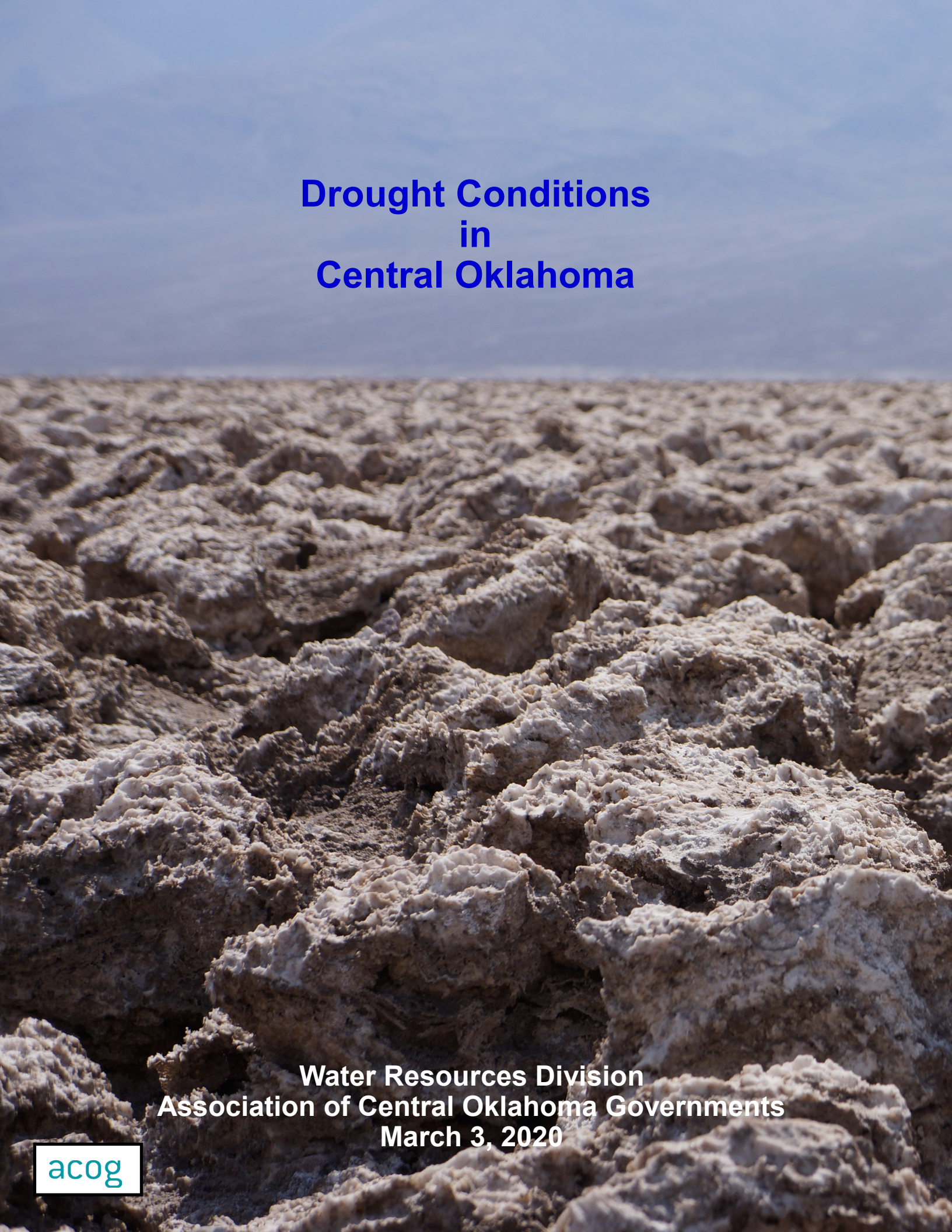

Drought Conditions in Central Oklahoma

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

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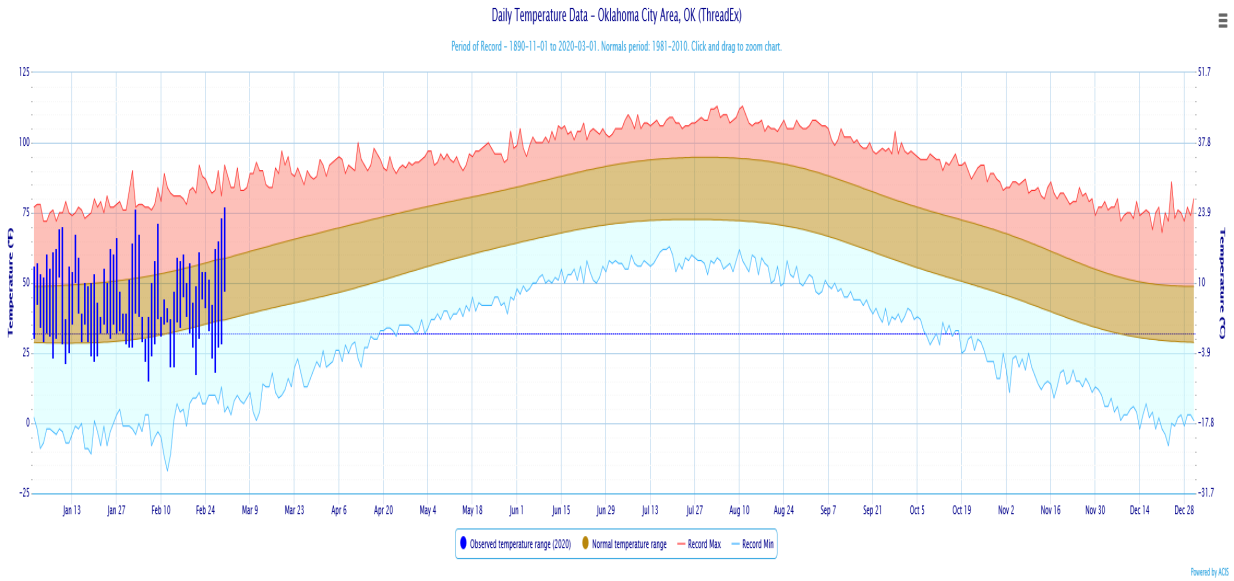
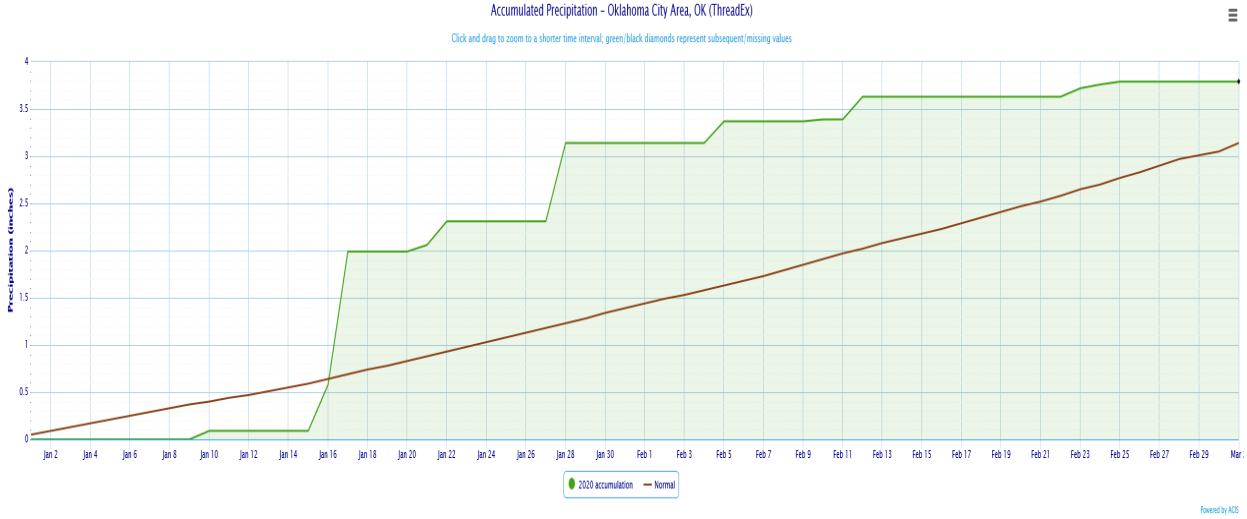
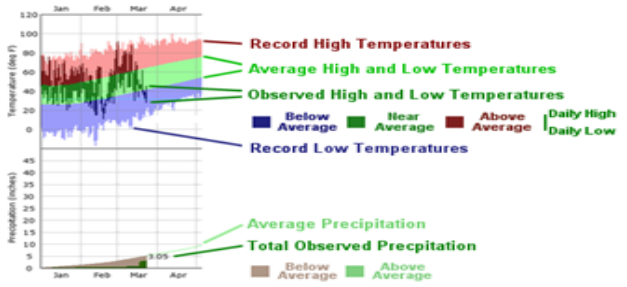
Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2020

Daily Temperature Data – Oklahoma City Area, OK



Accumulated Precipitation – Oklahoma City Area, OK





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

Rainfall Summaries by Oklahoma Climate Division

Calendar Year 01-Jan-2020 though 01-Mar-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	2.41"	+0.28"	113%	29th wettest	0.13" (1970)	5.11" (1949)
Central	4.75"	+1.43"	143%	15th wettest	0.44" (1976)	7.84" (1949)
S. Central	7.93"	+3.49"	179%	6th wettest	0.65" (1976)	11.02" (1932)
Statewide	5.28"	+1.81"	152%	10th wettest	0.59" (1976)	7.63" (1949)

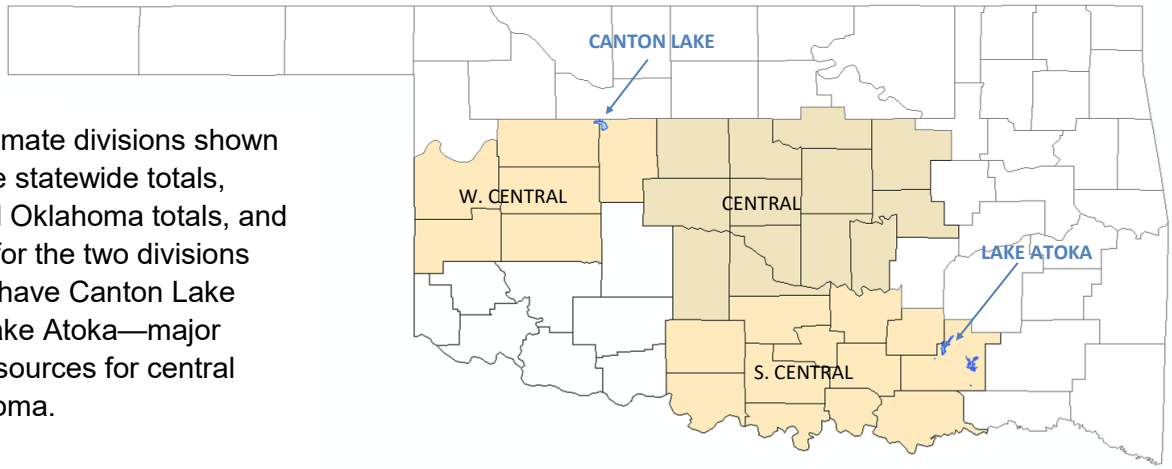
Water Year: 01-Oct-2019 through 01-Mar-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	5.87"	-1.80"	77%	41st driest	1.48" (1966-67)	15.99" (1986-87)
Central	12.07"	+0.64"	106%	26th wettest	3.05" (2005-06)	22.16" (1984-85)
S. Central	17.87"	+3.74"	126%	16th wettest	3.74" (1966-67)	26.55" (2000-01)
Statewide	13.75"	+2.20"	119%	18th wettest	3.57" (1966-67)	19.06" (1984-85)

Winter 01-Dec through 01-Mar-2020

Climate Division	Total Rainfall	Departure from Normal	Pct of Normal	Rank since 1921 (88 periods)	Driest on Record	Wettest on Record
W. Central	3.47"	+0.12"	103%	34th wettest	0.54" (2005-06)	8.12" (1959-60)
Central	5.61"	+0.30"	106%	29th wettest	0.90" (2005-06)	14.09" (1984-85)
S. Central	8.93"	+1.90"	127%	21st wettest	1.99" (1966-67)	13.14" (1937-38)
Statewide	6.40"	+0.86"	116%	23rd wettest	1.52" (2005-06)	10.52" (1984-85)

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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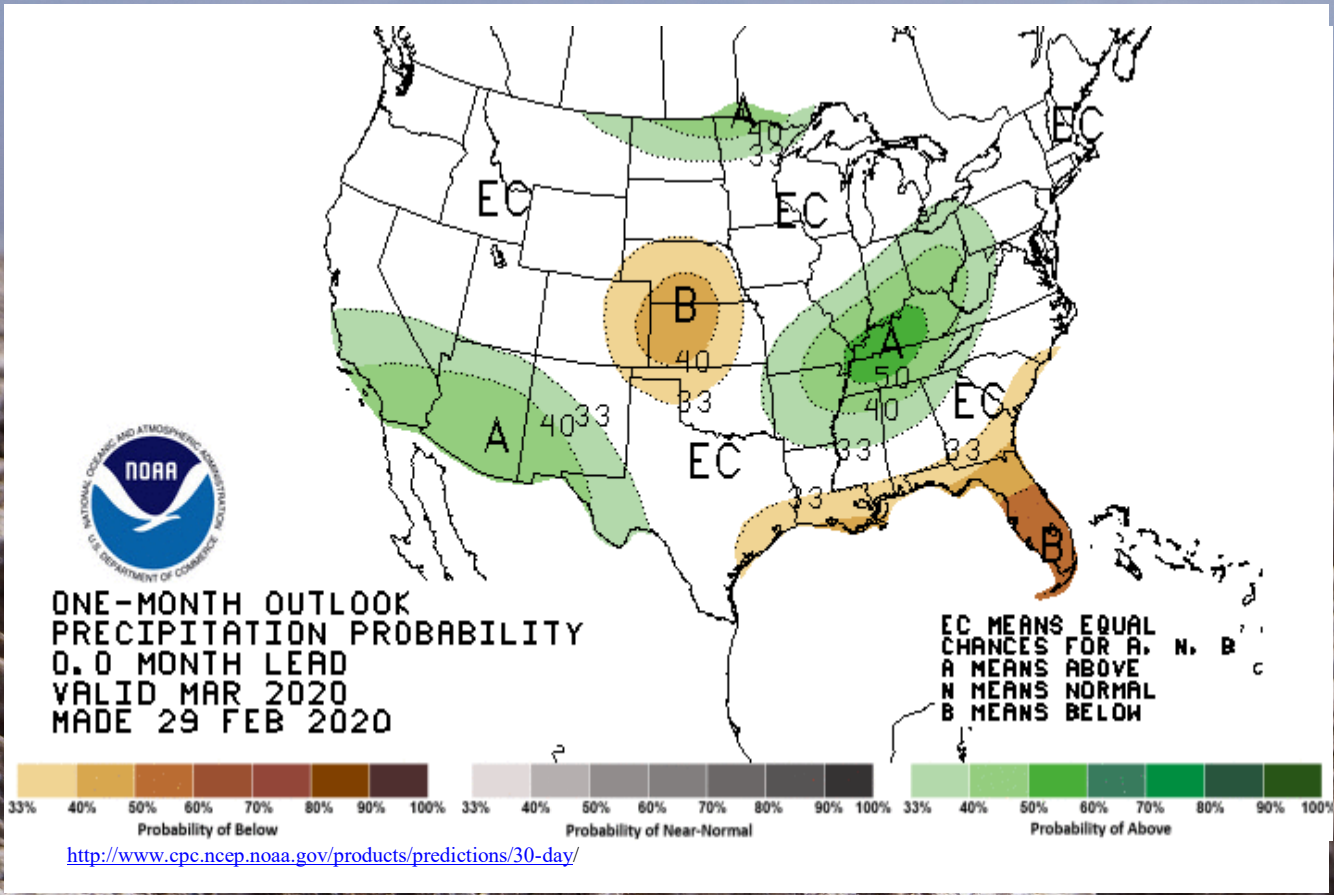
NOAA One-Month Outlook

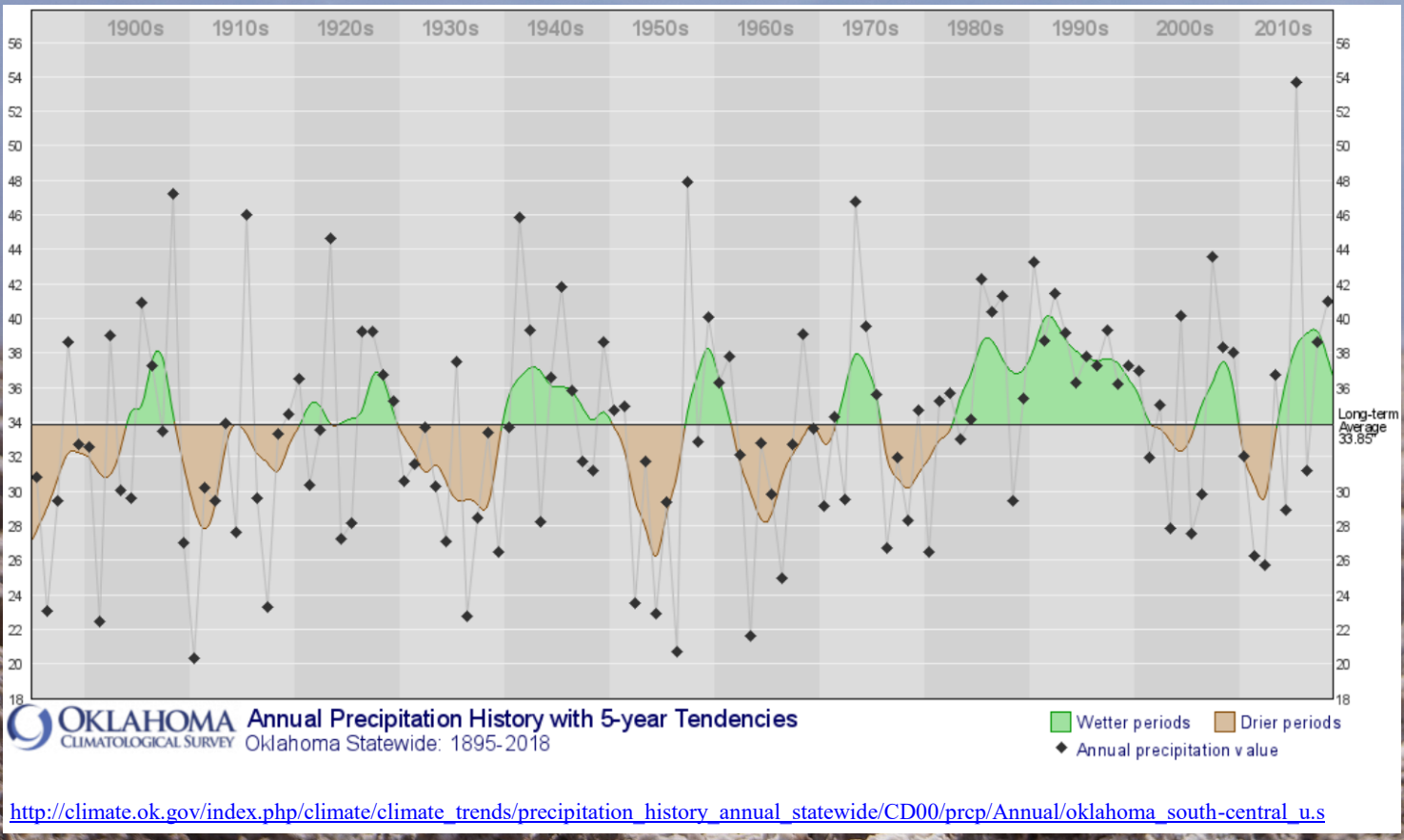


http://www.cpc.ncep.noaa.gov/products/predictions/30-day/

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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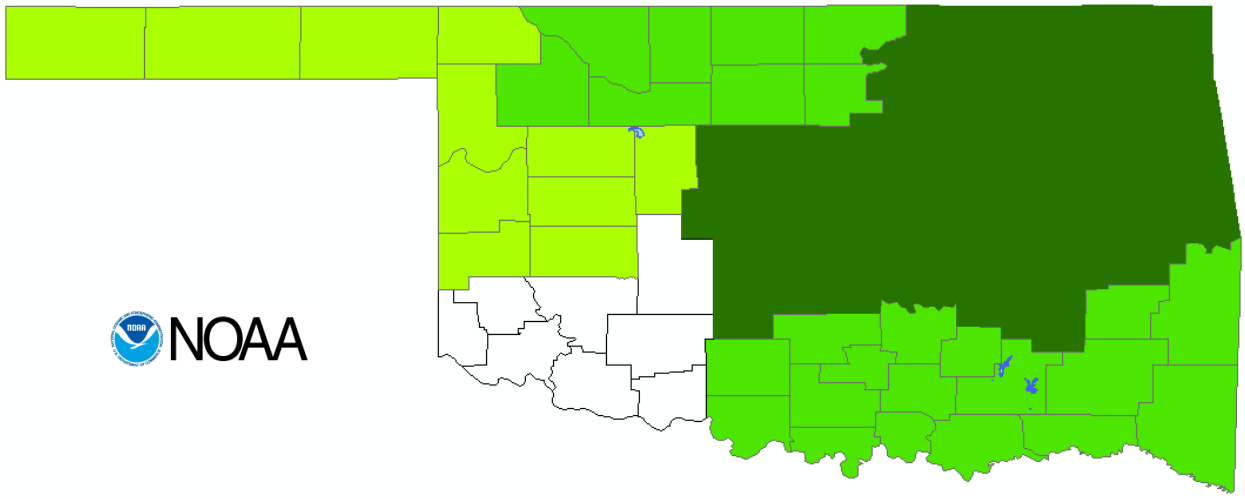
Drought Severity Index by Climate Division

Palmer Value Ending 29 FEB 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.

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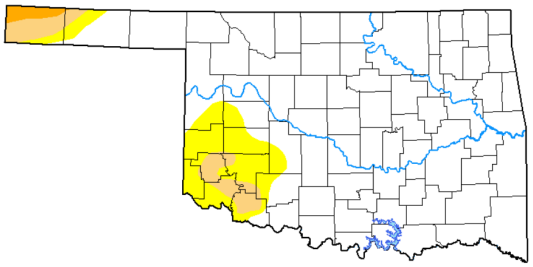
U.S. Drought Monitor

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2020-02-25	86.53	13.47	4.66	0.84	0.00	0.00
Last Week	2020-02-18	85.83	14.17	4.66	0.85	0.00	0.00
3 Months Ago	2019-11-26	76.05	23.95	12.58	3.67	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	2019-02-26	88.61	11.39	0.98	0.00	0.00	0.00

U.S. Drought Monitor

Oklahoma

Abnormal dryness or drought are currently affecting approximately 29,485 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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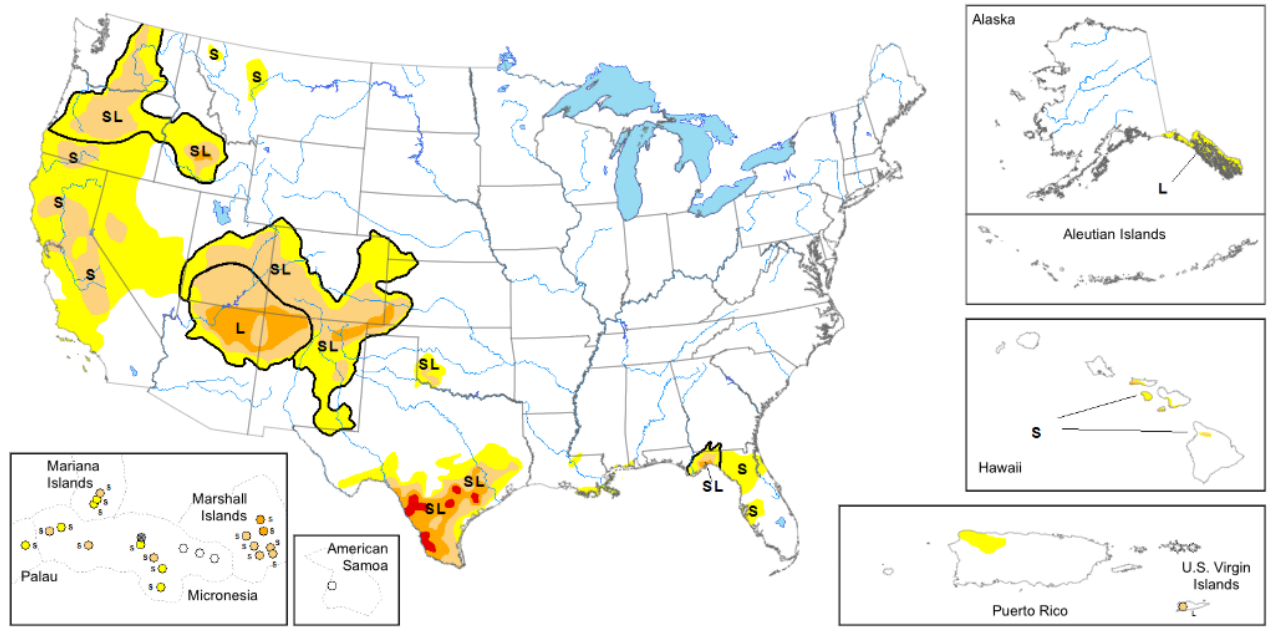
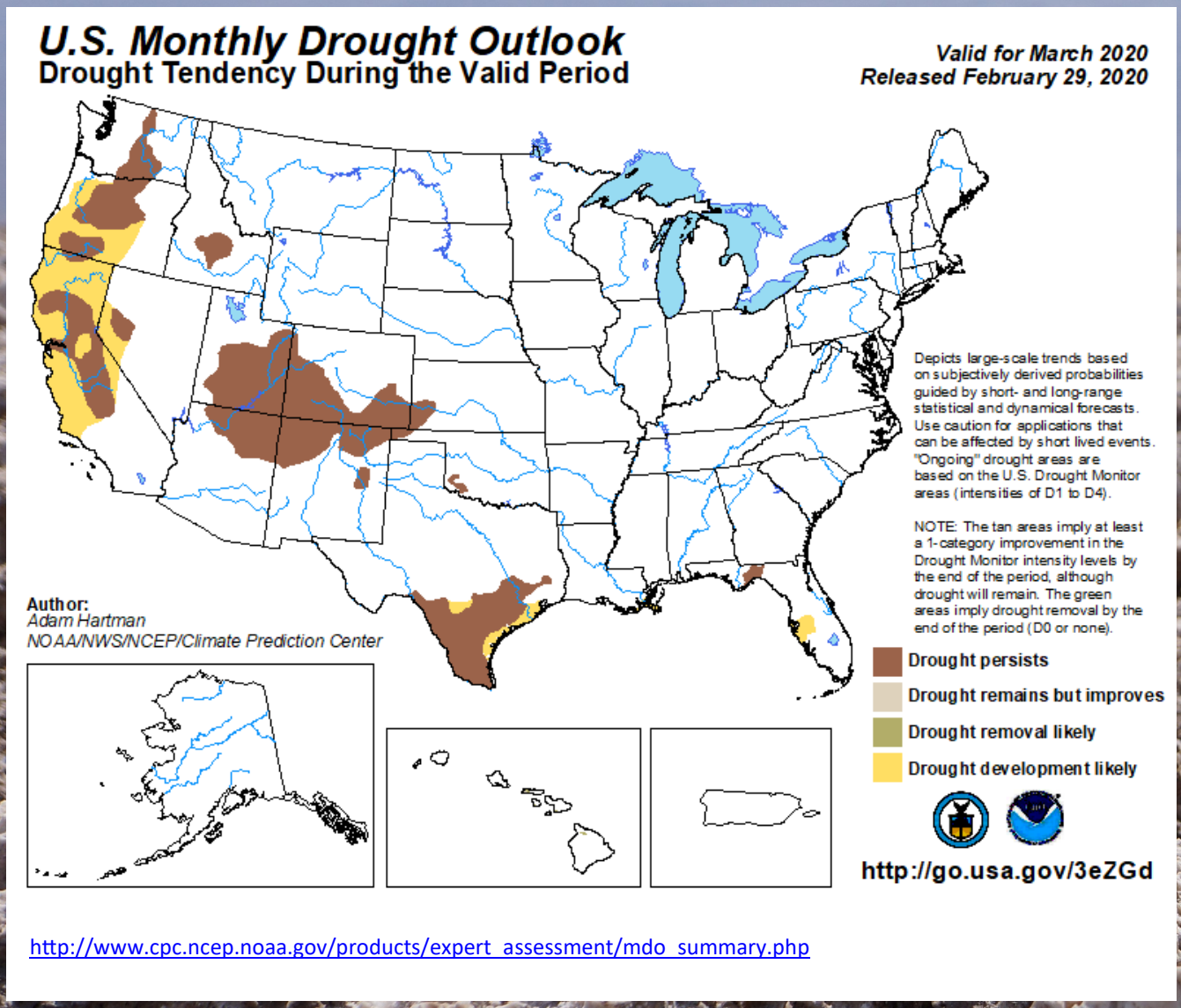
U.S. Drought Monitor Nationwide Map



http://droughtmonitor.unl.edu

U.S. Drought Monitor

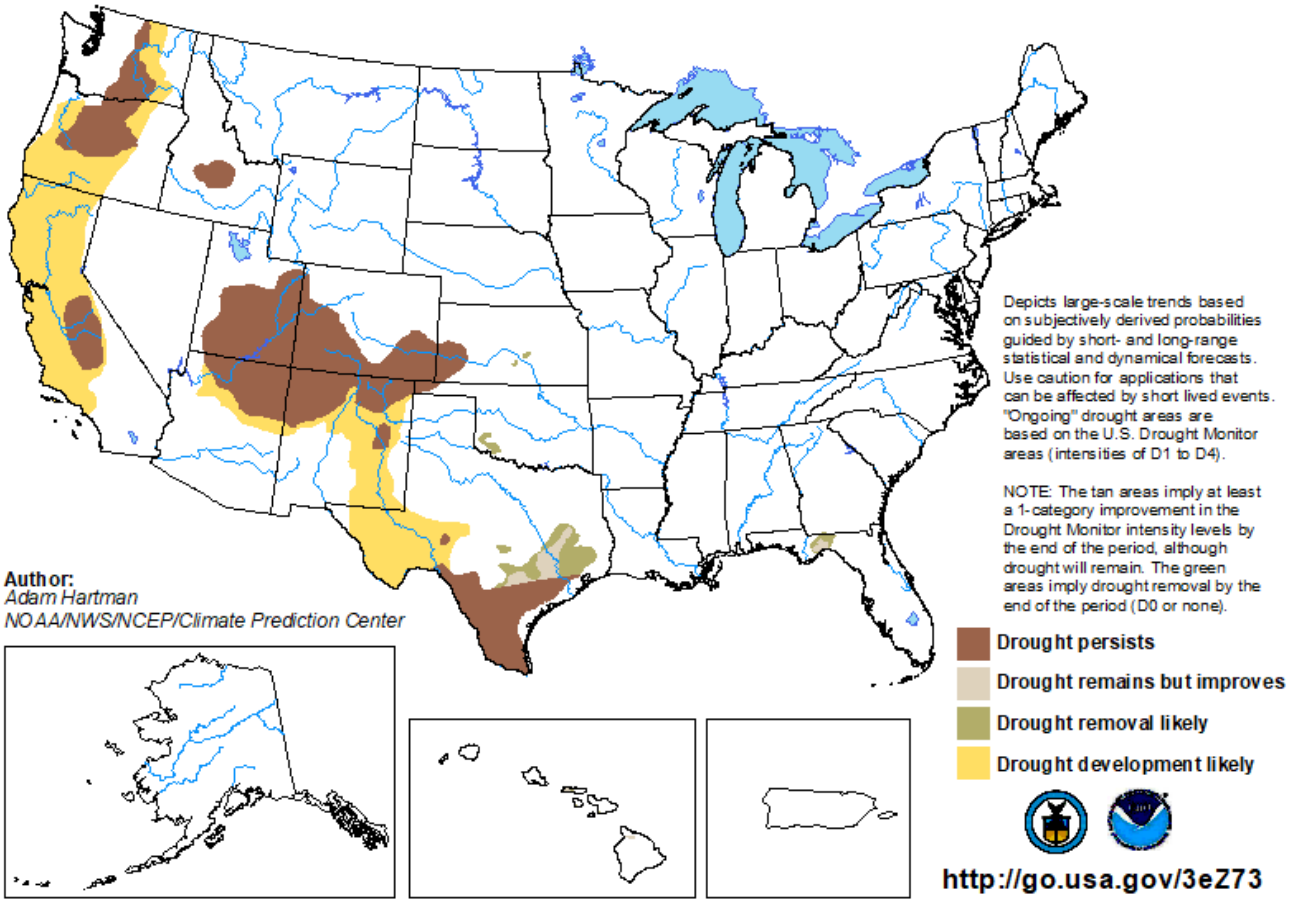
Monthly Drought Outlook Map



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

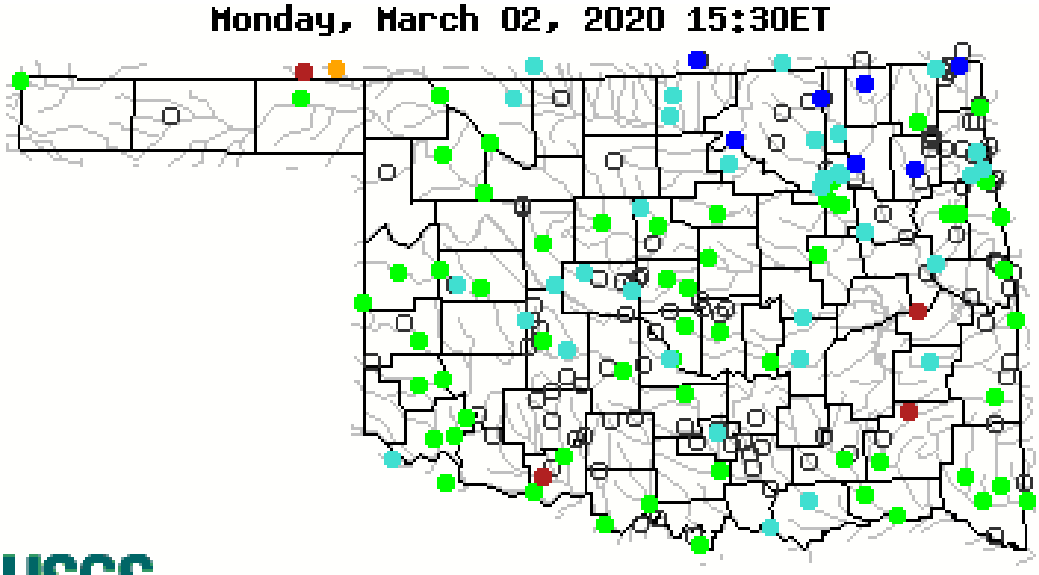
U.S. Drought Monitor

Seasonal Drought Outlook Map



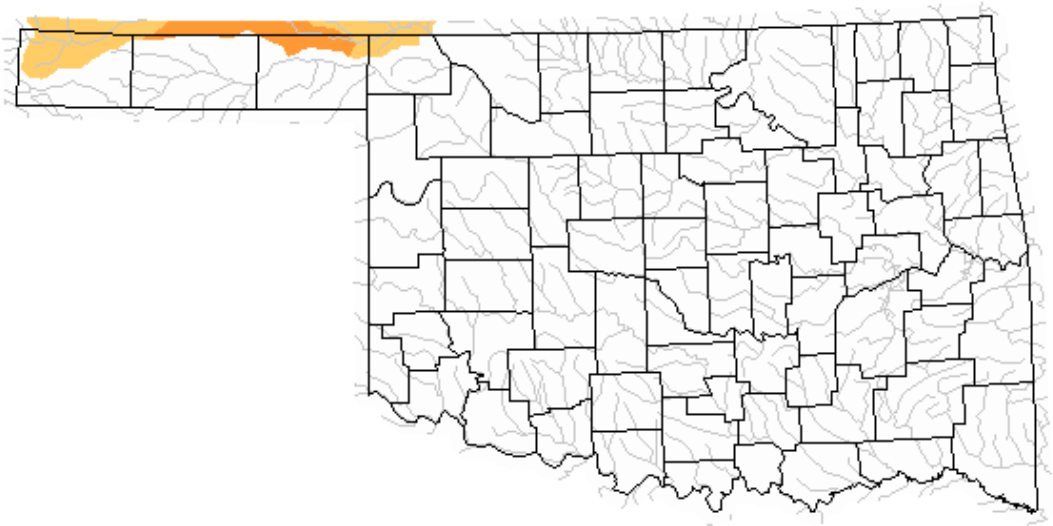
http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php

USGS Streamflow Data



USGS

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



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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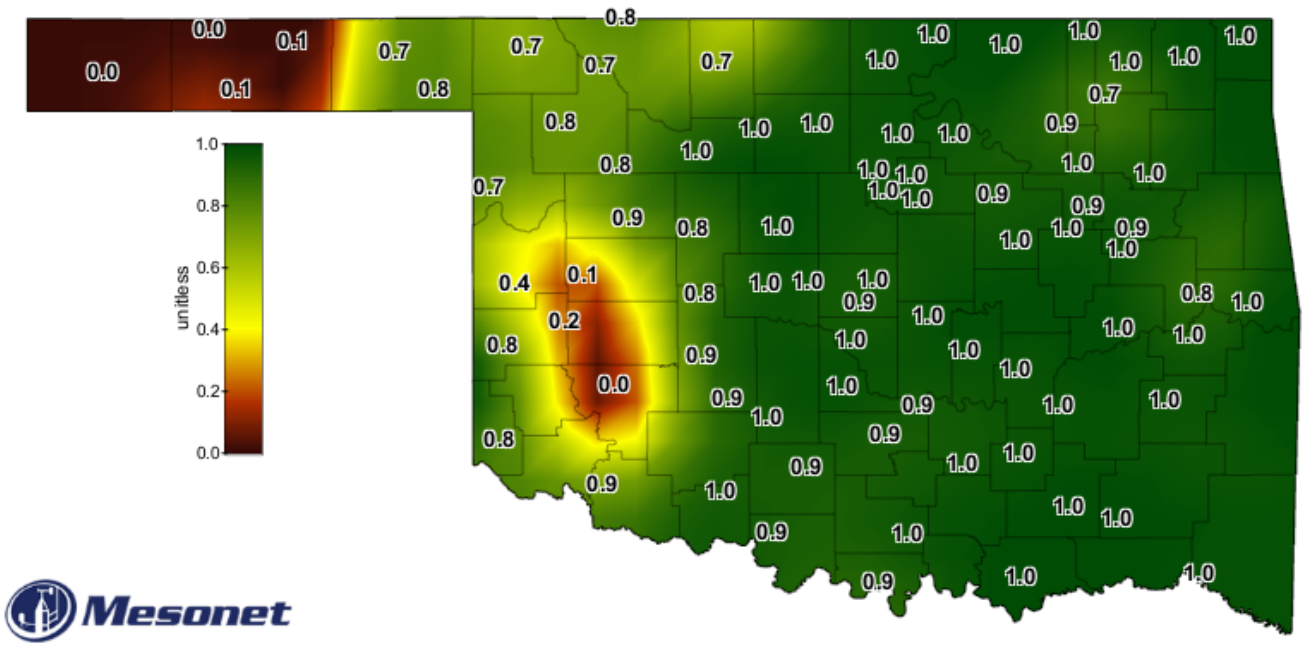
SOIL MOISTURE MAP



Mesonet

1-day Average 24-inch Fractional Water Index

March 1, 2020

- 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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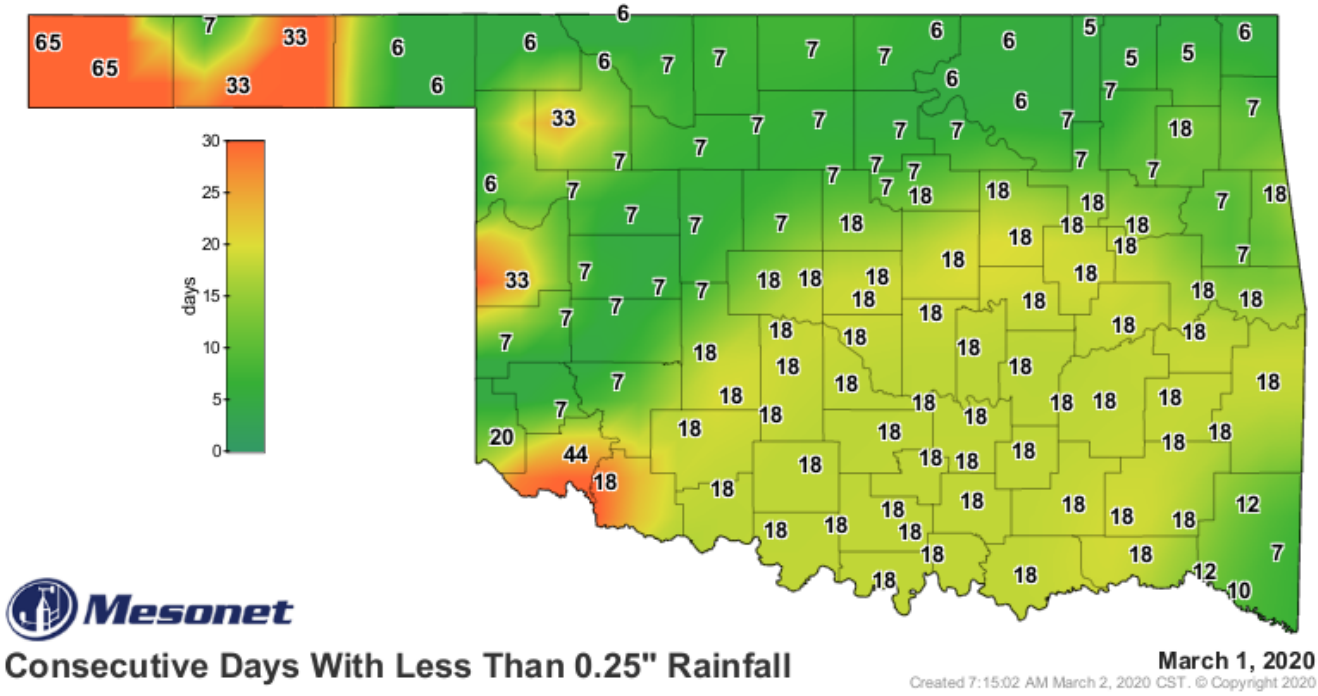
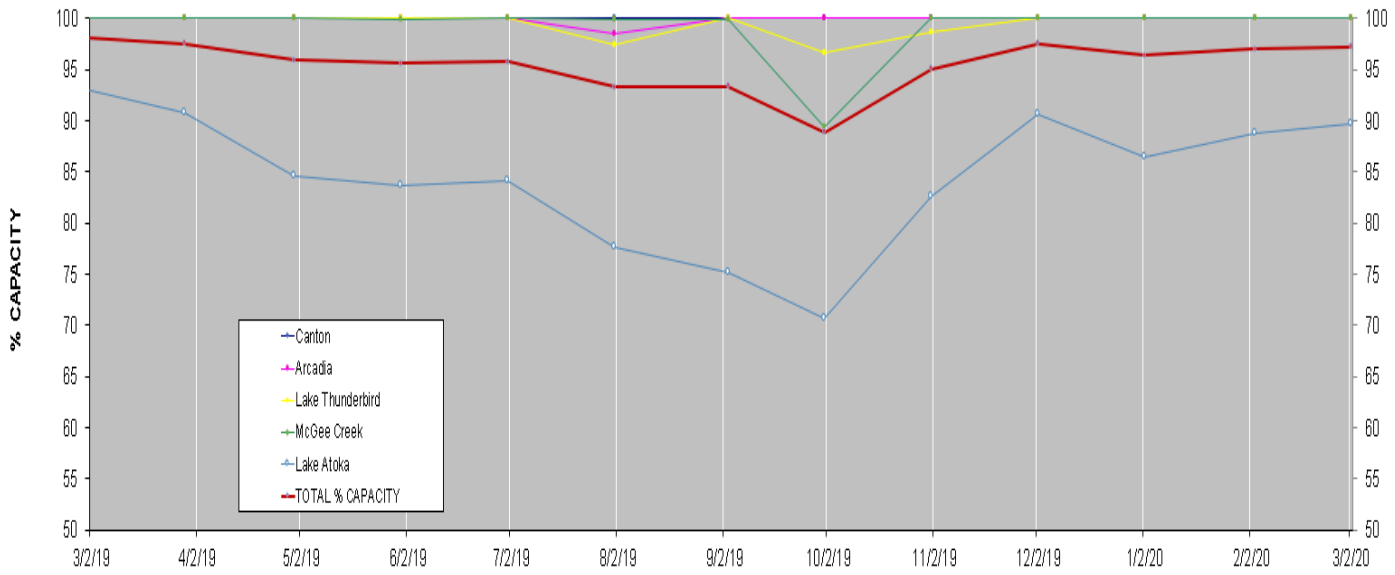
CONSECUTIVE DAYS WITHOUT RAINFALL MAP



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 2/3/2020
Canton	100.0	0.0
Arcadia	100.0	0.0
Lake Thunderbird	100.0	0.0
McGee Creek	100.0	0.0
Lake Atoka	89.6	0.8
TOTAL % CAPACITY	97.2	0.2

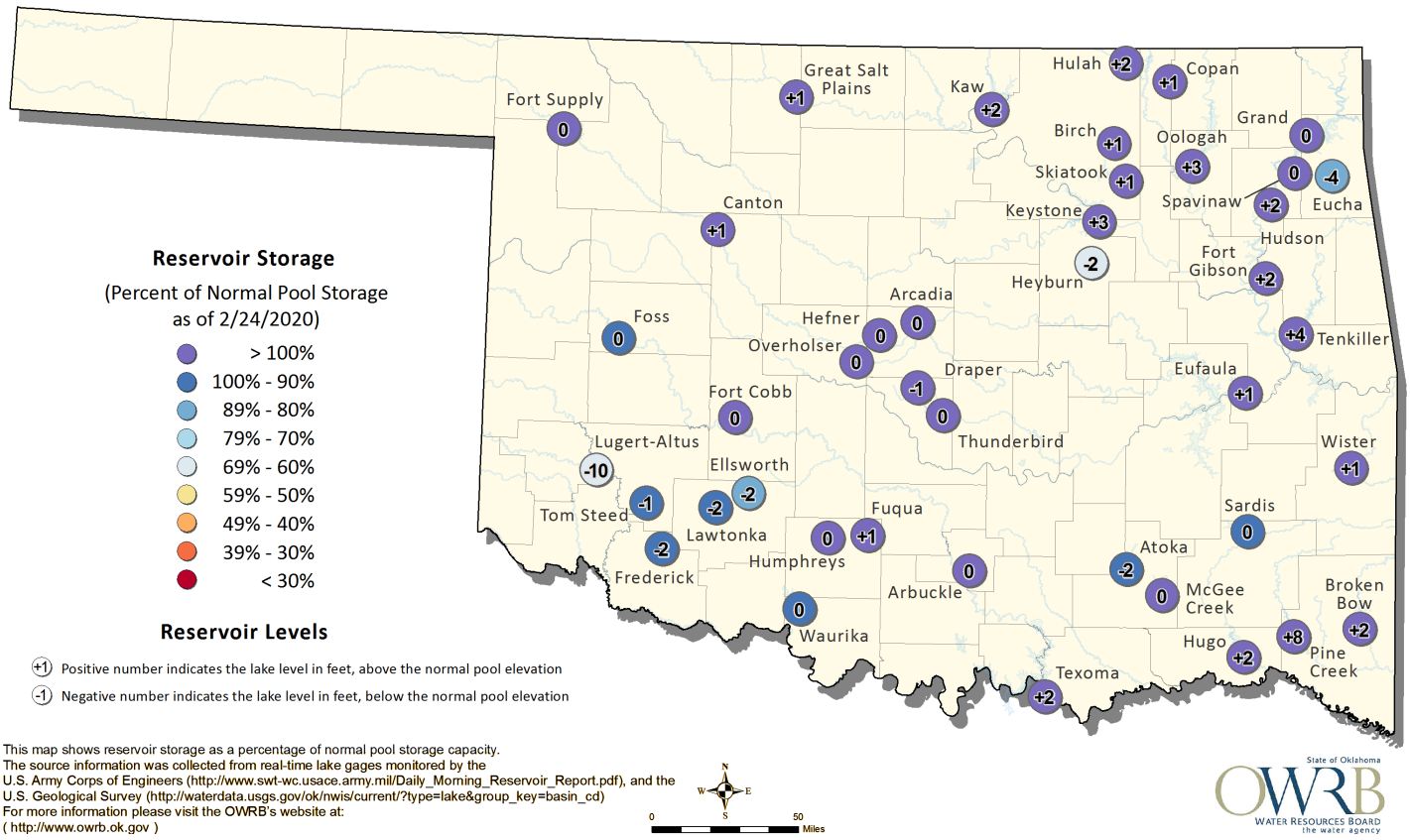
http://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf

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 2/24/2020



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 (http://www.swt-wc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf), and the U.S. Geological Survey (http://waterdata.usgs.gov/ok/nwis/current/?type=lake&group_key=basin_cd)
For more information please visit the OWRB's website at:
(http://www.owrb.ok.gov)

State of Oklahoma OWRB Water Resources Board the water agency

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

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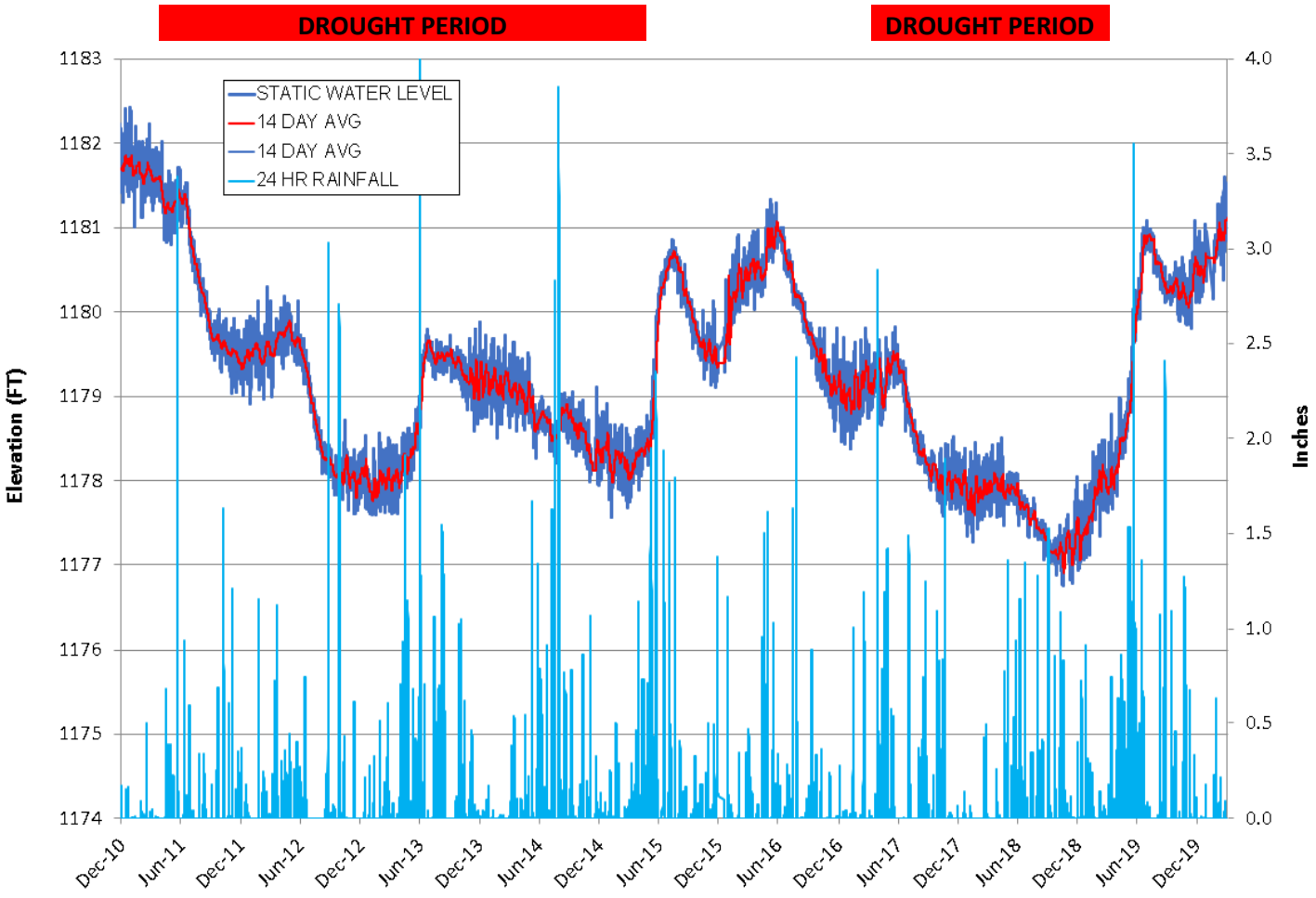
Groundwater Levels
Spencer Mesonet Station



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

Mesonet

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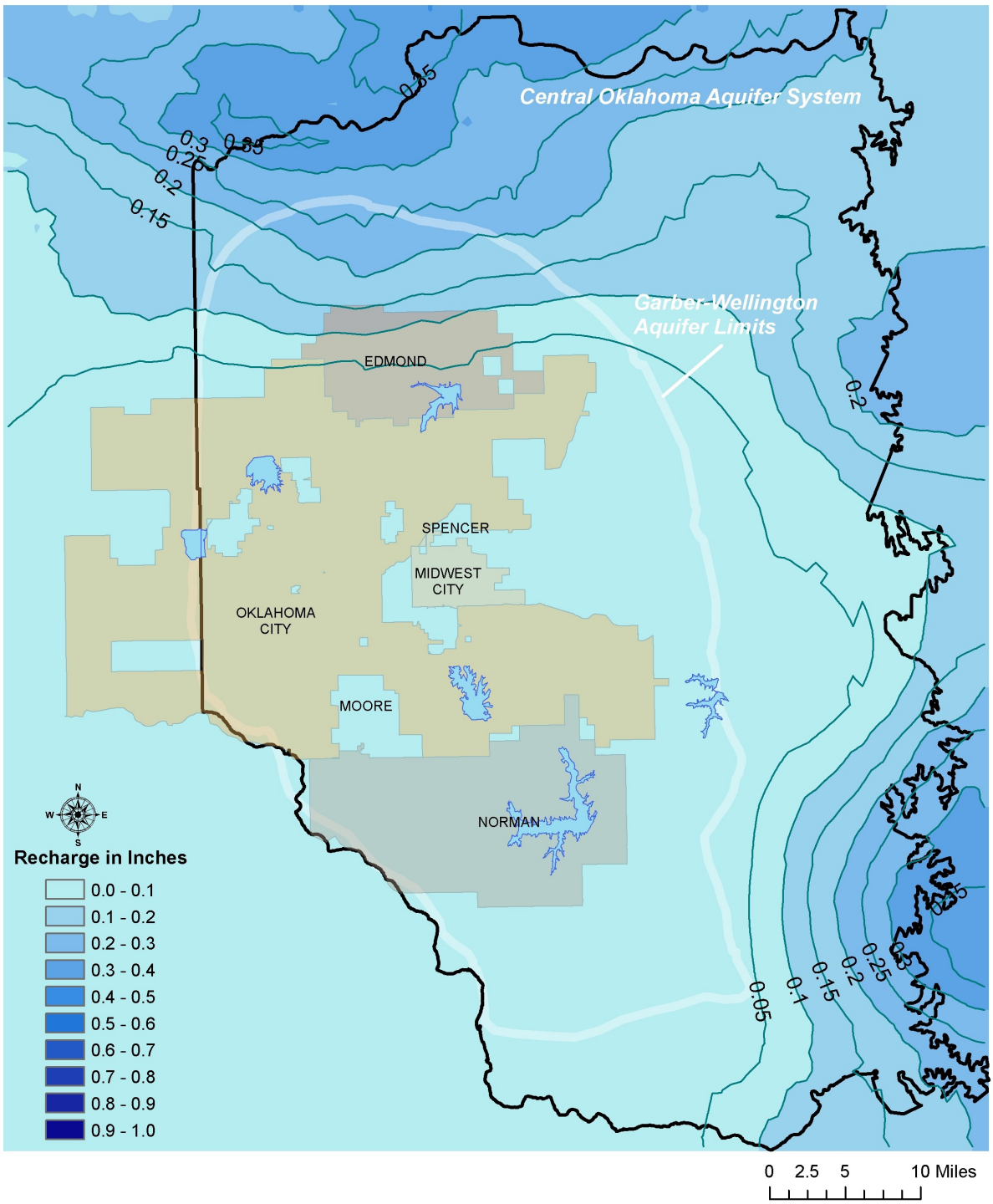
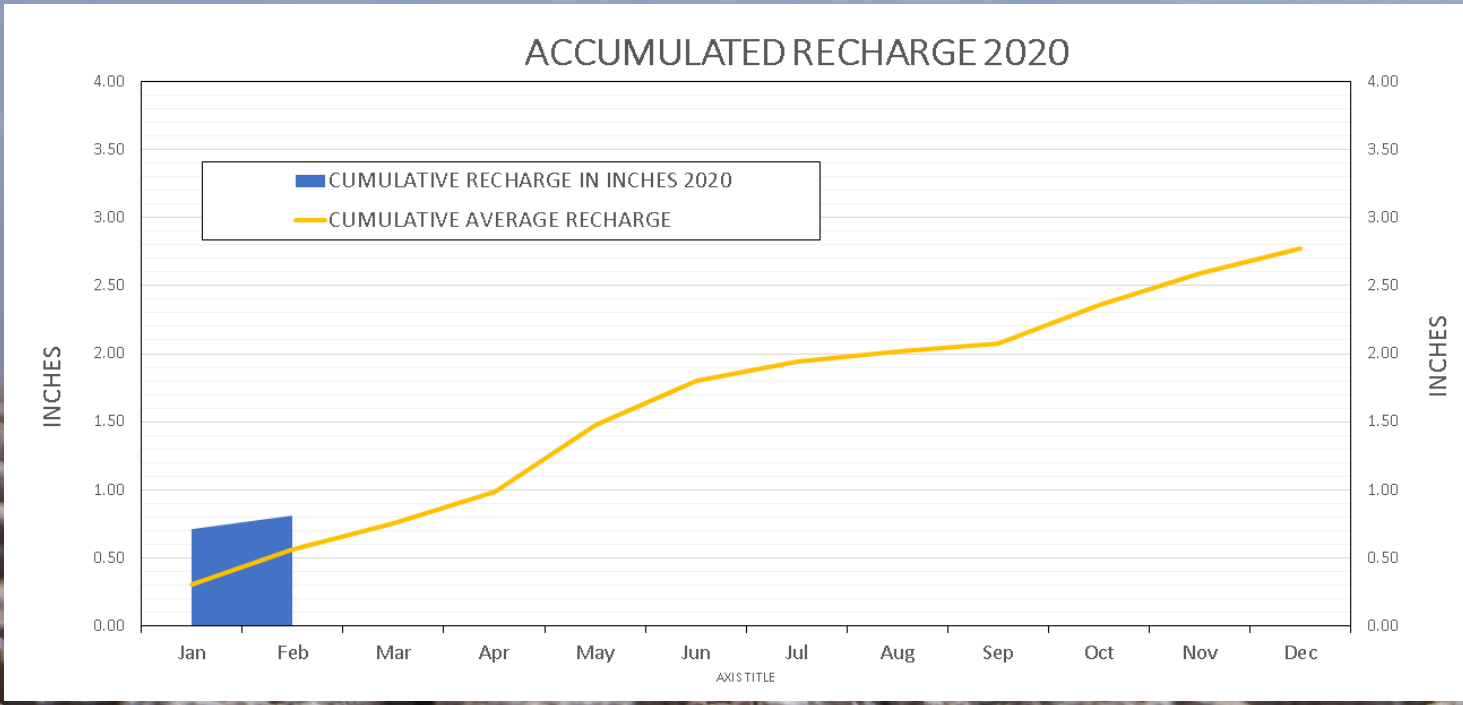
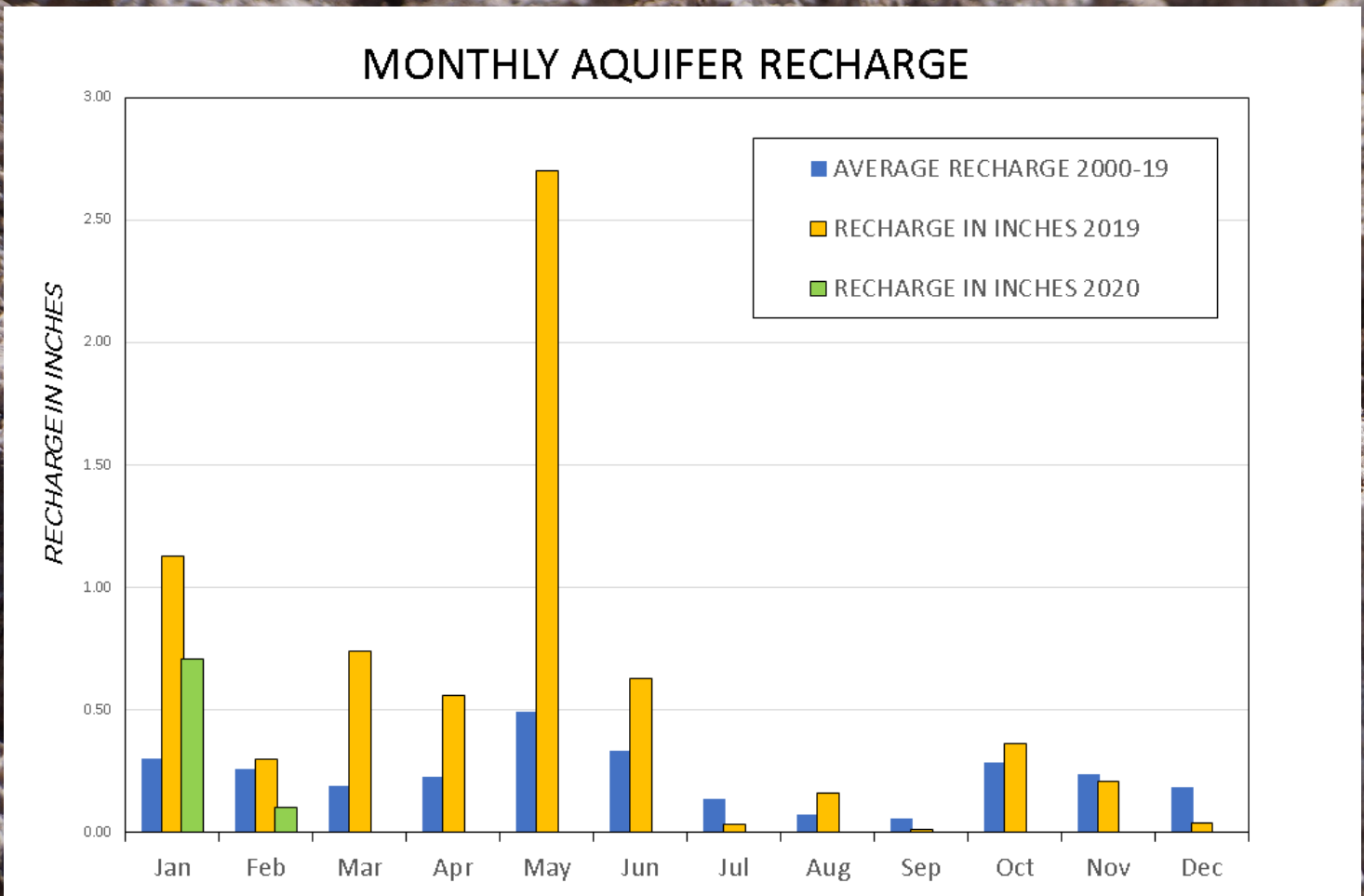
Recharge Map
Central Oklahoma Aquifer System

AQUIFER RECHARGE FEBRUARY 2020



Recharge Charts
Central Oklahoma Aquifer System





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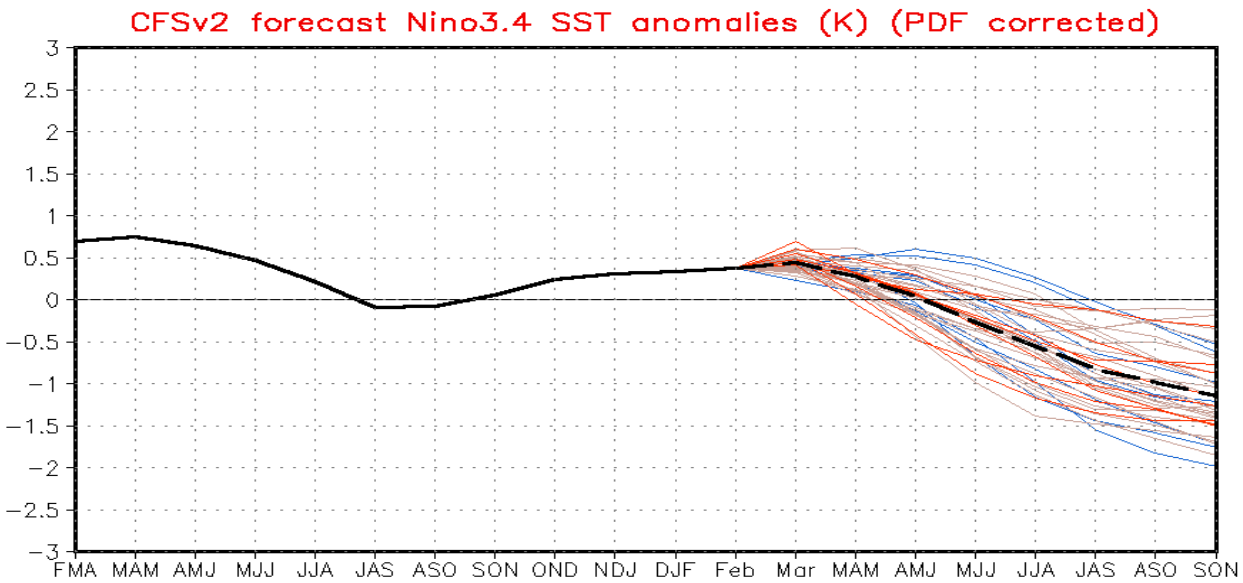
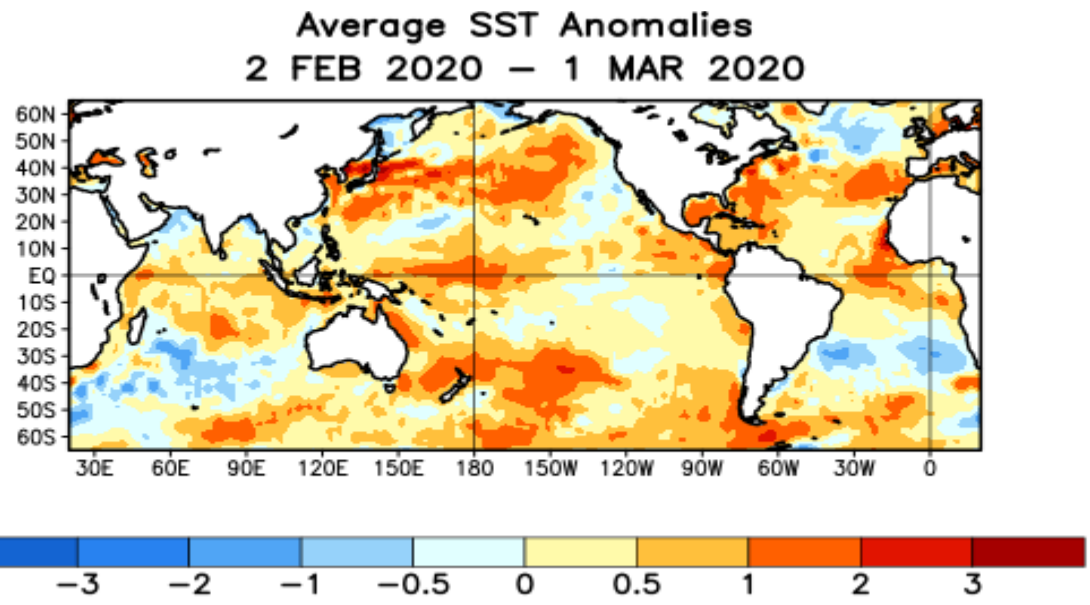
ENSO Cycle
Recent Evolution, Current Status and Predictions





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 tropical atmospheric circulation is generally consistent with ENSO-neutral.
- ENSO-neutral is favored through Northern Hemisphere spring 2020 (~60% chance), continuing through summer 2020 (~50% chance).

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