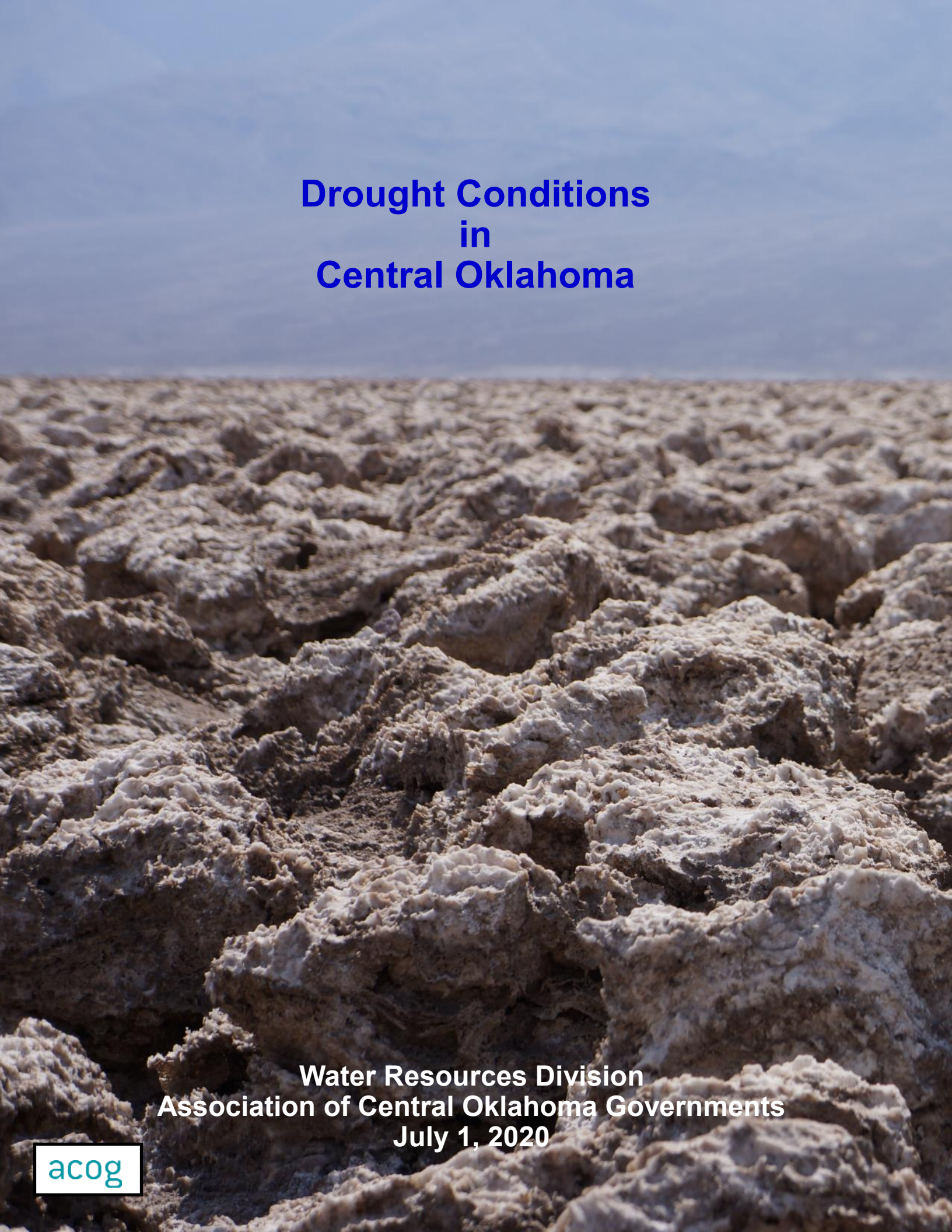
Drought Conditions in Central Oklahoma



Water Resources Division
Association of Central Oklahoma Governments
July 1, 2020

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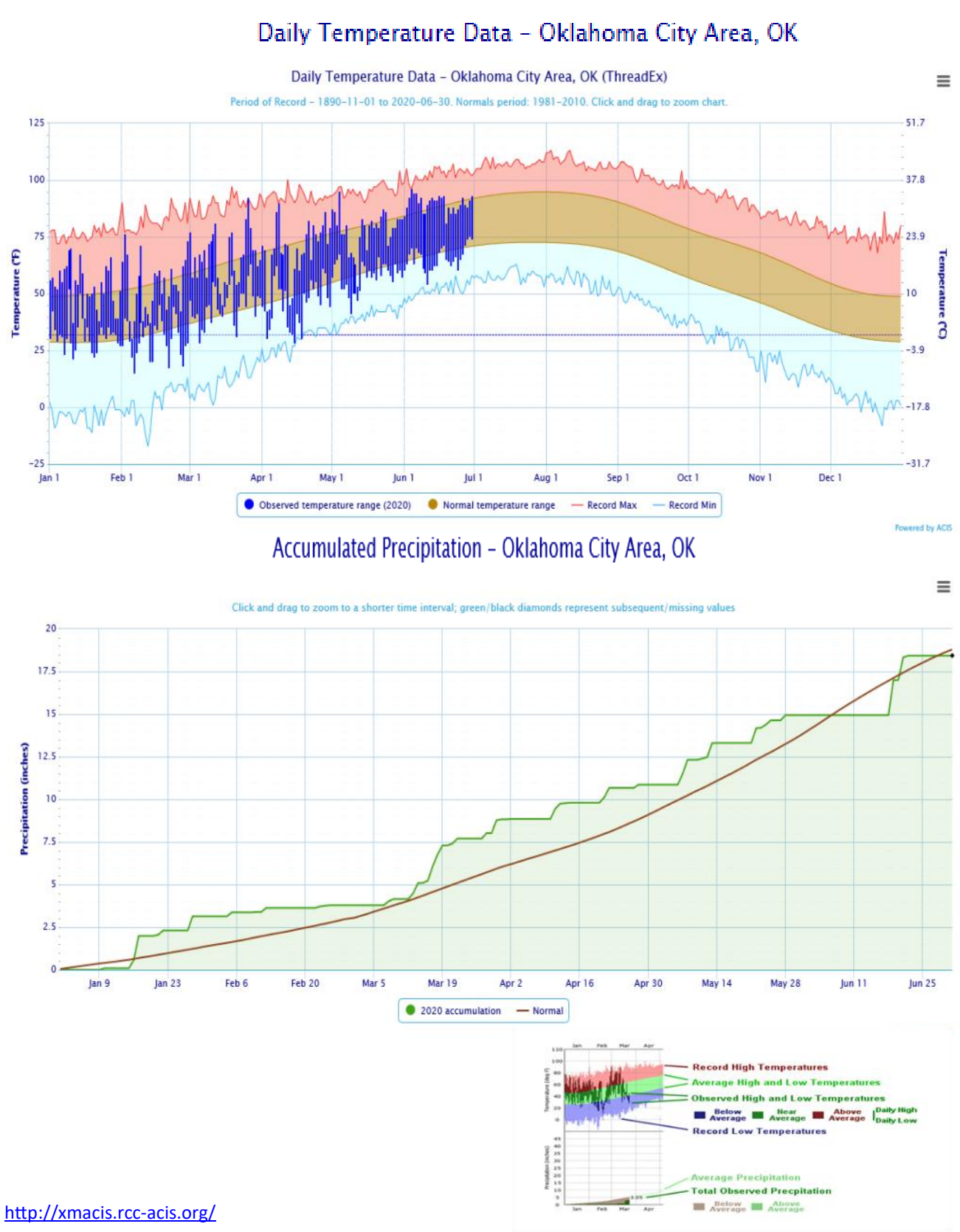
Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2020



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

Rainfall Summaries by Oklahoma Climate Division

Calendar Year 01-Jan-2020 though 30-Jun-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	10.11"	-4.82"	68%	14th driest	4.83" (2011)	25.58" (1957)
Central	18.48"	-1.27"	94%	48th wettest	8.23" (1936)	34.14" (1957)
S. Central	26.50"	+4.83"	122%	13th wettest	9.88" (1963)	42.09" (2015)
Statewide	19.92"	+0.90"	105%	35th wettest	8.91" (1936)	32.56" (1957)

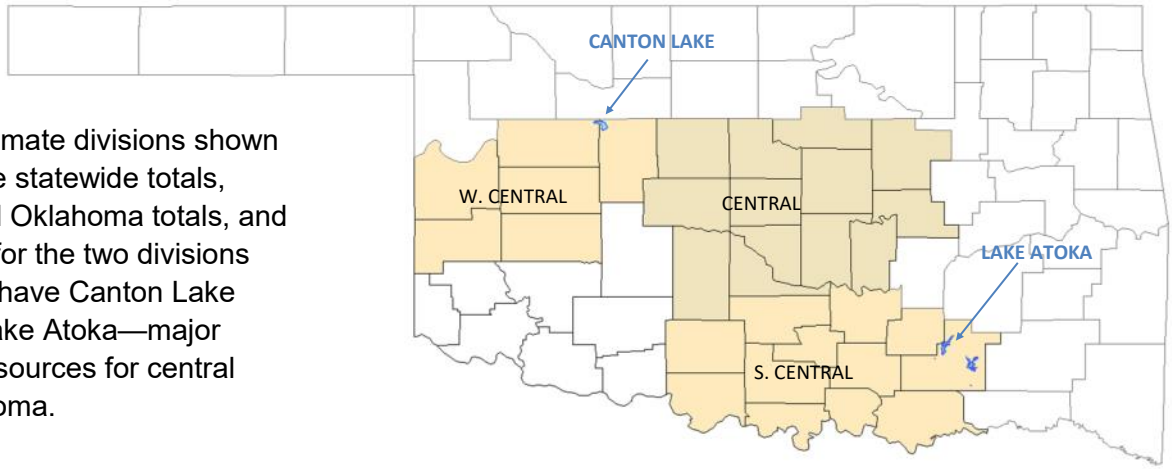
Water Year: 01-Oct-2019 through 30-Jun-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	13.57"	-6.90"	66%	14th driest	9.37" (2010-11)	33.92" (2018-19)
Central	25.80"	-2.06"	93%	46th wettest	14.17" (1995-96)	43.44" (1984-85)
S. Central	36.44"	+5.08"	116%	18th wettest	13.18" (1924-25)	50.91" (2014-15)
Statewide	28.40"	+1.30"	105%	29th wettest	14.45" (1955-56)	38.50" (1956-57)

Summer 01-Jun through 30-Jun-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	1.87"	-2.25"	45%	19th driest	0.33" (1933)	8.84" (1962)
Central	2.15"	-2.79"	44%	20th driest	0.35" (1933)	13.26" (2007)
S. Central	2.92"	-1.88"	61%	29th driest	0.19" (1933)	10.63" (2007)
Statewide	1.98"	-2.55"	44%	11th driest	0.47" (1933)	9.88" (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

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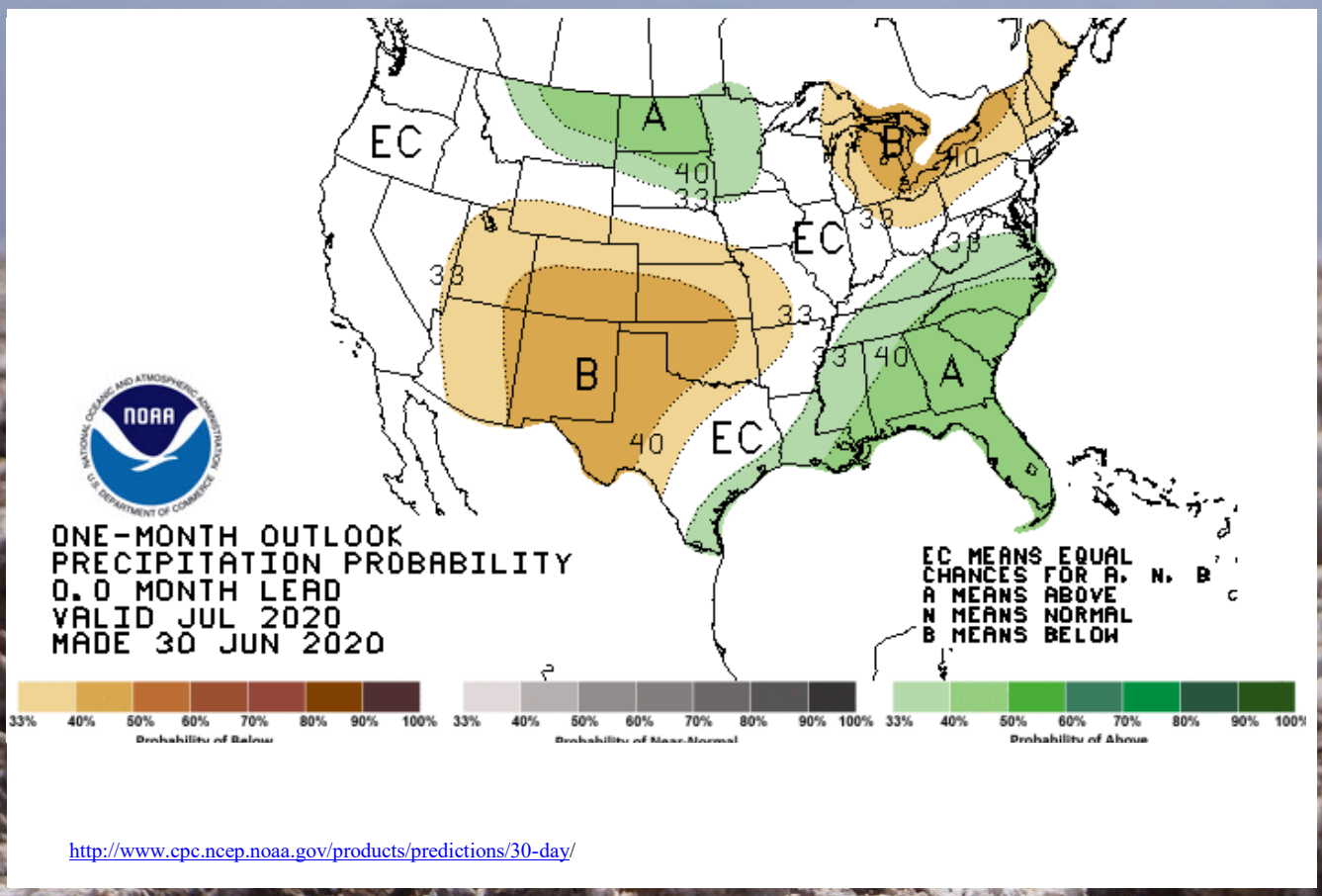
NOAA One-Month Outlook



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.

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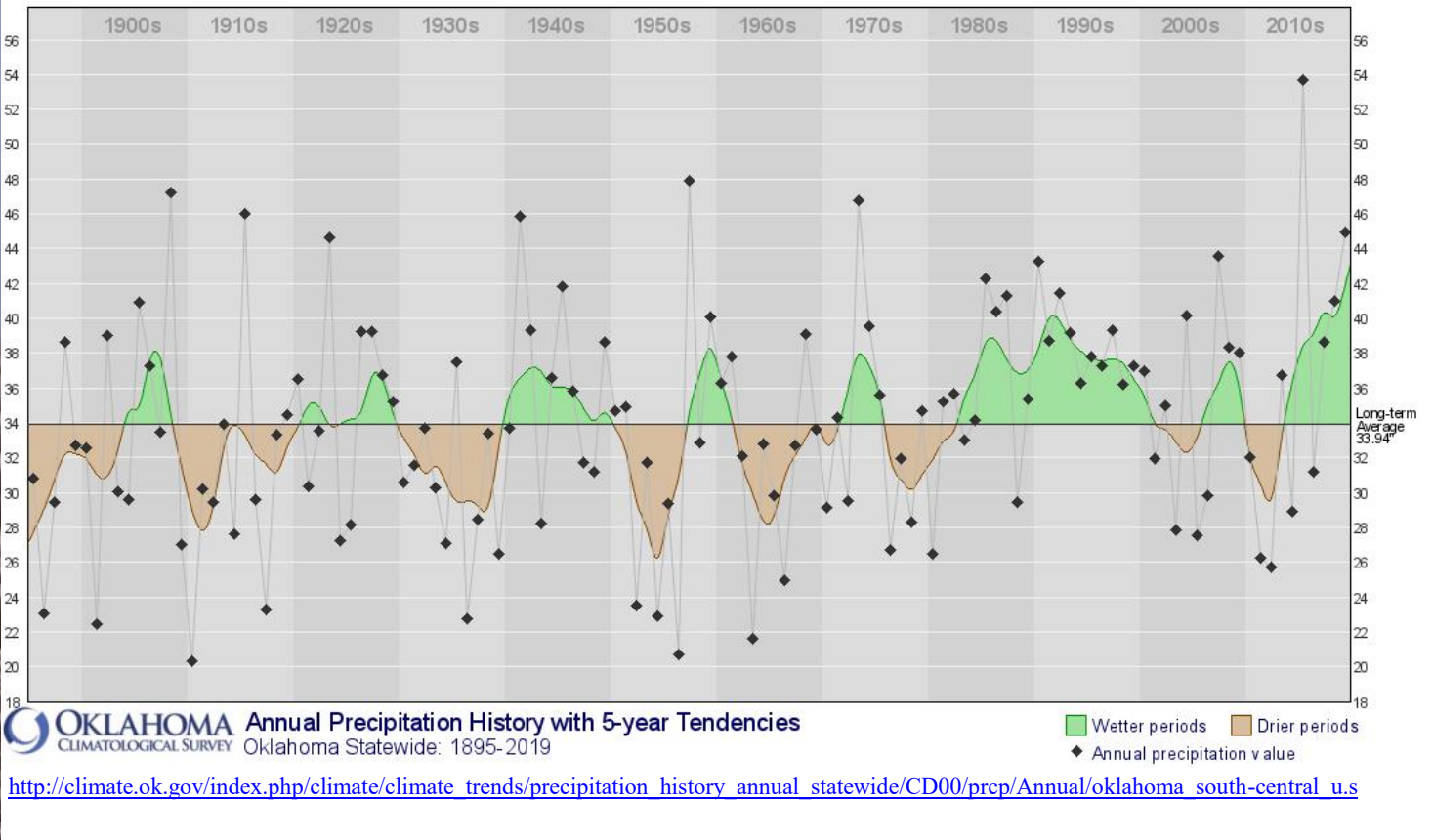
Annual Precipitation History with 5-Year Tendencies



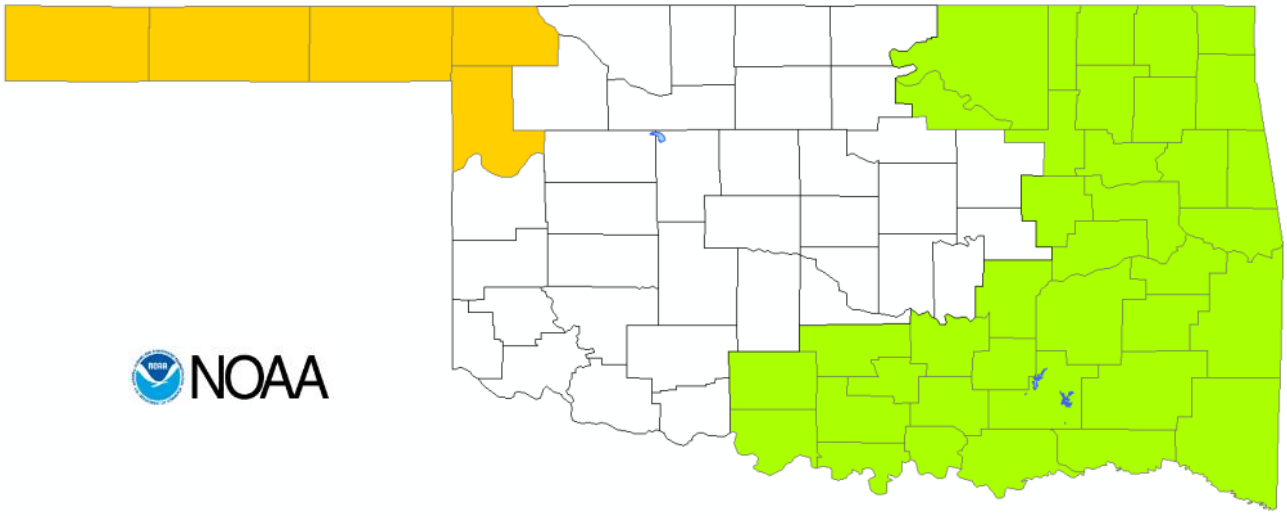
http://climate.ok.gov/index.php/climate/climate_trends/precipitation_history_annual_statewide/CD00/prcp/Annual/oklahoma_south-central_u.s

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 27 JUN 2020



extreme drought	severe drought	moderate drought	mid-range	moderately moist	very moist	extremely moist
-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above

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.

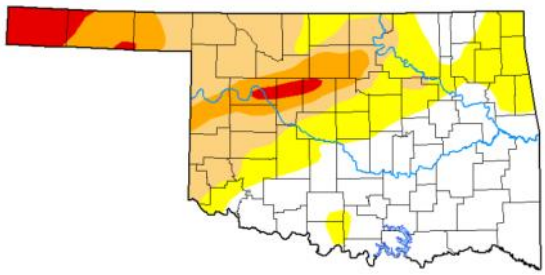
U.S. Drought Monitor

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2020-06-23	43.25	56.75	34.75	13.95	4.26	0.00
Last Week	2020-06-16	48.82	51.18	39.84	14.64	4.26	0.00
3 Months Ago	2020-03-24	93.64	6.36	3.11	0.84	0.00	0.00
Start of Calendar Year	2019-12-31	76.45	23.55	10.47	3.64	0.00	0.00
Start of Water Year	2019-10-01	71.94	28.06	11.08	1.01	0.00	0.00
One Year Ago	2019-06-25	100.00	0.00	0.00	0.00	0.00	0.00

U.S. Drought Monitor

Oklahoma

Abnormal dryness or drought are currently affecting approximately 420,933 people in Oklahoma.



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

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

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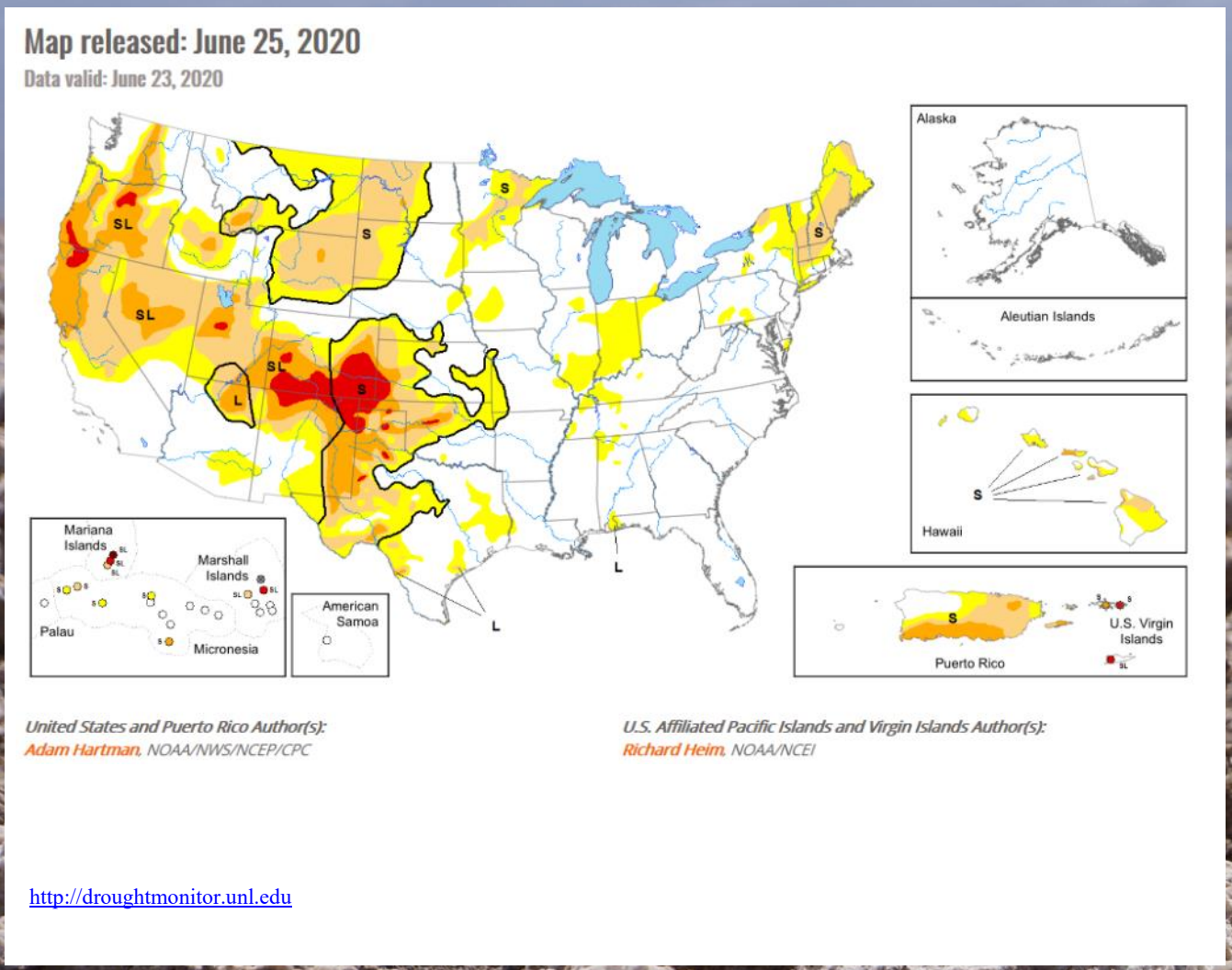
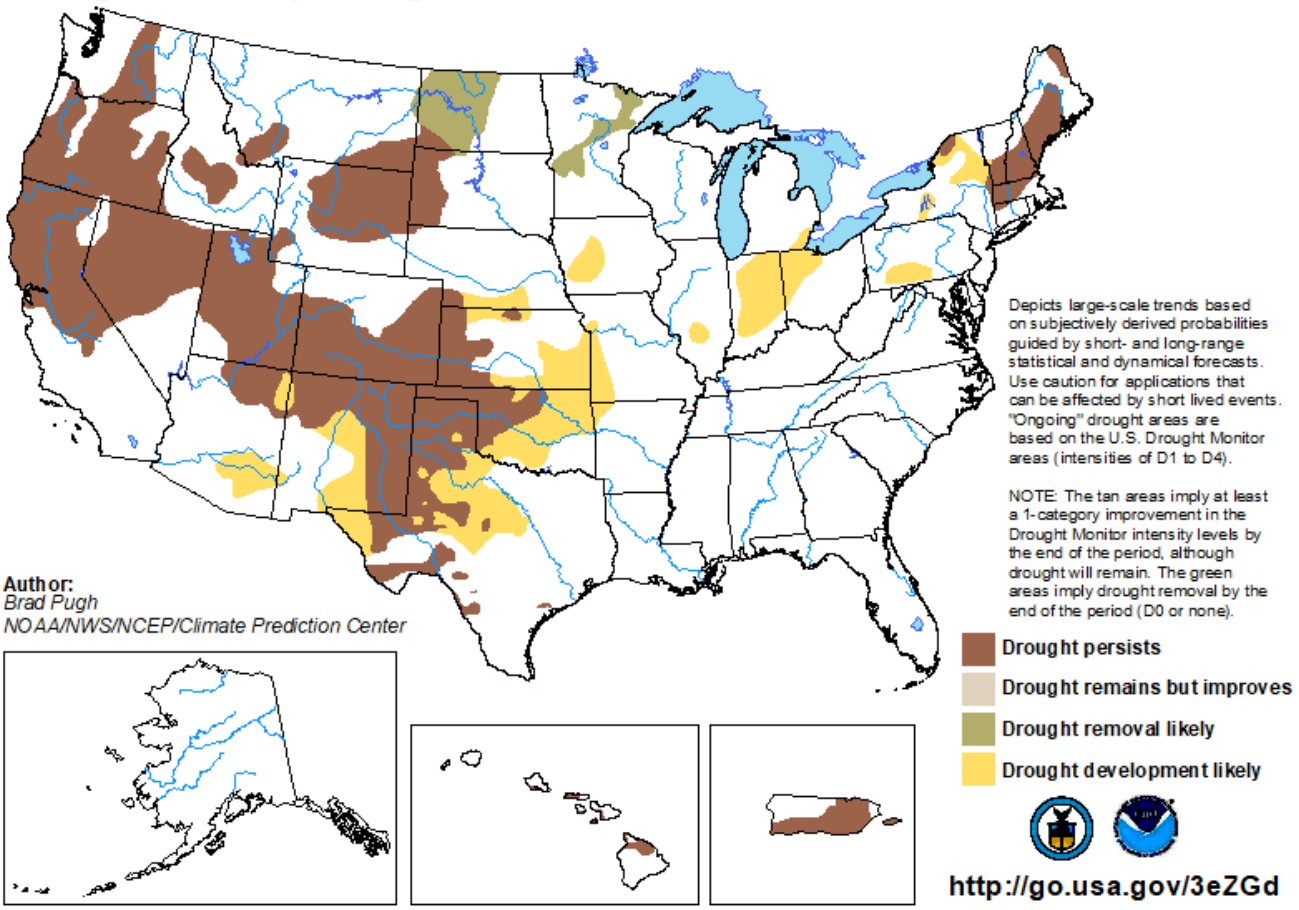
U.S. Drought Monitor Nationwide Map



http://droughtmonitor.unl.edu

U.S. Drought Monitor

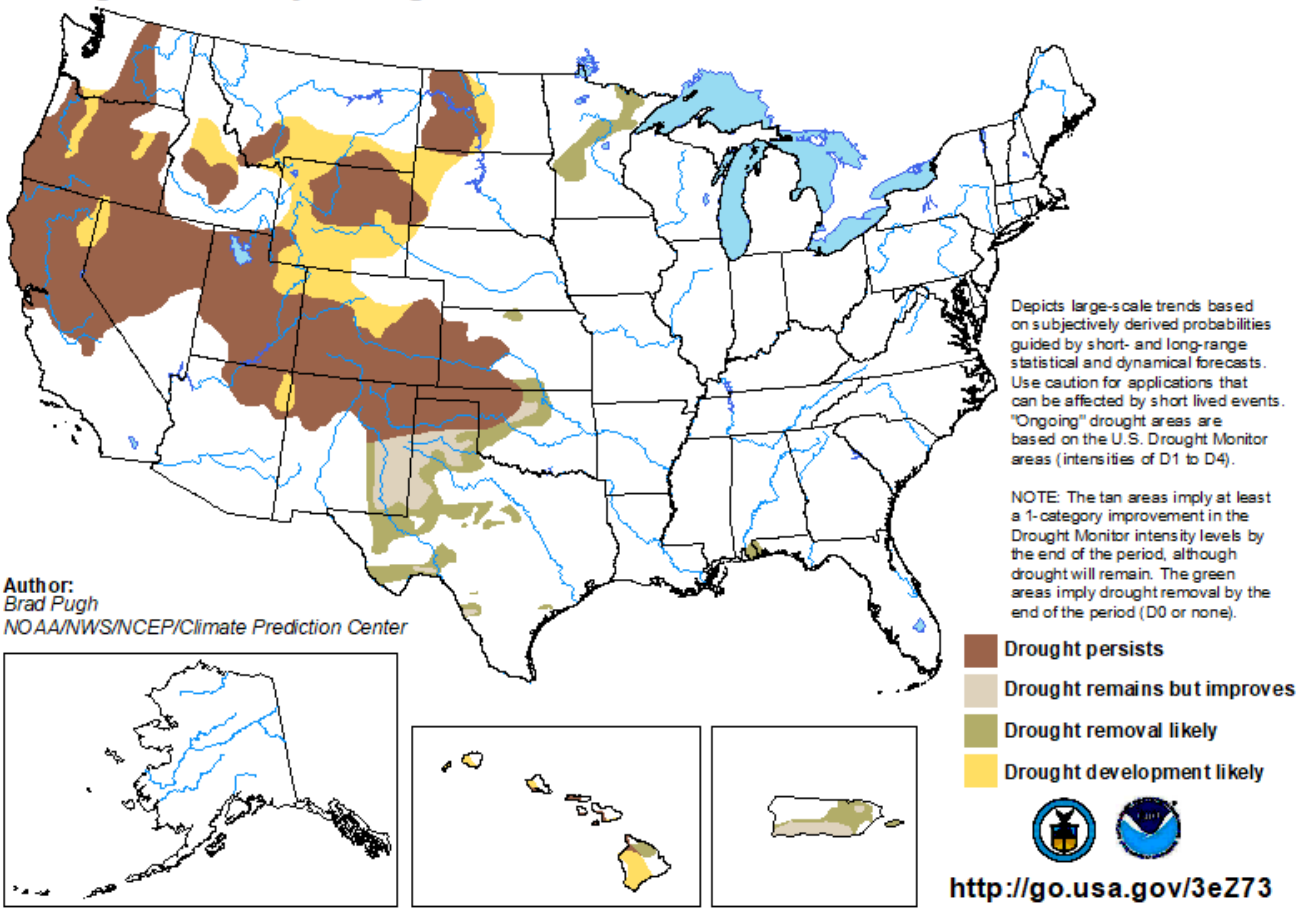
Monthly Drought Outlook Map



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

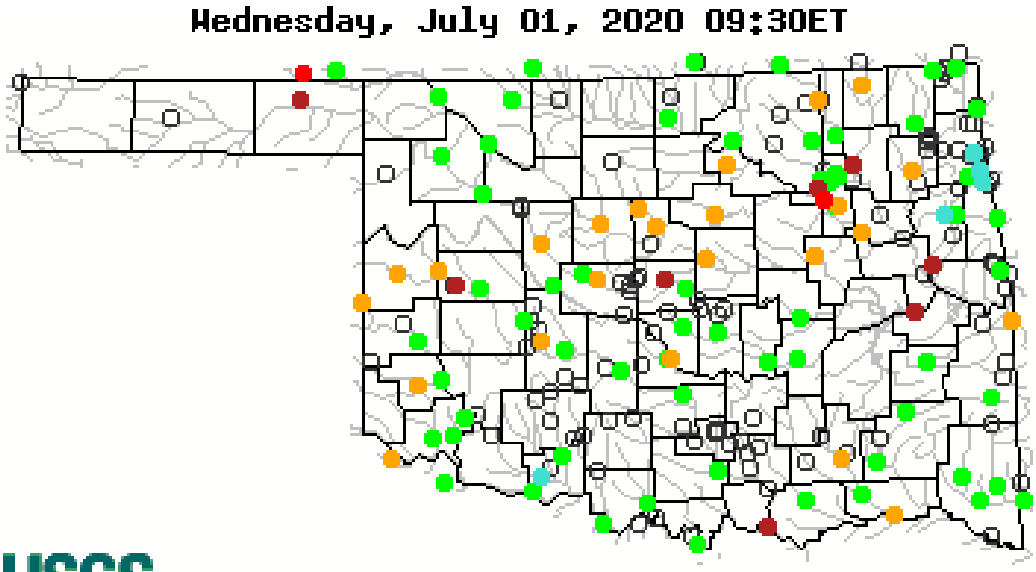
U.S. Drought Monitor

Seasonal Drought Outlook Map



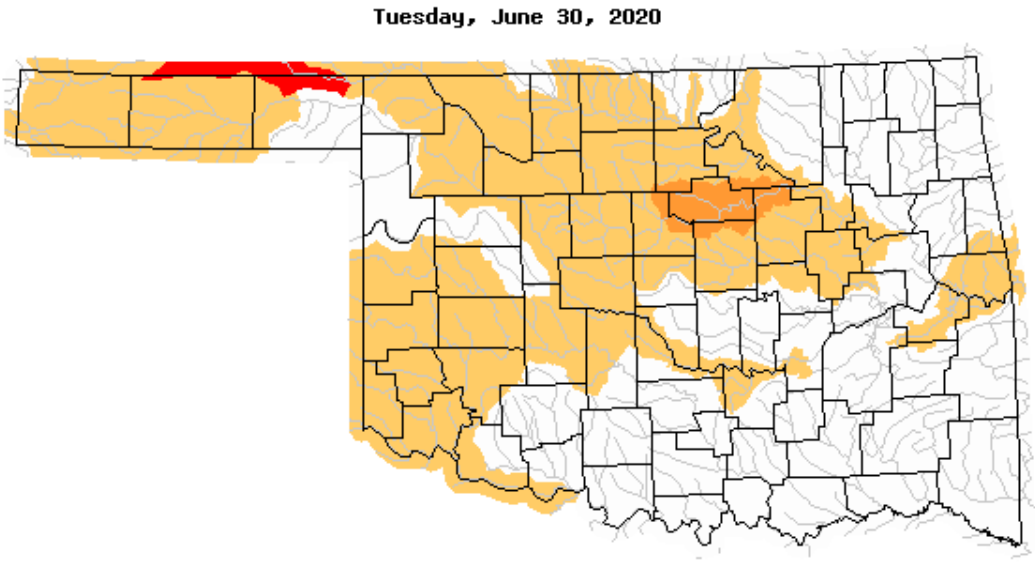
http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php

USGS Streamflow Data



USGS

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



USGS

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	

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

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

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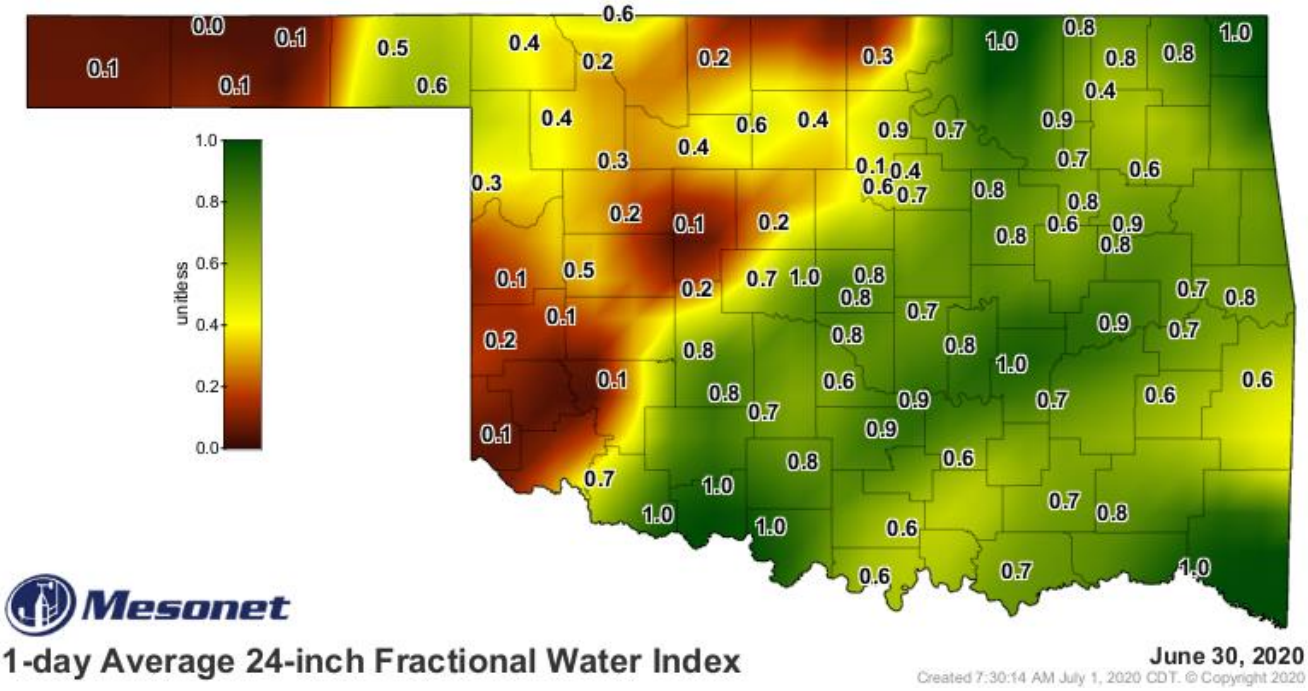
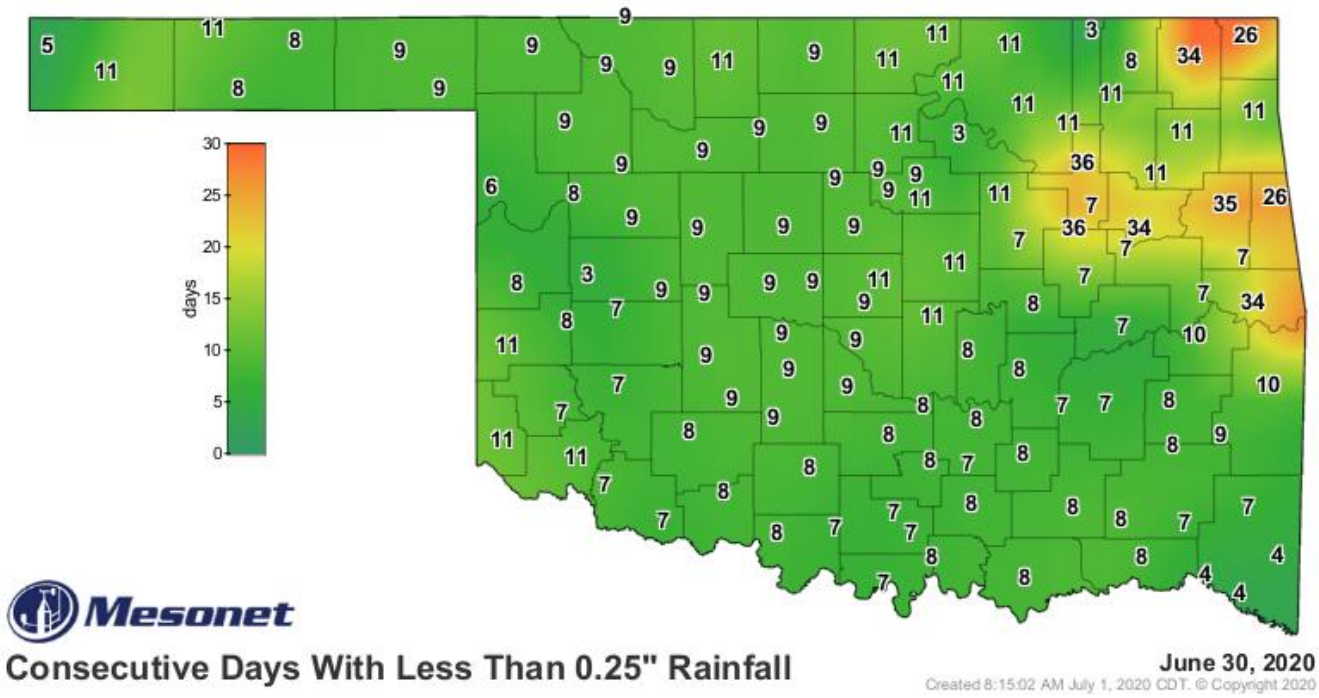
SOIL MOISTURE MAP



- 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

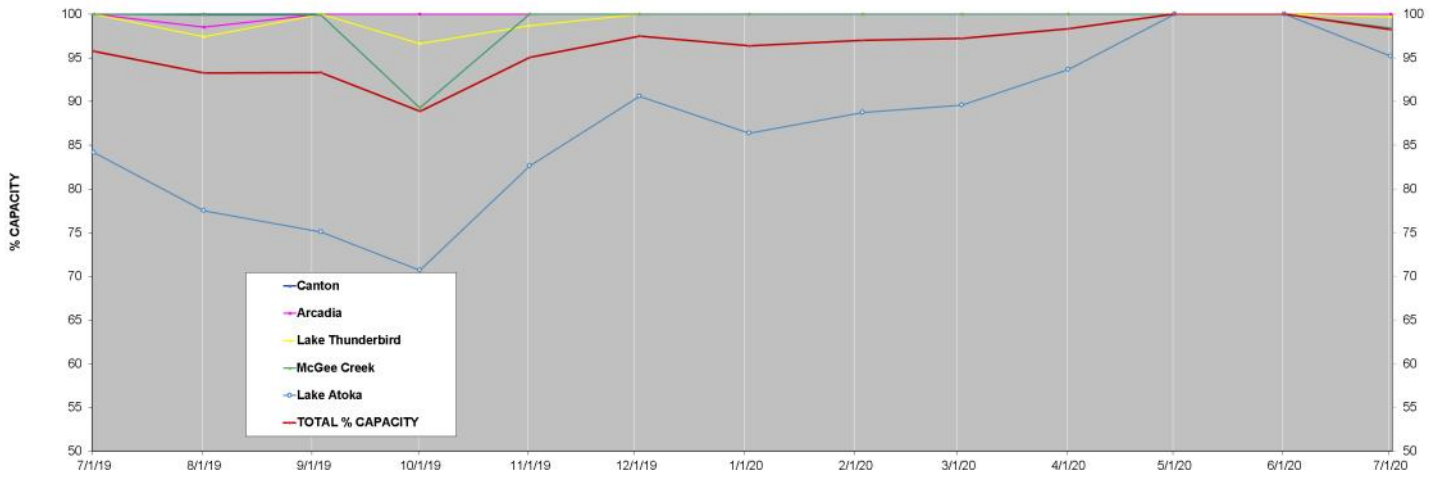
http://www.mesonet.org/index.php/weather/map/24-inch_fractional_water_index/soil_moisture

CONSECUTIVE DAYS WITHOUT RAINFALL MAP



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

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 6/1/2020
Canton	99.9	-0.1
Arcadia	100.0	0.0
Lake Thunderbird	99.7	-0.3
McGee Creek	98.4	-1.6
Lake Atoka	95.2	-4.8
TOTAL % CAPACITY	98.3	-1.7

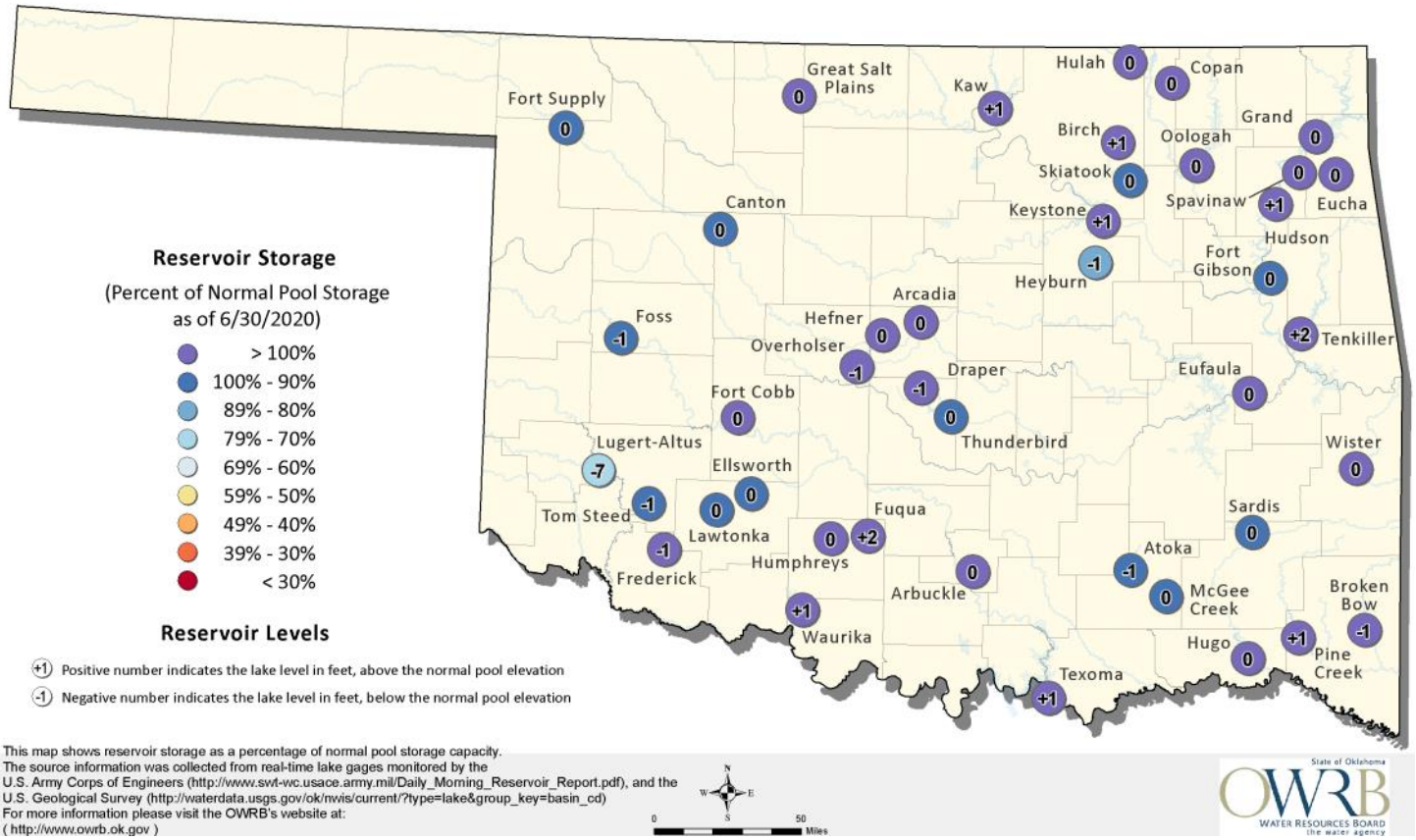
http://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf

http://waterdata.usgs.gov/ok/nwis/dv/?site_no=07333010&agency_cd=USGS&referred_module=sw

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.

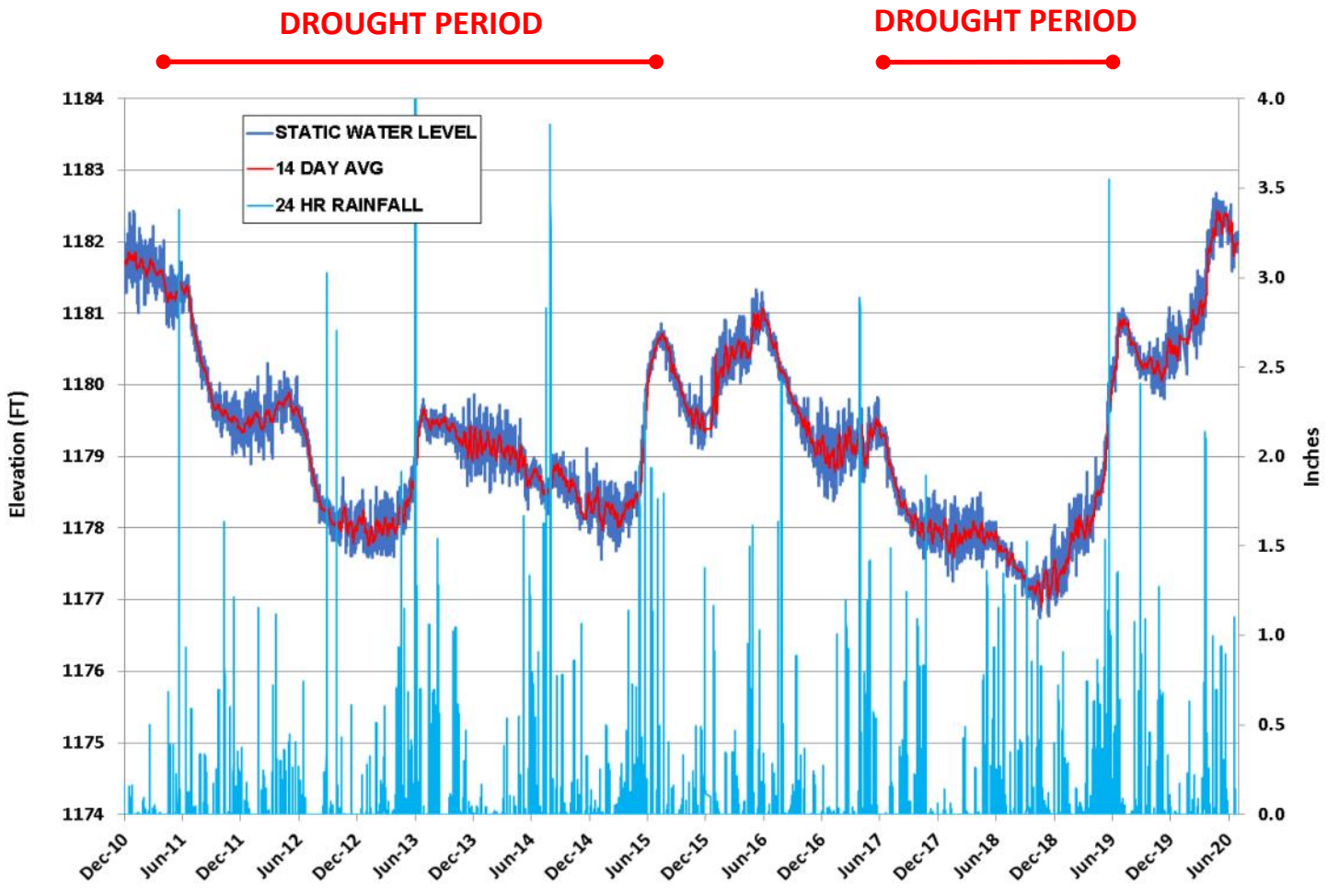
Oklahoma Surface Water Resources

Reservoir Levels and Storage as of 6/30/2020



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

Groundwater Levels
Spencer Mesonet Station



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

Mesonet

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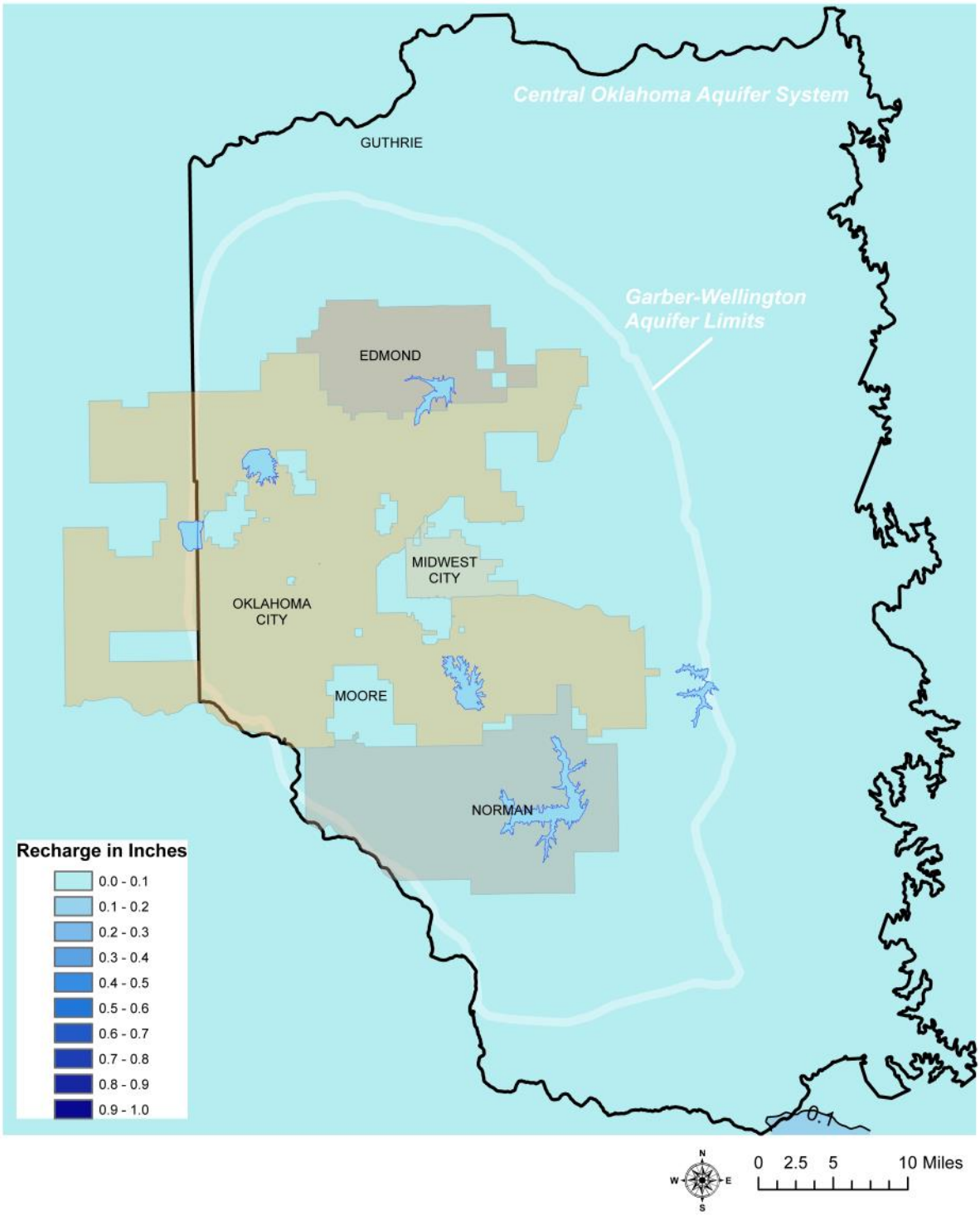
Recharge Map
Central Oklahoma Aquifer System



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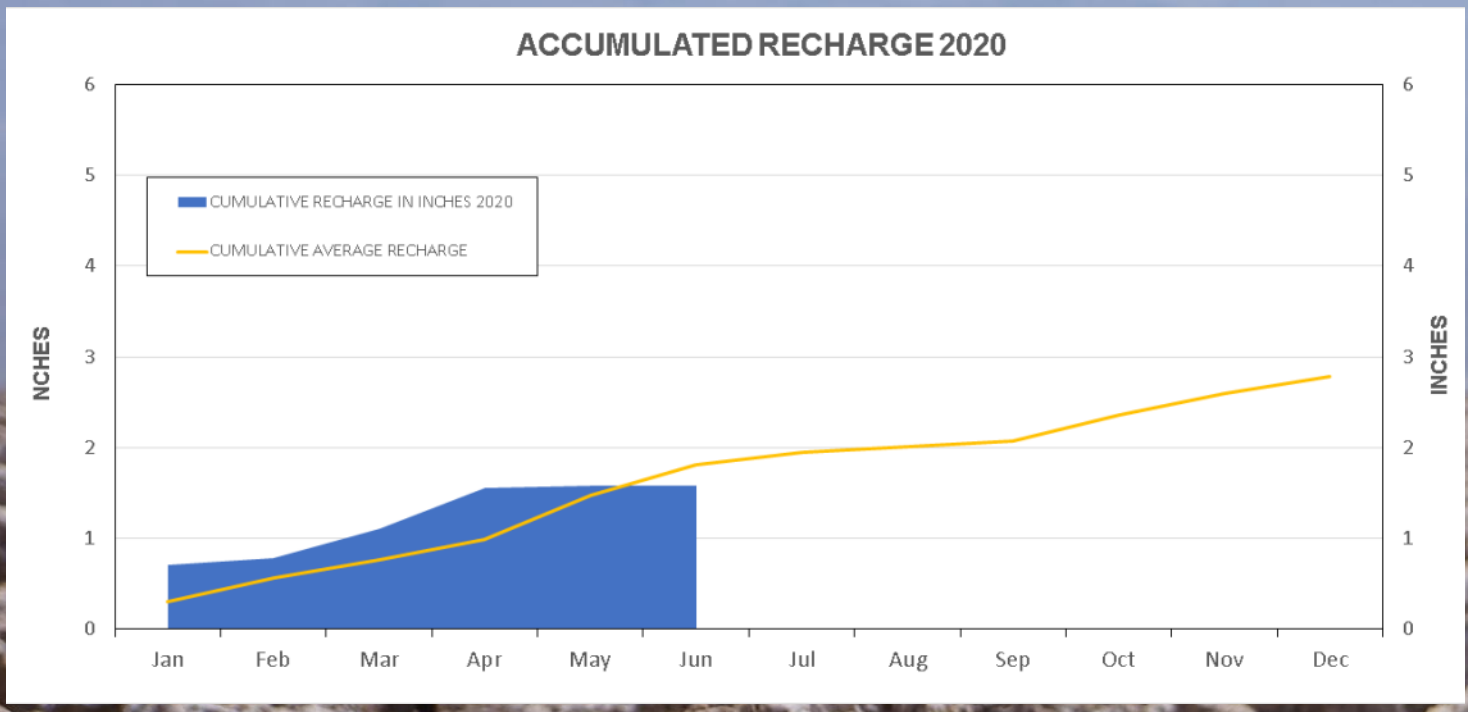
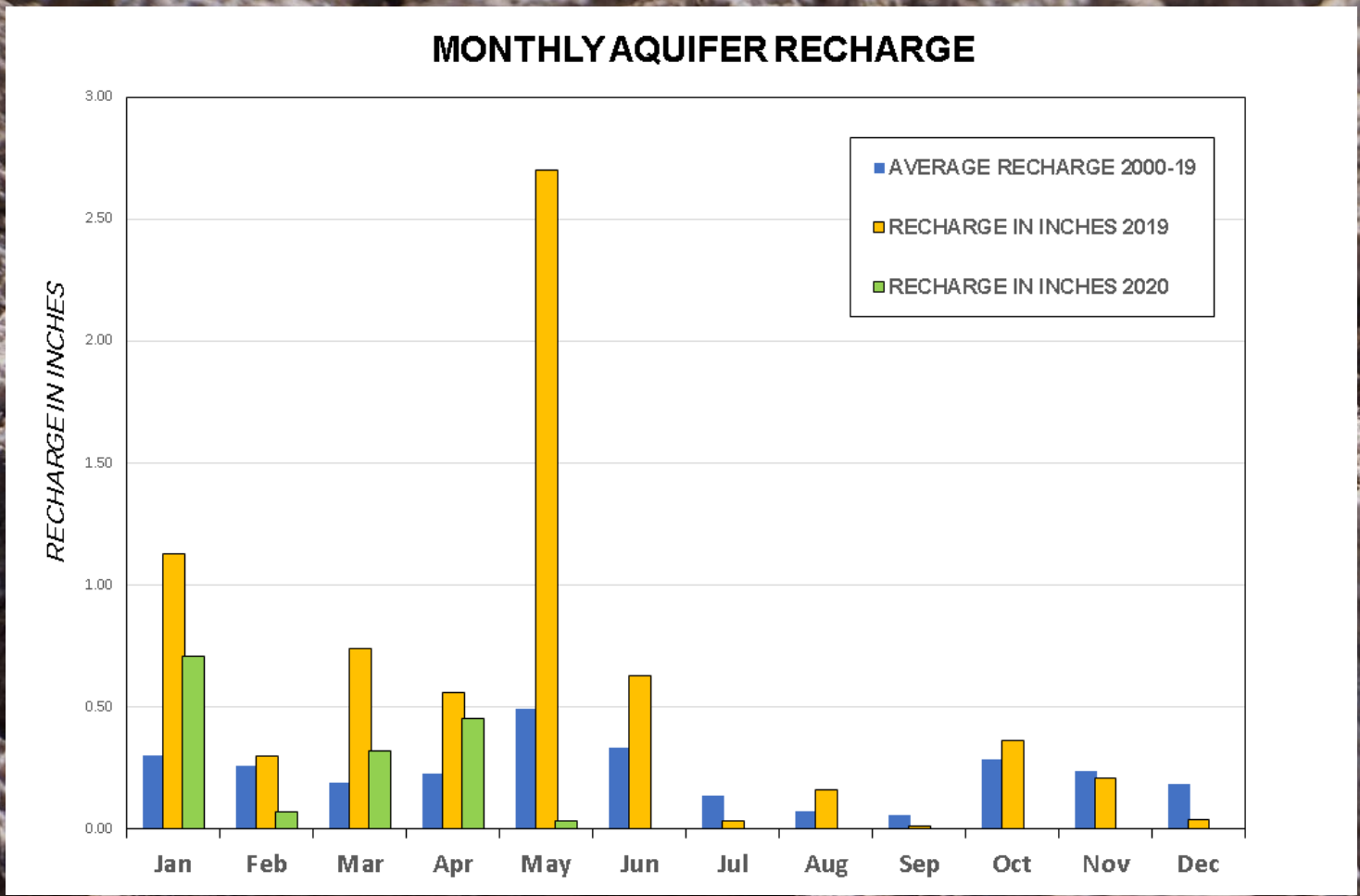
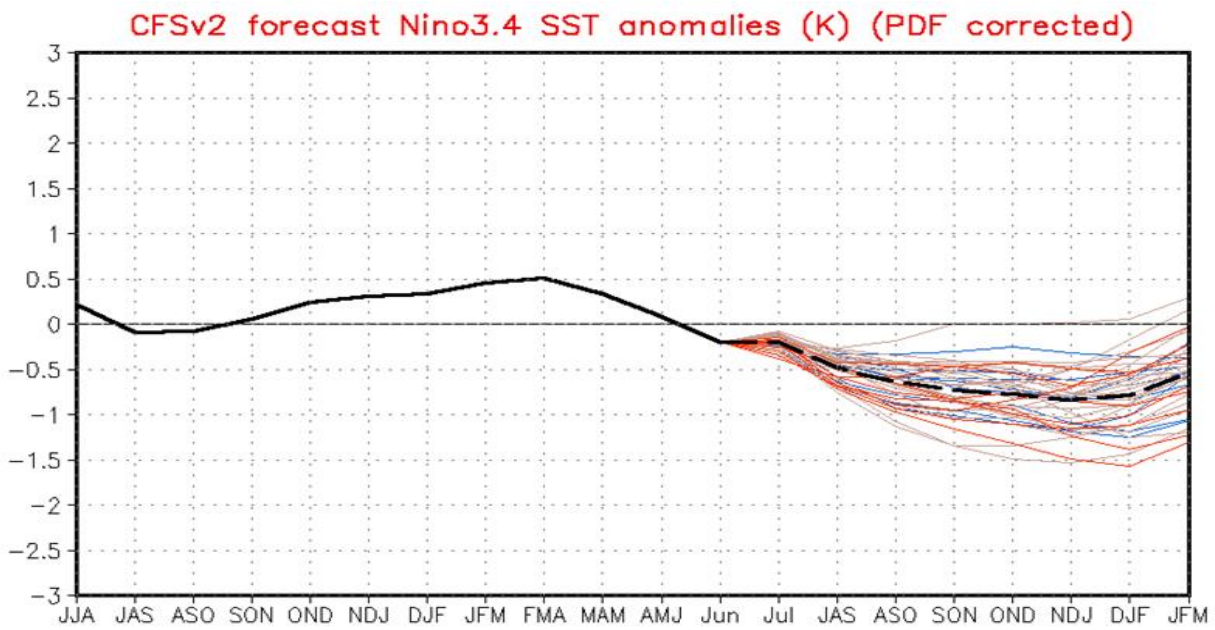
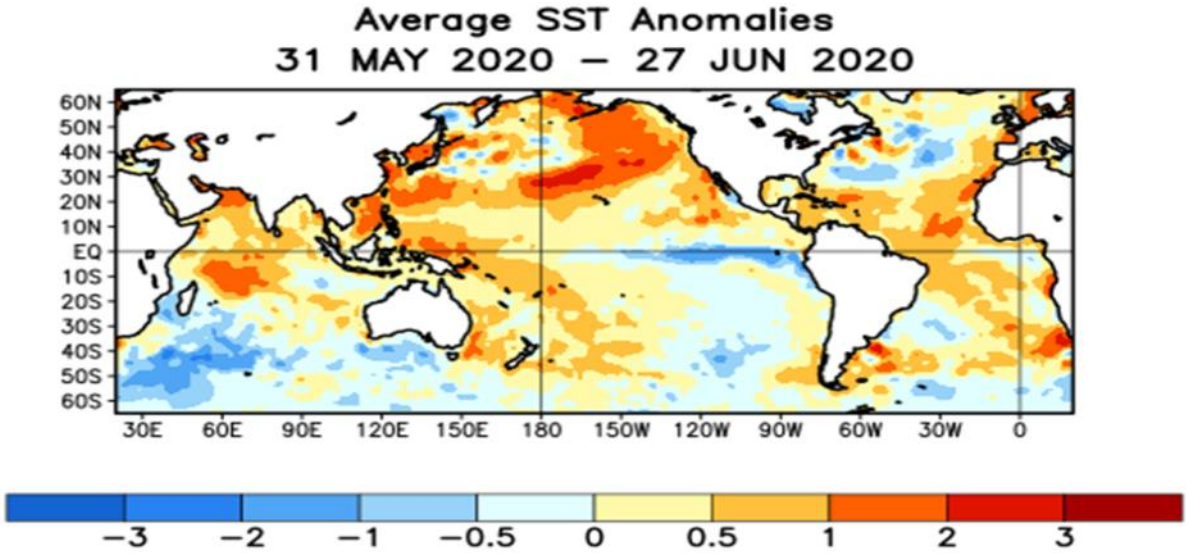
Recharge Charts
Central Oklahoma Aquifer System





ENSO Cycle
Recent Evolution, Current Status and Predictions





Summary

ENSO Alert System Status: Not Active

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are near-to-below average across the east-central and eastern Pacific Ocean.
- The tropical atmospheric circulation is consistent with ENSO-neutral.
- There is a ~60% chance of ENSO-neutral during Northern Hemisphere summer 2020, with roughly equal chances (~40-50%) of La Niña or ENSO-neutral during the autumn and winter 2020-21.

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

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