



DROUGHT CONDITIONS

IN CENTRAL OKLAHOMA

John Harrington

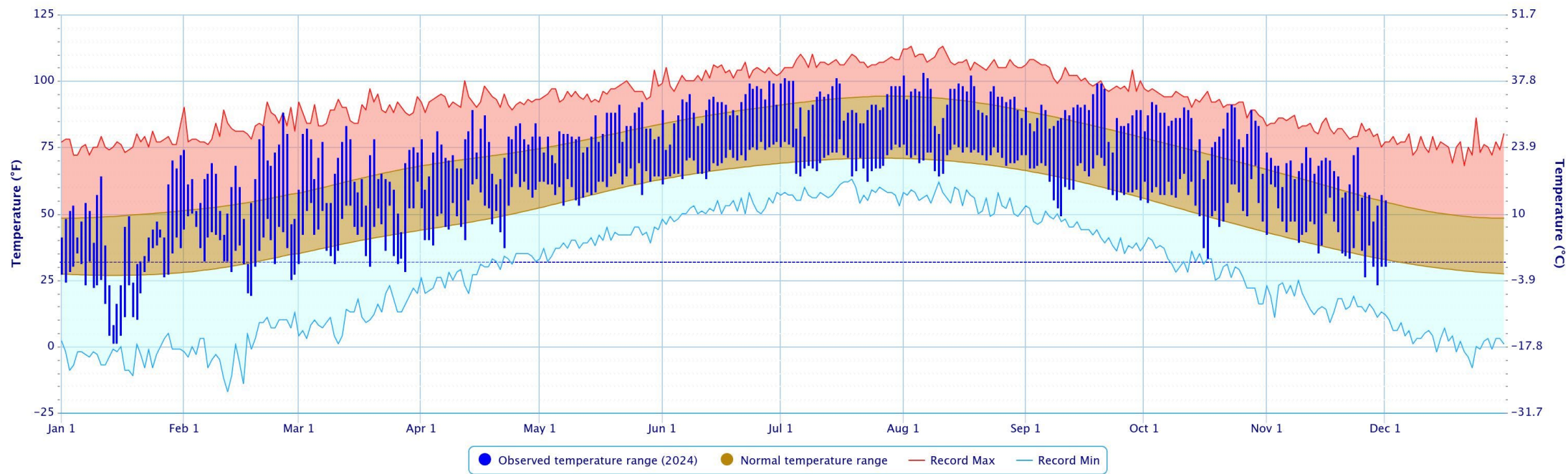
Water Resources Director

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December 2024

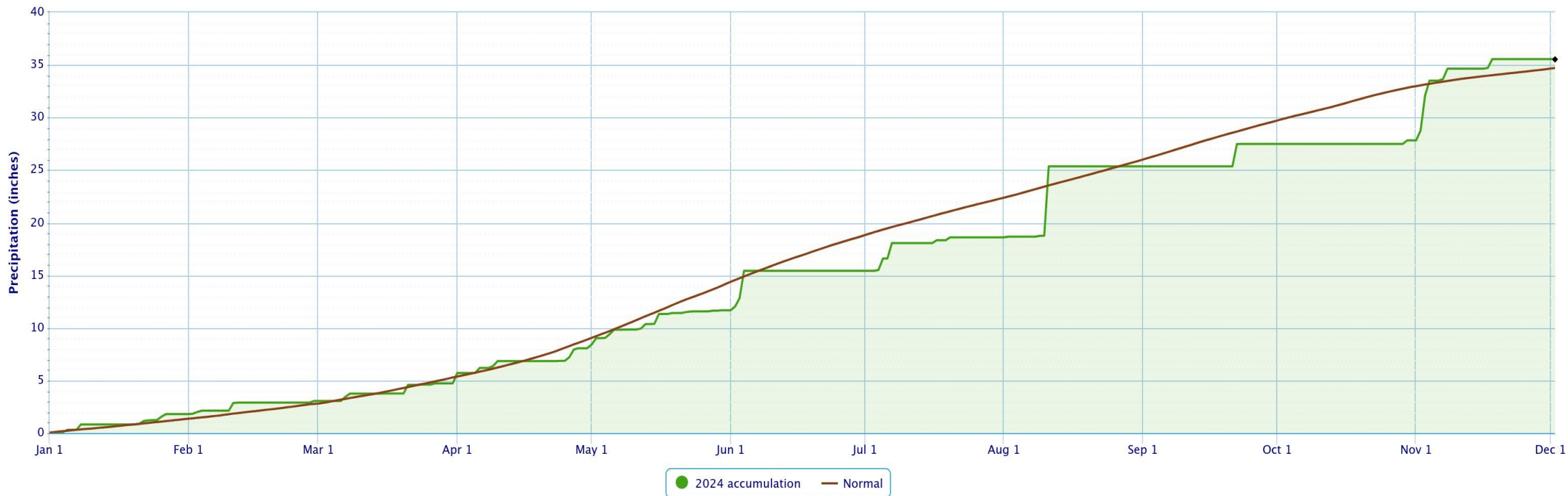
TEMPERATURE PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2024



Powered by ACIS



PRECIPITATION PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2024



RAINFALL SUMMARIES BY OKLAHOMA CLIMATE DIVISION



Calendar Year: Jan 1, 2024 – Nov 30, 2024

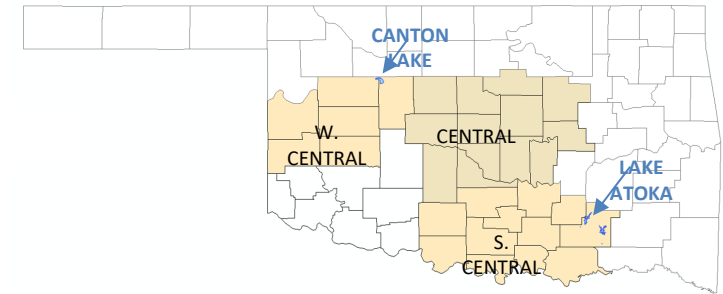
Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	25.95"	-1.27"	95%	51st wettest	13.55"	40.97"
Central	34.87"	-0.84"	98%	43rd wettest	17.82"	51.35"
S. Central	38.67"	+0.46"	101%	34th wettest	18.37"	65.31"
Statewide	34.27"	-0.20"	99%	47th wettest	19.07"	48.26"

Water Year: Oct 1, 2024 – Nov 30, 2024

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	8.36"	+4.00"	192%	7th wettest	0.12"	11.29"
Central	9.45"	+3.26"	153%	12th wettest	0.77"	14.79"
S. Central	8.33"	+1.14"	116%	25th wettest	0.91"	18.80"
Statewide	8.69"	+2.61"	143%	14th wettest	1.02"	12.41"

Autumn 2024: Sep 1, 2024 – Nov 30, 2024

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	10.05"	+2.89"	140%	12th wettest	0.87"	19.52"
Central	10.95"	+0.92"	109%	32nd wettest	2.29"	20.92"
S. Central	9.42"	-1.74"	84%	49th driest	2.13"	21.46"
Statewide	10.18"	+0.56"	106%	35th wettest	3.17"	18.04"



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



Monthly Temperature Outlook

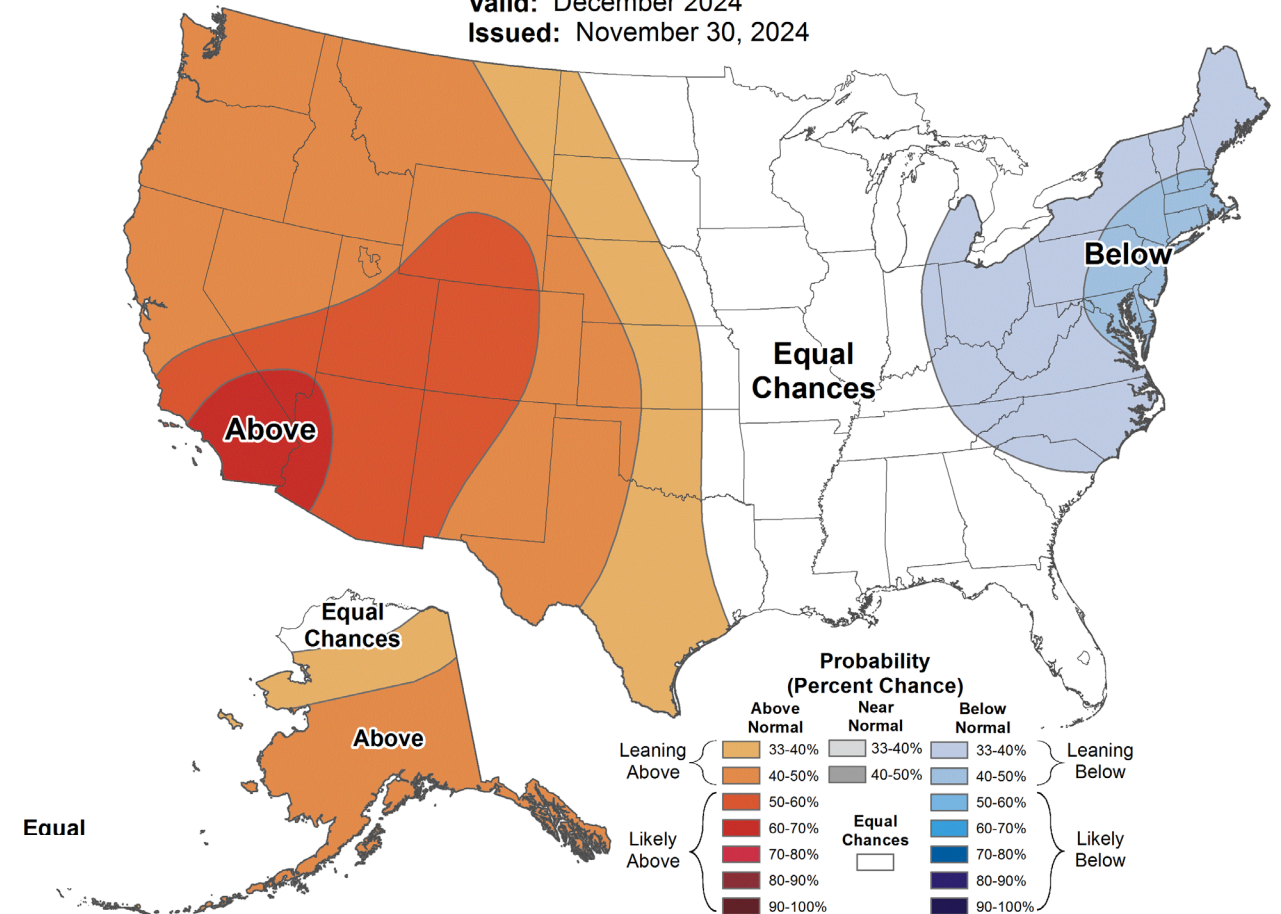


Valid: December 2024
Issued: November 30, 2024

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)



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.

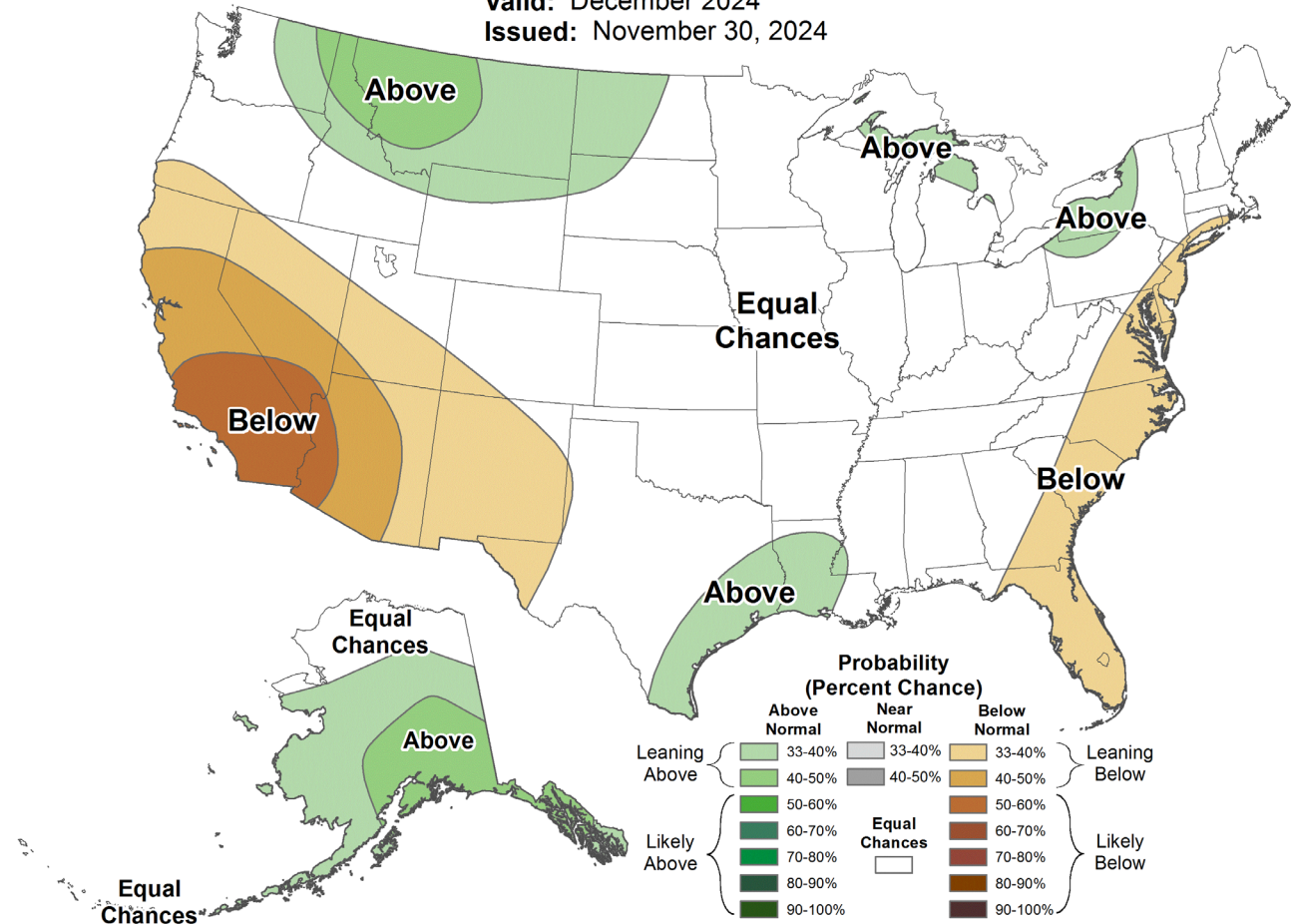
[Climate Prediction Center - Updated OFFICIAL 30-Day Forecasts \(noaa.gov\)/](https://www.noaa.gov/climate-prediction-center)



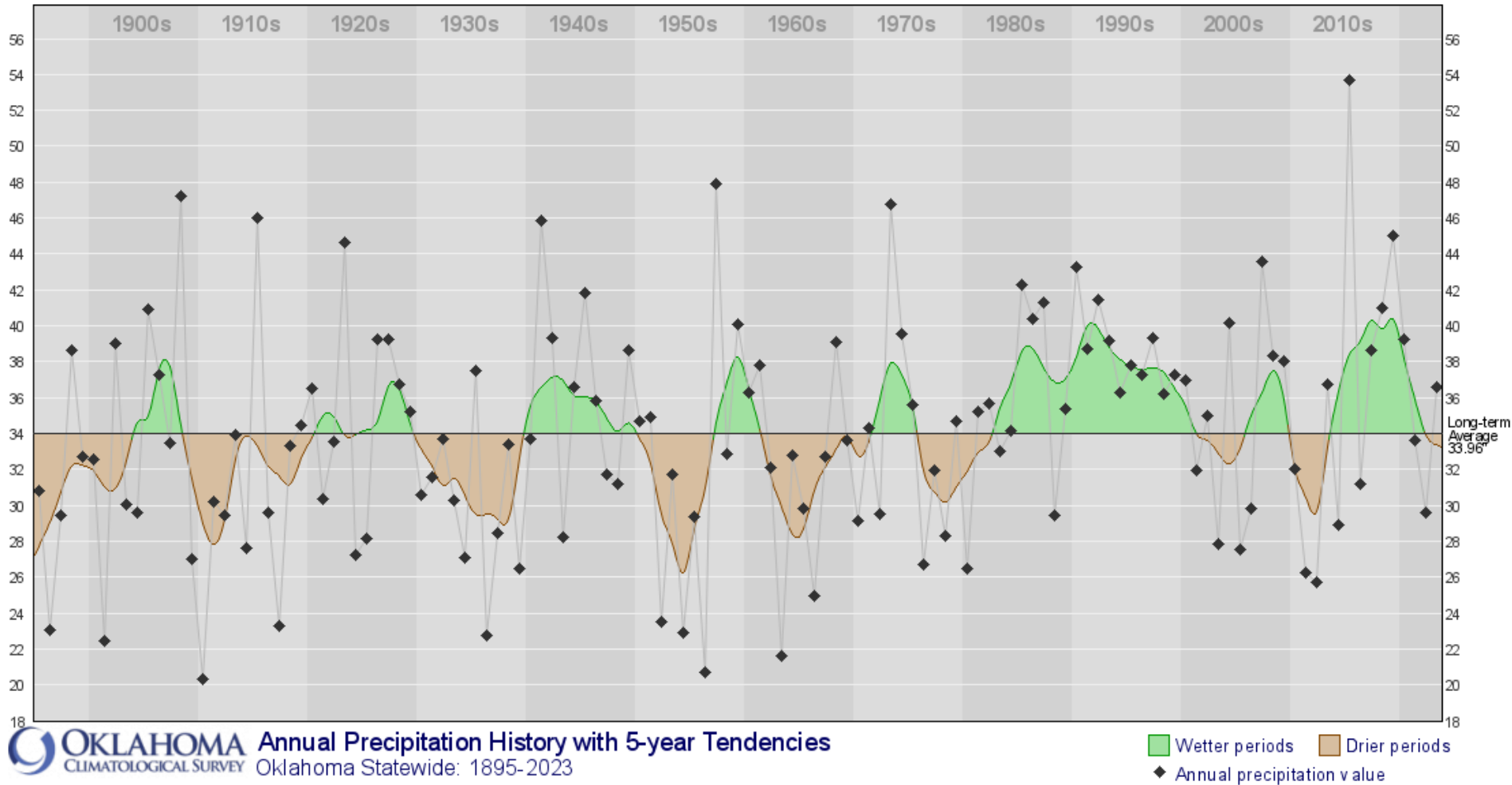
Monthly Precipitation Outlook



Valid: December 2024
Issued: November 30, 2024



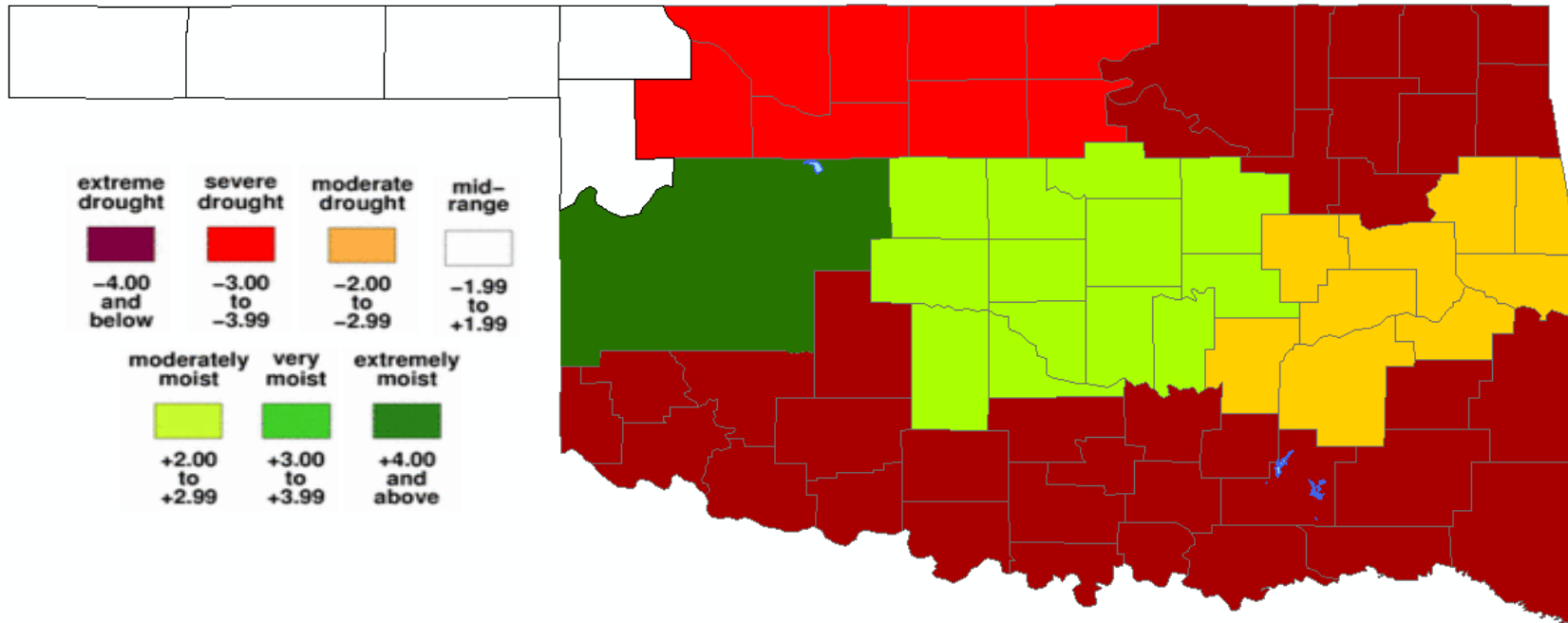
Annual Precipitation History with 5-Year Tendencies



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.

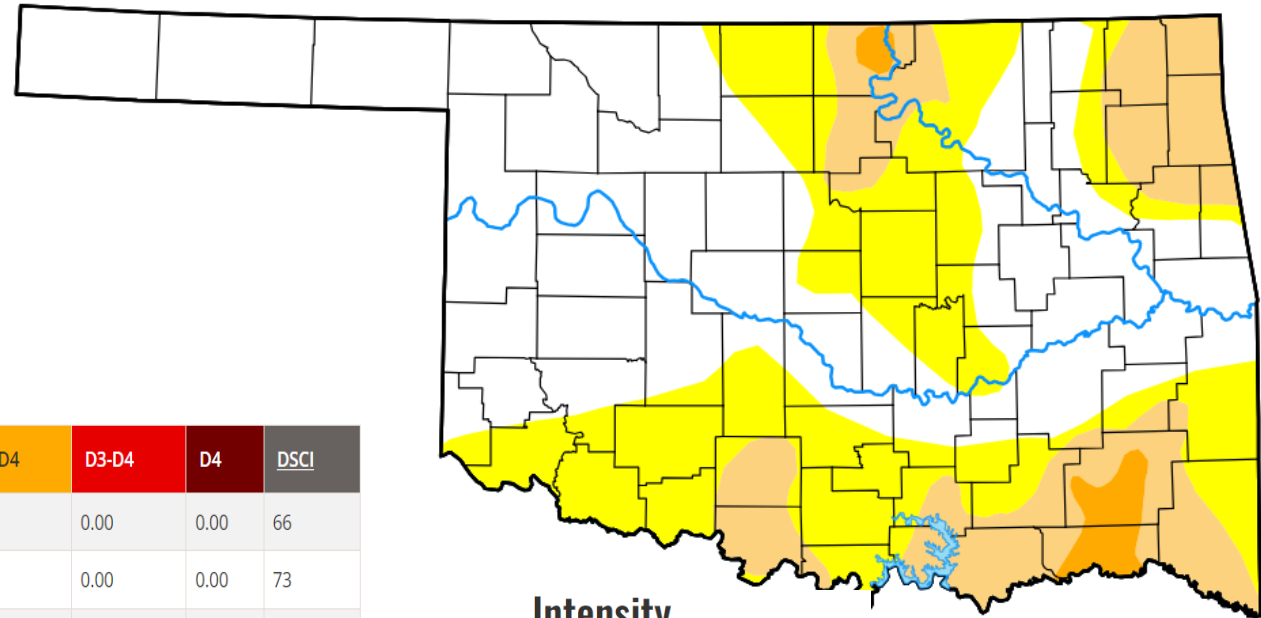
PALMER VALUE
23 NOV 2024

U.S. DROUGHT MONITOR - OKLAHOMA



November 27, 2024

Abnormal dryness or drought is currently affecting approximately 401,344 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	2024-11-26	53.30	46.70	17.91	1.85	0.00	0.00	66
Last Week to Current	2024-11-19	47.22	52.78	17.90	1.85	0.00	0.00	73
3 Months Ago to Current	2024-08-27	25.64	74.36	47.55	17.52	4.56	0.00	144
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	2024-10-01	22.82	77.18	61.31	37.39	11.50	0.00	187
One Year Ago to Current	2023-11-28	48.05	51.95	33.99	11.38	1.16	0.00	98



U.S. DROUGHT MONITOR NATIONWIDE MAP



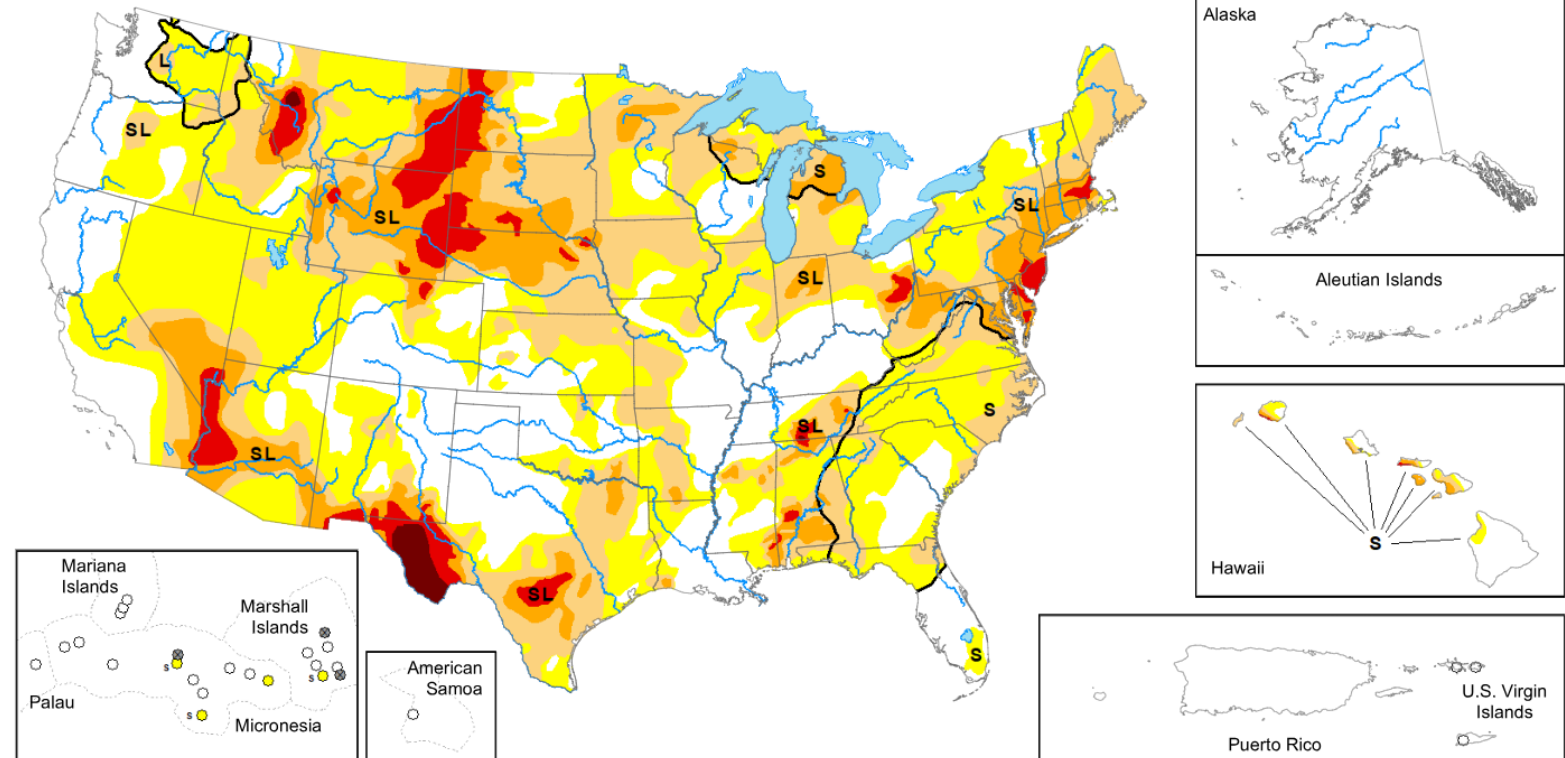
Map released: November 27, 2024
Data valid: November 26, 2024

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

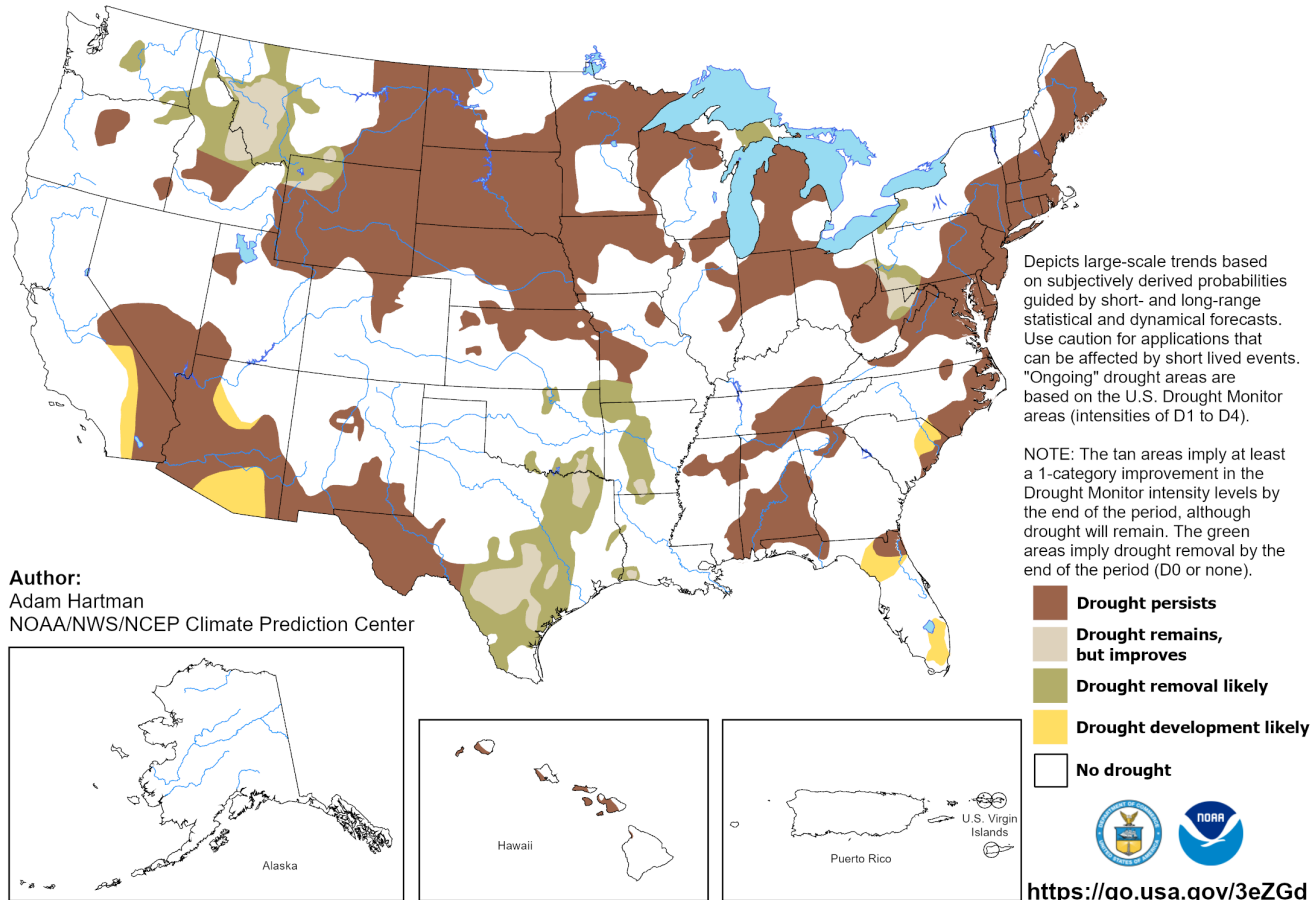


U.S. DROUGHT MONITOR MONTHLY DROUGHT OUTLOOK MAP



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

Valid for December 2024
Released November 30, 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).

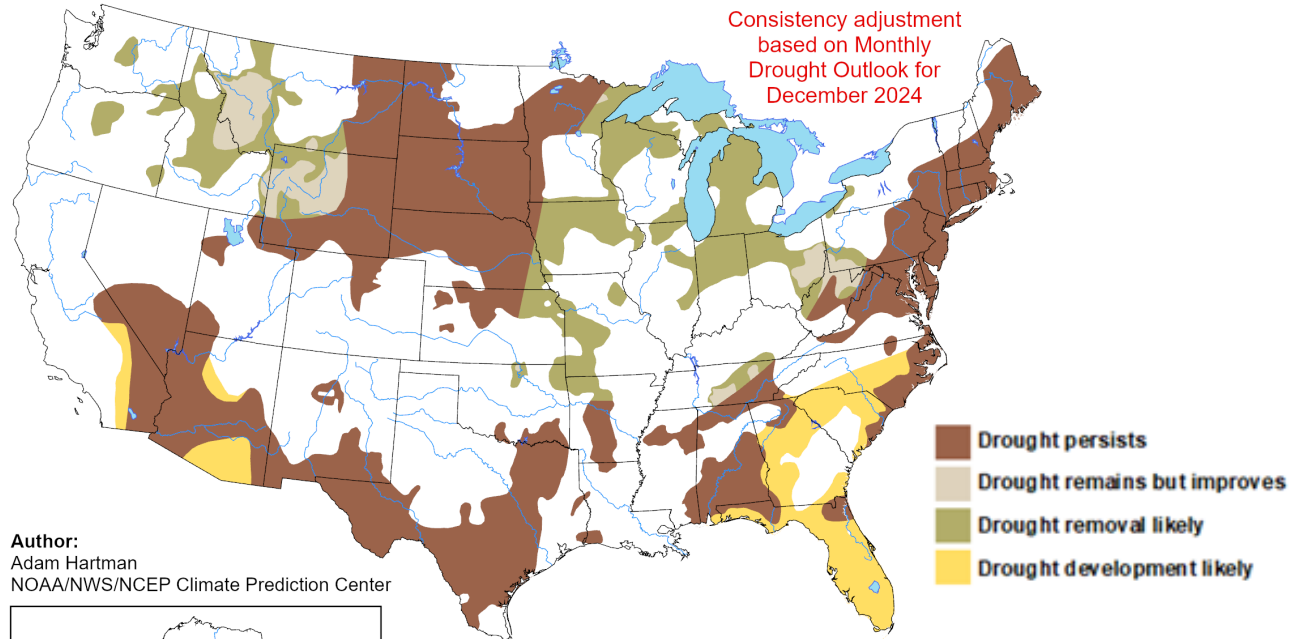
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

U.S. DROUGHT MONITOR SEASONAL DROUGHT OUTLOOK MAP

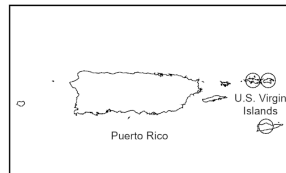
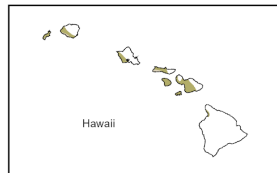


U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for December 1, 2024 - February 28, 2025
Released November 30, 2024



Author:
Adam Hartman
NOAA/NWS/NCEP Climate Prediction Center



<https://go.usa.gov/3eZ73>

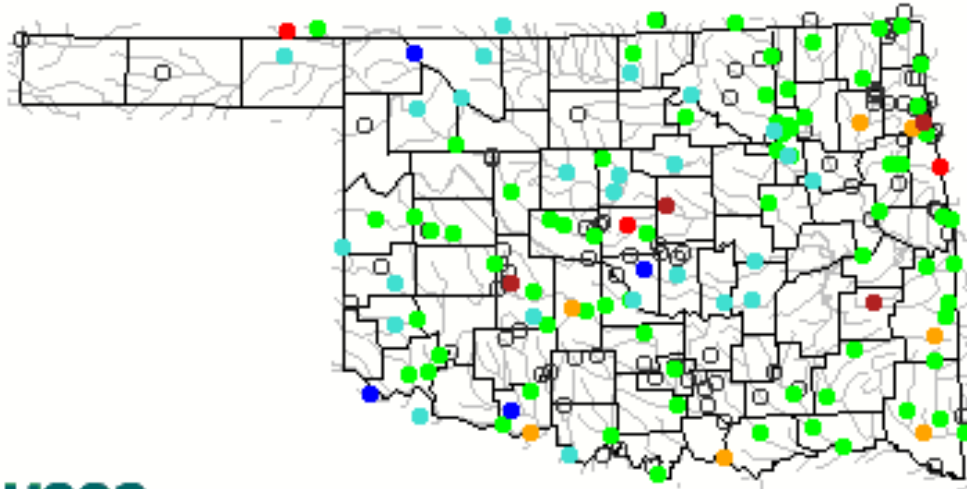
Depicts large-scale trends based on subjectively derived probabilities guided by short and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. “Ongoing” drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

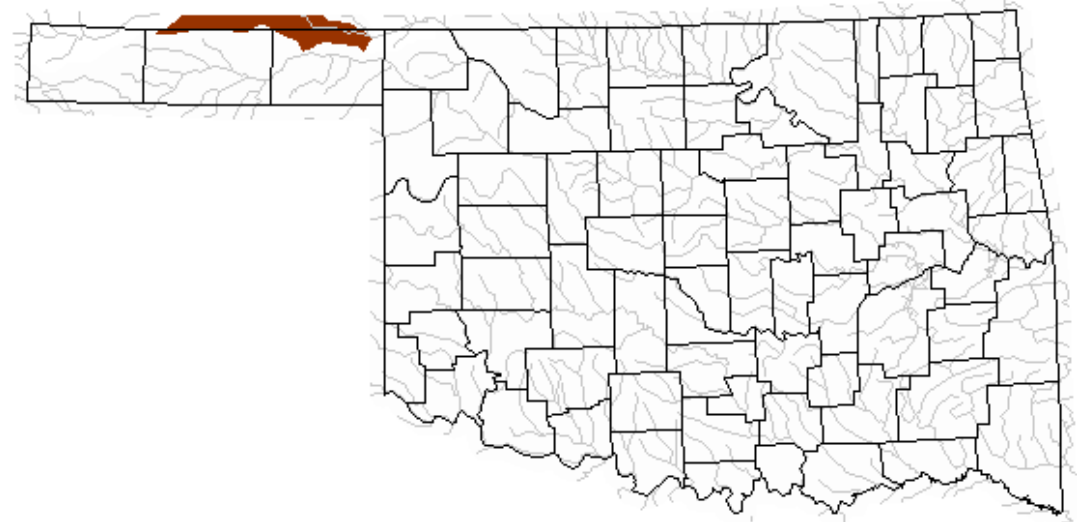


Monday, December 02, 2024 10:30ET



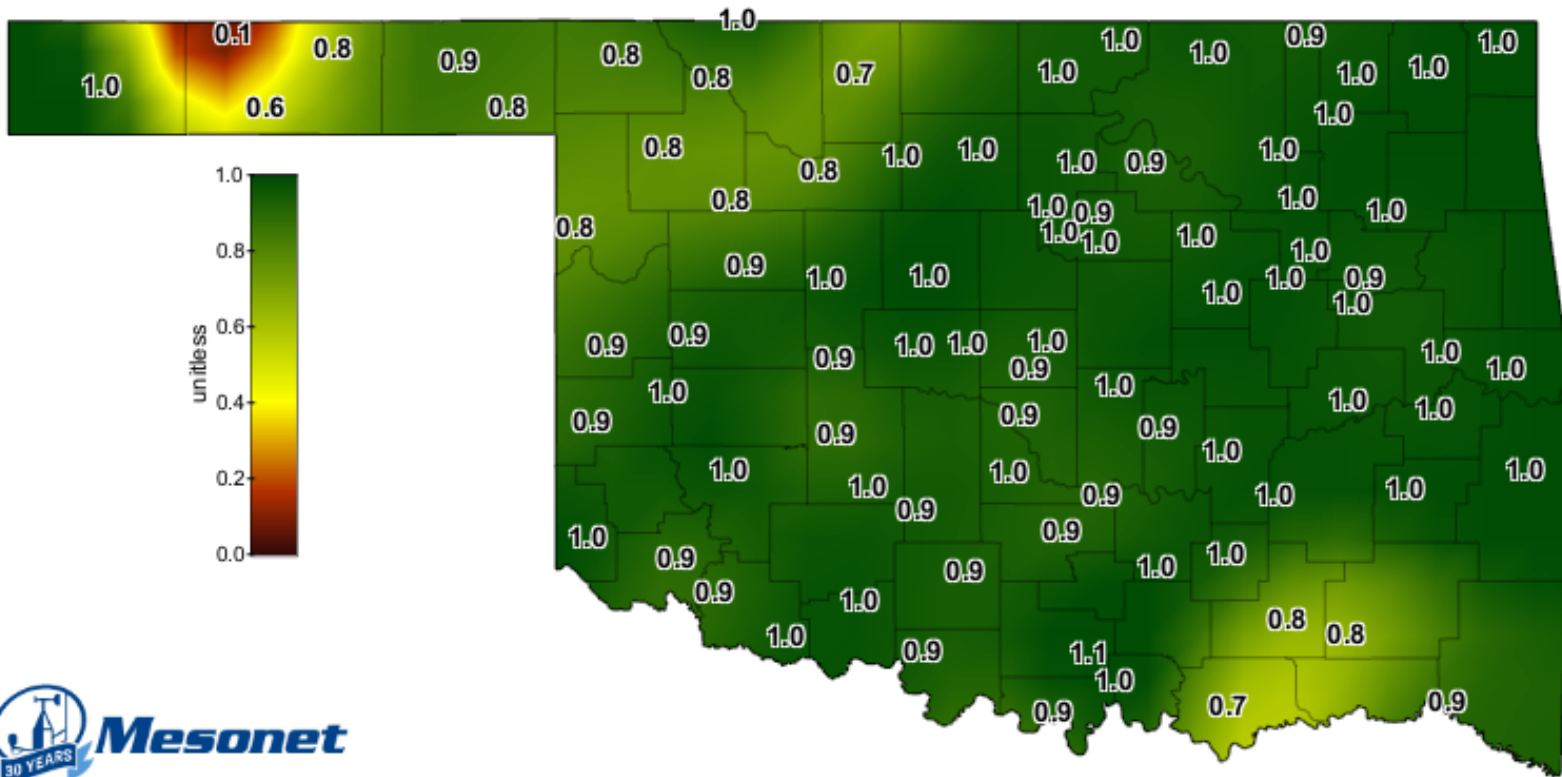
Explanation - Percentile classes							
●	●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

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

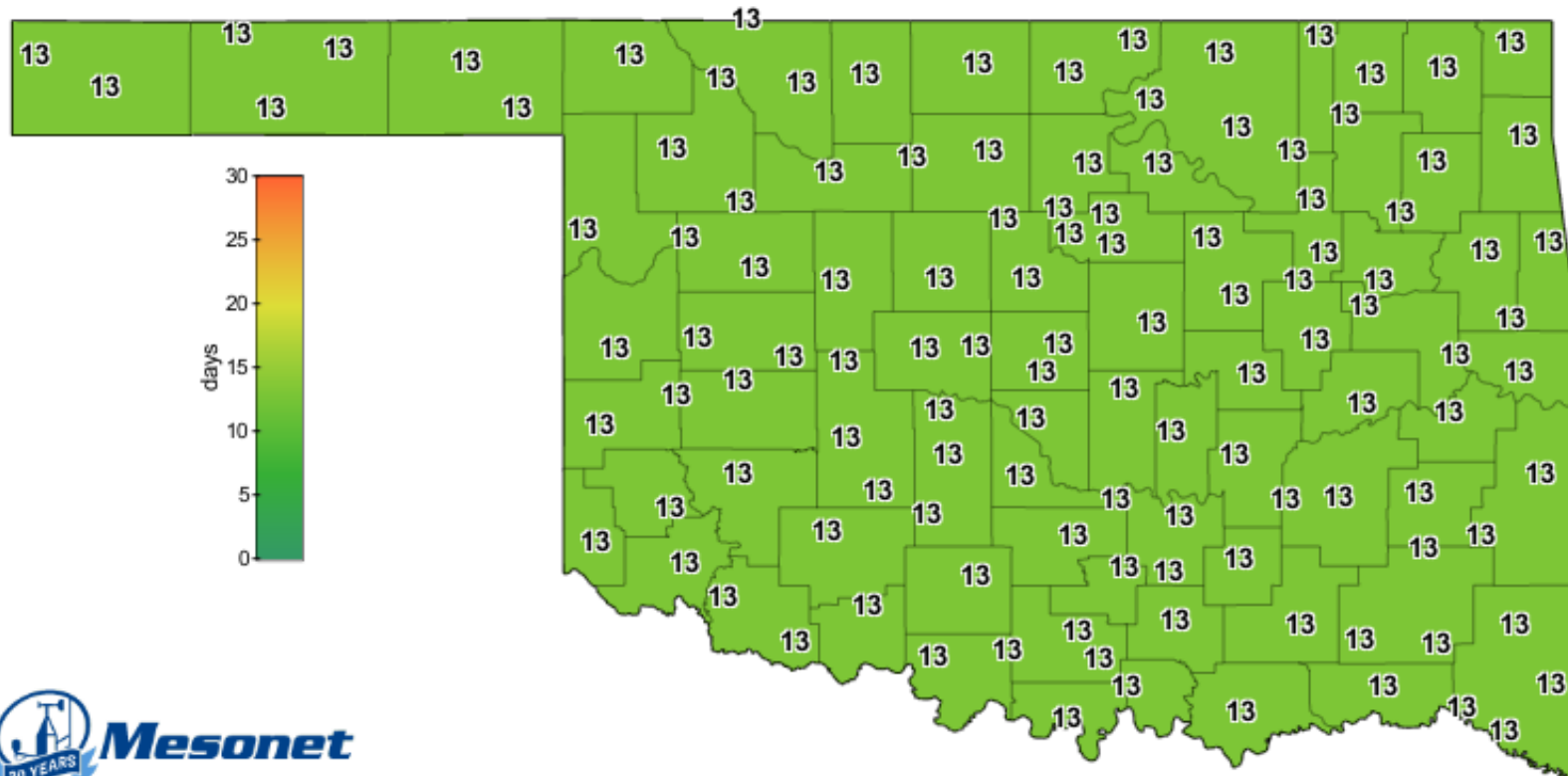


1-day Average 24-inch Fractional Water Index

December 1, 2024

Created 6:30:14 AM December 2, 2024 CST. © Copyright 2024

CONSECUTIVE DAYS WITHOUT RAINFALL MAP

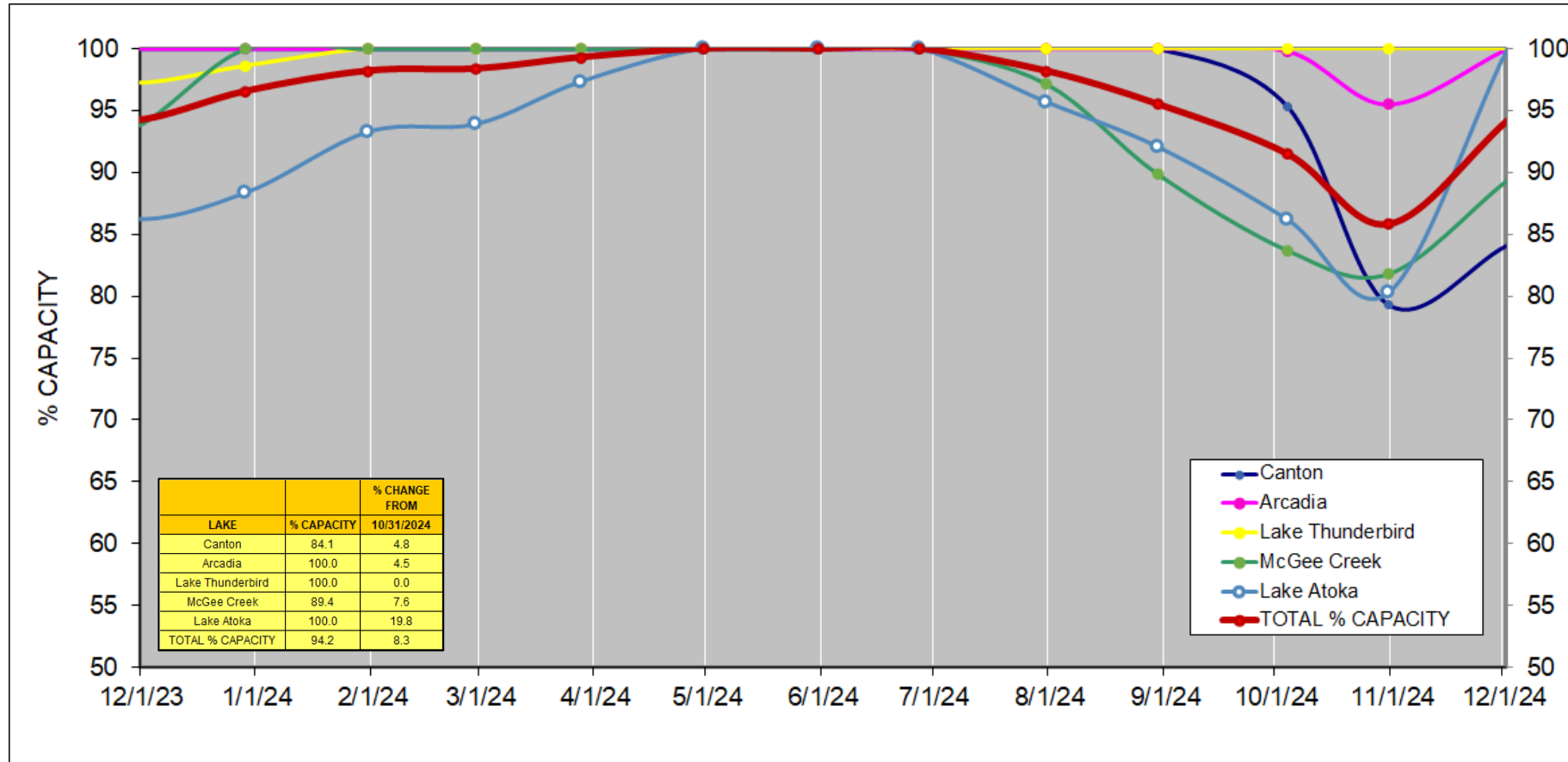


Consecutive Days With Less Than 0.25" Rainfall

December 1, 2024

Created 7:15:02 AM December 2, 2024 CST. © Copyright 2024

PERCENTAGE OF SURFACE WATER CONSERVATION CAPACITY IN CENTRAL OK RESERVOIRS

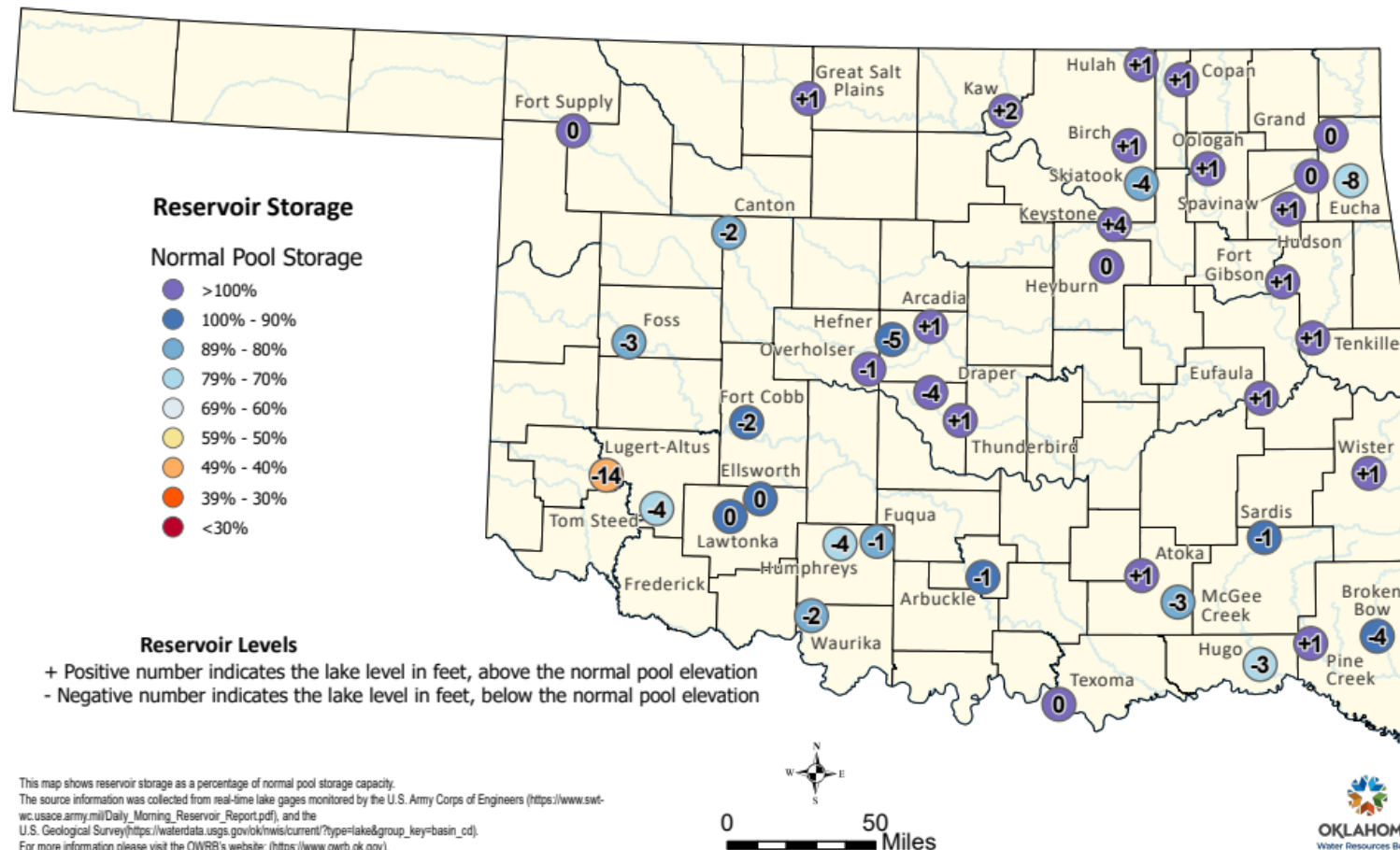


Lake Hefner and Lake Overholser are terminal storage for Canton Lake. Lake Draper is terminal storage for McGee Creek and Atoka Lakes.

OKLAHOMA RESERVOIR LEVELS AND STORAGE

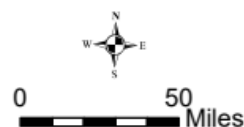


OKLAHOMA RESERVOIR LEVELS AND STORAGE AS OF 11/27/2024

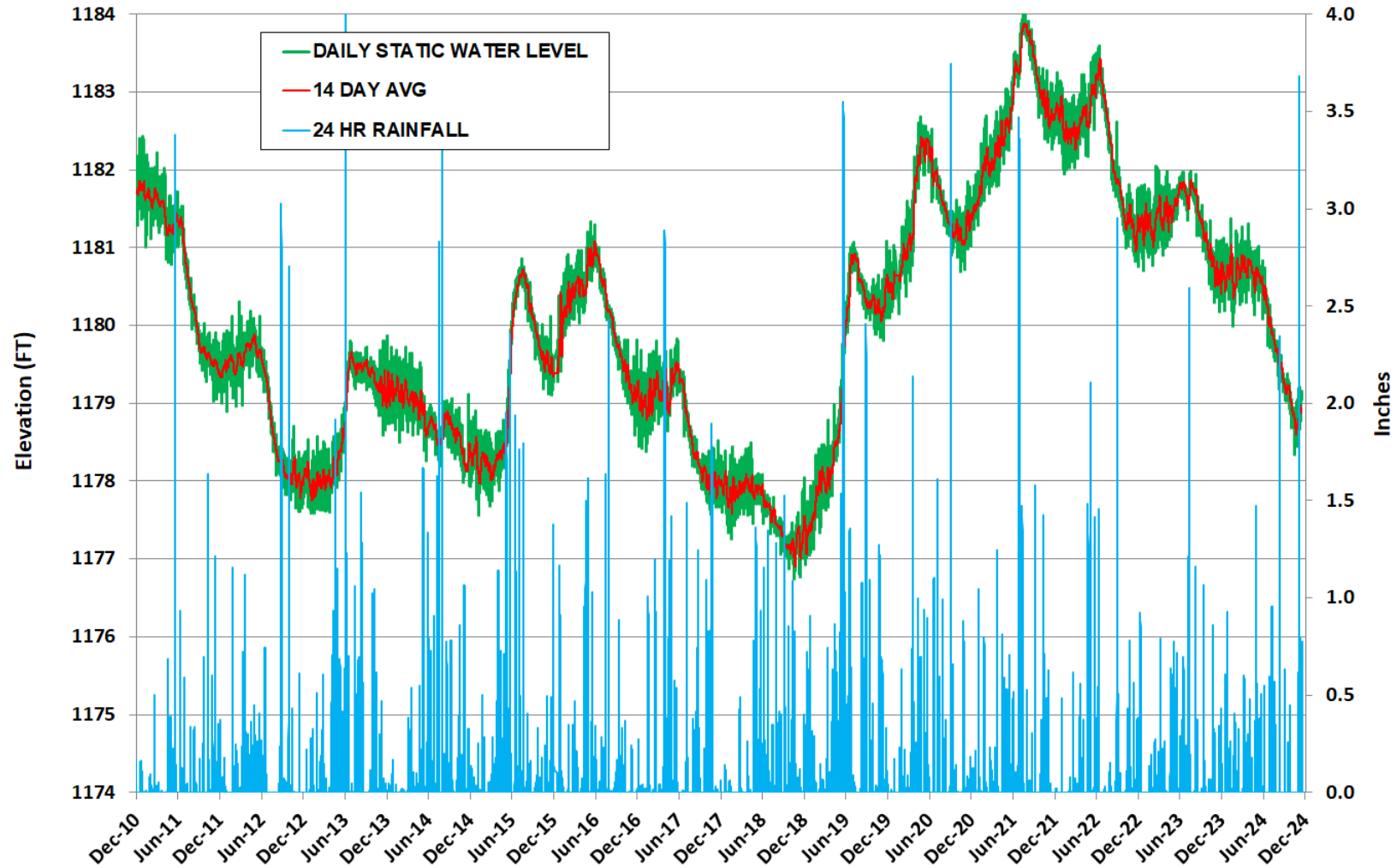


This map shows reservoir storage as a percentage of normal pool storage capacity. The source information was collected from real-time lake gages monitored by the U.S. Army Corps of Engineers (https://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf), and the U.S. Geological Survey ([USGS Current Conditions for USGS 07333010 Atoka Reservoir near Stringtown, OK](https://waterdata.usgs.gov/ok/nwis/current/?type=lake&group_key=basin_cd)). For more information, please visit the OWRB's website: [Monthly Reservoir Storage.pdf](#)

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>).



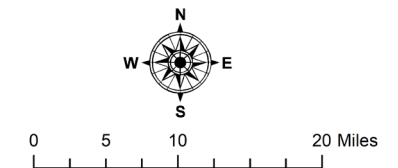
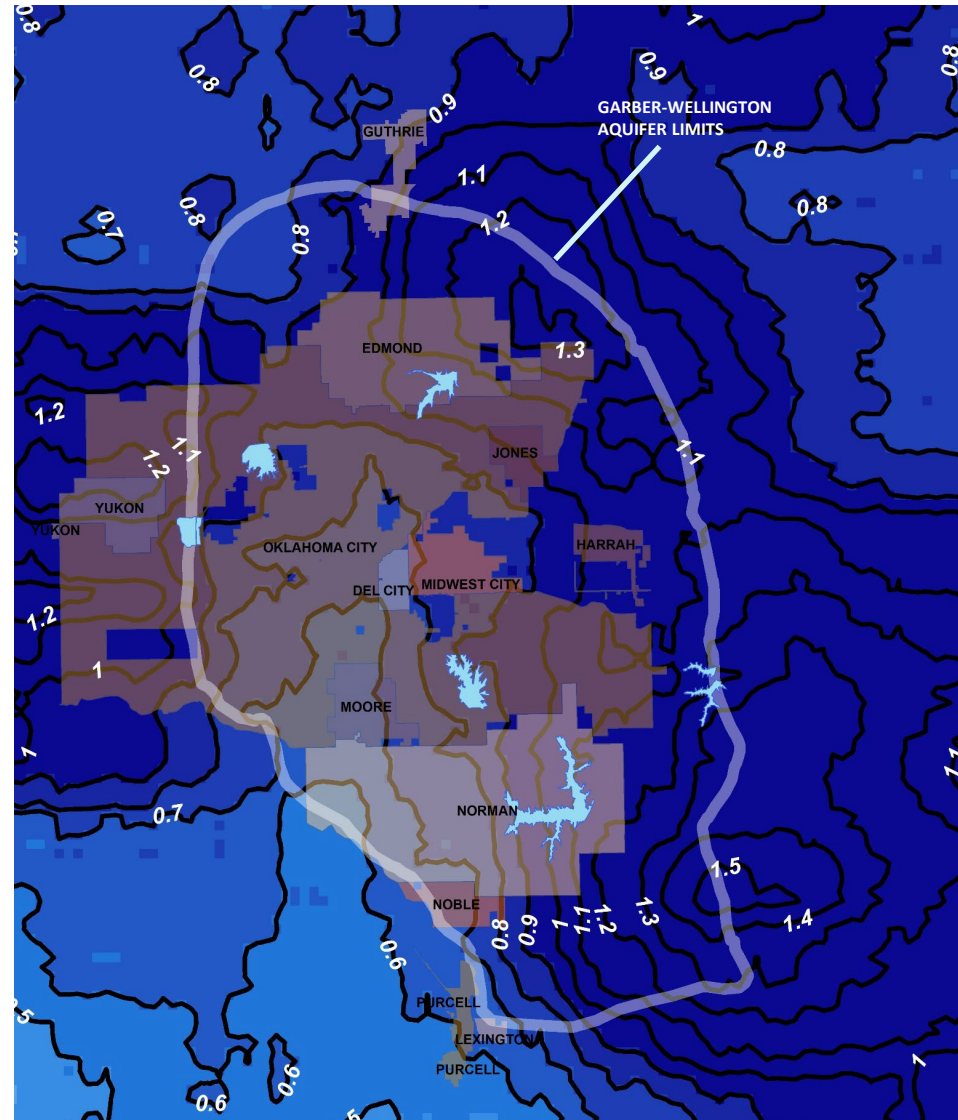
GROUNDWATER LEVELS SPENCER MESONET STATION



MONTHLY AQUIFER RECHARGE



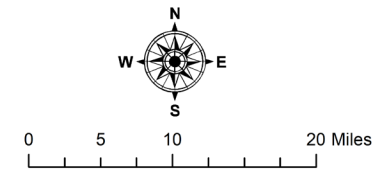
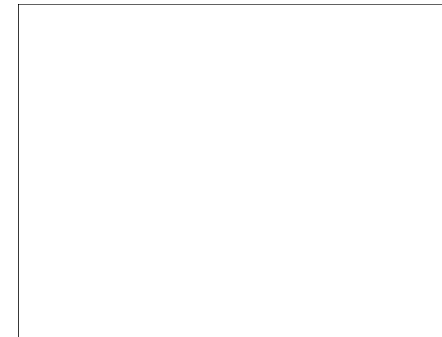
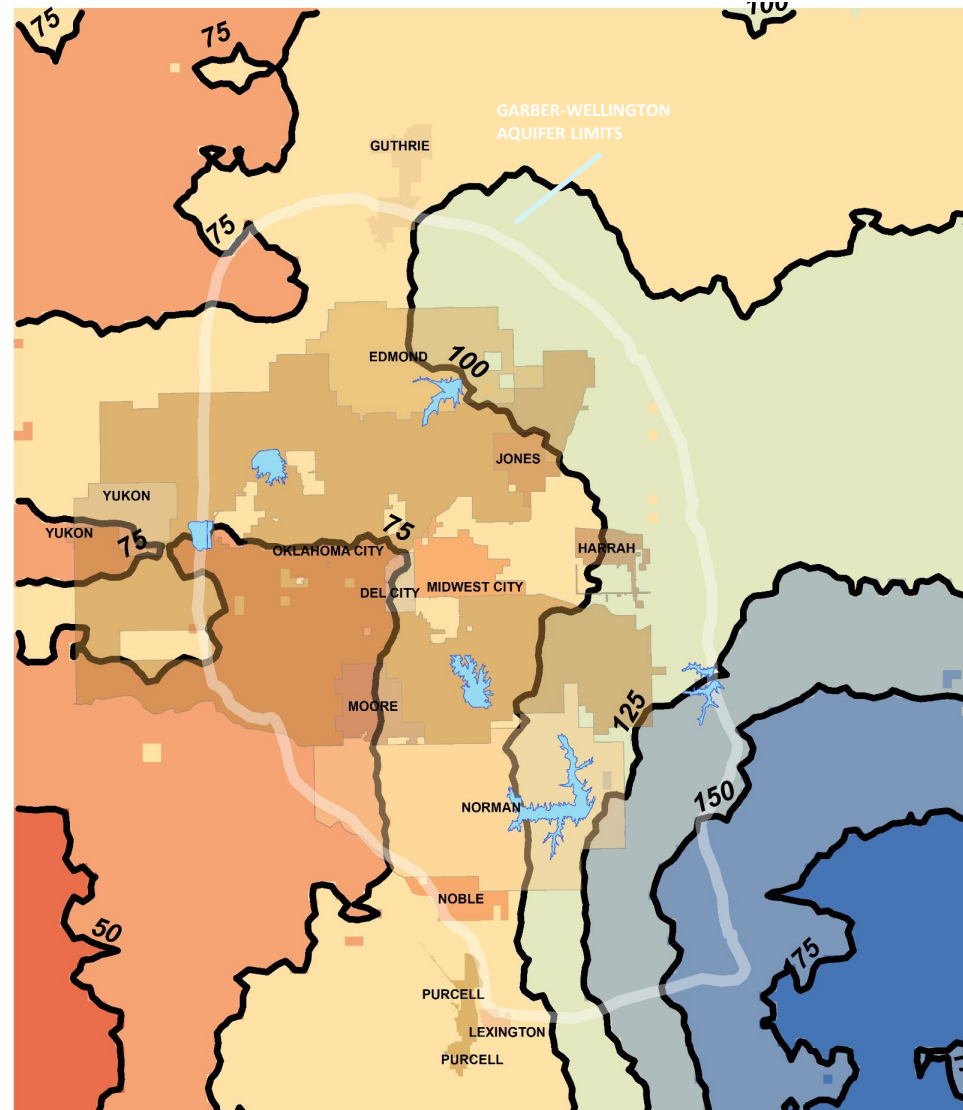
- Mean aquifer recharge in November 2024 was 0.91 inches.
- Normal mean recharge for November is 0.20 inches.
- We are -0.02 inches below normal for 2024.



PERCENT TOTAL CUMULATIVE AQUIFER RECHARGE – Last 12 Months



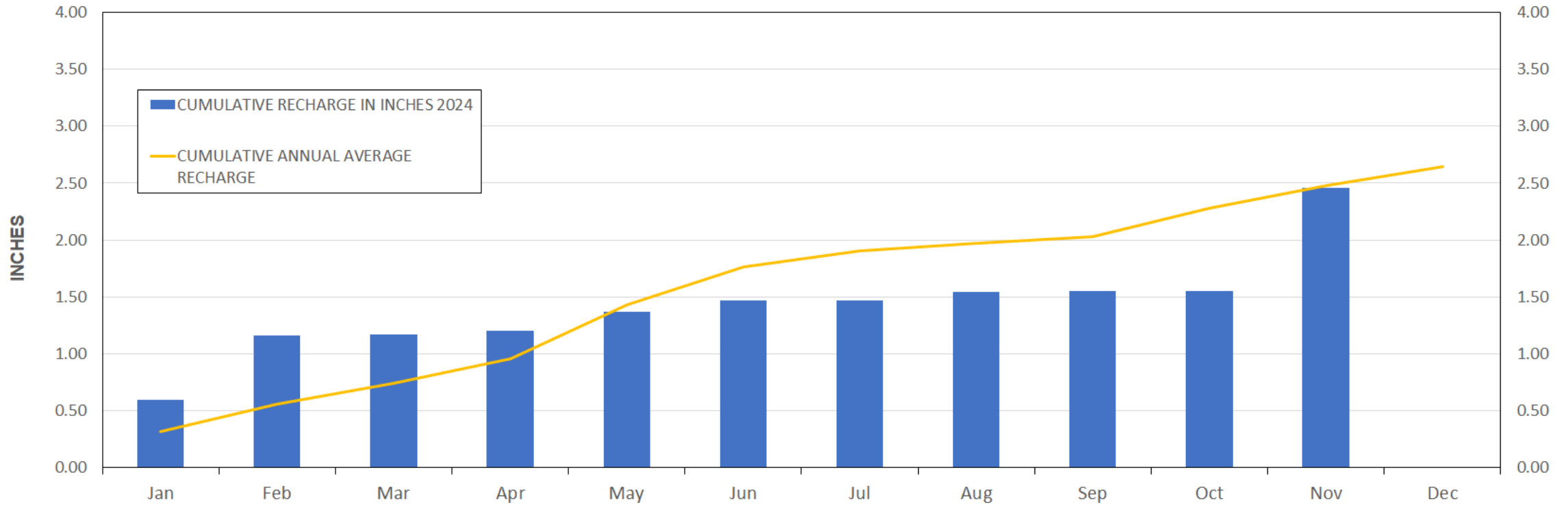
- Most of the recharge in the past 12 months was south and east of the metropolitan area.
- November 2024 had 0.91 inches of recharge. Average November recharge is 0.20 inches.
- Over the past 12 months the metropolitan area has received normal annual recharge.



RECHARGE CHARTS CENTRAL OKLAHOMA AQUIFER SYSTEM



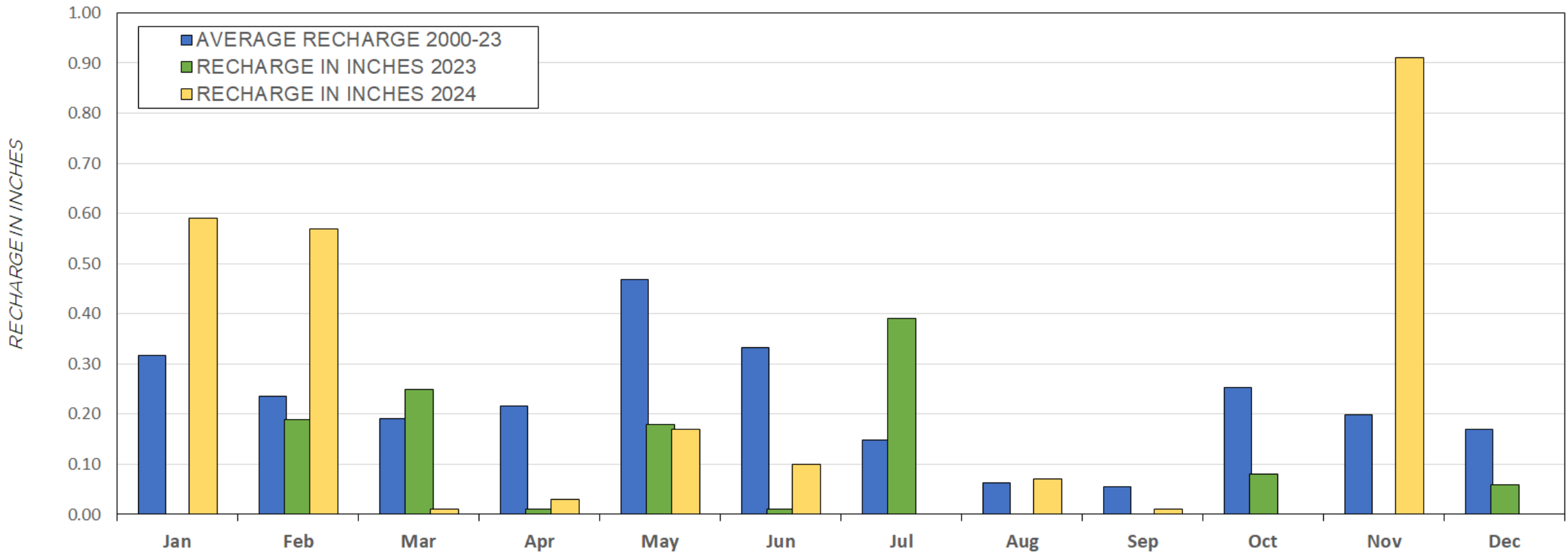
ACCUMULATED CENTRAL OKLAHOMA AQUIFER SYSTEM RECHARGE 2024



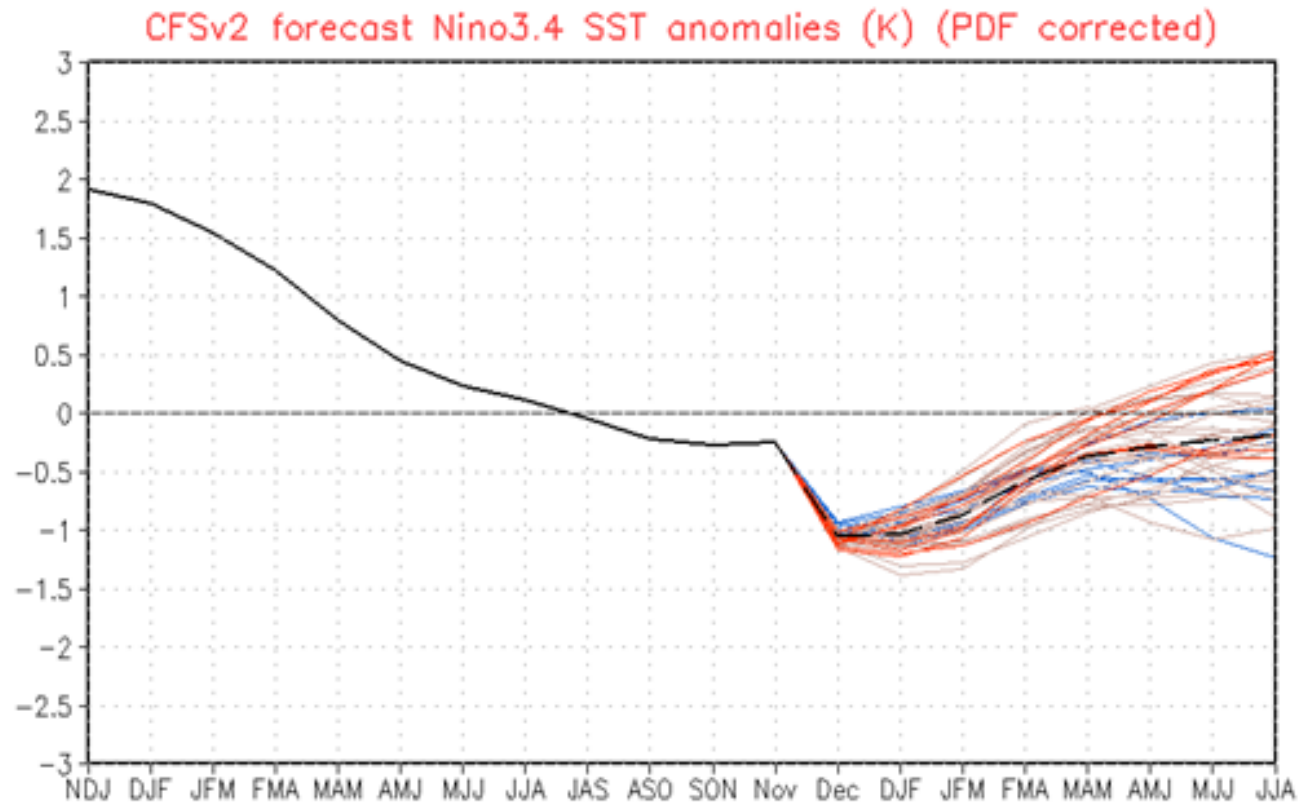
RECHARGE CHARTS CENTRAL OKLAHOMA AQUIFER SYSTEM CONTINUED



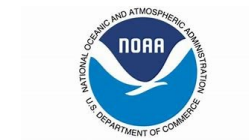
MONTHLY AQUIFER RECHARGE 2024



ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS



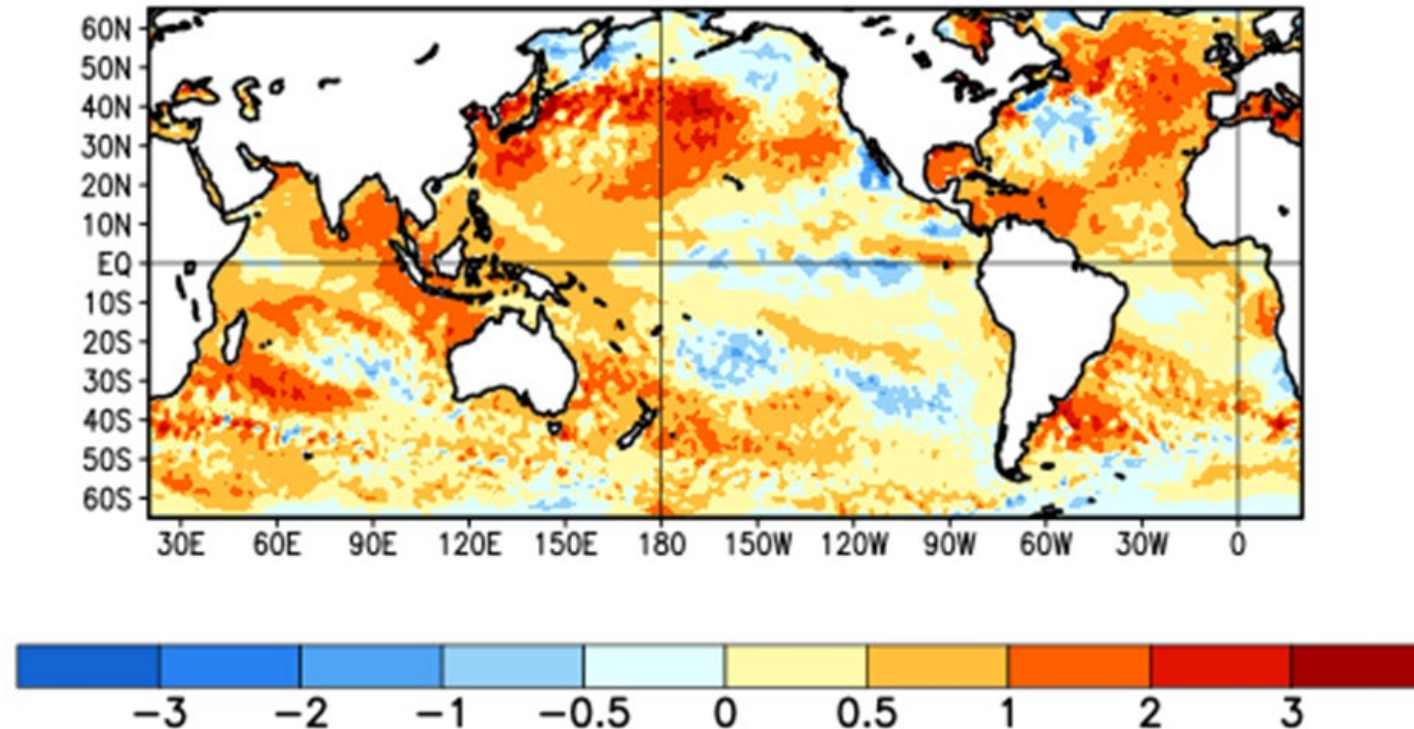
- Latest 8 forecast members
 - Earliest 8 forecast members
 - Other forecast members
- (Climatology base period: 1991–2020)
- Forecast ensemble mean
 - NCEI Olv2.1 daily analysis



ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS



Average SST Anomalies
3 NOV 2024 – 30 NOV 2024





ENSO Alert System Status: La Niña Watch

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are near-to-below-average in the central and eastern Pacific Ocean.
- La Niña is most likely to emerge in October-December 2024 (57% chance) and is expected to persist through January-March 2025..



QUESTIONS?

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ASSOCIATION OF
CENTRAL OKLAHOMA
GOVERNMENTS