



DROUGHT CONDITIONS

IN CENTRAL OKLAHOMA

John Harrington

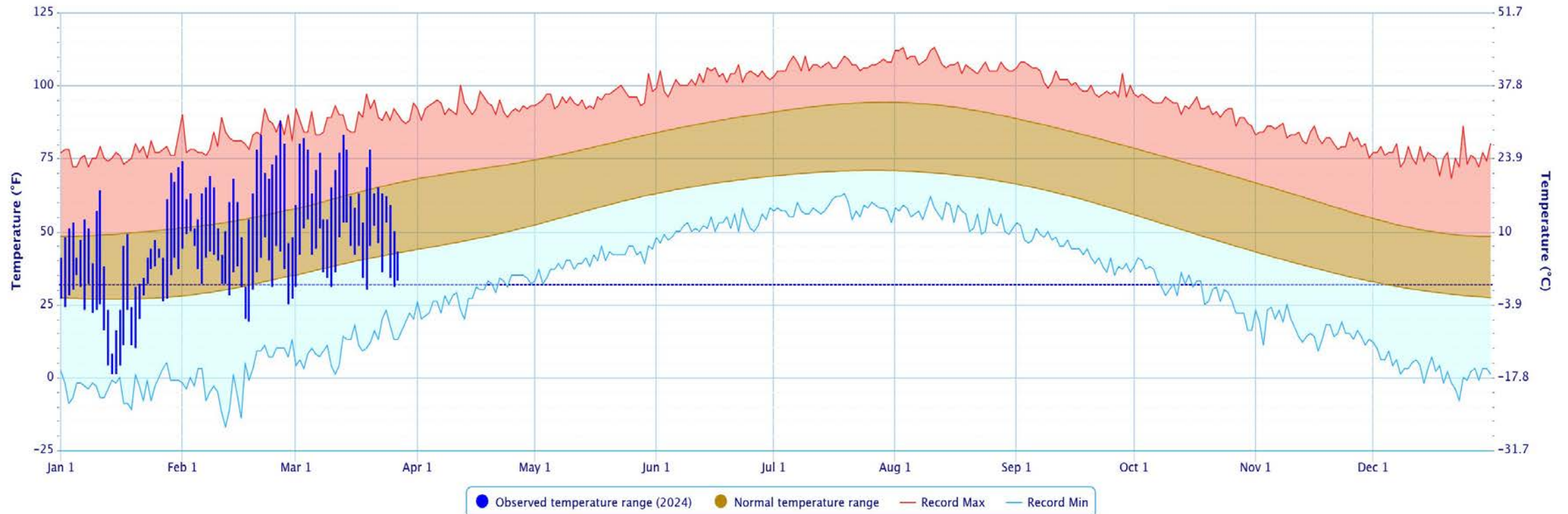
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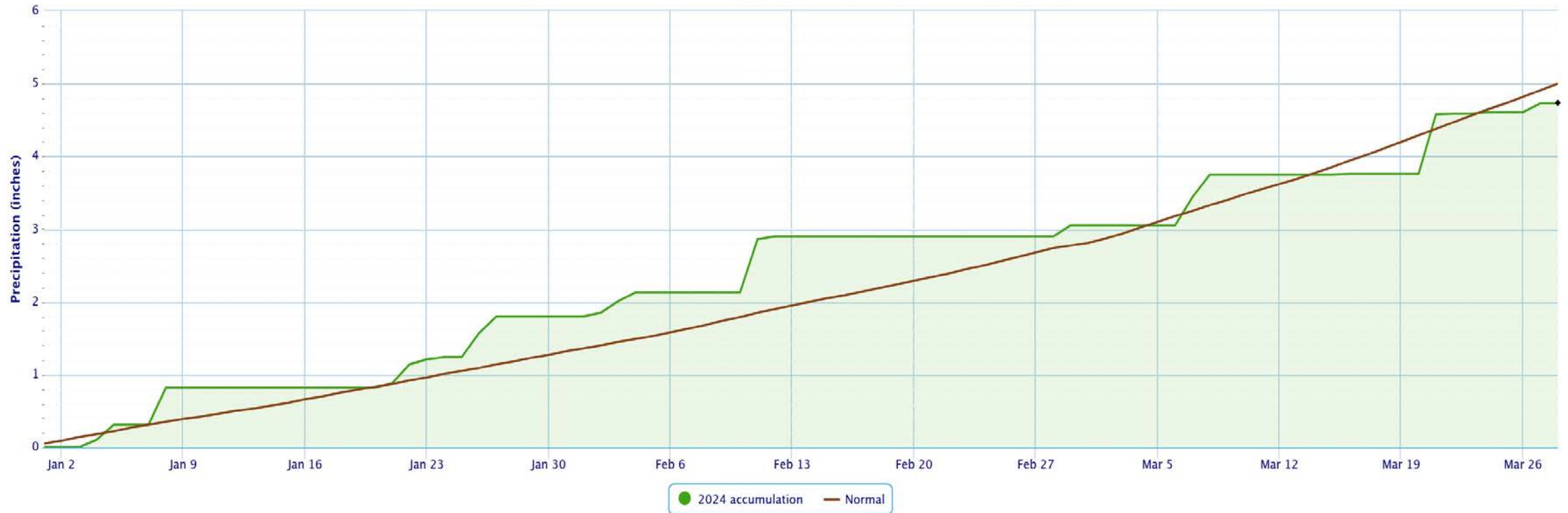
April 1, 2024

TEMPERATURE PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2024



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PRECIPITATION PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2024



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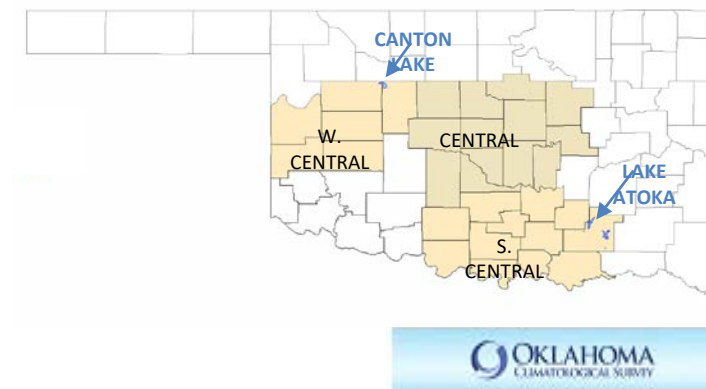
RAINFALL SUMMARIES BY OKLAHOMA CLIMATE DIVISION



Calendar Year 01-Jan-2024 through			27-Mar-2024			
Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	3.41"	-0.64"	84%	48th wettest	0.38" (1996)	7.85" (2004)
Central	5.79"	-0.15"	97%	32nd wettest	0.98" (1936)	13.11" (1990)
S. Central	7.06"	-0.26"	96%	35th wettest	1.70" (1972)	14.99" (1990)
Statewide	5.50"	-0.50"	92%	47th wettest	1.46" (1936)	11.73" (1990)

Water Year: 01-Oct-2023 through			27-Mar-2024			
Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	10.20"	+0.61"	106%	33rd wettest	2.17" (1966-67)	18.54" (1986-87)
Central	13.28"	-0.77"	95%	35th wettest	4.40" (1966-67)	26.66" (1984-85)
S. Central	17.84"	+0.83"	105%	29th wettest	5.16" (1924-25)	28.00" (2015-16)
Statewide	13.46"	-0.62"	96%	41st wettest	4.75" (1966-67)	22.32" (1984-85)

Spring Mar 01 through			27-Mar-2024			
Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	0.80"	-1.12"	42%	35th driest	0.00" (1971)	5.62" (2000)
Central	1.91"	-0.71"	73%	50th driest	0.08" (1971)	6.89" (1990)
S. Central	2.77"	-0.11"	96%	43rd wettest	0.15" (1940)	6.09" (1990)
Statewide	1.95"	-0.58"	77%	45th driest	0.35" (1925)	6.08" (1973)



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.

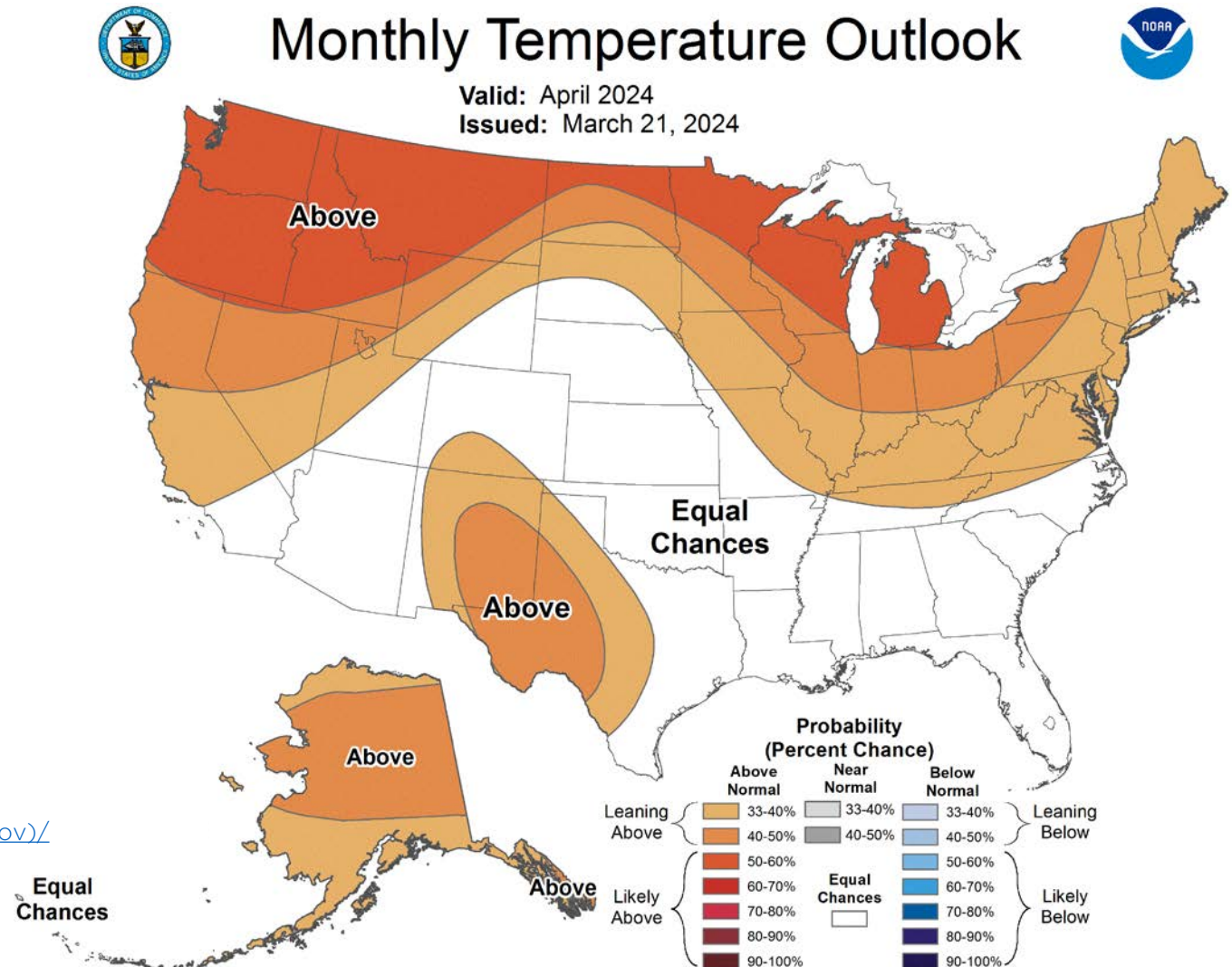
NOAA ONE-MONTH TEMPERATURE OUTLOOK



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://climatepredictioncenter.noaa.gov/)



NOAA ONE-MONTH PRECIPITATION 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.

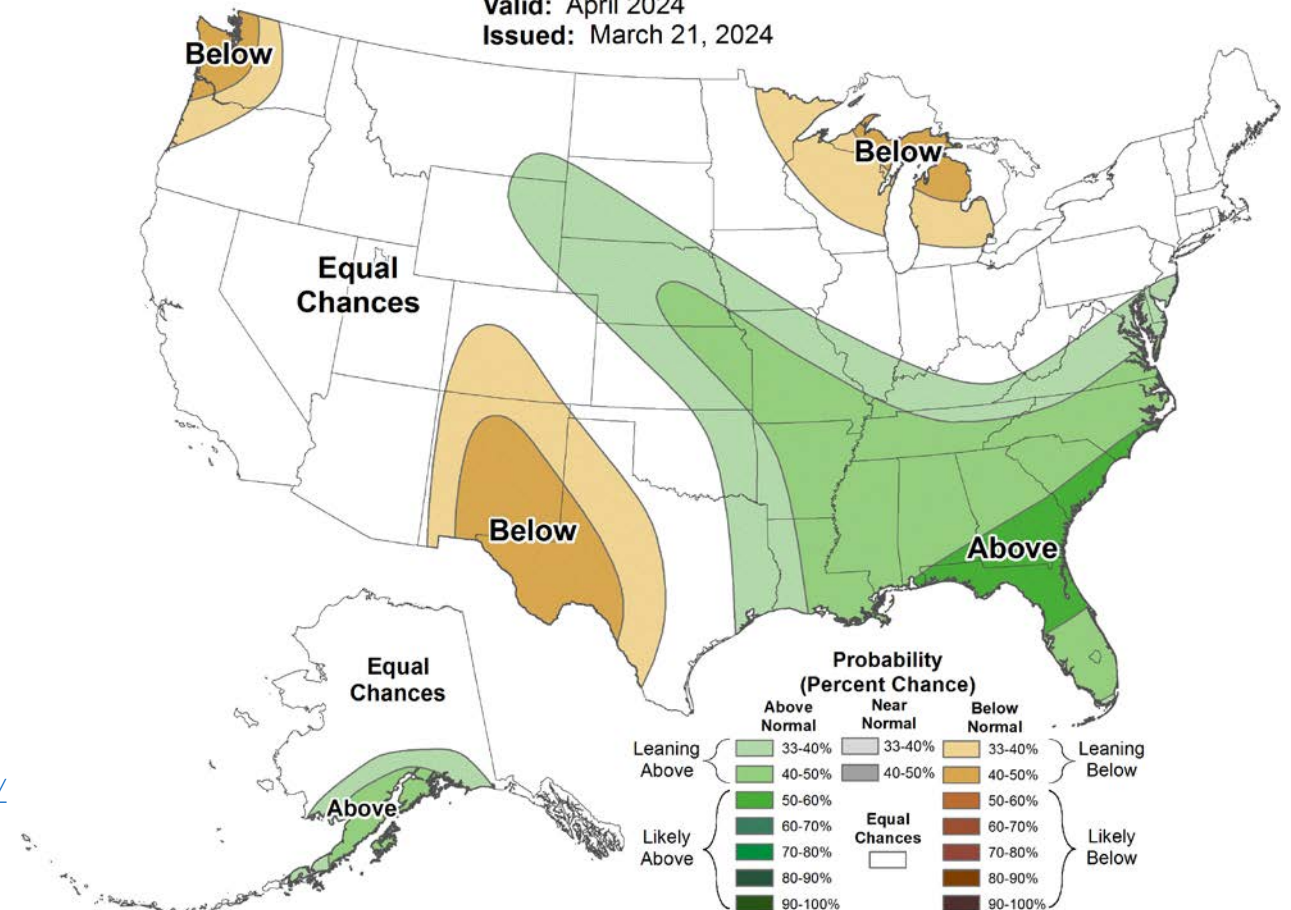
That doesn't mean that there are equal chances of each of the categories occurring – it means that currently there is no skill in identifying the most likely category. In these areas, it is best to be prepared for all possibilities.

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

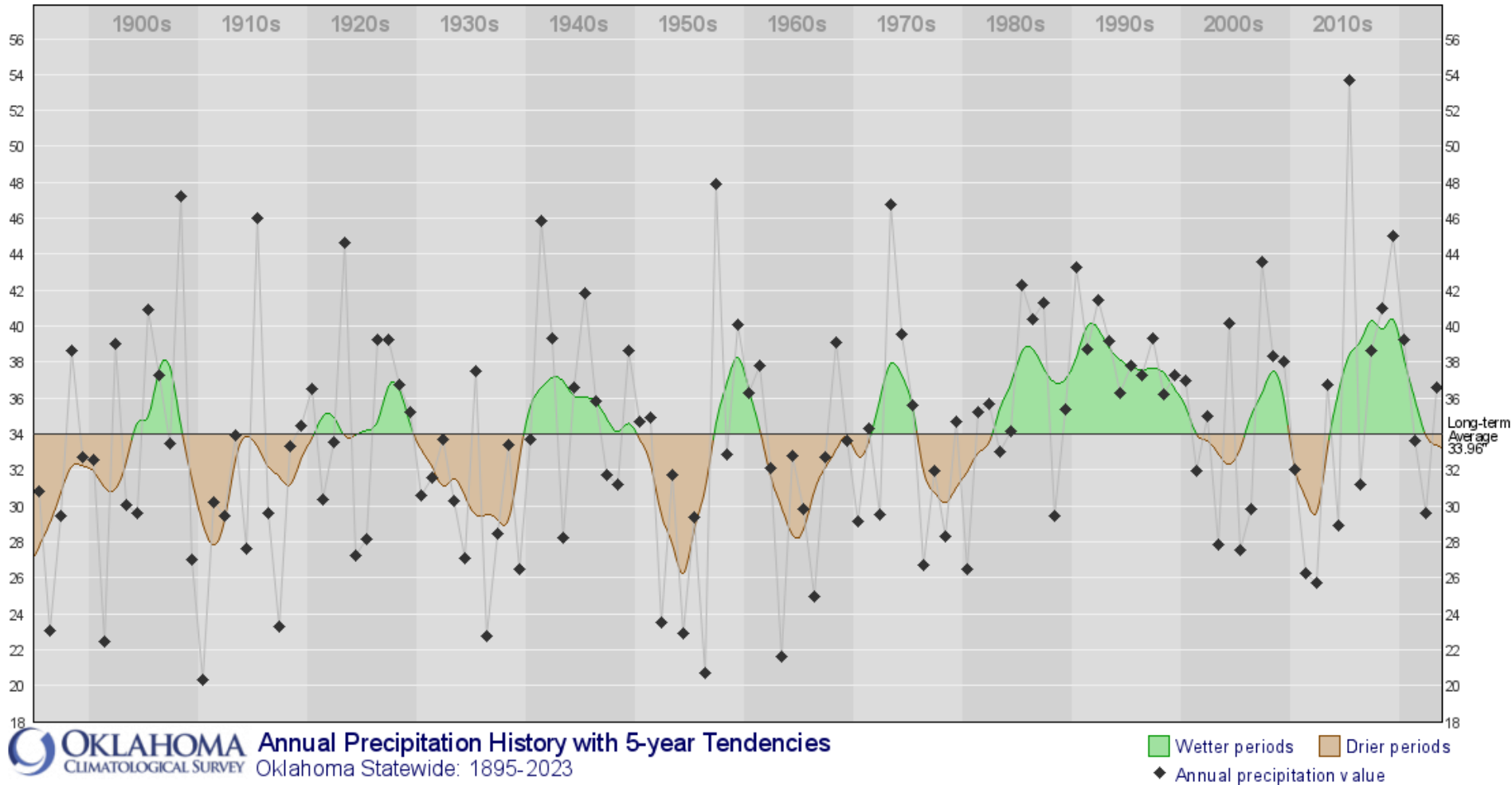


Monthly Precipitation Outlook

Valid: April 2024
Issued: March 21, 2024



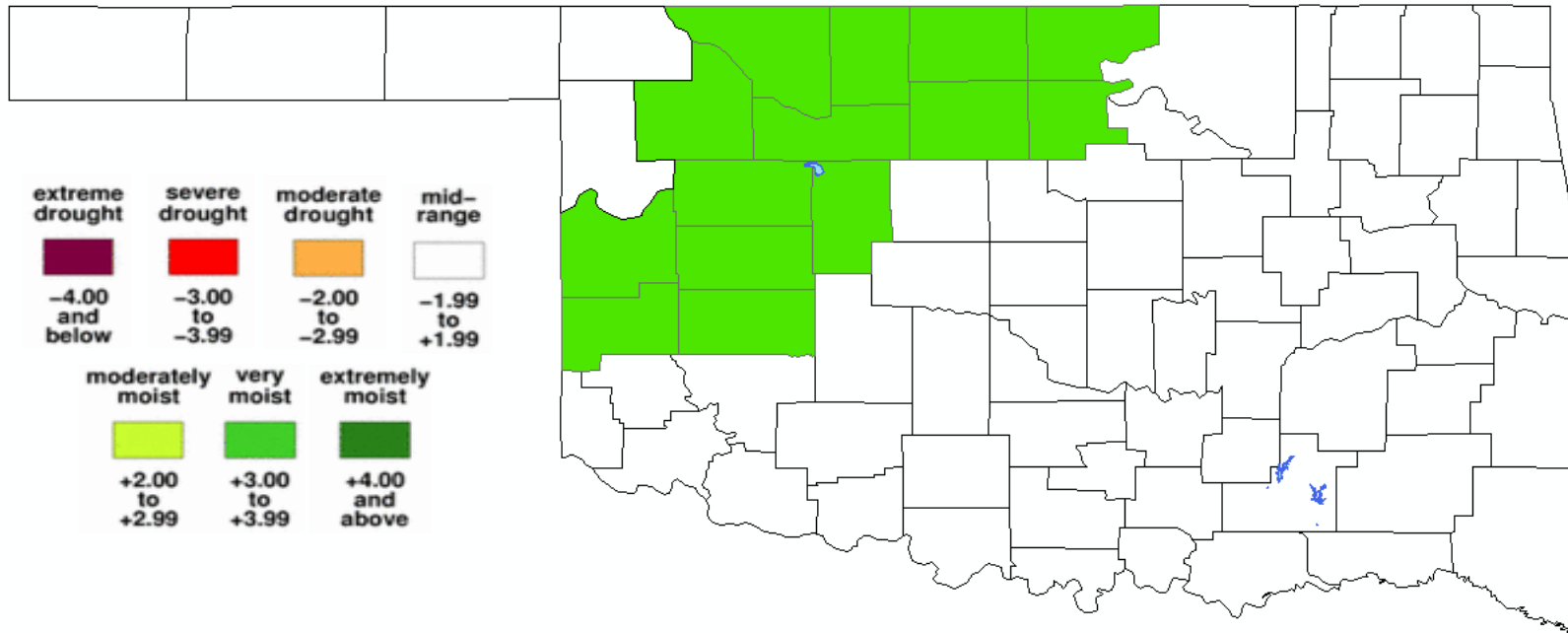
Annual Precipitation History with 5-Year Tendencies



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
23 MAR 2024

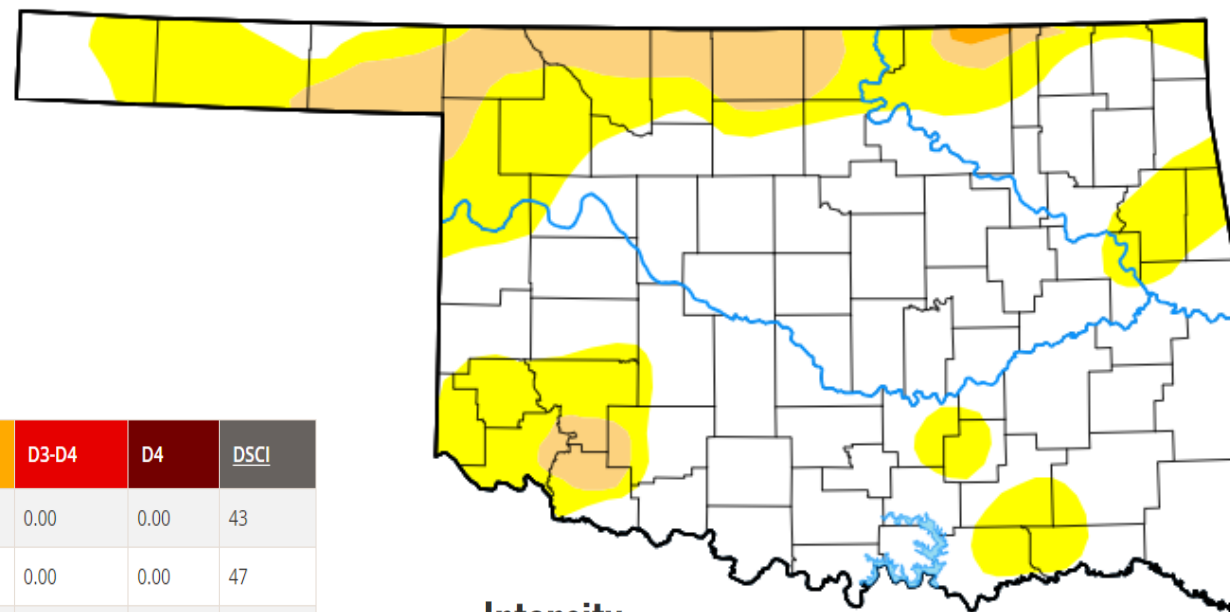
U.S. DROUGHT MONITOR - OKLAHOMA



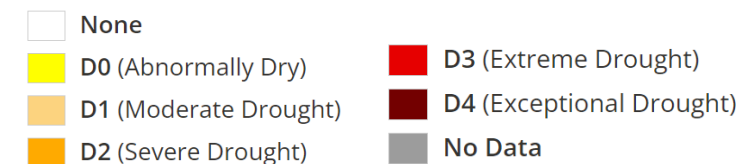
March 28, 2024

Abnormal dryness or drought are currently affecting approximately 88,842 people in Oklahoma.

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	2024-03-26	66.24	33.76	8.83	0.19	0.00	0.00	43
Last Week to Current	2024-03-19	56.44	43.56	3.53	0.19	0.00	0.00	47
3 Months Ago to Current	2023-12-26	53.62	46.38	21.64	3.08	0.00	0.00	71
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	2023-03-28	39.69	60.31	53.68	48.59	37.30	12.83	213



Intensity



U.S. DROUGHT MONITOR NATIONWIDE MAP



Map released: March 28, 2024

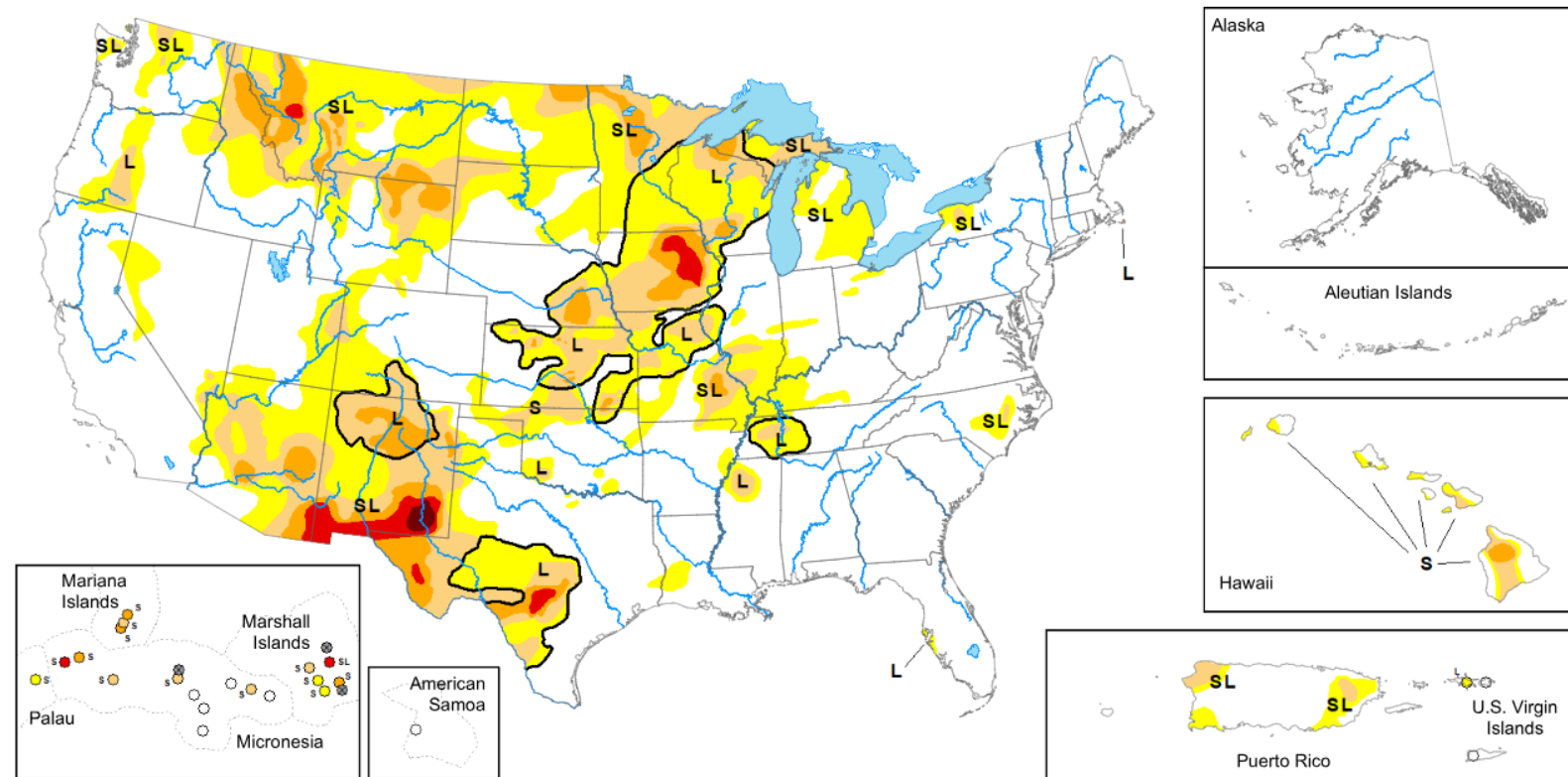
Data valid: March 26, 2024

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

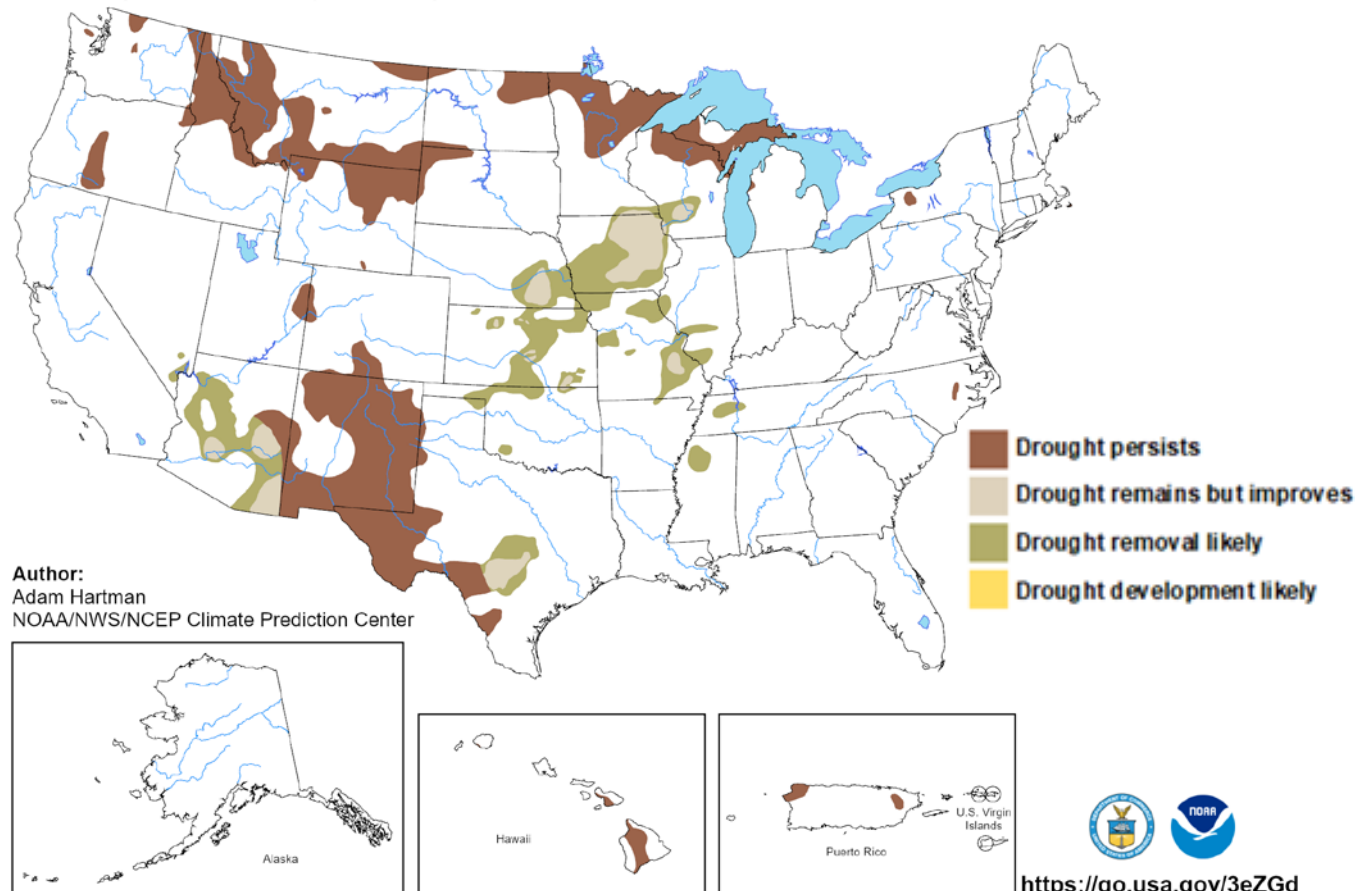


U.S. DROUGHT MONITOR MONTHLY DROUGHT OUTLOOK MAP



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

Valid for April 2024
Released March 31, 2024



Author:
Adam Hartman
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).

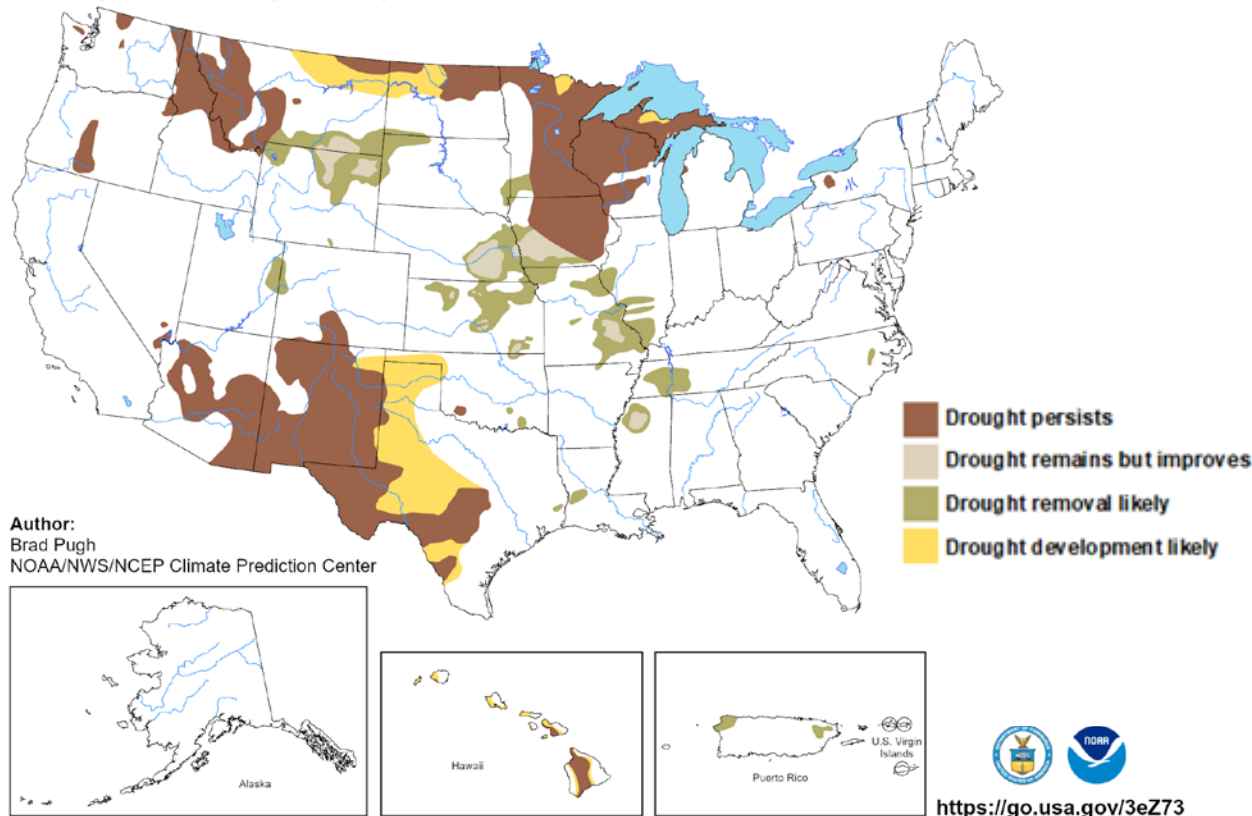
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

U.S. DROUGHT MONITOR SEASONAL DROUGHT OUTLOOK MAP



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

Valid for March 21 - June 30, 2024
Released March 21, 2024



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

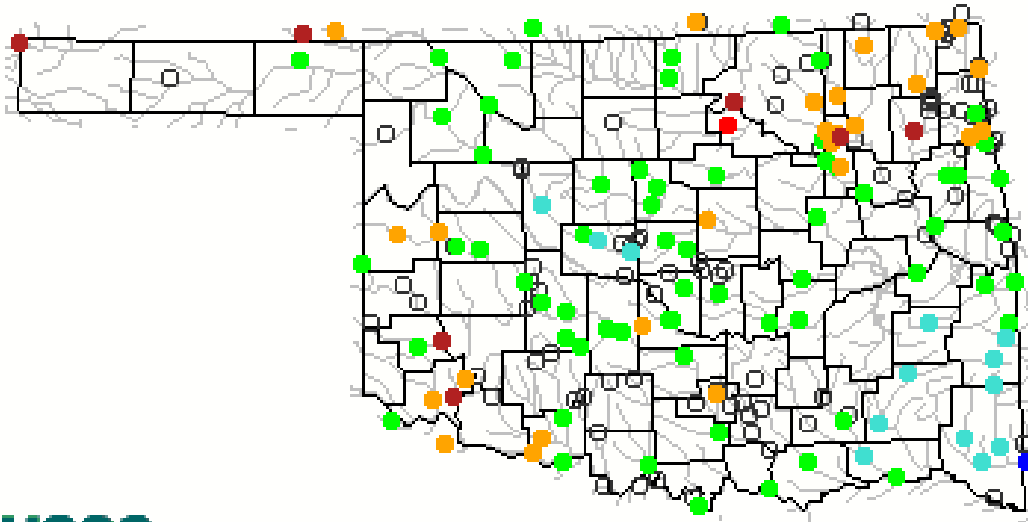
Depicts large-scale trends based on subjectively derived probabilities guided by short and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. “Ongoing” drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

USGS STREAMFLOW DATA



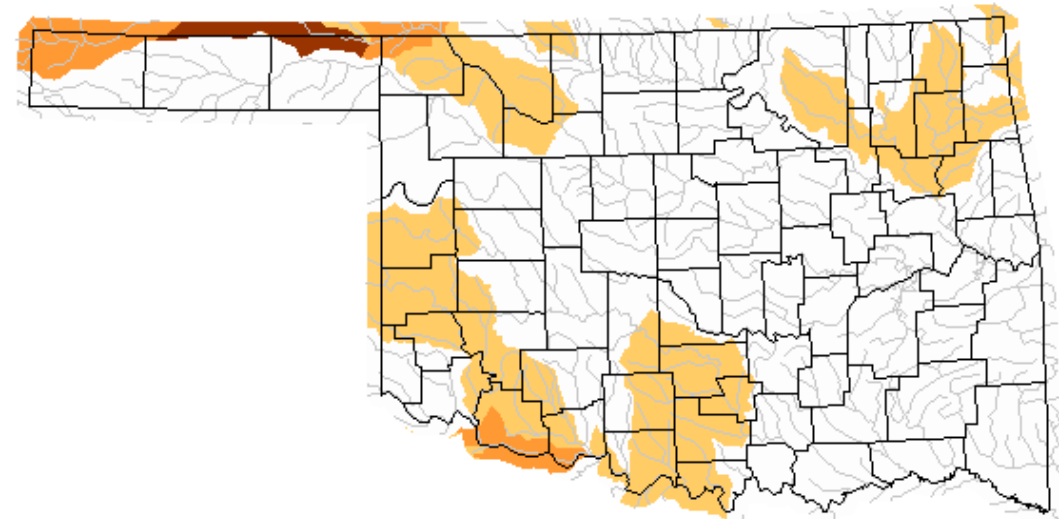
Thursday, March 28, 2024 12:30ET



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		

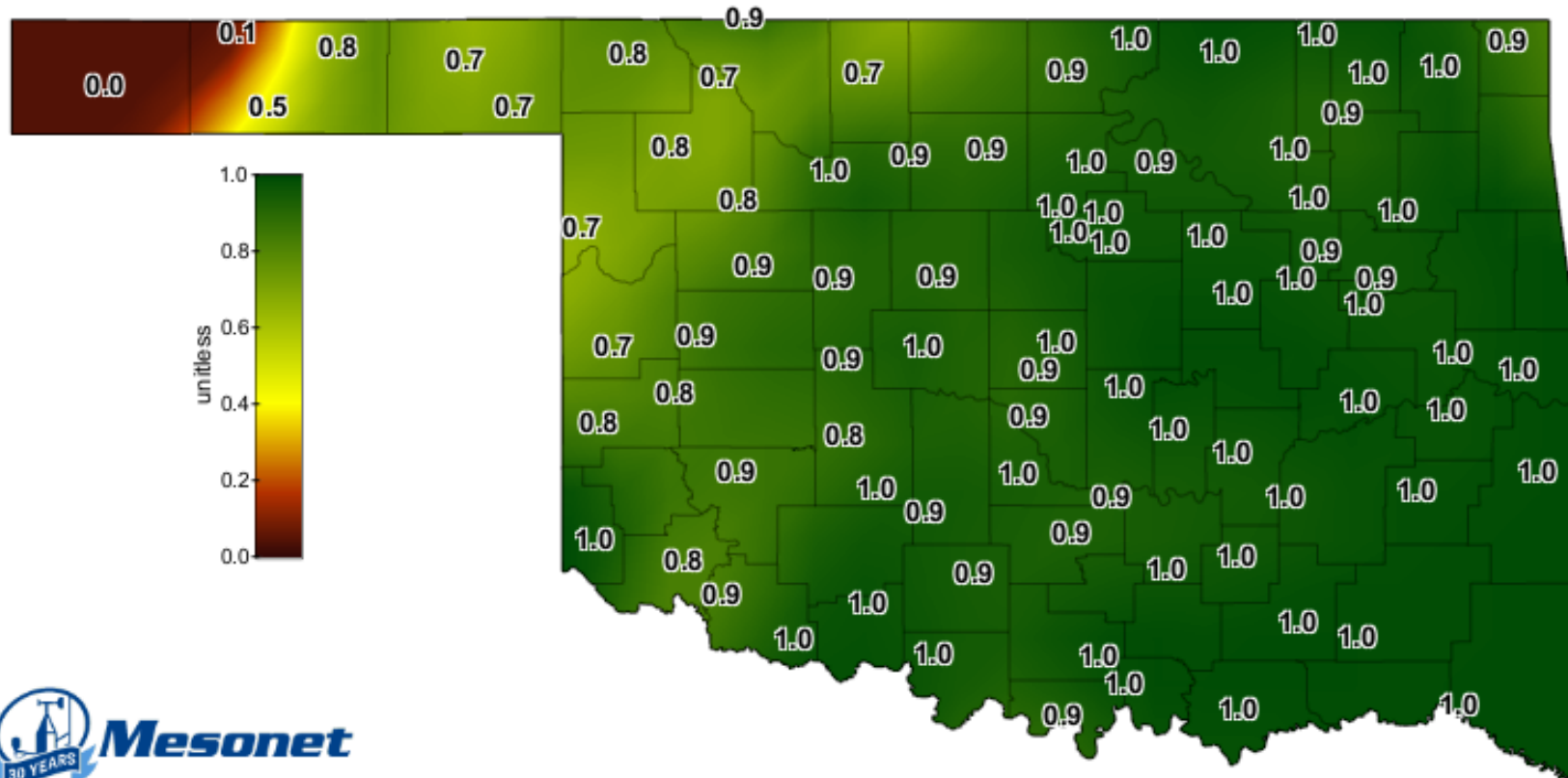
Below normal 28-day average streamflow

Wednesday, March 27, 2024



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

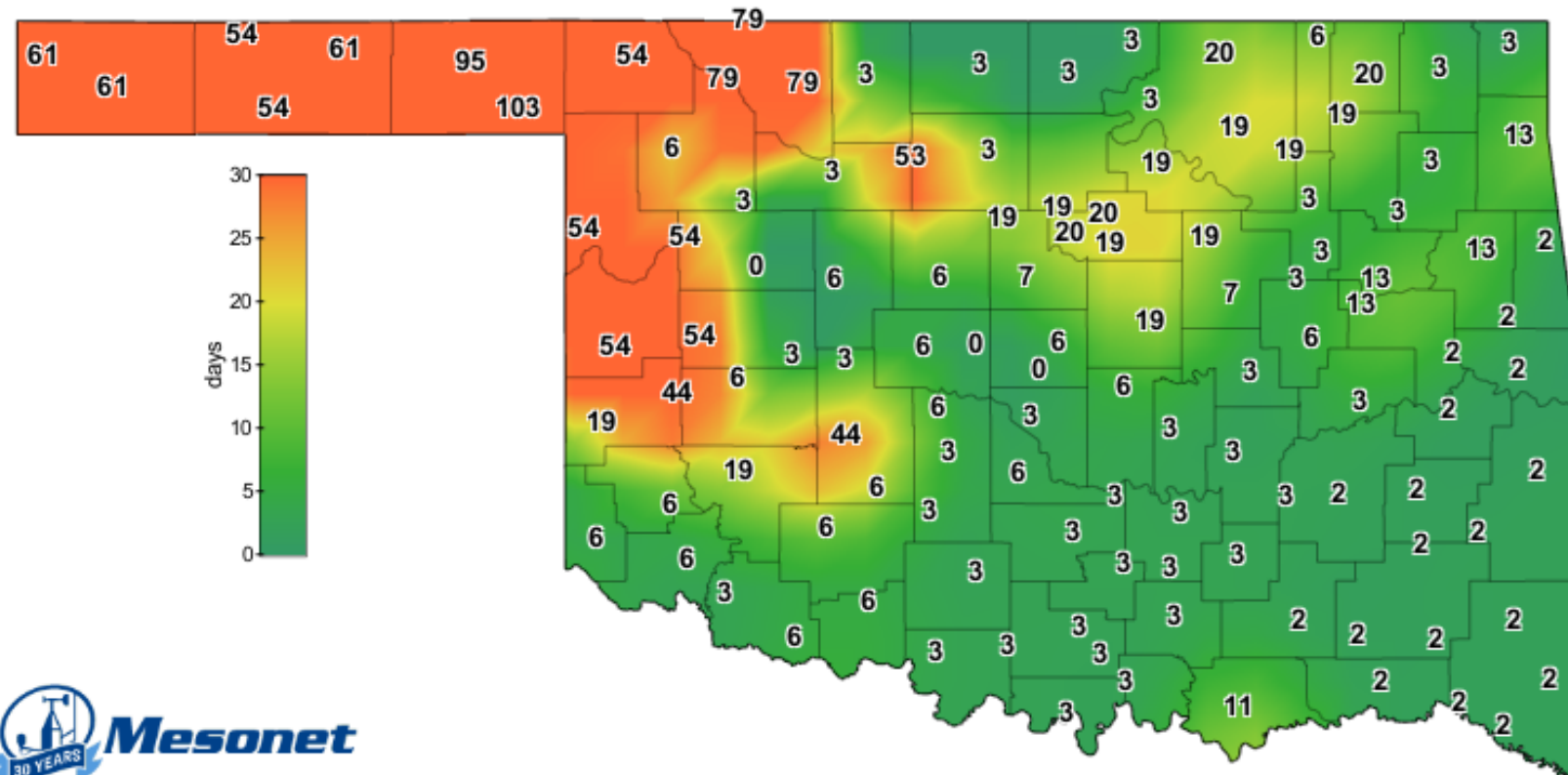


1-day Average 24-inch Fractional Water Index

March 27, 2024

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CONSECUTIVE DAYS WITHOUT RAINFALL MAP

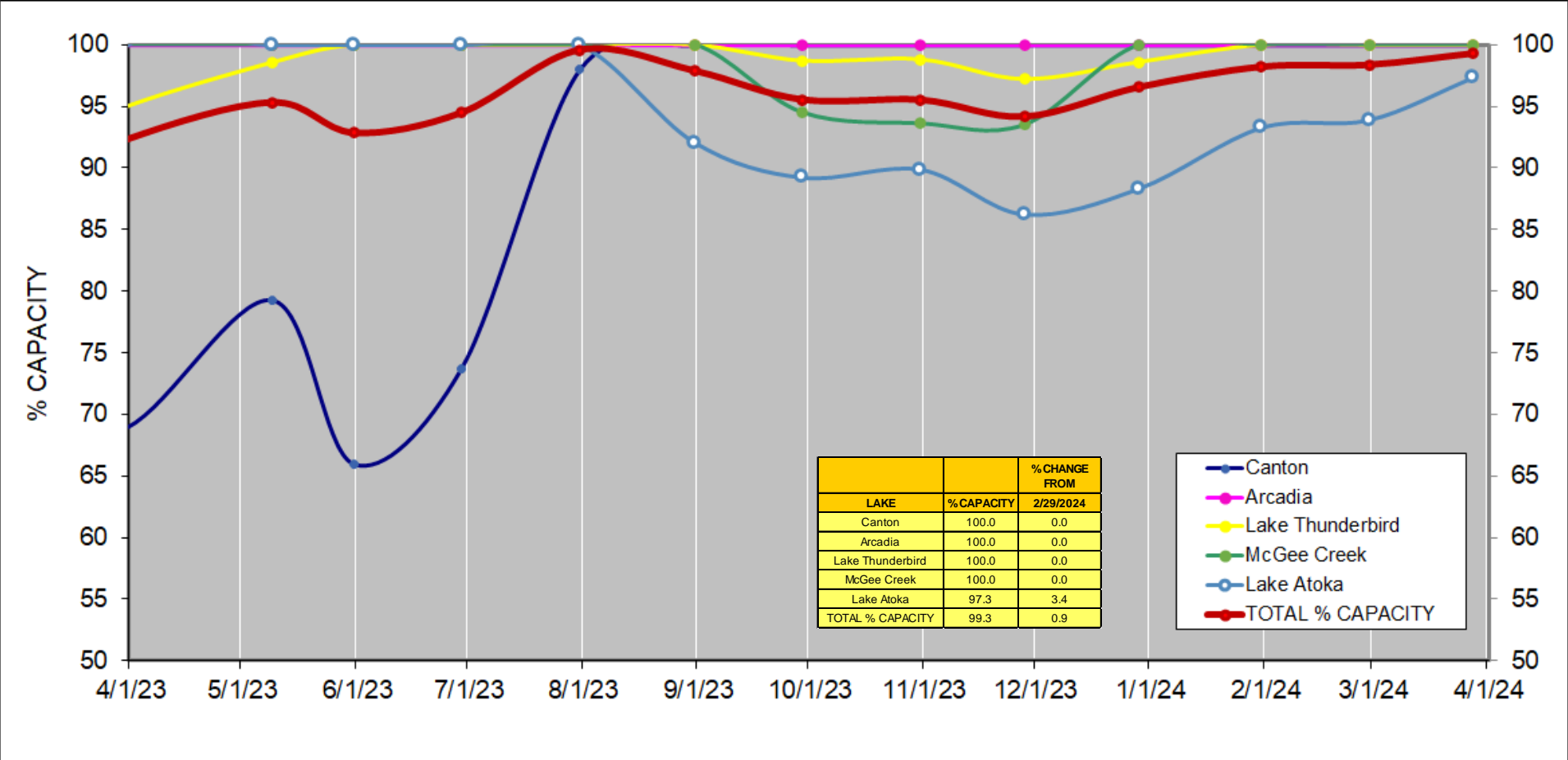


Consecutive Days With Less Than 0.25" Rainfall

March 27, 2024

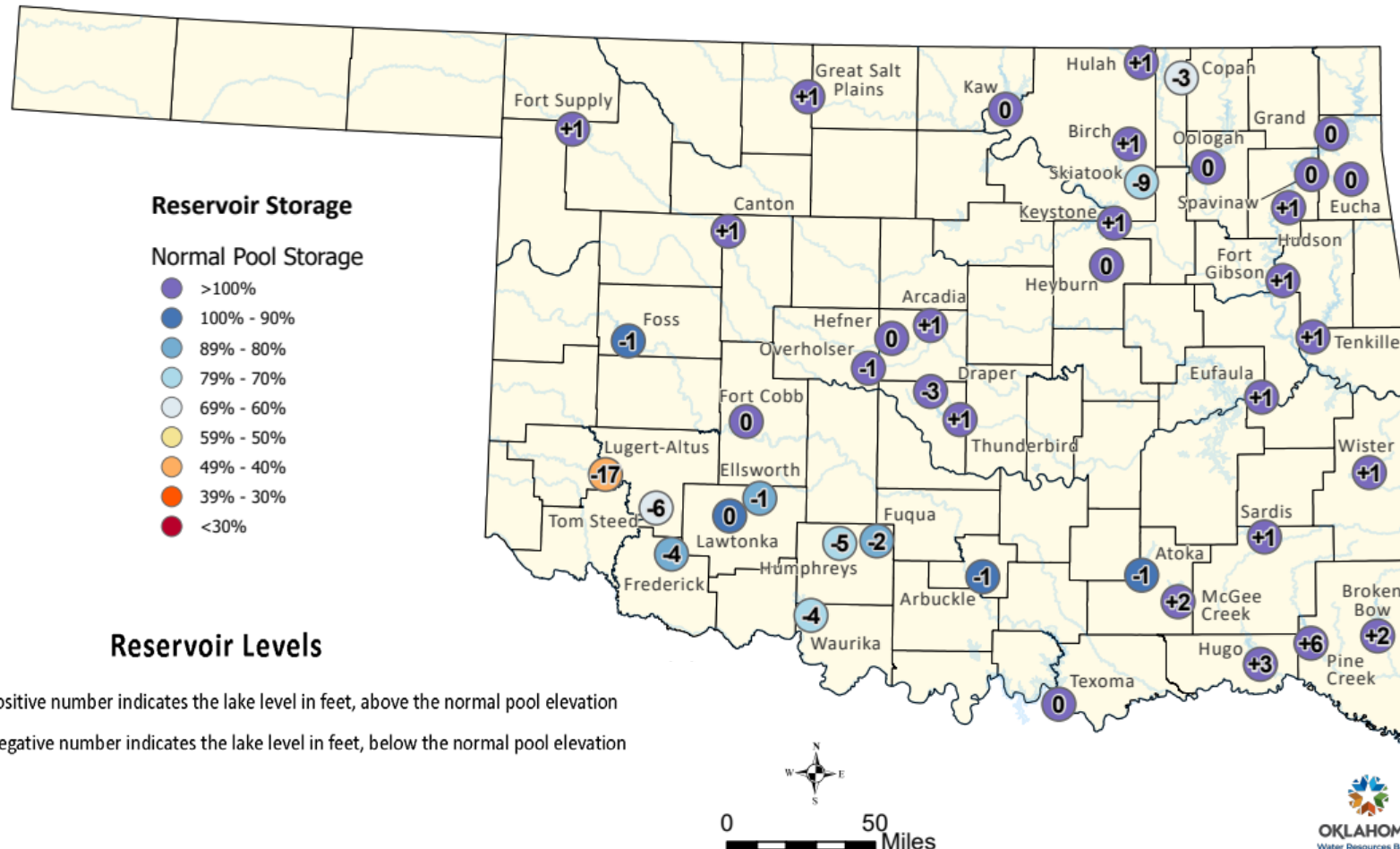
Created 8:15:03 AM March 28, 2024 CDT. © Copyright 2024

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.

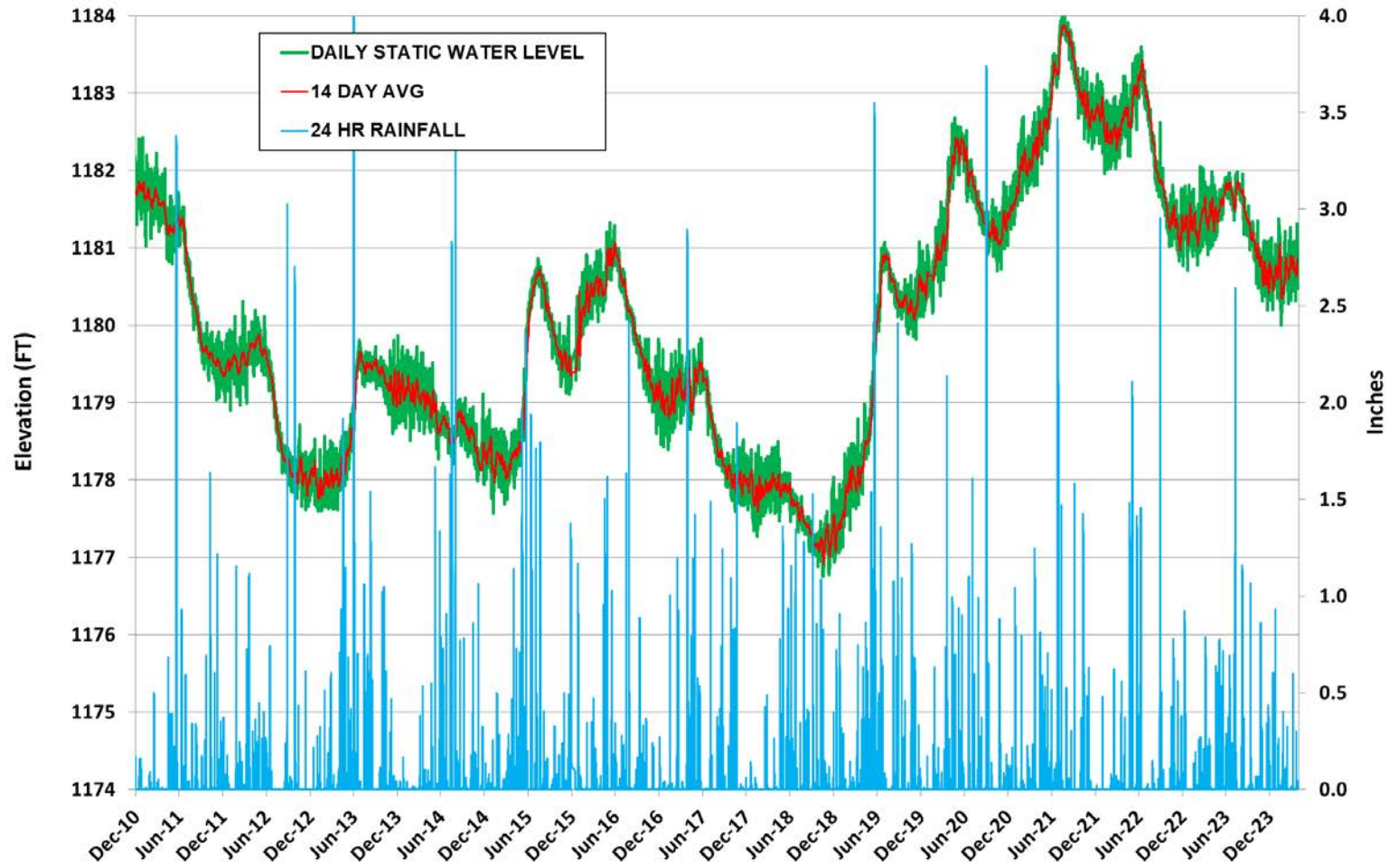
OKLAHOMA RESERVOIR LEVELS AND STORAGE



OKLAHOMA RESERVOIR LEVELS AND STORAGE AS OF 2/26/2024

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/monitoring/products-reports/7333010)). For more information, please visit the OWRB's website: (<https://www.owrb.ok.gov>).

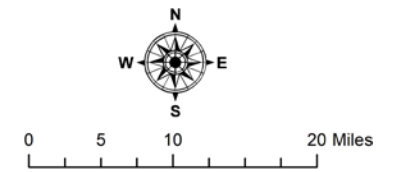
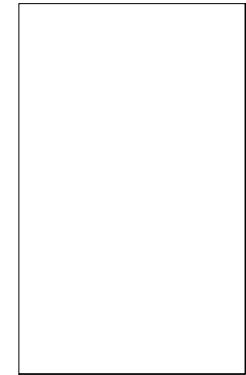
GROUNDWATER LEVELS SPENCER MESONET STATION



MONTHLY AQUIFER RECHARGE



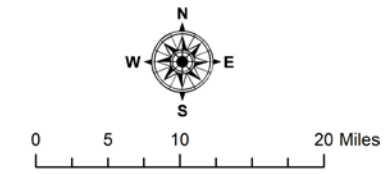
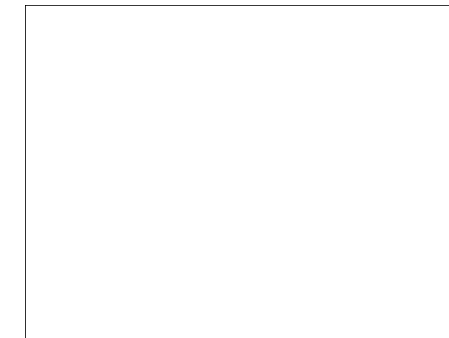
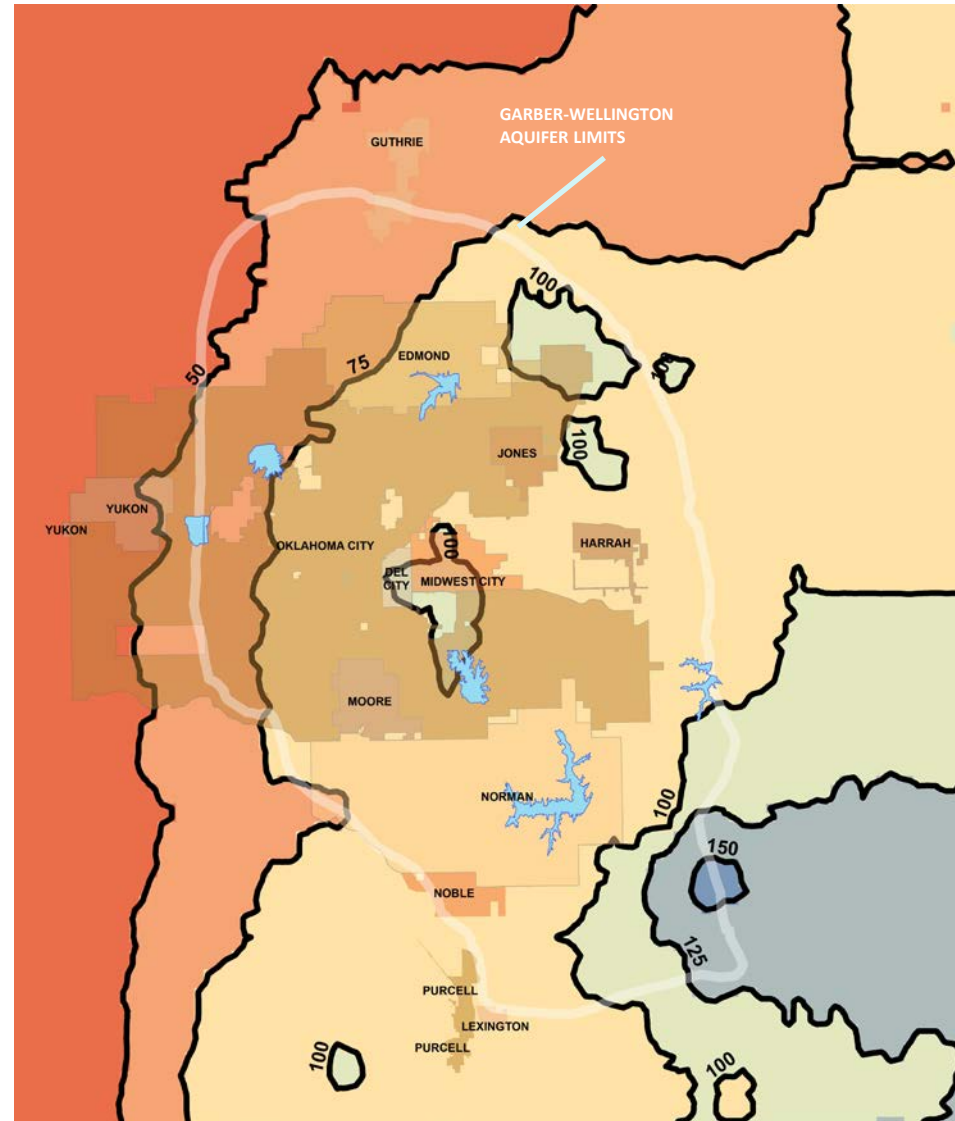
- Mean aquifer recharge in March 2024 was 0.01 inches.
- Normal mean recharge for March is 0.19 inches.
- We are still 0.44 inches above normal for 2024.



PERCENT TOTAL CUMULATIVE AQUIFER RECHARGE – Last 12 Months



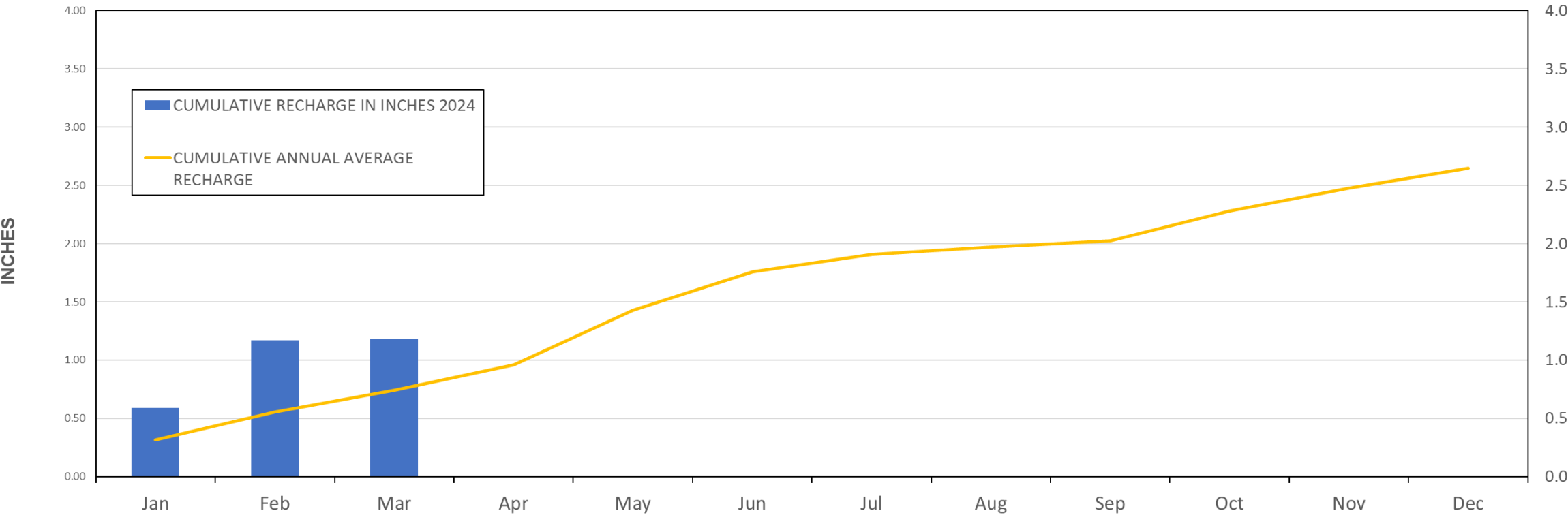
- Most of the recharge in the past 12 months was south and east of the metropolitan area.
- March 2024 recharge was significant over the Byars area in McClain County.
- Much of the east side of the metropolitan area has received at least 75% of median recharge over the past 12 months.



RECHARGE CHARTS CENTRAL OKLAHOMA AQUIFER SYSTEM



ACCUMULATED CENTRAL OKLAHOMA AQUIFER SYSTEM RECHARGE 2024

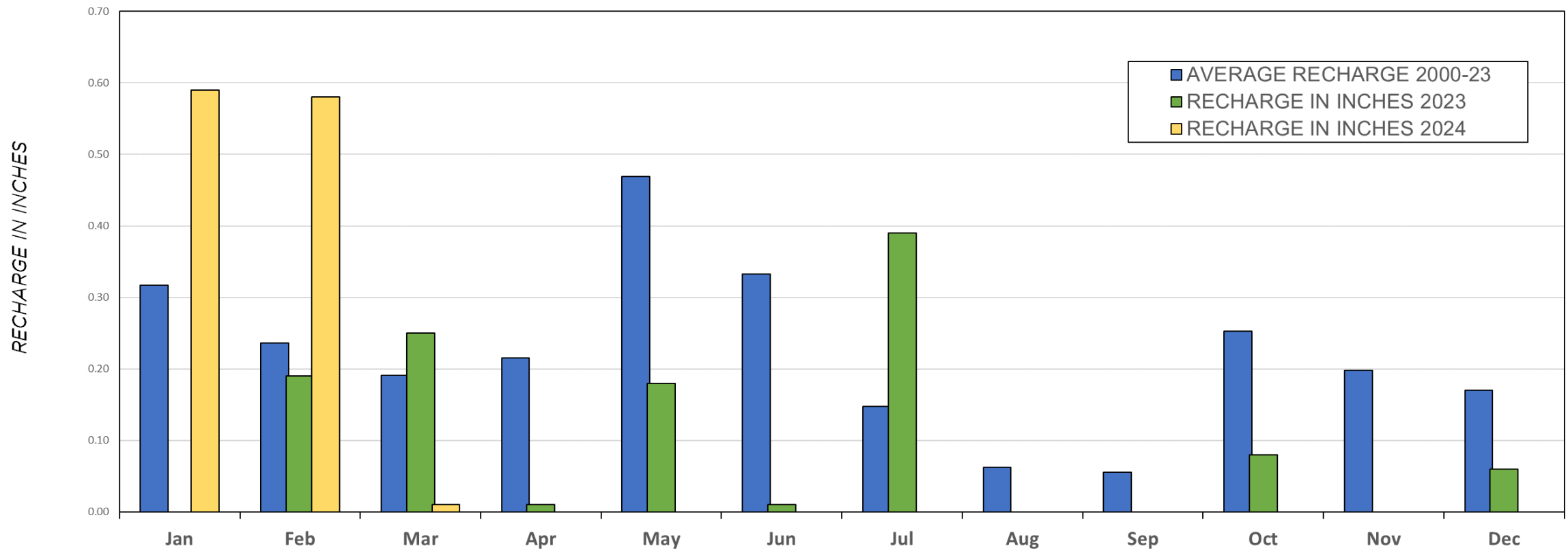


RECHARGE CHARTS CENTRAL OKLAHOMA

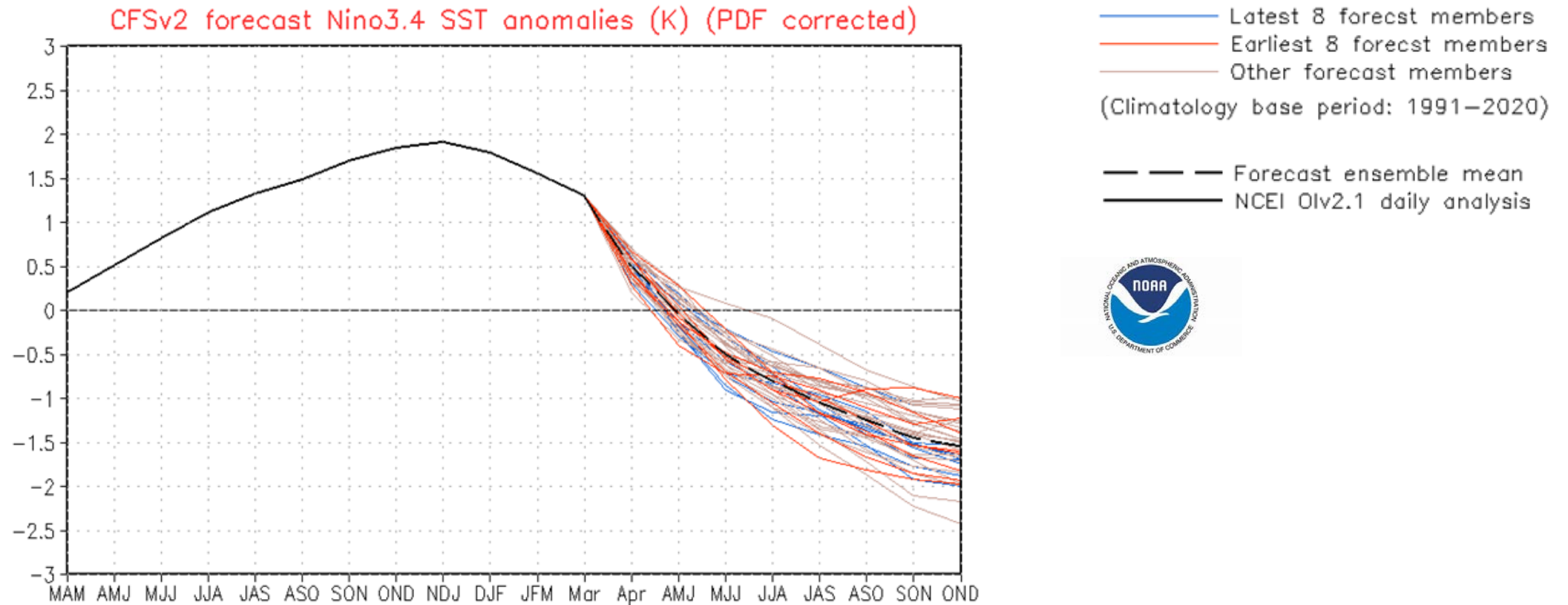
AQUIFER SYSTEM CONTINUED



MONTHLY AQUIFER RECHARGE 2024



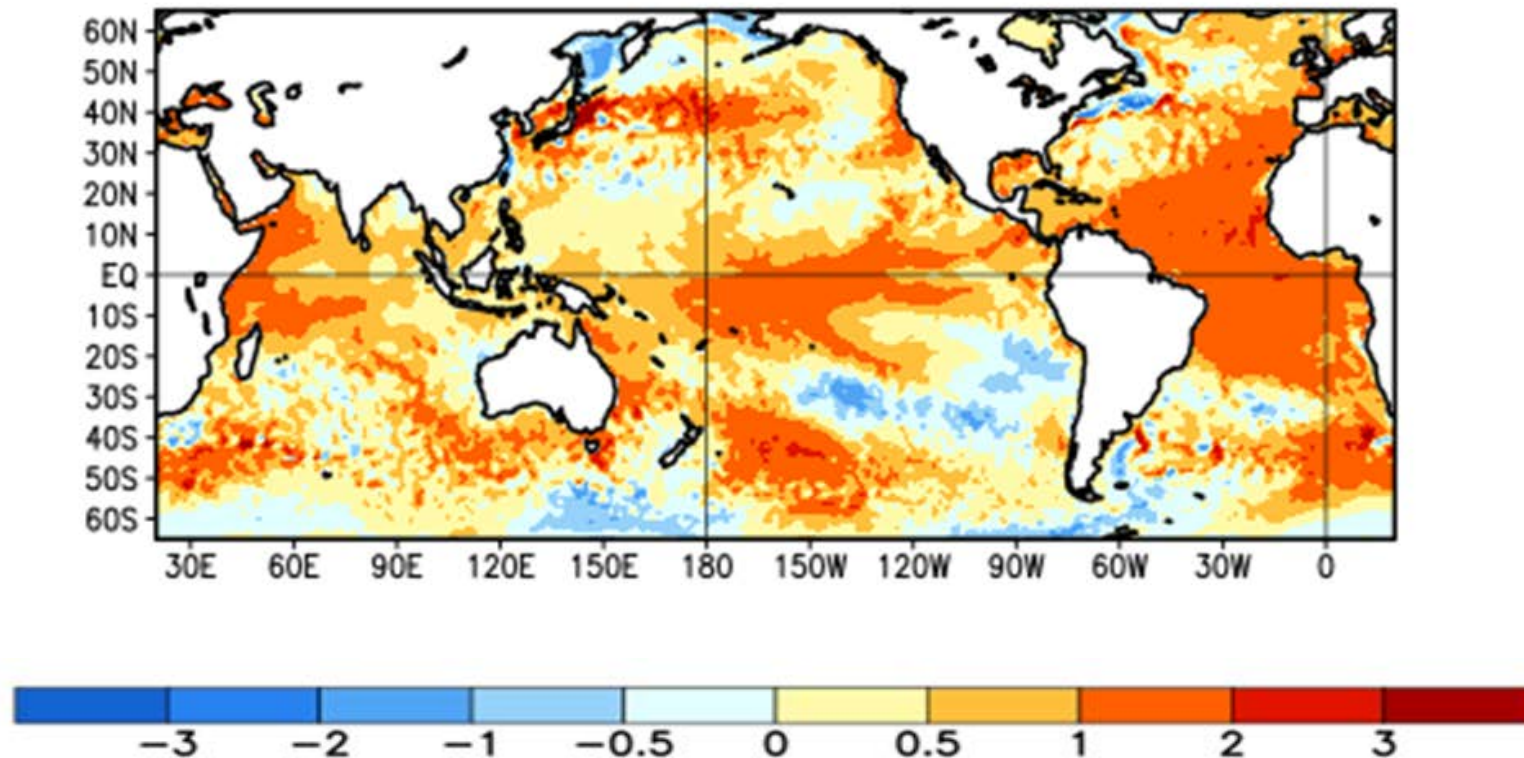
ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS



ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS



Average SST Anomalies
25 FEB 2024 – 23 MAR 2024





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

- El Niño conditions are observed.
- Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean.
- The tropical Pacific atmospheric anomalies are consistent with El Niño.
- A transition from El Niño to ENSO-neutral is likely by April-June 2024 (83% chance), with increasing odds of La Niña developing in June-August 2024 (62% chance).



QUESTIONS?

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ASSOCIATION OF
CENTRAL OKLAHOMA
GOVERNMENTS