Drought Conditions in Central Oklahoma

Water Resources Division
Association of Central Oklahoma Governments
December 1, 2017
Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2017

http://xmacis.rcc-acis.org/
### Rainfall Summaries by Oklahoma Climate Division

#### Calendar Year: 01-Jan-2017 through 30-Nov-2017

<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>31.59&quot;</td>
<td>+4.41&quot;</td>
<td>116%</td>
<td>13th wettest</td>
<td>13.55&quot; (1956)</td>
<td>40.97&quot; (1941)</td>
</tr>
<tr>
<td>Central</td>
<td>39.45&quot;</td>
<td>+3.81&quot;</td>
<td>111%</td>
<td>15th wettest</td>
<td>17.81&quot; (1954)</td>
<td>51.33&quot; (2007)</td>
</tr>
<tr>
<td>S. Central</td>
<td>37.19&quot;</td>
<td>-0.93&quot;</td>
<td>98%</td>
<td>39th wettest</td>
<td>18.37&quot; (1963)</td>
<td>65.30&quot; (2015)</td>
</tr>
<tr>
<td>Statewide</td>
<td>37.85&quot;</td>
<td>+3.45&quot;</td>
<td>110%</td>
<td>17th wettest</td>
<td>19.07&quot; (1956)</td>
<td>48.31&quot; (2015)</td>
</tr>
</tbody>
</table>

#### Water Year: 01-Oct-2017 through 30-Nov-2017

<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>3.08&quot;</td>
<td>-1.24&quot;</td>
<td>71%</td>
<td>47th driest</td>
<td>0.12&quot; (1921)</td>
<td>11.29&quot; (1986)</td>
</tr>
<tr>
<td>Central</td>
<td>4.95&quot;</td>
<td>-1.17&quot;</td>
<td>81%</td>
<td>46th wettest</td>
<td>0.65&quot; (1921)</td>
<td>14.78&quot; (1941)</td>
</tr>
<tr>
<td>S. Central</td>
<td>2.17&quot;</td>
<td>-4.92&quot;</td>
<td>31%</td>
<td>11th driest</td>
<td>0.91&quot; (1950)</td>
<td>18.80&quot; (1981)</td>
</tr>
<tr>
<td>Statewide</td>
<td>3.69&quot;</td>
<td>-2.32&quot;</td>
<td>61%</td>
<td>30th driest</td>
<td>1.02&quot; (1950)</td>
<td>12.49&quot; (1941)</td>
</tr>
</tbody>
</table>

#### Autumn: 01-Sep 2017 through 30-Nov-2017

<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>6.09&quot;</td>
<td>-1.03&quot;</td>
<td>86%</td>
<td>48th driest</td>
<td>0.87&quot; (1954)</td>
<td>19.52&quot; (1986)</td>
</tr>
<tr>
<td>Central</td>
<td>8.40&quot;</td>
<td>-1.56&quot;</td>
<td>84%</td>
<td>46th wettest</td>
<td>2.29&quot; (1948)</td>
<td>20.91&quot; (1923)</td>
</tr>
<tr>
<td>S. Central</td>
<td>4.38&quot;</td>
<td>-6.69&quot;</td>
<td>40%</td>
<td>8th driest</td>
<td>2.13&quot; (1948)</td>
<td>21.13&quot; (1981)</td>
</tr>
<tr>
<td>Statewide</td>
<td>6.29&quot;</td>
<td>-3.26&quot;</td>
<td>66%</td>
<td>21st driest</td>
<td>3.17&quot; (1948)</td>
<td>18.03&quot; (1923)</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.
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.
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.

https://www.drought.gov/drought/data-maps-tools/current-conditions
U.S. Drought Monitor

Regional Map Week of 28 SEP 2017

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>None</th>
<th>D0-D4</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
<th>DSCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>2017-11-18</td>
<td>27.12</td>
<td>72.88</td>
<td>39.90</td>
<td>20.80</td>
<td>0.78</td>
<td>0.00</td>
<td>134</td>
</tr>
<tr>
<td>Last Week</td>
<td>2017-11-11</td>
<td>38.60</td>
<td>61.40</td>
<td>28.26</td>
<td>8.87</td>
<td>0.00</td>
<td>0.00</td>
<td>99</td>
</tr>
<tr>
<td>3 Months Ago</td>
<td>2017-08-29</td>
<td>97.84</td>
<td>2.16</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2</td>
</tr>
<tr>
<td>Start of Calendar Year</td>
<td>2016-12-27</td>
<td>5.63</td>
<td>94.37</td>
<td>72.32</td>
<td>45.73</td>
<td>3.14</td>
<td>0.00</td>
<td>216</td>
</tr>
<tr>
<td>Start of Water Year</td>
<td>2017-02-16</td>
<td>64.46</td>
<td>35.54</td>
<td>0.77</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>36</td>
</tr>
<tr>
<td>One Year Ago</td>
<td>2016-11-29</td>
<td>15.59</td>
<td>84.41</td>
<td>56.94</td>
<td>18.48</td>
<td>2.80</td>
<td>0.00</td>
<td>163</td>
</tr>
</tbody>
</table>

U.S. Drought Monitor

Oklahoma

Intensity:

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)

Estimated Population in Drought Areas: 710,603

http://droughtmonitor.unl.edu/CurrentMap/
StateDroughtMonitor.aspx?OK
U.S. Drought Monitor Nationwide Map

Map for November 30, 2017
Data valid: November 28, 2017 | Author: David Simeral, Western Regional Climate Center

Intensity and Impacts

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)

S - Short-Term impacts, typically less than 6 months (e.g., agriculture, grasslands)
L - Long-Term impacts, typically greater than 6 months (e.g., hydrology, ecology)

http://droughtmonitor.unl.edu

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U.S. Drought Monitor
Seasonal Drought Outlook Map

U.S. Seasonal Drought Outlook
Valid for November 16 - February 28, 2018
Released November 16, 2017

Drought Tendency During the Valid Period


http://go.usa.gov/3eZ73
USGS Streamflow Data

Friday, December 01, 2017 10:30ET

Sunday, October 29, 2017

https://waterwatch.usgs.gov/index.php?id=pa28d_dry&sid=w_map&m_pa28d_dwc&r=ok

https://waterdata.usgs.gov/ok/nwis/rt
SOIL MOISTURE MAP

1-day Average 24-inch Fractional Water Index

November 30, 2017

http://www.mesonet.org/index.php/weather/map/24-inch_fractional_water_index/soil_moisture
Percent of Surface Water Conservation Storage
Central OK Reservoirs

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 11/27/2017

Reservoir Storage
(Percent of Normal Pool Storage as of 11/27/2017)

- > 100%
- 100% - 90%
- 89% - 80%
- 79% - 70%
- 69% - 60%
- 59% - 50%
- 49% - 40%
- 39% - 30%
- < 30%

Reservoir Levels

- Positive number indicates the lake level in feet, above the normal pool elevation.
- Negative number indicates the lake level in feet, below the normal pool elevation.

This map shows reservoir storage as a percentage of normal pool storage capacity. The source information was collected from real-time lake gauges monitored by the U.S. Army Corps of Engineers (http://www.engineering.army.mil/dcs_wla/wwa.htm) and the U.S. Geological Survey (http://waterdata.usgs.gov/ngicw/cgkeyclicks_webpage_d6). For more information please visit the OWRB's website at (http://www.owrb.ok.gov/)

Groundwater Levels
Spencer Mesonet Station

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

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are below average across the central and eastern Pacific Ocean.
- La Niña conditions are predicted to continue (~65%-75% chance) at least through the Northern Hemisphere winter 2017-18.