Oklahoma Water Resources Bulletin
& Summary of Current Conditions

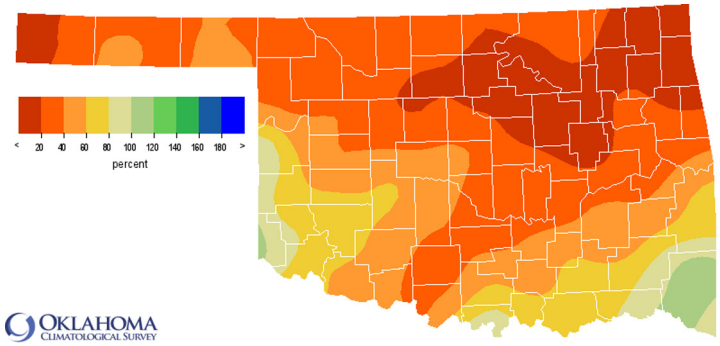
OWRB the water agency

December 16, 2016

Precipitation

Statewide Precipitation

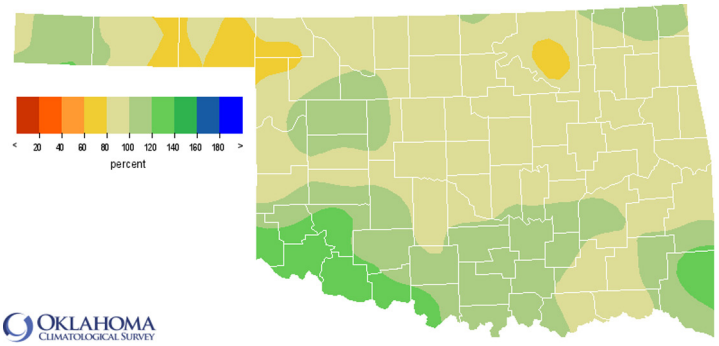
Climate Division	Last 30 Days (November 16, 2016 – December 15, 2016) Total Rainfall (inches)	Departure From Normal (inches)	Percent of Normal	Rank Since 1921	Last 365 Days (December 17, 2015 – December 15, 2016) Total Rainfall (inches)	Departure From Normal (inches)	Percent of Normal	Rank Since 1921
PANHANDLE	0.23"	-0.48"	32%	30th driest	18.10"	-2.45"	88%	32nd driest
NORTH CENTRAL	0.33"	-1.04"	24%	24th driest	28.69"	-2.69"	91%	46th driest
NORTHEAST	0.48"	-2.17"	18%	12th driest	38.79"	-3.80"	91%	40th driest
WEST CENTRAL	0.65"	-0.62"	51%	40th driest	29.63"	+1.27"	104%	24th wettest
CENTRAL	0.61"	-1.42"	30%	27th driest	33.85"	-3.71"	90%	39th driest
EAST CENTRAL	0.94"	-2.46"	28%	15th driest	42.31"	-3.73"	92%	37th driest
SOUTHWEST	0.93"	-0.52"	64%	47th driest	36.63"	+6.41"	121%	10th wettest
SOUTH CENTRAL	1.36"	-1.17"	54%	29th driest	42.51"	+1.88"	105%	26th wettest
SOUTHEAST	3.56"	-0.84"	81%	48th driest	52.57"	+2.11"	104%	31st wettest
STATEWIDE	0.95"	-1.22"	44%	26th driest	35.58"	-0.82"	98%	42nd wettest



OKLAHOMA CLIMATOLOGICAL SURVEY

Percentage of 1981-2010 Normal Rainfall
Last 30 Days

Nov 16, 2016 through Dec 15, 2016



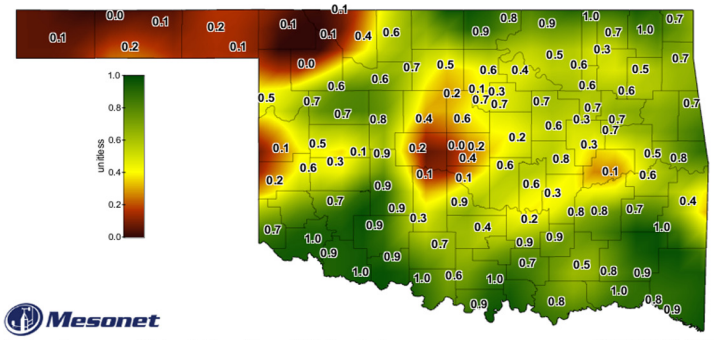
OKLAHOMA CLIMATOLOGICAL SURVEY

Percentage of 1981-2010 Normal Rainfall
Last 365 Days

Dec 17, 2015 through Dec 15, 2016

Soil Moisture

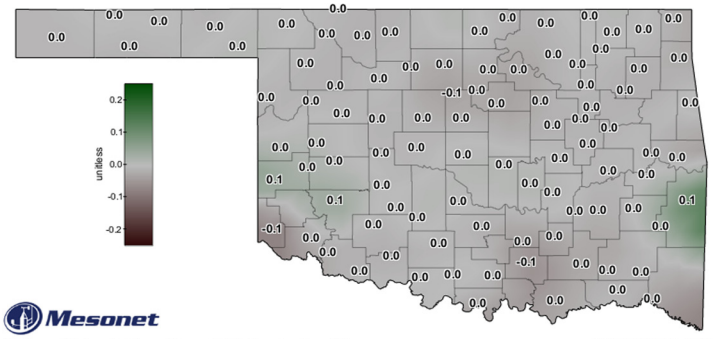
Fractional Water Index
December 15, 2016



Mesonet

1-day Average 10-inch Fractional Water Index

December 15, 2016



Mesonet

7-day 10-inch Fractional Water Index Change

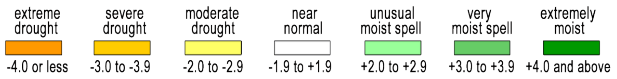
December 15, 2016

The Fractional Water Index ranges from very dry soil having a value of 0 to soil at field capacity illustrated by a value of 1.
[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.]

Drought Indices

Palmer Drought Severity Index (PDSI)

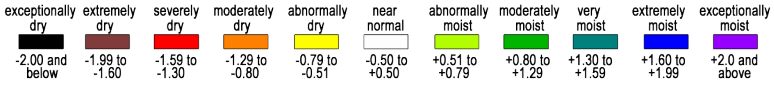
Climate Division	Status 12/10/16	Value 11/26	Value 12/10	Change in Value
NORTHWEST	Near Normal	-1.32	-1.36	0.04
NORTH CENTRAL	Near Normal	-0.01	-0.31	0.3
NORTHEAST	Near Normal	-1.51	-1.67	0.16
WEST CENTRAL	Near Normal	-0.49	-0.43	-0.06
CENTRAL	Near Normal	-1.76	-1.81	0.05
EAST CENTRAL	Moderate Drought	-2.34	-2.37	0.03
SOUTHWEST	Near Normal	1.33	1.51	-0.18
SOUTH CENTRAL	Near Normal	-1.41	-1.31	-0.1
SOUTHEAST	Near Normal	-1.65	-1.4	-0.25



The PDSI is based upon precipitation, temperature, and soil moisture, and is considered most effective for unirrigated cropland. According to the latest PDSI, all climate regions in the state are classified as Near Normal except the East Central region, which is experiencing Moderate Drought conditions.

Standardized Precipitation Index (SPI)
Through November 2016

Climate Division	3-month	12-month	24-month
NORTHWEST	Moderately Dry	Near Normal	Extremely Moist
NORTH CENTRAL	Near Normal	Near Normal	Moderately Moist
NORTHEAST	Near Normal	Near Normal	Abnormally Moist
WEST CENTRAL	Near Normal	Near Normal	Extremely Moist
CENTRAL	Abnormally Dry	Near Normal	Extremely Moist
EAST CENTRAL	Moderately Dry	Near Normal	Extremely Moist
SOUTHWEST	Near Normal	Moderately Moist	Exceptionally Moist
SOUTH CENTRAL	Near Normal	Abnormally Moist	Exceptionally Moist
SOUTHEAST	Moderately Dry	Abnormally Moist	Extremely Moist



The SPI provides a comparison of precipitation over several specified periods with totals from the same periods for all years included in the historical record. All climate divisions had Near Normal precipitation or wetter for 12-month and 24-month time periods, but the Central region was Abnormally Dry during the 3-month period, and the Northwest, East Central, and Southeast were Moderately dry.

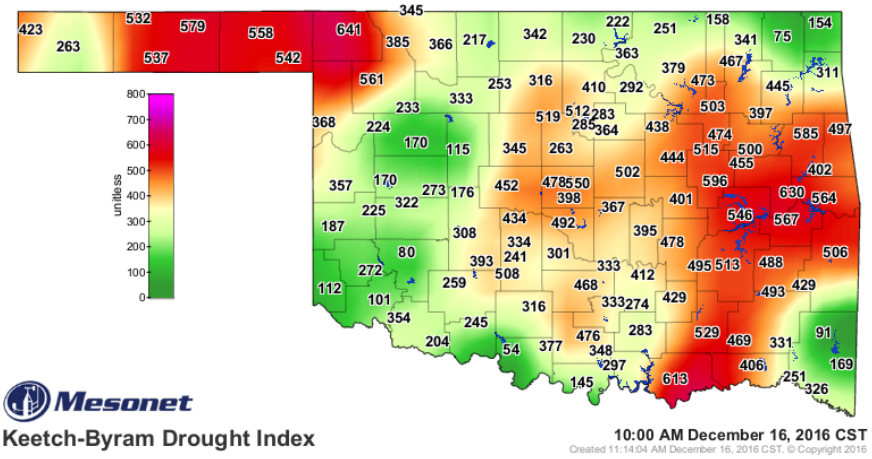
Keetch-Byram Drought Fire Index

December 16--three stations are above 600.

MESONET STATION	CLIMATE DIVISION	CURRENT VALUE
Buffalo	Panhandle	641
Webbers Falls	East Central	630
Durant	South Central	613

Three stations were above 600 on November 28.

The Keetch-Byram Drought Index measures the state of near-surface soil moisture (within the uppermost eight inches of soil) as well as the amount of fuel available for fires. KBDI values of 600 and above are often associated with more severe drought and increased wildfire occurrence.

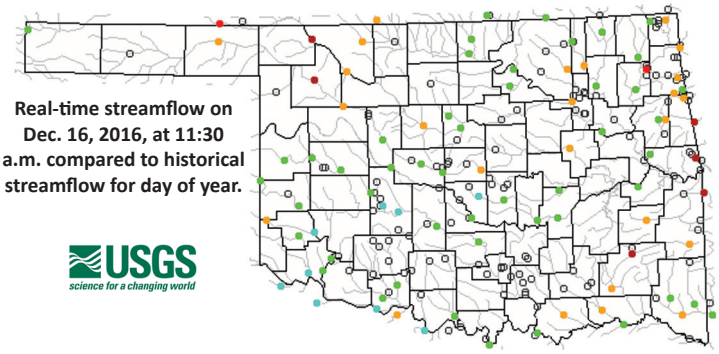


Streamflow Conditions

December 16, 2016

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		

Visit waterwatch.usgs.gov for real-time streamflow information.



Real-time streamflow on Dec. 16, 2016, at 11:30 a.m. compared to historical streamflow for day of year.

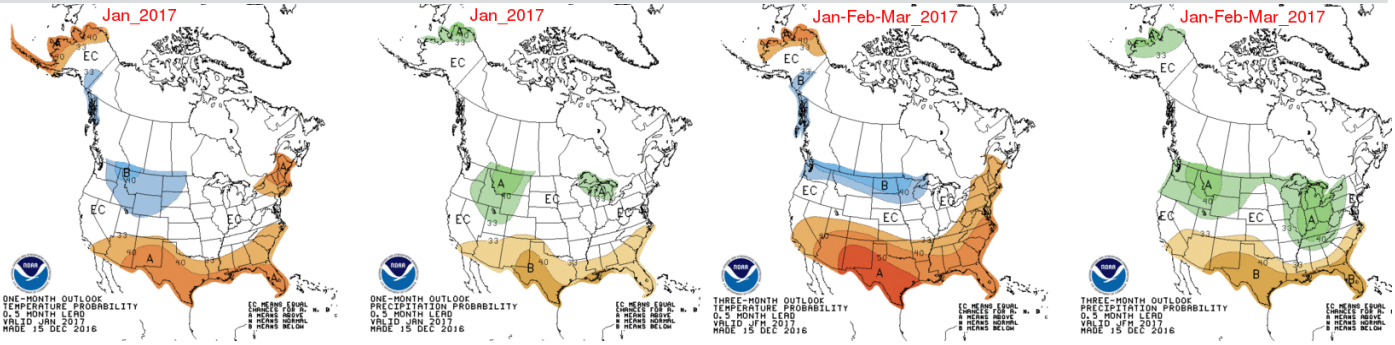
USGS science for a changing world

Weather/Drought Forecast

Seasonal Outlook

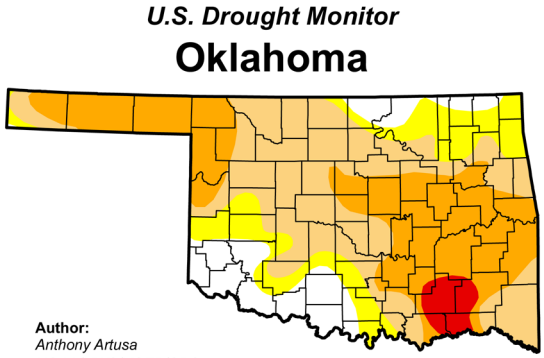
January | **January - February - March**

Temperature | Precipitation | Temperature | Precipitation



The contours on the maps show the total probability of three categories—above, indicated by the letter "A"; below, indicated by the letter "B"; and the middle category, indicated by the letter "N". "EC" stands for "Equal Chances" for A, N, or B

Drought Summary & Outlook



Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/

December 13, 2016
(Released Thursday, Dec. 15, 2016)
Valid 7 a.m. EST

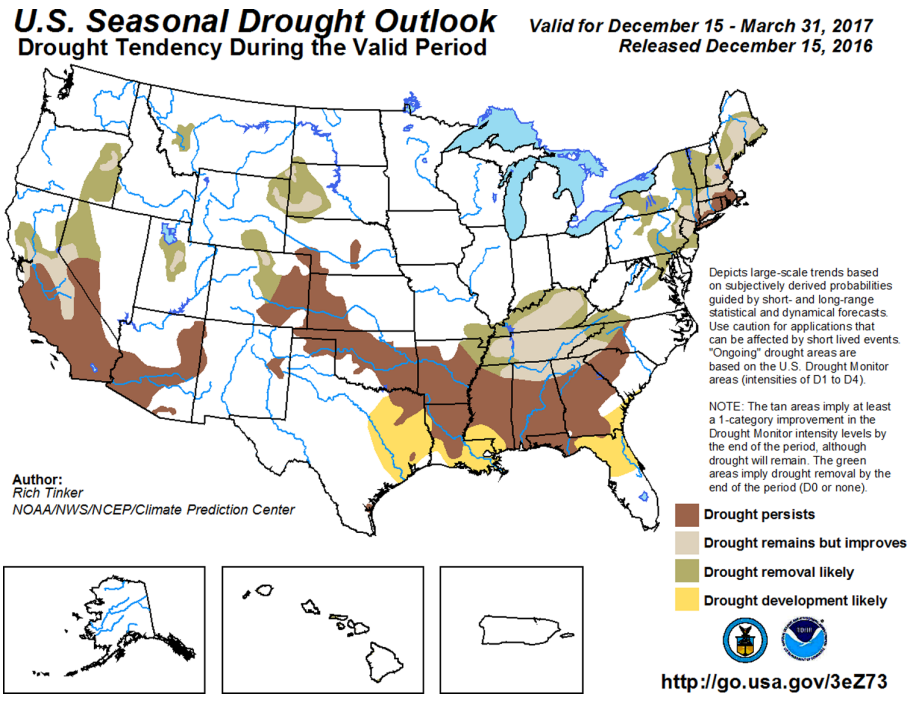
Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	12.75	87.25	72.27	36.42	3.14	0.00
Last Week 12/6/2016	13.84	86.16	58.07	17.34	2.68	0.00
3 Months Ago 9/13/2016	56.93	43.07	12.17	2.39	0.00	0.00
Start of Calendar Year 12/29/2015	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 9/27/2016	57.82	42.18	19.04	3.05	0.00	0.00
One Year Ago 12/15/2015	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



According to the U.S. Drought Monitor, the number of Oklahomans currently affected by drought is 2,862,190, up by more than half a million in the last three weeks. More than 72% of the state in area is now in Moderate Drought (D1)or worse. Severe drought (D2) was expanded across the Panhandle region and into adjacent counties of northwestern Oklahoma. Severe drought was also expanded across central portions of the state. More than 36% of the state is now in Severe Drought (D2) or worse. In extreme eastern Oklahoma, lack of rainfall and dry ponds warranted a one-category degradation across central and northeastern portions of Wagoner and much of Mayes County. Large portions of Cherokee, Bryan, Pushmataha, and Atoka counties are experiencing Extreme Drought (D3).

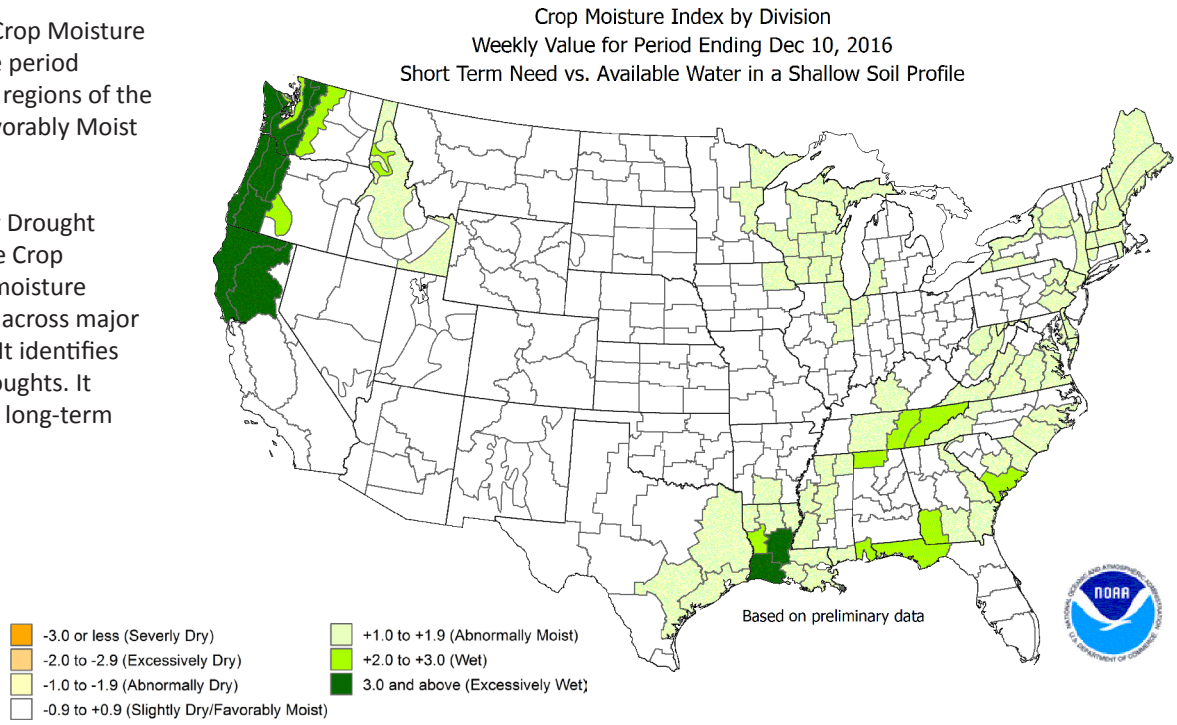
According to the seasonal drought outlook, from mid December through the end of March, drought conditions are likely to persist in most of the state. This is shown as a large swathe running from the northwest corner to the southeast corner.

Drought is also likely to persist and develop in many other areas across the southern half of the U.S. and a small portion of New England along the coast.

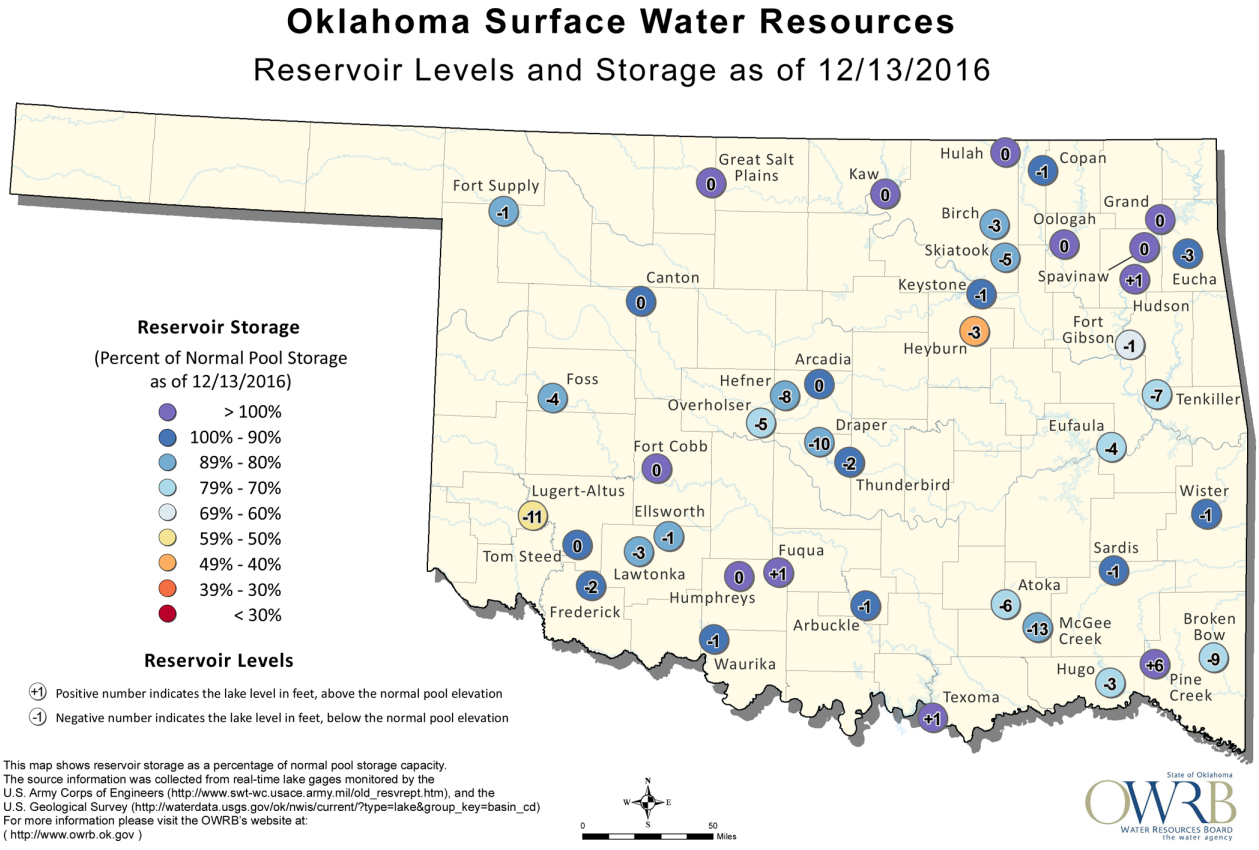
Crop Moisture Index

According to the NOAA Crop Moisture Index by Division, for the period ending December 10, all regions of the state are Slightly Dry/Favorably Moist (-0.9 to +0.9).

Derived from the Palmer Drought Severity Index (PDSI), the Crop Moisture Index reflects moisture supply in the short-term across major crop-producing regions. It identifies potential agricultural droughts. It is not intended to assess long-term droughts.



Reservoir Storage



The Oklahoma Water Resources Bulletin is compiled and distributed monthly by the Oklahoma Water Resources Board utilizing products and information developed by the Oklahoma Climatological Survey, Oklahoma Mesonet, National Oceanic and Atmospheric Administration, National Drought Mitigation Center, US Geological Survey, US Army Corps of Engineers, and US Department of Agriculture. For questions or comments contact Darla Whitley, Editor.