Drought Conditions in Central Oklahoma

Water Resources Division
Association of Central Oklahoma Governments
August 2, 2021
Temperature and Precipitation Plot for Oklahoma City, Oklahoma for 2021

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

#### Calendar Year 01-Jan-2021 through 01-Aug-2021

<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>20.02&quot;</td>
<td>+2.89&quot;</td>
<td>117%</td>
<td>19th wettest</td>
<td>5.25&quot; (2011)</td>
<td>28.29&quot; (2015)</td>
</tr>
<tr>
<td>Central</td>
<td>24.91&quot;</td>
<td>+2.24&quot;</td>
<td>110%</td>
<td>26th wettest</td>
<td>8.49&quot; (1936)</td>
<td>39.72&quot; (2007)</td>
</tr>
<tr>
<td>S. Central</td>
<td>25.24&quot;</td>
<td>+0.73&quot;</td>
<td>103%</td>
<td>37th wettest</td>
<td>10.84&quot; (2011)</td>
<td>47.78&quot; (2015)</td>
</tr>
<tr>
<td>Statewide</td>
<td>23.67&quot;</td>
<td>+1.69&quot;</td>
<td>108%</td>
<td>33rd wettest</td>
<td>9.68&quot; (1936)</td>
<td>34.45&quot; (2015)</td>
</tr>
</tbody>
</table>

#### Water Year 01-Oct-2020 through 01-Aug-2021

<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>24.84&quot;</td>
<td>+2.17&quot;</td>
<td>110%</td>
<td>24th wettest</td>
<td>9.79&quot; (2010-11)</td>
<td>35.76&quot; (2018-19)</td>
</tr>
<tr>
<td>Central</td>
<td>33.02&quot;</td>
<td>+2.24&quot;</td>
<td>107%</td>
<td>27th wettest</td>
<td>15.82&quot; (1935-36)</td>
<td>46.72&quot; (2006-07)</td>
</tr>
<tr>
<td>S. Central</td>
<td>31.39&quot;</td>
<td>-2.81&quot;</td>
<td>92%</td>
<td>48th wettest</td>
<td>14.98&quot; (1955-56)</td>
<td>56.60&quot; (2014-15)</td>
</tr>
<tr>
<td>Statewide</td>
<td>31.00&quot;</td>
<td>+0.94&quot;</td>
<td>103%</td>
<td>34th wettest</td>
<td>16.75&quot; (1955-56)</td>
<td>41.32&quot; (2006-07)</td>
</tr>
</tbody>
</table>

#### Summer 01-Jun through 01-Aug-2021

<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>8.63&quot;</td>
<td>+2.31&quot;</td>
<td>137%</td>
<td>16th wettest</td>
<td>1.60&quot; (2011)</td>
<td>13.65&quot; (1962)</td>
</tr>
<tr>
<td>Central</td>
<td>10.42&quot;</td>
<td>+2.56&quot;</td>
<td>133%</td>
<td>20th wettest</td>
<td>1.94&quot; (1954)</td>
<td>19.40&quot; (2007)</td>
</tr>
<tr>
<td>Southeast</td>
<td>9.37&quot;</td>
<td>+1.00&quot;</td>
<td>112%</td>
<td>35th wettest</td>
<td>1.51&quot; (1930)</td>
<td>16.70&quot; (2007)</td>
</tr>
<tr>
<td>Statewide</td>
<td>8.62&quot;</td>
<td>+1.13&quot;</td>
<td>115%</td>
<td>26th wettest</td>
<td>1.96&quot; (2011)</td>
<td>14.56&quot; (2007)</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.

http://www.cpc.ncep.noaa.gov/products/predictions/30-day/
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.
Abnormal dryness or drought are currently affecting approximately 7,365 people in Oklahoma.

### U.S. Drought Monitor

#### Oklahoma

Abnormal dryness or drought are currently affecting approximately 7,365 people in Oklahoma.

<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>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>2021-07-27</td>
<td>91.45</td>
<td>8.55</td>
<td>1.13</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Last Week</td>
<td>2021-07-20</td>
<td>91.45</td>
<td>8.55</td>
<td>1.13</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>3 Months Ago</td>
<td>2021-04-27</td>
<td>43.60</td>
<td>56.40</td>
<td>20.02</td>
<td>6.30</td>
<td>0.08</td>
<td>0.00</td>
</tr>
<tr>
<td>Start of Calendar Year</td>
<td>2020-12-29</td>
<td>56.83</td>
<td>43.17</td>
<td>25.21</td>
<td>7.75</td>
<td>1.45</td>
<td>0.00</td>
</tr>
<tr>
<td>Start of Water Year</td>
<td>2020-09-29</td>
<td>66.79</td>
<td>33.21</td>
<td>17.71</td>
<td>11.97</td>
<td>1.55</td>
<td>0.00</td>
</tr>
<tr>
<td>One Year Ago</td>
<td>2020-07-28</td>
<td>39.83</td>
<td>60.17</td>
<td>25.96</td>
<td>10.26</td>
<td>2.79</td>
<td>0.00</td>
</tr>
</tbody>
</table>

U.S. Drought Monitor

Monthly Drought Outlook Map

CONSECUTIVE DAYS WITHOUT RAINFALL MAP

Consecutive Days With Less Than 0.25" Rainfall

August 1, 2021

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.
Oklahoma Surface Water Resources
Reservoir Levels and Storage as of 8/2/2021

Reservoir Storage
(Percent of Normal Pool Storage as of 8/2/2021)

- 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

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.nawwrc.usace.army.mil/Daily_Morning_Reservoir_Report.pdf), and the U.S. Geological Survey (http://waterdata.usgs.gov/la/nwscurrent?Hypr=U&grou=etK&year=E01&db=). For more information, please visit the OWRB's website at: (http://www.owrb.ok.gov)

https://www.owrb.ok.gov/supply/drought/reservoirstorage.php
Groundwater Levels
Spencer Mesonet Station

http://www.mesonet.org/index.php/weather/groundwater
Recharge Map
Central Oklahoma Aquifer System

AQUIFER RECHARGE JUL 2021

Recharge in Inches
- 0.0 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7
- 0.7 - 0.8
- 0.8 - 0.9
- 0.9 - 1.0

Central Oklahoma Aquifer System
Garber-Wellington Aquifer Limits

0 2.5 5 10 Miles

acog
Recharge Charts
Central Oklahoma Aquifer System

ACCUMULATED RECHARGE 2021

MONTHLY AQUIFER RECHARGE

acog
ENSO Cycle
Recent Evolution, Current Status and Predictions

ENSO Alert System Status: La Niña Watch

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are near-to-below average across most of the Pacific Ocean.
- ENSO-neutral is favored through the Northern Hemisphere summer and into the fall (51% chance for the August-October season), with La Niña potentially emerging during the September-November season and lasting through the 2021-22 winter (66% chance during November-January).

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.ppt