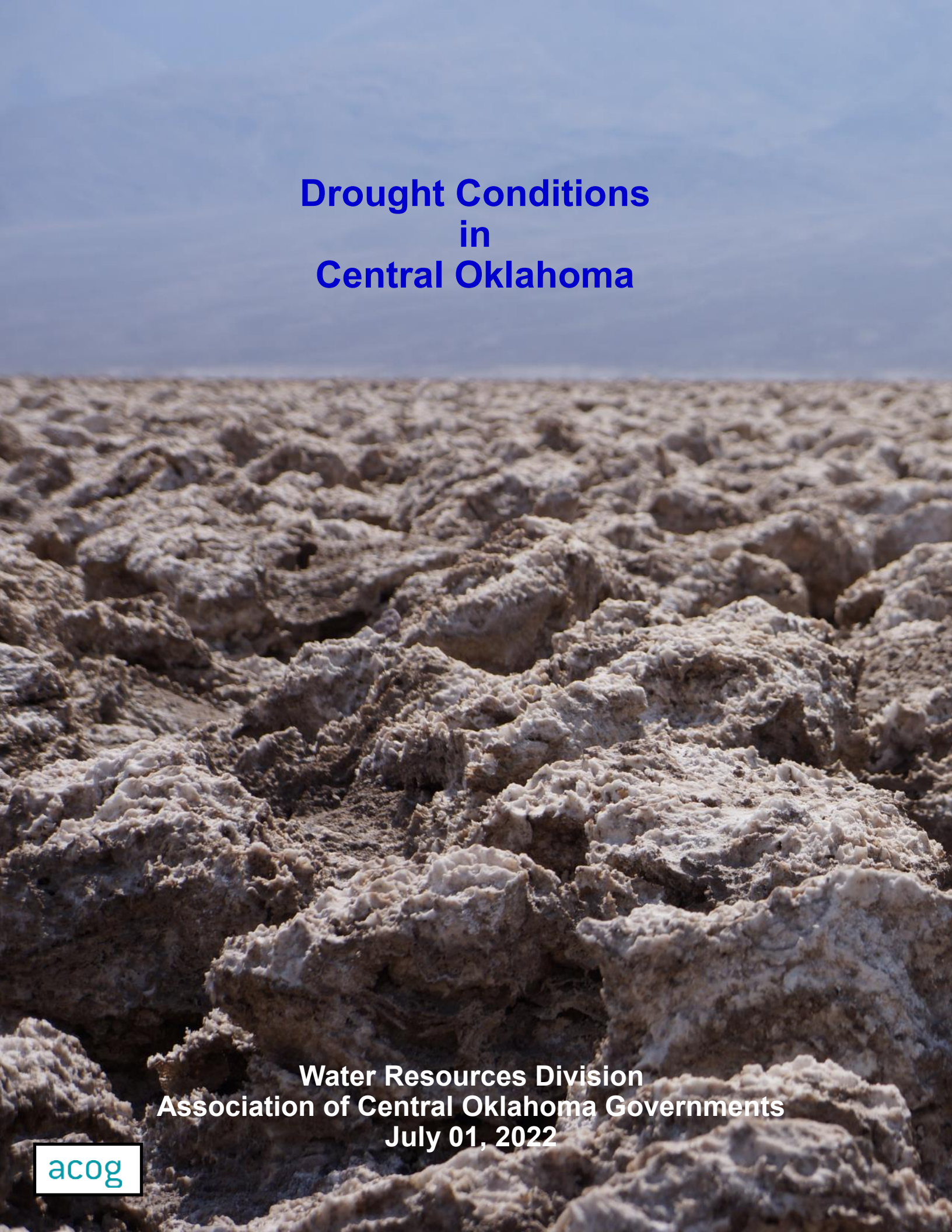
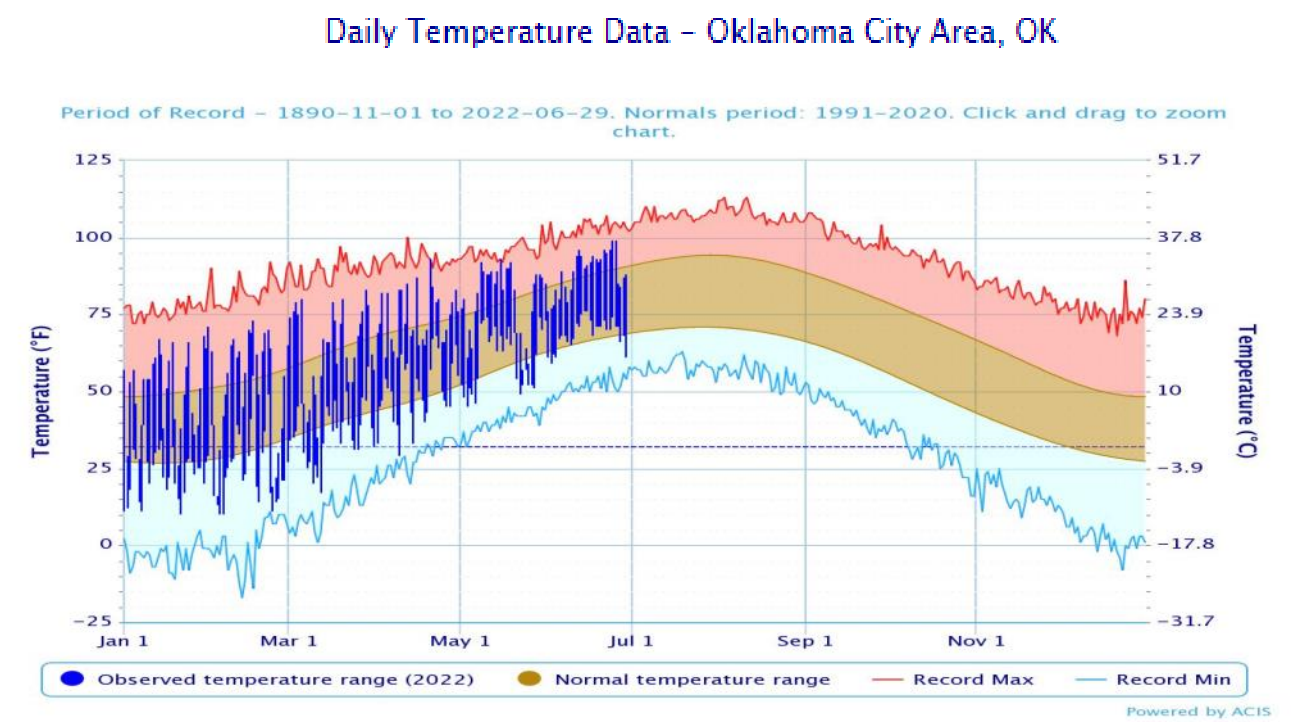
Drought Conditions in Central Oklahoma



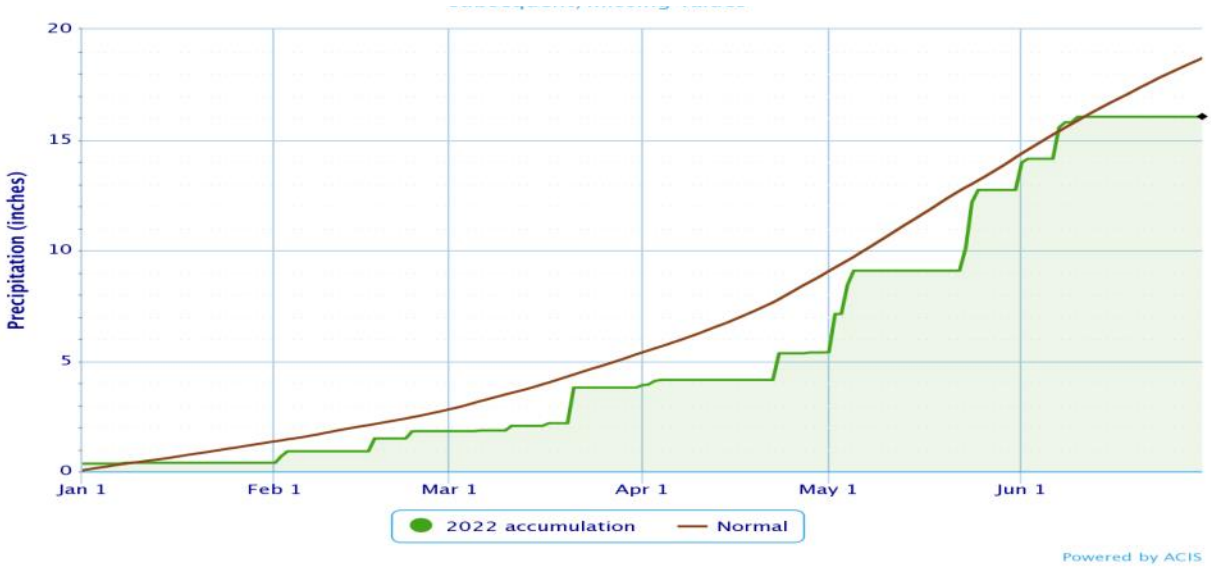
Water Resources Division
Association of Central Oklahoma Governments
July 01, 2022

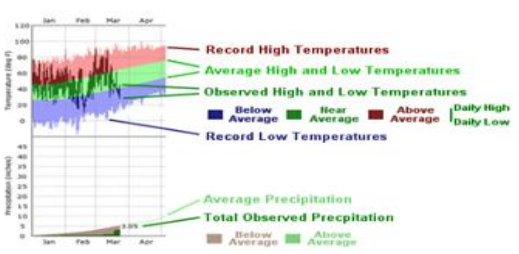
acog

Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2022



Accumulated Precipitation—Oklahoma City Area, OK





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

Rainfall Summaries by Oklahoma Climate Division

Calendar Year 01-Jan-2021 though 29-Jun-2022

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	11.97"	-2.86"	81%	34th driest	4.82" (2011)	25.53" (1957)
Central	20.10"	+0.48"	102%	37th wettest	8.17" (1936)	34.13" (1957)
S. Central	16.99"	-4.56"	79%	29th driest	9.88" (1963)	42.03" (2015)
Statewide	17.33"	-1.56"	92%	47th driest	8.76" (1936)	32.47" (1957)

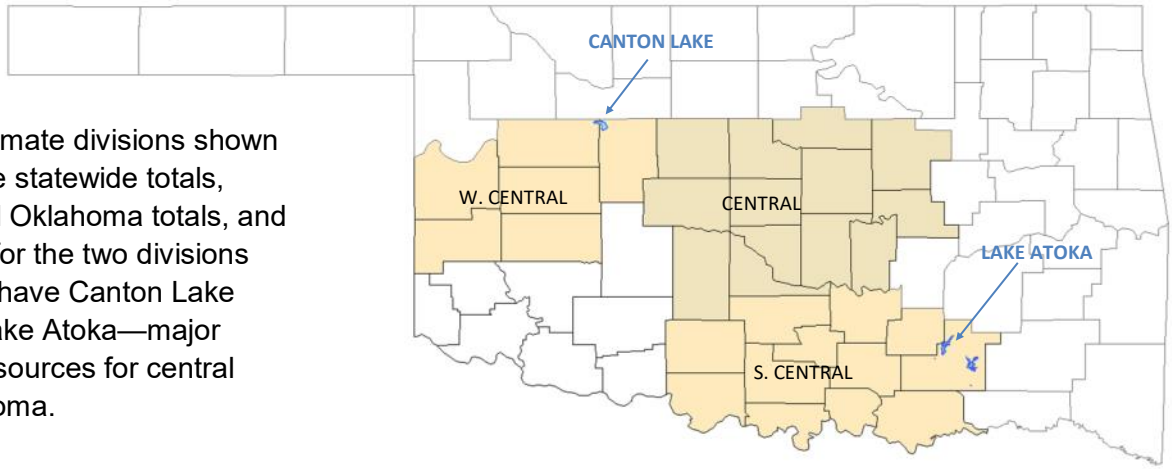
Water Year: 01-Oct-2021 through 29-Jun-2022

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	14.30"	-6.07"	70%	23rd driest	9.37" (2010-11)	33.92" (2018-19)
Central	25.61"	-2.12"	92%	48th wettest	14.14" (1995-96)	43.44" (1984-85)
S. Central	22.19"	-9.05"	71%	19th driest	13.18" (1924-25)	50.85" (2014-15)
Statewide	22.88"	-4.09"	85%	37th driest	14.32" (1955-56)	38.41" (1956-57)

Summer Jun 01 through 29-Jun-2022

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	4.76"	+0.74"	118%	27th wettest	0.11" (1933)	8.75" (1962)
Central	3.80"	-1.01"	79%	50th driest	0.34" (1933)	12.31" (2007)
S. Central	3.55"	-1.13"	76%	44th driest	0.19" (1933)	9.95" (2007)
Statewide	3.76"	-0.64"	85%	49th driest	0.41" (1933)	9.30" (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.

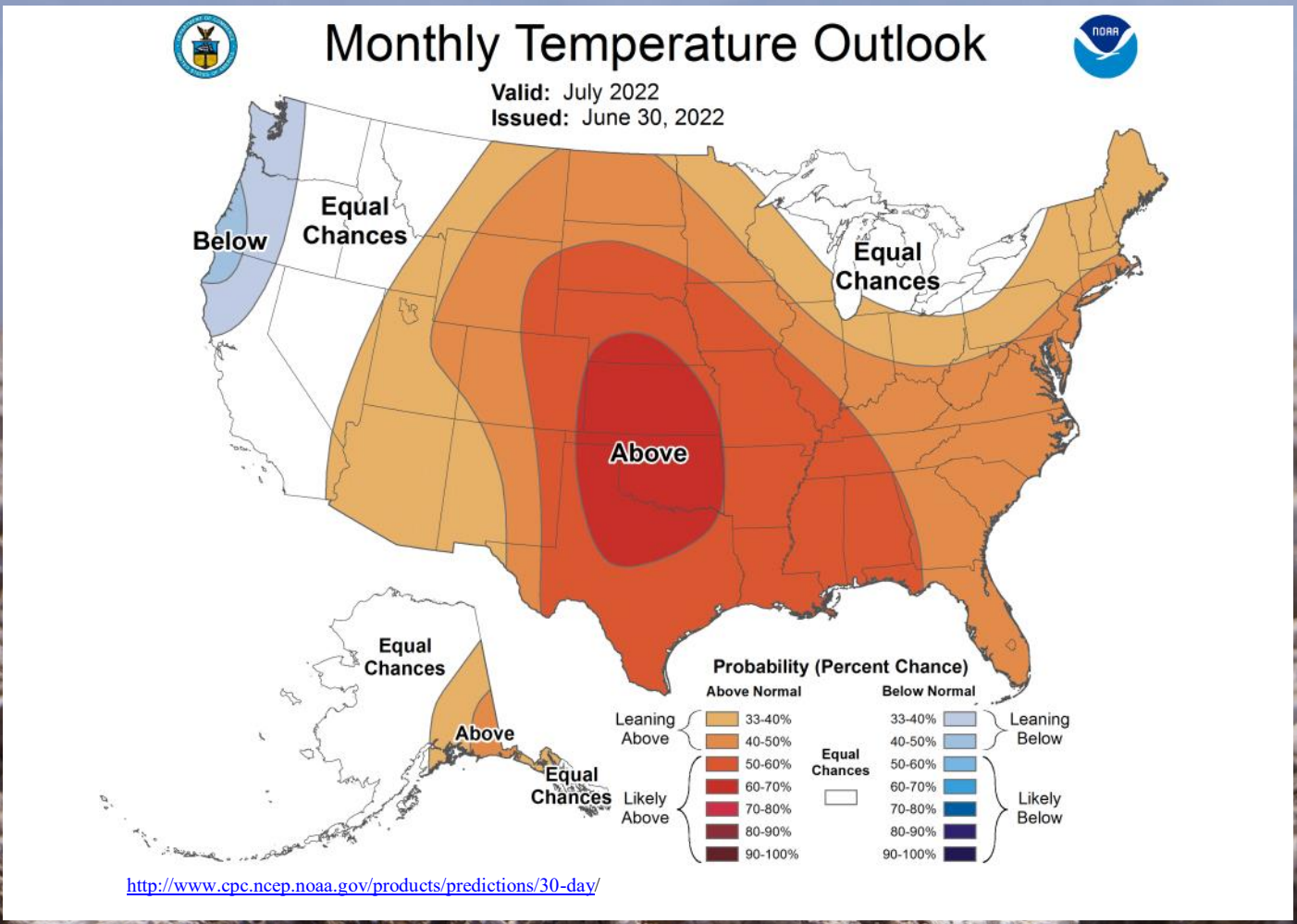


http://climate.ok.gov/index.php/drought/last_30_days/

OKLAHOMA CLIMATOLOGICAL SURVEY

acog

NOAA One-Month Outlook



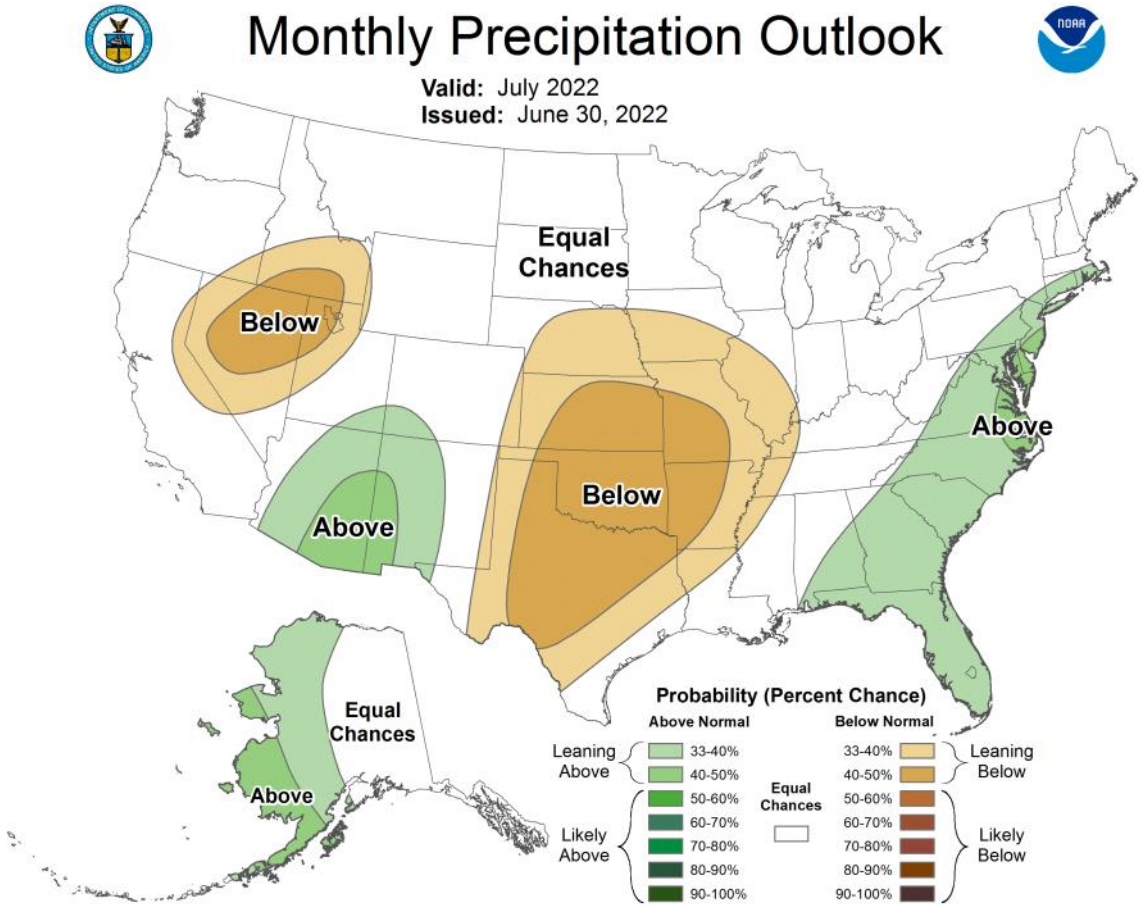
http://www.cpc.ncep.noaa.gov/products/predictions/30-day/

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.

acog

NOAA One-Month Outlook

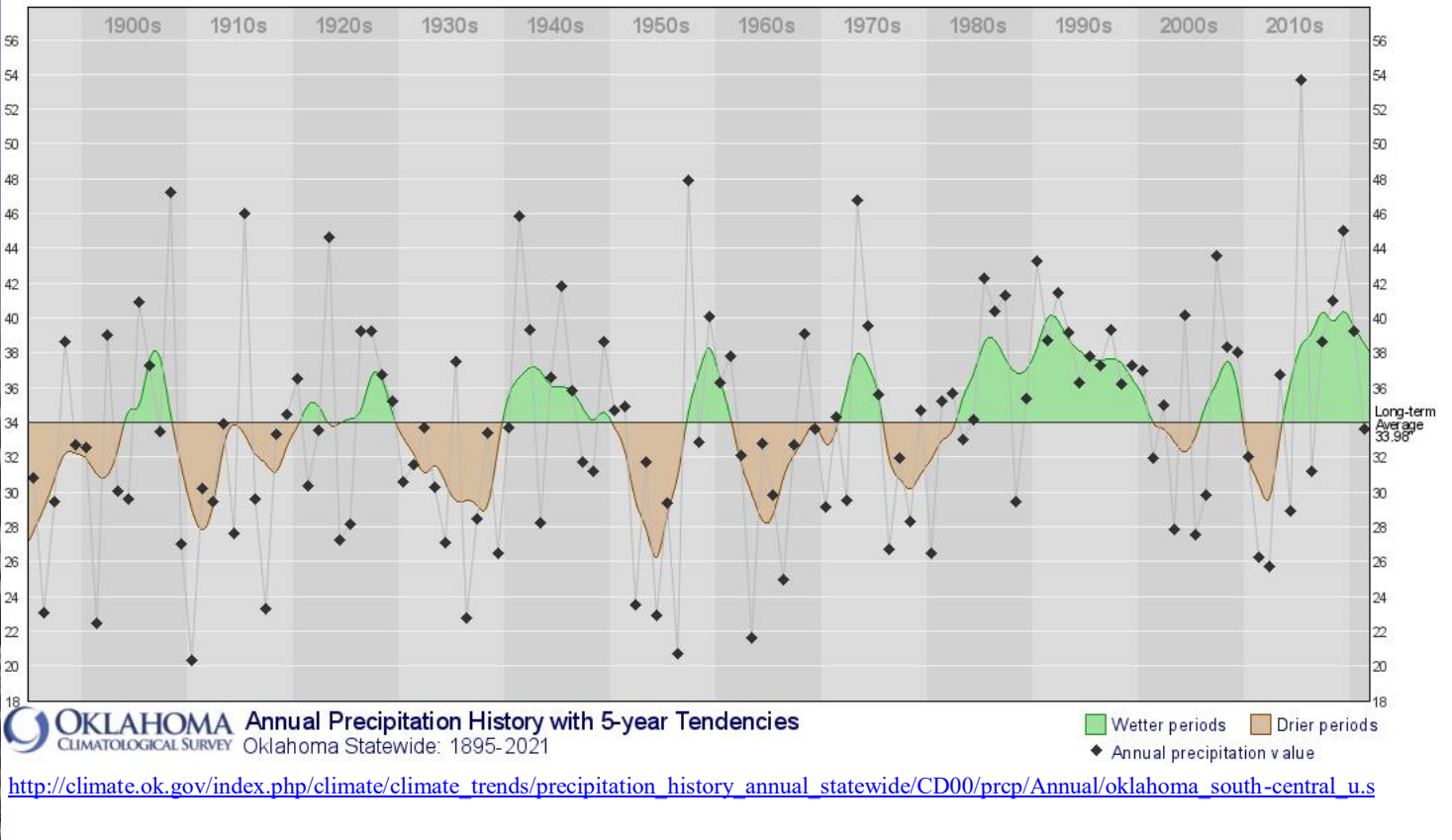


http://www.cpc.ncep.noaa.gov/products/predictions/30-day/

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.

Annual Precipitation History with 5-Year Tendencies



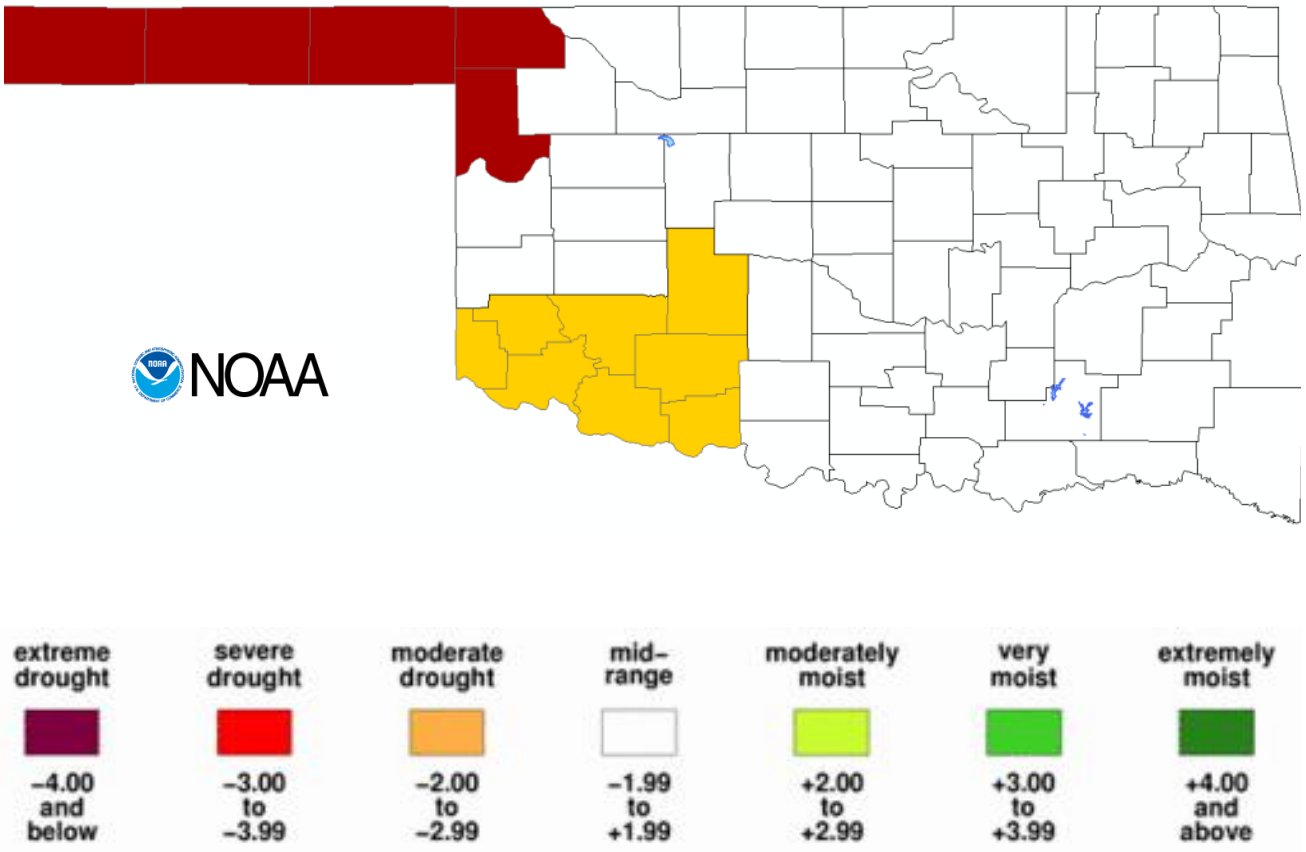
http://climate.ok.gov/index.php/climate/climate_trends/precipitation_history_annual_statewide/CD00/prcp/Annual/oklahoma_south-central_u.s

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 Ending 25 JUN 2022



http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/palmer_drought/wpdsouth.txt

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 (meteorological) 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.

acog

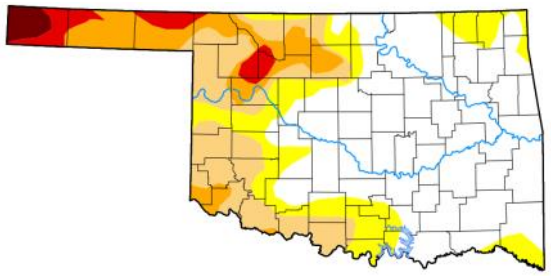
U.S. Drought Monitor

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2022-06-28	54.09	45.91	30.76	14.79	5.07	1.46
Last Week	2022-06-21	58.98	41.02	31.26	15.81	5.45	1.46
3 Months Ago	2022-03-29	13.76	86.24	76.49	63.34	33.90	8.32
Start of Calendar Year	2021-12-28	4.92	95.08	90.17	72.51	22.62	0.00
Start of Water Year	2021-09-28	6.45	93.55	73.23	23.72	2.65	0.00
One Year Ago	2021-06-29	84.11	15.89	1.77	0.24	0.00	0.00

U.S. Drought Monitor

Oklahoma

Abnormal dryness or drought are currently affecting approximately 515,746 people in Oklahoma.

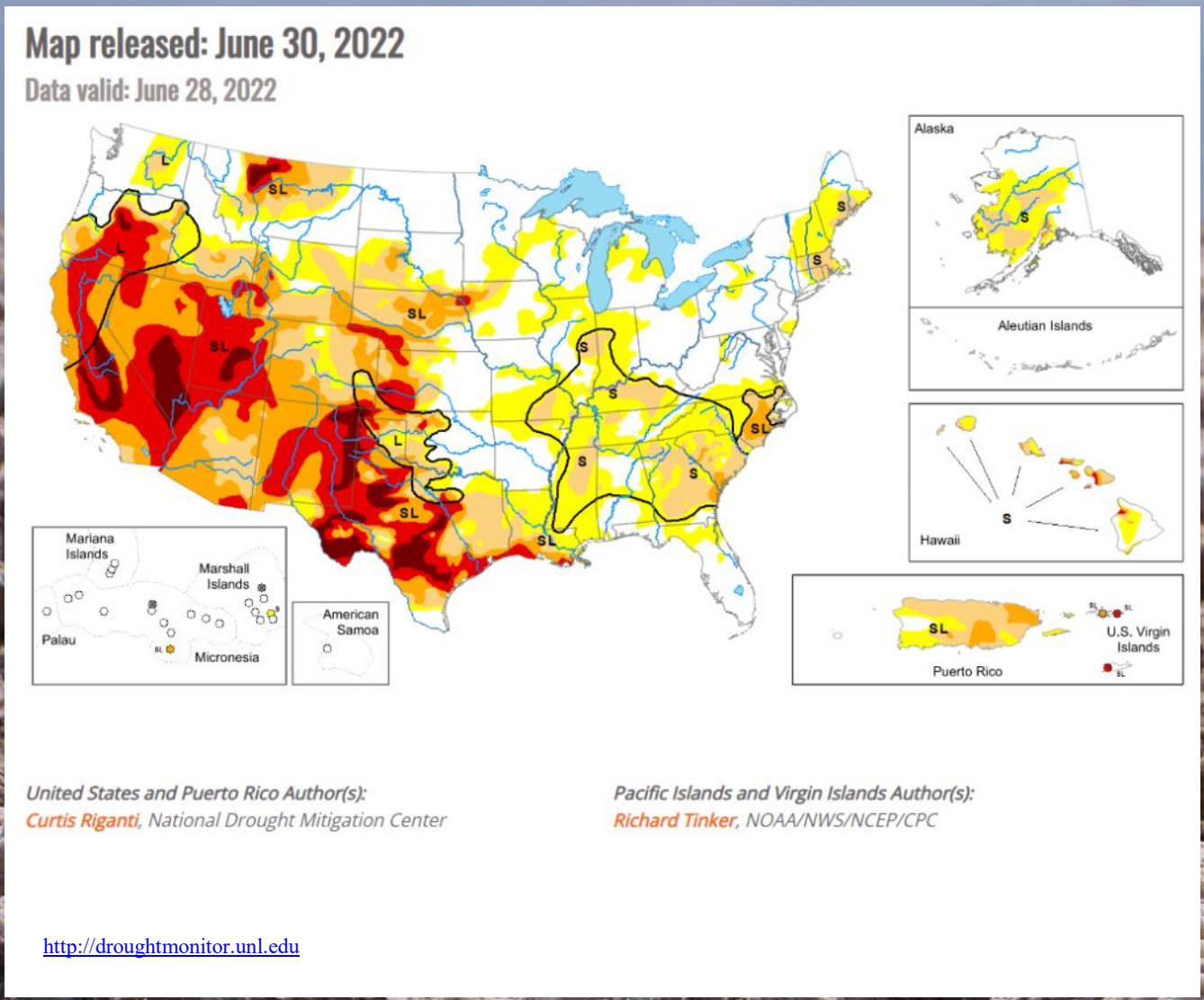


NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM NIDIS Drought.gov U.S. Drought Portal

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

acog

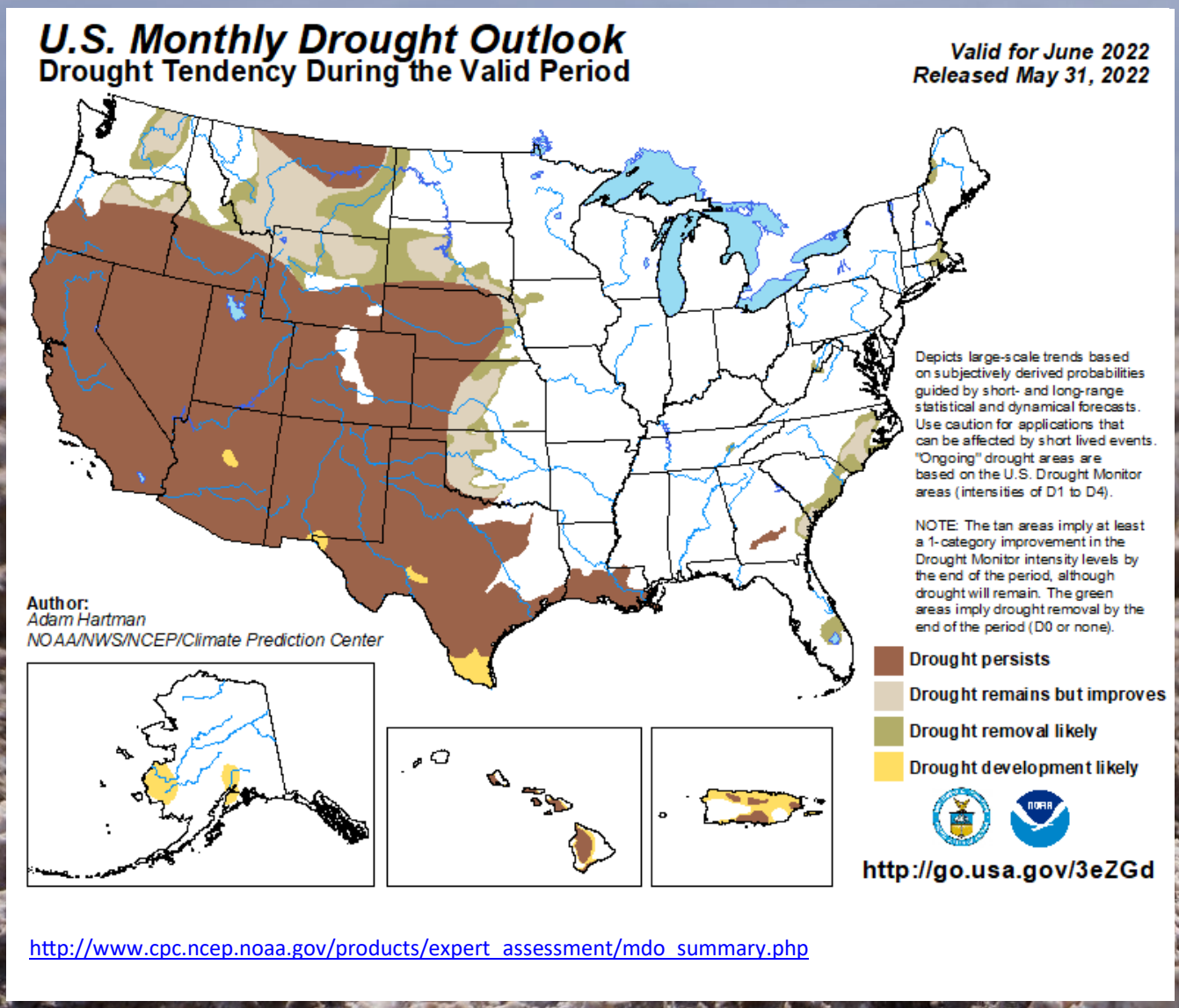
U.S. Drought Monitor Nationwide Map



http://droughtmonitor.unl.edu

U.S. Drought Monitor

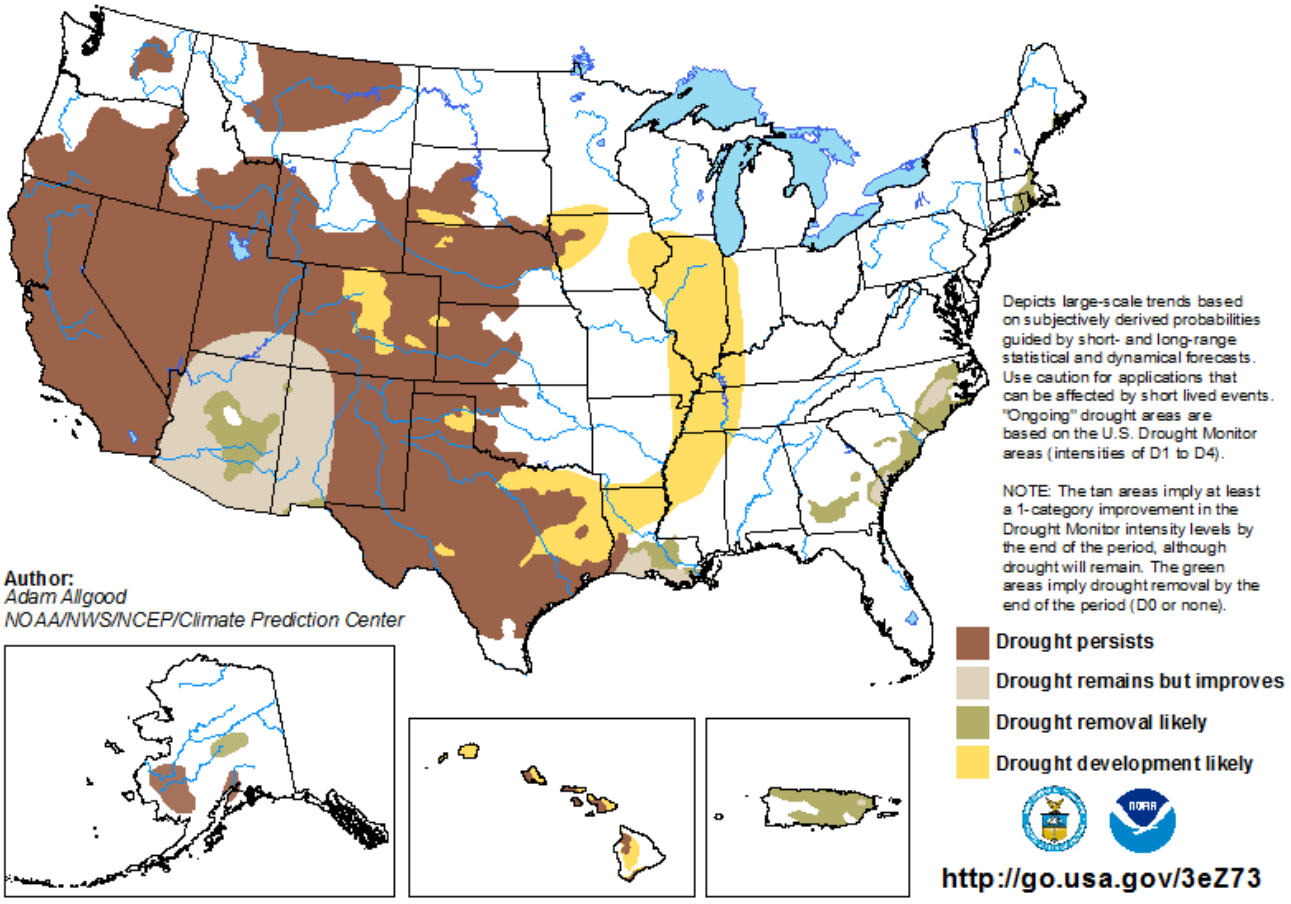
Monthly Drought Outlook Map



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

U.S. Drought Monitor

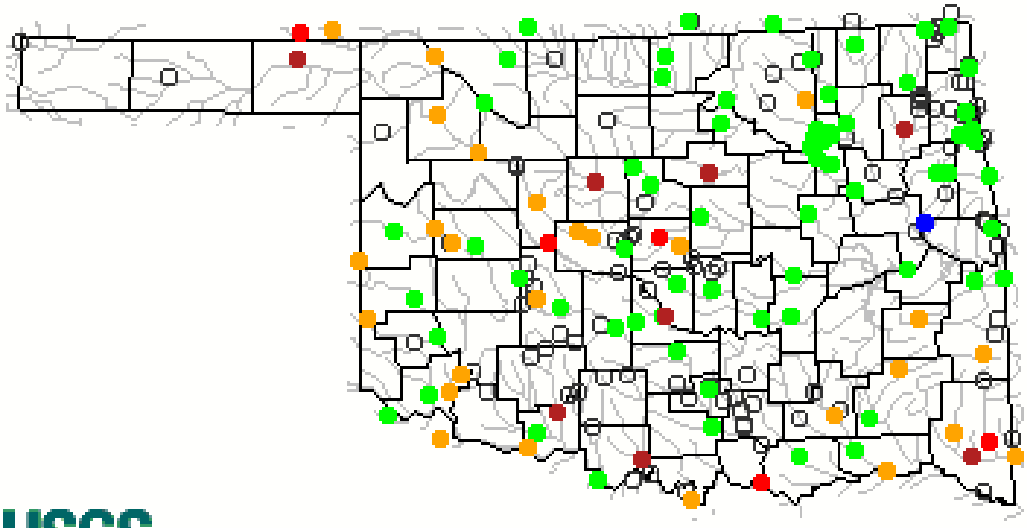
Seasonal Drought Outlook Map



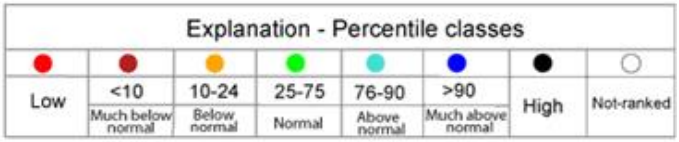
http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php

USGS Streamflow Data

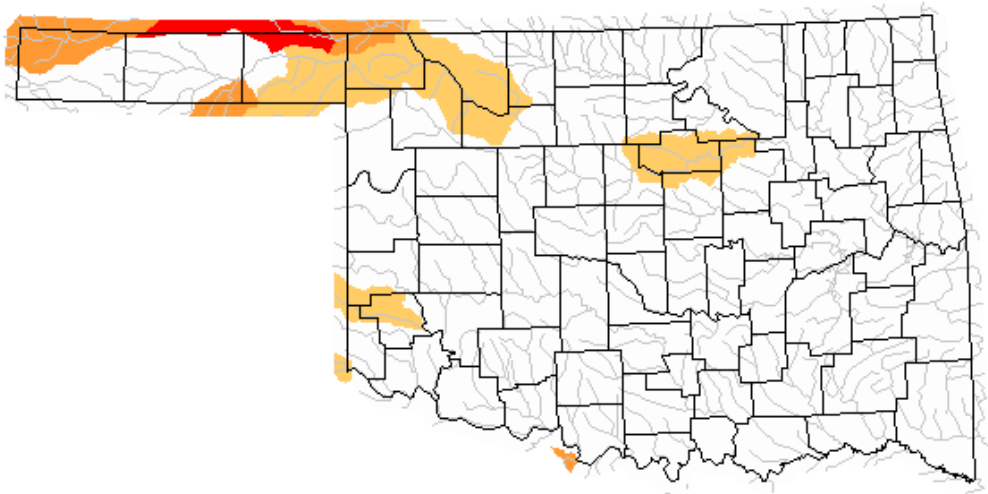
Thursday, June 30, 2022 11:30ET



USGS

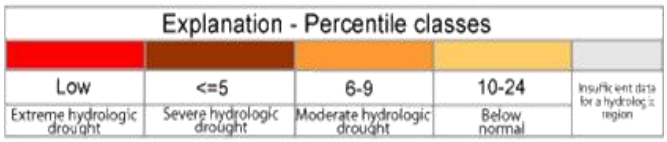


Wednesday, June 29, 2022



USGS

Below normal 28-day average streamflow

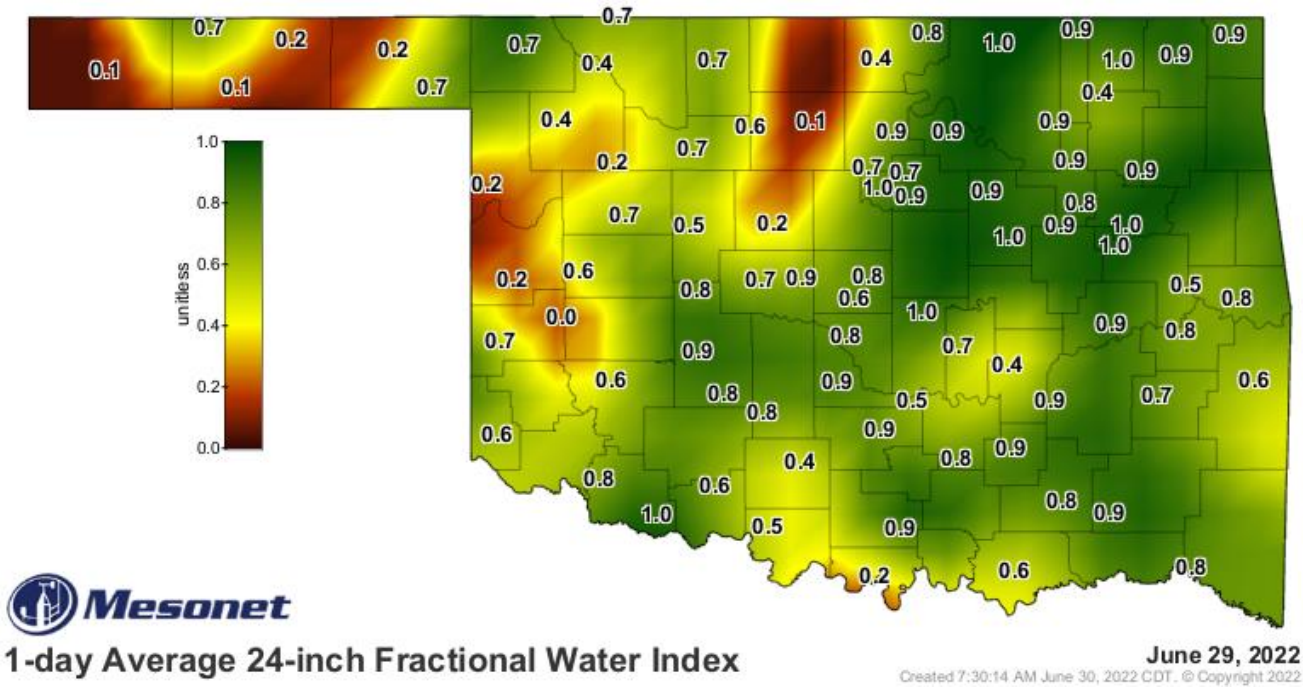


https://waterdata.usgs.gov/ok/nwis/rt

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

acog

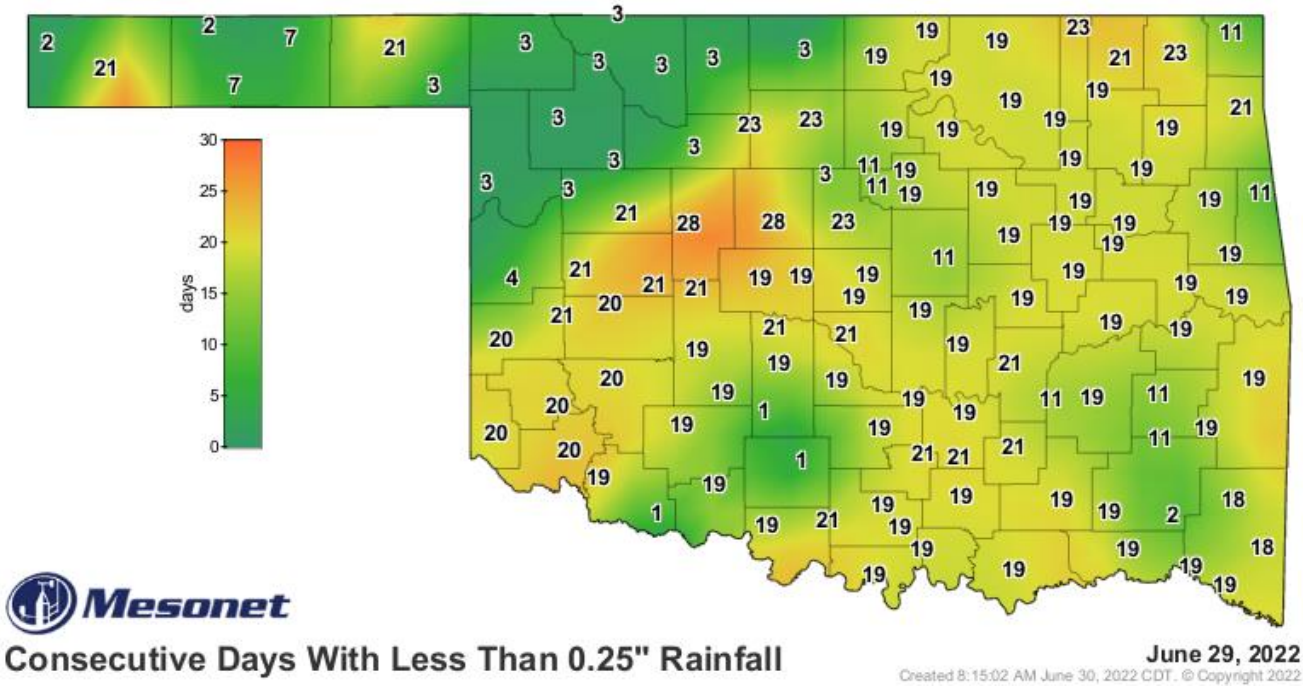
SOIL MOISTURE MAP



- 1.0 - 0.8 Enhanced Growth
- 0.8 – 0.5 Limited Growth
- 0.5 – 0.3 Plants Wilting
- 0.3 - 0.1 Plants Dying
- < 0.1 Barren Soil

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

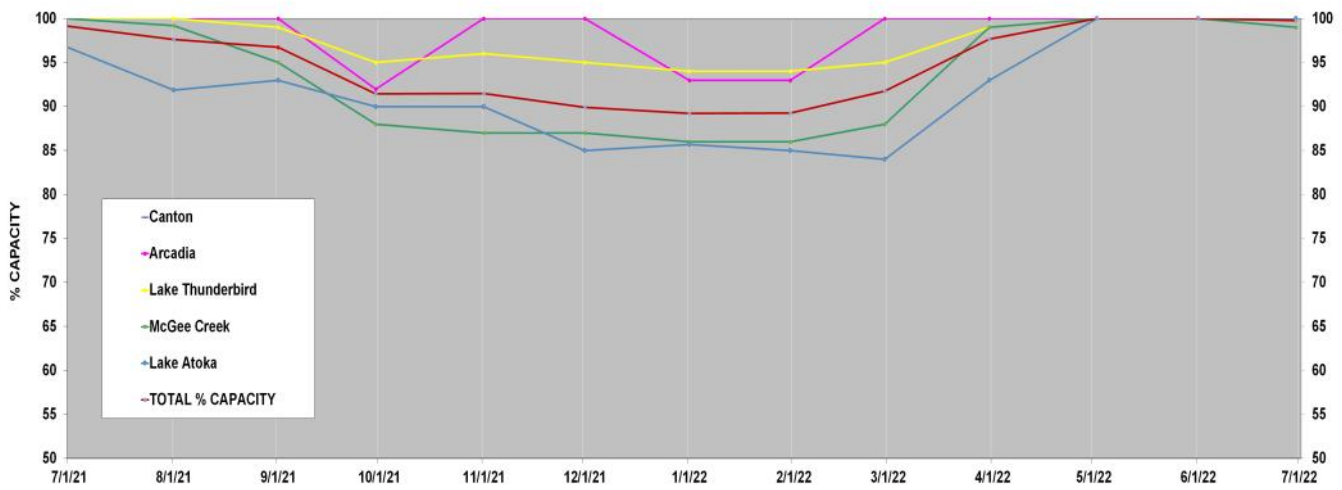
CONSECUTIVE DAYS WITHOUT RAINFALL MAP



http://www.mesonet.org/index.php/weather/map/consecutive_days_with_less_than_0.25_inches_Rainfall/rainfall

acog

Percent of Surface Water Conservation Storage
Central OK Reservoirs



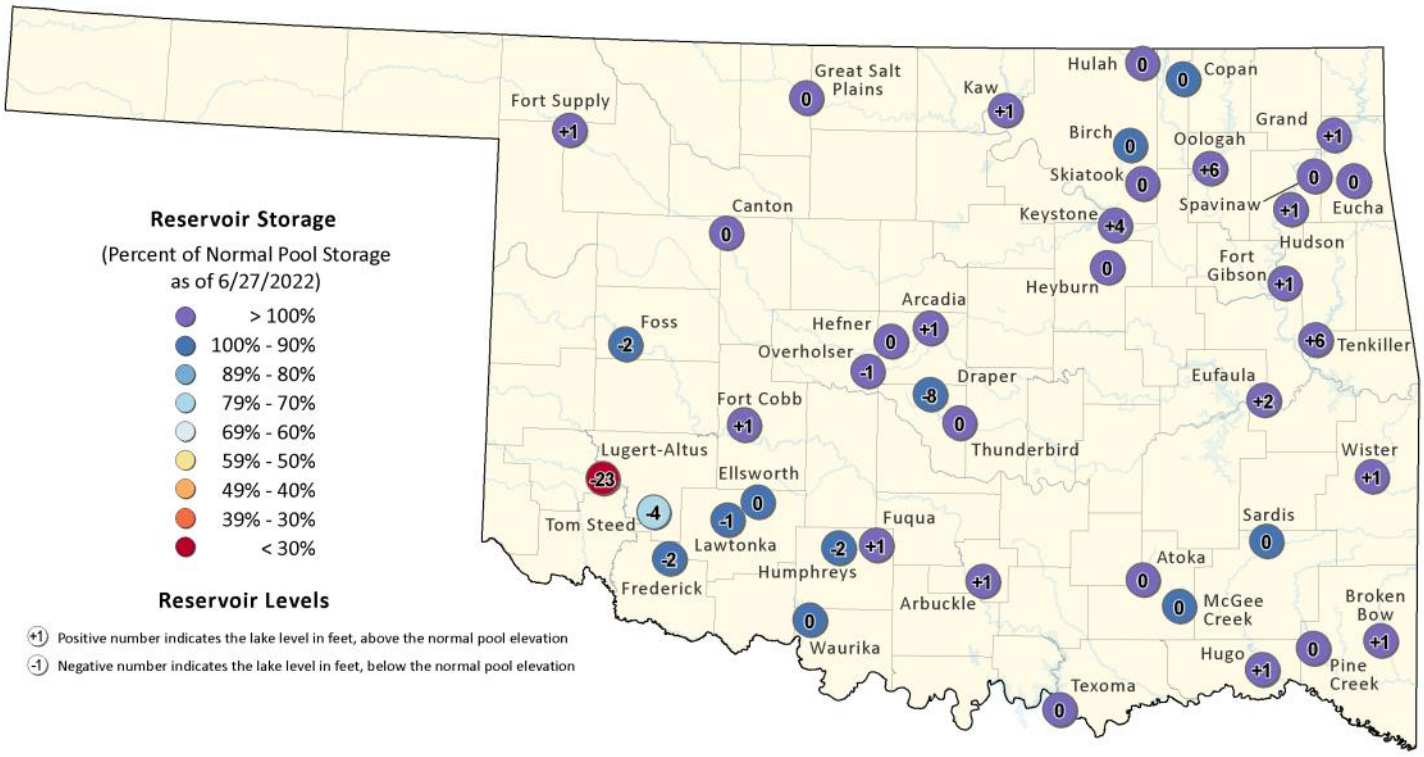
Lake Hefner and Lake Overholser are terminal storage for Canton Lake. Lake Draper is terminal storage for McGee Creek and Atoka Lakes.

LAKE	% CAPACITY	% CHANGE FROM 6/1/2022
Canton	100.0	0.0
Arcadia	100.0	0.0
Lake Thunderbird	100.0	0.0
McGee Creek	99.0	-1.0
Lake Atoka	100.0	0.0
TOTAL % CAPACITY	99.8	-0.2

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

The graph is the amount of water stored in five major lakes that supply water to central Oklahoma as a percent of capacity over the past year.

Oklahoma Reservoir Levels and Storage as of 6/27/2022



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).

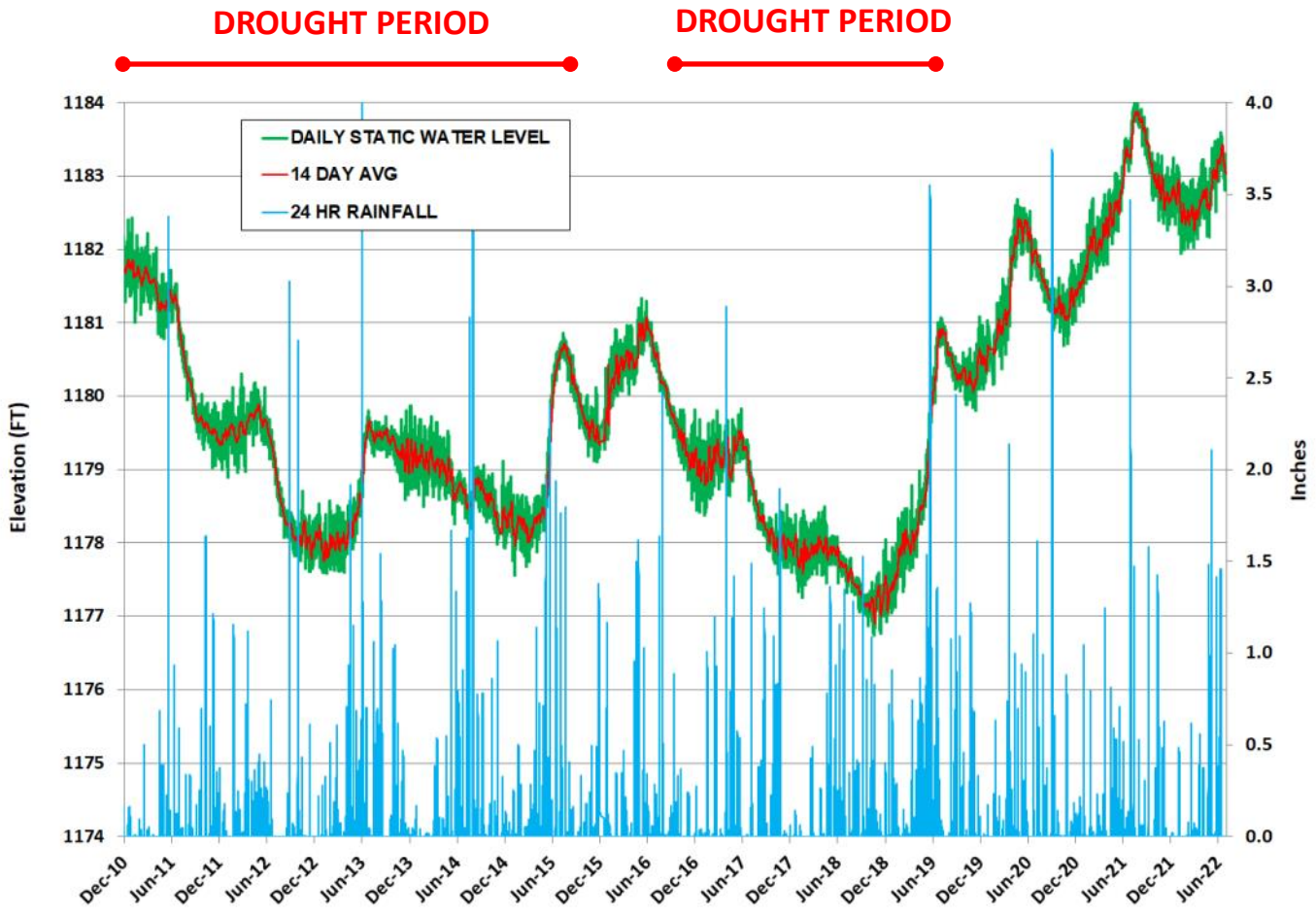
0 50 Miles

OKLAHOMA Water Resources Board

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

acog

Groundwater Levels
Spencer Mesonet Station

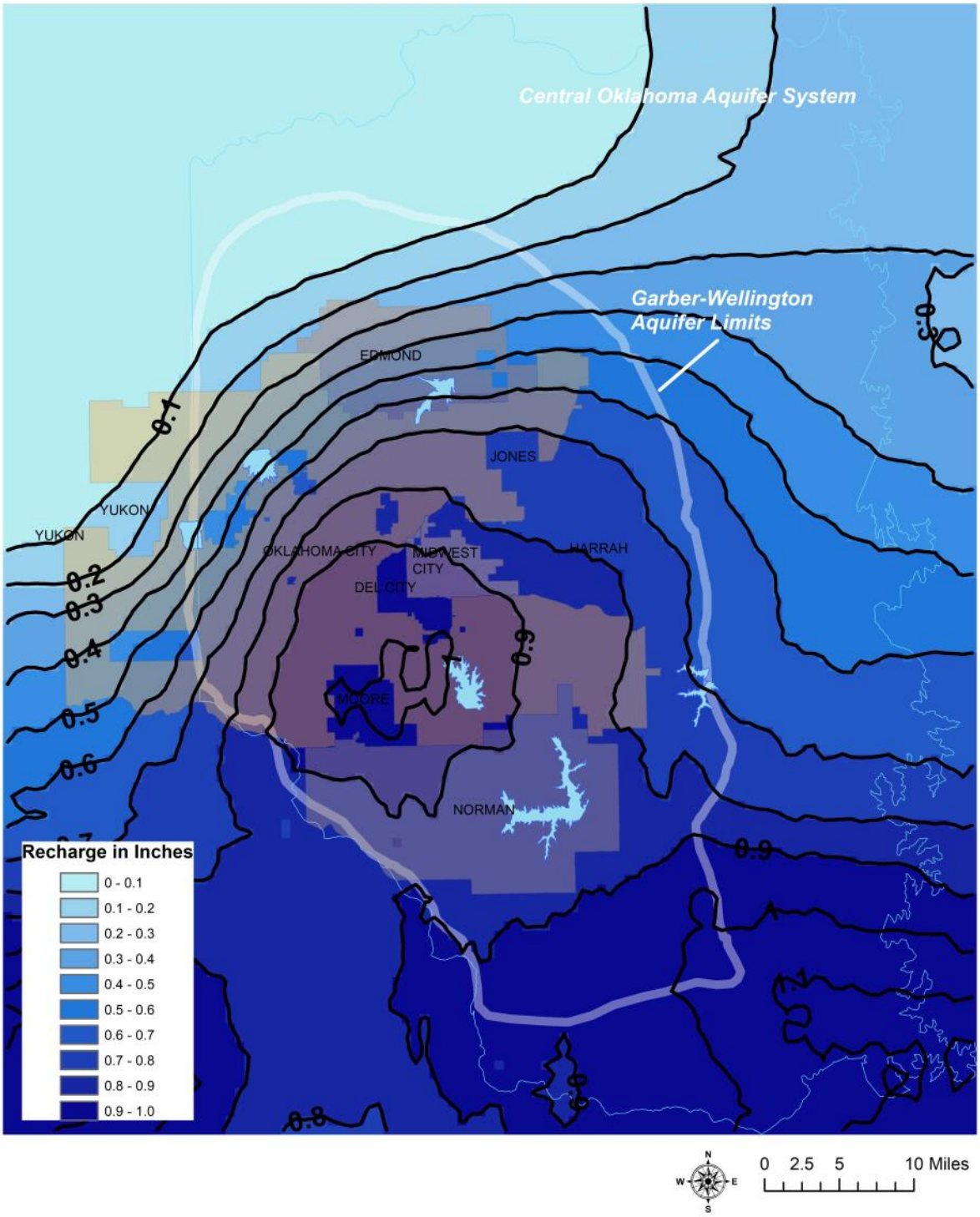


http://www.mesonet.org/index.php/weather/groundwater

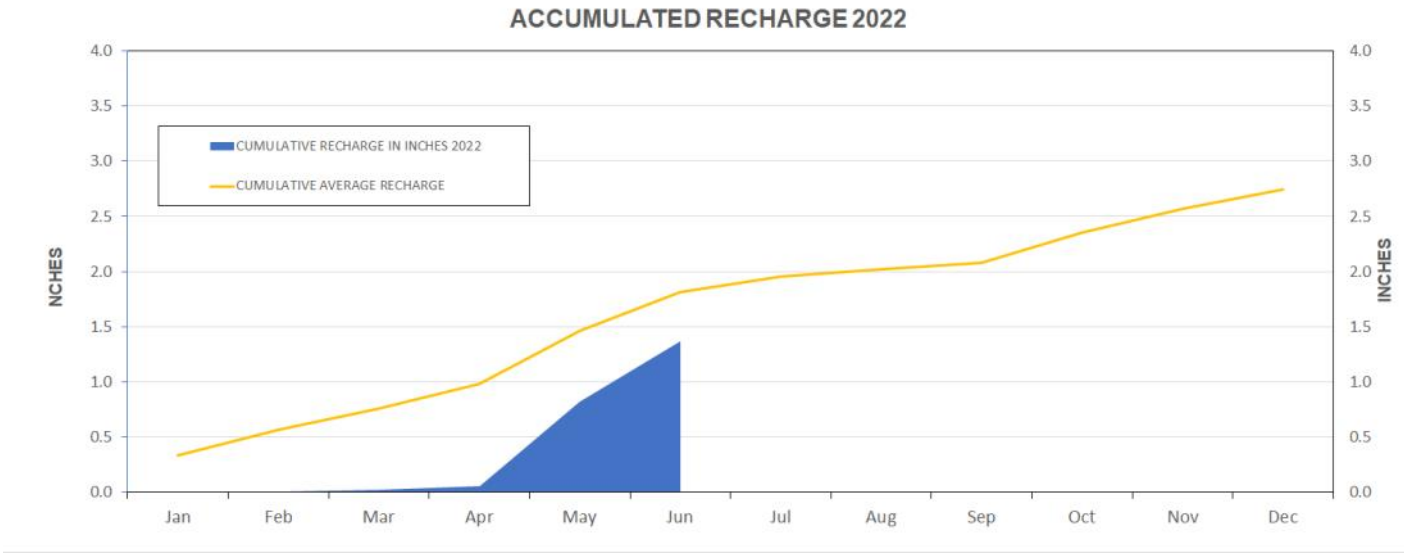
Mesonet

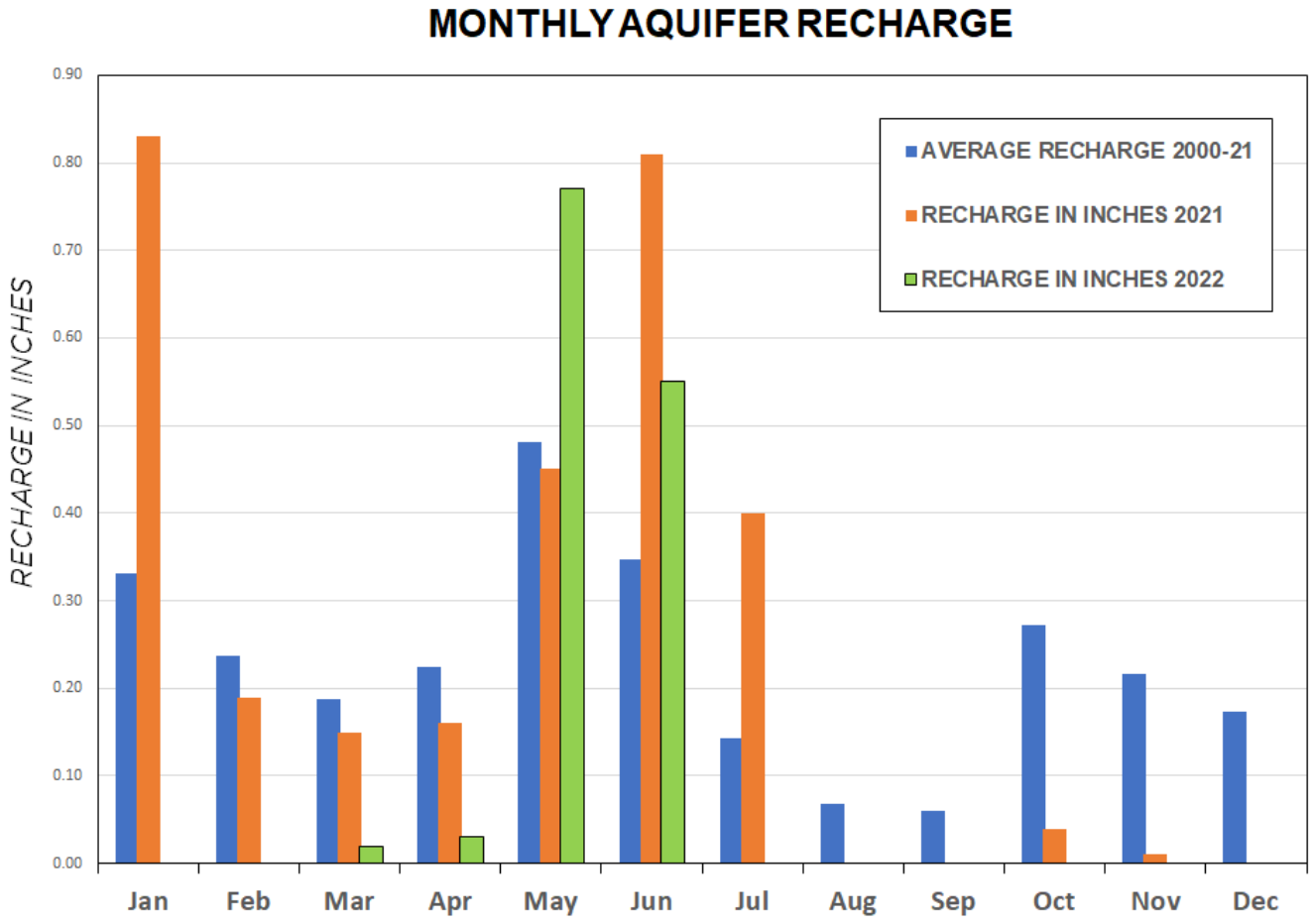
acog

Recharge Map
Central Oklahoma Aquifer System

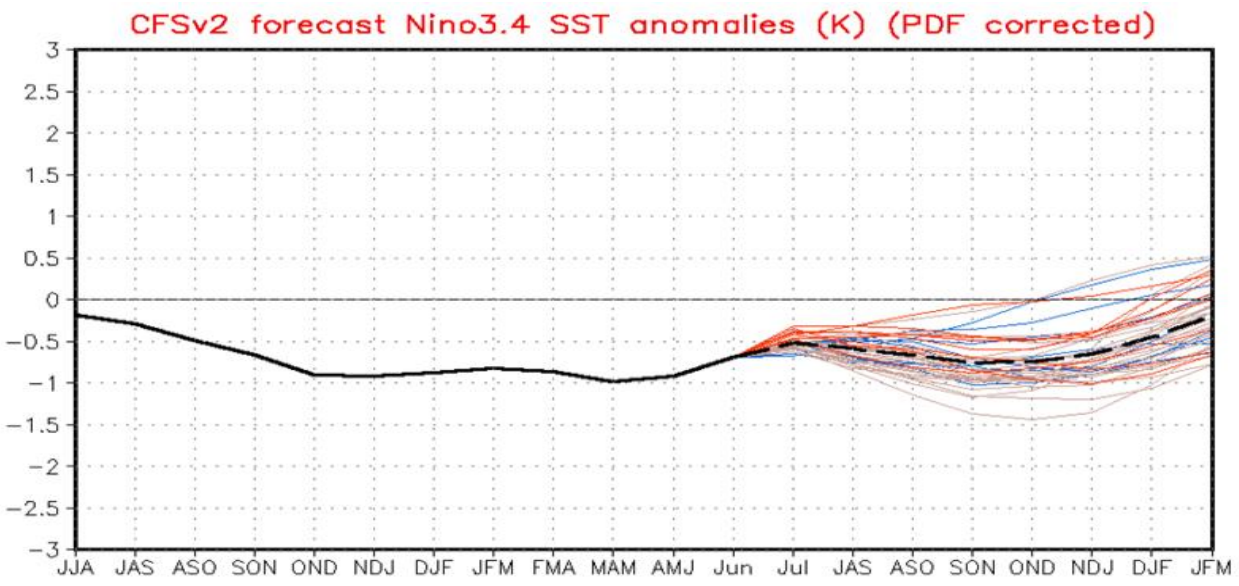


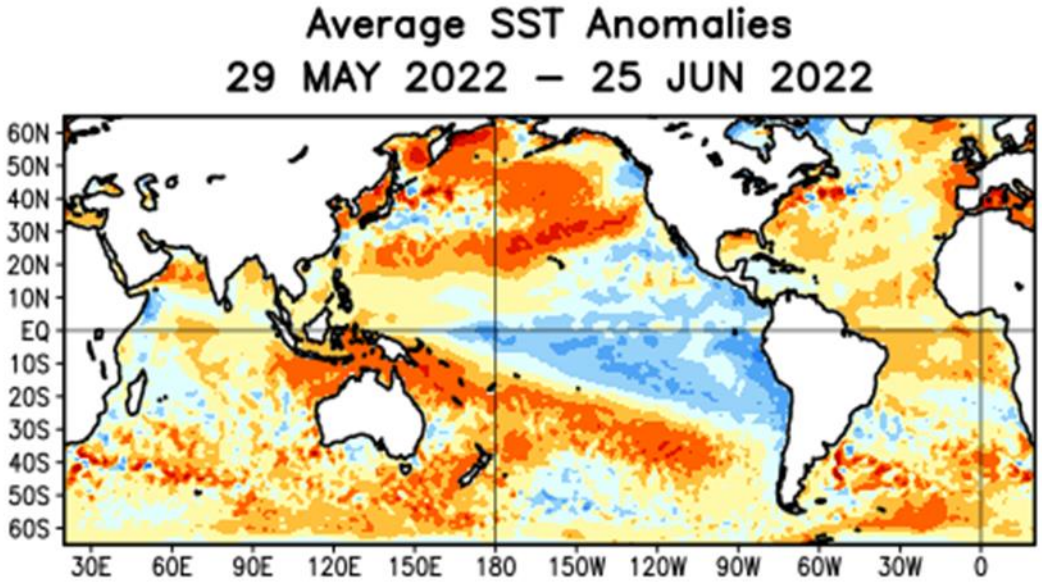
Recharge Charts
Central Oklahoma Aquifer System





ENSO Cycle
Recent Evolution, Current Status and Predictions





Summary

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.
- Though La Niña is favored to continue through the end of the year, the odds for La Niña decrease into the Northern Hemisphere late summer (52% chance in July-September 2022) before slightly increasing through the Northern Hemisphere fall and early winter 2022 (58-59% chance).

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

acog