Drought Conditions in Central Oklahoma

Water Resources Division
Association of Central Oklahoma Governments
June 2, 2016
Rainfall Summaries by Oklahoma Climate Division

<table>
<thead>
<tr>
<th>Climate Division</th>
<th>Total Rainfall</th>
<th>Departure from Normal</th>
<th>Pct of Normal</th>
<th>Rank since 1921 (88 periods)</th>
<th>Driest on Record</th>
<th>Wettest on Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Central</td>
<td>10.33&quot;</td>
<td>-0.64&quot;</td>
<td>94%</td>
<td>48th driest</td>
<td>3.66&quot; (2011)</td>
<td>21.20&quot; (1957)</td>
</tr>
<tr>
<td>Central</td>
<td>13.99&quot;</td>
<td>-0.99&quot;</td>
<td>93%</td>
<td>44th wettest</td>
<td>5.45&quot; (2014)</td>
<td>27.12&quot; (1990)</td>
</tr>
<tr>
<td>S. Central</td>
<td>20.07&quot;</td>
<td>+3.01&quot;</td>
<td>118%</td>
<td>17th wettest</td>
<td>8.65&quot; (1963)</td>
<td>36.05&quot; (1990)</td>
</tr>
<tr>
<td>Statewide</td>
<td>14.78&quot;</td>
<td>+0.12&quot;</td>
<td>101%</td>
<td>37th wettest</td>
<td>7.07&quot; (1936)</td>
<td>26.10&quot; (1957)</td>
</tr>
</tbody>
</table>

Water Year: 01-Oct-2015 through 01-Jun-2016

<table>
<thead>
<tr>
<th>Climate Division</th>
<th>Total Rainfall</th>
<th>Departure from Normal</th>
<th>Pct of Normal</th>
<th>Rank since 1921 (88 periods)</th>
<th>Driest on Record</th>
<th>Wettest on Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Central</td>
<td>18.32&quot;</td>
<td>+1.81&quot;</td>
<td>111%</td>
<td>24th wettest</td>
<td>5.89&quot; (1970-71)</td>
<td>26.49&quot; (1986-87)</td>
</tr>
<tr>
<td>Central</td>
<td>27.24&quot;</td>
<td>+4.15&quot;</td>
<td>118%</td>
<td>19th wettest</td>
<td>11.00&quot; (2013-14)</td>
<td>36.04&quot; (1984-85)</td>
</tr>
<tr>
<td>S. Central</td>
<td>41.08&quot;</td>
<td>+14.33&quot;</td>
<td>154%</td>
<td>3rd wettest</td>
<td>12.43&quot; (1955-56)</td>
<td>41.74&quot; (1956-57)</td>
</tr>
<tr>
<td>Statewide</td>
<td>30.06&quot;</td>
<td>+7.32&quot;</td>
<td>132%</td>
<td>7th wettest</td>
<td>12.35&quot; (1995-96)</td>
<td>32.04&quot; (1956-57)</td>
</tr>
</tbody>
</table>

Spring: 01-Mar-2016 through 01-Jun-2016

<table>
<thead>
<tr>
<th>Climate Division</th>
<th>Total Rainfall</th>
<th>Departure from Normal</th>
<th>Pct of Normal</th>
<th>Rank since 1921 (88 periods)</th>
<th>Driest on Record</th>
<th>Wettest on Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Central</td>
<td>8.70&quot;</td>
<td>-0.14&quot;</td>
<td>98%</td>
<td>44th wettest</td>
<td>2.25&quot; (1971)</td>
<td>19.31&quot; (1957)</td>
</tr>
<tr>
<td>Central</td>
<td>11.86&quot;</td>
<td>+0.20&quot;</td>
<td>102%</td>
<td>39th wettest</td>
<td>3.98&quot; (2005)</td>
<td>22.74&quot; (1957)</td>
</tr>
<tr>
<td>S. Central</td>
<td>17.60&quot;</td>
<td>+4.98&quot;</td>
<td>139%</td>
<td>9th wettest</td>
<td>4.90&quot; (2005)</td>
<td>29.14&quot; (2015)</td>
</tr>
<tr>
<td>Statewide</td>
<td>12.94&quot;</td>
<td>+1.75&quot;</td>
<td>116%</td>
<td>21st wettest</td>
<td>5.51&quot; (2005)</td>
<td>22.89&quot; (1957)</td>
</tr>
</tbody>
</table>

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/
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.

http://www.cpc.ncep.noaa.gov/products/predictions/30-day/
Statewide Precipitation Monthly Totals vs. Normal

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.
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

**Regional Map Week of 31 MAY 2016**

<table>
<thead>
<tr>
<th>Week</th>
<th>None</th>
<th>D0-D4</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current</strong> 2016-05-24</td>
<td>97.16</td>
<td>2.84</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Last Week</strong> 2016-05-17</td>
<td>97.16</td>
<td>2.84</td>
<td>1.50</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>3 Months Ago</strong> 2016-02-23</td>
<td>98.99</td>
<td>1.01</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Start of Calendar Year</strong> 2015-12-29</td>
<td>100.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Start of Water Year</strong> 2015-09-29</td>
<td>52.60</td>
<td>47.40</td>
<td>16.79</td>
<td>6.37</td>
<td>0.97</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>One Year Ago</strong> 2015-05-26</td>
<td>77.31</td>
<td>22.69</td>
<td>2.74</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

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**U.S. Drought Monitor**

**Oklahoma**

**Estimated Population in Drought Areas:** 0

U.S. Drought Monitor Nationwide Map

http://droughtmonitor.unl.edu
U.S. Drought Monitor

Monthly Drought Outlook Map

U.S. Monthly Drought Outlook
Drought Tendency During the Valid Period

Valid for June 2016
Released May 31, 2016

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. “Ongoing” drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D6 or none).

U.S. Drought Monitor

Seasonal Drought Outlook Map

Valid for May 19 - August 31, 2016
Released May 19, 2016

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (Intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Drought persists
Drought remains but improves
Drought removal likely
Drought development likely

USGS Streamflow Data

Tuesday, May 31, 2016 16:30ET

Monday, May 30, 2016

http://waterwatch.usgs.gov/new/?m=real&r=ok&w=map
SOIL MOISTURE MAP

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

1-day Average 24-inch Fractional Water Index

June 1, 2016

Created 7:30:14 AM June 2, 2016 CDT. © Copyright 2016

- 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
CONSECUTIVE DAYS WITHOUT RAINFALL MAP

Consecutive Days With Less Than 0.25" Rainfall

http://www.mesonet.org/index.php/weather/map/consecutive_days_with_less_than_0.25_inches_Rainfall/rainfall
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.
Groundwater Levels
Spencer Mesonet Station

http://www.mesonet.org/index.php/weather/groundwater
**ENSO Alert System Status: El Niño Advisory/ La Niña Watch**

- El Niño is weakening.
- Positive equatorial sea surface temperature (SST) anomalies are diminishing across the equatorial Pacific Ocean.
- La Niña is favored to develop during the Northern Hemisphere summer 2016, with about a 75% chance of La Niña during the fall and winter 2016-17.