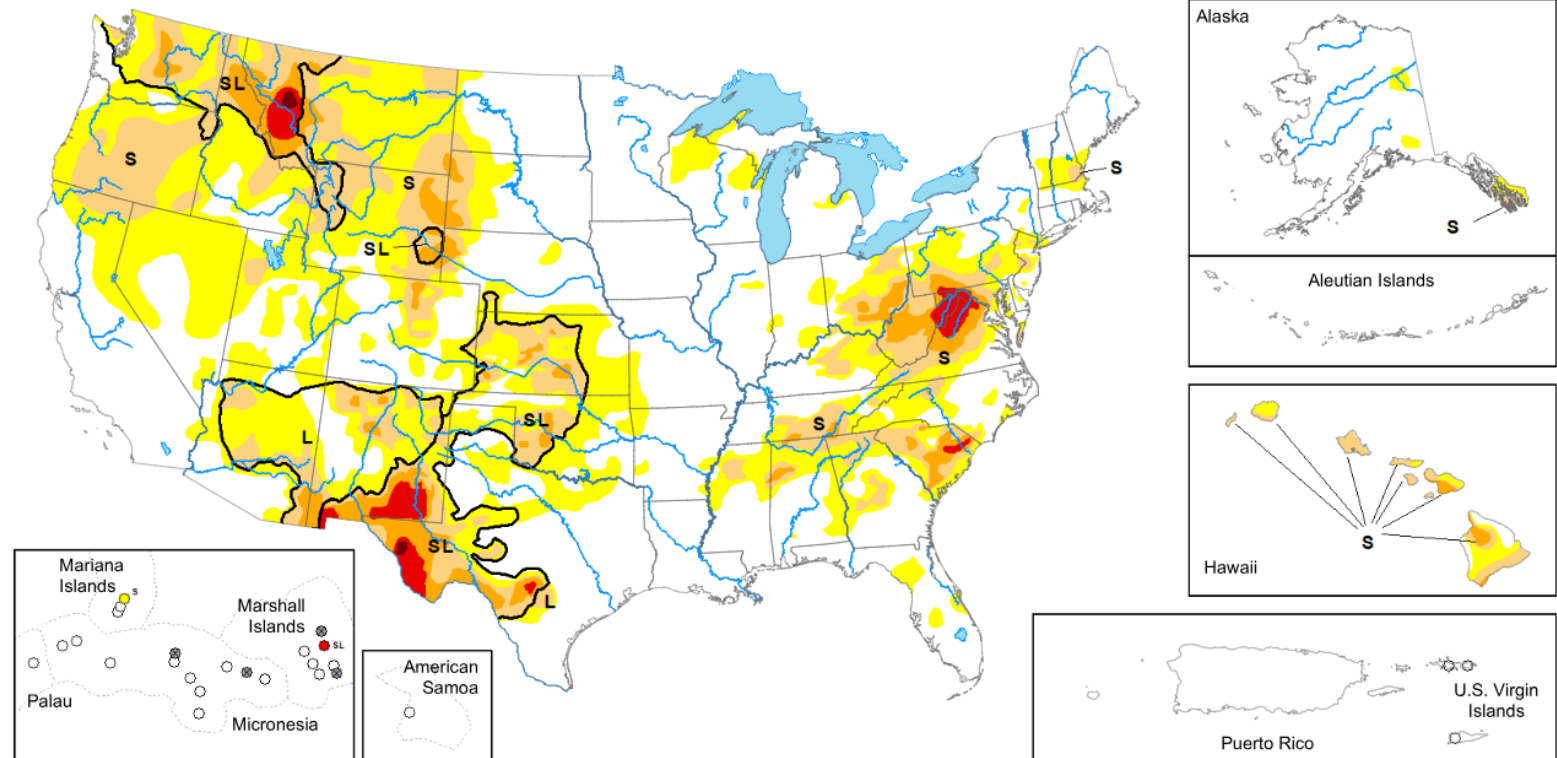
Data valid: July 30, 2024

Intensity and Impacts



United States and Puerto Rico Author(s):
Deborah Bathke, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):
Ahira Sanchez-Lugo, NOAA/NCEI



United States and Puerto Rico Author(s):
Lindsay Johnson, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):
Brad Rippey, U.S. Department of Agriculture

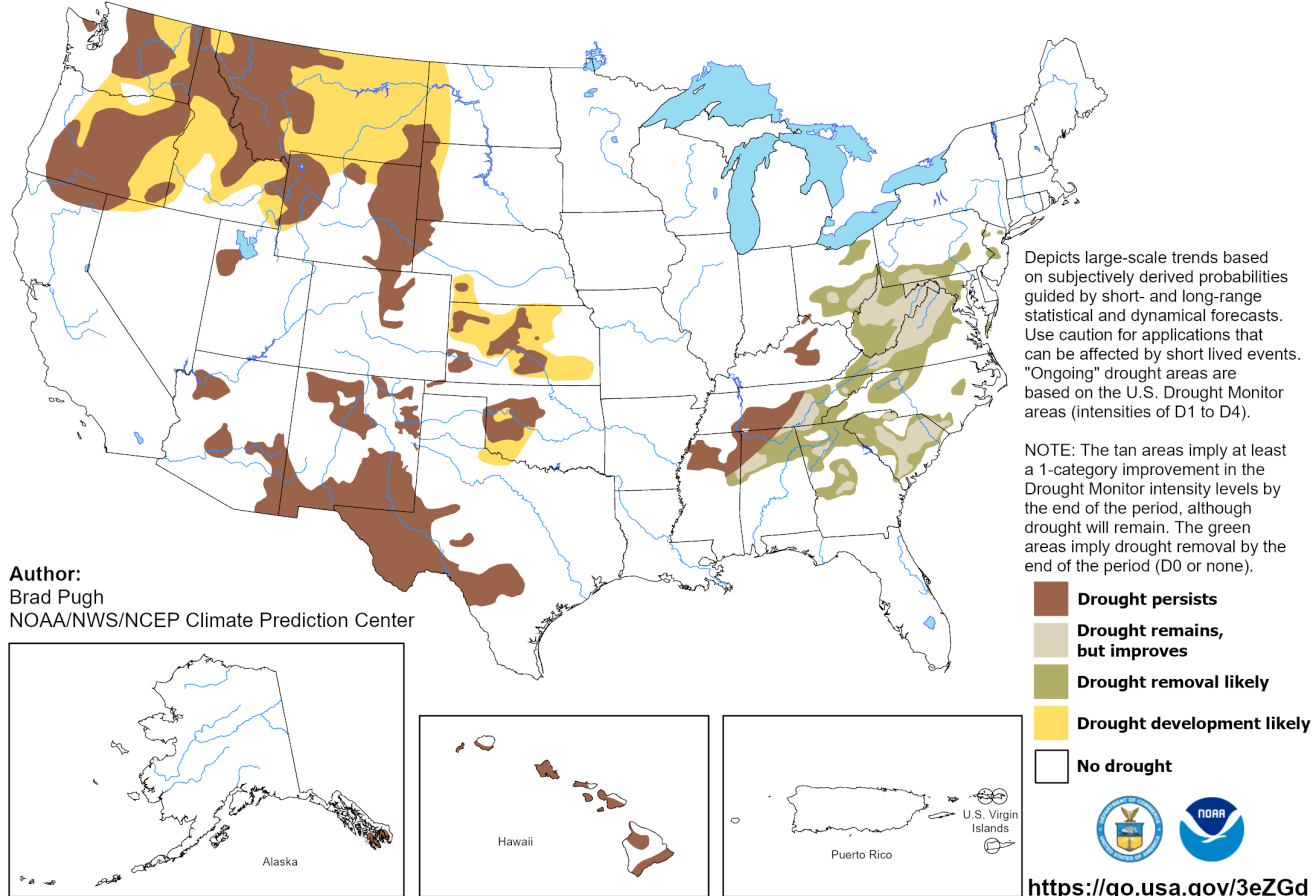


U.S. DROUGHT MONITOR MONTHLY DROUGHT OUTLOOK MAP



U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

Valid for August 2024
Released July 31, 2024



Author:
Brad Pugh
NOAA/NWS/NCEP Climate Prediction Center

Depicts large-scale trends based on subjectively derived probabilities guided by short and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

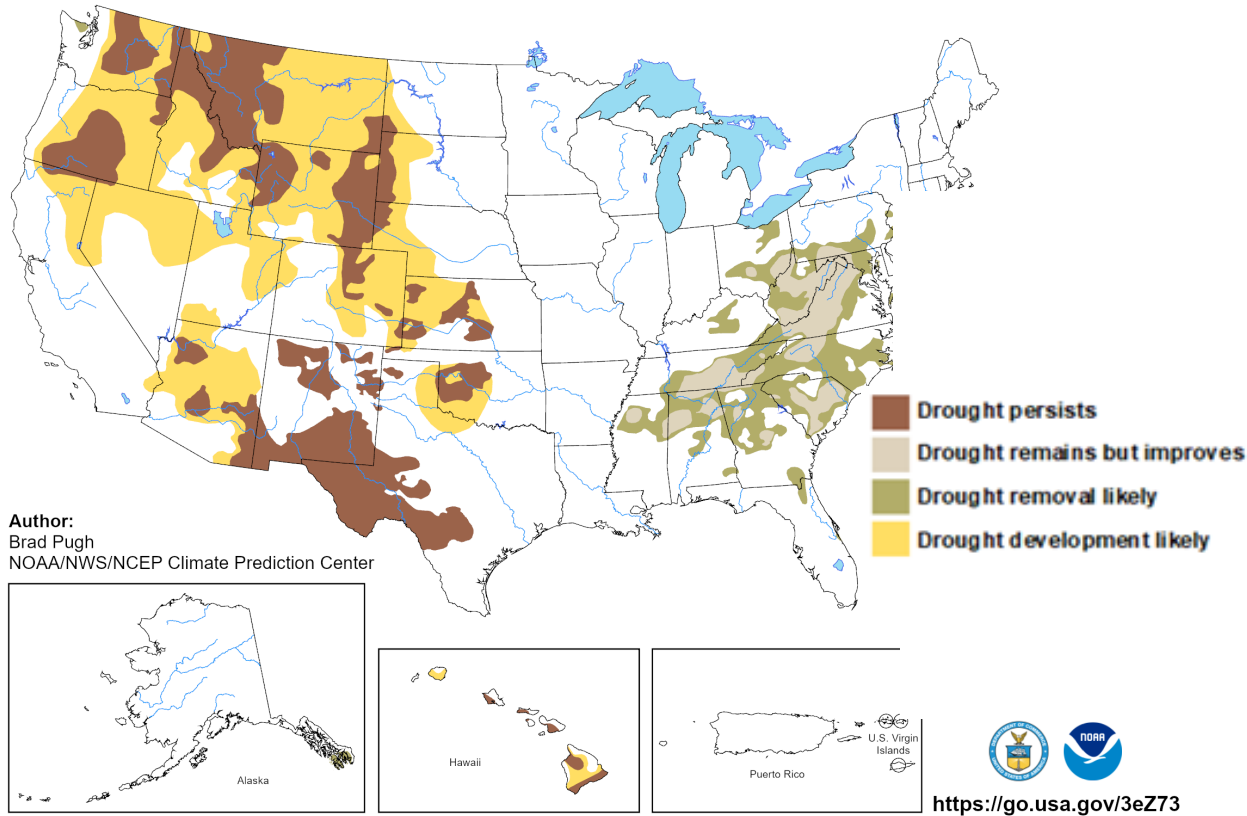
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

U.S. DROUGHT MONITOR SEASONAL DROUGHT OUTLOOK MAP



U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for July 18 - October 31, 2024
Released July 18, 2024



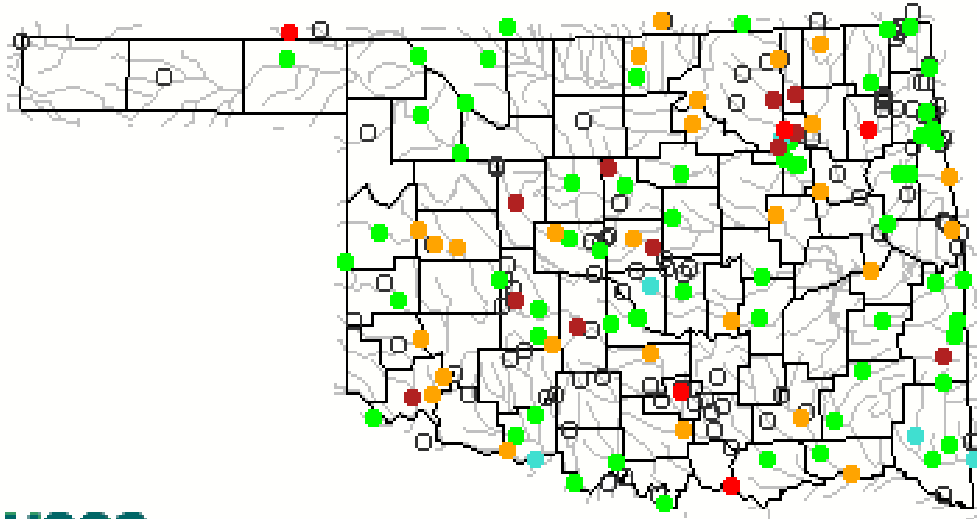
Depicts large-scale trends based on subjectively derived probabilities guided by short and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. “Ongoing” drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

USGS STREAMFLOW DATA

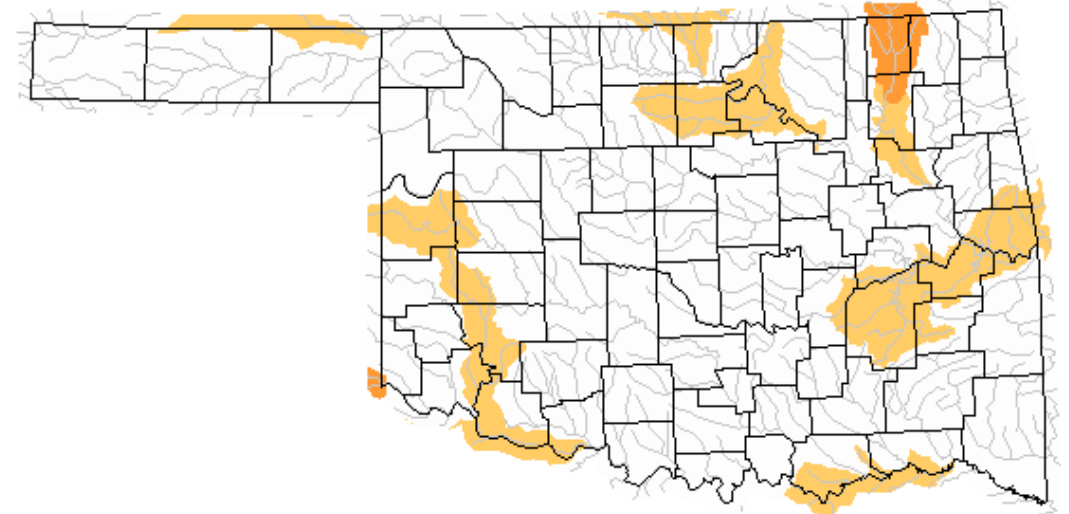


Hednesday, July 31, 2024 11:30ET



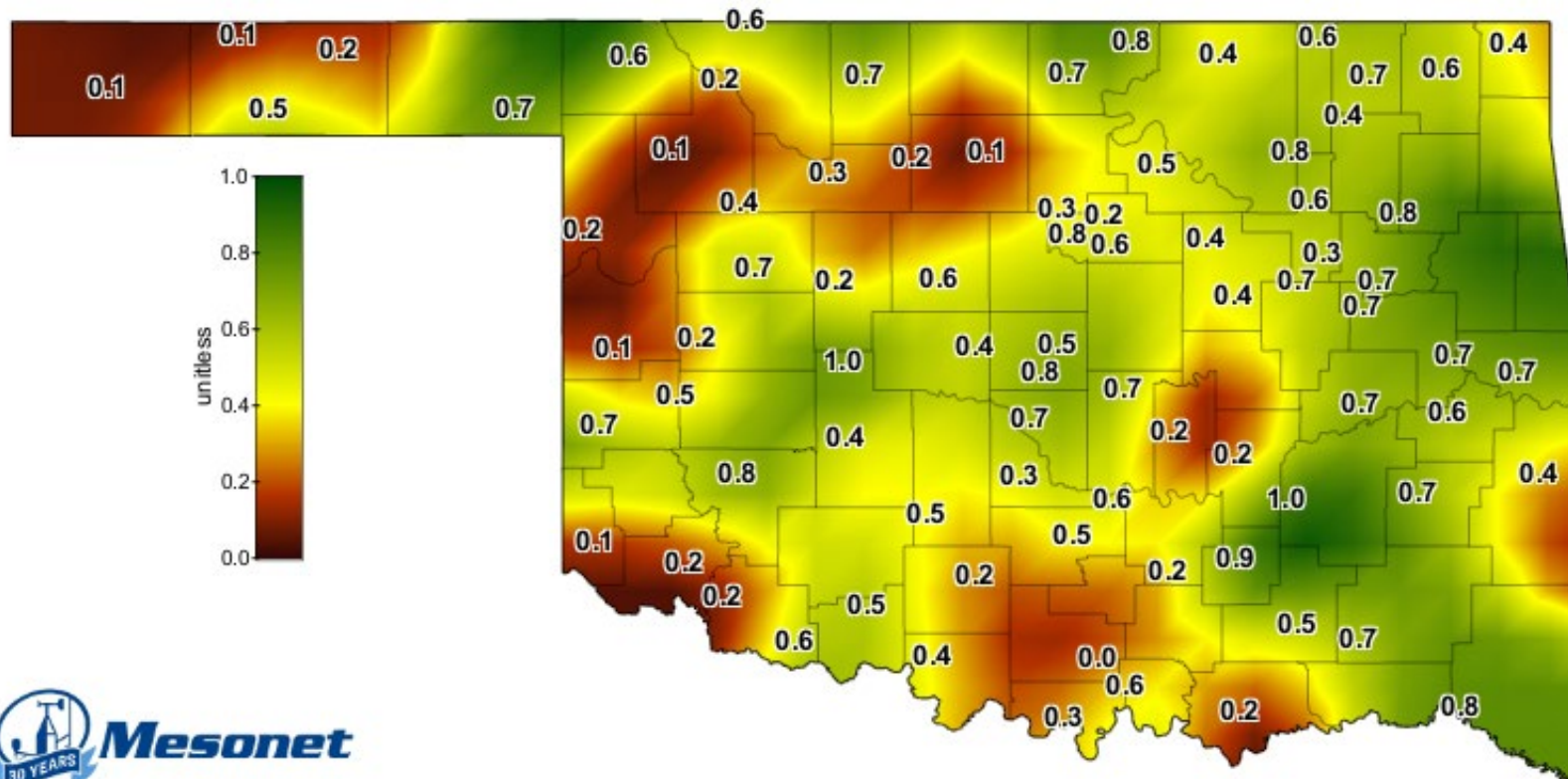
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Below normal 28-day average streamflow



Explanation - Percentile classes				
Low	<=5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

SOIL MOISTURE MAP

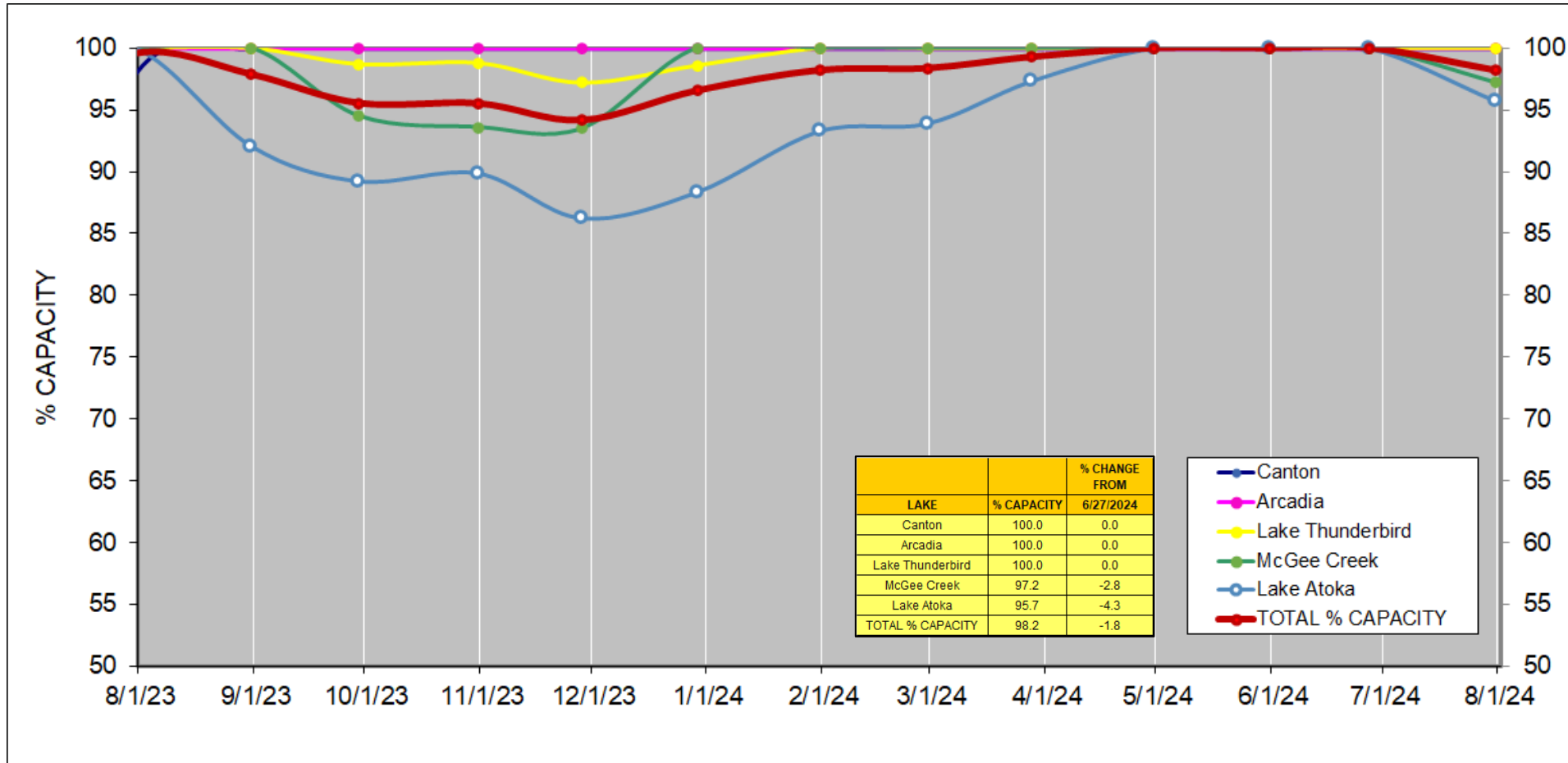


1-day Average 24-inch Fractional Water Index

July 30, 2024

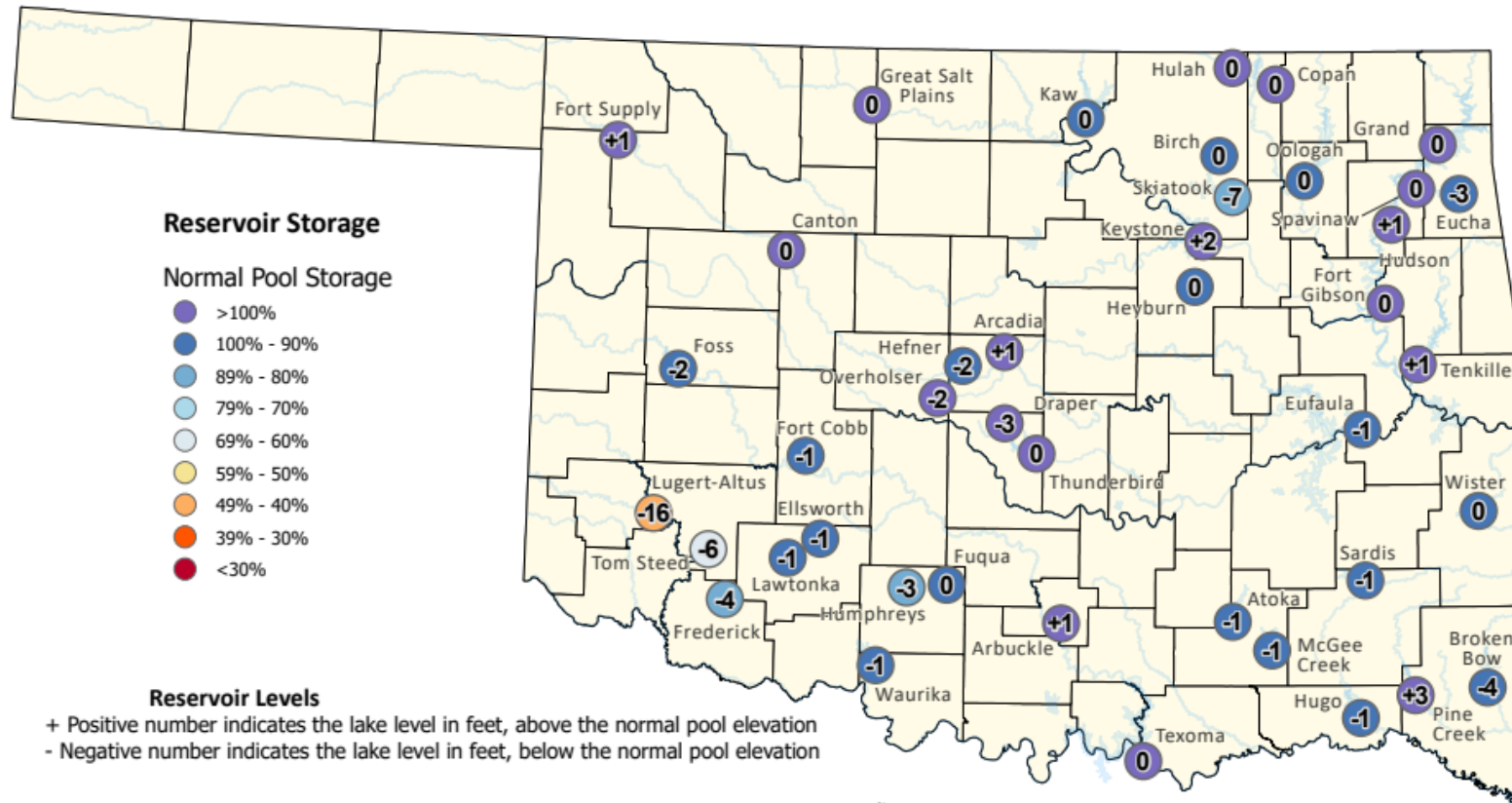
Created 7:30:14 AM July 31, 2024 CDT. © Copyright 2024

PERCENTAGE OF SURFACE WATER CONSERVATION CAPACITY IN CENTRAL OK RESERVOIRS



Lake Hefner and Lake Overholser are terminal storage for Canton Lake. Lake Draper is terminal storage for McGee Creek and Atoka Lakes.

OKLAHOMA RESERVOIR LEVELS AND STORAGE

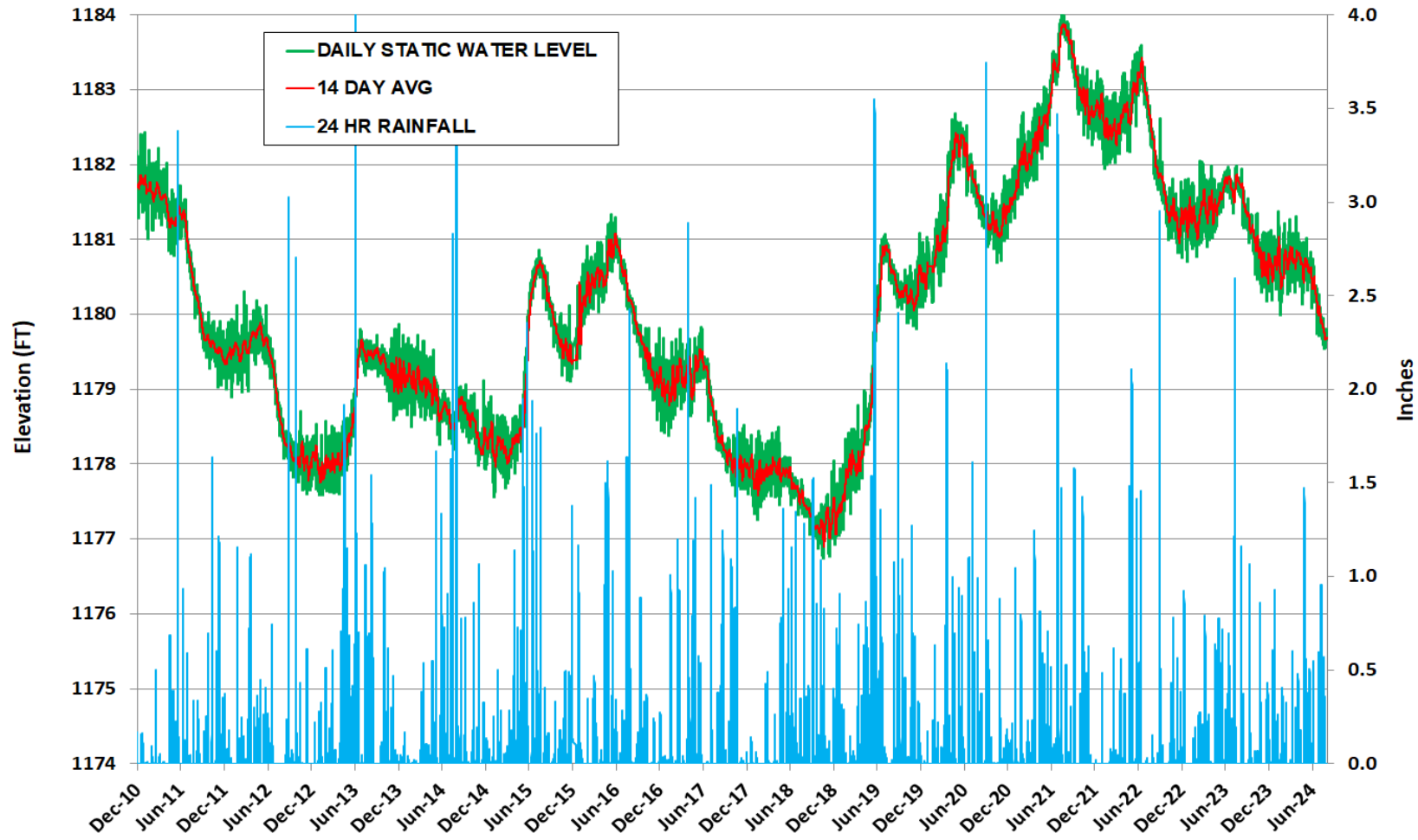


OKLAHOMA RESERVOIR LEVELS AND STORAGE AS OF 7/29/2024

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 ([USGS Current Conditions for USGS 07333010 Atoka Reservoir near Stringtown, OK](https://www.usgs.gov/conditions/07333010-Atoka-Reservoir-near-Stringtown-OK)). For more information, please visit the OWRB's website: (<https://www.owrb.ok.gov>).



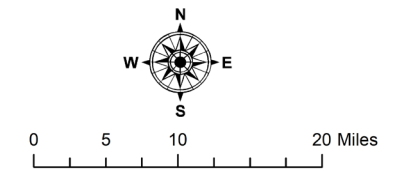
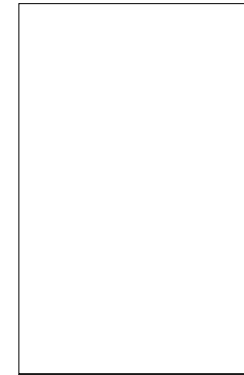
GROUNDWATER LEVELS SPENCER MESONET STATION



MONTHLY AQUIFER RECHARGE



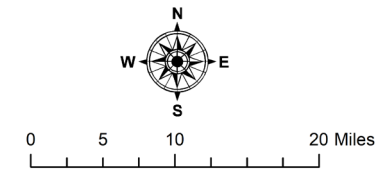
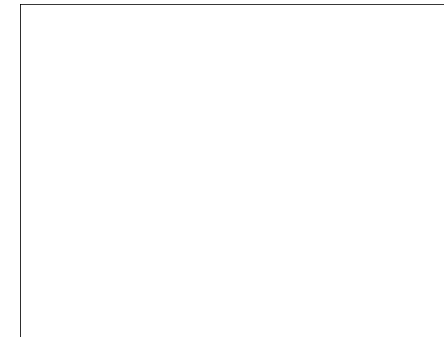
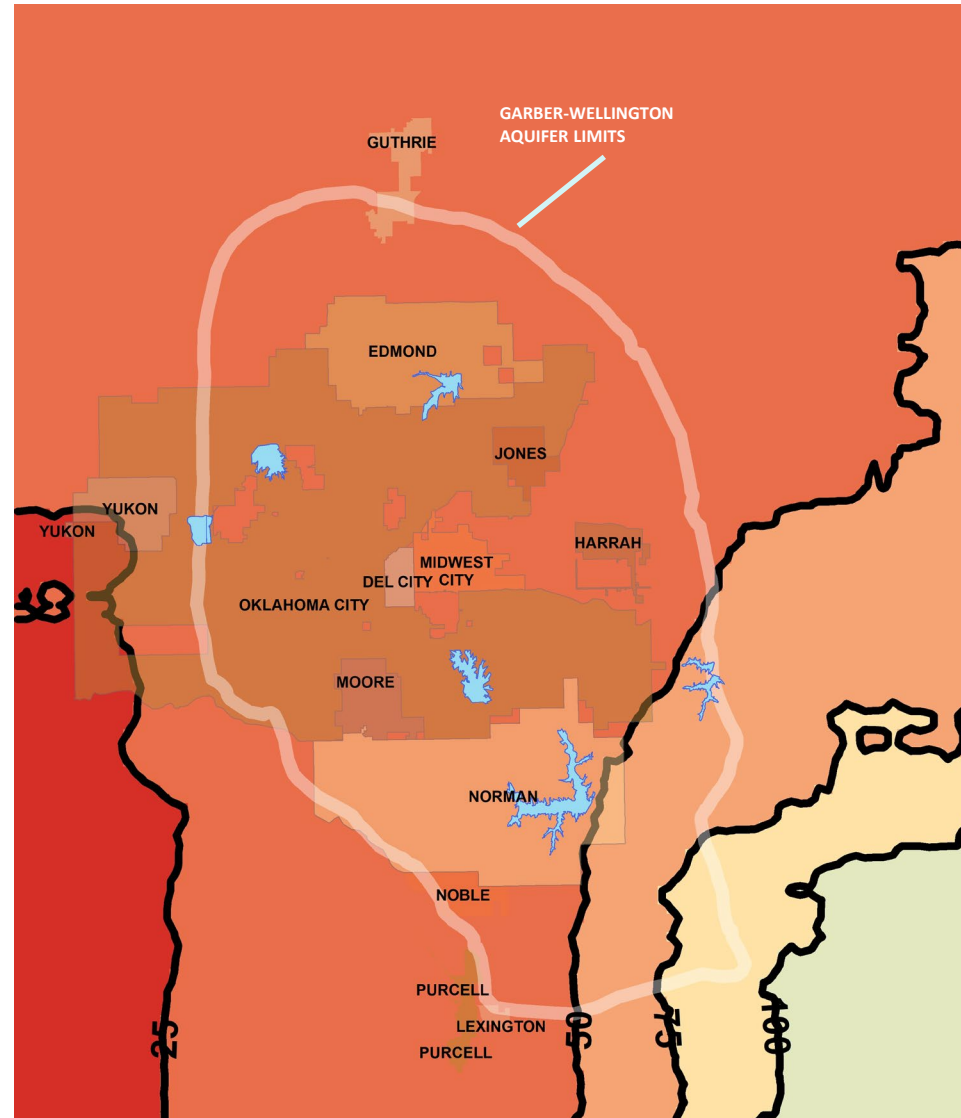
- Mean aquifer recharge in July 2024 was zero inches.
- Normal mean recharge for July is 0.15 inches.
- We are -0.44 inches below normal for 2024.



PERCENT TOTAL CUMULATIVE AQUIFER RECHARGE – Last 12 Months



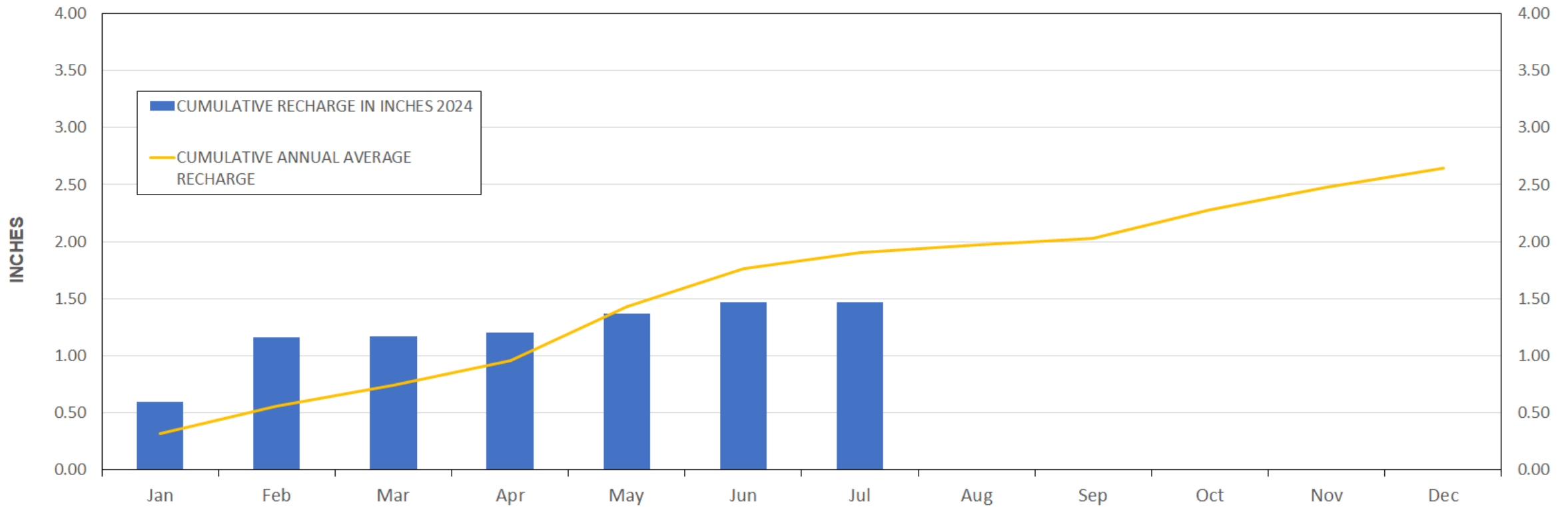
- Most of the recharge in the past 12 months was south and east of the metropolitan area.
- July 2024 had no recharge.
- Over the past 12 months the metropolitan area has received less 50% of normal recharge.



RECHARGE CHARTS CENTRAL OKLAHOMA AQUIFER SYSTEM



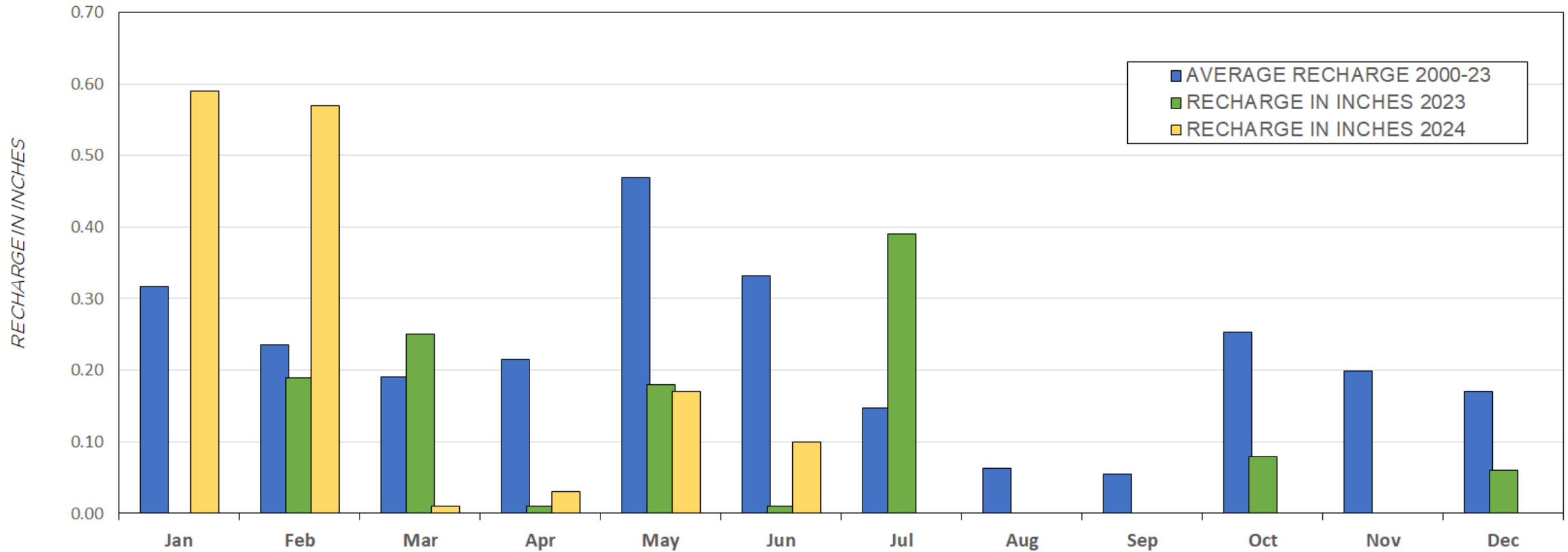
ACCUMULATED CENTRAL OKLAHOMA AQUIFER SYSTEM RECHARGE 2024



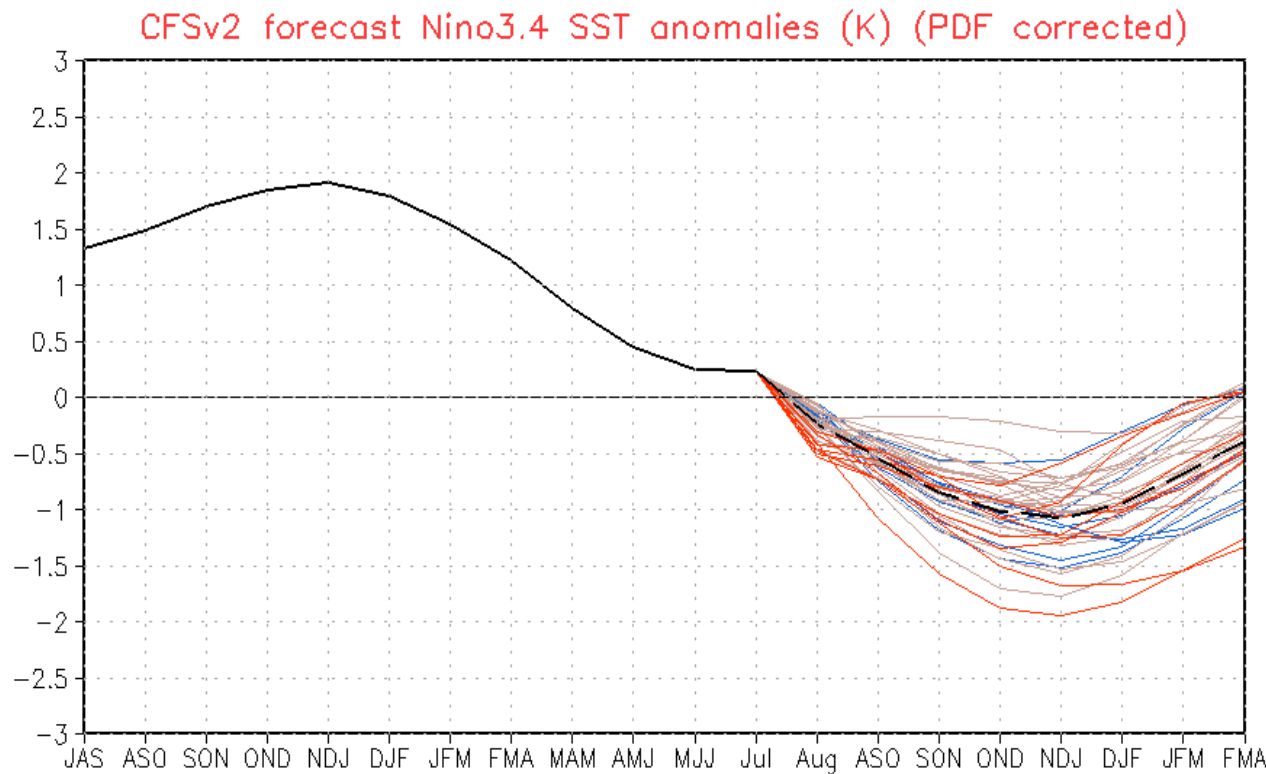
RECHARGE CHARTS CENTRAL OKLAHOMA AQUIFER SYSTEM CONTINUED



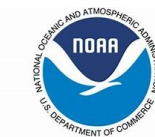
MONTHLY AQUIFER RECHARGE 2024



ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS



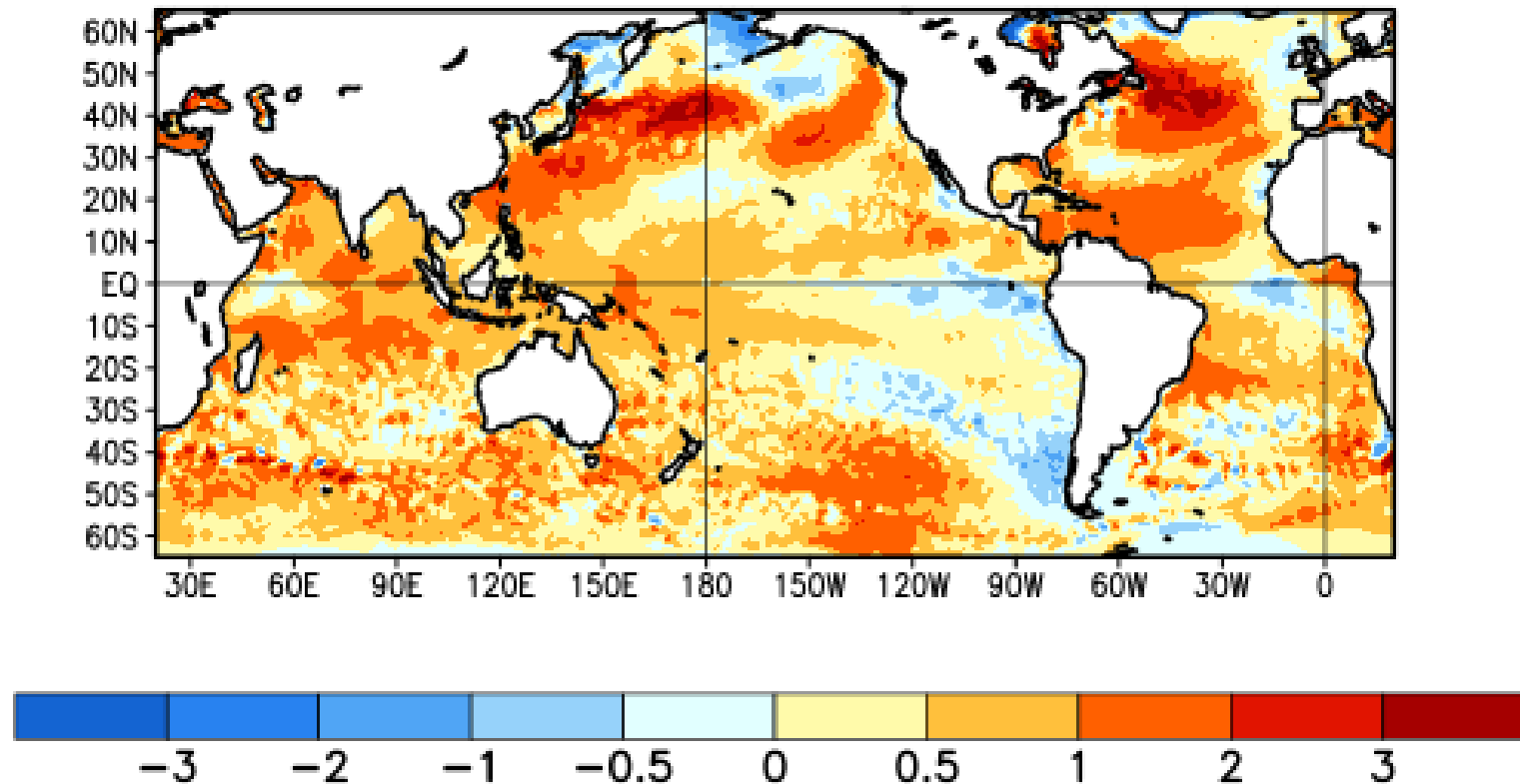
- Latest 8 forecast members
 - Earliest 8 forecast members
 - Other forecast members
- (Climatology base period: 1991–2020)
- Forecast ensemble mean
 - NCEI Olv2.1 daily analysis



ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS



Average SST Anomalies
30 JUN 2024 – 27 JUL 2024





ENSO ALERT SYSTEM STATUS: El Niño Advisory / La Niña Watch

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are above average in the western and west-central Pacific, near average in the east-central Pacific, and below average in the eastern Pacific Ocean.
- ENSO-neutral is expected to continue for the next several months, with La Niña favored to develop during August-October (70% chance) and persist into the Northern Hemisphere winter 2024-25 (79% chance during November-January).



QUESTIONS?

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ASSOCIATION OF
CENTRAL OKLAHOMA
GOVERNMENTS