Drought Conditions in Central Oklahoma

Water Resources Division
Association of Central Oklahoma Governments
March 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 though 27-Feb-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 peri-)</th>
<th>Driest on Record</th>
<th>Wettest on Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Central</td>
<td>4.32&quot;</td>
<td>+2.30&quot;</td>
<td>214%</td>
<td>4th wettest</td>
<td>0.13&quot; (1970)</td>
<td>5.04&quot; (1949)</td>
</tr>
<tr>
<td>Central</td>
<td>4.92&quot;</td>
<td>+1.76&quot;</td>
<td>156%</td>
<td>10th wettest</td>
<td>0.40&quot; (1963)</td>
<td>7.74&quot; (1949)</td>
</tr>
<tr>
<td>S. Central</td>
<td>5.87&quot;</td>
<td>+1.63&quot;</td>
<td>138%</td>
<td>13th wettest</td>
<td>0.43&quot; (1963)</td>
<td>11.02&quot; (1932)</td>
</tr>
<tr>
<td>Statewide</td>
<td>4.56&quot;</td>
<td>+1.25&quot;</td>
<td>138%</td>
<td>16th wettest</td>
<td>0.59&quot; (1976)</td>
<td>7.56&quot; (1949)</td>
</tr>
</tbody>
</table>

Water Year: 01-Oct-2016 through 27-Feb-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 peri-)</th>
<th>Driest on Record</th>
<th>Wettest on Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Central</td>
<td>6.70&quot;</td>
<td>-0.86&quot;</td>
<td>89%</td>
<td>41st wettest</td>
<td>1.47&quot; (1966-67)</td>
<td>15.79&quot; (1986-87)</td>
</tr>
<tr>
<td>Central</td>
<td>8.14&quot;</td>
<td>-3.13&quot;</td>
<td>72%</td>
<td>36th driest</td>
<td>3.00&quot; (1921-22)</td>
<td>22.08&quot; (1984-85)</td>
</tr>
<tr>
<td>S. Central</td>
<td>10.81&quot;</td>
<td>-3.12&quot;</td>
<td>78%</td>
<td>37th driest</td>
<td>3.74&quot; (1966-67)</td>
<td>25.67&quot; (2000-01)</td>
</tr>
<tr>
<td>Statewide</td>
<td>8.47&quot;</td>
<td>-2.92&quot;</td>
<td>74%</td>
<td>33rd driest</td>
<td>3.56&quot; (1966-67)</td>
<td>18.93&quot; (1984-85)</td>
</tr>
</tbody>
</table>

Winter: 01-Dec-2016 through 27-Feb-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 peri-)</th>
<th>Driest on Record</th>
<th>Wettest on Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Central</td>
<td>5.17&quot;</td>
<td>+1.93&quot;</td>
<td>160%</td>
<td>11th wettest</td>
<td>0.54&quot; (2005-06)</td>
<td>7.90&quot; (1959-60)</td>
</tr>
<tr>
<td>Central</td>
<td>5.60&quot;</td>
<td>+0.45&quot;</td>
<td>109%</td>
<td>25th wettest</td>
<td>0.90&quot; (2005-06)</td>
<td>14.01&quot; (1984-85)</td>
</tr>
<tr>
<td>S. Central</td>
<td>6.75&quot;</td>
<td>-0.08&quot;</td>
<td>99%</td>
<td>39th wettest</td>
<td>1.98&quot; (1958-59)</td>
<td>13.14&quot; (1937-38)</td>
</tr>
<tr>
<td>Statewide</td>
<td>5.37&quot;</td>
<td>-0.01&quot;</td>
<td>100%</td>
<td>34th wettest</td>
<td>1.51&quot; (2005-06)</td>
<td>10.38&quot; (1984-85)</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.
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 21 FEB 2017

<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>Current 2017-02-21</td>
<td>11.49</td>
<td>88.51</td>
<td>67.93</td>
<td>26.61</td>
<td>0.18</td>
<td>0.00</td>
</tr>
<tr>
<td>Last Week 2017-02-14</td>
<td>5.15</td>
<td>94.85</td>
<td>73.84</td>
<td>30.14</td>
<td>3.34</td>
<td>0.00</td>
</tr>
<tr>
<td>3 Months Ago 2016-11-22</td>
<td>30.20</td>
<td>69.80</td>
<td>47.61</td>
<td>18.55</td>
<td>3.48</td>
<td>0.00</td>
</tr>
<tr>
<td>Start of Calendar Year 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>
</tr>
<tr>
<td>Start of Water Year 2016-09-27</td>
<td>57.82</td>
<td>42.18</td>
<td>19.04</td>
<td>3.05</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>One Year Ago 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>
</tbody>
</table>

## U.S. Drought Monitor

**Oklahoma**

Estimated Population in Drought Areas: **3,116,205**

U.S. Drought Monitor
Monthly Drought Outlook Map

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

Valid for March 2017
Released February 28, 2017

Author:
Brad Phugh
NOAA/NWS/NCEP/Climate Prediction Center


http://go.usa.gov/3eZGd

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.

“On-going” drought areas are based on the U.S. Drought Monitor areas (intensity 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 (D3 or none).
U.S. Drought Monitor

Seasonal Drought Outlook Map

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

Valid for February 16 - May 31, 2017
Released February 16, 2017


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

Tuesday, February 28, 2017 15:30ET

Monday, February 27, 2017

Below normal 28-day average streamflow

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.

<table>
<thead>
<tr>
<th>LAKE</th>
<th>% CAPACITY</th>
<th>% CHANGE FROM 1/27/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canton</td>
<td>100.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Arcadia</td>
<td>100.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Lake Thunderbird</td>
<td>90.9</td>
<td>1.8</td>
</tr>
<tr>
<td>McGee Creek</td>
<td>77.1</td>
<td>-3.3</td>
</tr>
<tr>
<td>Lake Atoka</td>
<td>69.0</td>
<td>-1.7</td>
</tr>
<tr>
<td>TOTAL % CAPACITY</td>
<td>84.3</td>
<td>-0.8</td>
</tr>
</tbody>
</table>


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 2/21/2017

Reservoir Storage
(Percent of Normal Pool Storage as of 2/21/2017)
- > 100%
- 100% - 90%
- 90% - 80%
- 80% - 70%
- 70% - 60%
- 60% - 50%
- 50% - 40%
- 40% - 30%
- 30% - 20%
- < 20%

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

The map shows reservoir storage as a percentage of normal pool storage capacity. The source information was collected from real-time lake pages maintained by the U.S. Army Corps of Engineers (http://www.swl.scown.usace.army.mil/lakeinfo.htm) and the U.S. Geological Survey (http://waterdata.usgs.gov/ks/nwis). 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 Cycle
Recent Evolution, Current Status and Predictions

ENSO Alert System Status: La Niña Advisory

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are near-average across the central and east-central Pacific. They are above-average in the eastern Pacific Ocean.
- ENSO-neutral conditions have returned and are favored to continue through at least the Northern Hemisphere spring 2017.