



# Monsoon 2022

Dr. Erinanne Saffell  
Arizona State Climatologist

10/17/2022

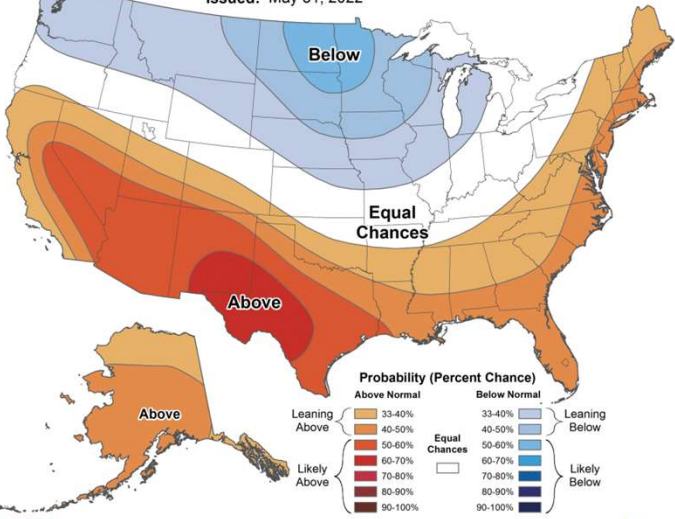




# Monthly Temperature Outlook



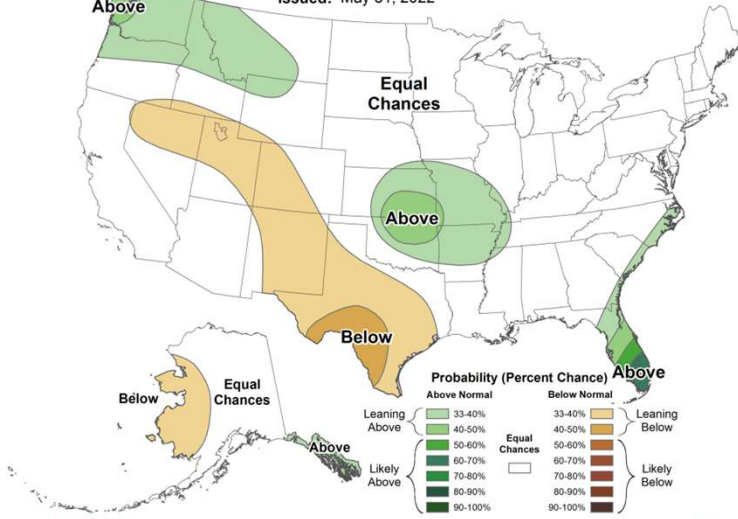
Valid: June 2022  
Issued: May 31, 2022



# Monthly Precipitation Outlook



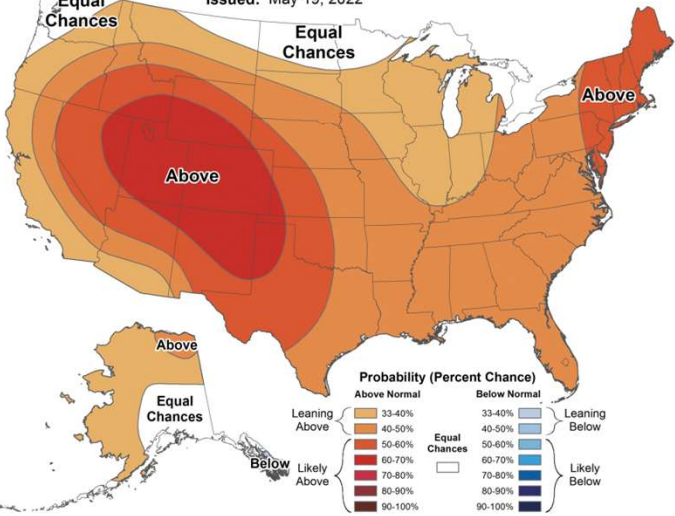
Valid: June 2022  
Issued: May 31, 2022



# Seasonal Temperature Outlook



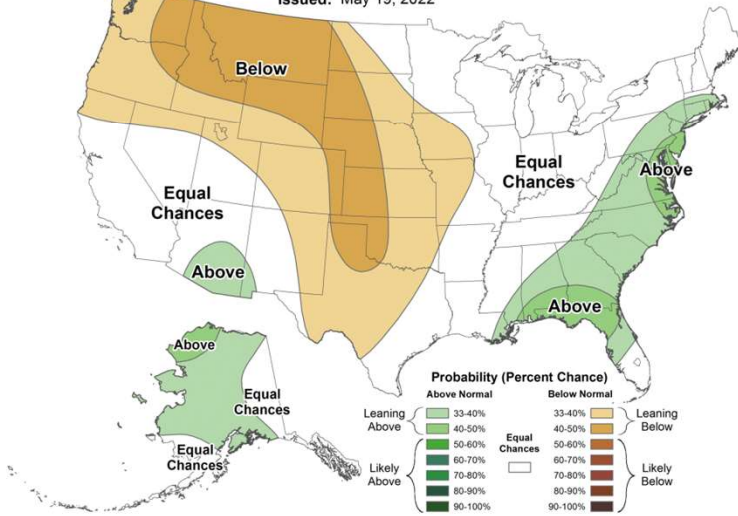
Valid: Jun-Jul-Aug 2022  
Issued: May 19, 2022



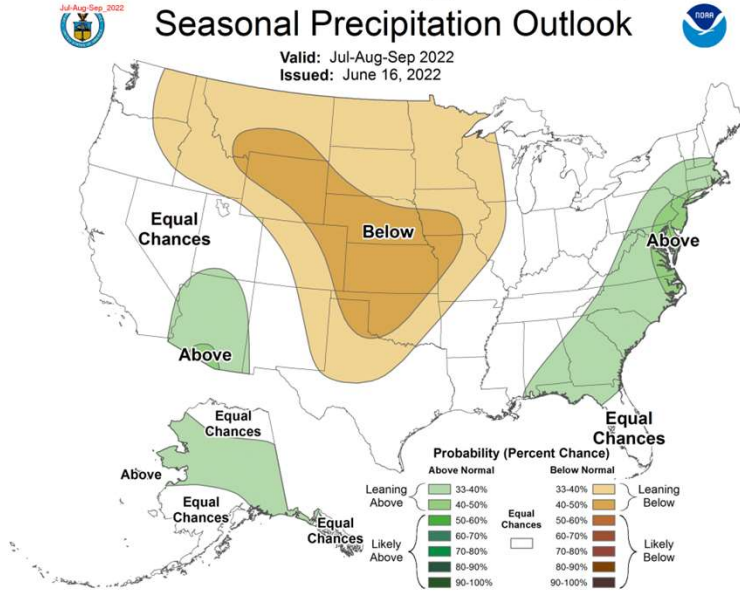
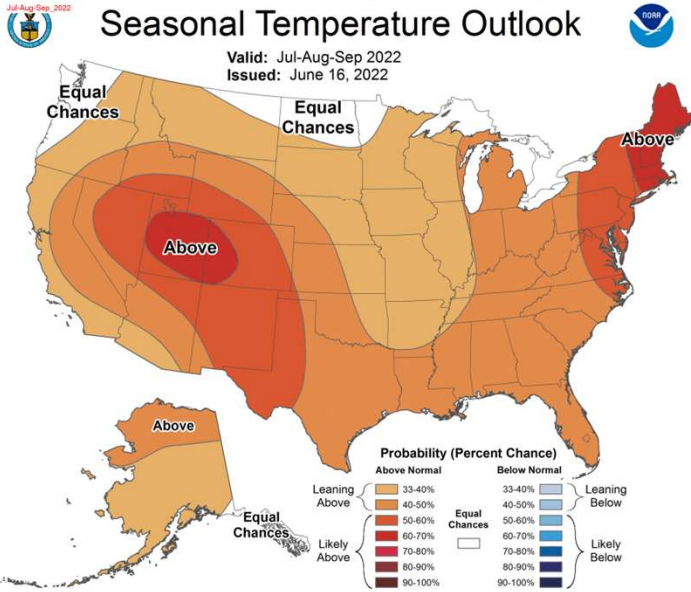
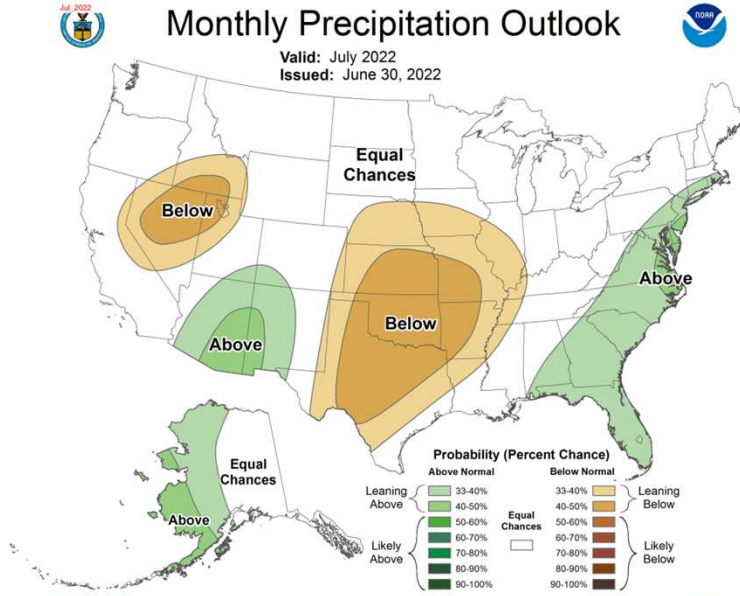
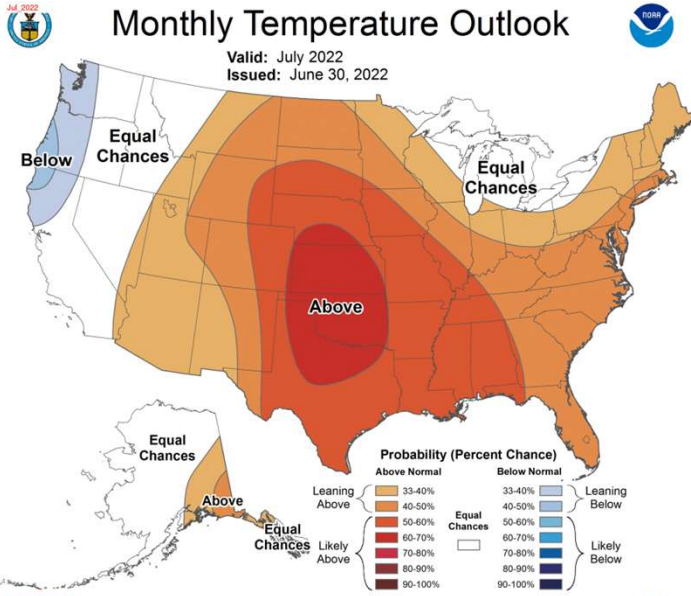
# Seasonal Precipitation Outlook



Valid: Jun-Jul-Aug 2022  
Issued: May 19, 2022



Early outlooks favored above-average chances for a wetter monsoon in Arizona.



Confidence built and spread in July to most of Arizona, southern Utah, and western New Mexico for above-average precipitation.

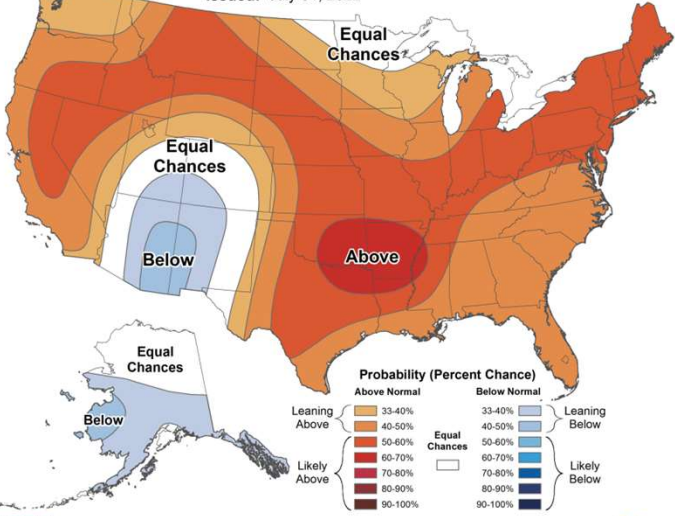




# Monthly Temperature Outlook



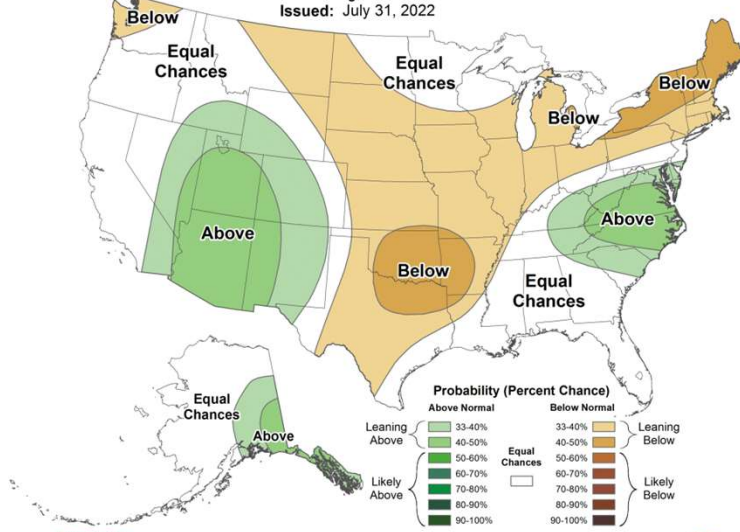
Valid: August 2022  
Issued: July 31, 2022



# Monthly Precipitation Outlook



Valid: August 2022  
Issued: July 31, 2022



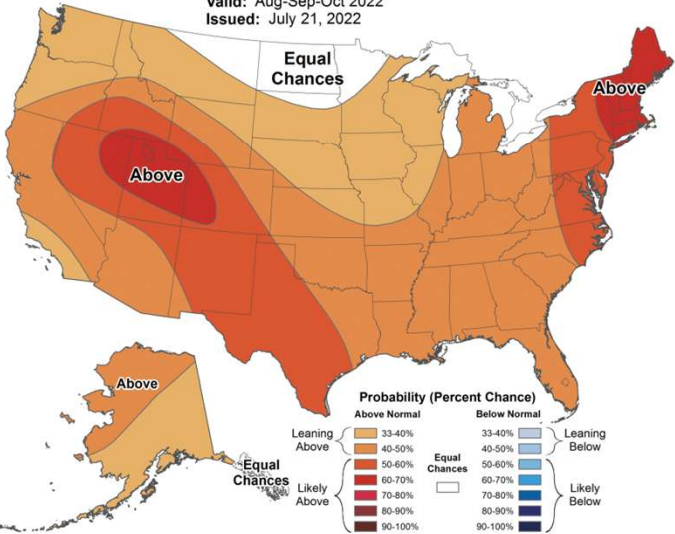
August confidence increased to much of the desert southwest.



# Seasonal Temperature Outlook



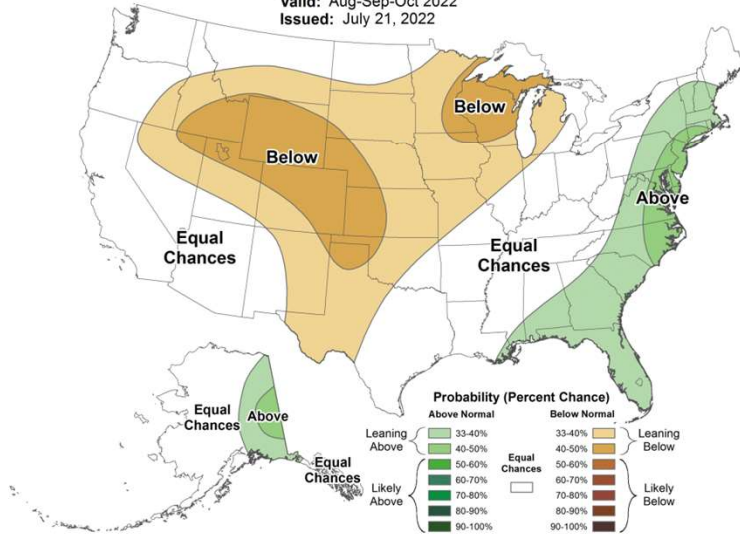
Valid: Aug-Sep-Oct 2022  
Issued: July 21, 2022



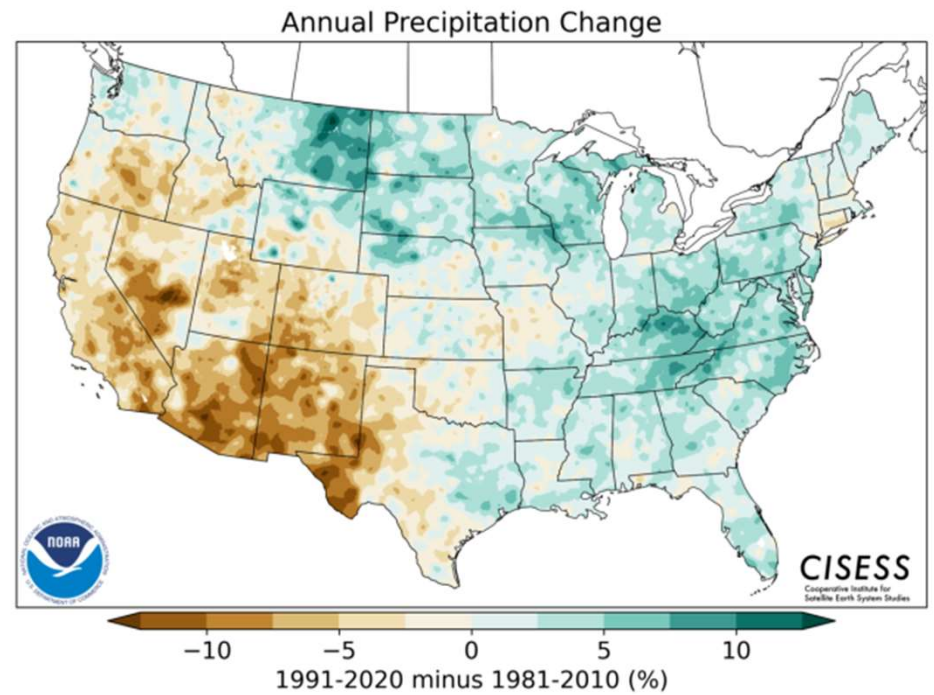
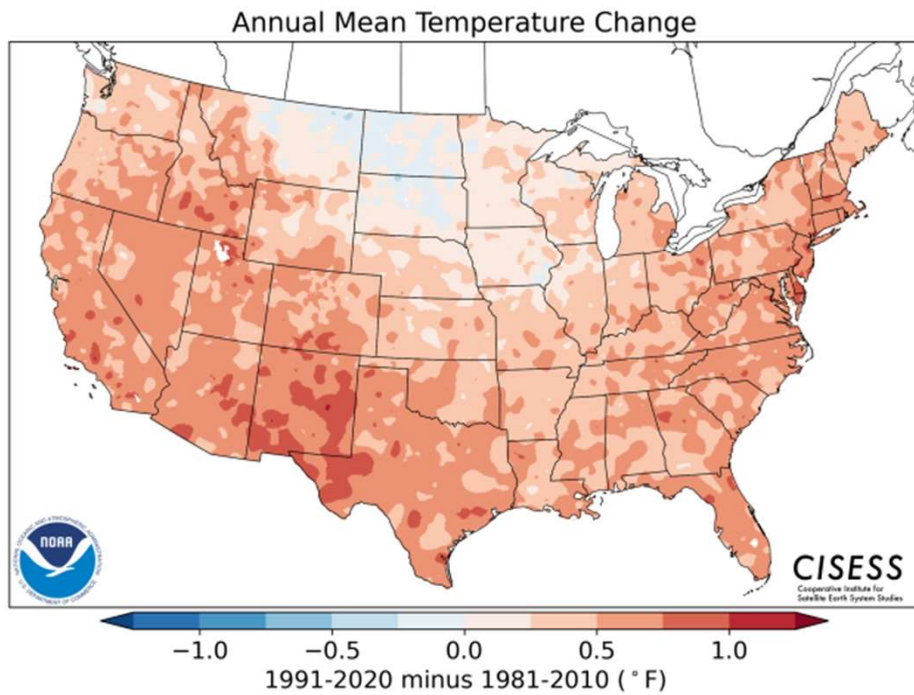
# Seasonal Precipitation Outlook



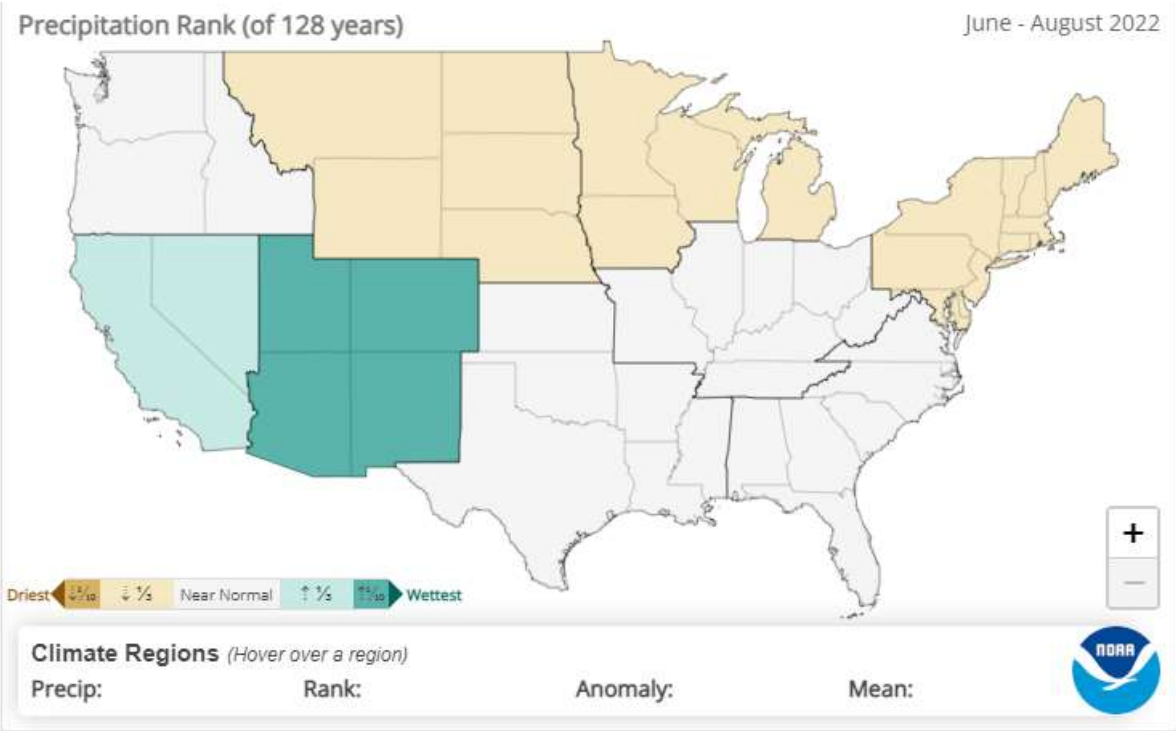
Valid: Aug-Sep-Oct 2022  
Issued: July 21, 2022



# Western trends: hotter and drier

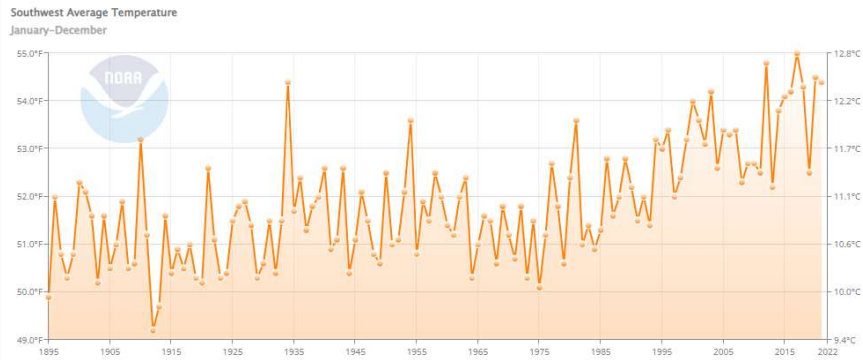


# SW Climate Region

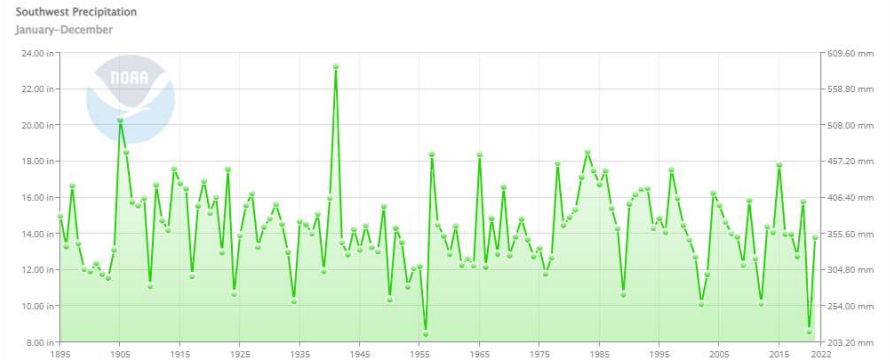


# SW Climate Region trends: hotter

## Average Annual Temperature



## Average Annual Precipitation

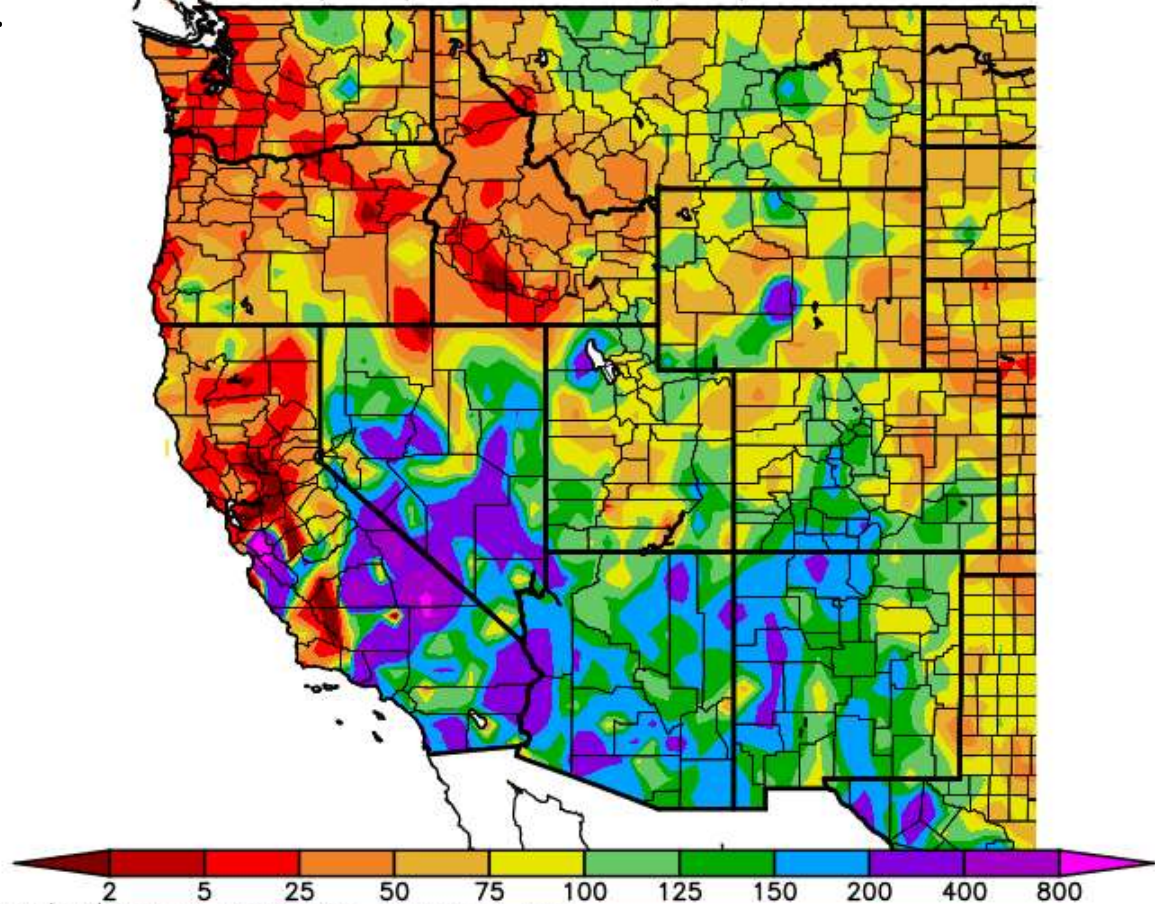




# Monsoon 2022

Many locations received above-average precipitation for the monsoon (to date).

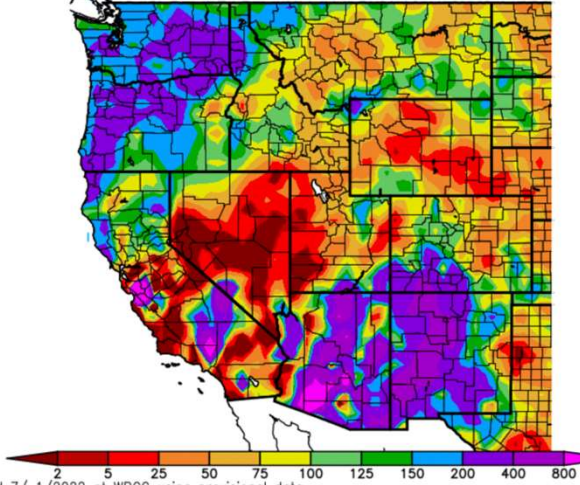
Percent of Average Precipitation (%)  
6/15/2022 – 9/12/2022



Generated 9/13/2022 at WRCC using provisional data.  
NOAA Regional Climate Centers



Percent of Average Precipitation (%)  
6/1/2022 – 6/30/2022

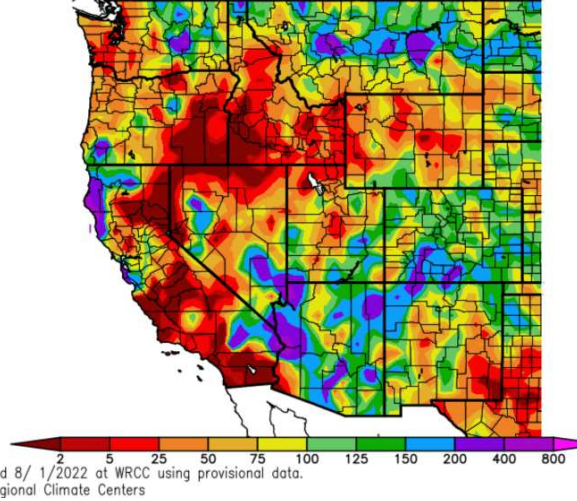


## June

Strong activity first in New Mexico, then in Arizona.

First measurable monsoon precipitation in Arizona was June 18.

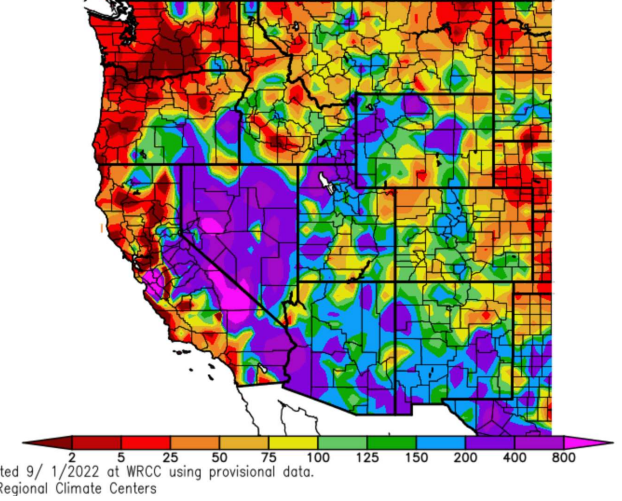
Percent of Average Precipitation (%)  
7/1/2022 – 7/31/2022



## July

Pattern setting up, but not widespread.

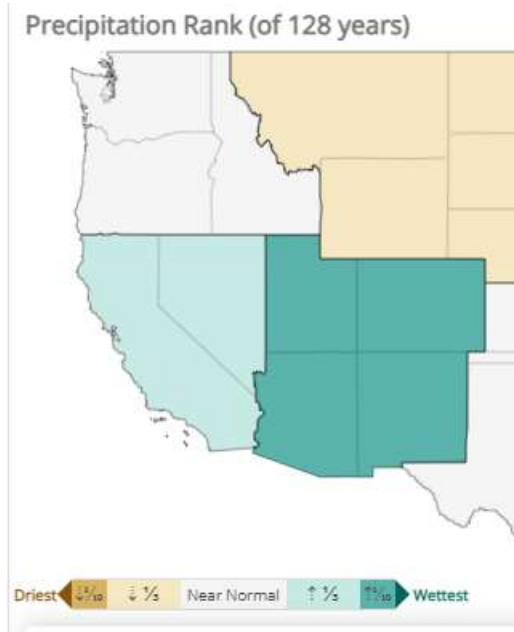
Percent of Average Precipitation (%)  
8/1/2022 – 8/31/2022



## August

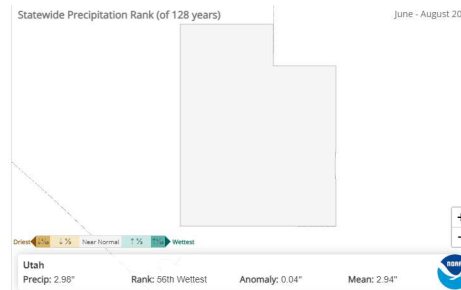
Persistent flow with large amounts of atmospheric moisture.

# Averages for Jun-Jul-Aug 2022

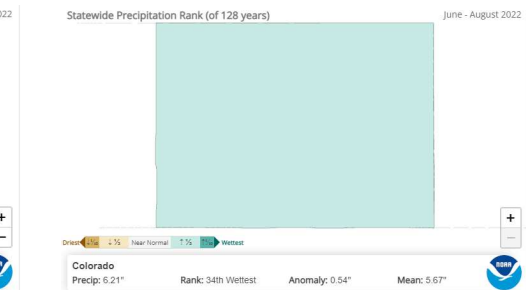


7<sup>th</sup> wettest for SW Climate Region

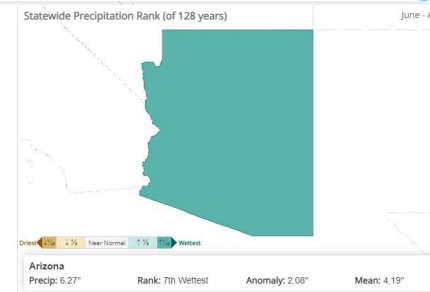
56<sup>th</sup> wettest for UT



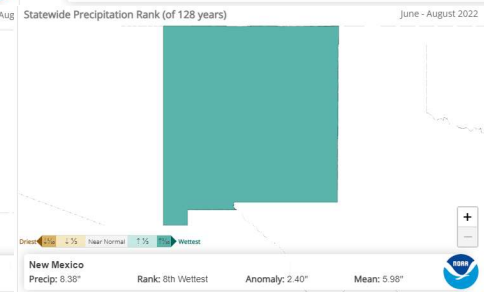
34<sup>th</sup> wettest for CO



7<sup>th</sup> wettest for AZ

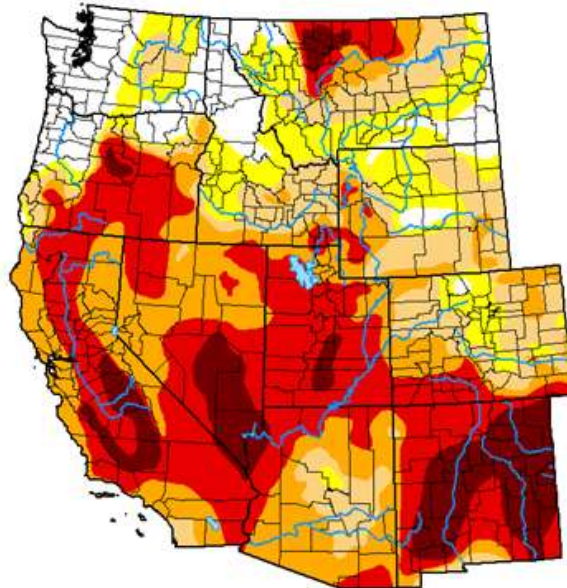


8<sup>th</sup> wettest for NM

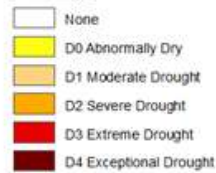


## U.S. Drought Monitor West

**June 14, 2022**  
(Released Thursday, Jun. 16, 2022)  
Valid 8 a.m. EDT



**Intensity:**



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

**Author:**

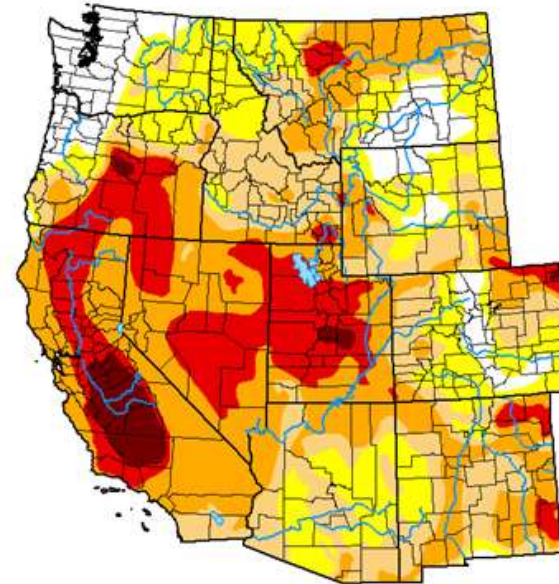
Adam Hartman  
NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

## U.S. Drought Monitor West

**September 13, 2022**  
(Released Thursday, Sep. 15, 2022)  
Valid 8 a.m. EDT



**Intensity:**



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

**Author:**

David Simeral  
Western Regional Climate Center



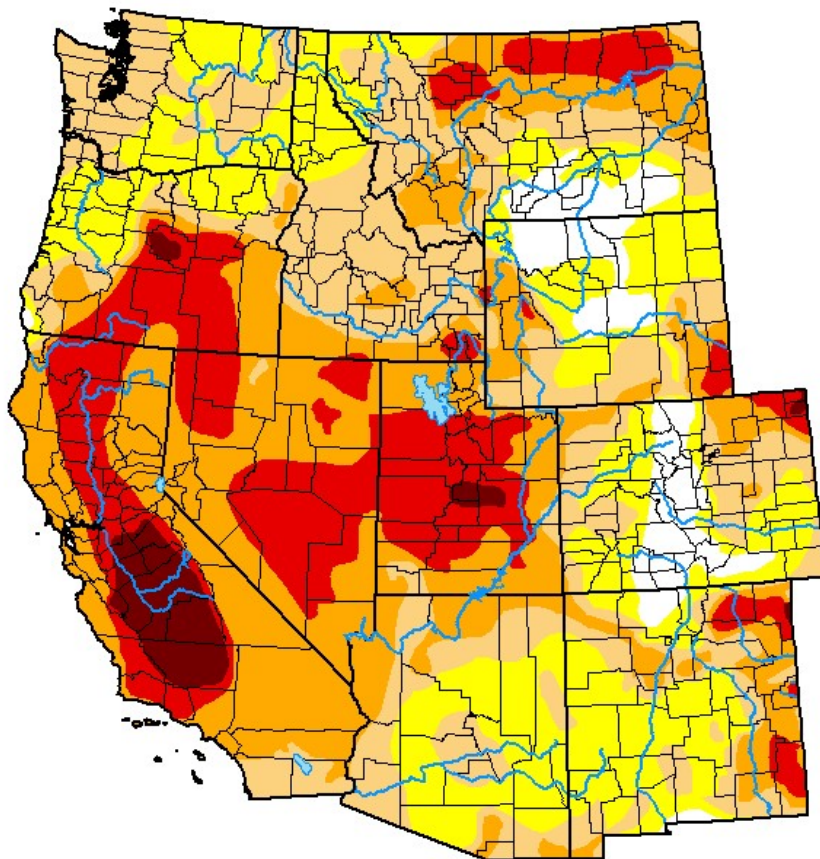
[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Short-term drought in Arizona and New Mexico improved substantially. Colorado introduced small areas without drought. Utah decreased areas of exceptional drought but maintained extreme drought.









# U.S. Drought Monitor West

**October 11, 2022**  
(Released Thursday, Oct. 13, 2022)  
Valid 8 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. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

***Author:***

Brad Pugh  
CPC/NOAA



**droughtmonitor.unl.edu**

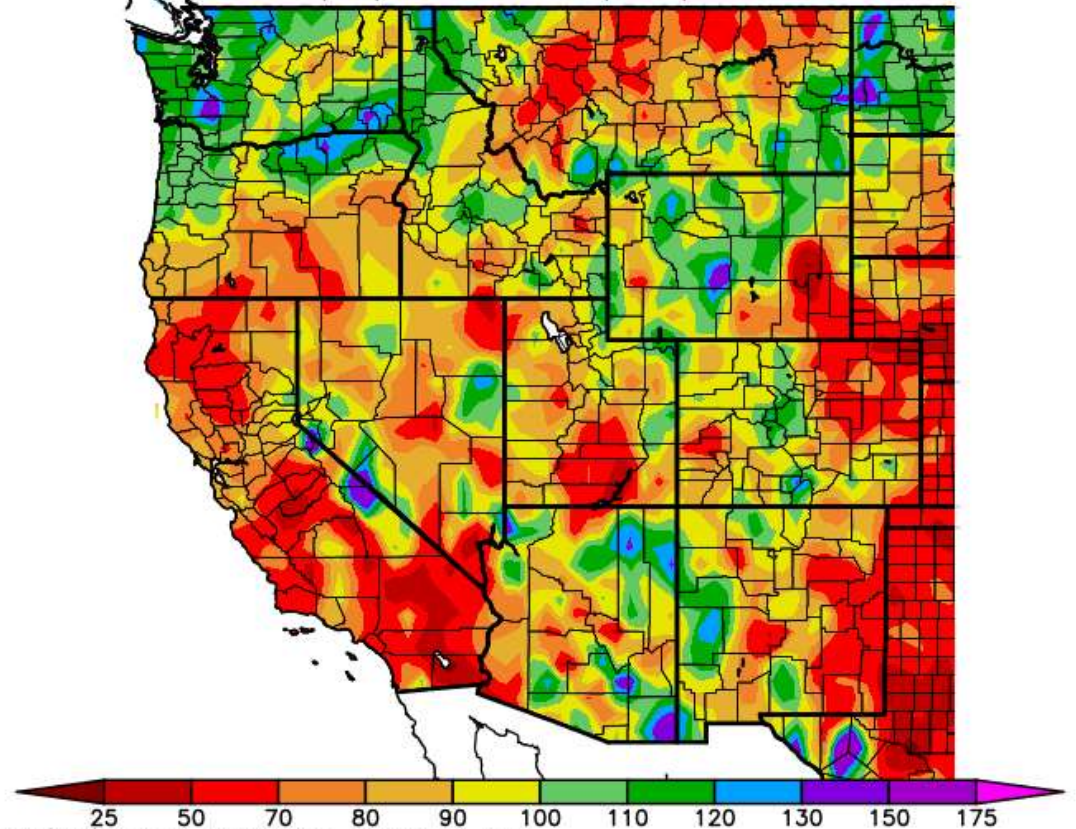
# Water Year 2022

Water year runs Oct 1- Sep 30 and is used to manage water.

Arizona shows some areas of average precipitation amounts for this water year (to date).



Percent of Average Precipitation (%)  
10/1/2021 - 9/19/2022



Generated 9/20/2022 at WRCC using provisional data.  
NOAA Regional Climate Centers

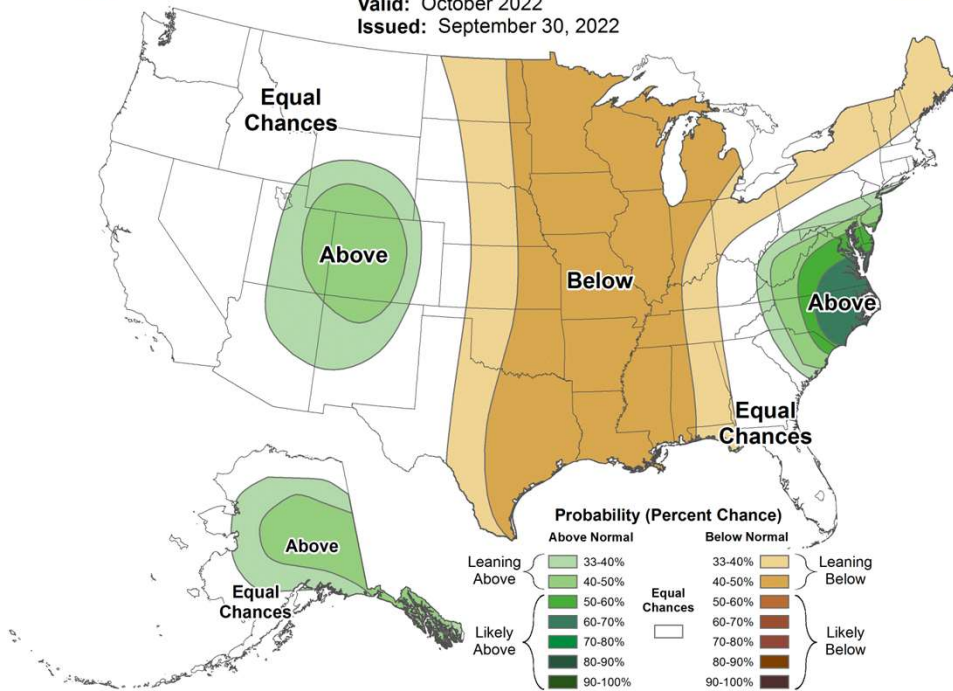
Since 1994, Arizona has only had 7 years of above-average water year precipitation (compared to the long-term average).



# Monthly Precipitation Outlook



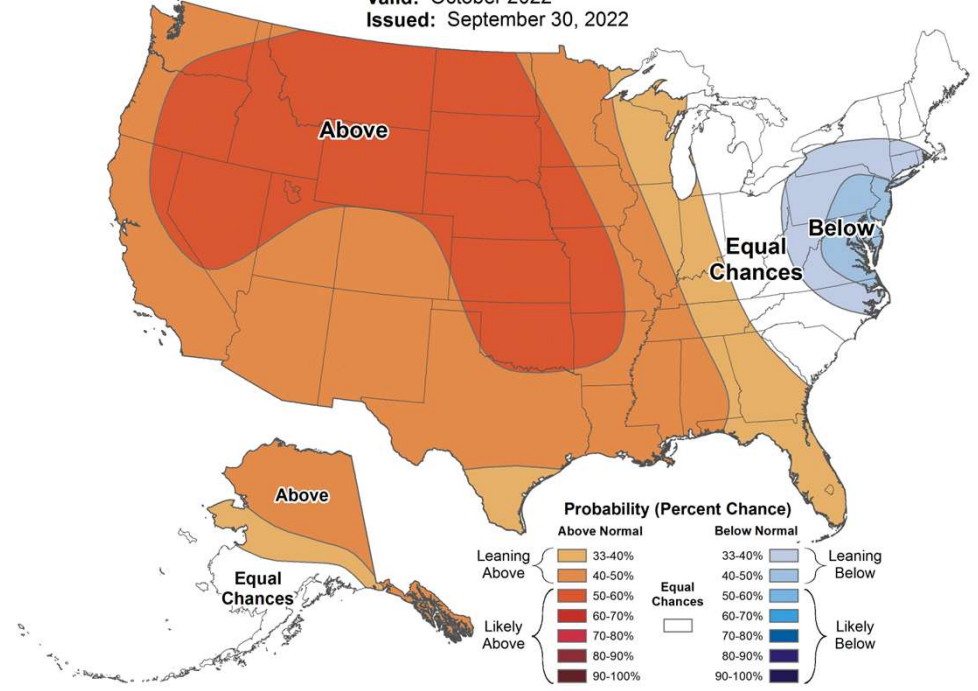
Valid: October 2022  
Issued: September 30, 2022



# Monthly Temperature Outlook



Valid: October 2022  
Issued: September 30, 2022



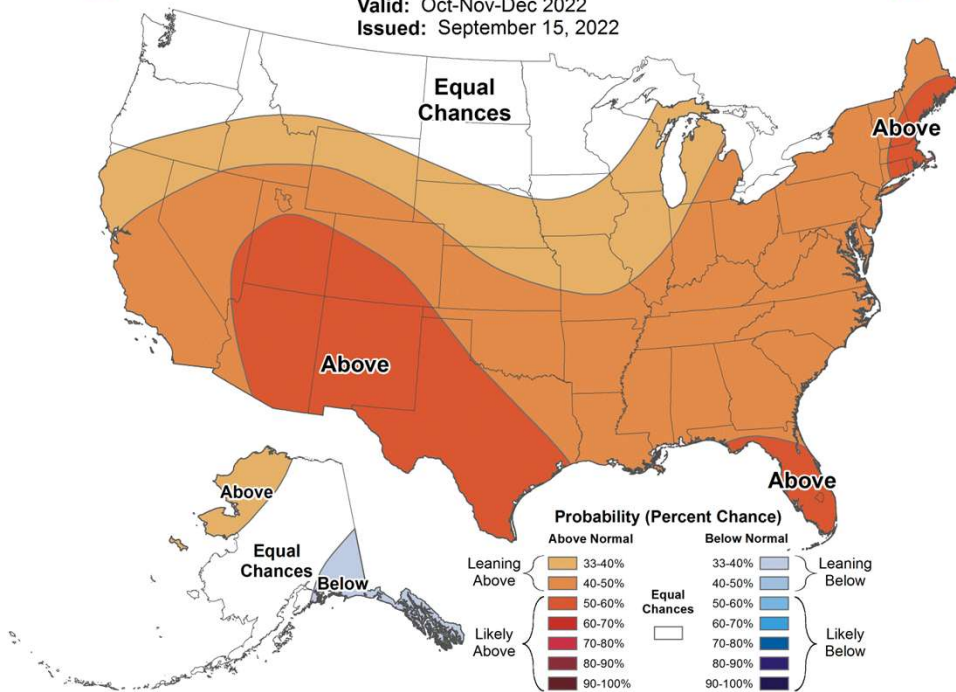




# Seasonal Temperature Outlook



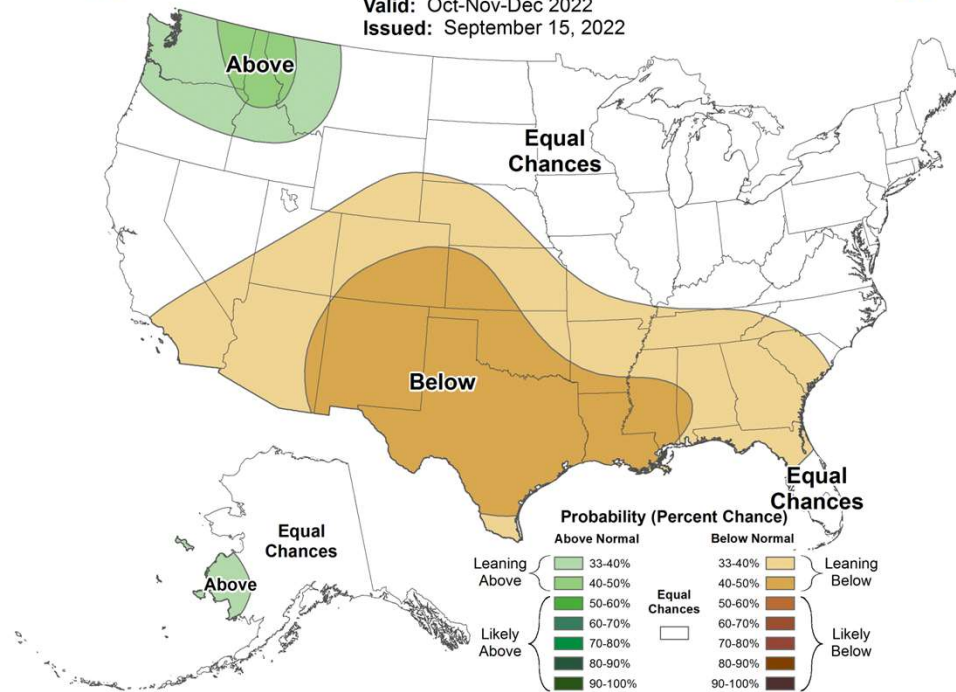
Valid: Oct-Nov-Dec 2022  
Issued: September 15, 2022



# Seasonal Precipitation Outlook



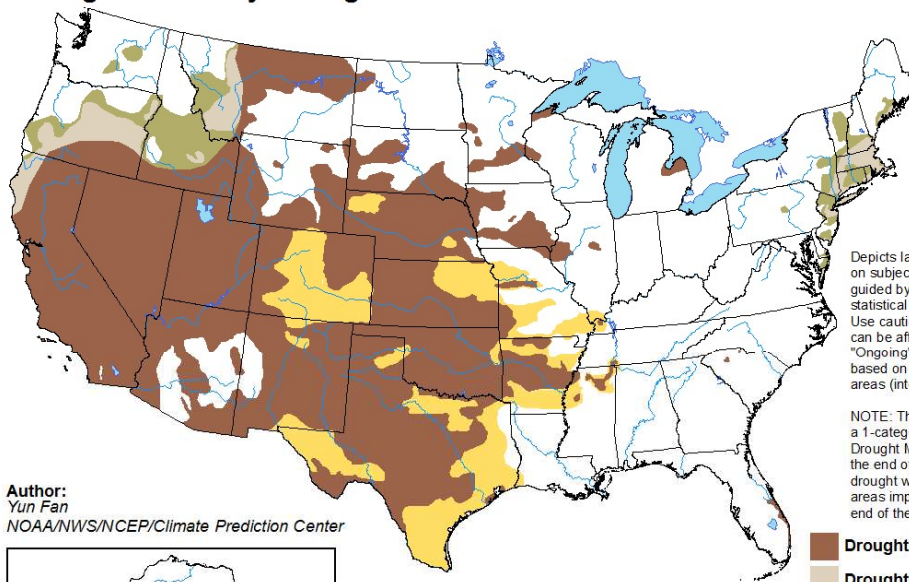
Valid: Oct-Nov-Dec 2022  
Issued: September 15, 2022



# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

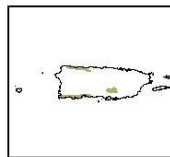
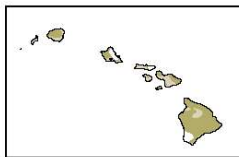
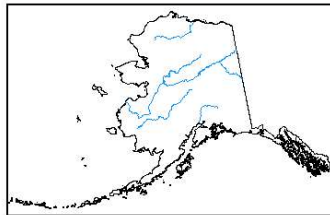
Valid for September 15 - December 31, 2022  
Released September 15



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).

Author:  
Yun Fan  
NOAA/NWS/NCEP/Climate Prediction Center



- Drought persists**
- Drought remains but improves**
- Drought removal likely**
- Drought development likely**



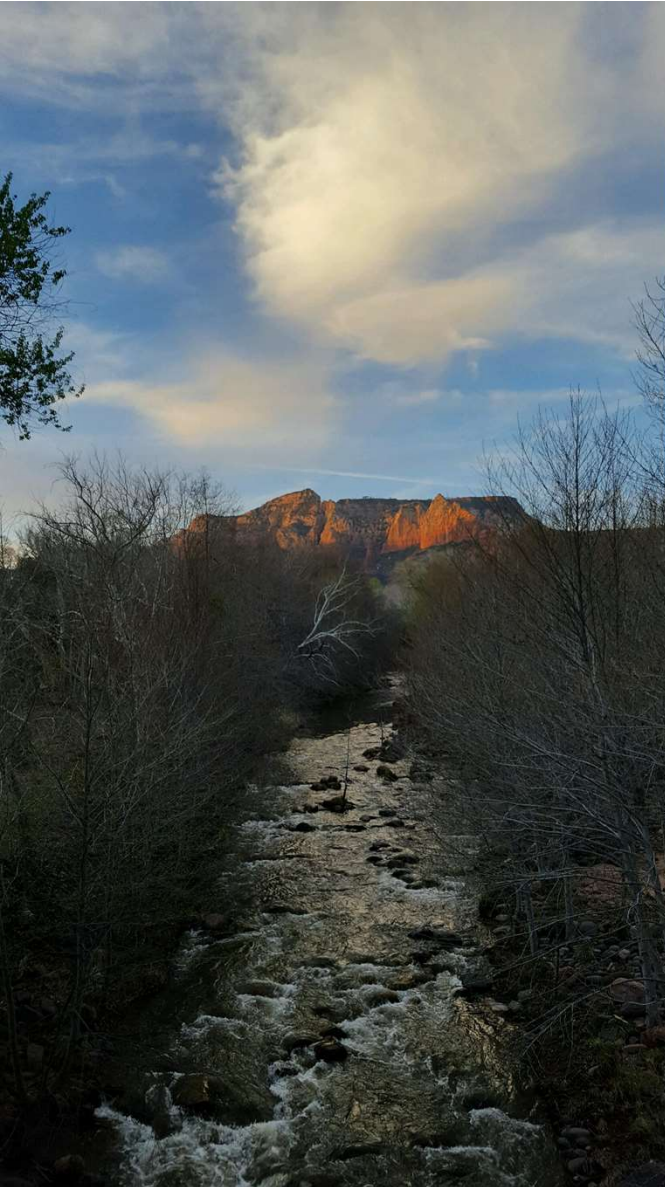
<http://go.usa.gov/3eZ73>

## Summary

Arizona and New Mexico experienced an active monsoon season, which has assisted short-term drought.

However, long-term drought persists.





# Dr. Erinanne Saffell

## Arizona State Climatologist

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Julie Ann Wrigley Global Futures Laboratory

Arizona State Climate Office Director

Senior Global Futures Scientist

Senior Lecturer

Monsoon 2022 officially began June 15 and will end on September 30, so these reports only encompass some portions of the monsoon season. Data are considered preliminary.