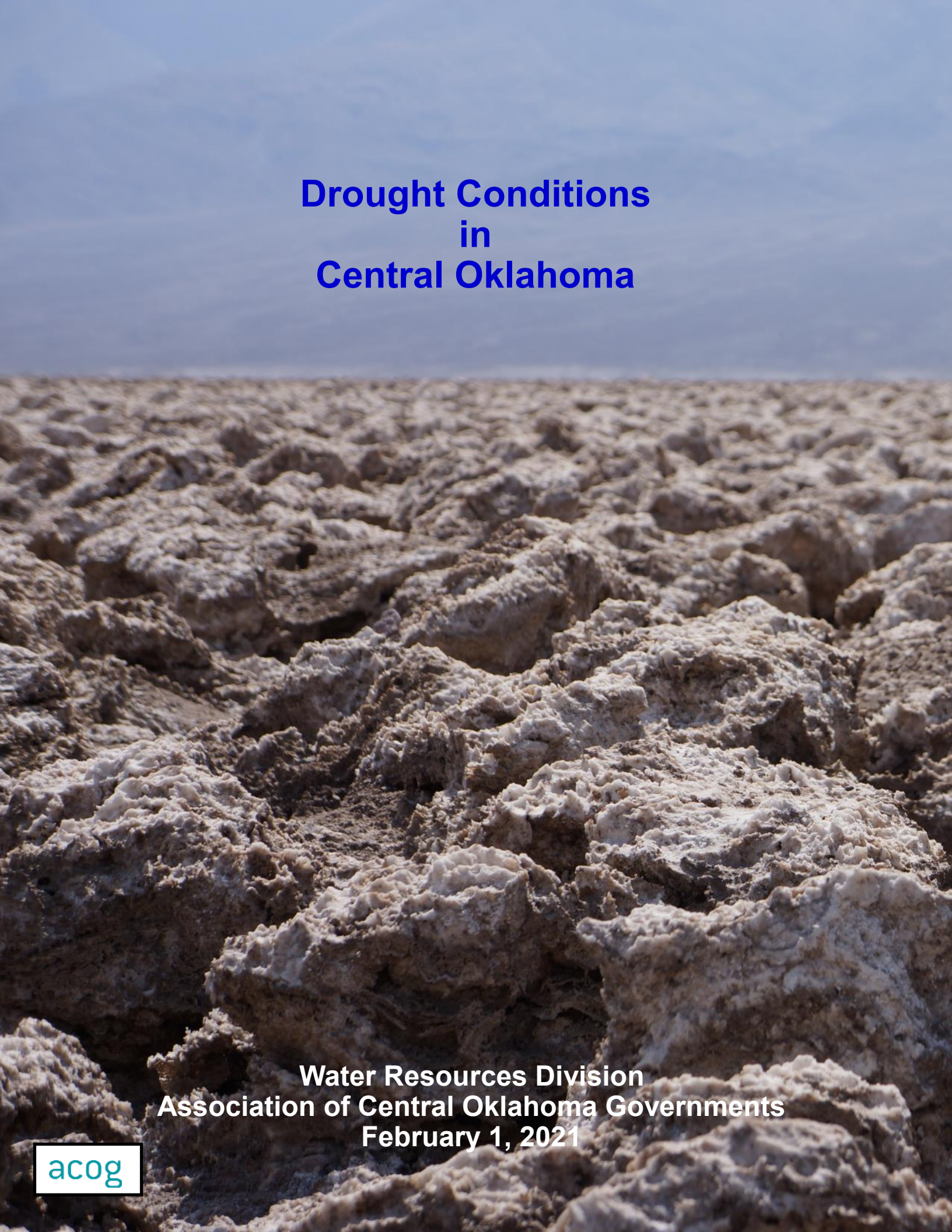
Drought Conditions in Central Oklahoma



Water Resources Division
Association of Central Oklahoma Governments
February 1, 2021

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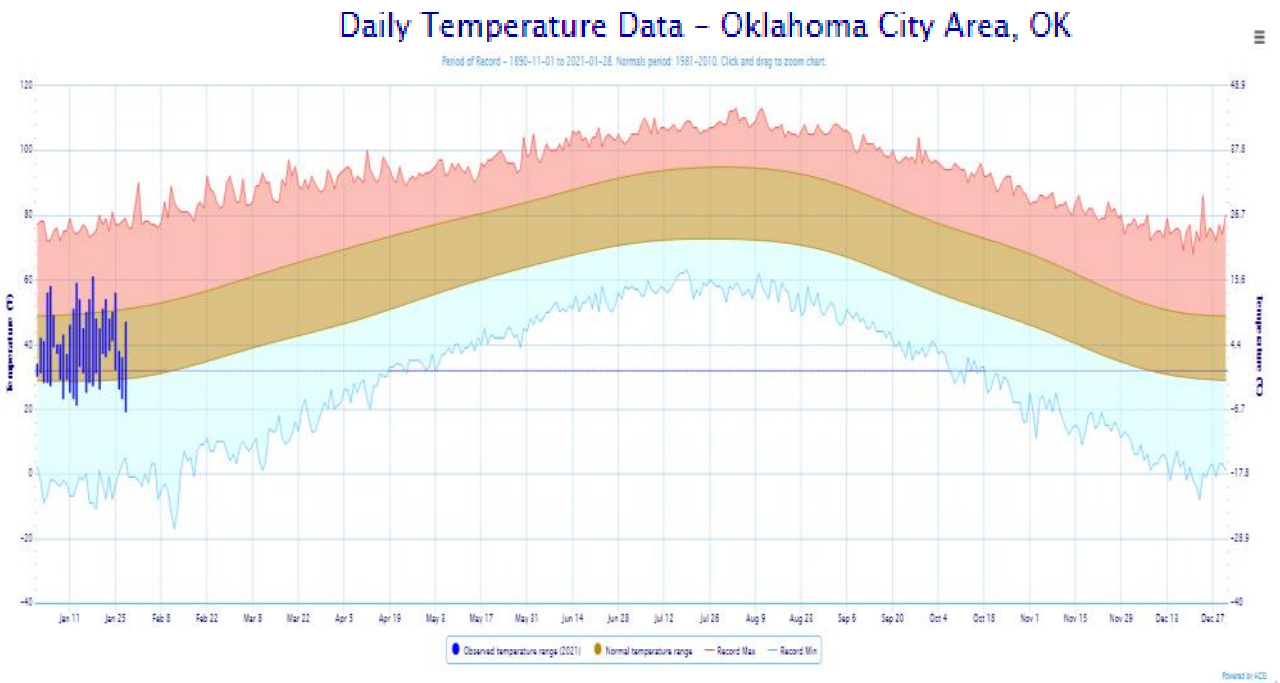
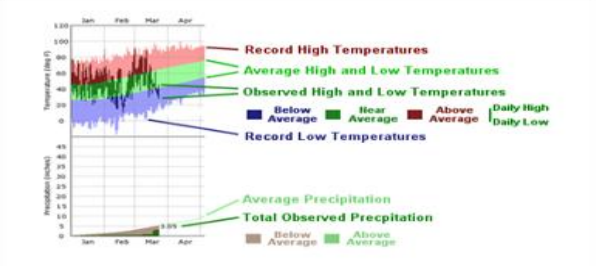
Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2021



Accumulated Precipitation—Oklahoma City Area, OK



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

Rainfall Summaries by Oklahoma Climate Division

Calendar Year 01-Jan-2021 though 31-Jan-2021

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	1.47"	+0.52"	155%	18th wettest	0.00" (1986)	3.92" (1949)
Central	1.95"	+0.52"	136%	26th wettest	0.00" (1986)	5.73" (1949)
S. Central	1.26"	-0.76"	62%	38th driest	0.02" (2003)	6.86" (1932)
Statewide	1.77"	+0.20"	113%	37th wettest	0.04" (1986)	5.30" (1949)

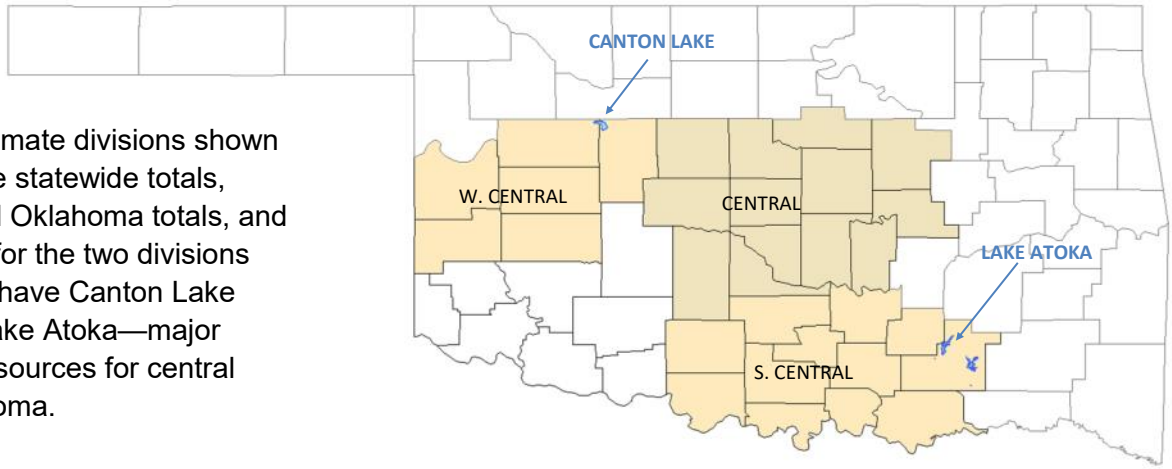
Water Year: 01-Oct-2020 through 31-Jan-2021

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	6.28"	-0.21"	97%	38th wettest	1.11" (1950-51)	13.41" (1986-87)
Central	10.06"	+0.52"	105%	28th wettest	2.41" (1921-22)	17.26" (1984-85)
S. Central	7.41"	-4.30"	63%	27th driest	2.14" (1950-51)	22.55" (2015-16)
Statewide	9.09"	-0.56"	94%	37th wettest	2.48" (1950-51)	15.80" (2015-16)

Winter 01-Dec through 31-Jan-2021

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	3.22"	+1.05"	149%	16th wettest	0.07" (2017-18)	5.26" (1984-85)
Central	5.08"	+1.66"	148%	10th wettest	0.50" (2010-11)	9.20" (1984-85)
S. Central	4.28"	-0.33"	93%	47th wettest	0.93" (1951-52)	11.10" (1997-98)
Statewide	4.61"	+0.97"	127%	15th wettest	1.00" (1955-56)	7.60" (1997-98)

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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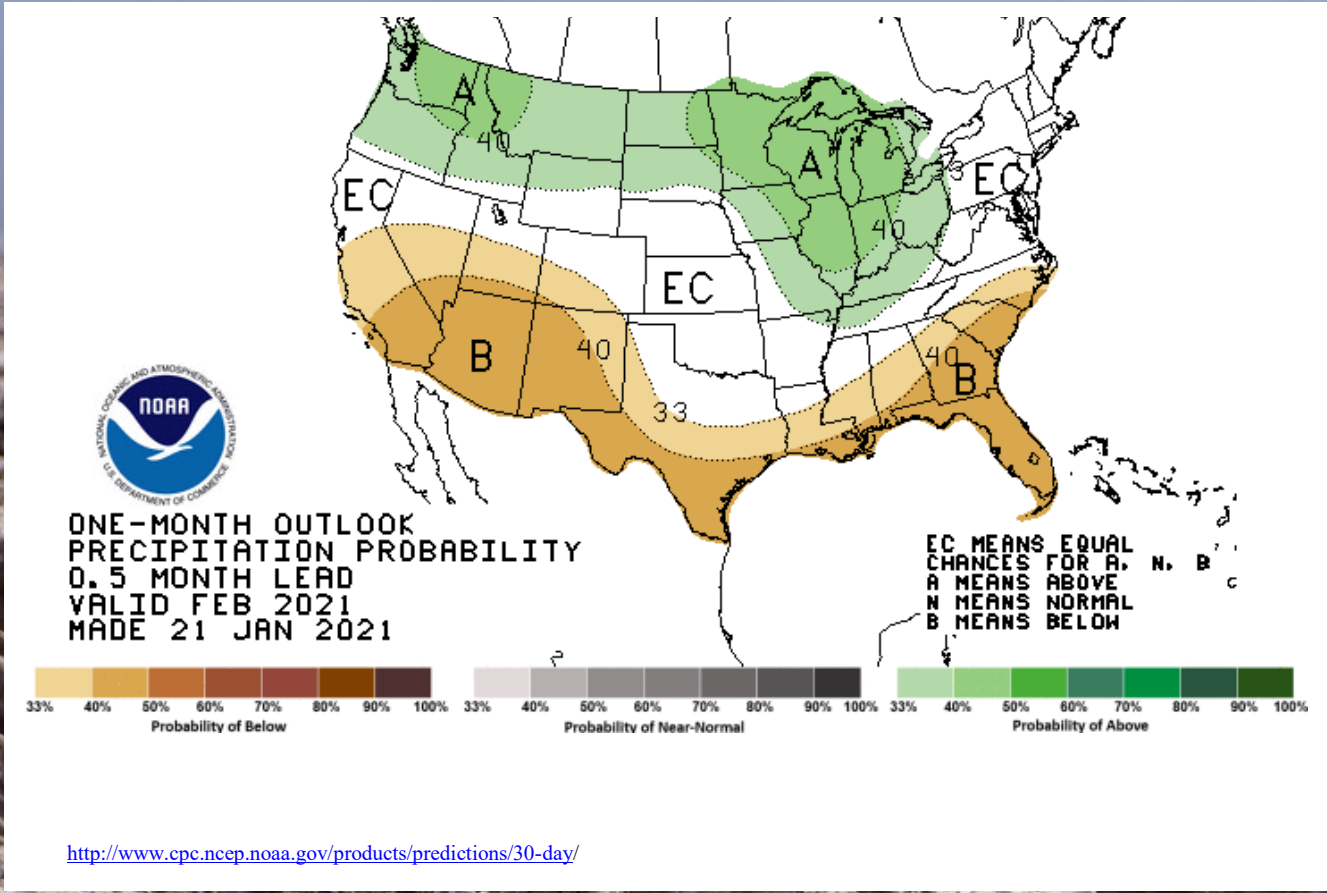
NOAA One-Month Outlook

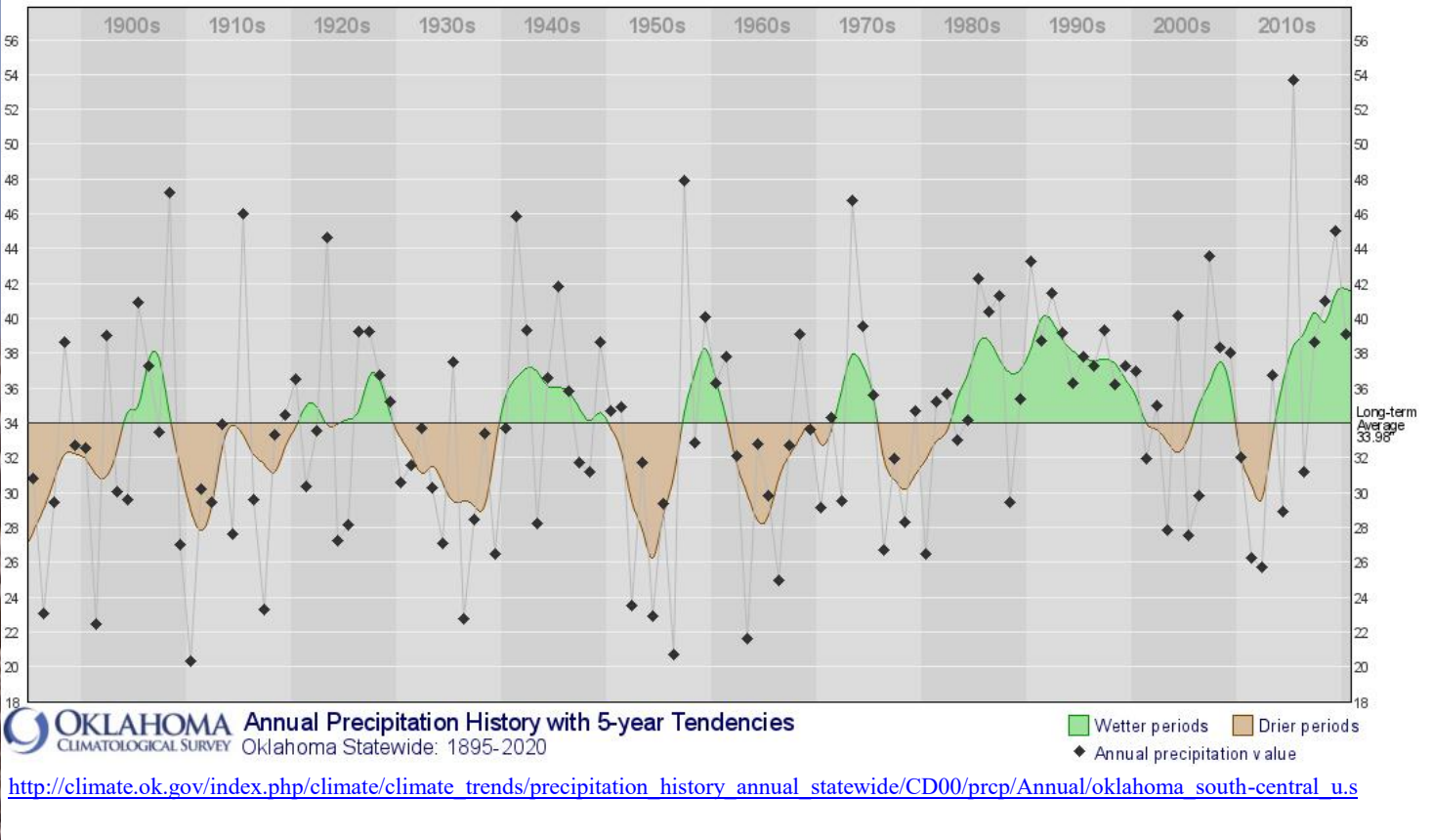


http://www.cpc.ncep.noaa.gov/products/predictions/30-day/

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.

Annual Precipitation History with 5-Year Tendencies



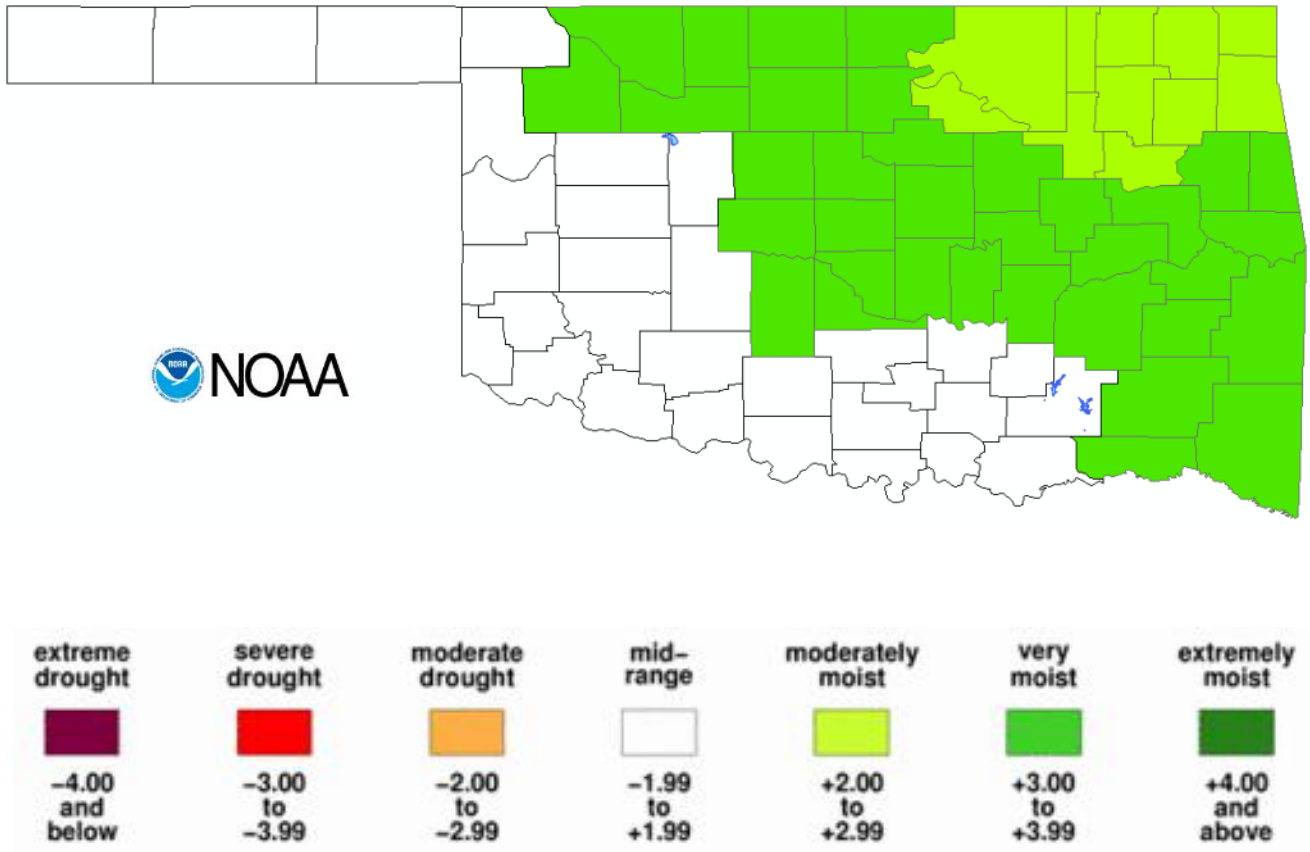
http://climate.ok.gov/index.php/climate/climate_trends/precipitation_history_annual_statewide/CD00/prcp/Annual/oklahoma_south-central_u.s

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 30 JAN 2021



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.

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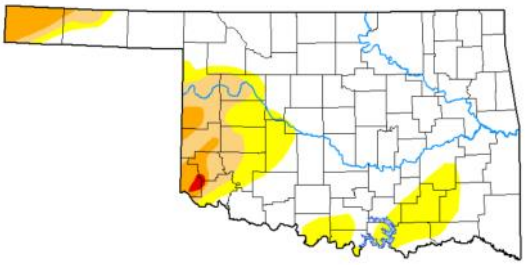
U.S. Drought Monitor

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1/26/2021	75.15	24.85	10.93	4.05	0.23	0
Last Week	1/19/2021	67.61	32.39	11.96	5.52	0.83	0
3 Months Ago	10/27/2020	47.94	52.06	32.42	15.58	3.61	0
Start of Calendar Year	12/29/2020	56.83	43.17	25.21	7.75	1.45	0
Start of Water Year	9/29/2020	66.79	33.21	17.71	11.97	1.55	0
One Year Ago	1/28/2020	81.34	18.66	8.03	0.85	0	0

U.S. Drought Monitor

Oklahoma

Abnormal dryness or drought are currently affecting approximately 71,278 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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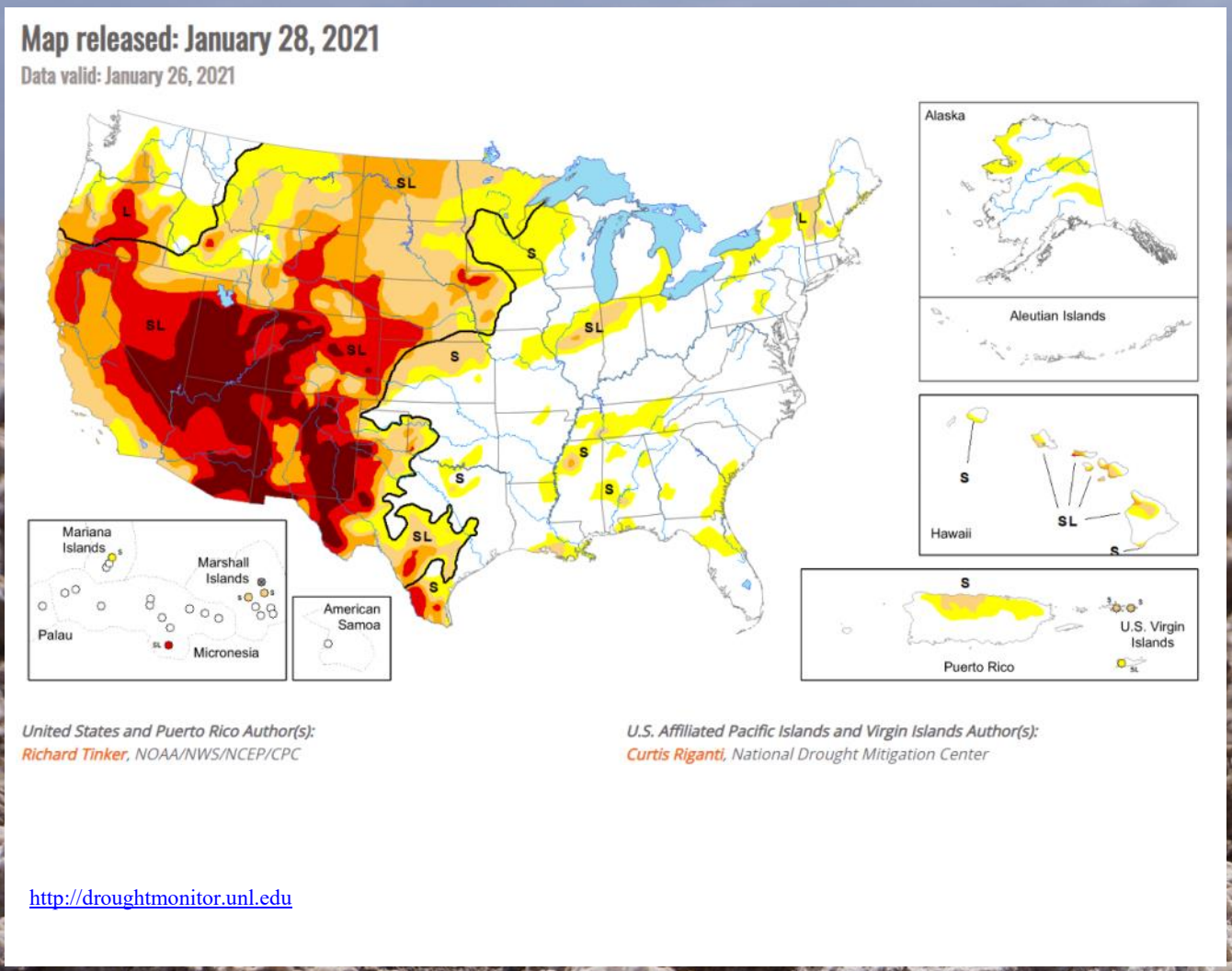
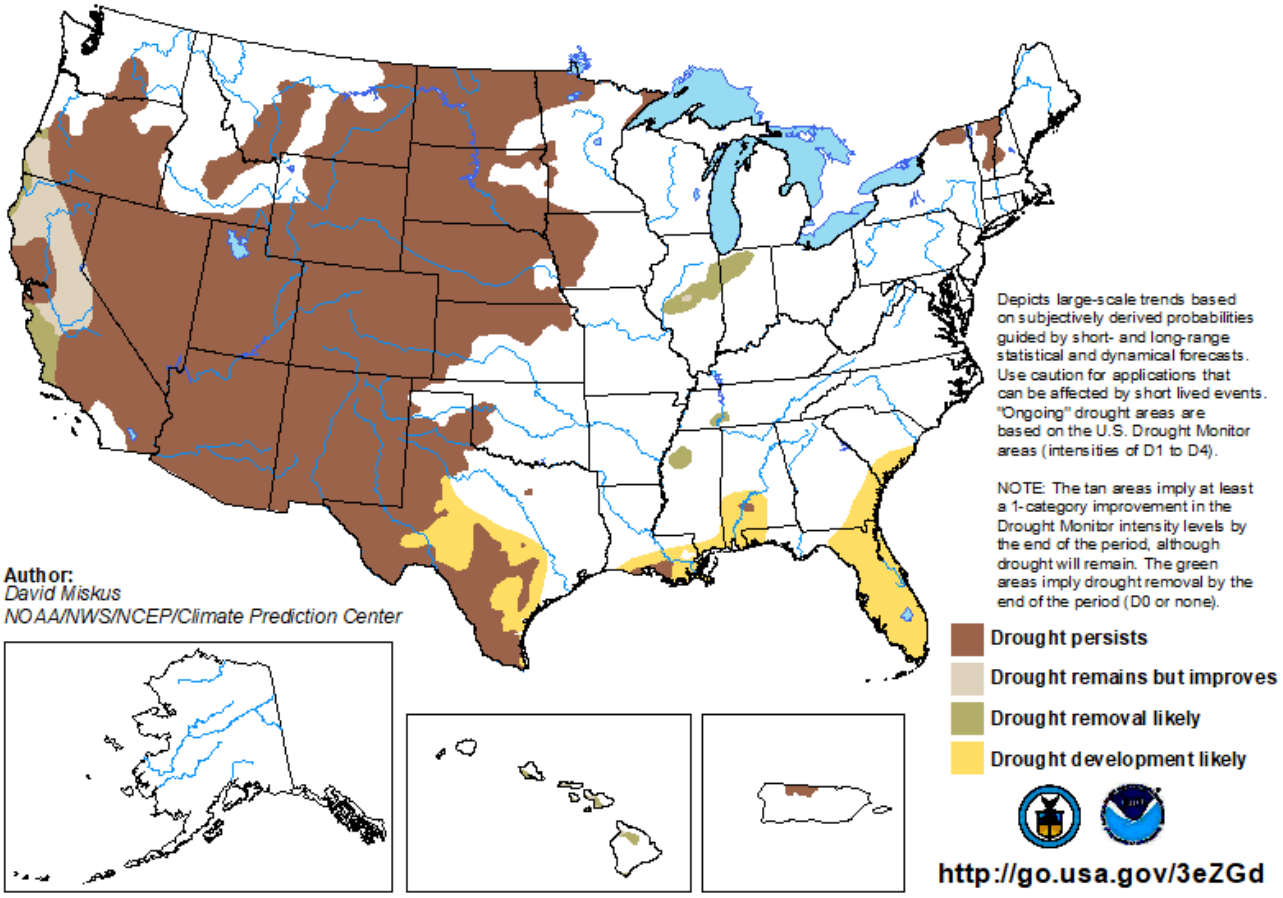
U.S. Drought Monitor Nationwide Map



http://droughtmonitor.unl.edu

U.S. Drought Monitor

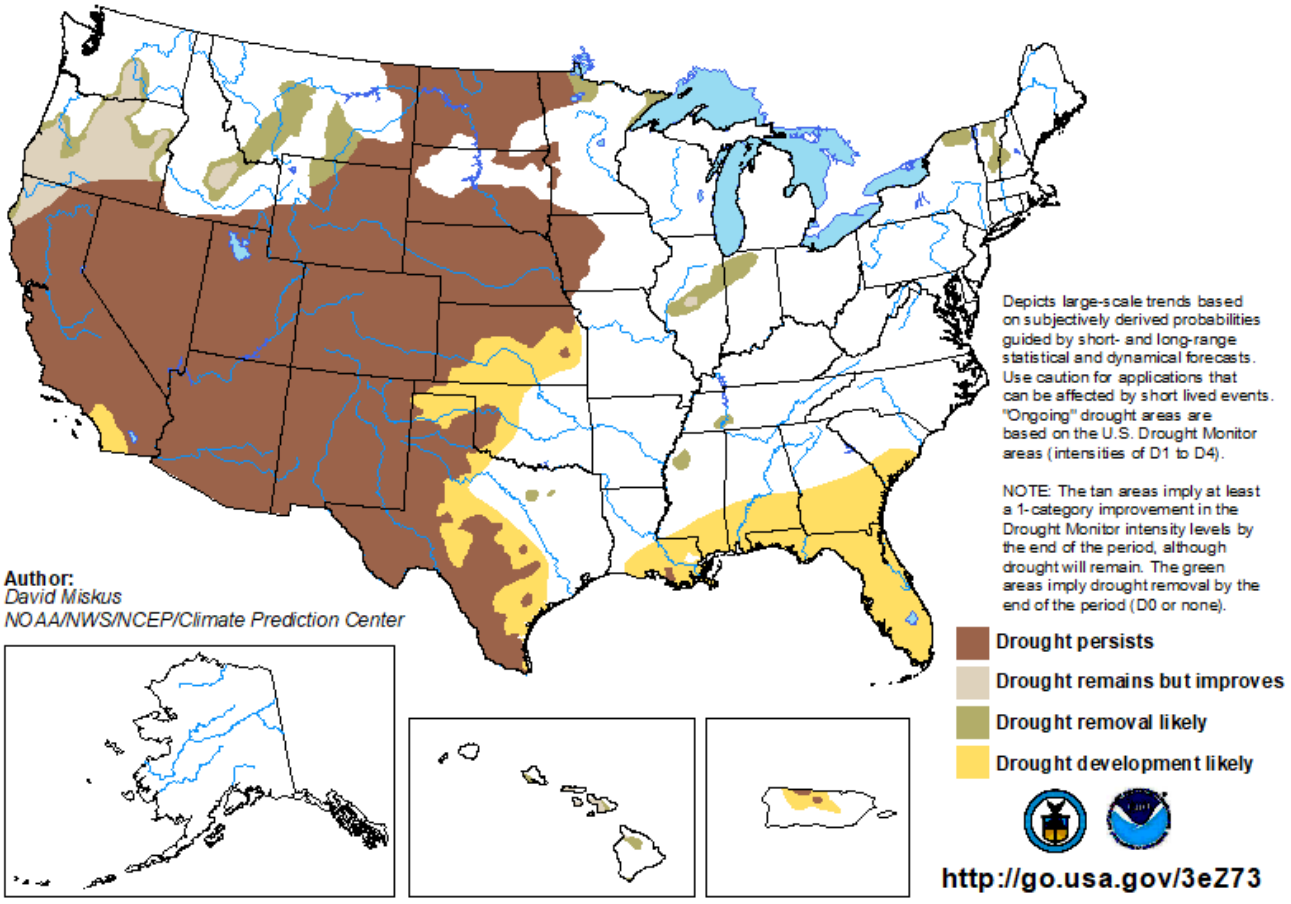
Monthly Drought Outlook Map



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

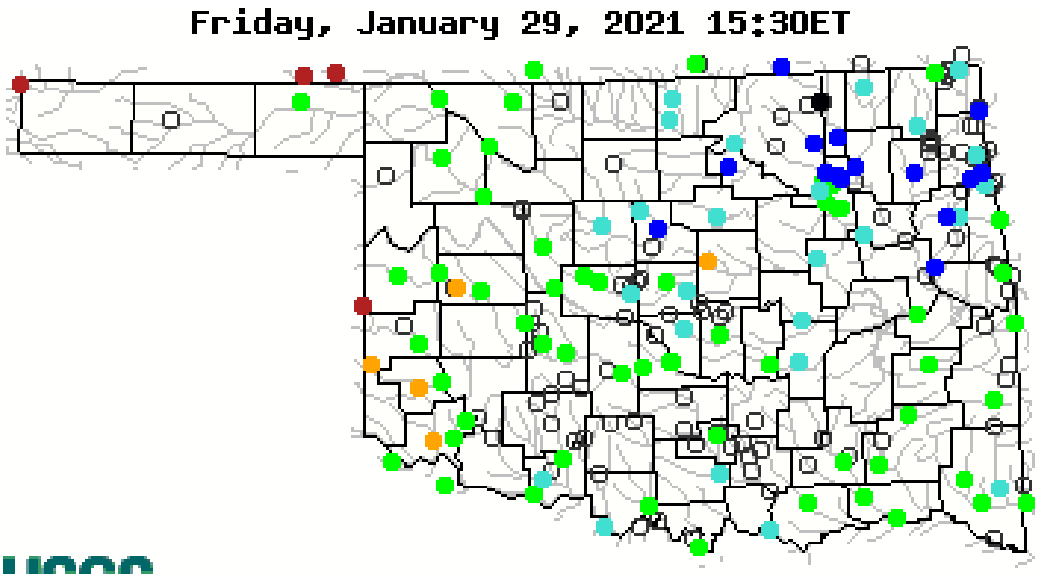
U.S. Drought Monitor

Seasonal Drought Outlook Map

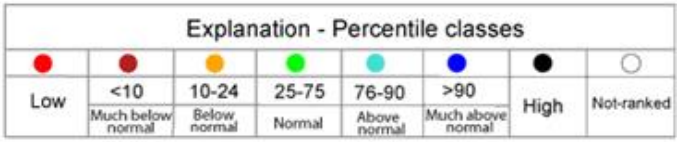


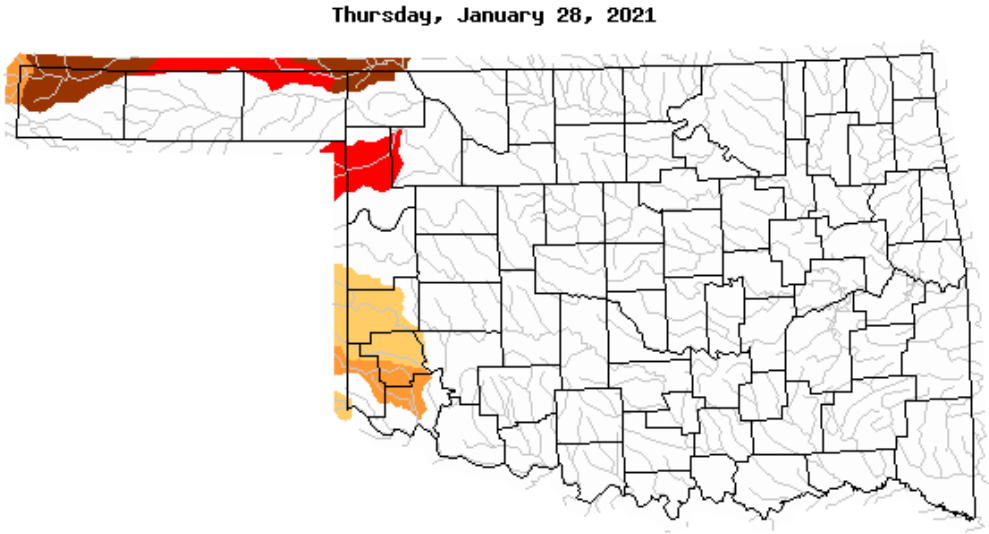
http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php

USGS Streamflow Data



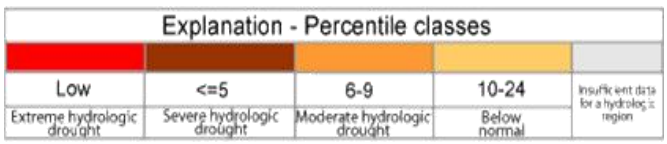
USGS





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

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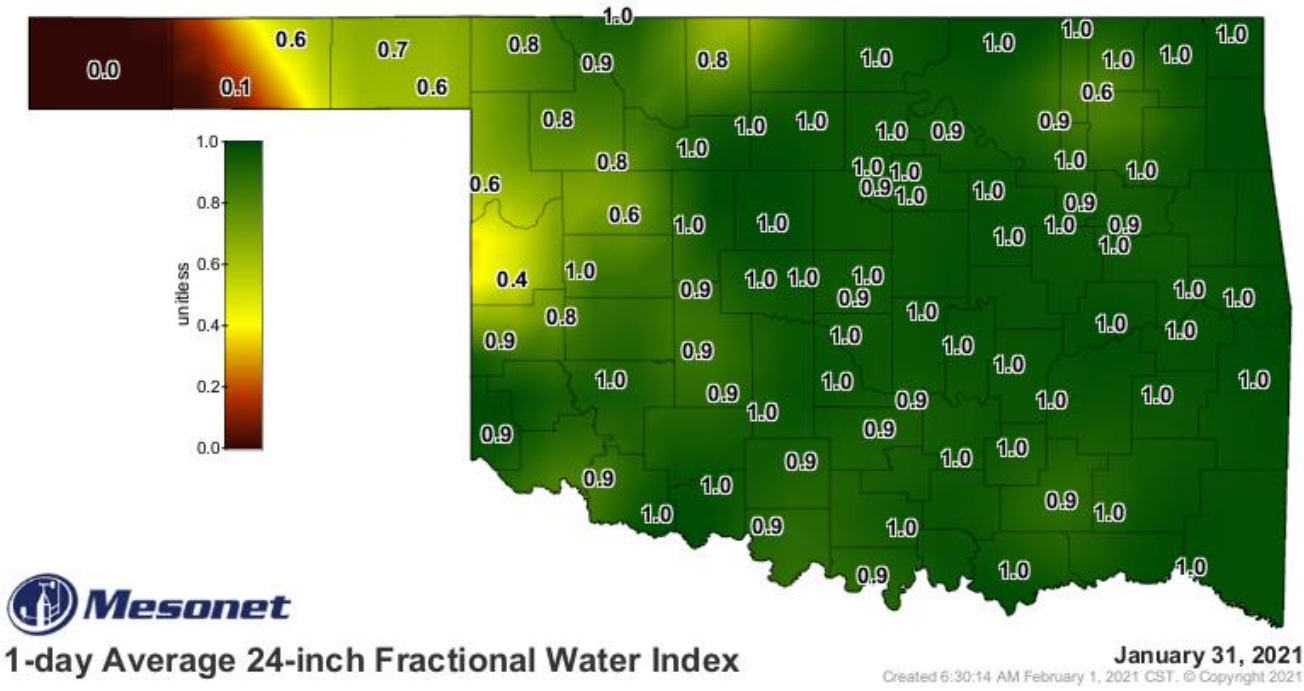
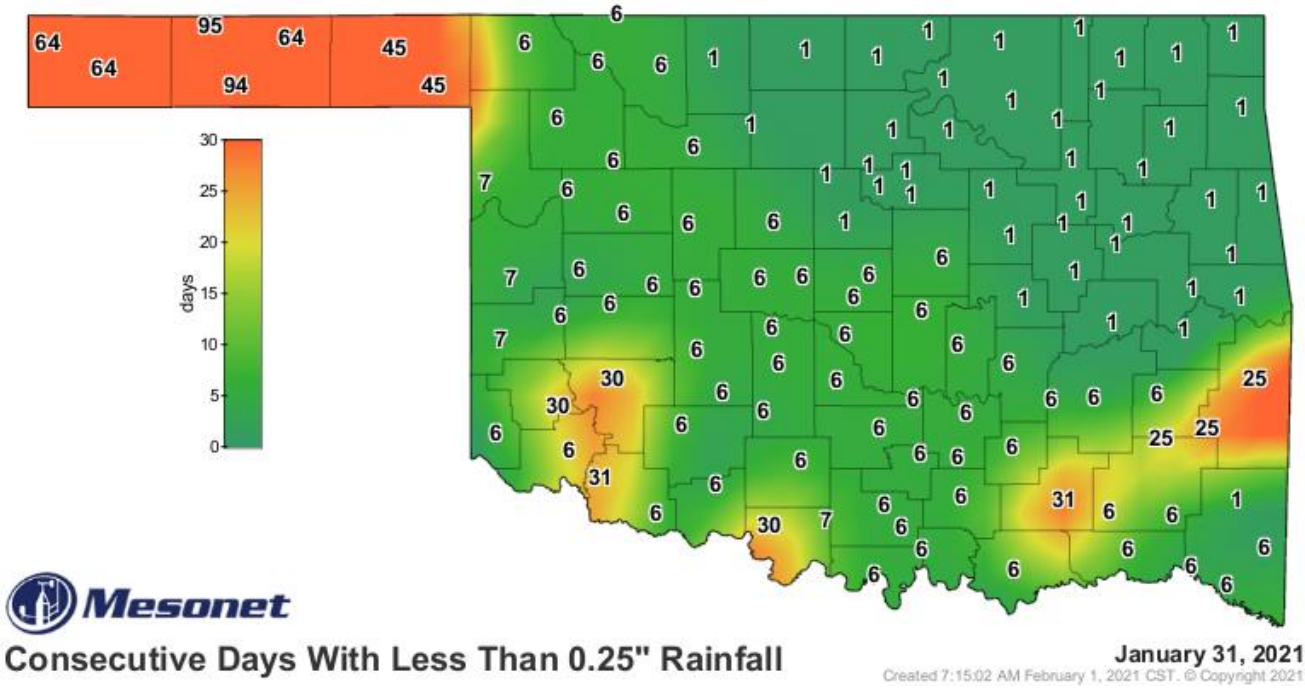
SOIL MOISTURE MAP



- 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

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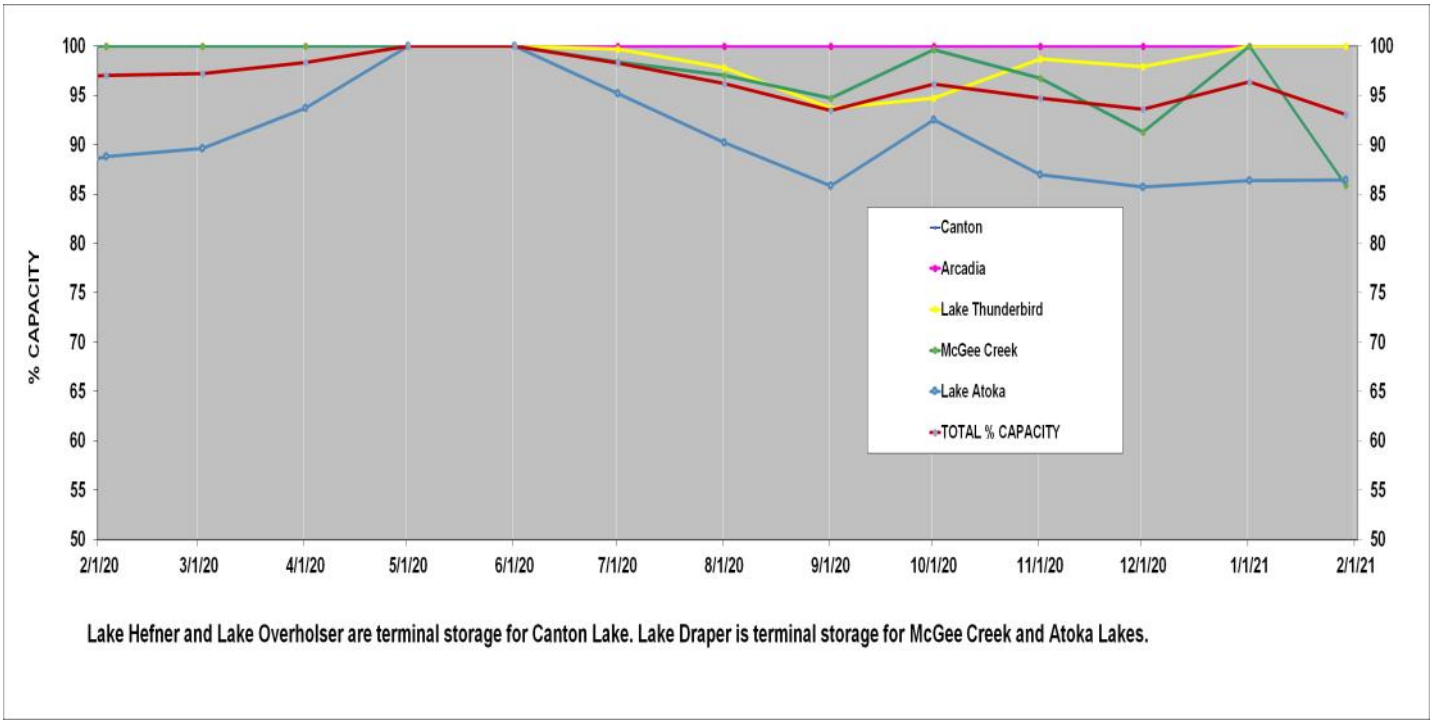
Percent of Surface Water Conservation Storage
Central OK Reservoirs



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 1/1/2021
Canton	100.0	0.0
Arcadia	100.0	0.0
Lake Thunderbird	100.0	0.0
McGee Creek	85.9	-14.1
Lake Atoka	86.4	0.0
TOTAL % CAPACITY	93.1	-3.3

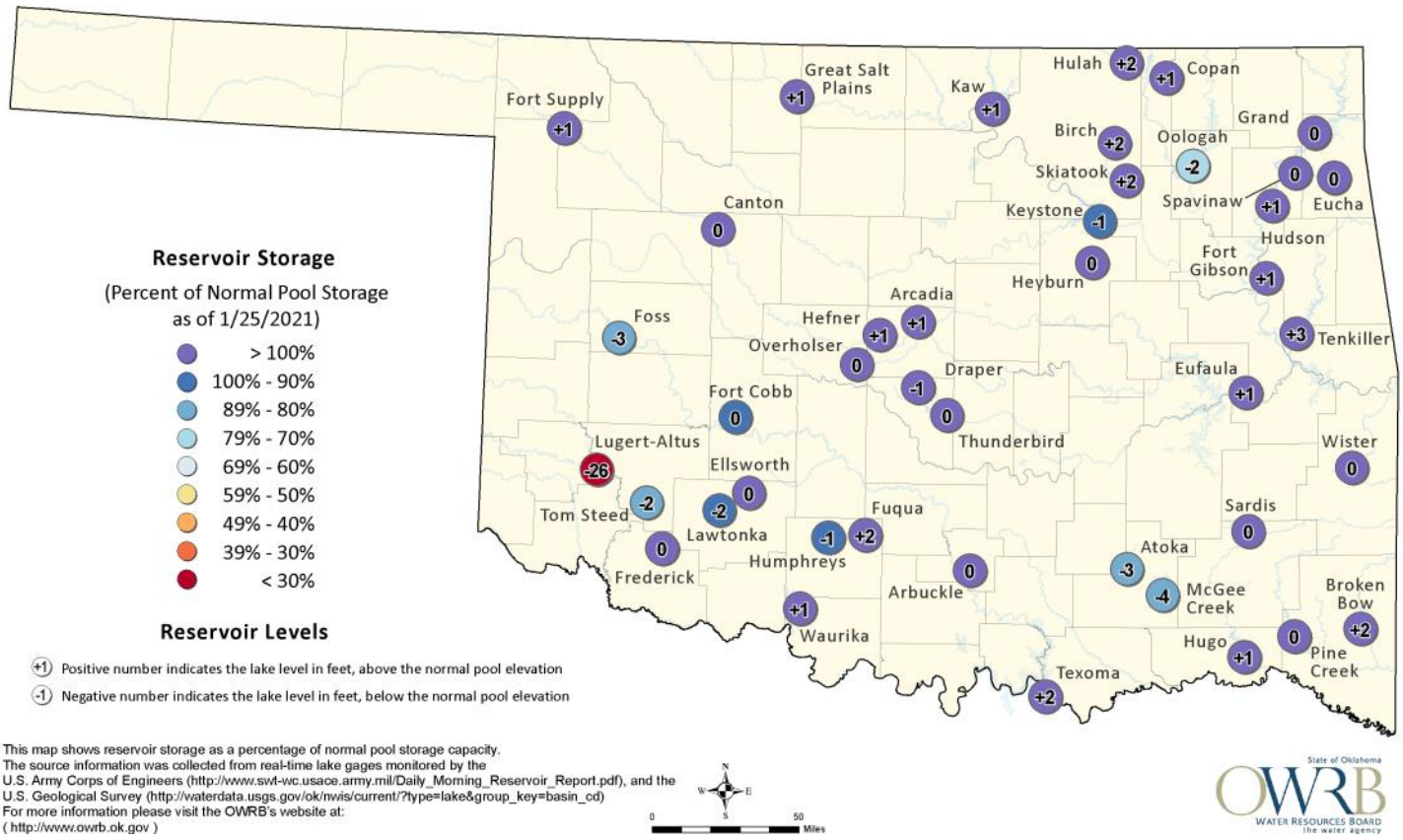
http://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf

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 1/25/2021



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

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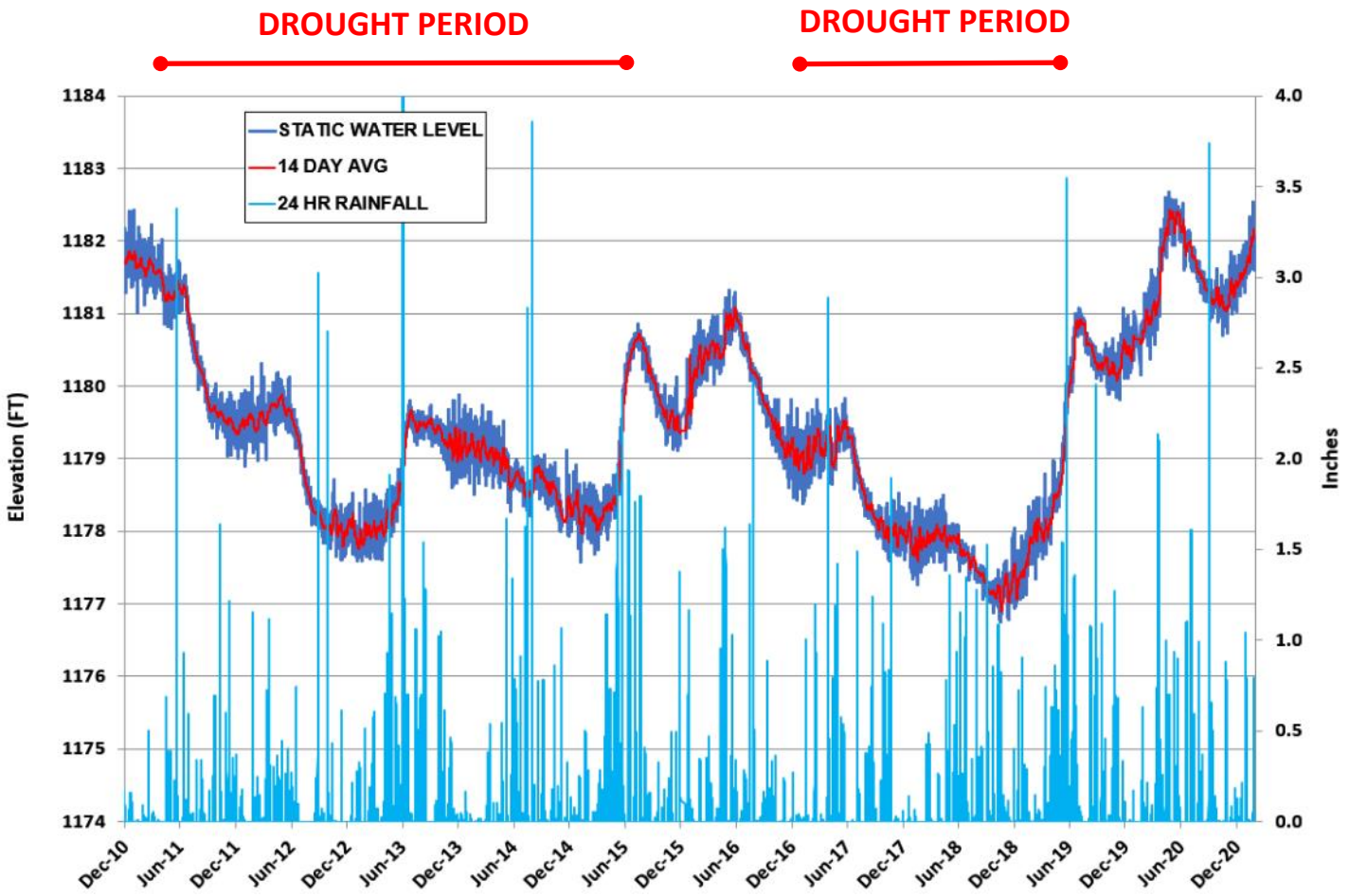
Groundwater Levels
Spencer Mesonet Station



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

Mesonet

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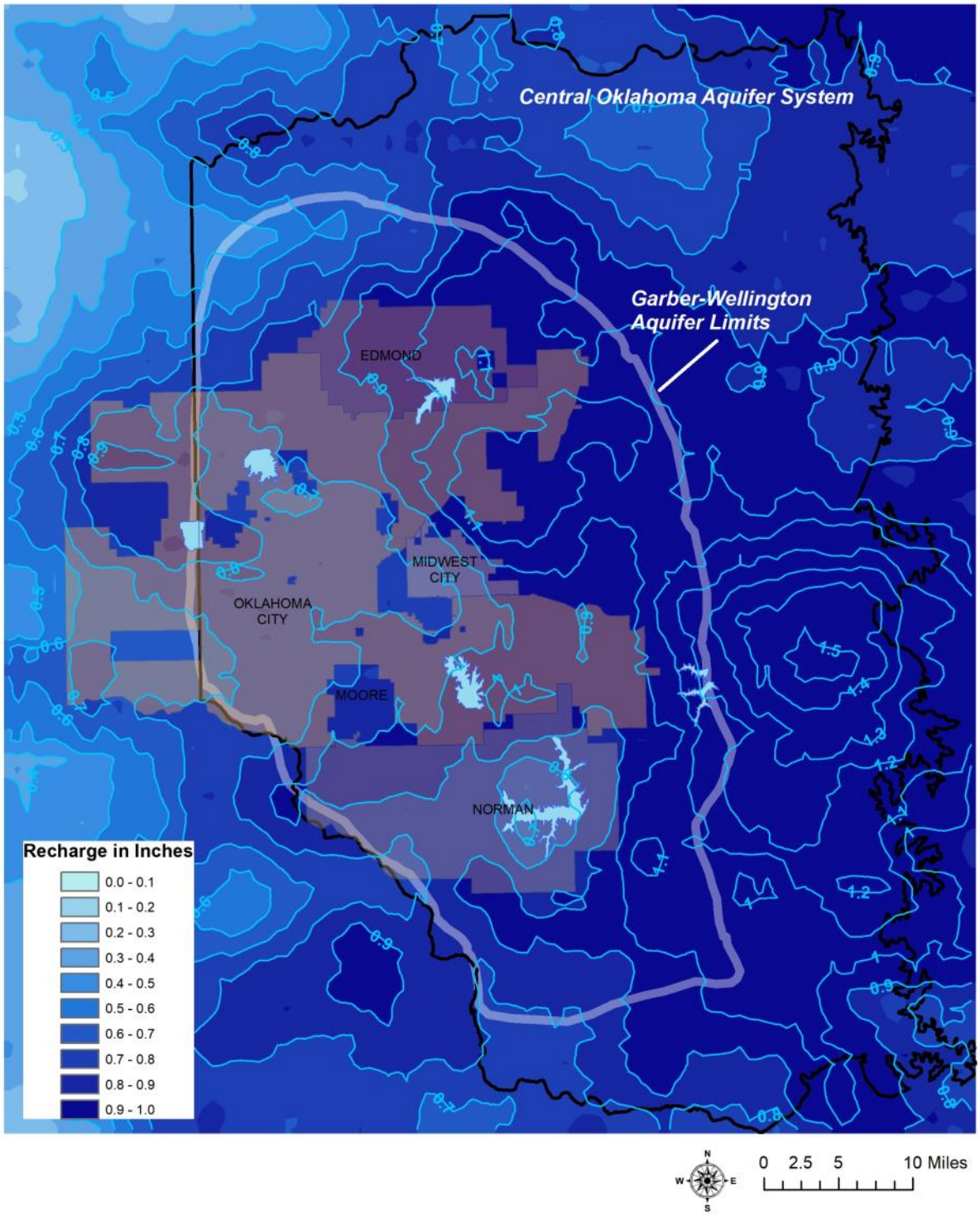
Recharge Map
Central Oklahoma Aquifer System



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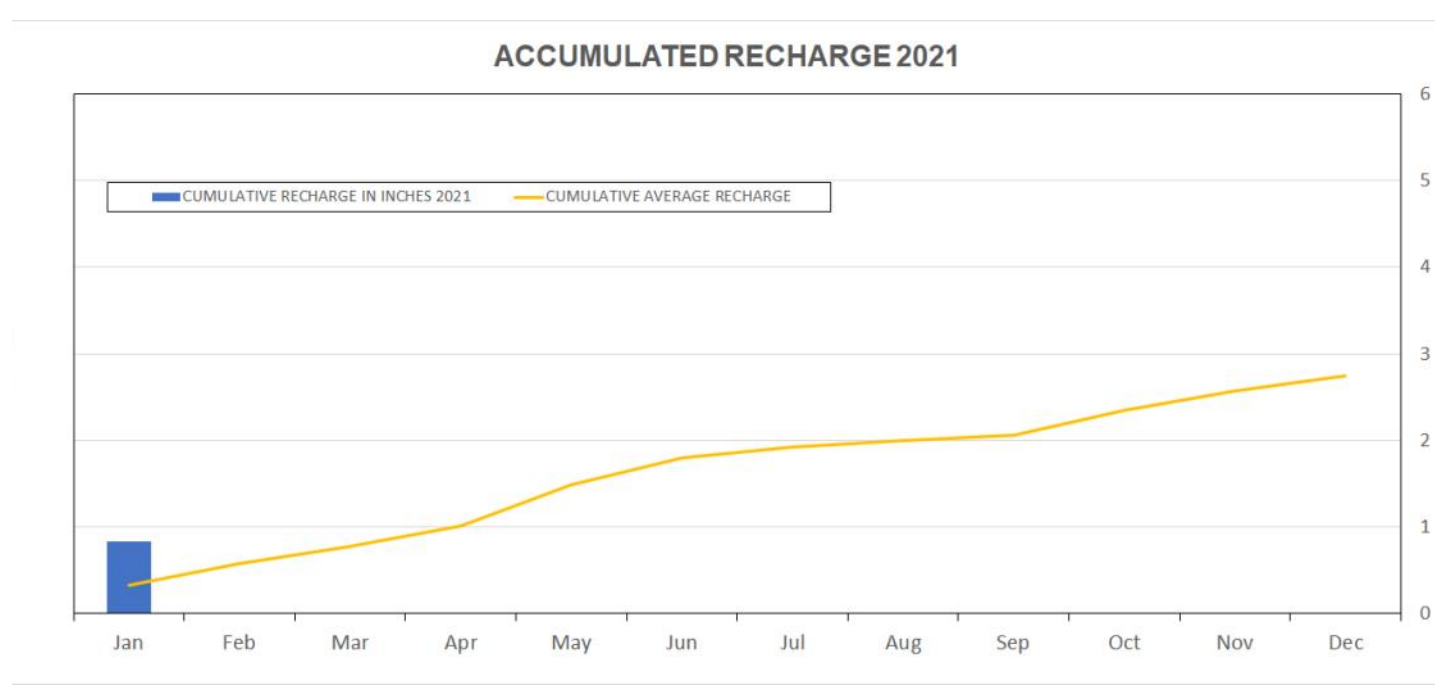
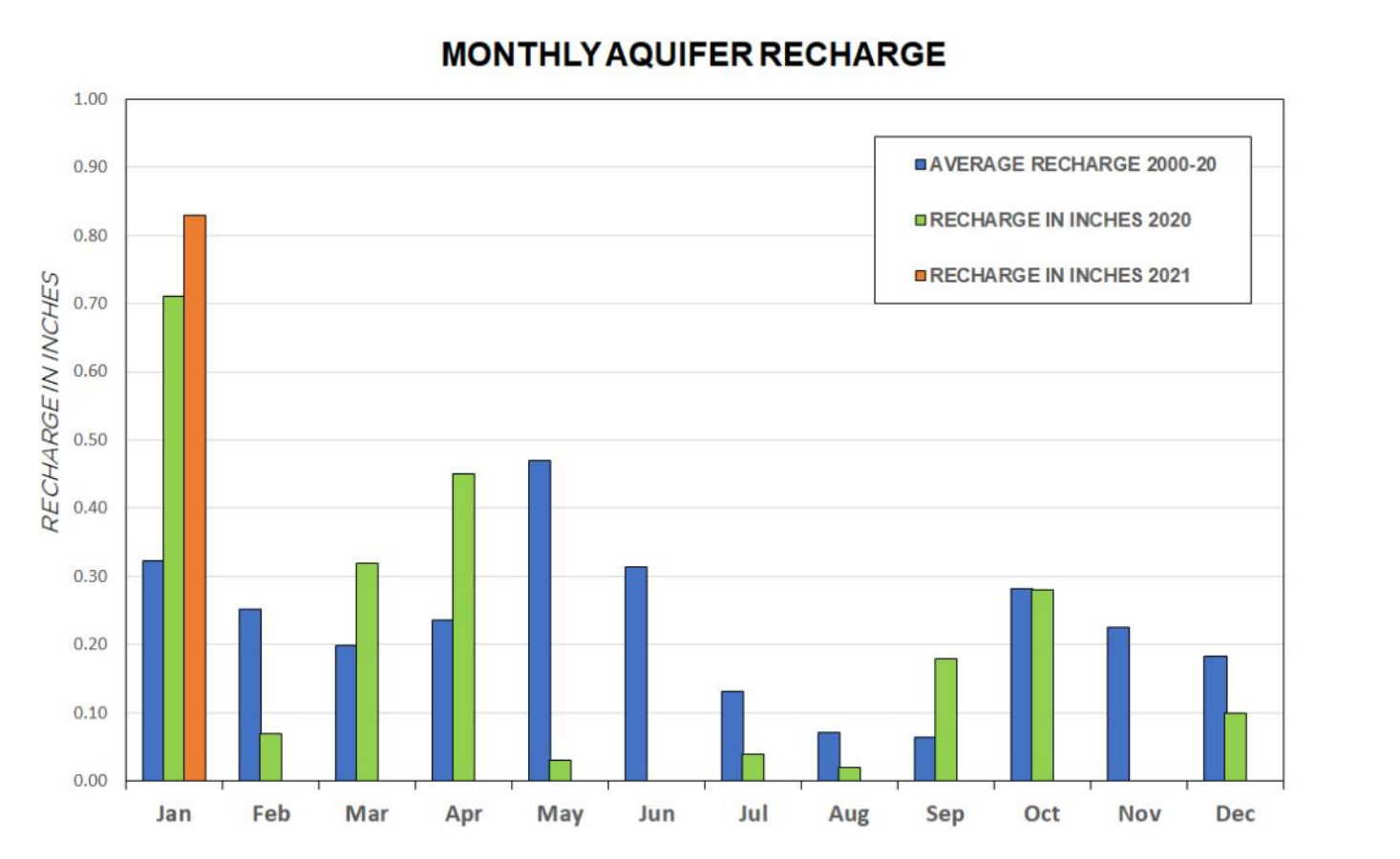
Recharge Charts
Central Oklahoma Aquifer System





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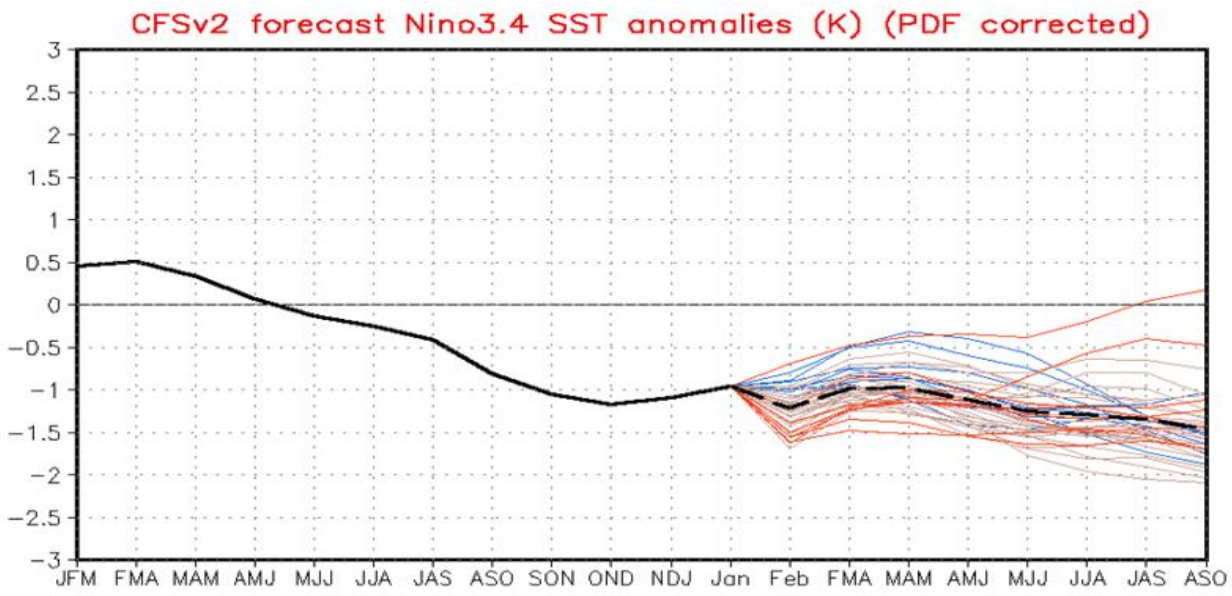
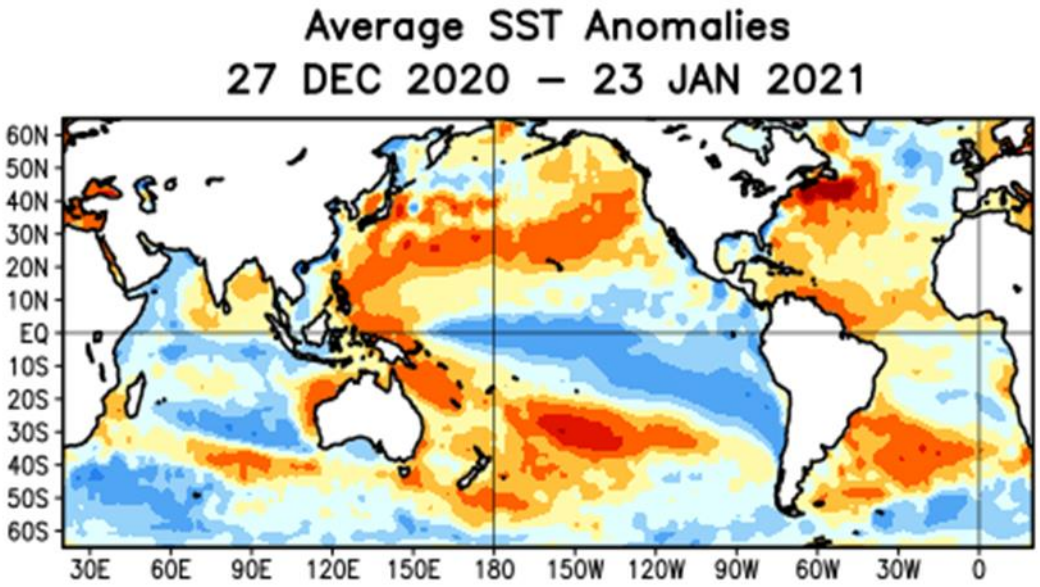
ENSO Cycle
Recent Evolution, Current Status and Predictions





Summary

ENSO Alert System Status: La Niña Advisory

- La Niña conditions are present.
- Equatorial sea surface temperatures (SSTs) are below average from the west-central to eastern Pacific Ocean.
- The tropical atmospheric circulation is consistent with La Niña.
- La Niña is expected to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March), with a potential transition to ENSO-neutral during the spring 2021 (55% chance during April-June).

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

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