

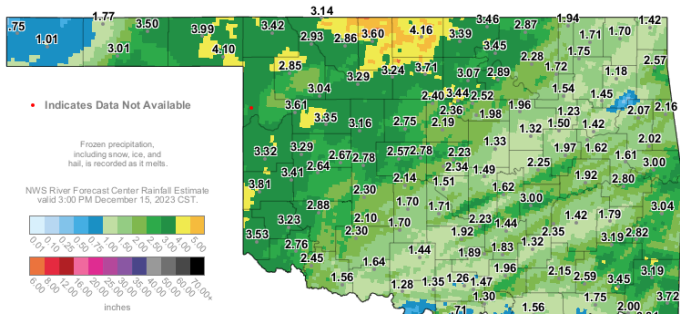
# Oklahoma Water Resources Bulletin

## Summary of Current Conditions

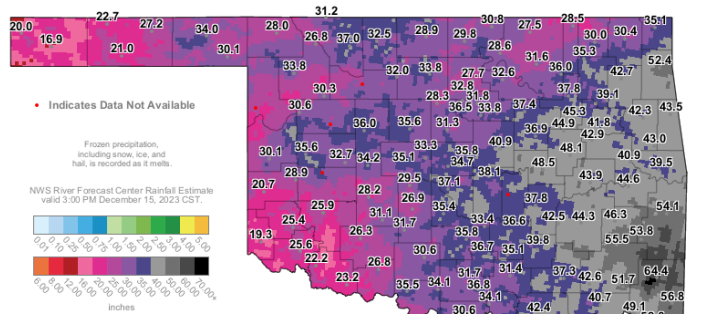
December 15, 2023

### Precipitation

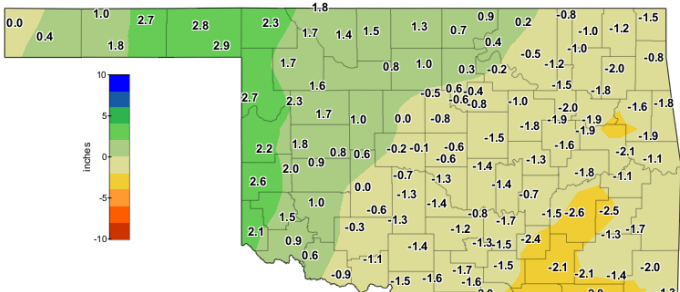
| Climate Division | Last 30 Days: November 15 – December 14, 2023 |                                |                   |                     | Last 365 Days: December 15, 2022 – December 14, 2023 |                                |                   |                    |
|------------------|---|--------------------------------|-------------------|---------------------|--|--------------------------------|-------------------|--------------------|
|                  | Total Rainfall (inches)                       | Departure From Normal (inches) | Percent of Normal | Rank Since 1921     | Total Rainfall (inches)                              | Departure From Normal (inches) | Percent of Normal | RANK SINCE 1921    |
| PANHANDLE        | 2.58"   | +1.87"                         | 364%              | 6th wettest         | 25.12"   | +4.54"                         | 122%              | 14th wettest       |
| N. CENTRAL       | 2.65"   | +1.27"                         | 192%              | 16th wettest        | 30.59"   | -0.83"                         | 97%               | 46th wettest       |
| NORTHEAST        | 1.45"   | -1.21"                         | 55%               | 38th driest         | 35.43"   | -7.24"                         | 83%               | 26th driest        |
| W. CENTRAL       | 3.02"   | +1.76"                         | 240%              | 8th wettest         | 31.07"   | +2.67"                         | 109%              | 21st wettest       |
| CENTRAL          | 1.19"   | -0.86"                         | 58%               | 44th driest         | 33.93"   | -3.70"                         | 90%               | 44th driest        |
| E. CENTRAL       | 1.62"   | -1.81"                         | 47%               | 31st driest         | 42.44"   | -3.70"                         | 92%               | 41st driest        |
| SOUTHWEST        | 1.90"   | +0.45"                         | 131%              | 32nd wettest        | 25.59"   | -4.68"                         | 85%               | 27th driest        |
| S. CENTRAL       | 0.95"   | -1.59"                         | 37%               | 26th driest         | 34.49"   | -6.22"                         | 85%               | 34th driest        |
| SOUTHEAST        | 2.33"   | -2.11"                         | 53%               | 31st driest         | 51.09"   | +0.50"                         | 101%              | 44th wettest       |
| <b>STATEWIDE</b> | <b>1.90"</b>                                  | <b>-0.29"</b>                  | <b>87%</b>        | <b>49th wettest</b> | <b>34.16"</b>  | <b>-2.31"</b>                  | <b>94%</b>        | <b>45th driest</b> |



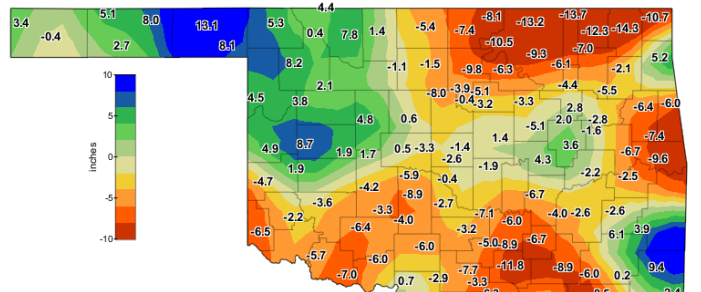
**Mesonet**  
30-Day Rainfall Accumulation (inches)  
4:25 PM December 15, 2023 CST  
Created 4:30:57 PM December 15, 2023 CST. © Copyright 2023



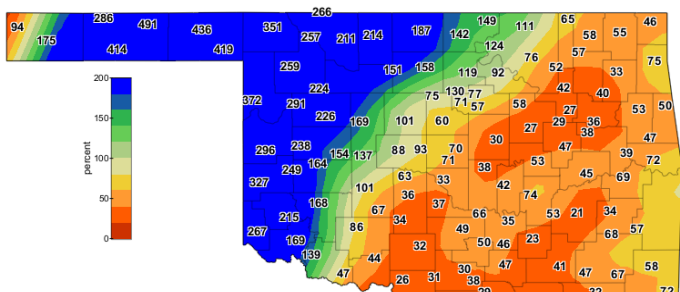
**Mesonet**  
365-Day Rainfall Accumulation (inches)  
4:25 PM December 15, 2023 CST  
Created 4:30:58 PM December 15, 2023 CST. © Copyright 2023



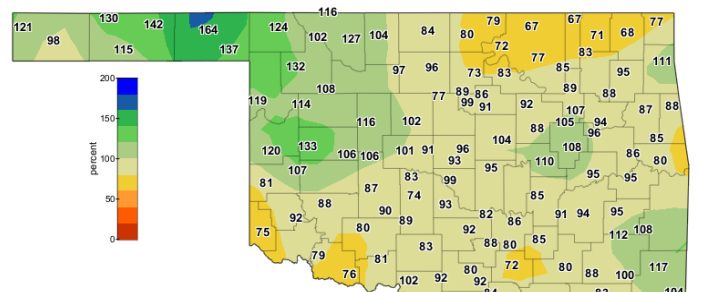
**Mesonet**  
Departure from 1991-2020 Normal Rainfall  
Last 30 Days  
Nov 15, 2023 through Dec 14, 2023  
Created 2:40:59 AM December 15, 2023 CST. Copyright 2023



**Mesonet**  
Departure from 1991-2020 Normal Rainfall  
Last 365 Days  
Dec 15, 2022 through Dec 14, 2023  
Created 2:41:51 AM December 15, 2023 CST. Copyright 2023



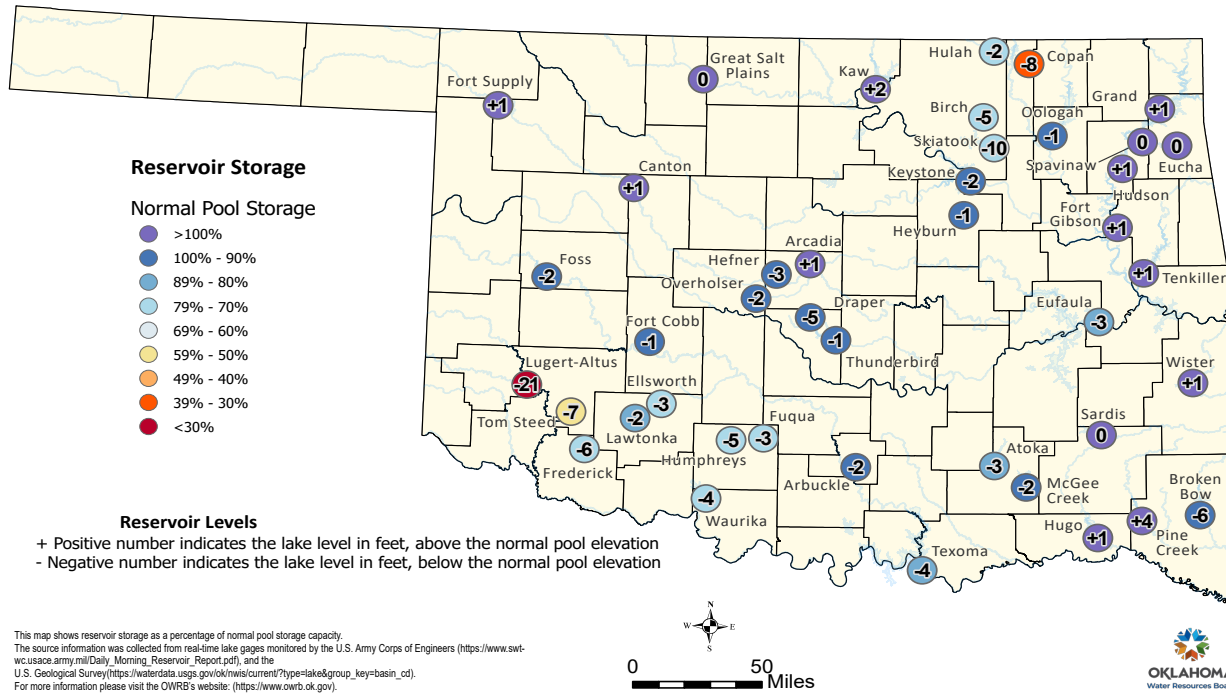
**Mesonet**  
Percent of 1991-2020 Normal Rainfall  
Last 30 Days  
Nov 15, 2023 through Dec 14, 2023  
Created 2:41:00 AM December 15, 2023 CST. Copyright 2023



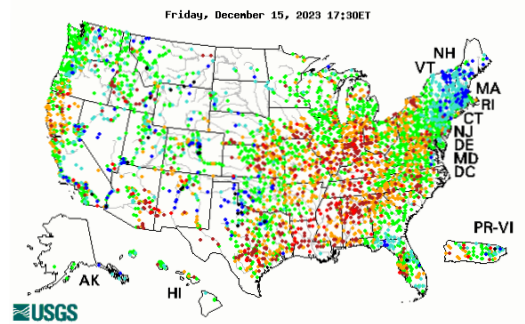
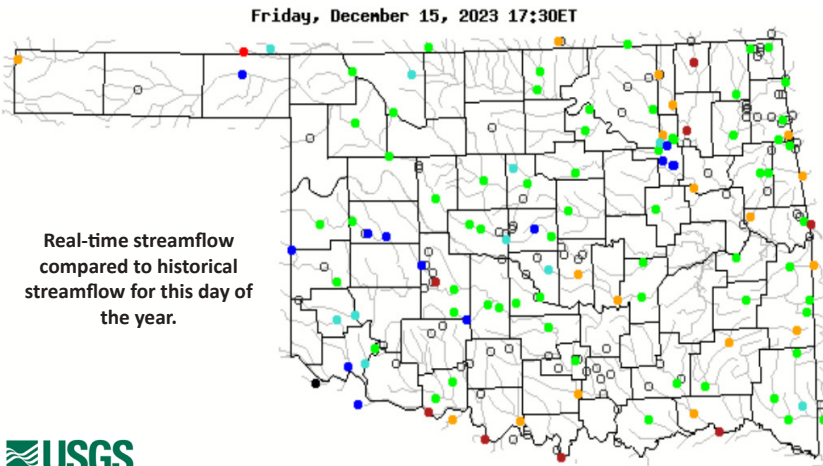
**Mesonet**  
Percent of 1991-2020 Normal Rainfall  
Last 365 Days  
Dec 15, 2022 through Dec 14, 2023  
Created 2:41:52 AM December 15, 2023 CST. Copyright 2023

## Reservoir Levels

### Oklahoma Reservoir Levels and Storage as of 12/11/2023



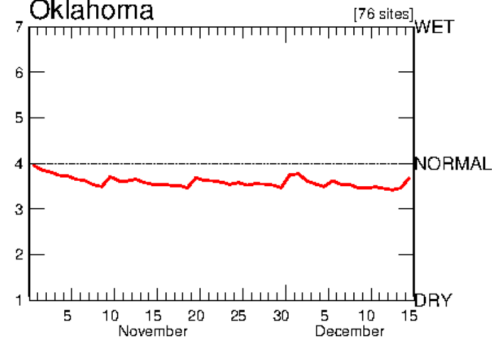
## Streamflow



### Average Streamflow Index

**Last 45 Days**

**Oklahoma**



| Explanation - Percentile classes   |                                       |                                      |                                     |                                     |                                      |                                     |            |
|------------------------------------|---------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|------------|
| <span style="color: red;">●</span> | <span style="color: orange;">●</span> | <span style="color: green;">●</span> | <span style="color: cyan;">●</span> | <span style="color: blue;">●</span> | <span style="color: black;">●</span> | <span style="color: grey;">●</span> |            |
| <b>Low</b>                         | <10<br>Much below normal              | 10-24<br>Below normal                | 25-75<br>Normal                     | 76-90<br>Above normal               | >90<br>Much above normal             | <b>High</b>                         | Not ranked |

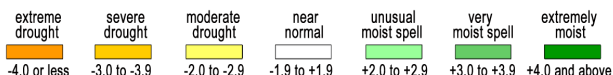
Visit [waterwatch.usgs.gov](https://waterwatch.usgs.gov) for additional real-time streamflow information.

Visit the OWRB's [Water Data and Analysis Portal](#) for continuous and discrete water quality and quantity data for Oklahoma lakes, streams, and aquifers across the state.

# Drought Conditions

## Palmer Drought Severity Index (PDSI)

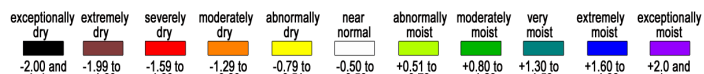
| Climate Division | Status 12/09/23     | Value |       | Change in Value |
|------------------|---------------------|-------|-------|-----------------|
|                  |                     | 11/18 | 12/09 |                 |
| NORTHWEST        | Near Normal         | 1.46  | 1.19  | -0.27           |
| NORTH CENTRAL    | Unusual Moist Spell | 1.88  | 2.36  | 0.48            |
| NORTHEAST        | Near Normal         | -1.1  | -1.03 | 0.07            |
| WEST CENTRAL     | Near Normal         | 1.06  | 1.21  | 0.15            |
| CENTRAL          | Near Normal         | 0.31  | 0.18  | -0.13           |
| EAST CENTRAL     | Near Normal         | 0.05  | 0     | -0.05           |
| SOUTHWEST        | Near Normal         | -0.24 | -0.33 | -0.09           |
| SOUTH CENTRAL    | Near Normal         | 0.43  | 0.37  | -0.06           |
| SOUTHEAST        | Near Normal         | 1.12  | 1.18  | 0.06            |



The **PDSI** is based upon precipitation, temperature, and soil moisture, and is considered most effective for unirrigated cropland, spanning from -10 (dry) to +10 (wet). According to the latest PDSI, as of December 9, all climate regions are Near Normal or wetter.

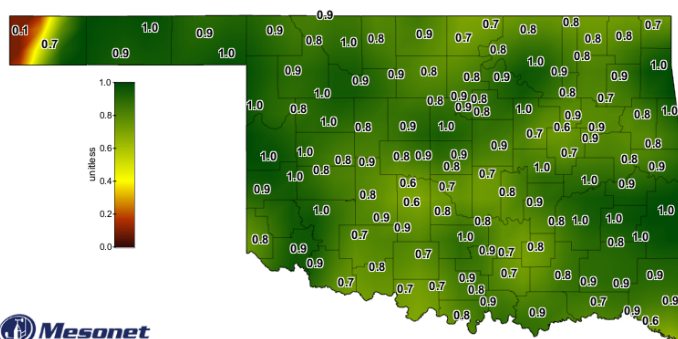
## Standardized Precipitation Index (SPI) Through November 2023

| 3-month     | 12-month         | 24-month       |
|-------------|------------------|----------------|
| Near Normal | Moderately Moist | Near Normal    |
| Near Normal | Near Normal      | Abnormally Dry |
| Near Normal | Near Normal      | Abnormally Dry |
| Near Normal | Abnormally Moist | Near Normal    |
| Near Normal | Near Normal      | Near Normal    |
| Near Normal | Near Normal      | Near Normal    |
| Near Normal | Near Normal      | Abnormally Dry |
| Near Normal | Near Normal      | Abnormally Dry |
| Near Normal | Near Normal      | Near Normal    |



The **SPI** provides a comparison of precipitation over several specified time periods with totals for the periods for all years in the historical record. Through November 2023, the North Central, Northeast, Southwest, and South Central regions were abnormally dry for the 24-month period.

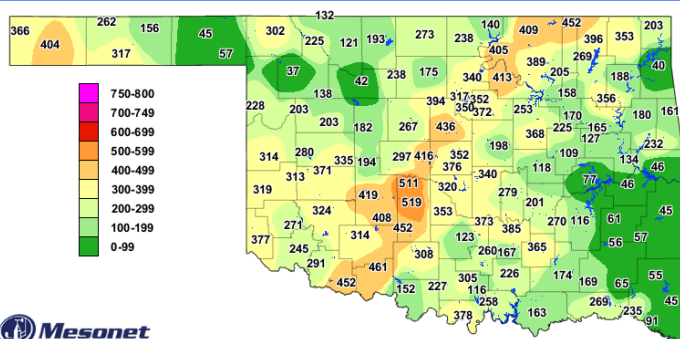
## Soil Moisture



**Mesonet**  
1-day Average 4-inch Bare Soil Fractional Water Index  
December 14, 2023  
Created 6:30:14 AM December 15, 2023 CST. © Copyright 2023

The 1-day Average 4-inch Bare Soil Fractional Water Index map displays the 24-hour-averaged soil moisture at 4 inches under bare soil for the previous day. Fractional water index ranges from 0 (as dry as the sensor can read) to 1.0 (as wet as the sensor can read).

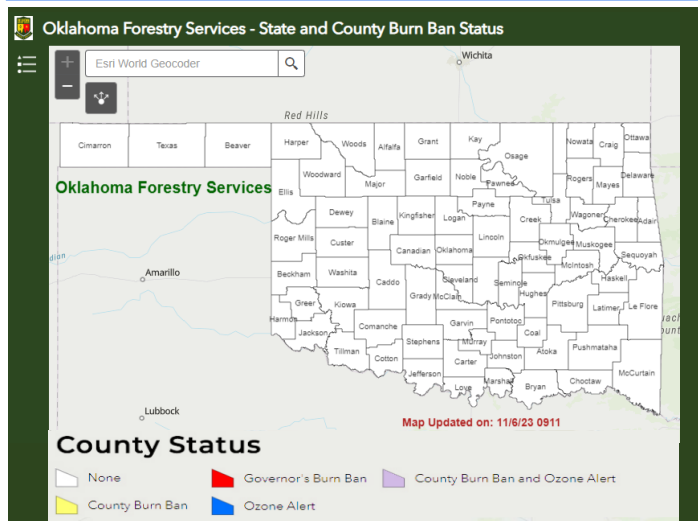
## Keetch-Byram Drought Index



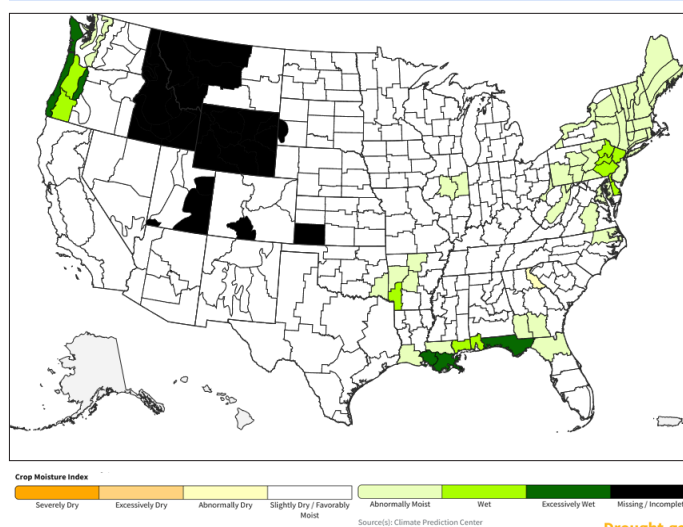
**Mesonet**  
Keetch-Byram Drought Index  
4:45 PM December 15, 2023 CST  
Created 5:00:52 PM December 15, 2023 CST. Copyright 2023

The Keetch-Byram Drought Index measures the state of near-surface soil moisture (within the uppermost eight inches of soil) as well as the amount of fuel available for fires. KBDI values > 600 are often associated with severe drought and increased wildfire occurrence.

## State & County Burn Ban Status



## Crop Moisture Index

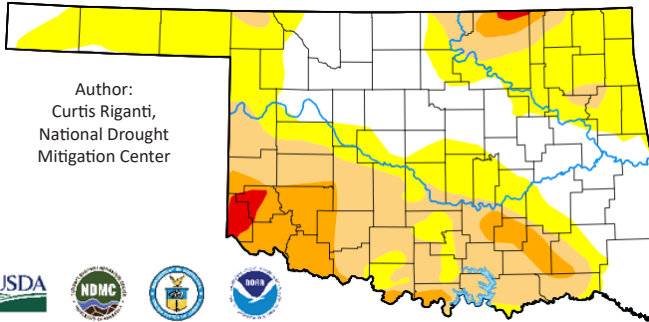




# Oklahoma Drought Monitor

|   |   |  |  |
|---|---|--|--|
| <p><b>74</b><br/>counties with USDA Drought Disaster Designations (primary)</p> <p>— 0 counties since last week</p> | <p><b>~759,300</b><br/>Oklahoma residents in areas of drought, according to the Drought Monitor</p> <p>↑ 4.5% since last week</p> | <p><b>34th</b><br/>driest November on record (since 1895)</p> <p>1.04 in. total precipitation<br/>↓ 1.17 in. from normal</p> | <p><b>55th</b><br/>wettest January—November on record (since 1895)</p> <p>33.62 in. total precipitation<br/>↑ 1.51 in. from normal</p> |
|---|---|--|--|

- D0 - Abnormally Dry**
  - Crops are stressed (wheat, canola, alfalfa, pecans); winter wheat germination is delayed
  - Stock pond levels decline
- D1 - Moderate Drought**
  - Summer crop and forage yields are reduced
  - Wildfire risk increases
  - Lake recreation activities are affected; deer reproduction is poor
- D2 - Severe Drought**
  - Dryland crops are severely reduced; pasture growth is stunted
  - Cattle are stressed
  - Burn bans begin
- D3 - Extreme Drought**
  - Grasses are dormant, and hay is nonexistent; planting is delayed; fields are spotty; emergency CRP grazing is authorized
  - Cattle have little water and feed
  - Wildfires are increasing in number and severity; air quality is poor, with dust storms and smoke
- D4 - Exceptional Drought**
  - Ground is cracking; farmers are bailing failed crops or abandoning fields; pastures are bare; land is abandoned
  - Cost of hay and water is high and supplies are scarce; producers are liquidating herds
  - Burn restrictions increase; fire season is long



Author:  
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National Drought  
Mitigation Center



droughtmonitor.unl.edu

**December 12, 2023**  
(Released Dec. 14, 2023)  
Valid 7 a.m. EDT

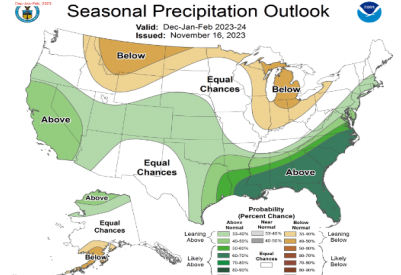
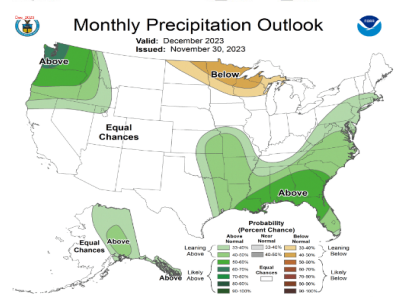
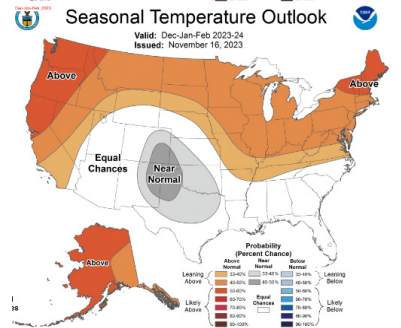
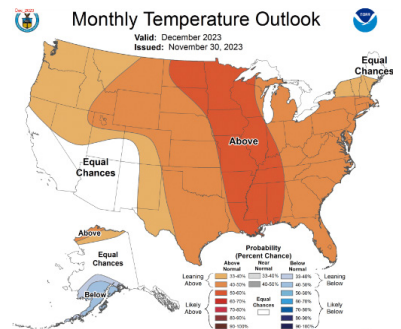
**Intensity:**

- None
- 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 forecast statements.

| Week                              | Date       | None  | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4    | DSCI |
|-----------------------------------|------------|-------|-------|-------|-------|-------|-------|------|
| Current                           | 2023-12-12 | 32.32 | 67.68 | 32.88 | 10.38 | 1.15  | 0.00  | 112  |
| Last Week to Current              | 2023-12-05 | 42.32 | 57.68 | 32.29 | 10.38 | 1.15  | 0.00  | 102  |
| 3 Months Ago to Current           | 2023-09-12 | 37.93 | 62.07 | 45.00 | 29.80 | 3.51  | 0.00  | 140  |
| Start of Calendar Year to Current | 2022-12-27 | 1.82  | 98.18 | 89.73 | 80.92 | 56.13 | 11.65 | 337  |
| Start of Water Year to Current    | 2023-09-26 | 34.29 | 65.71 | 46.76 | 30.93 | 12.91 | 0.00  | 156  |
| One Year Ago to Current           | 2022-12-13 | 1.55  | 98.45 | 90.18 | 83.45 | 57.35 | 11.64 | 341  |

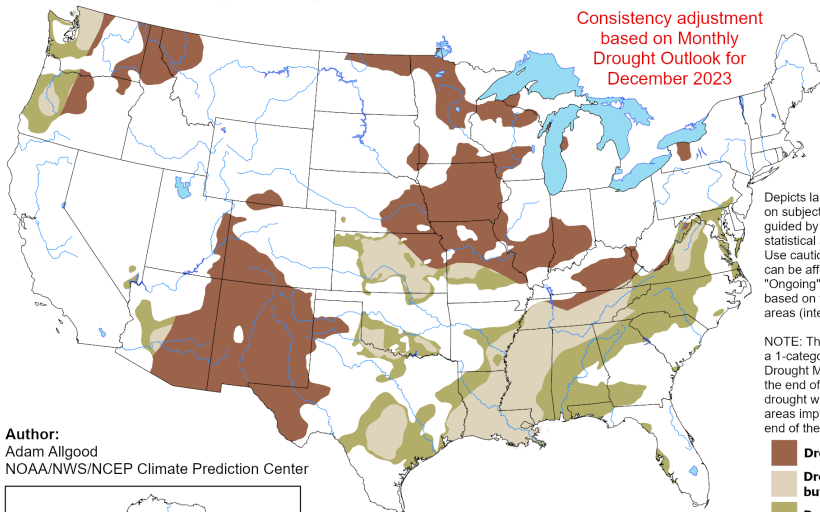
## Monthly/Seasonal Outlook



## Drought Probability

### U.S. Seasonal Drought Outlook

Valid for December 1, 2023 - February 29, 2024  
Released November 30, 2023



Consistency adjustment based on Monthly Drought Outlook for December 2023

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).

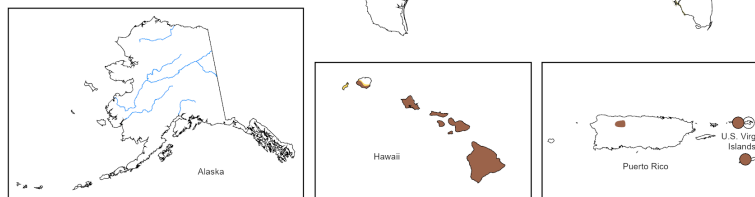
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains, but improves
- Drought removal likely
- Drought development likely
- No drought



<https://go.usa.gov/3eZ73>

Author:  
Adam Allgood  
NOAA/NWS/NCEP Climate Prediction Center



The seasonal drought outlook for December 2023 through February 2024 is influenced heavily by the anticipated midlatitude response to the ongoing El Niño, which favors an active southern stream with increased moisture across the southern CONUS. While widespread drought conditions continue across Texas and Oklahoma, recent conditions have been more favorable for amelioration.

NOAA/ National Weather Service  
National Centers for Environmental Prediction  
Climate Prediction Center