Drought Conditions in Central Oklahoma

Water Resources Division
Association of Central Oklahoma Governments
March 1, 2016
Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2016

Rainfall Summaries by Oklahoma Climate Division

### Calendar Year: 01-Jan-2016 though 28-Feb-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>1.52&quot;</td>
<td>-0.55&quot;</td>
<td>73%</td>
<td>39th driest</td>
<td>0.13&quot; (1970)</td>
<td>5.06&quot; (1949)</td>
</tr>
<tr>
<td>Central</td>
<td>1.82&quot;</td>
<td>-1.41&quot;</td>
<td>56%</td>
<td>23rd driest</td>
<td>0.44&quot; (1963)</td>
<td>7.75&quot; (1949)</td>
</tr>
<tr>
<td>S. Central</td>
<td>2.40&quot;</td>
<td>-1.94&quot;</td>
<td>55%</td>
<td>23rd driest</td>
<td>0.48&quot; (1963)</td>
<td>11.02&quot; (1932)</td>
</tr>
<tr>
<td>Statewide</td>
<td>1.75&quot;</td>
<td>-1.64&quot;</td>
<td>52%</td>
<td>16th driest</td>
<td>0.59&quot; (1976)</td>
<td>7.58&quot; (1949)</td>
</tr>
</tbody>
</table>

### Water Year: 01-Oct-2015 through 28-Feb-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>9.51&quot;</td>
<td>+1.90&quot;</td>
<td>125%</td>
<td>21st wettest</td>
<td>1.48&quot; (1966-67)</td>
<td>15.98&quot; (1986-87)</td>
</tr>
<tr>
<td>Central</td>
<td>15.07&quot;</td>
<td>+3.73&quot;</td>
<td>133%</td>
<td>13th wettest</td>
<td>3.05&quot; (2005-06)</td>
<td>22.09&quot; (1984-85)</td>
</tr>
<tr>
<td>S. Central</td>
<td>23.41&quot;</td>
<td>+9.38&quot;</td>
<td>167%</td>
<td>4th wettest</td>
<td>3.74&quot; (1966-67)</td>
<td>26.25&quot; (2000-01)</td>
</tr>
<tr>
<td>Statewide</td>
<td>17.04&quot;</td>
<td>+5.57&quot;</td>
<td>149%</td>
<td>5th wettest</td>
<td>3.57&quot; (1966-67)</td>
<td>18.94&quot; (1984-85)</td>
</tr>
</tbody>
</table>

### Winter: 01-Dec-2015 through 28-Feb-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>3.99&quot;</td>
<td>+0.70&quot;</td>
<td>121%</td>
<td>23rd wettest</td>
<td>0.54&quot; (2005-06)</td>
<td>8.01&quot; (1959-60)</td>
</tr>
<tr>
<td>Central</td>
<td>6.47&quot;</td>
<td>+1.25&quot;</td>
<td>124%</td>
<td>17th wettest</td>
<td>0.90&quot; (2005-06)</td>
<td>14.02&quot; (1984-85)</td>
</tr>
<tr>
<td>S. Central</td>
<td>8.83&quot;</td>
<td>+1.90&quot;</td>
<td>127%</td>
<td>19th wettest</td>
<td>1.99&quot; (1966-67)</td>
<td>13.14&quot; (1937-38)</td>
</tr>
<tr>
<td>Statewide</td>
<td>7.69&quot;</td>
<td>+2.23&quot;</td>
<td>141%</td>
<td>9th wettest</td>
<td>1.51&quot; (2005-06)</td>
<td>10.39&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.
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 25 FEB 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 2016-02-23</strong></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>Last Week 2016-02-16</strong></td>
<td>97.00</td>
<td>3.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>3 Months Ago 2015-11-24</strong></td>
<td>64.47</td>
<td>35.53</td>
<td>13.44</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Start of Calendar Year 2015-12-29</strong></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 2015-09-29</strong></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 2015-02-24</strong></td>
<td>1.48</td>
<td>98.52</td>
<td>65.55</td>
<td>48.46</td>
<td>27.80</td>
<td>5.75</td>
</tr>
</tbody>
</table>

**U.S. Drought Monitor**

**Oklahoma**

Estimated Population in Drought Areas: 0

U.S. Drought Monitor Nationwide Map

February 23, 2016
(Released Thursday, Feb. 25, 2016)
Valid 7 a.m. EST

Drought Impact Types:
- Delineates dominant impacts
- Short-Term, typically less than 6 months (e.g., agriculture, grasslands)
- Long-Term, typically greater than 6 months (e.g., hydrology, ecology)

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 localized statements.

http://droughtmonitor.unl.edu/
U.S. Drought Monitor
Seasonal Drought Outlook Map

USGS Streamflow Data

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

SOIL MOISTURE MAP

1-day Average 24-inch Fractional Water Index

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

http://www.mesonet.org/index.php/weather/map/24-inch_fractional_water_index/soil_moisture
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 2/29/2016

Reservoir Storage
(Percent of Normal Pool Storage as of 2/29/2016)
- > 100%
- 100% - 90%
- 89% - 80%
- 79% - 70%
- 69% - 60%
- 59% - 50%
- 49% - 40%
- 39% - 30%
- < 30%

Reservoir Levels
1 Positive number indicates the lake level in feet, above the normal pool elevation
2 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 gages monitored by the
U.S. Army Corps of Engineers (http://www.westems.usace.army.mil/ems/emsweb.htm), and the
U.S. Geological Survey (http://waterdata.usgs.gov/ok/nwis/currfr?&type=lake&group_key=basin_cd)
For more information please visit the OKWRB’s website at:
(http://www.owrb.ok.gov/)

ENSO Cycle
Recent Evolution, Current Status and Predictions

ENSO Alert System Status: El Niño Advisory
- El Niño conditions are present.
- Positive equatorial sea surface temperature (SST) anomalies continue across most of the Pacific Ocean.
- A transition to ENSO-neutral is likely during late Northern Hemisphere spring or early summer 2016, with a possible transition to La Niña conditions during the fall.