



DROUGHT CONDITIONS

IN CENTRAL OKLAHOMA

John Harrington

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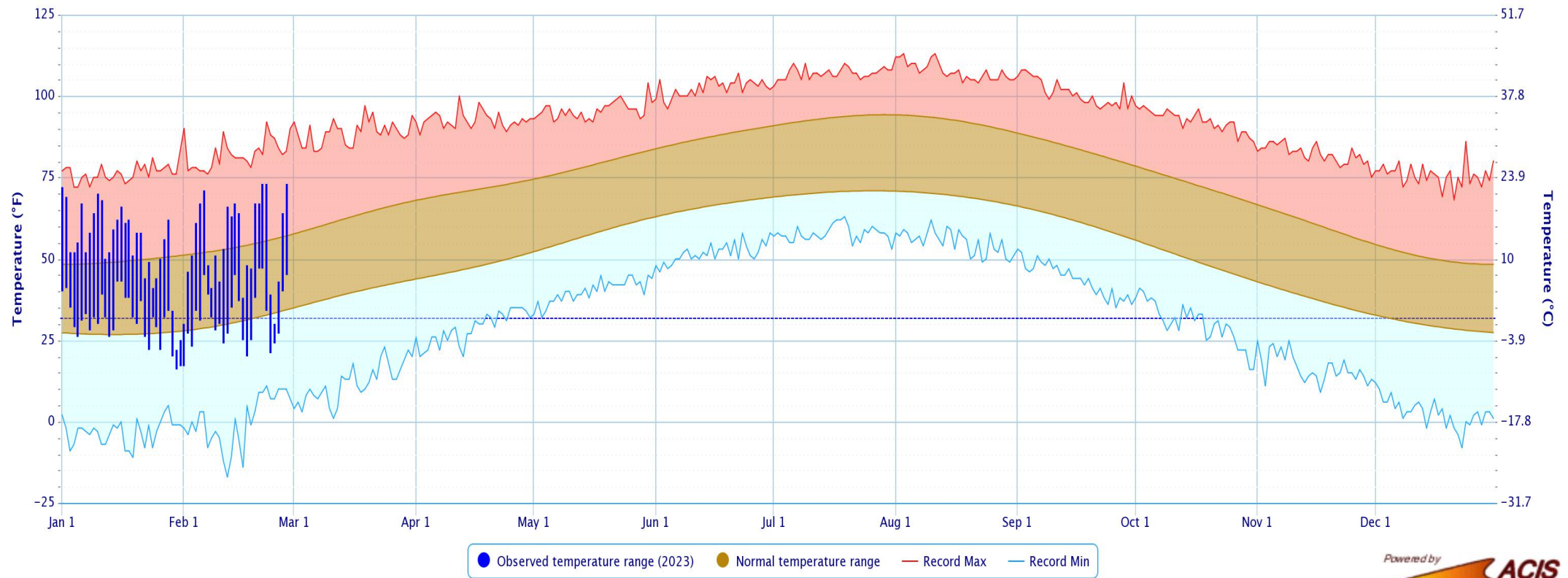
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MARCH 1, 2023

TEMPERATURE PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2023



Daily Temperature Data – Oklahoma City Area, OK (ThreadEx)

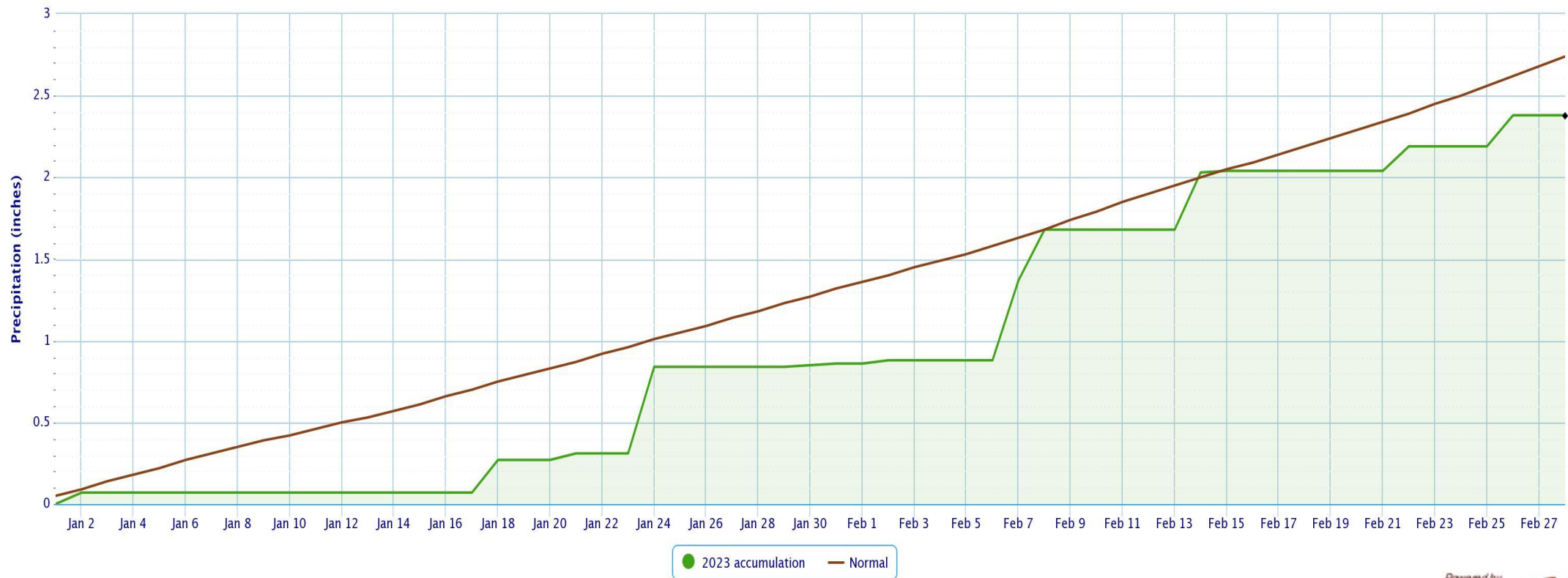


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PRECIPITATION PLOT FOR OKLAHOMA CITY, OKLAHOMA FOR 2023



Accumulated Precipitation – Oklahoma City Area, OK (ThreadEx)



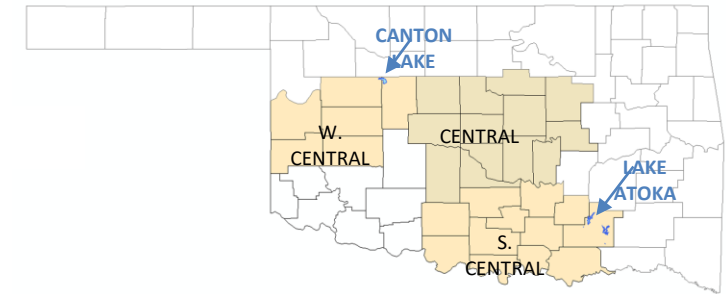
RAINFALL SUMMARIES BY OKLAHOMA CLIMATE DIVISION



Calendar Year 01-Jan-2022 through		27-Feb-2023				
Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	1.33"	-0.69"	66%	39th driest	0.13" (1970)	5.04" (1949)
Central	3.19"	+0.03"	101%	41st wettest	0.40" (1963)	7.74" (1949)
S. Central	4.61"	+0.37"	109%	36th wettest	0.44" (1963)	11.02" (1932)
Statewide	3.75"	+0.44"	113%	31st wettest	0.59" (1976)	7.56" (1949)

Water Year: 01-Oct-2021 through		27-Feb-2023				
Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	6.46"	-1.10"	85%	47th wettest	1.47" (1966-67)	15.79" (1986-87)
Central	10.13"	-1.14"	90%	40th wettest	3.00" (1921-22)	22.08" (1984-85)
S. Central	14.40"	+0.47"	103%	31st wettest	3.74" (1966-67)	25.67" (2000-01)
Statewide	11.19"	-0.20"	98%	38th wettest	3.56" (1966-67)	18.93" (1984-85)

Winter Dec 01 through		27-Feb-2023				
Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	2.48"	-0.76"	77%	51st driest	0.54" (2005-06)	7.90" (1959-60)
Central	5.30"	+0.15"	103%	34th wettest	0.90" (2005-06)	14.01" (1984-85)
S. Central	6.60"	-0.23"	97%	44th wettest	1.99" (1966-67)	13.14" (1937-38)
Statewide	5.60"	+0.22"	104%	35th wettest	1.51" (2005-06)	10.38" (1984-85)



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.

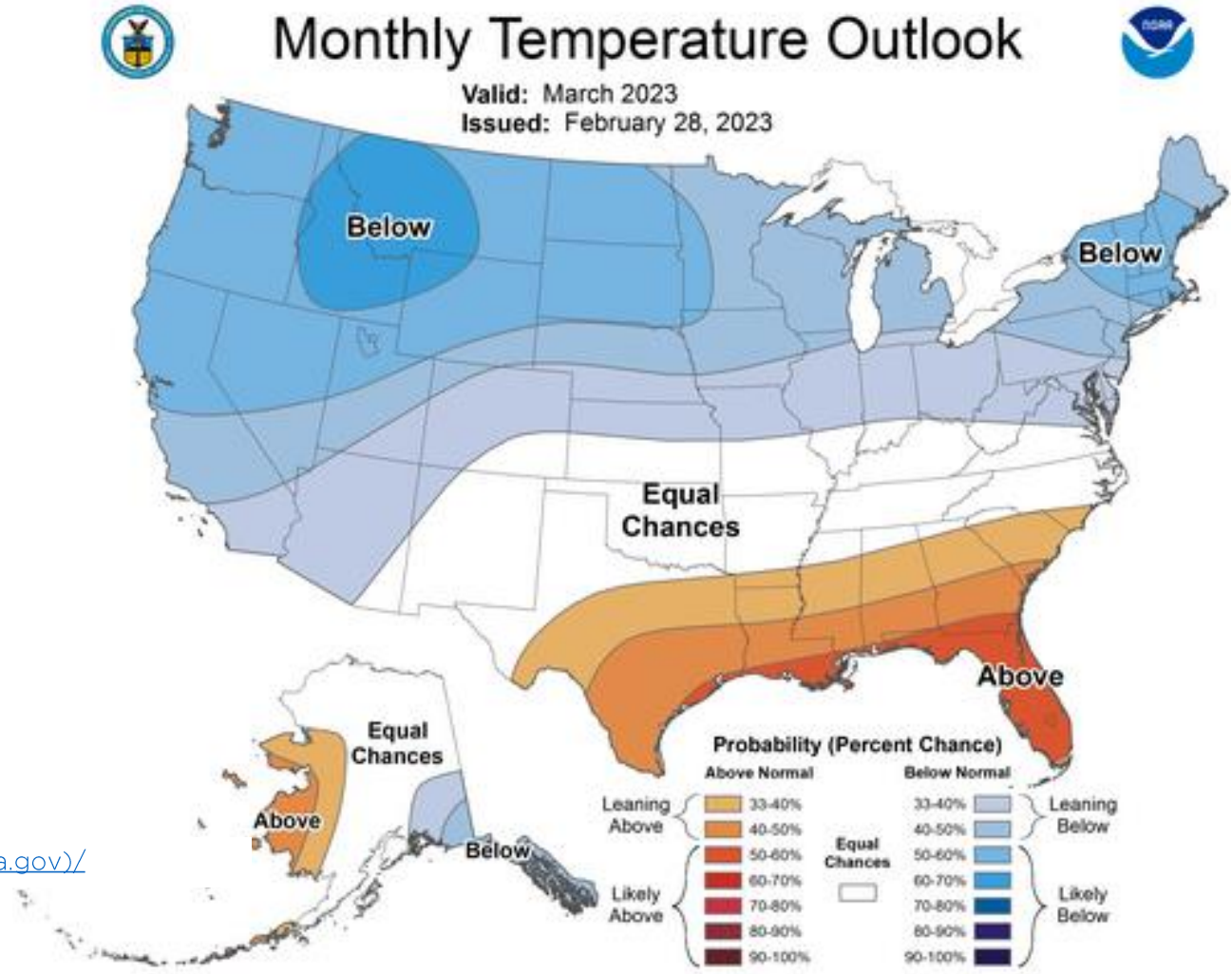
NOAA ONE-MONTH TEMPERATURE OUTLOOK



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-30-day-forecasts)



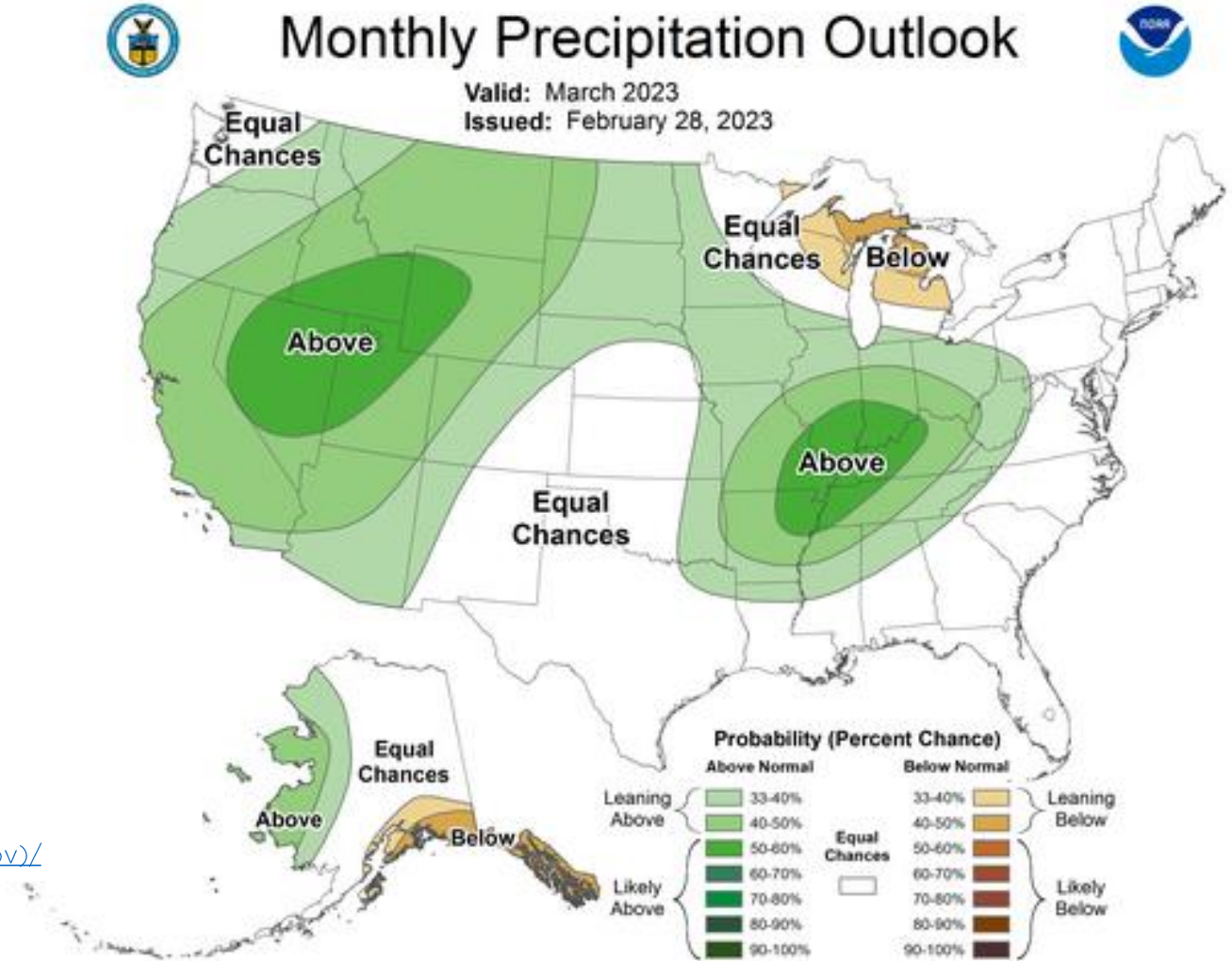
NOAA ONE-MONTH PRECIPITATION OUTLOOK



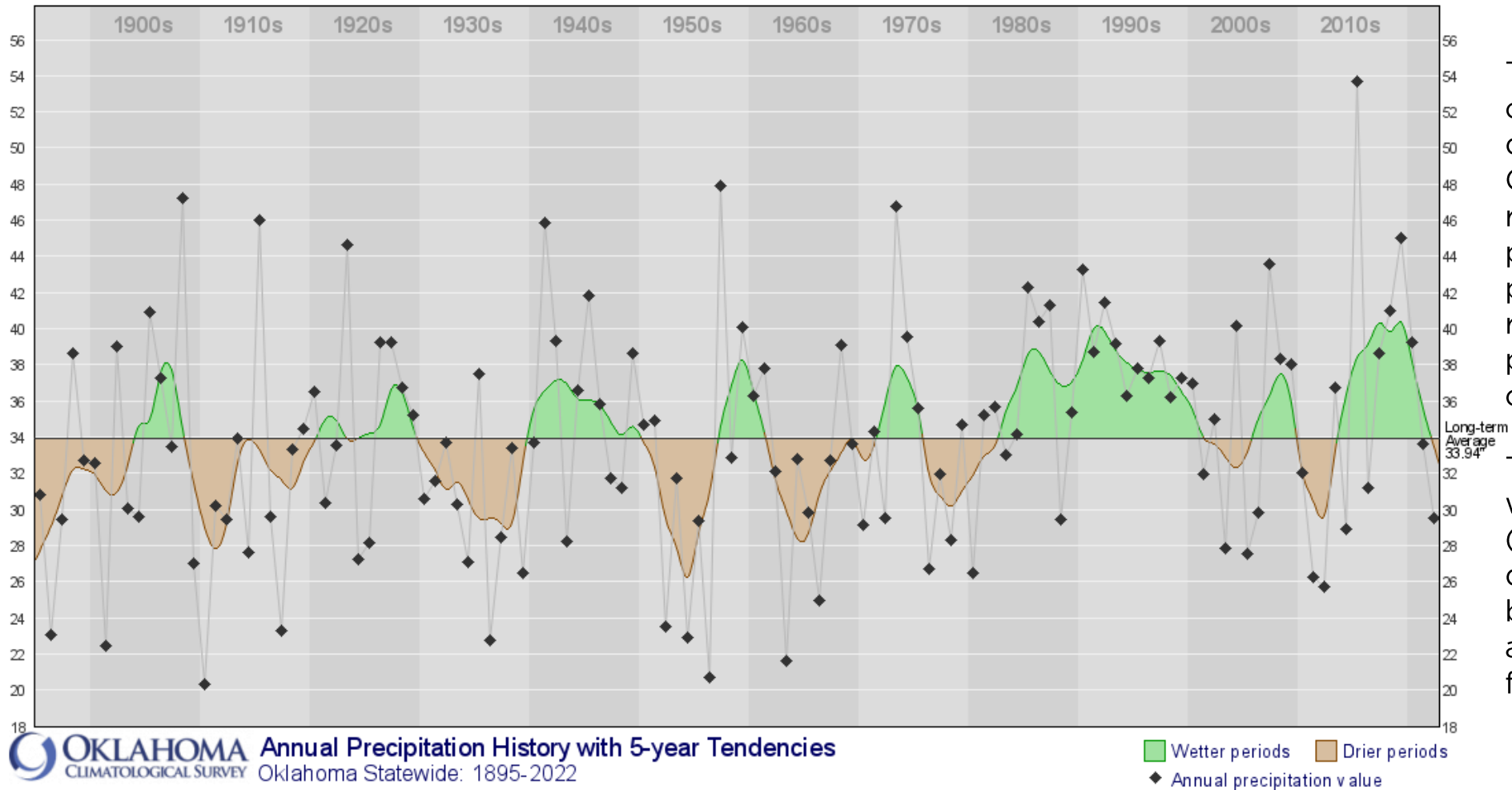
White areas are shown as EC (Equal Chance) on these maps represent areas where there are no strong climate signals from the climate tools to have skill in preferring one category over another.

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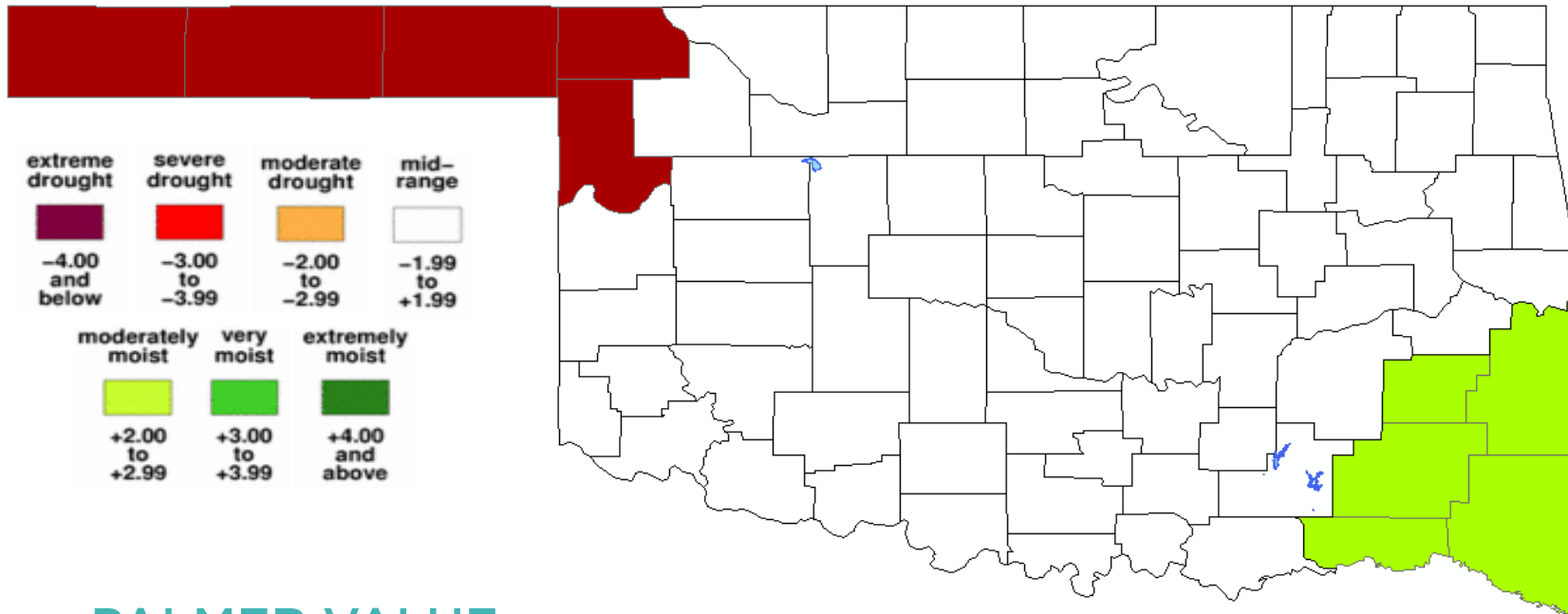
Annual Precipitation History with 5-Year Tendencies



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



PALMER VALUE
25 FEB 2023

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.

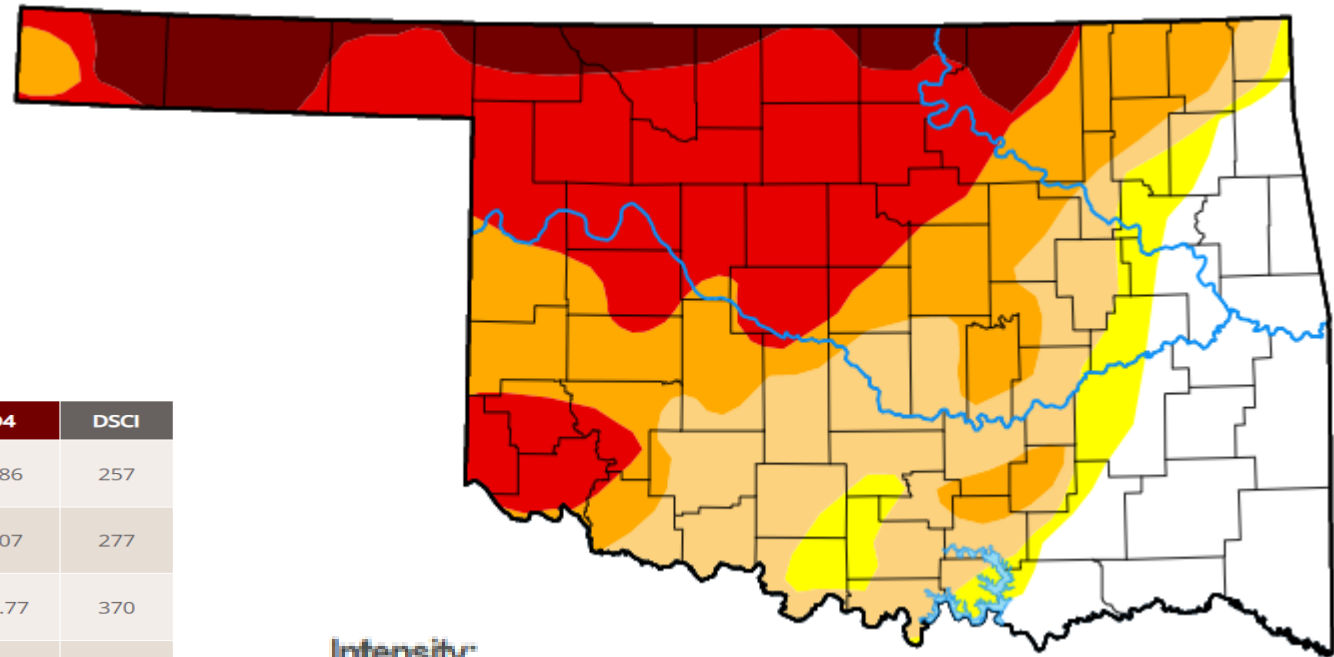
U.S. DROUGHT MONITOR - OKLAHOMA



February 23, 2023

Abnormal dryness or drought are currently affecting approximately 3,066,657 people in Oklahoma.

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	2023-02-21	19.22	80.78	74.65	56.47	36.64	8.86	257
Last Week	2023-02-14	14.97	85.03	80.07	66.94	36.58	8.07	277
3 Months Ago	2022-11-22	0.00	100.00	97.68	87.88	64.46	19.77	370
Start of Calendar Year	2022-12-27	1.82	98.18	89.73	80.92	56.13	11.65	337
Start of Water Year	2022-09-27	0.00	100.00	99.88	94.44	64.44	17.25	376
One Year Ago	2022-02-22	6.69	93.31	86.65	73.94	52.05	2.90	309



Intensity:

D0 - Abnormally Dry
 D1 - Moderate Drought
 D2 - Severe Drought

D3 - Extreme Drought
 D4 - Exceptional Drought



U.S. DROUGHT MONITOR NATIONWIDE MAP



Map released: February 23, 2023

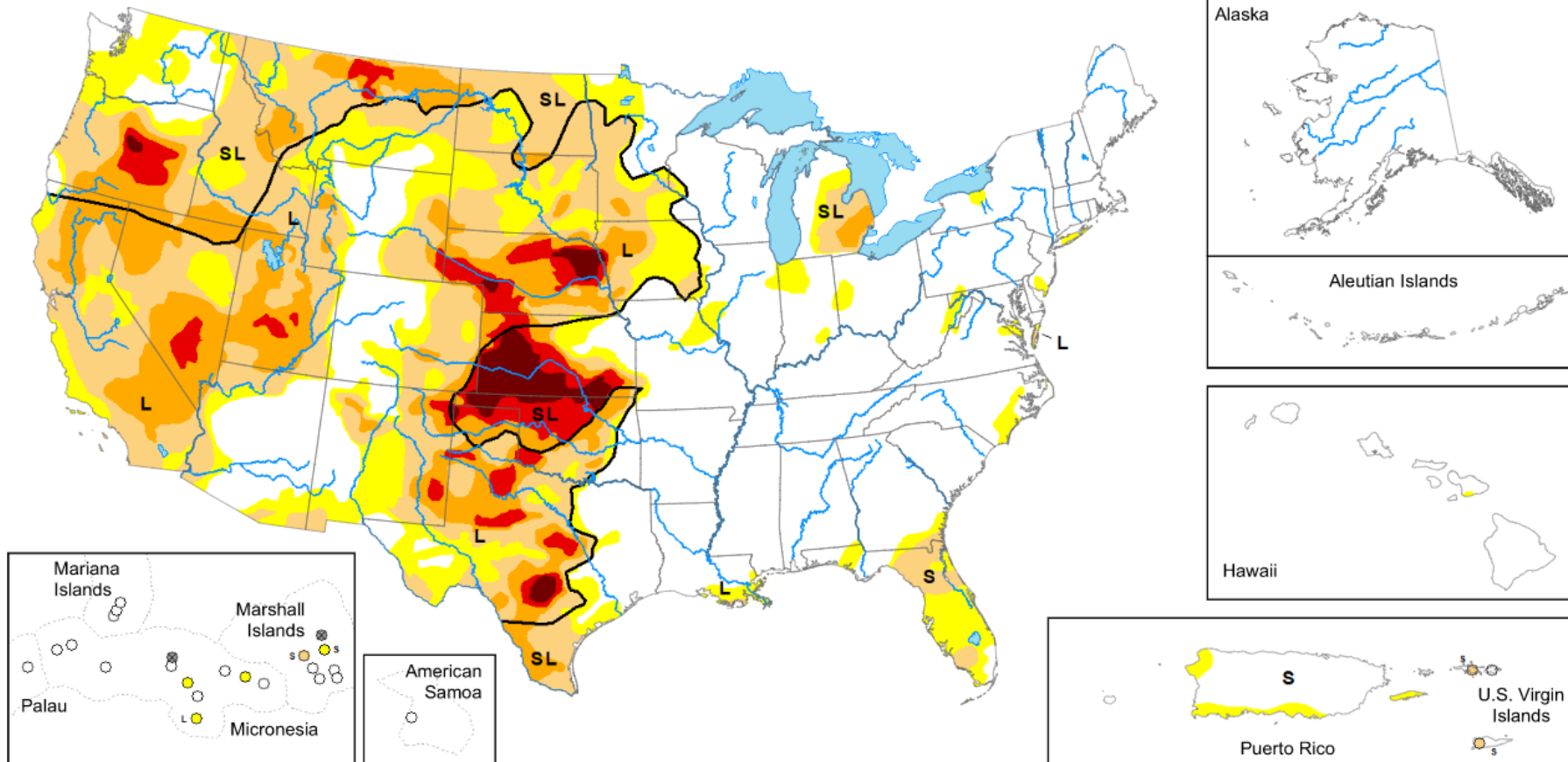
Data valid: February 21, 2023

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

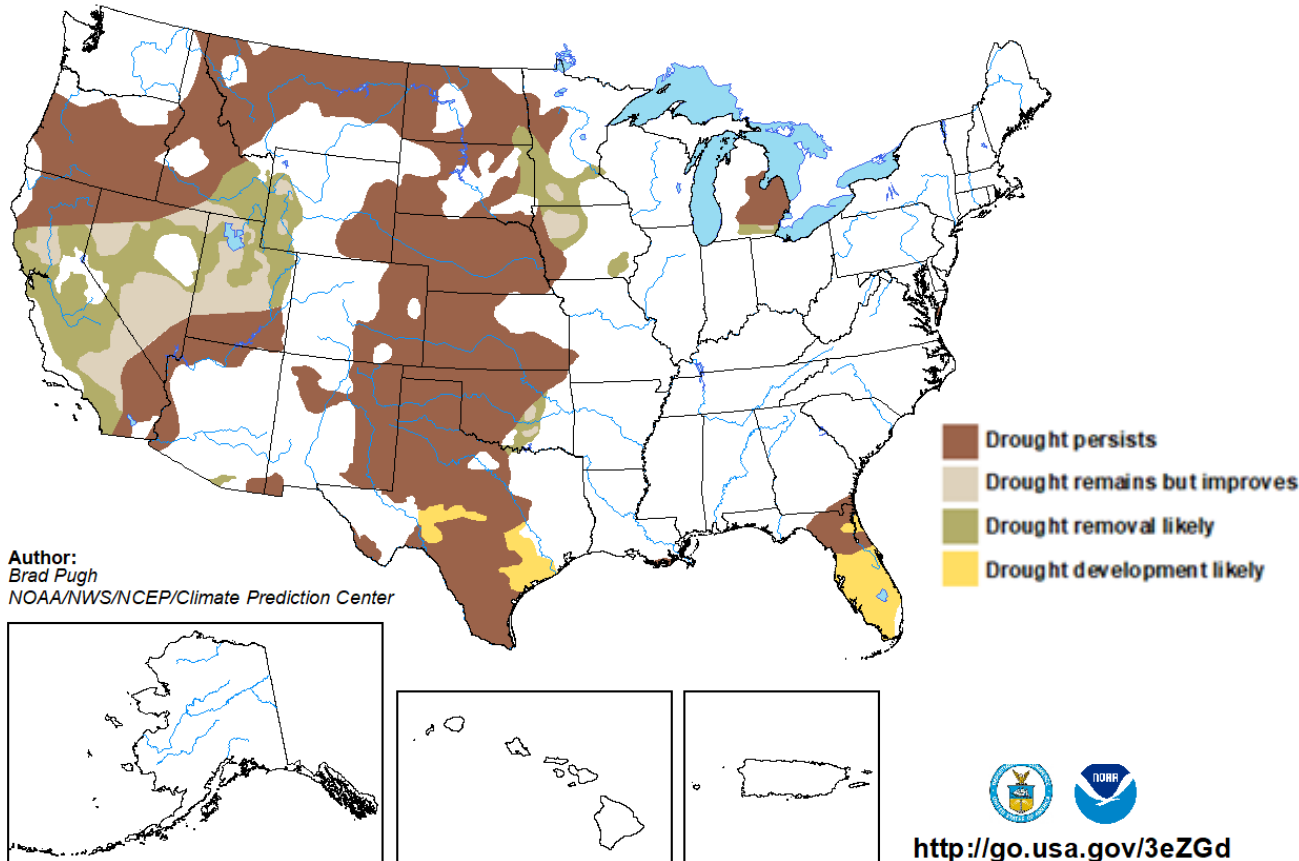


U.S. DROUGHT MONITOR MONTHLY DROUGHT OUTLOOK MAP



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

Valid for March 2023
Released February 28, 2023



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).

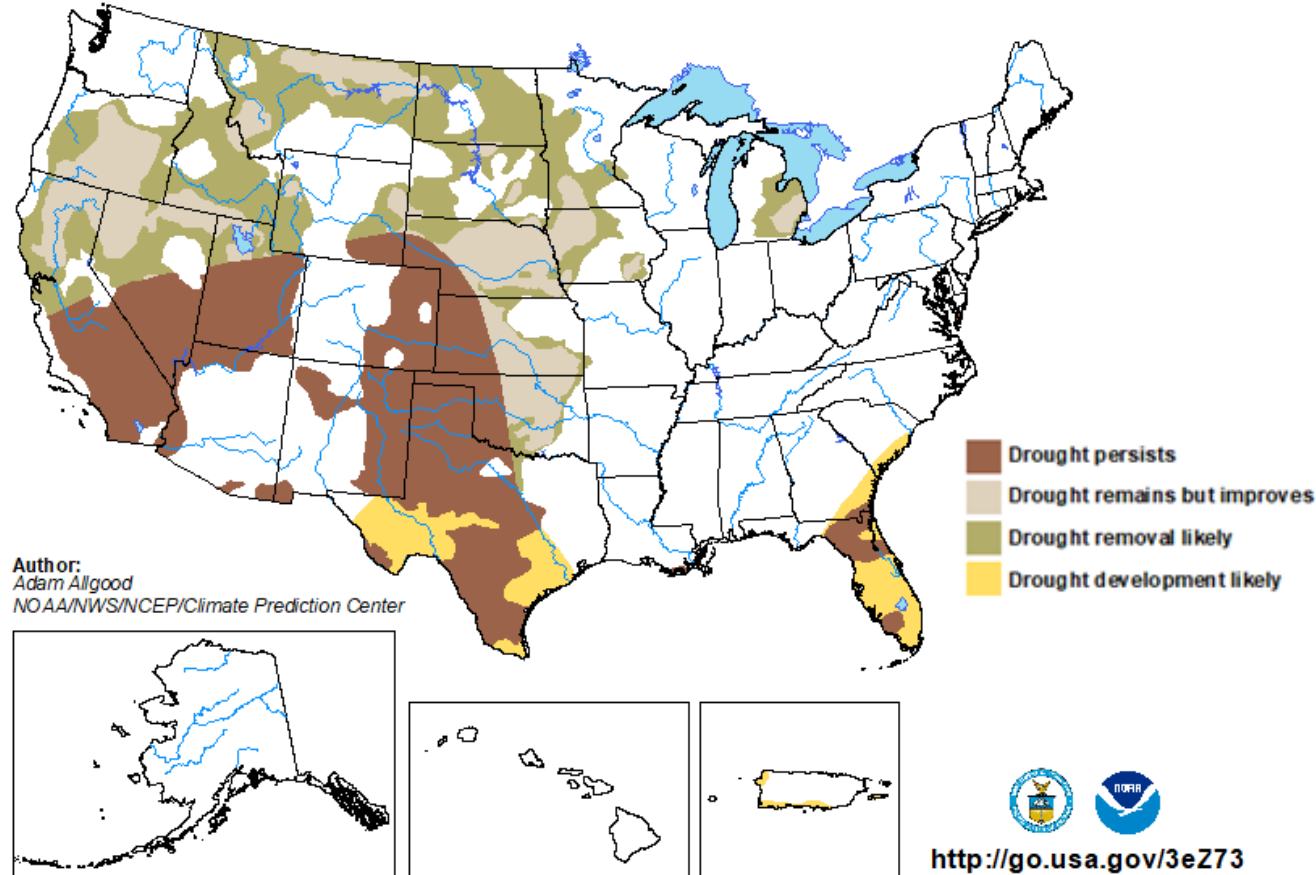
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

U.S. DROUGHT MONITOR SEASONAL DROUGHT OUTLOOK MAP



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

Valid for February 16 - May 31, 2023
Released February 16



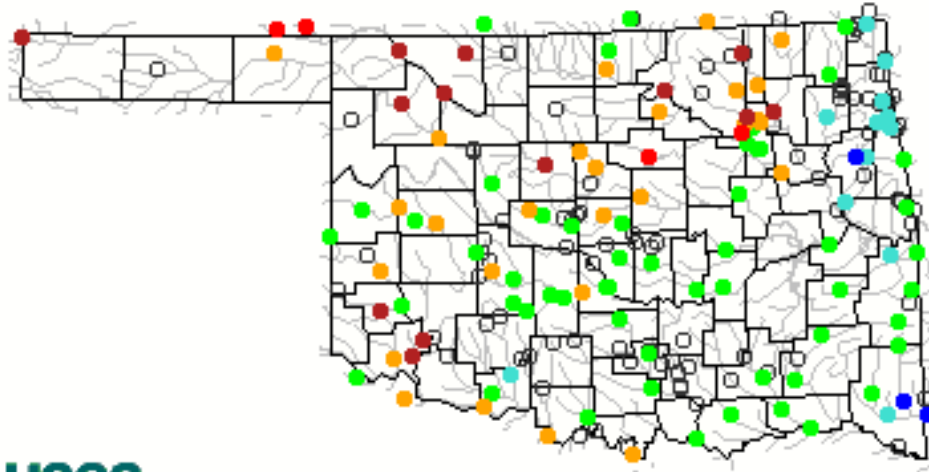
Depicts large-scale trends based on subjectively derived probabilities guided by short and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. “Ongoing” drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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



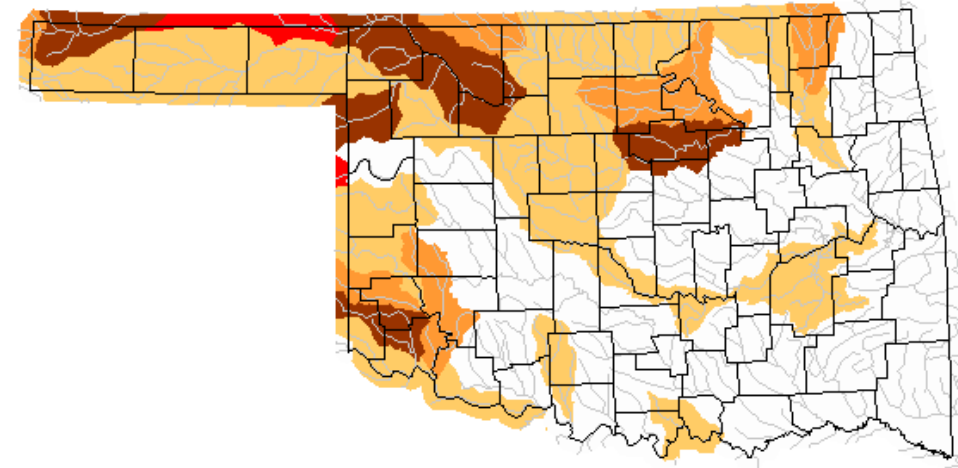
Tuesday, February 28, 2023 11:30ET



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		

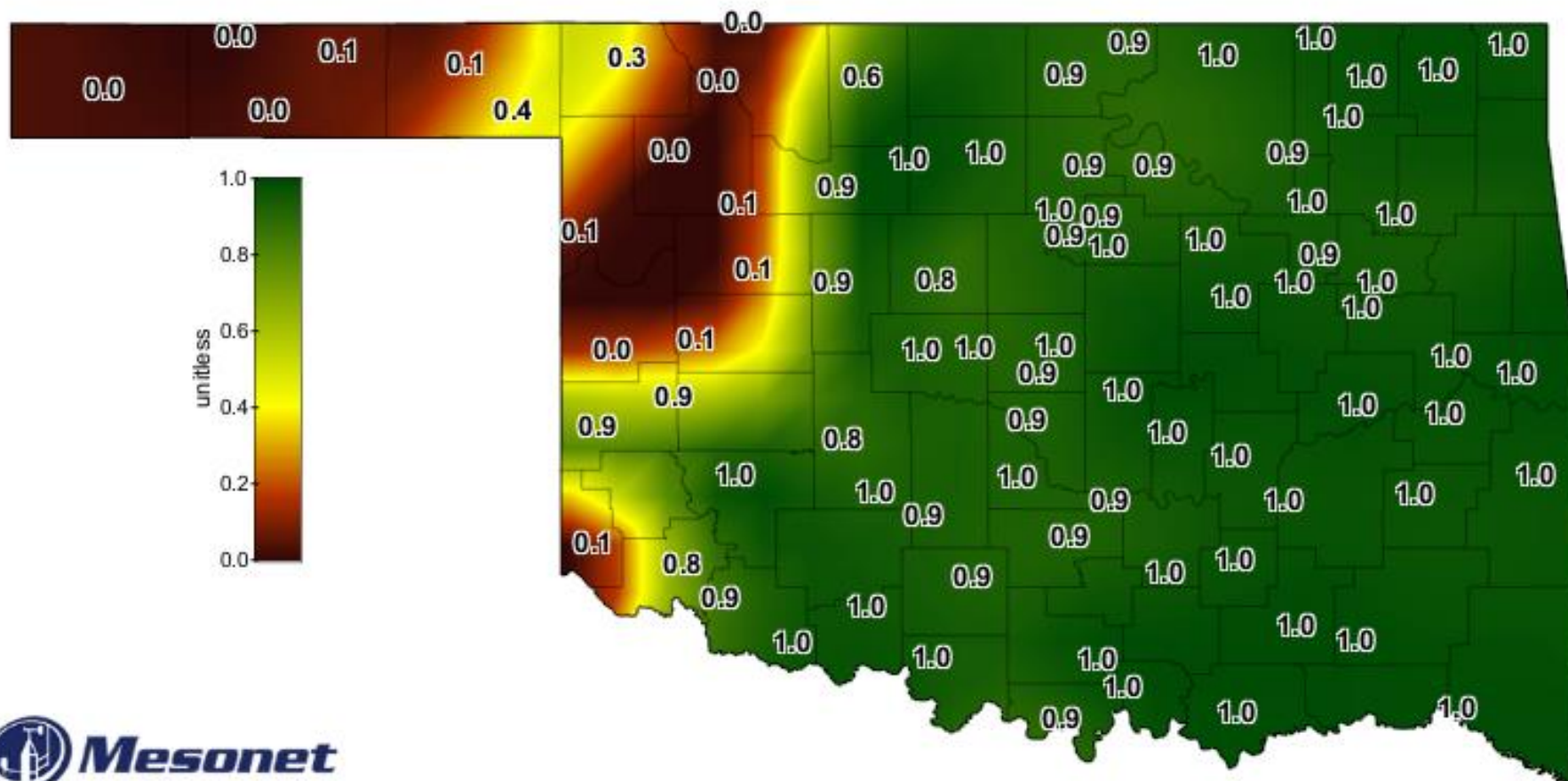
Below normal 28-day average streamflow

Monday, February 27, 2023



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



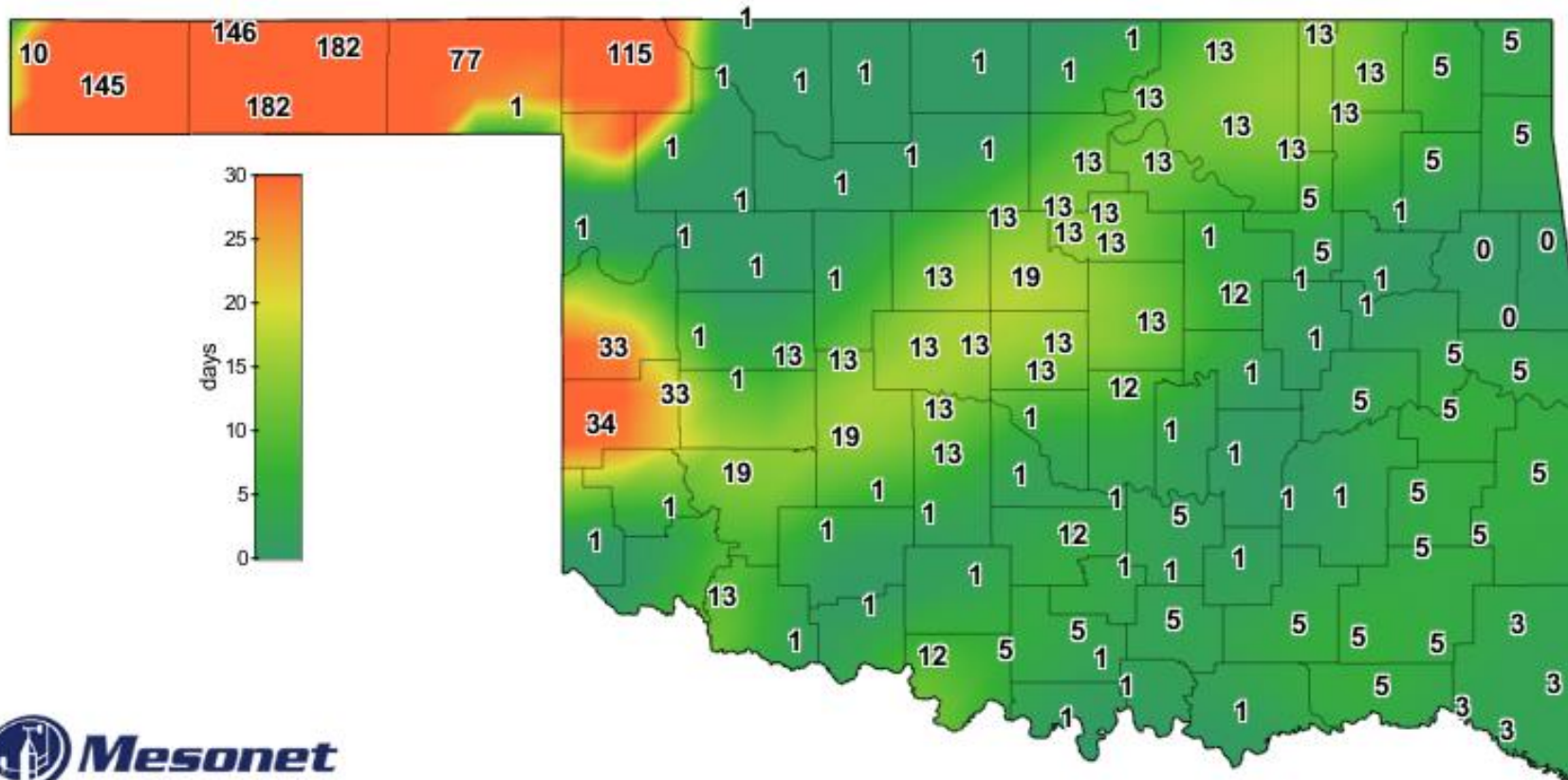
1-day Average 24-inch Fractional Water Index

February 27, 2023

Created 6:30:14 AM February 28, 2023 CST. © Copyright 2023



CONSECUTIVE DAYS WITHOUT RAINFALL MAP



CONSECUTIVE
DAYS WITH LESS
THAN 0.25"
RAINFALL



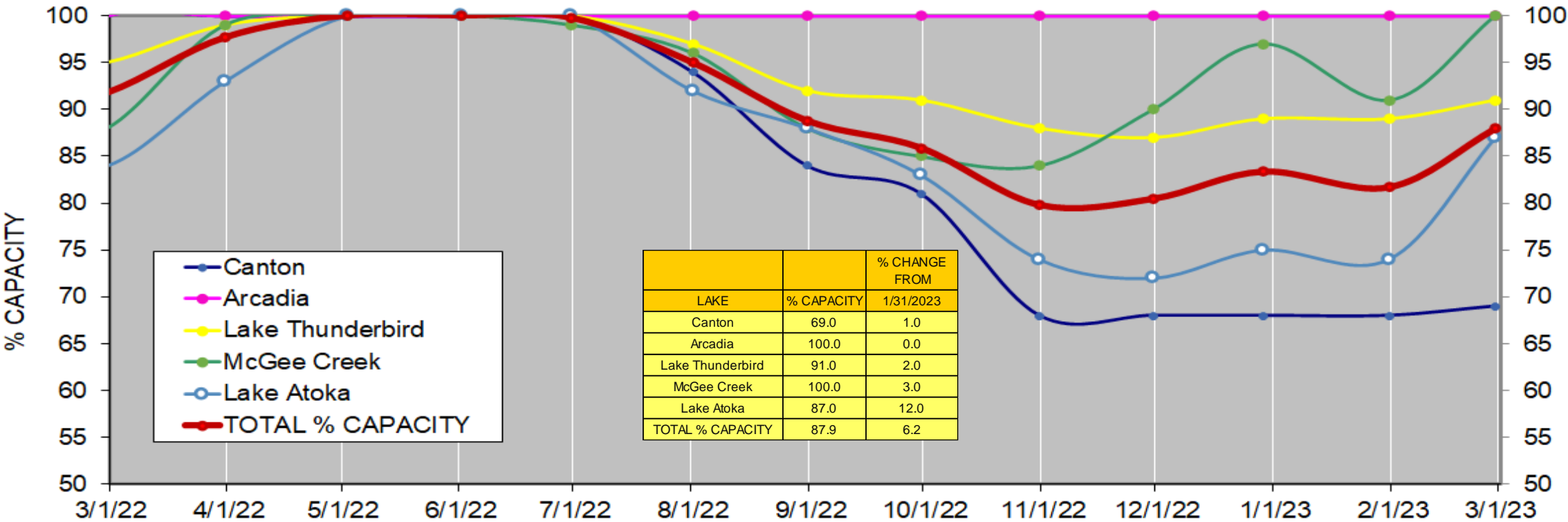
Consecutive Days With Less Than 0.25" Rainfall

February 27, 2023

Created 7:15:04 AM February 28, 2023 CST. © Copyright 2023



PERCENTAGE OF SURFACE WATER CONSERVATION CAPACITY IN CENTRAL OK RESERVOIRS



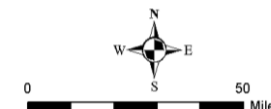
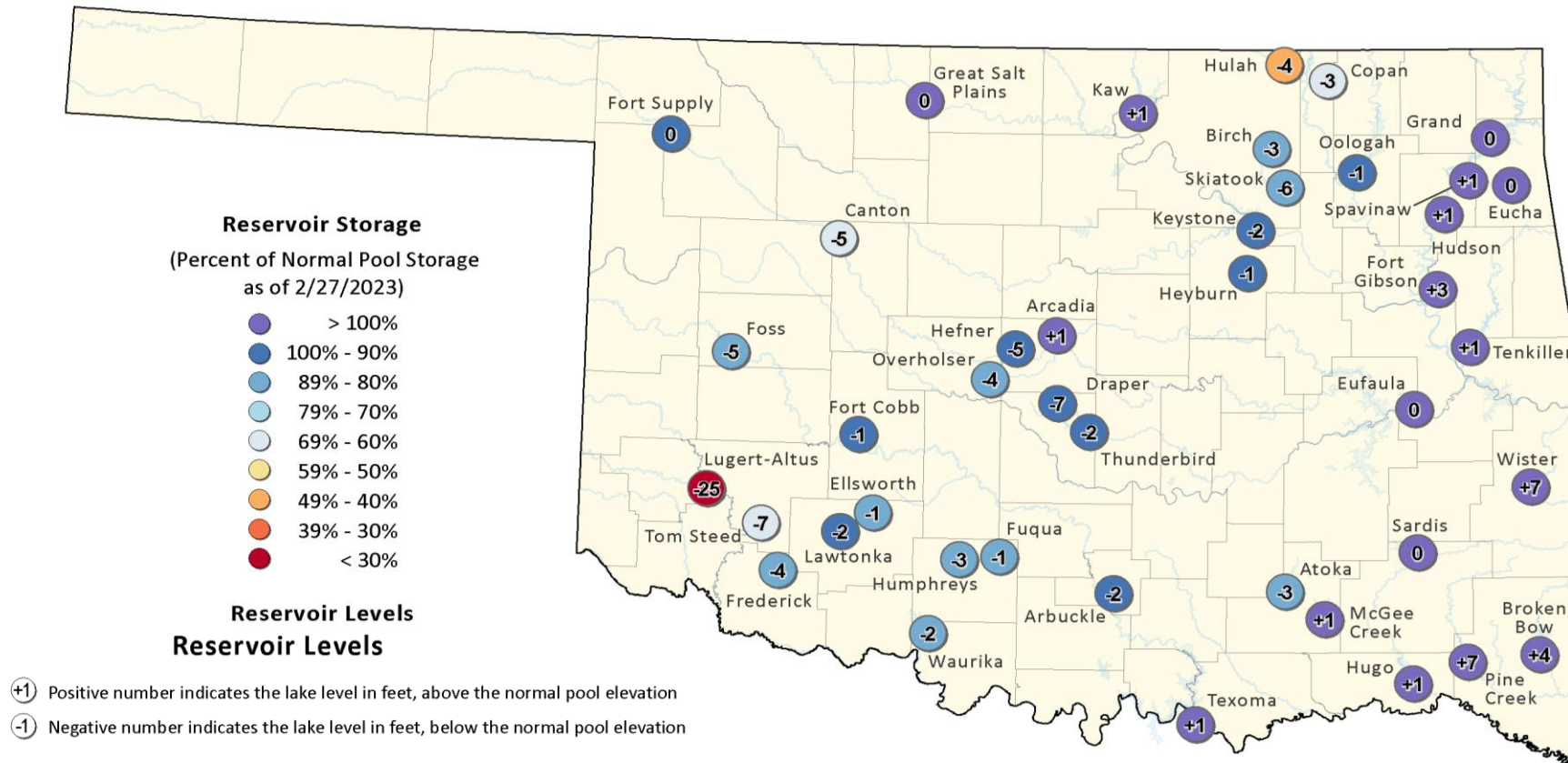
Lake Hefner and Lake Overholser are terminal storage for Canton Lake. Lake Draper is terminal storage for McGee Creek and Atoka Lakes.

OKLAHOMA RESERVOIR LEVELS AND STORAGE

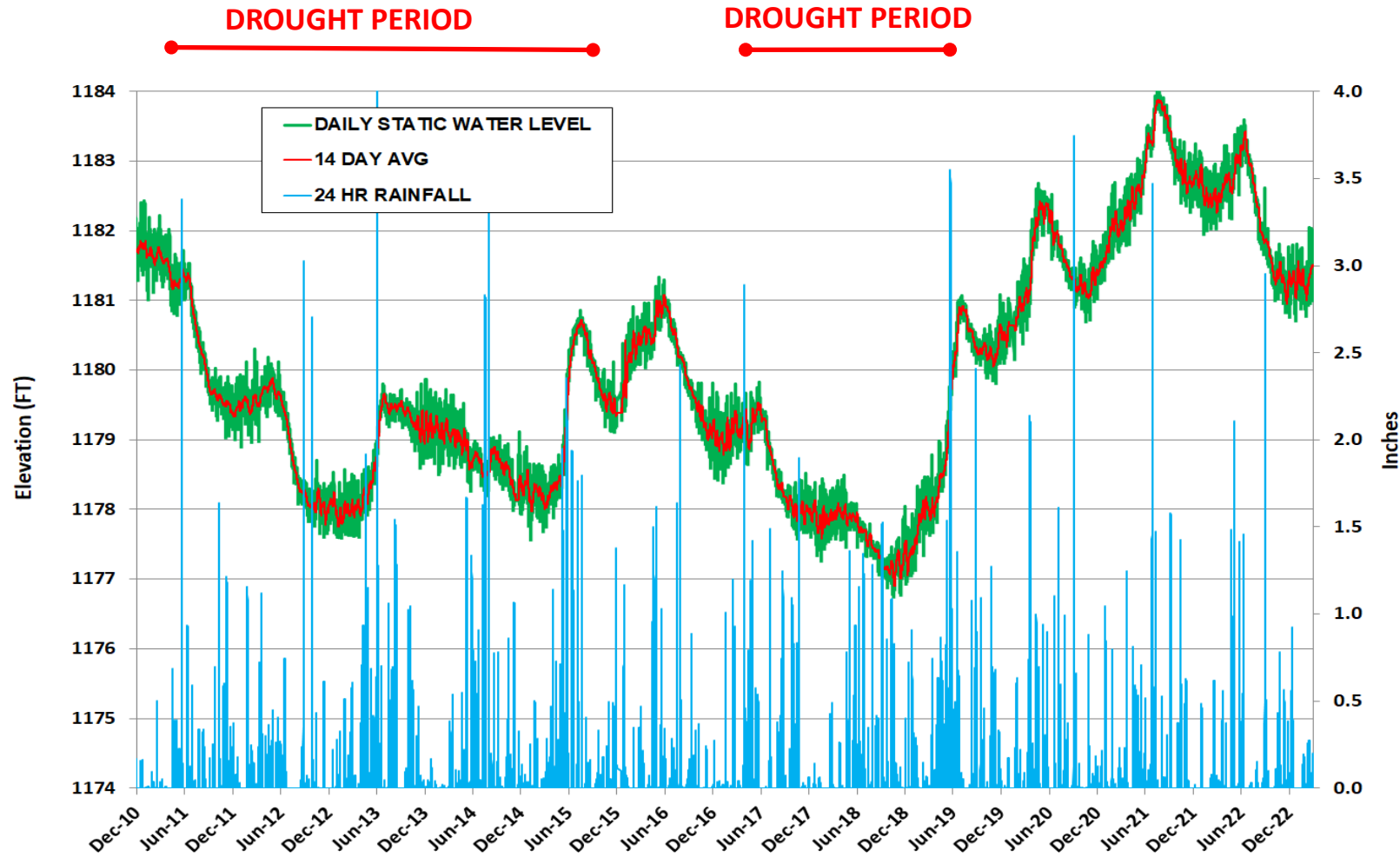


OKLAHOMA RESERVOIR LEVELS AND STORAGE AS OF 2/27/2023

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://www.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>).



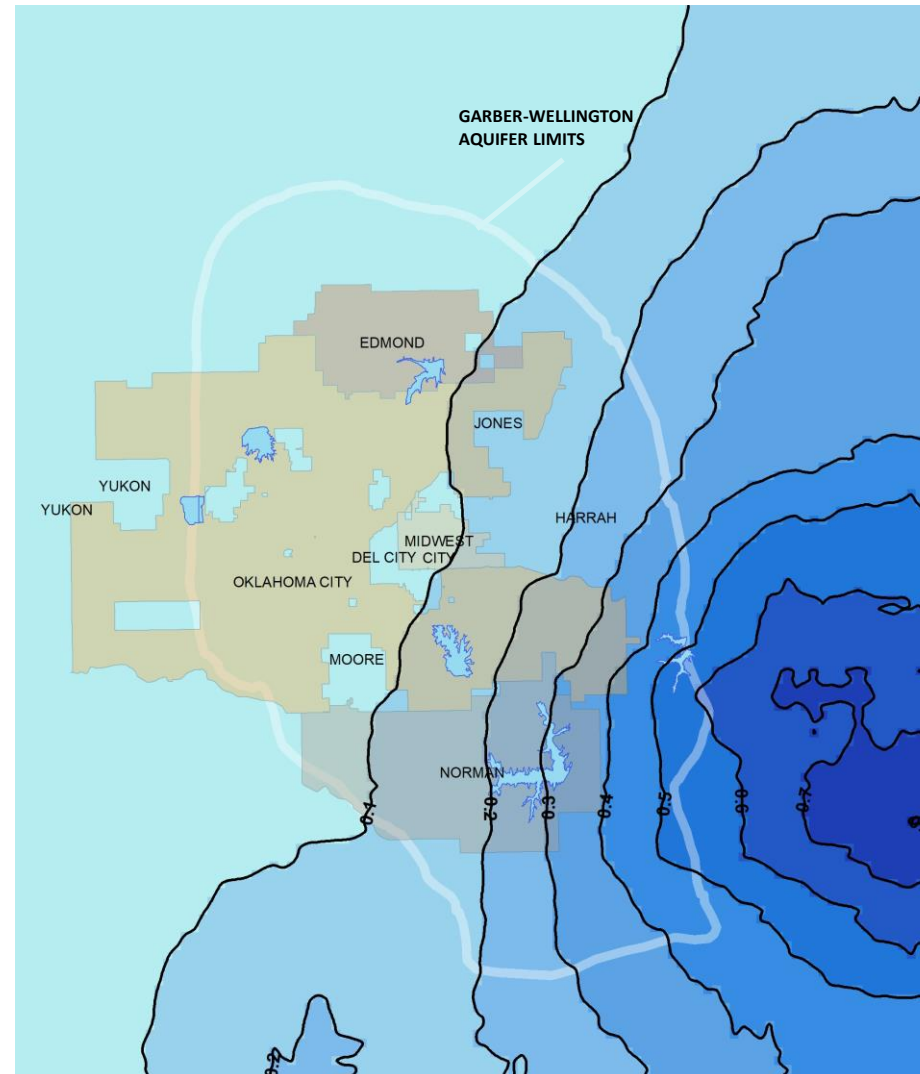
GROUNDWATER LEVELS SPENCER MESONET STATION



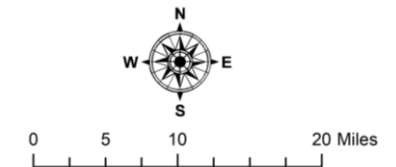
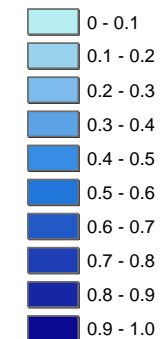
AQUIFER RECHARGE – February 2023



- Aquifer recharge in February 2023 was 0.19 inches.
- Normal recharge for February is 0.24 inches.
- This is 0.38 inches below the cumulative yearly average at this time.



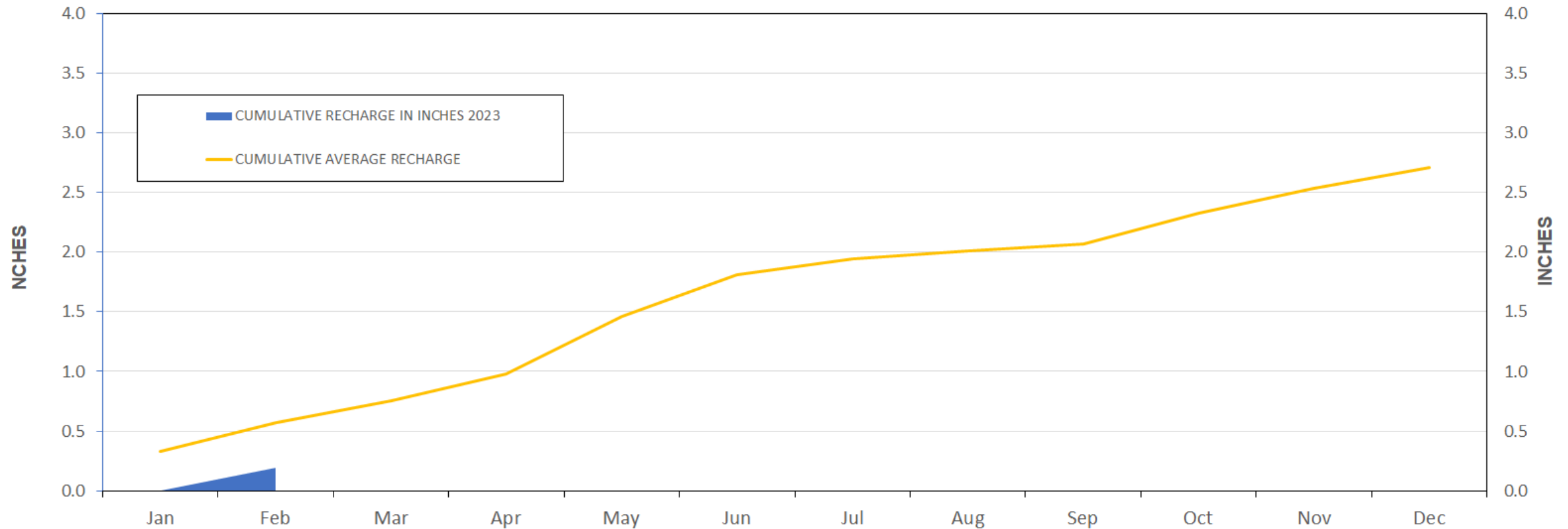
Recharge in Inches



RECHARGE CHARTS CENTRAL OKLAHOMA AQUIFER SYSTEM



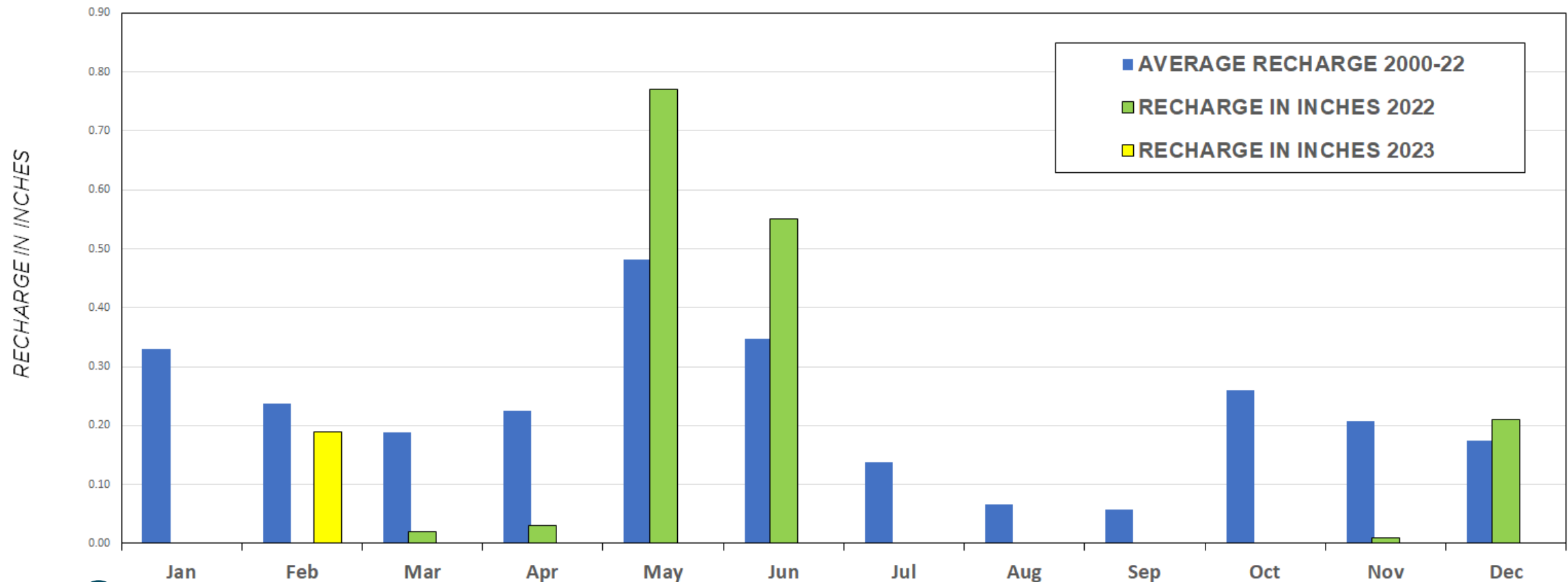
ACCUMULATED CENTRAL OKLAHOMA AQUIFER SYSTEM RECHARGE 2022



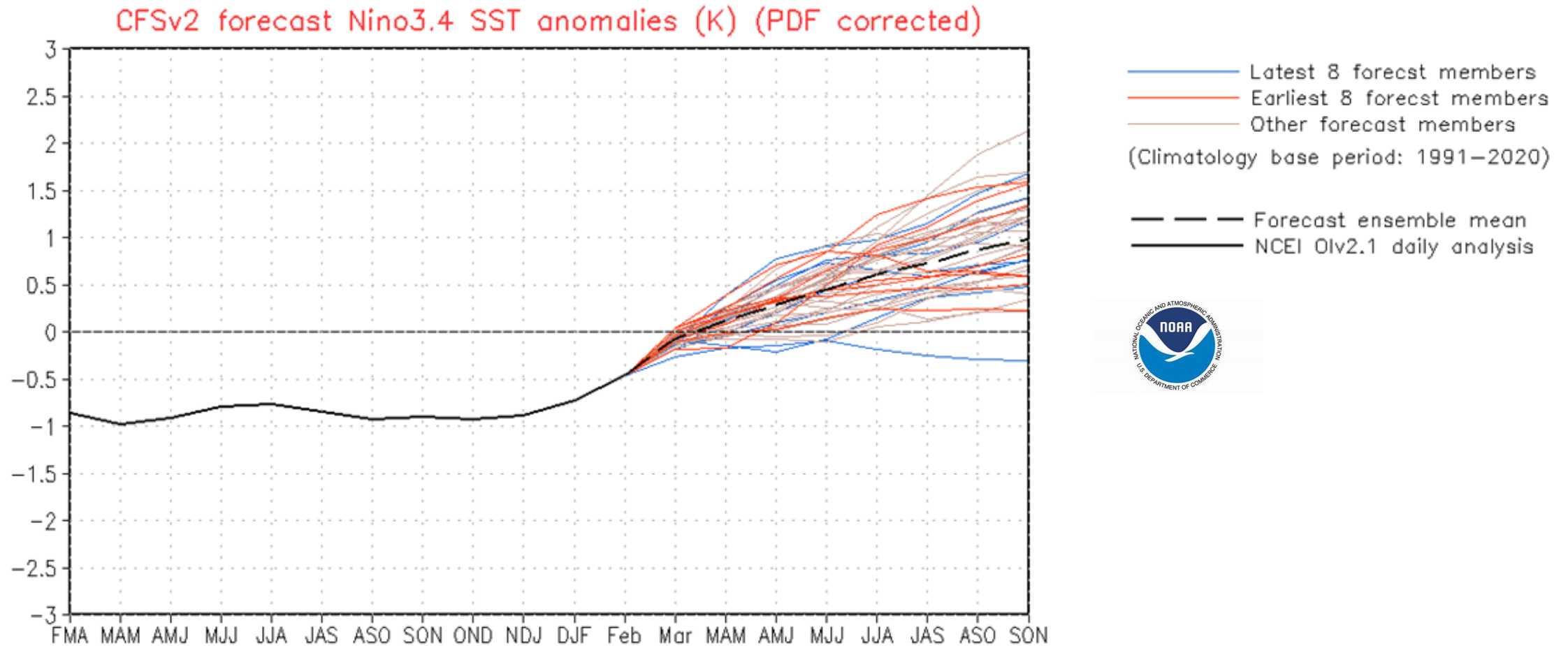
RECHARGE CHARTS CENTRAL OKLAHOMA AQUIFER SYSTEM CONTINUED



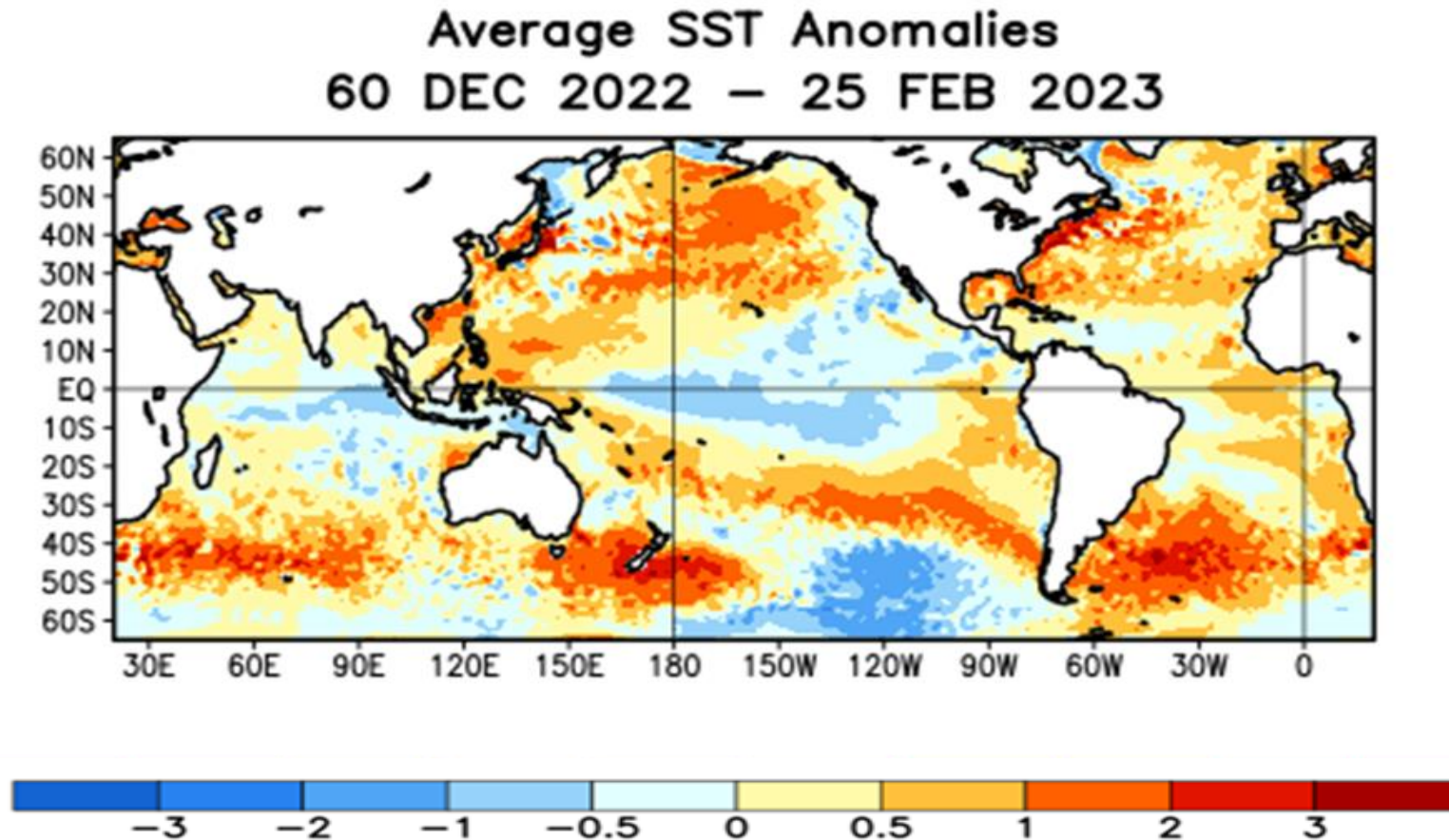
MONTHLY AQUIFER RECHARGE



ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS



ENSO CYCLE - RECENT EVOLUTION, CURRENT STATUS AND PREDICTIONS





ENSO ALERT SYSTEM STATUS: LA NIÑA ADVISORY

- La Niña is present.
- Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean.
- The tropical Pacific atmosphere is consistent with La Niña.
- ENSO-neutral conditions are expected to begin within the next couple of months, and persist through the Northern Hemisphere spring and early summer.



QUESTIONS?

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ASSOCIATION OF
CENTRAL OKLAHOMA
GOVERNMENTS