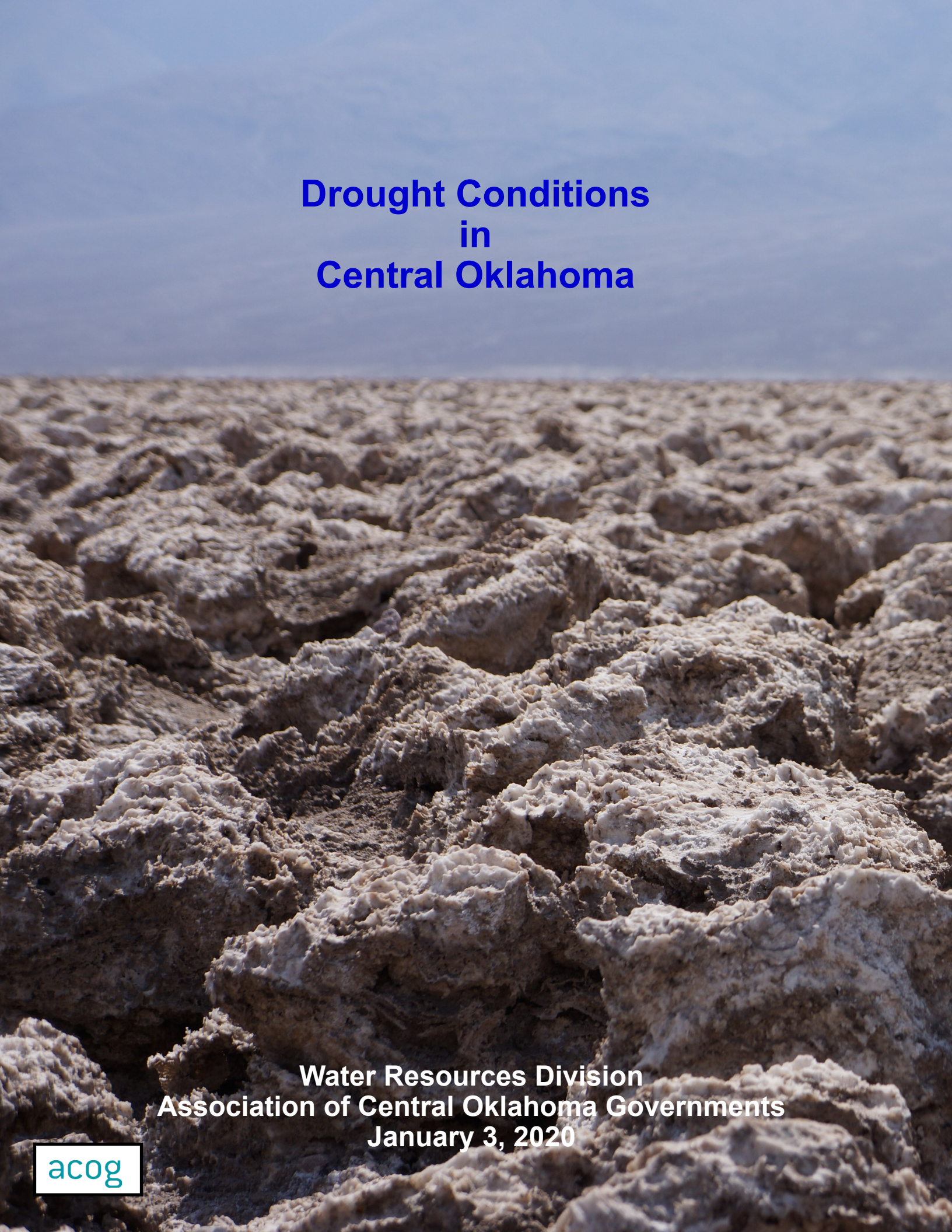

Drought Conditions in Central Oklahoma

Water Resources Division
Association of Central Oklahoma Governments
January 3, 2020

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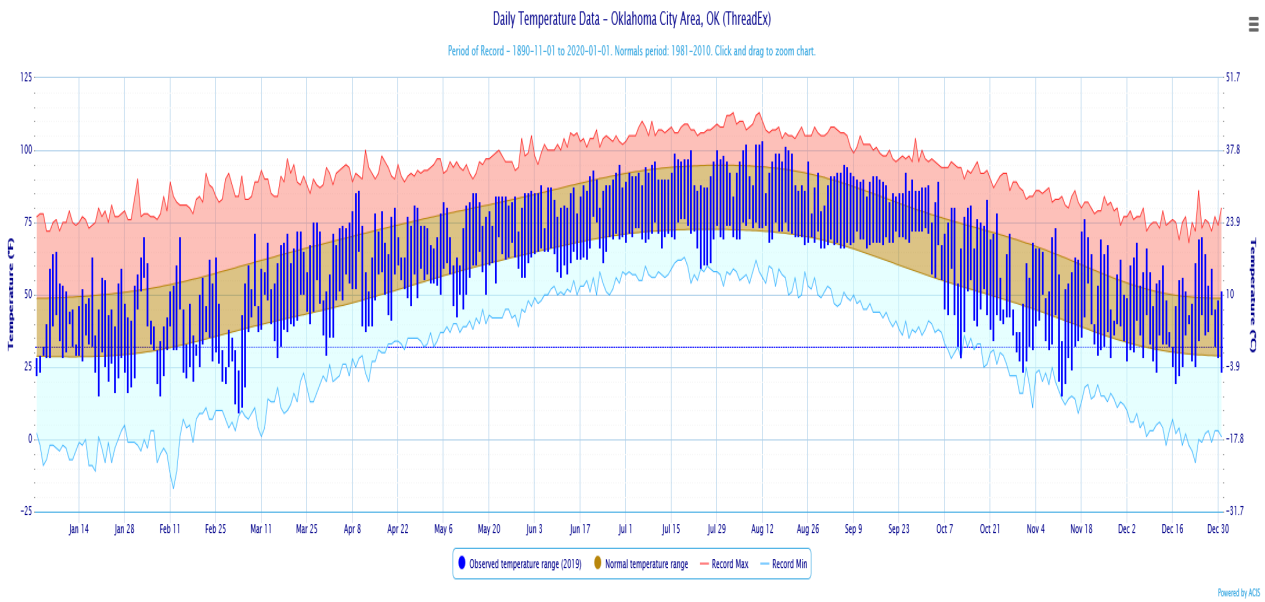
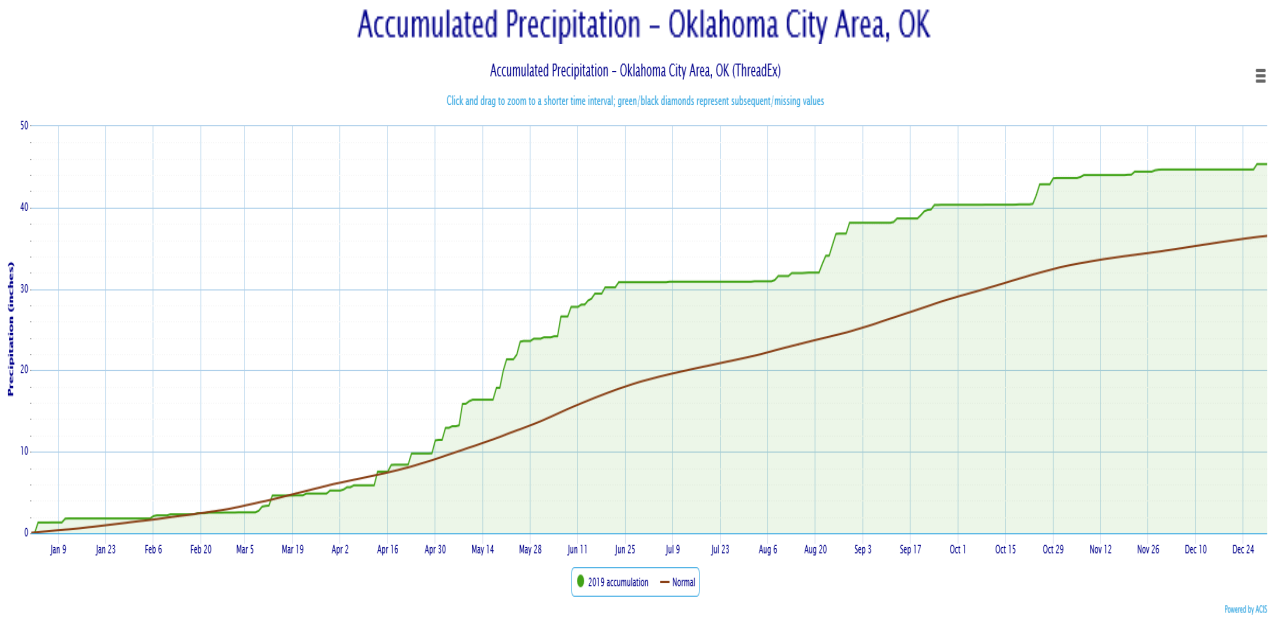
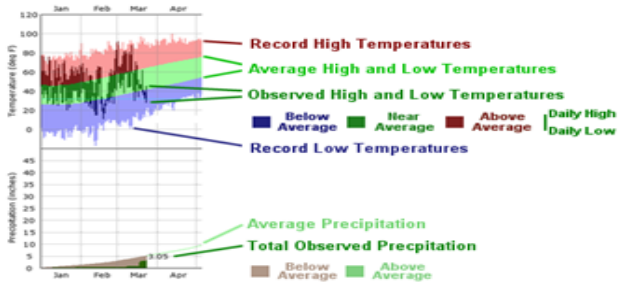
Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2019







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

Rainfall Summaries by Oklahoma Climate Division

Calendar Year 01-Jan-2019 though 01-Jan-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	35.10"	+6.70"	124%	10th wettest	14.18" (1956-57)	43.12" (1997-98)
Central	48.22"	+10.59"	128%	5th wettest	20.07" (1954-55)	54.33" (2007-08)
S. Central	44.93"	+4.22"	110%	21st wettest	20.12" (1963-64)	72.44" (2015-16)
Statewide	45.50"	+9.03"	125%	5th wettest	20.81" (1956-57)	54.08" (2015-16)

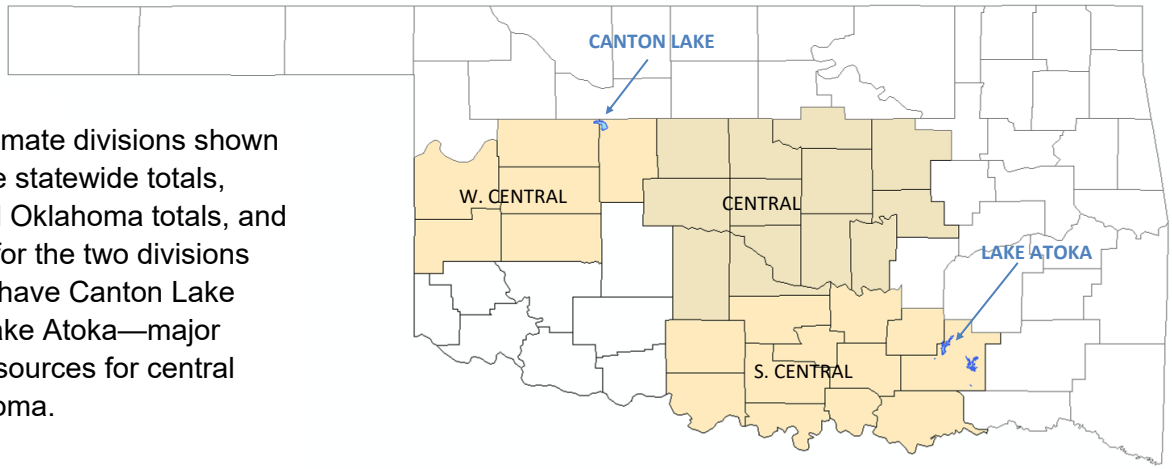
Water Year: 01-Oct-2019 through 01-Jan-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	3.46"	-2.11"	62%	36th driest	0.14" (1921-22)	11.99" (1986-87)
Central	7.32"	-0.84"	90%	43rd wettest	0.92" (1945-46)	16.24" (1941-42)
S. Central	9.94"	+0.18"	102%	37th wettest	0.97" (1950-51)	21.86" (2015-16)
Statewide	8.47"	+0.34"	104%	36th wettest	1.12" (1950-51)	15.35" (2015-16)

Winter 01-Dec through 01-Jan-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	1.06"	-0.19"	85%	39th wettest	0.00" (1976-77)	4.28" (1984-85)
Central	0.85"	-1.19"	42%	29th driest	0.10" (1950-51)	8.06" (1984-85)
S. Central	1.00"	-1.66"	37%	23rd driest	0.07" (1950-51)	7.15" (2015-16)
Statewide	1.12"	-1.00"	53%	31st driest	0.09" (1950-51)	5.80" (2015-16)

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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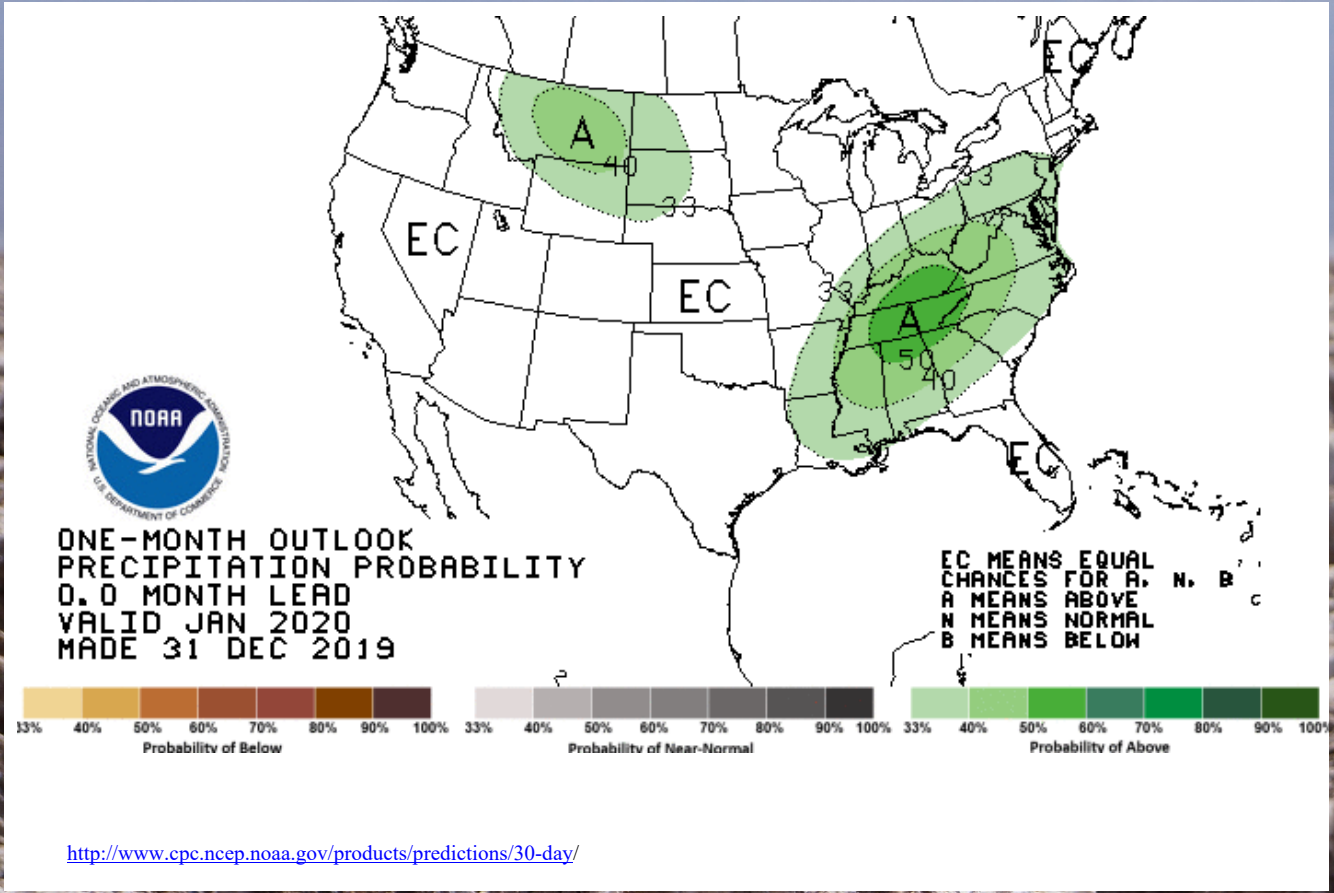
NOAA One-Month Outlook

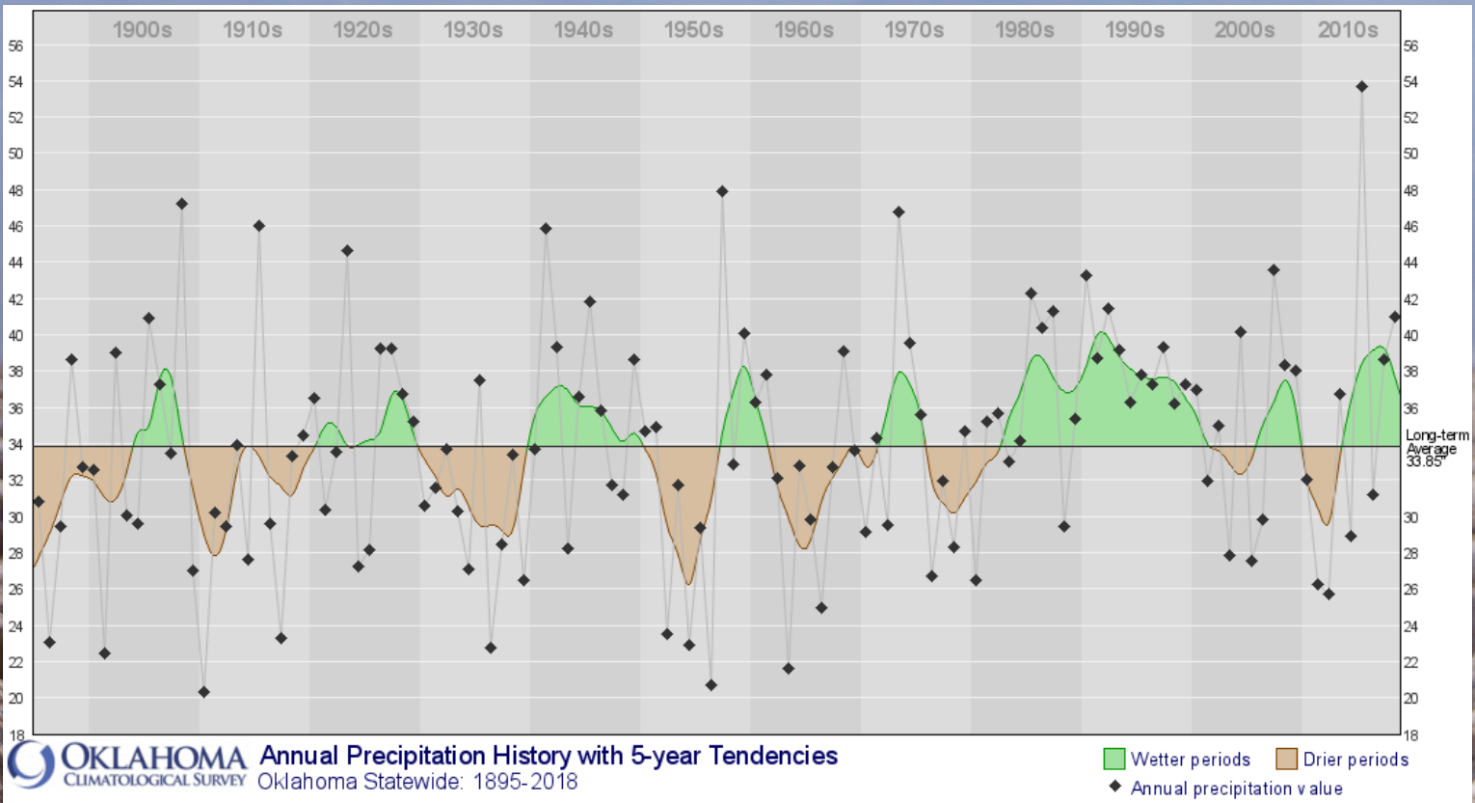


http://www.cpc.ncep.noaa.gov/products/predictions/30-day/

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.

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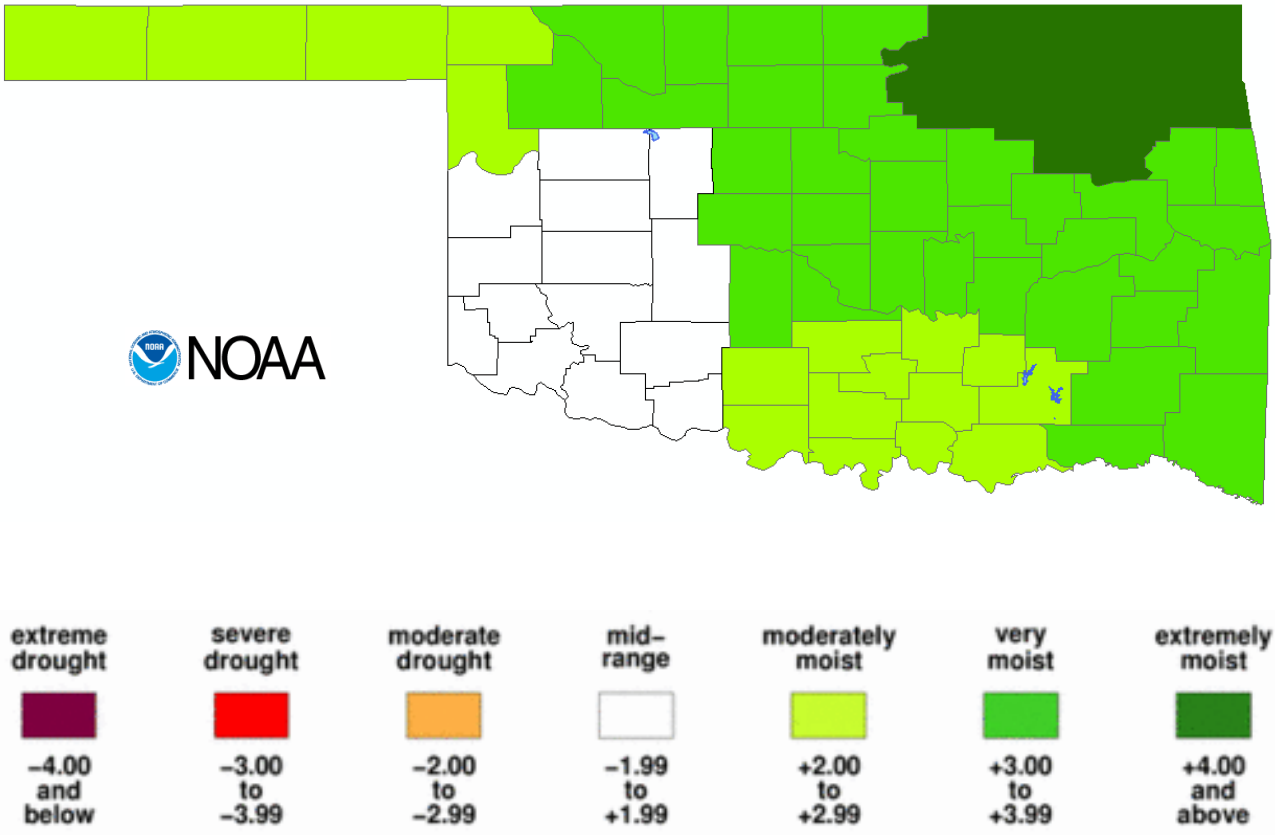
Drought Severity Index by Climate Division

Palmer Value Ending 28 DEC 2019



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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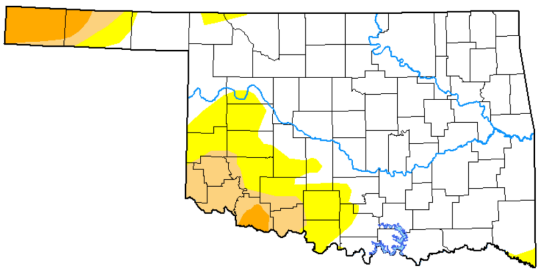
U.S. Drought Monitor

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	12/31/2019	76.45	23.55	10.47	3.64	0	0
Last Week	12/24/2019	60.87	39.13	18.07	3.64	0	0
3 Months Ago	10/1/2019	71.94	28.06	11.08	1.01	0	0
Start of Calendar Year	1/1/2019	94.85	5.15	0	0	0	0
Start of Water Year	10/1/2019	71.94	28.06	11.08	1.01	0	0
One Year Ago	1/1/2019	94.85	5.15	0	0	0	0

U.S. Drought Monitor

Oklahoma

Abnormal dryness or drought are currently affecting approximately 113,555 people in Oklahoma.



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

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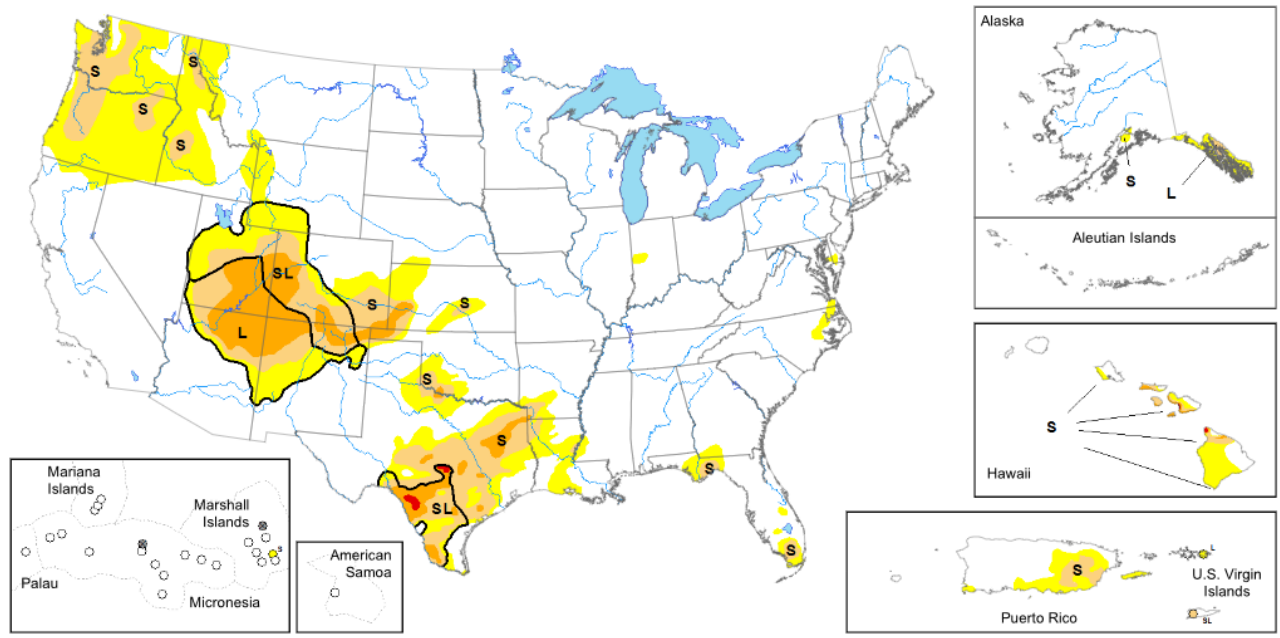
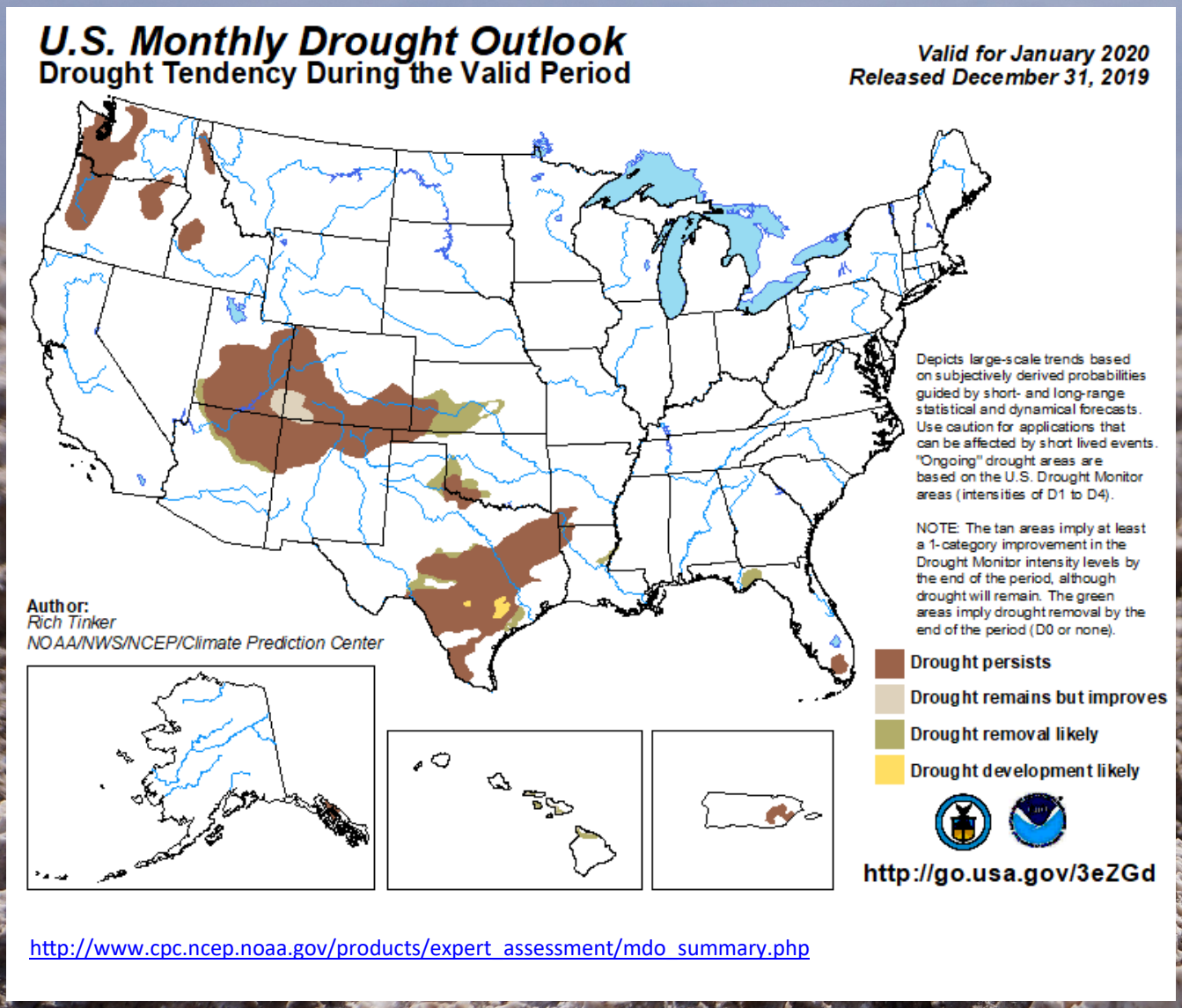
U.S. Drought Monitor Nationwide Map



http://droughtmonitor.unl.edu

U.S. Drought Monitor

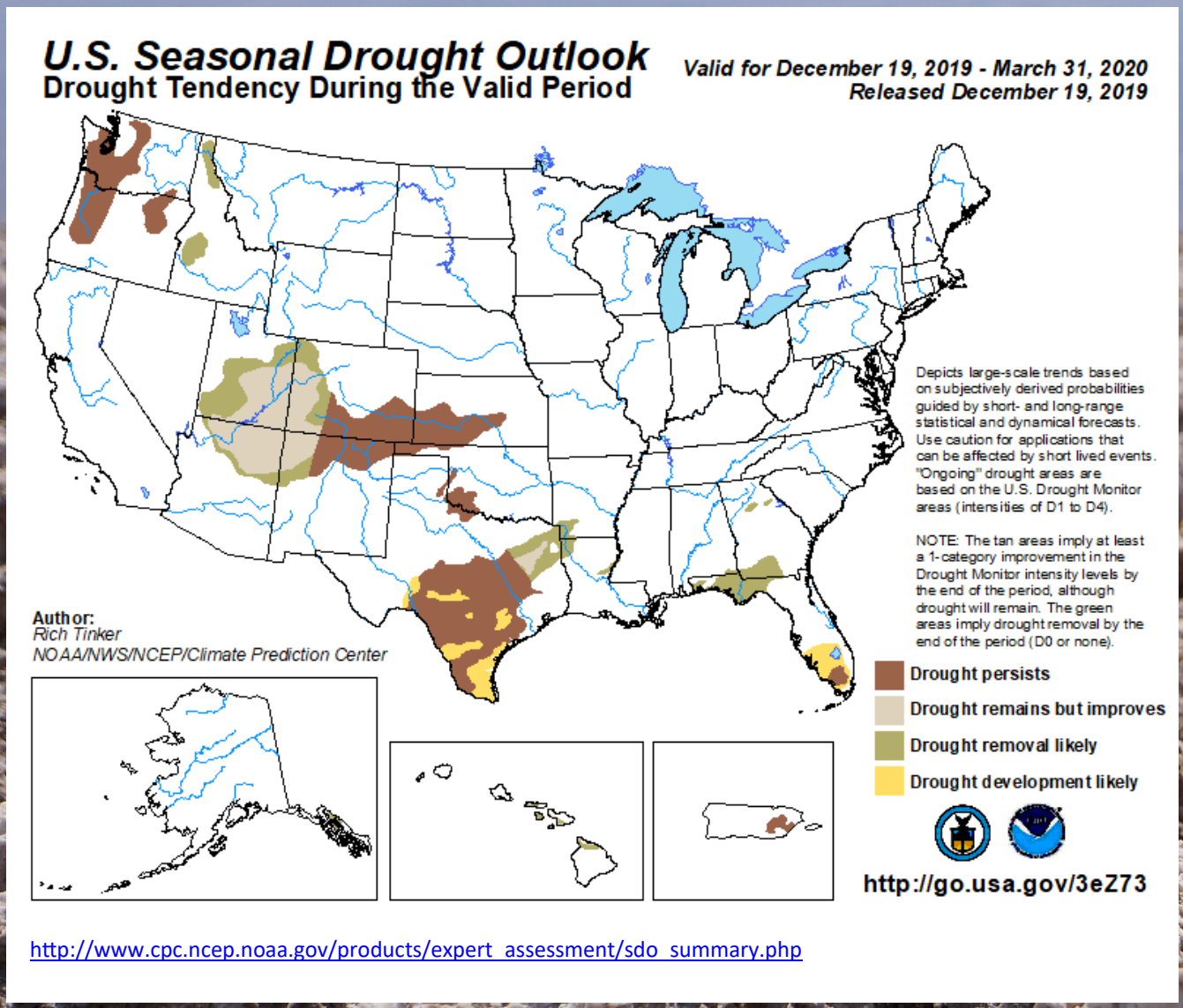
Monthly Drought Outlook Map



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

U.S. Drought Monitor

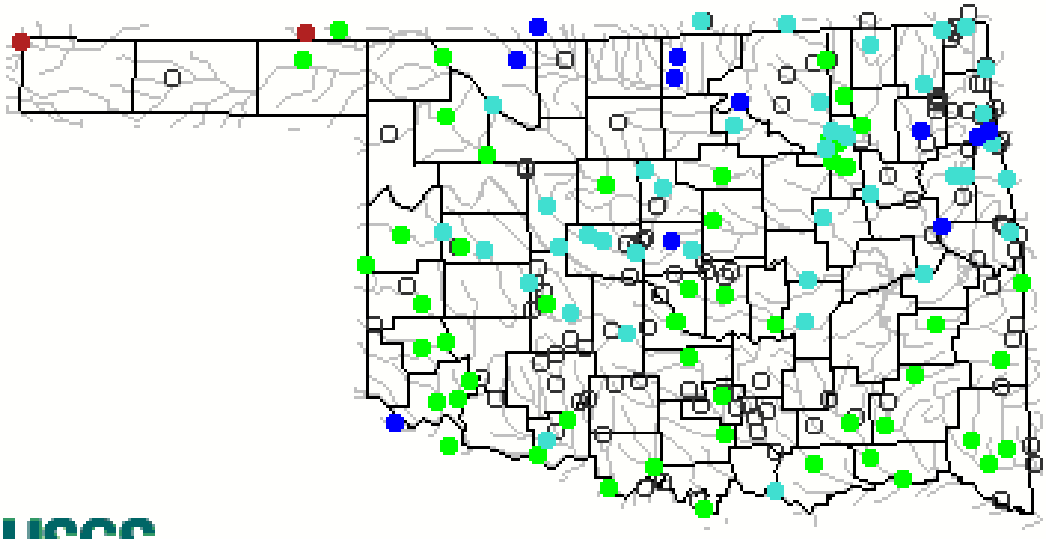
Seasonal Drought Outlook Map



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

USGS Streamflow Data

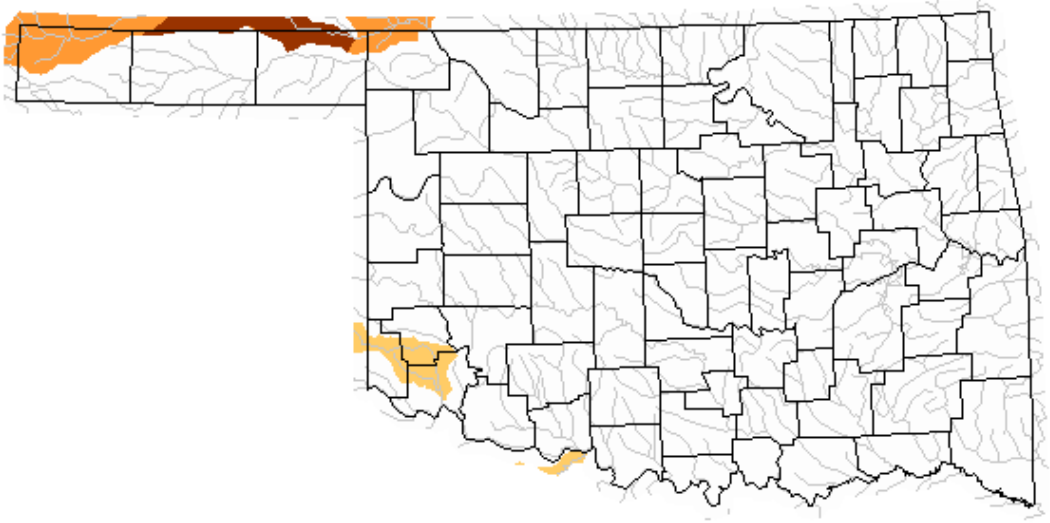
Thursday, January 02, 2020 14:30ET



USGS

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		

Wednesday, January 01, 2020



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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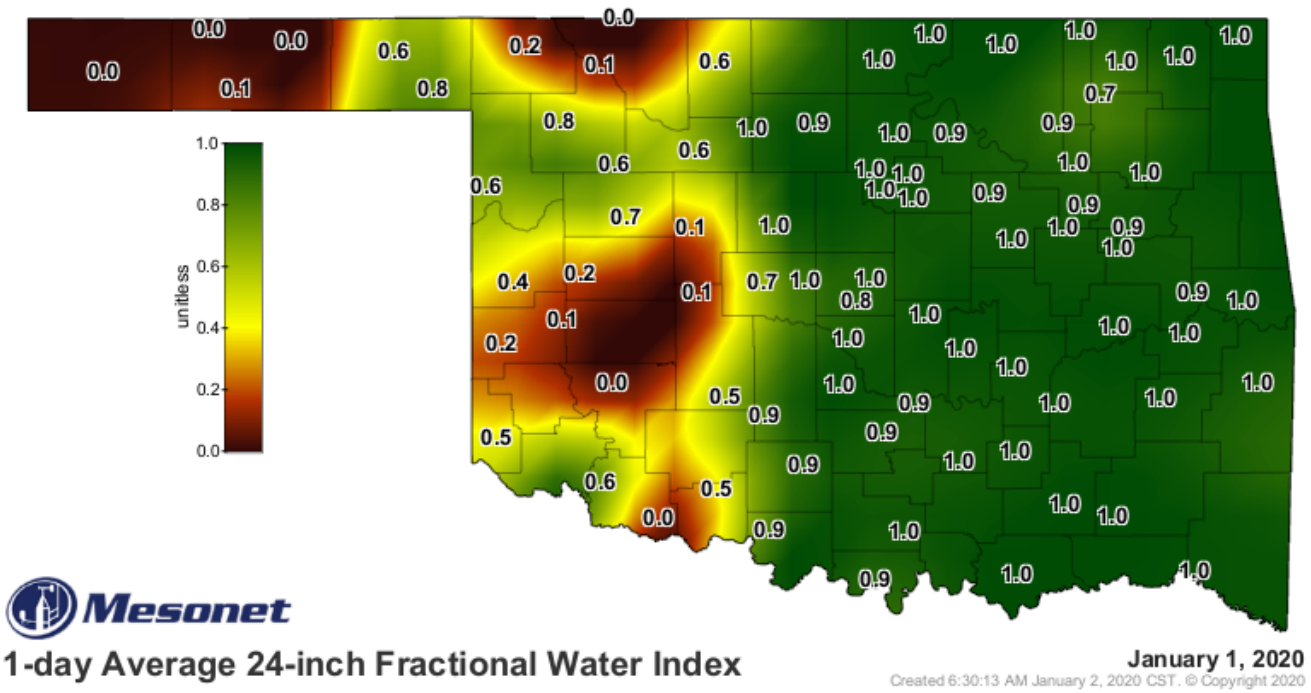
SOIL MOISTURE MAP



	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

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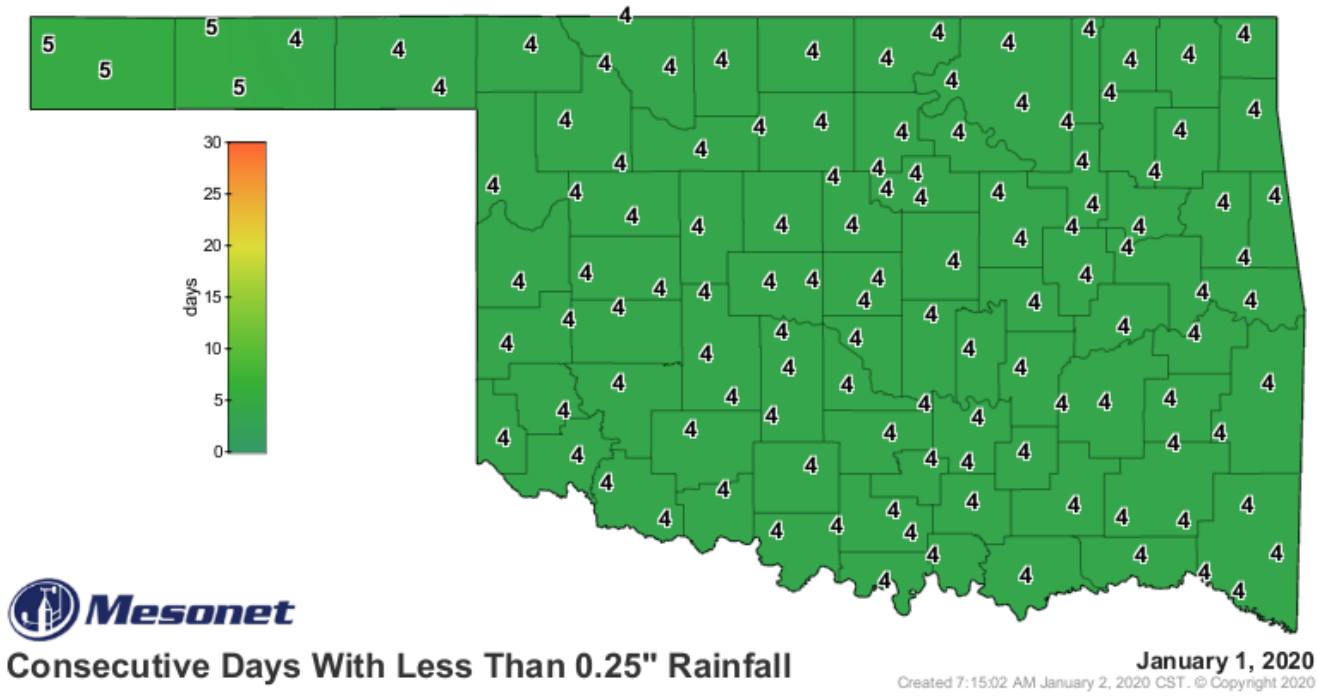
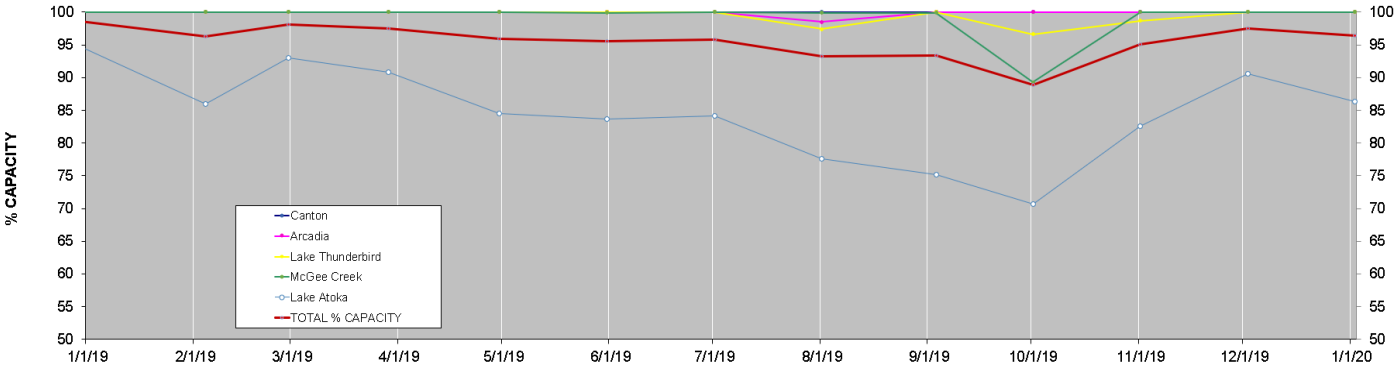
CONSECUTIVE DAYS WITHOUT RAINFALL MAP



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 12/2/2019
Canton	100.0	0.0
Arcadia	100.0	0.0
Lake Thunderbird	100.0	0.0
McGee Creek	100.0	0.0
Lake Atoka	86.4	-4.2
TOTAL % CAPACITY	96.4	-1.1

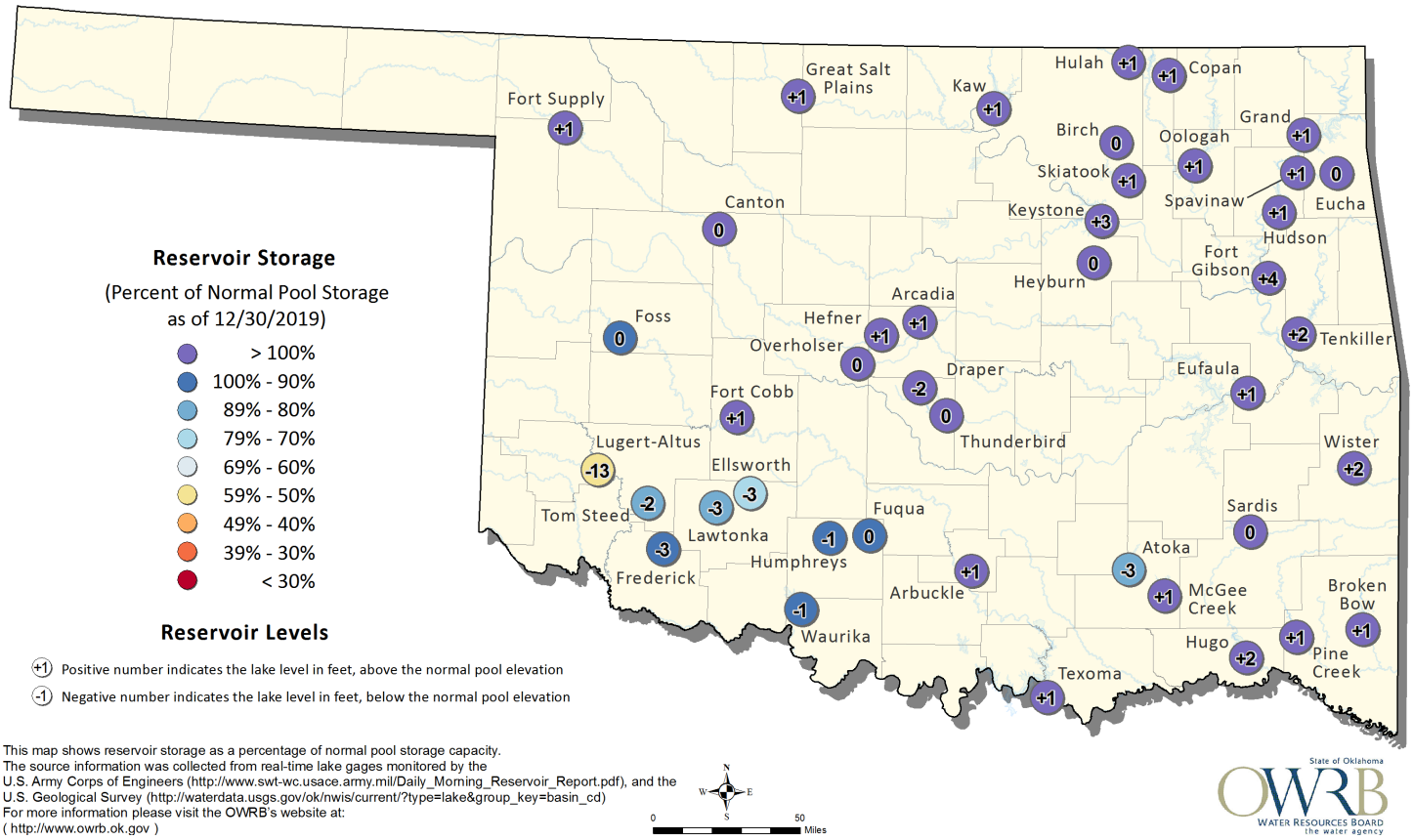
http://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf

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 12/30/2019



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

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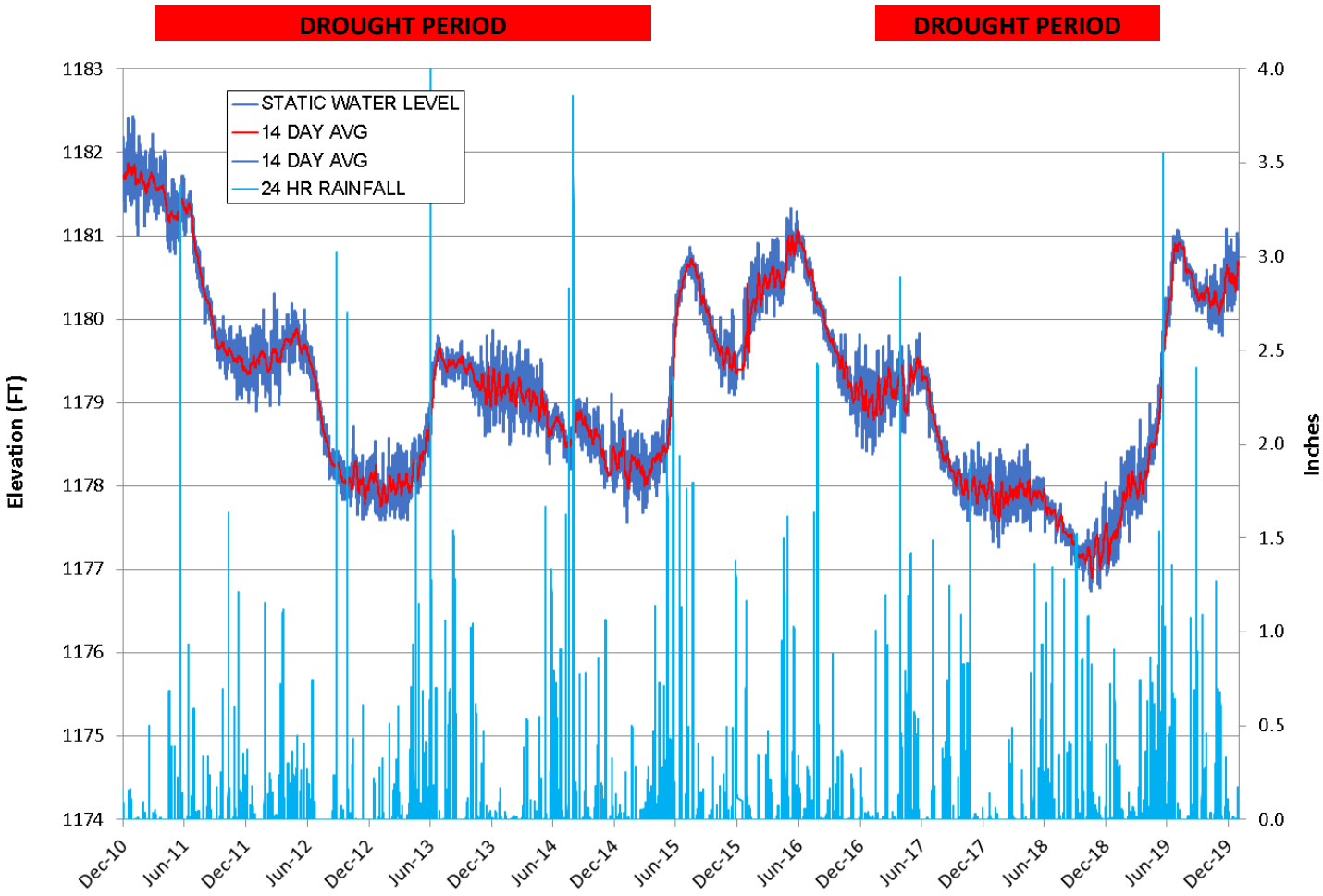
Groundwater Levels
Spencer Mesonet Station



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

Mesonet

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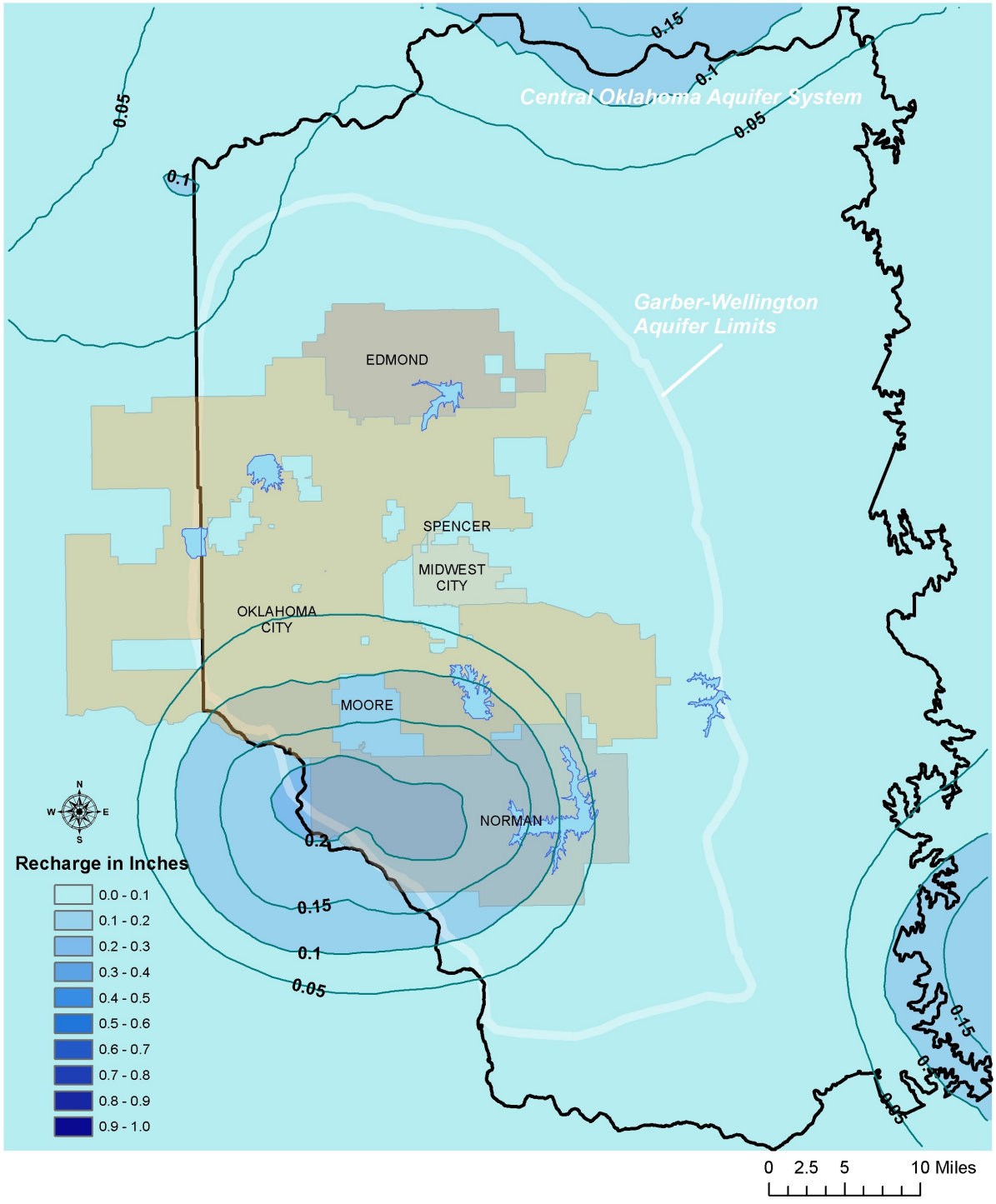
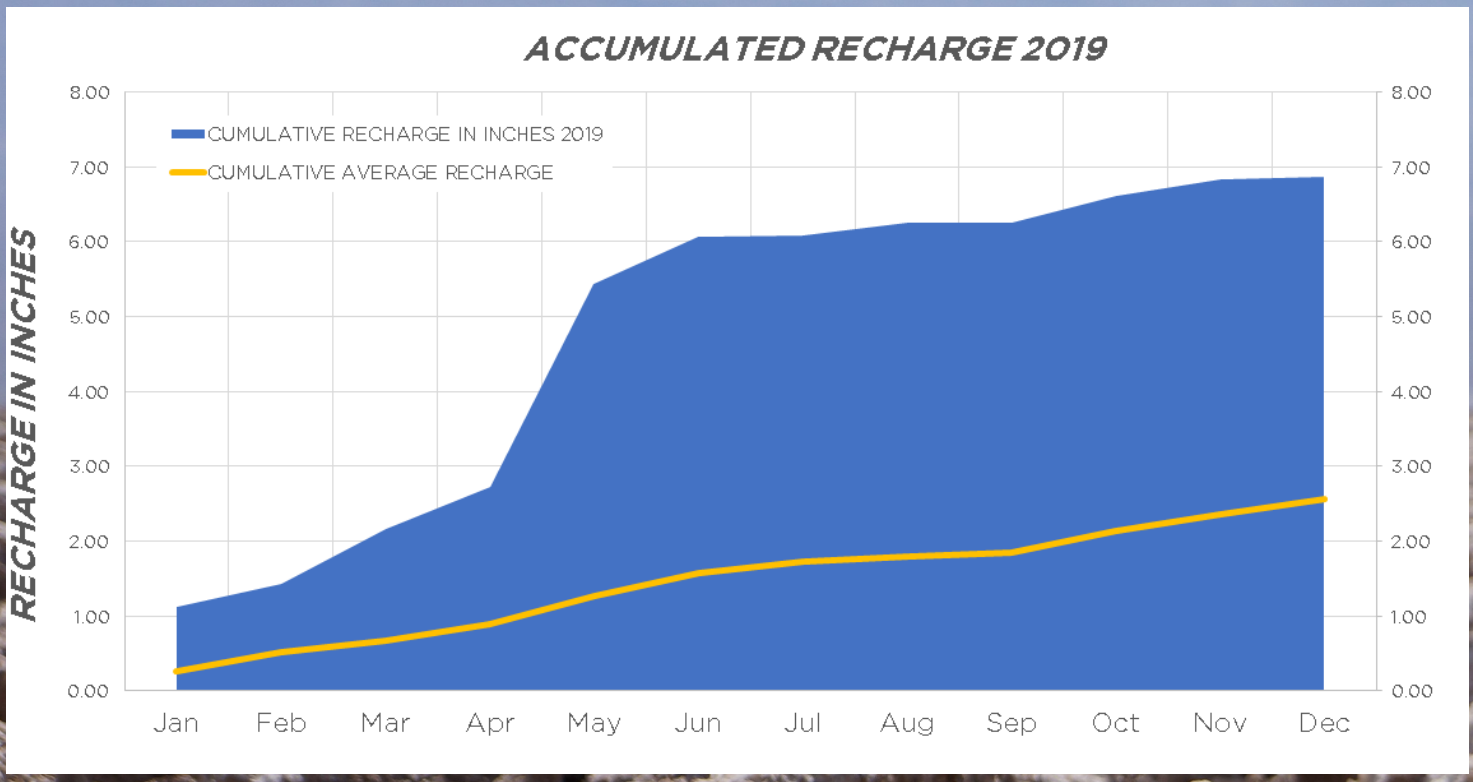
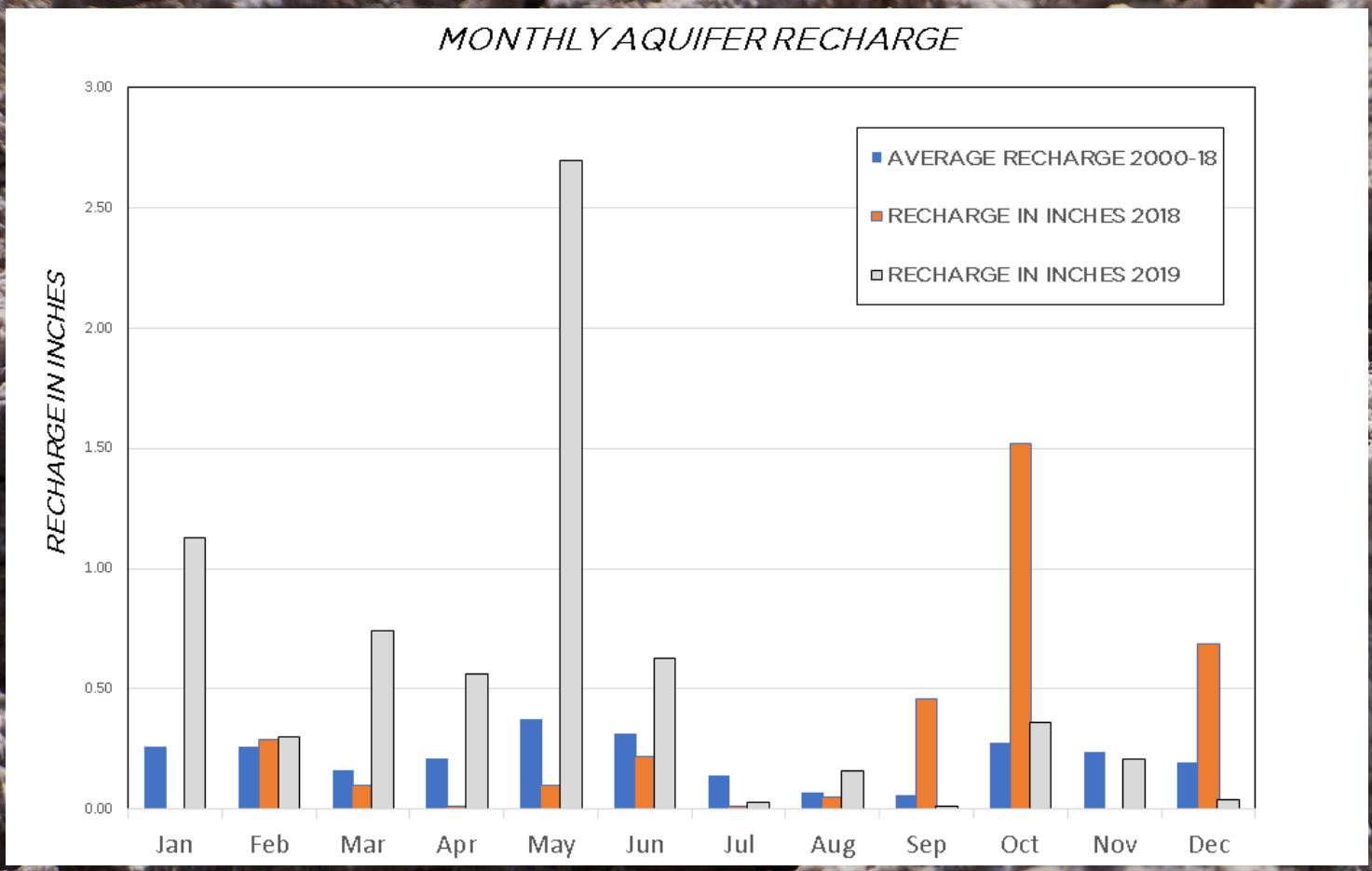
Recharge Map
Central Oklahoma Aquifer System

AQUIFER RECHARGE DECEMBER 2019



Recharge Charts
Central Oklahoma Aquifer System





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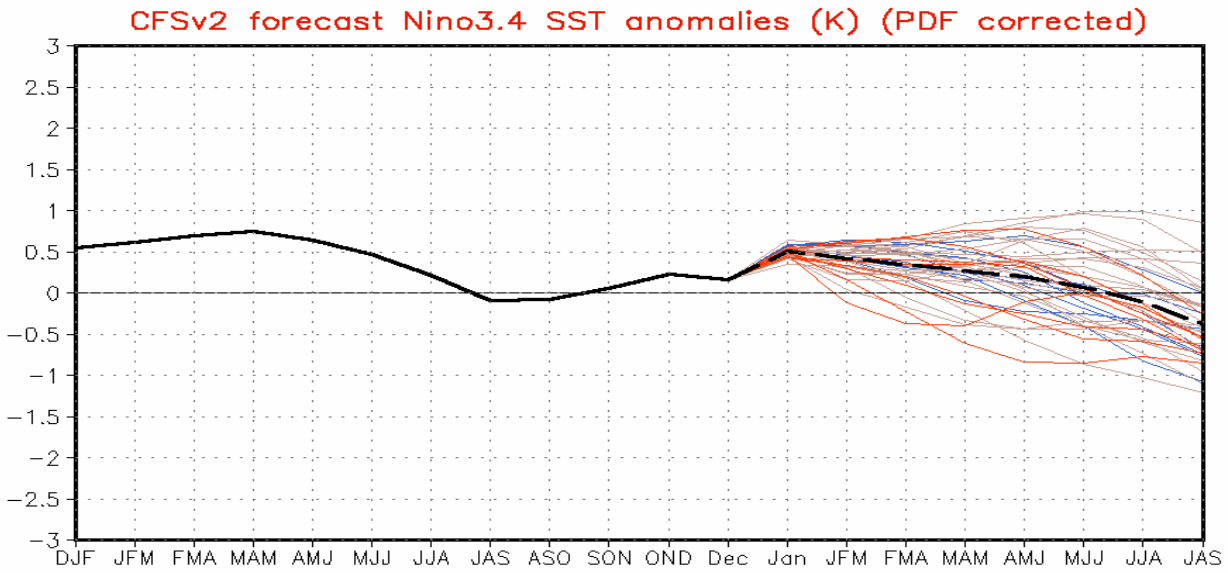
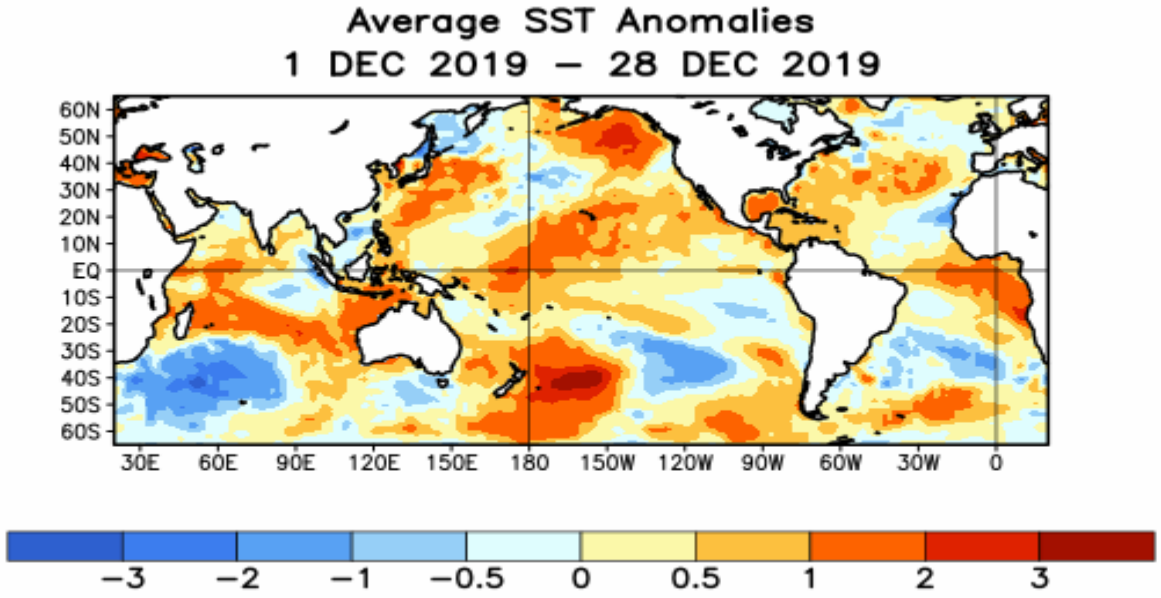
ENSO Cycle
Recent Evolution, Current Status and Predictions





Summary

ENSO Alert System Status: Not Active

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are near-to-above average across the Pacific Ocean.
- The pattern of anomalous convection is generally consistent with ENSO-neutral.
- ENSO-neutral is favored during the Northern Hemisphere winter 2019-20 (70% chance), continuing through spring 2020 (~65% chance).

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