DROUGHT CONDITIONS

IN CENTRAL OKLAHOMA

John Harrington

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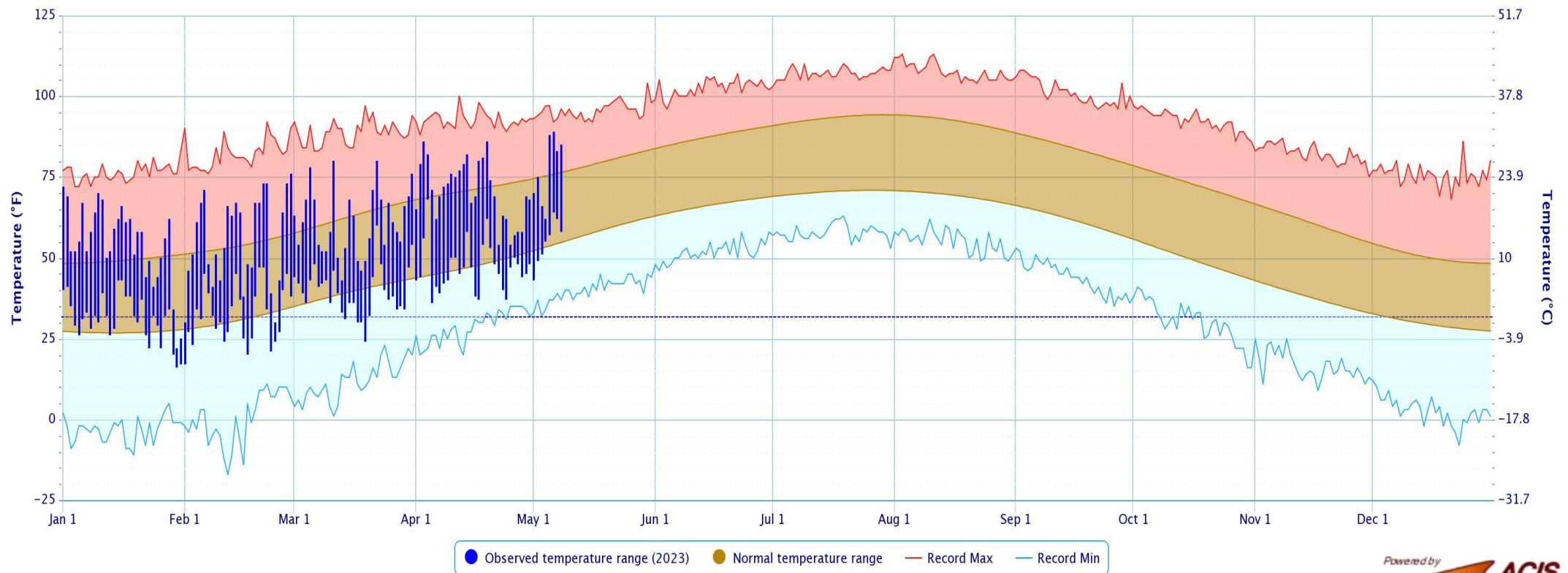
May 9, 2023

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

Legend: Observed temperature range (2023) · Normal temperature range · Record Max · Record Min

Powered by ACIS · NOAA Regional Climate Centers

http://xmacis.rcc-acis.org/

Accumulated Precipitation – Oklahoma City Area, OK (ThreadEx)

http://xmacis.rcc-acis.org/
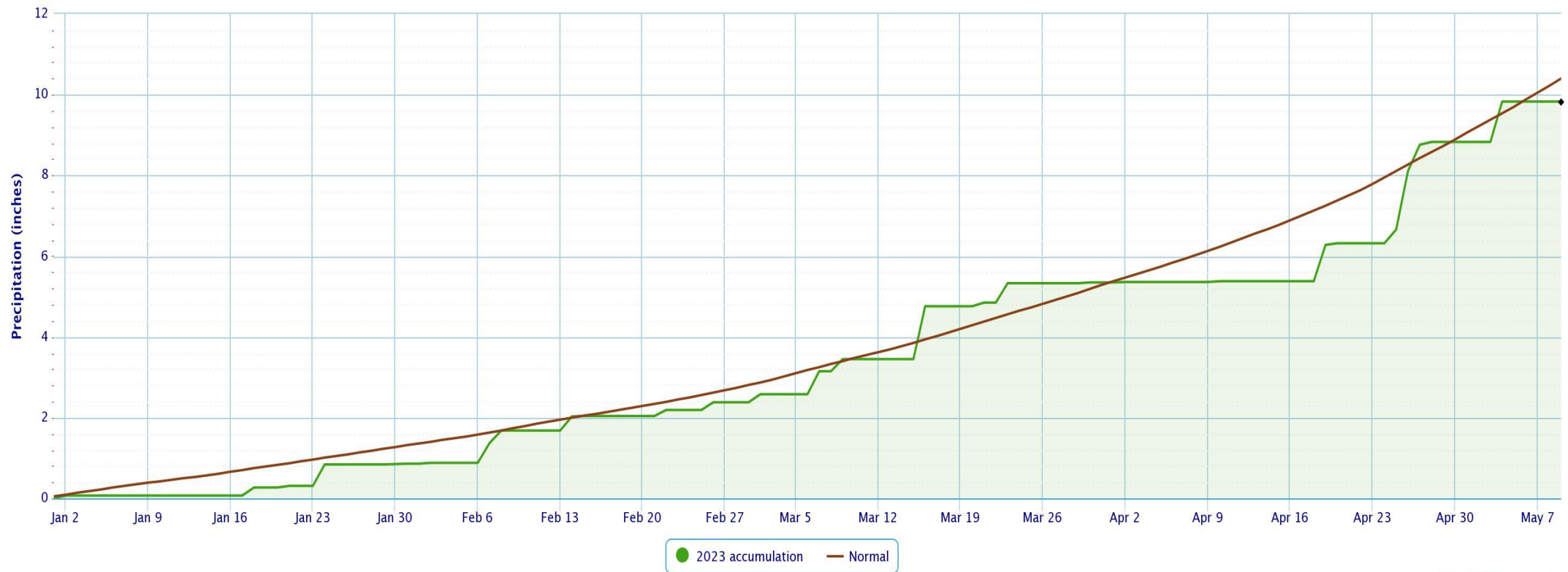
Calendar Year 01-Jan-2022 though 08-May-2023

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	3.89"	-3.72"	51%	15th driest	0.66" (1996)	15.24" (1957)
Central	9.04"	-1.94"	82%	38th driest	3.67" (1936)	24.29" (1990)
S. Central	12.82"	-0.02"	100%	43rd wettest	5.35" (2003)	33.59" (1990)
Statewide	9.56"	-1.28"	88%	43rd driest	3.79" (1936)	22.20" (1990)

Water Year: 01-Oct-2021 through 08-May-2023

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	9.02"	-4.13"	69%	29th driest	2.91" (1995-96)	23.32" (2018-19)
Central	15.99"	-3.10"	84%	47th driest	8.54" (1995-96)	34.23" (1984-85)
S. Central	22.61"	+0.08"	100%	33rd wettest	8.78" (1955-56)	36.22" (2015-16)
Statewide	17.01"	-1.91"	90%	51st wettest	8.78" (1995-96)	29.28" (1984-85)

Spring Mar 01 through 08-May-2023

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	2.56"	-2.98"	46%	11th driest	0.41" (1996)	13.35" (1957)
Central	5.85"	-1.90"	75%	30th driest	1.51" (2005)	18.07" (1990)
S. Central	8.21"	-0.29"	97%	43rd wettest	2.67" (2005)	24.69" (1990)
Statewide	5.81"	-1.64"	78%	34th driest	2.76" (1971)	15.34" (1990)
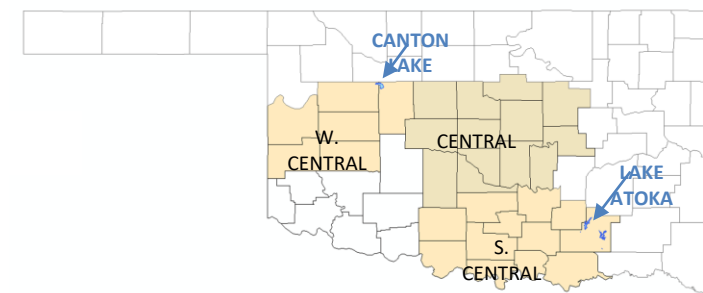
The climate divisions shown include statewide totals, central Oklahoma totals, and totals for the two divisions which have Canton Lake and Lake Atoka—major water sources for central Oklahoma.
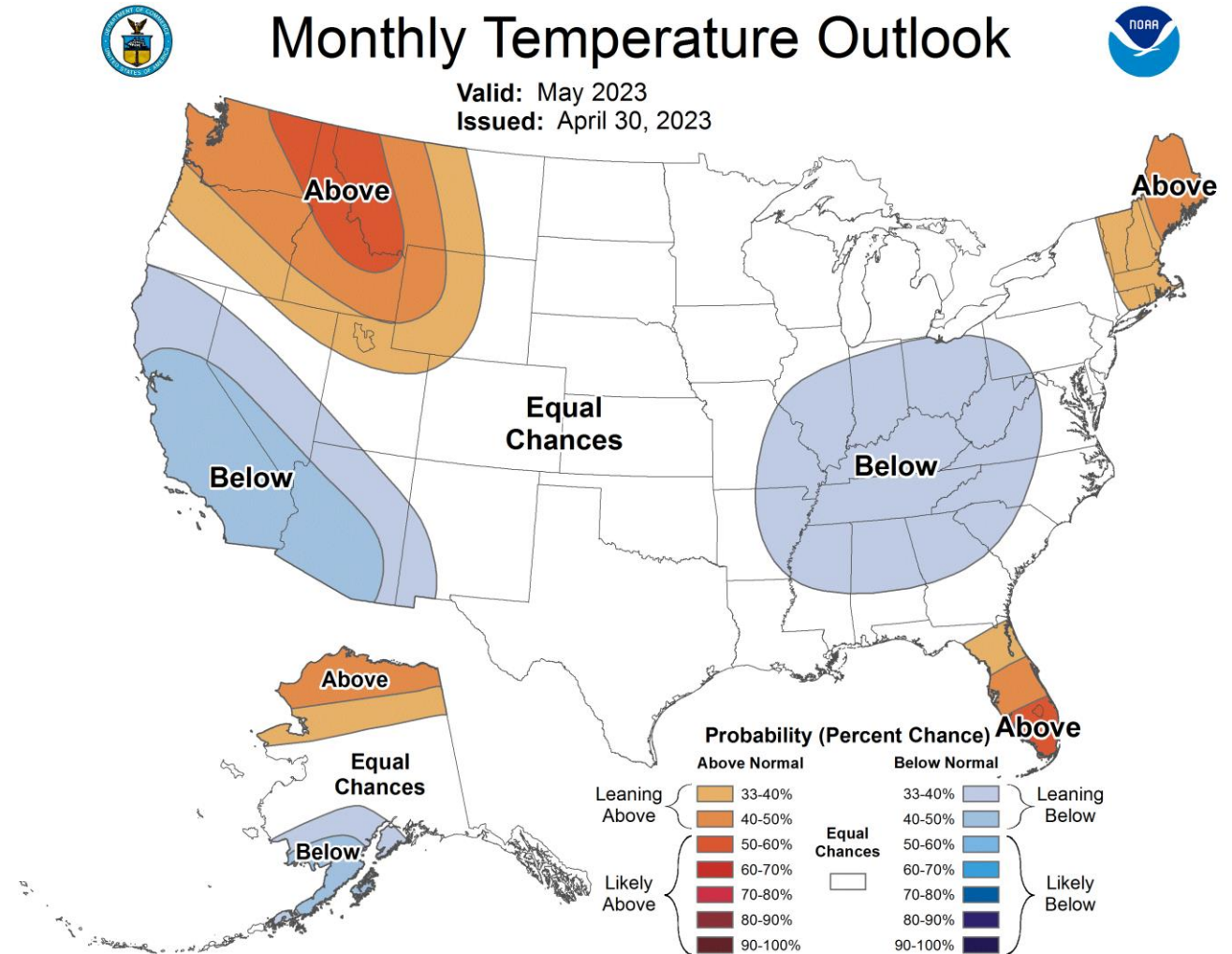
http://climate.ok.gov/index.php/drought/last_30_days/drought_wildfire

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.
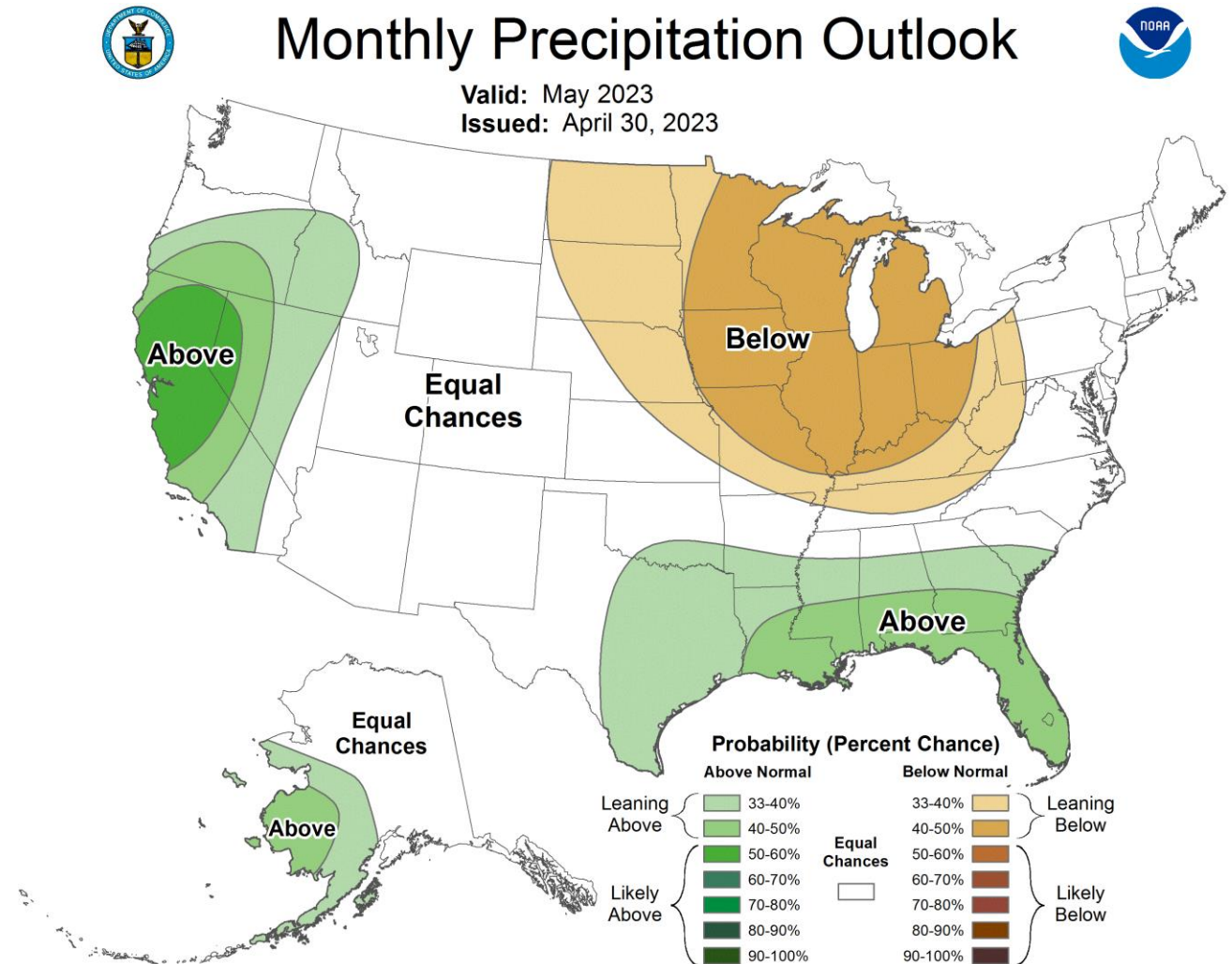
Climate Prediction Center - Updated OFFICIAL 30-Day Forecasts (noaa.gov)/


5

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Climate Prediction Center - Updated OFFICIAL 30-Day Forecasts (noaa.gov)/

Monthly Precipitation Outlook
Valid: May 2023
Issued: April 30, 2023

Annual Precipitation History with 5-year Tendencies
Oklahoma Statewide: 1895-2022
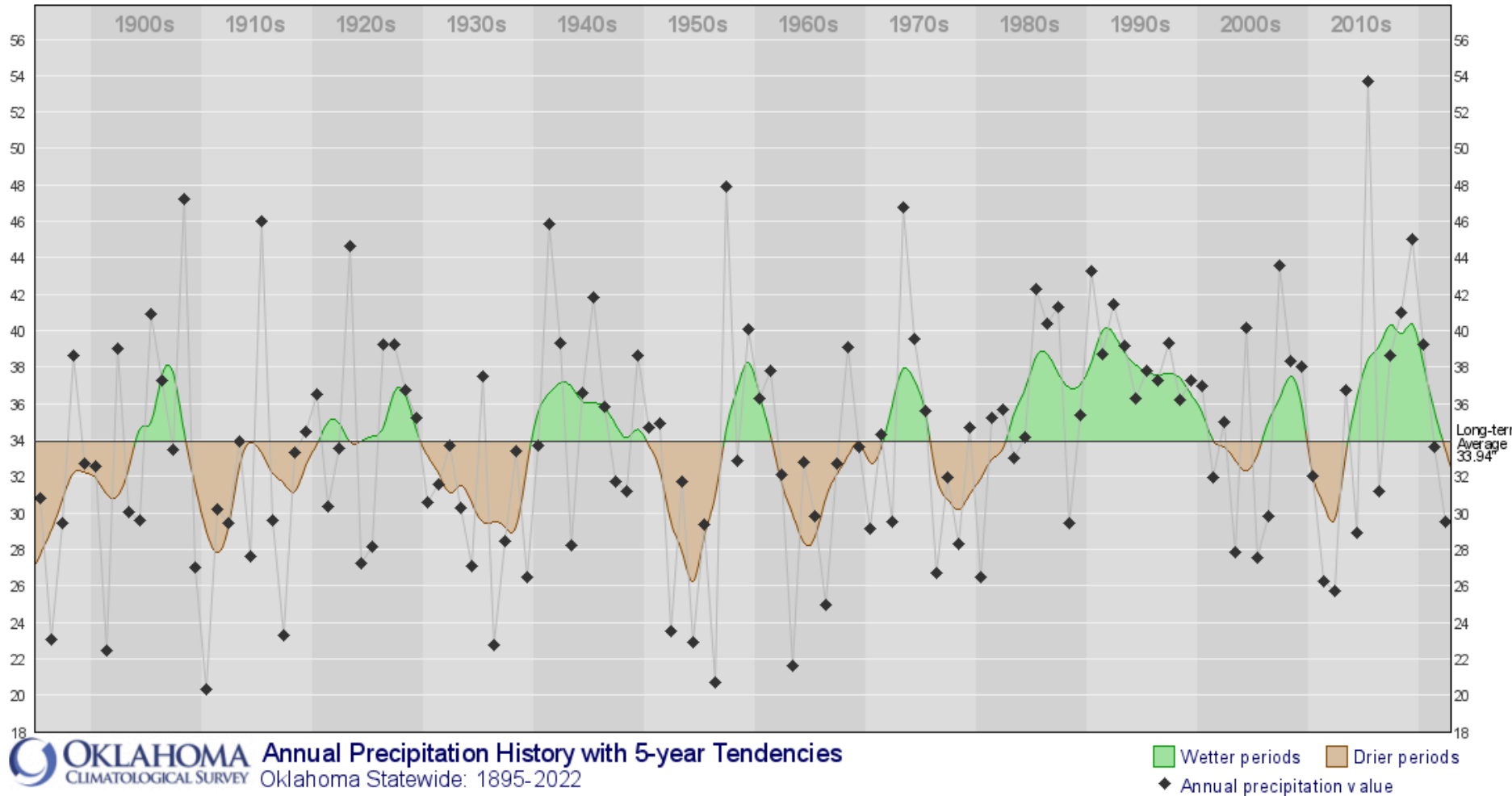
This graph shows the cyclical nature of wet and drought periods in Oklahoma. The black dots represent the annual precipitation for that particular year. The line represents the annual precipitation data smoothed over five years.

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.

http://climate.ok.gov/index.php/climate/climate_trends/precipitation_history_annual_statewide/CD00/prcp/Annual/oklahoma_south-central_u.s

PALMER VALUE
6 MAY 2023
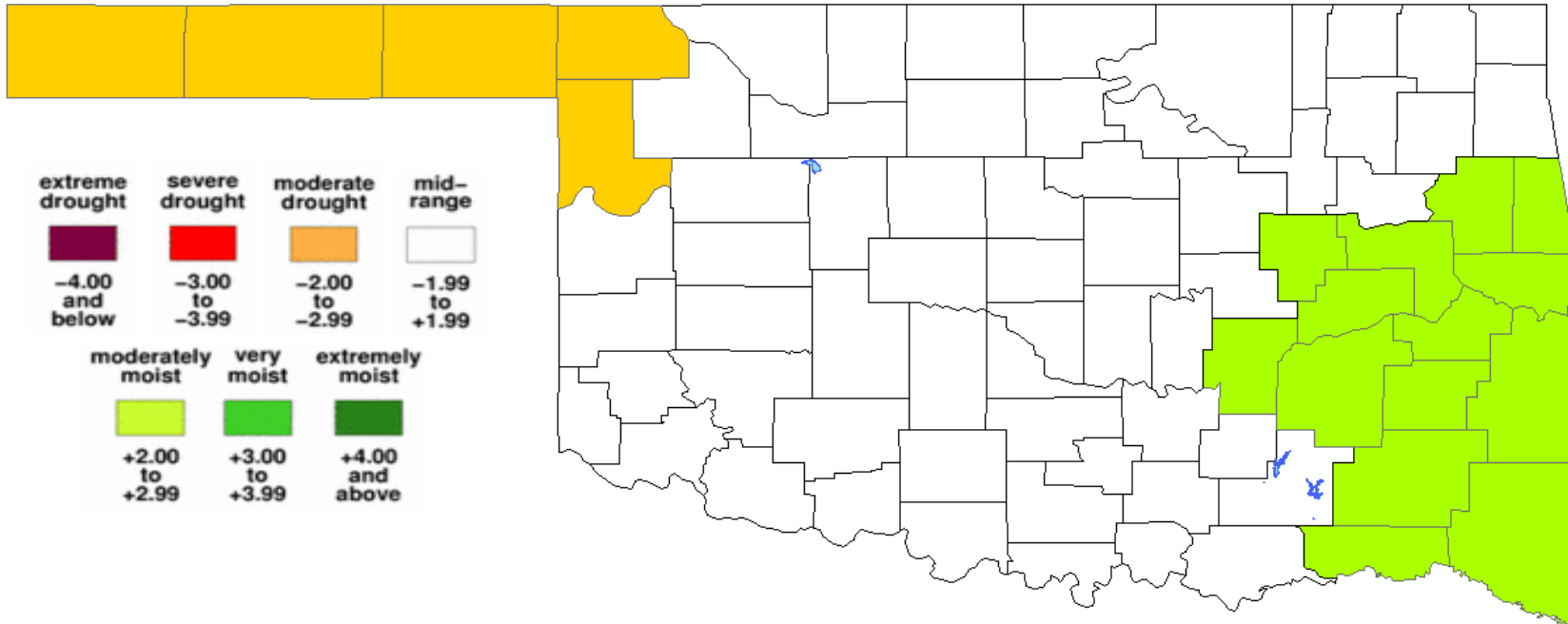
The Palmer Drought Index (PDI) maps show long-term (cumulative) meteorological drought and wet conditions.

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.
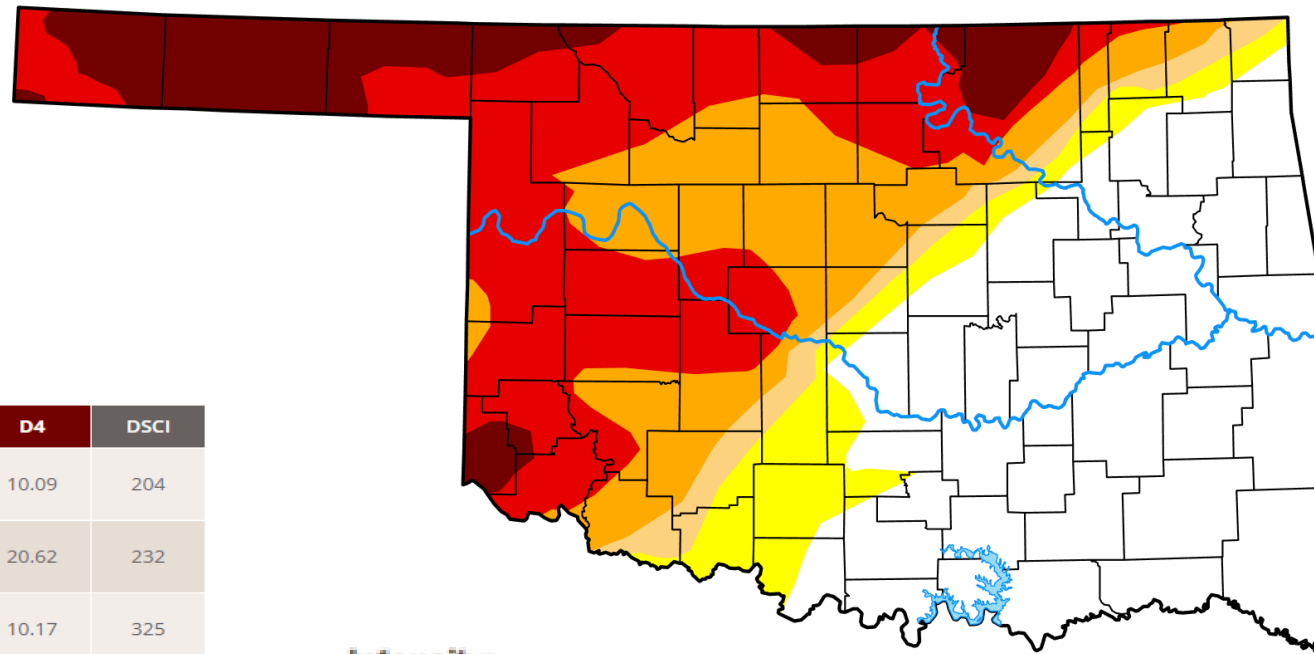
May 4, 2023

Abnormal dryness or drought are currently affecting approximately 1,267,363 people in Oklahoma.

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	2023-05-02	40.58	59.42	52.47	48.90	33.47	10.09	204
Last Week	2023-04-25	35.48	64.52	54.07	49.87	43.19	20.62	232
3 Months Ago	2023-01-31	5.16	94.84	84.95	79.21	55.71	10.17	325
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	2022-05-03	22.77	77.23	65.34	55.29	39.38	10.40	248

Intensity:

D0 - Abnormally Dry
D1 - Moderate Drought
D2 - Severe Drought
D3 - Extreme Drought
D4 - Exceptional Drought

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM
NIDIS Drought.gov
U.S. Drought Portal

https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?OK

Map released: May 4, 2023
Data valid: May 2, 2023

Intensity and Impacts

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

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

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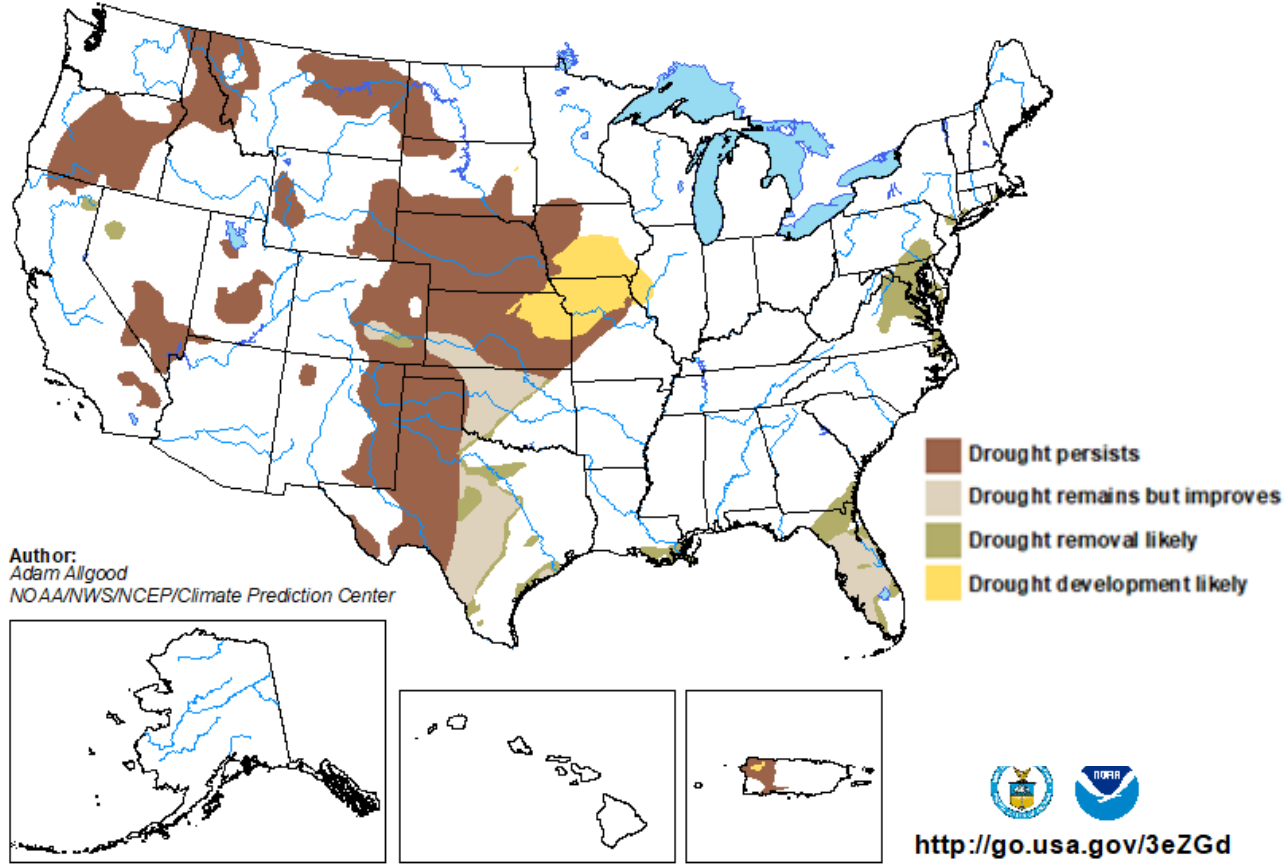Ahira Sanchez-Lugo, NOAA/NCEI

http://droughtmonitor.unl.edu

United States and Puerto Rico Author(s):
Brad Pugh, NOAA/CPC

Pacific Islands and Virgin Islands Author(s):
Brad Rippey, U.S. Department of Agriculture
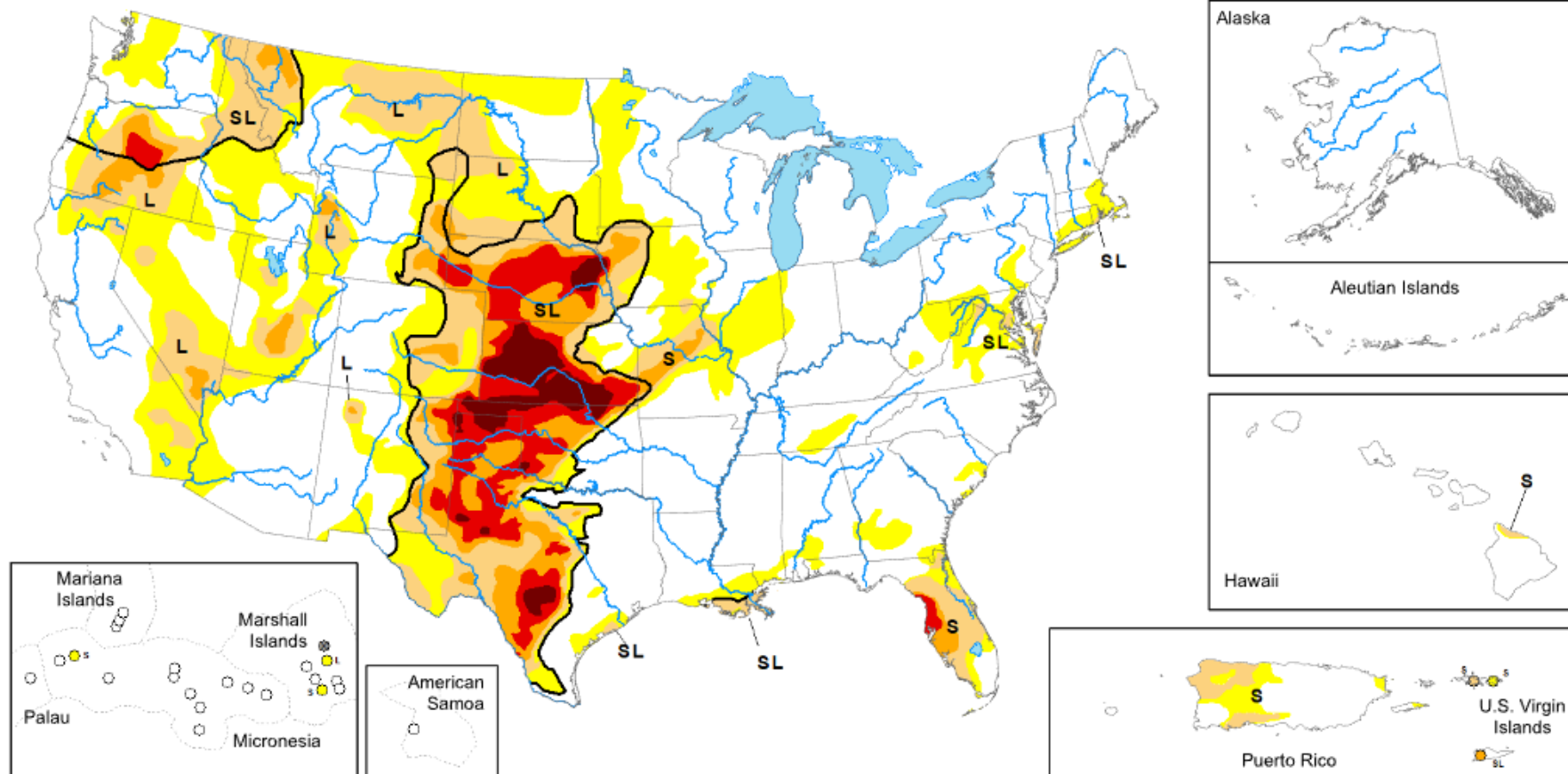
U.S. Monthly Drought Outlook
Drought Tendency During the Valid Period

Valid for May 2023
Released April 30, 2023

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

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

http://go.usa.gov/3eZGd

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).
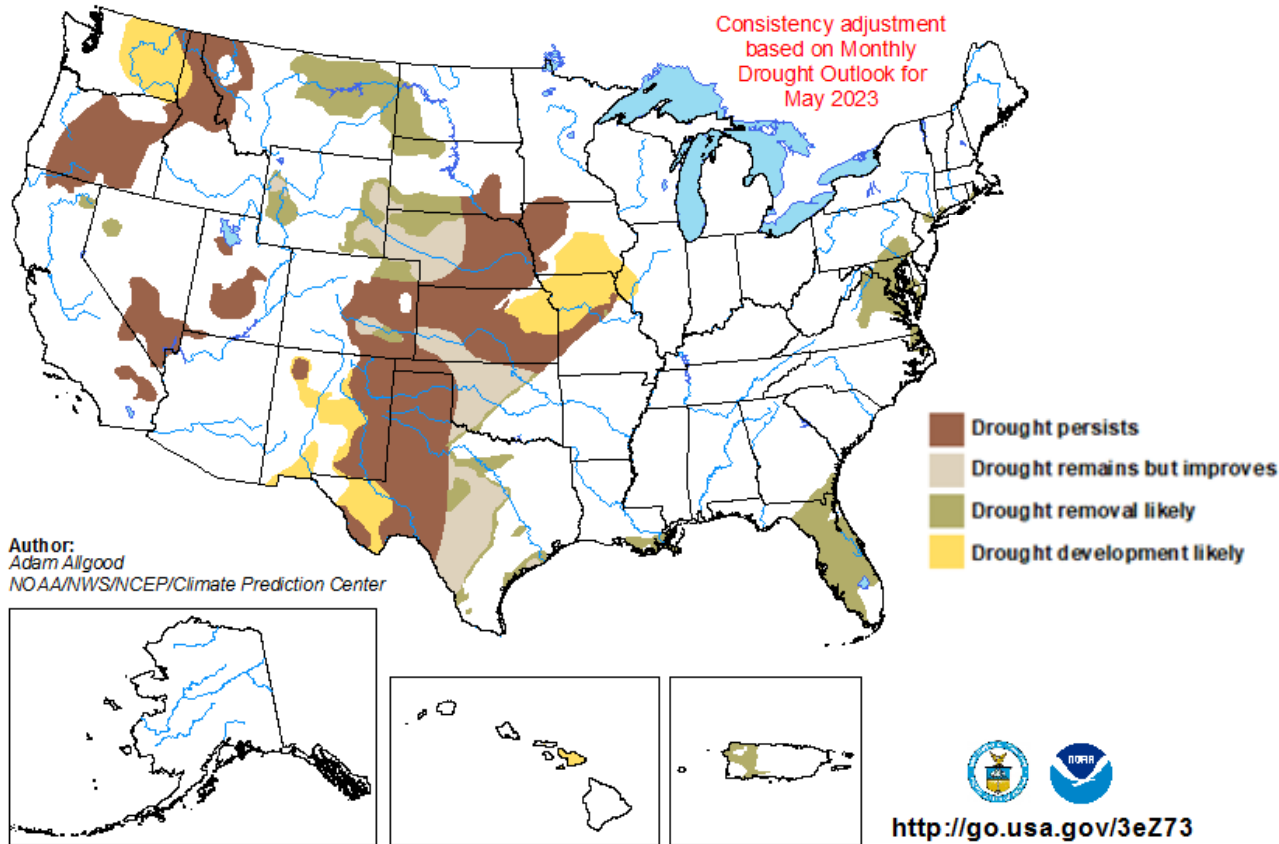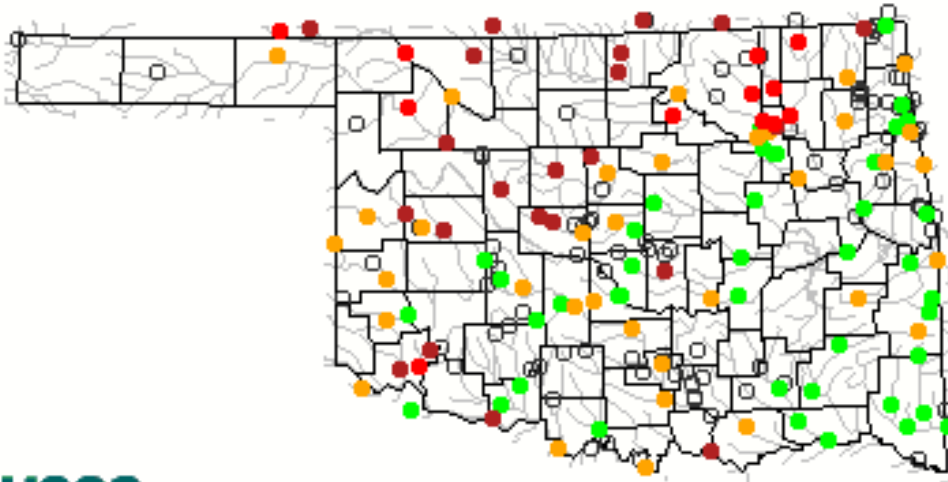
http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.php

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

Valid for May 1 - July 31, 2023
Released April 30, 2023

Consistency adjustment based on Monthly Drought Outlook for May 2023

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

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

http://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).
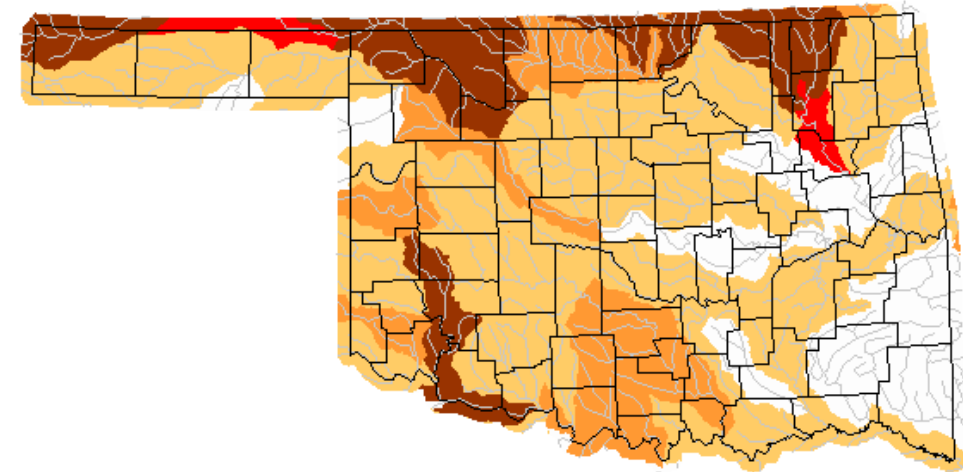
https://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php

USGS STREAMFLOW DATA

Tuesday, May 09, 2023 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

Monday, May 08, 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	

https://waterdata.usgs.gov/ok/nwis/rt

https://waterwatch.usgs.gov/index.php?id=pa28d_dry&sid=w__map|m__pa28d_dwc&r=o

SOIL MOISTURE MAP
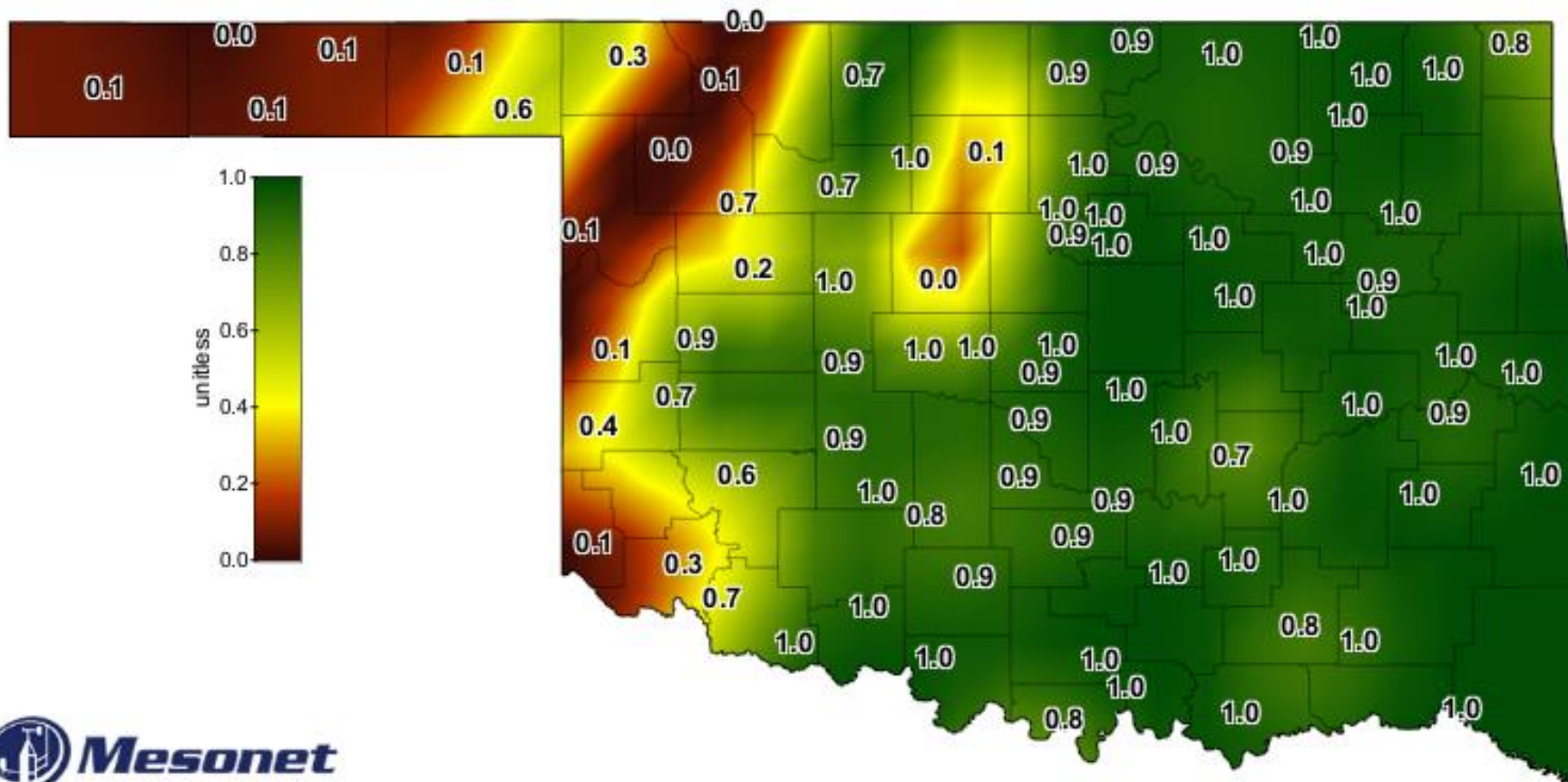
1-DAY AVERAGE 24-INCH FRACTIONAL WATER INDEX

1-day Average 24-inch Fractional Water Index

http://www.mesonet.org/index.php/weather/map/24-inch_fractional_water_index/soil_moisture

CONSECUTIVE DAYS WITHOUT RAINFALL MAP

Consecutive Days With Less Than 0.25" Rainfall
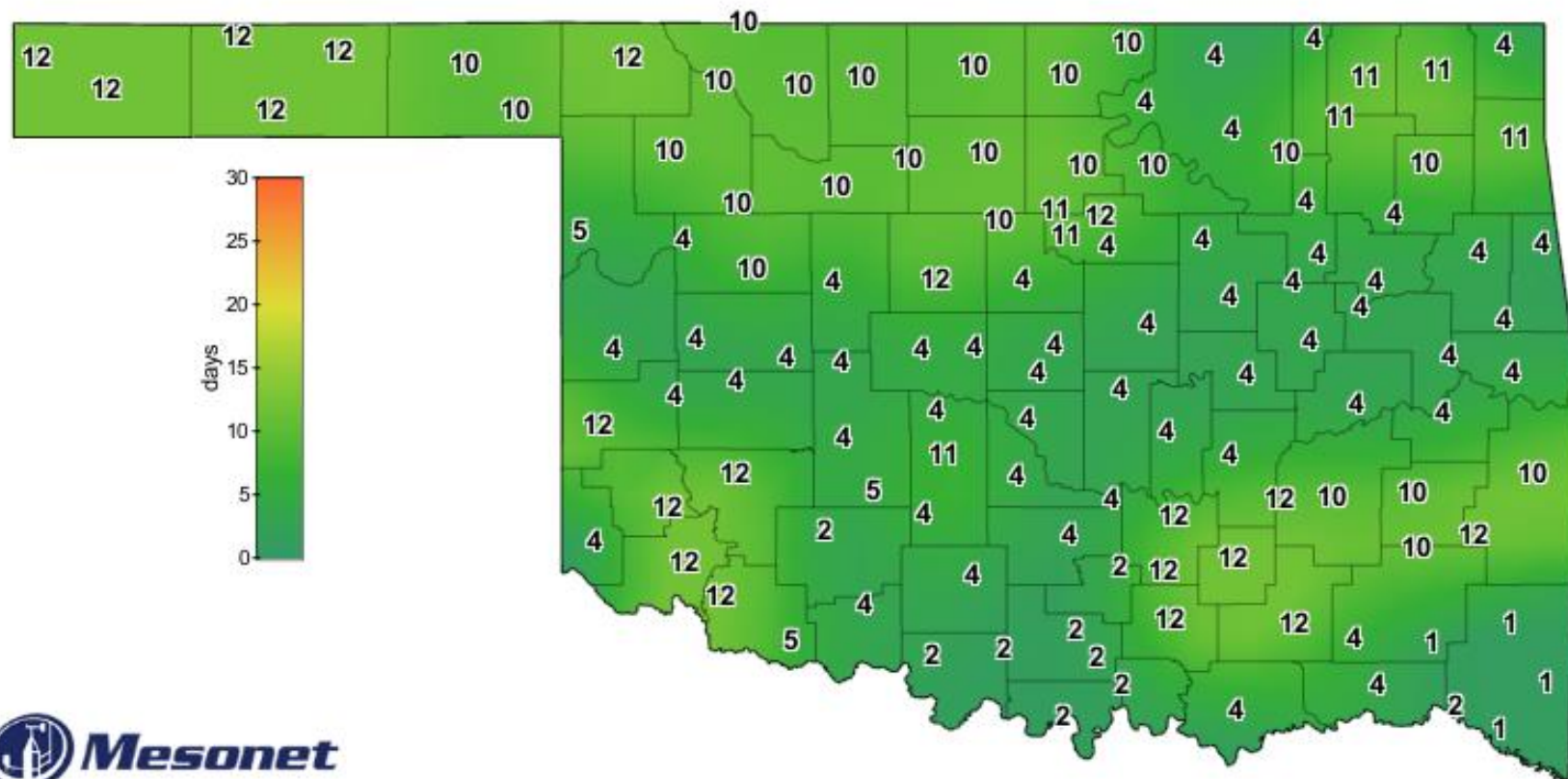
May 8, 2023

CONSECUTIVE DAYS WITH LESS THAN 0.25" RAINFALL

Consecutive Days with Less Than 0.25 inches Rainfall | Mesonet

LAKE	% CAPACITY	% CHANGE FROM 3/31/2023
Canton	79.3	10.3
Arcadia	100.0	0.0
Lake Thunderbird	98.6	7.6
McGee Creek	100.0	0.0
Lake Atoka	100.0	13.0
TOTAL % CAPACITY	95.3	7.4
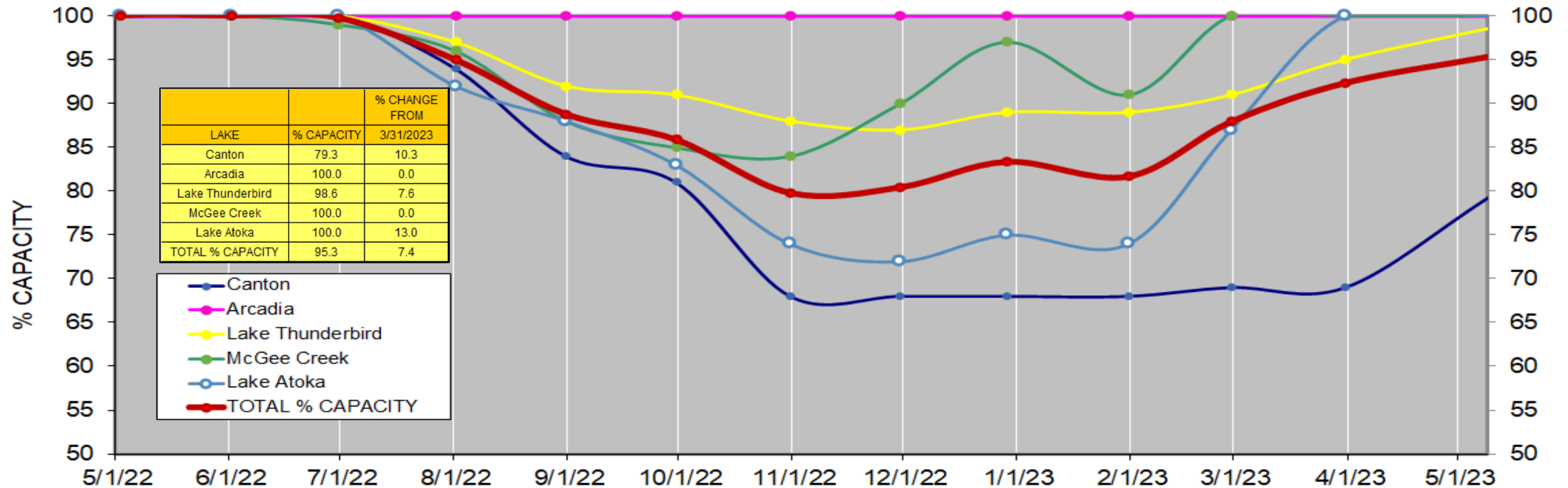
Lake Hefner and Lake Overholser are terminal storage for Canton Lake. Lake Draper is terminal storage for McGee Creek and Atoka Lakes.

https://www.owrb.ok.gov/supply/drought/reservoirstorage.php

OKLAHOMA RESERVOIR LEVELS AND STORAGE AS OF 3/29/2023

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).
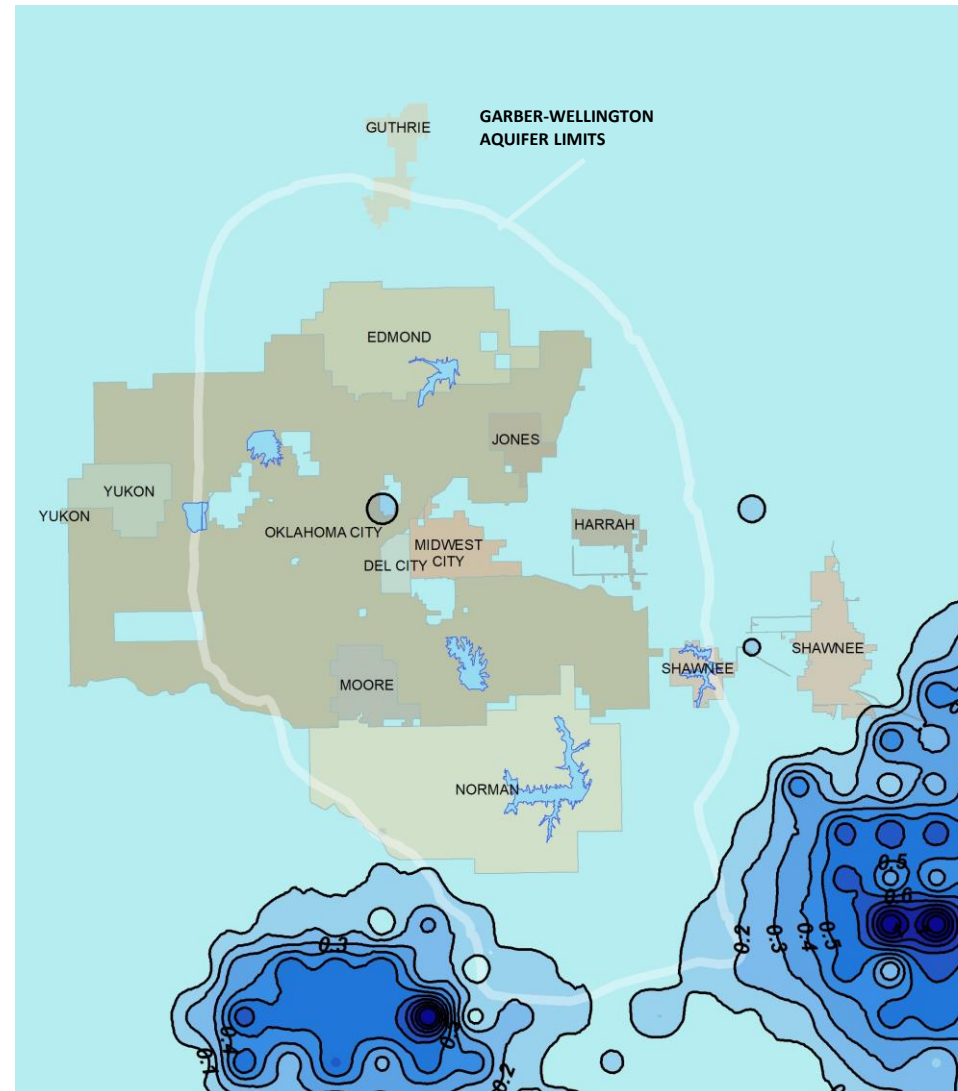
https://www.owrb.ok.gov/supply/drought/reservoirstorage.php

GROUNDWATER LEVELS SPENCER MESONET STATION

http://xwww.mesonet.org/index.php/weather/groundwater/
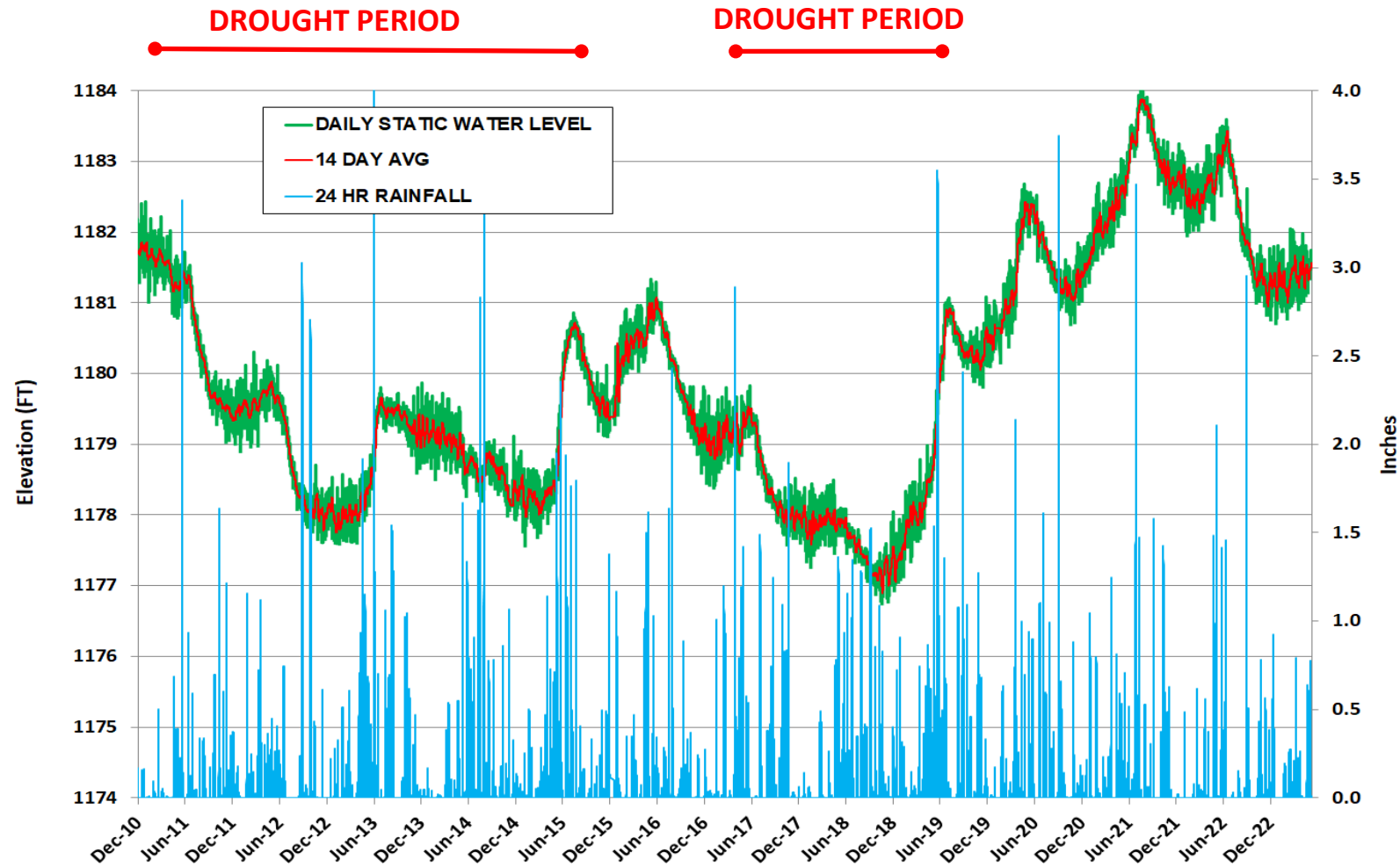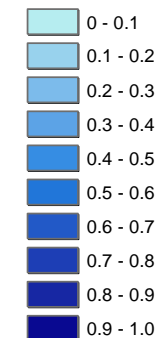
AQUIFER RECHARGE – April 2023

- Aquifer recharge in April 2023 was 0.06 inches.

- Normal recharge for April is 0.22 inches.

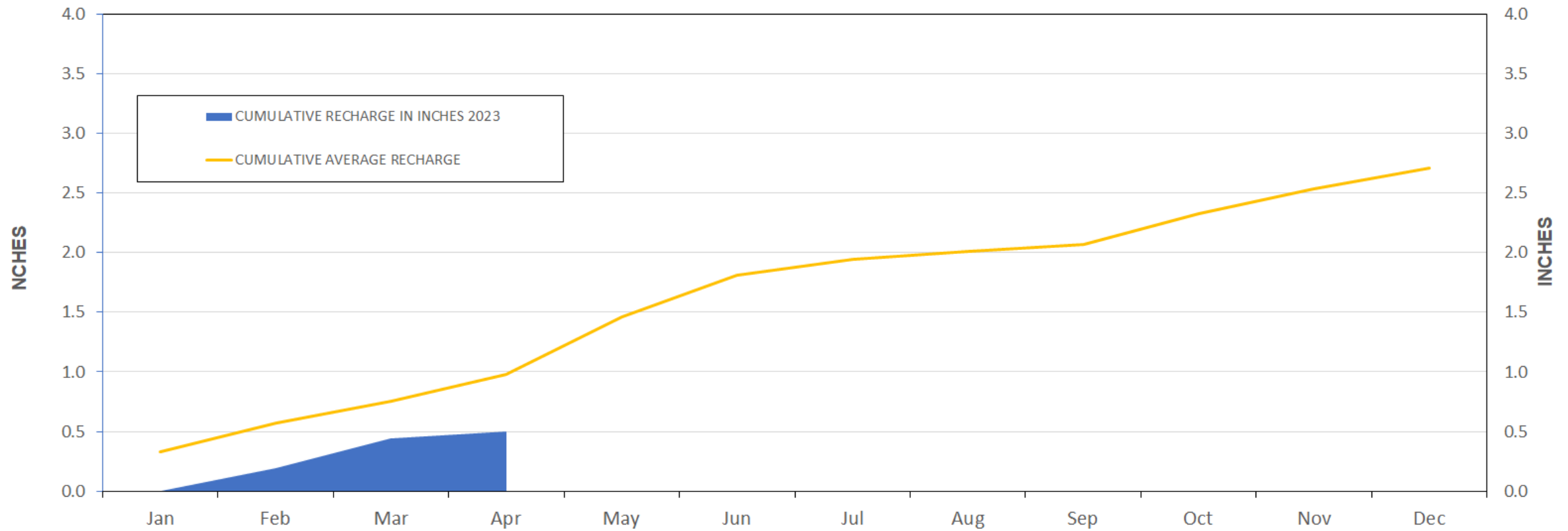- This is 0.48 inches below the cumulative yearly average at this time.
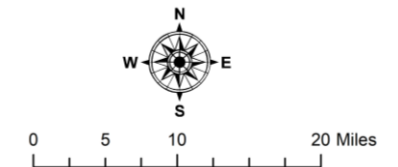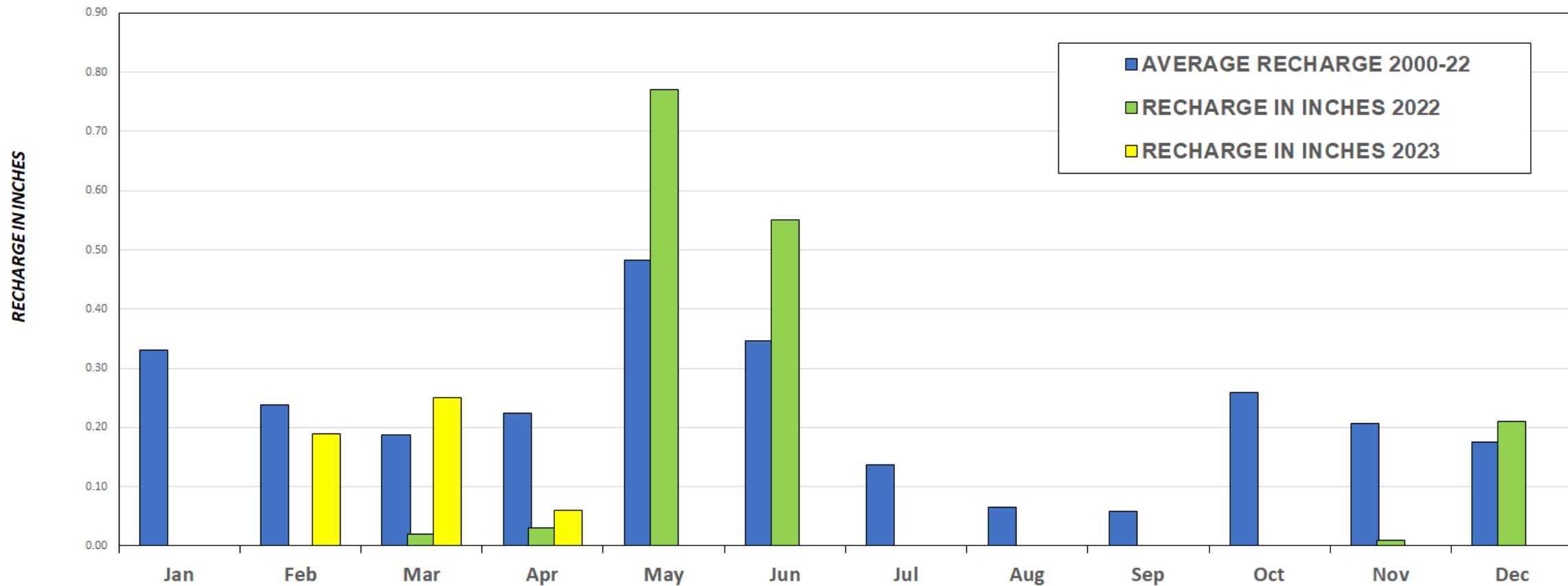
ACCUMULATED CENTRAL OKLAHOMA AQUIFER SYSTEM RECHARGE 2022

MONTHLY AQUIFER RECHARGE

CFSv2 forecast Nino3.4 SST anomalies (K) (PDF corrected)

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.ppt
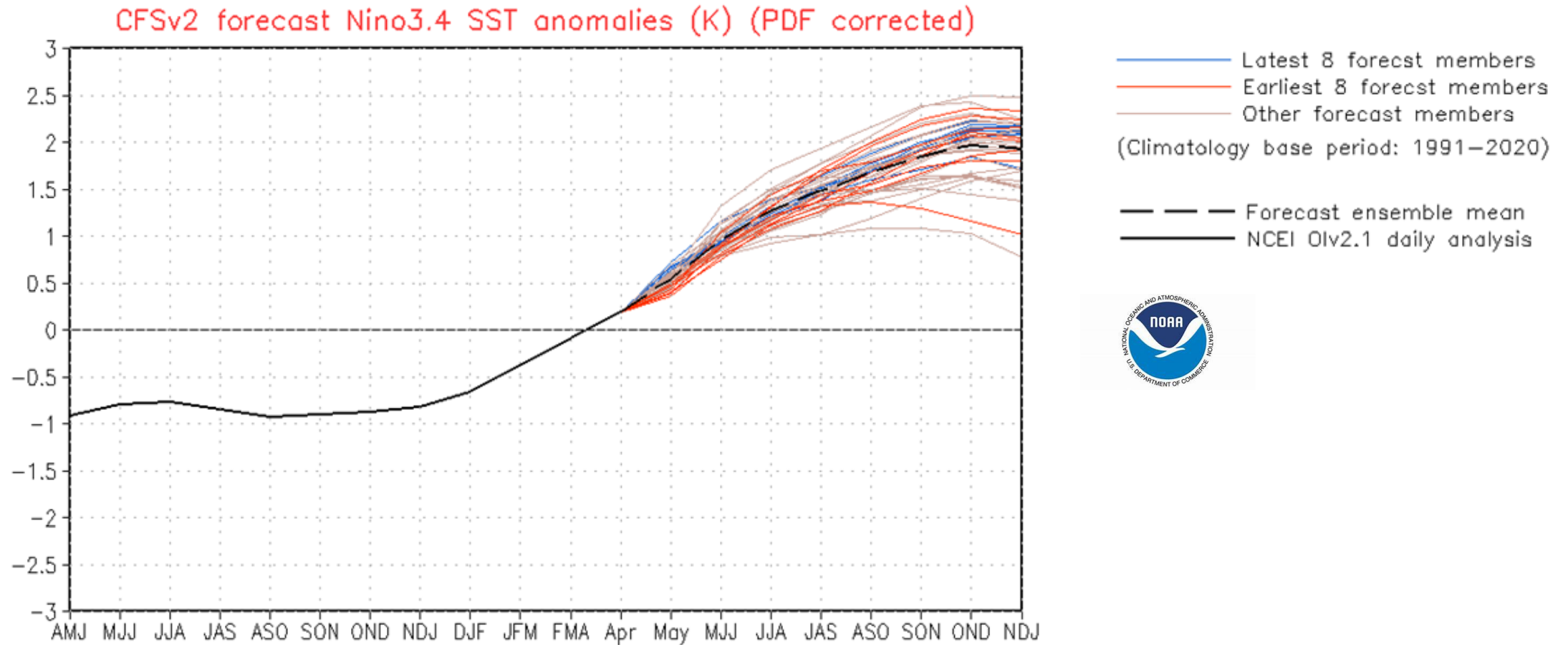
Average SST Anomalies
9 APR 2023 — 6 MAY 2023

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.ppt
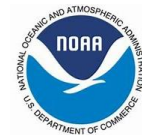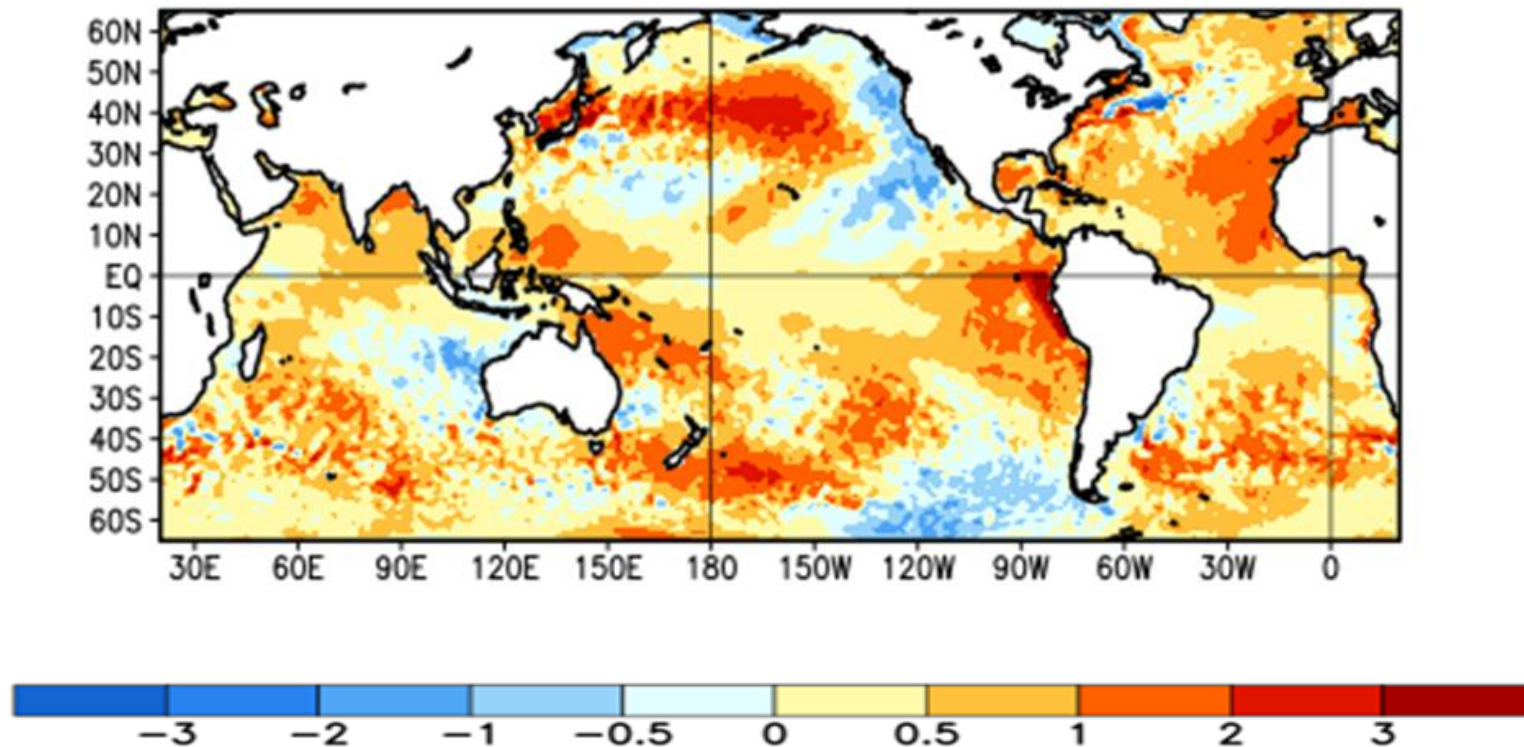
ENSO ALERT SYSTEM STATUS: El Niño Watch

- ENSO-neutral conditions are observed.

- Equatorial sea surface temperatures (SSTs) are near-to-above average across most of the Pacific Ocean.

- ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring, followed by a 62% chance of El Niño developing during May-July 2023.

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.ppt

QUESTIONS?

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ASSOCIATION OF
CENTRAL OKLAHOMA
GOVERNMENTS