

## INTRODUCTION

Farming or ranching can be a risky business. When production and markets come together just right, producers can breathe a little easier. While extreme, localized weather events are hard to predict, the National Weather Service (NWS) Climate Prediction Center (CPC) Climate Outlooks can be used to better understand weather trends. These long-range products indicate general weather patterns in the weeks and months ahead.

Climate Outlooks provide insight into precipitation and temperature trends in the weeks and months ahead throughout the United States. They indicate shifts between warmer or cooler temperatures, or wetter or dryer patterns. Producers can use these outlooks to adjust crops or grazing to better position themselves for general weather trends.

## OUTLOOK PROBABILITY

Climate Outlooks are produced by the Climate Prediction Center for time spans of weeks to months ahead. Outlook maps show the probability of being in one of three categories: above normal, near normal, or below normal. Temperature and precipitation above, near, and below normal classes are set by dividing the 30-year climate record into the 10 wettest or warmest years, the 10 midrange years for precipitation or temperature, and the 10 driest or coolest years. Climatological normals will be based on the years from 1981 to 2010 until the 1991 to 2020 data are available. The midrange years are considered near normal years.

Probabilities indicate the likelihood average temperatures or total precipitation will be in one of the three categories, referred to as class by the National Weather Service. Probabilities do not indicate high or low range within the predicted category. Temperature probabilities are based on average temperature over the product's date range. Precipitation probabilities are based on total precipitation over the product's date range.

## KEY POINTS

- Overview of multi-week, monthly, and seasonal National Weather Service Climate Prediction Center Climate Outlooks.
- How to interpret National Weather Service Climate Prediction Center Climate Outlooks.

## CLIMATE OUTLOOK PRODUCTS

- 6 to 10 Day Temperature and Precipitation Outlooks
- 8 to 14 Day Temperature and Precipitation Outlooks
- Week 3 to 4 Temperature and Precipitation Outlooks
- One-Month Temperature and Precipitation Outlooks
- Three-Month Temperature and Precipitation Outlooks
- Monthly and Seasonal Drought Outlooks



Figure 1: Wheat field during grain ripening. Photo by Albert Sutherland

## OUTLOOK LOGIC

For three-category products, when the probability is equal chance for all three categories the probability is 33.3 percent for each category. As the probability increases for either an above- or below-normal weather trend, the midrange, near normal category remains at 33.3 percent, while the opposite category is reduced. When the probability of above or below normal reaches 63.33 percent, the opposite category reaches a minimum probability of 3.33 percent. If the probability goes higher than 63.33 percent, the midrange, near normal probability is reduced.

Probabilities are on a sliding scale. The graph in Figure 2 indicates general shifts as probabilities shift to higher or lower chances of warmer or cooler, or dryer or wetter conditions.

One way to use the outlooks is to consider the probability that above- or below-normal conditions will not occur. To look at the probability of what will not happen, refer to the smallest graph bar. When there is an equal chance between all three categories, there is no indication of a likely weather trend. As the probabilities increase for wetter or dryer, warm or cooler, the opposite temperature or precipitation trend becomes less likely. For example, when the probability of above-normal precipitation hits 53.3 percent, the chance of near normal is 33.3 percent, while the chance of below normal is only 13.3 percent.

Two-class product logic is simpler. When the probability of above or below normal conditions exist, the alternative is the probability subtracted from 100. For a probability of 60 percent, the opposite is 40 percent. When it is 70 percent, the opposite is 30 percent. Equal

chance for two-class products are areas where there is a 50/50 chance of above or below normal conditions.

## OUTLOOK PRODUCTS

Probabilities do not indicate the distribution within the period or the degree of departure. Probabilities only indicate the likelihood of being within a temperature or precipitation class. National Weather Service Climate Prediction Center Climate Outlooks do not include the possibility of extreme weather events.

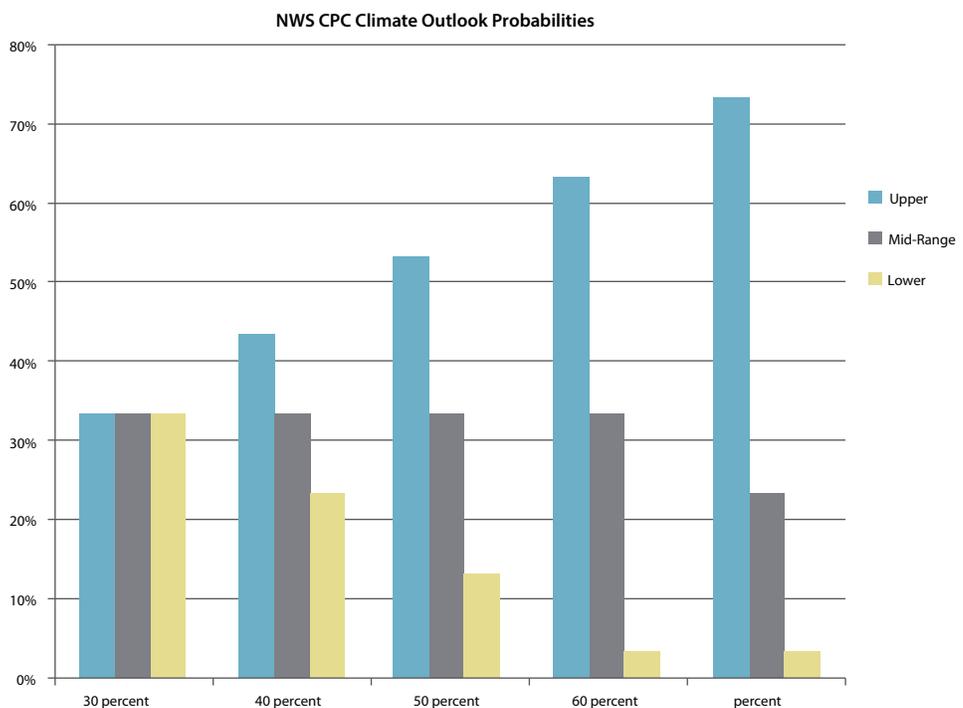
Equal chance (EC) on most outlook maps means there is an equal probability for above normal, near normal, or below normal conditions. When an area is designated as equal chance, no weather trend is more likely than another. Colored shading is used to highlight areas with above (A) or below (B) normal probabilities. Maps show probability lines with increased probabilities of above or below normal trends over the time scale of the map.

Newer two-class products, such as the 3 to 4 Week Temperature and Precipitation Outlooks, use equal chance for areas where the probability of above (A) or below (B) average conditions are 50/50. Shaded areas show the probability shift of above or below average conditions.

## 6 TO 10 DAY OUTLOOKS

The 6 to 10 Day Outlook (Figure 3) is updated daily. “N” indicates a higher probability for near normal conditions, although it is capped at 40 percent probability. Dashed black lines across this temperature outlook are the 30-year climatological daily averages in degrees Fahrenheit over the 6 to 10 day period listed. Temperature averages generally run east to west across the nation.

Figure 2 – Graph of Climate Prediction Center three-class outlook percent probabilities



Dashed black lines on the precipitation outlook maps indicate climatological rainfall for the dates listed in tenths of an inch and generally run north to south.

### 8 TO 14 DAY OUTLOOKS

The 8 to 14 Day Outlooks (Figure 4) have the same probability and map designations as the 6 to 10 Day Outlooks. They are updated daily.

### 3 TO 4 WEEK OUTLOOKS

3 to 4 Week Outlooks (Figure 5) use a two-class probability scale. The “EC” on maps means a 50/50 chance of being above or below the climatological normal for temperature or precipitation. New 3 to 4 Week Outlooks are released each Friday.

### ONE-MONTH OUTLOOKS

One-Month Outlooks (Figure 6) are issued on the third Thursday of each month for the next calendar month. The third Thursday outlook is updated again on the last day of each month.

### THREE-MONTH OUTLOOKS

Three-Month Outlooks (Figure 7) cover three calendar months. The three calendar months covered by an outlook map are indicated by a three-letter code. For example, JFM is January, February, and March and FMA is February, March, and April. New Three-Month Outlooks are released on the third Thursday of each month. Color shaded areas are above normal or below normal probabilities.

Probabilities do not indicate the distribution within the period or the degree of departure. For example, the sample Three-Month Outlook for November, December, and January could be the result of a much warmer November, with near normal temperatures in December and slightly colder than normal temperatures in January or it could be much warmer in all three months. A Three-Month Outlook of increased odds for drier than normal conditions does not take into account the possibility of an extreme precipitation event, which could occur within overall dry conditions.

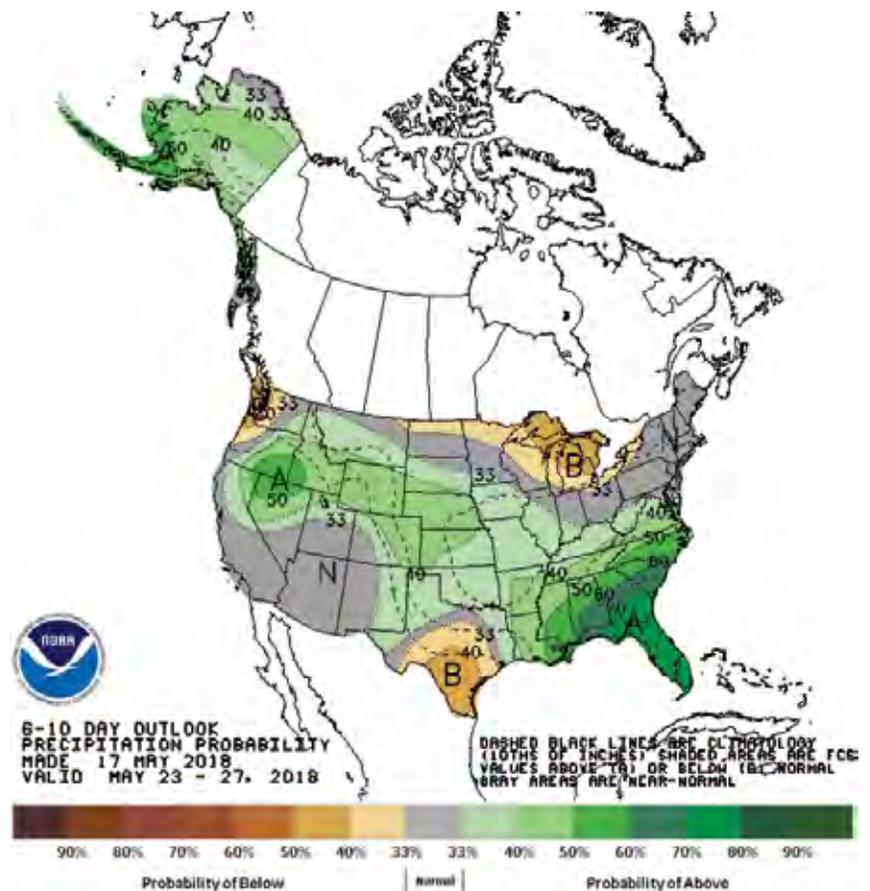


Figure 3 – Climate Prediction Center 6 to 10 Day Temperature Outlook

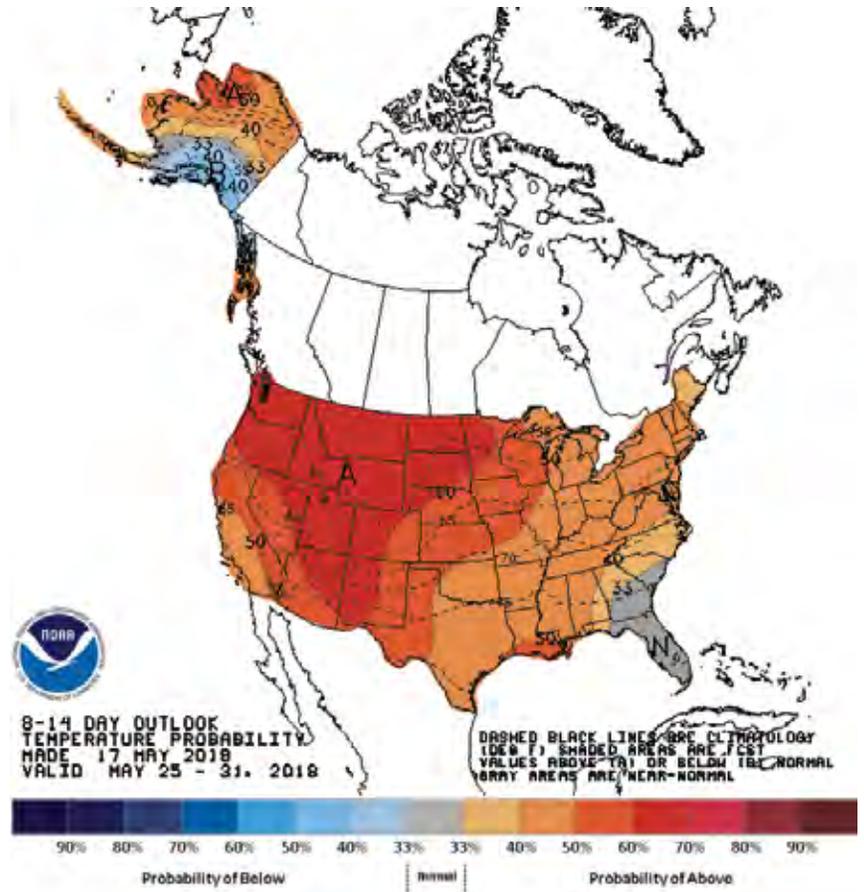


Figure 4 – Climate Prediction Center 8 to 14 Day Precipitation Outlook

## MONTHLY AND SEASONAL DROUGHT OUTLOOKS

Monthly drought outlooks (Figure 8) are updated at the end of each month and are valid for the following month. The Seasonal Drought Outlook covers the next full three months and remainder of the month it was released in. Seasonal Drought Outlooks are updated close to the third Thursday of each month. There are four drought map categories: 1) drought persists, 2) drought remains but improves, 3) drought removal likely, and 4) drought development likely.

## EXPERIMENTAL OUTLOOKS

Experimental One-Month and Three-Month Two-Class Outlooks use the same probability format as the 3 to 4 Week Temperature and Precipitation Outlooks. These experimental two-class temperature and precipitation outlooks give the probability of being above or below the climatological normal. Equal chance on these maps means a 50/50 chance for above or below normal weather conditions. They are released close to the 20th of each month.

## MORE ON THIS TOPIC

- 6 to 10 Day and 8 to 14 Day explanation of map terms and symbols along with forecast discussion.  
[www.cpc.noaa.gov/products/predictions/610day/](http://www.cpc.noaa.gov/products/predictions/610day/)
- Monthly and Seasonal Outlook description of forecast tools, forecast skill, and forecast format.  
[www.cpc.noaa.gov/products/predictions/long\\_range/tools.html](http://www.cpc.noaa.gov/products/predictions/long_range/tools.html)
- Experimental Two-Class One- and Three-Month Outlooks.  
[www.cpc.ncep.noaa.gov/products/predictions/long\\_range/two\\_class.php](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/two_class.php)
- IRI ENSO Forecast summary of El Niño and La Niña conditions  
[iri.columbia.edu/our-expertise/climate/forecasts/enso/current/](http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/)
- NOAA Climate.gov El Niño and La Niña status and background.  
[www.climate.gov/enso](http://www.climate.gov/enso)

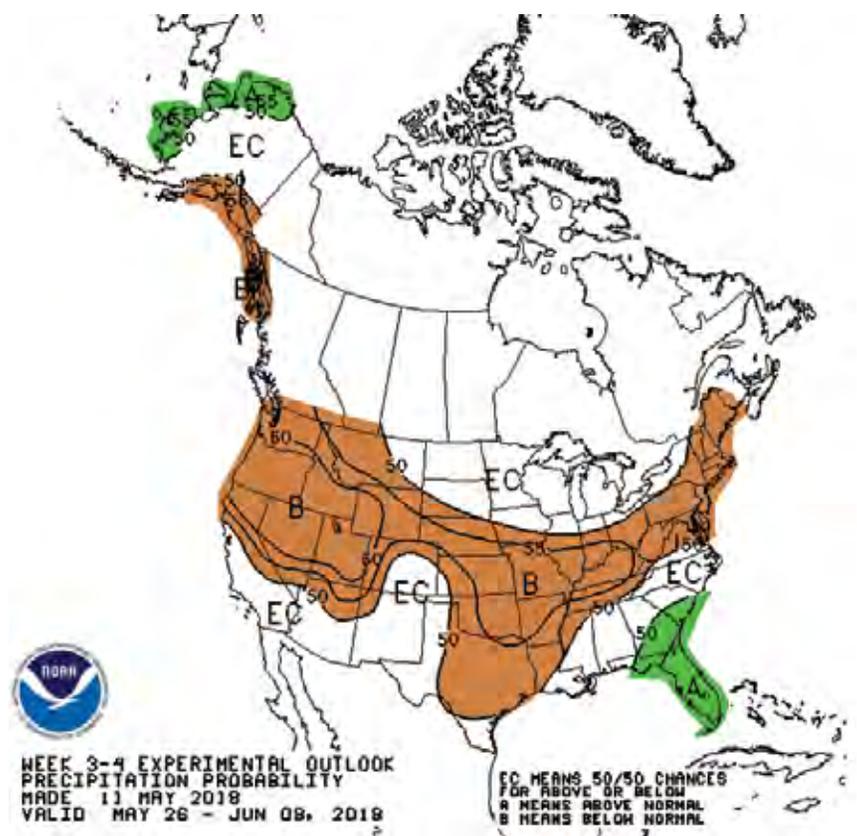


Figure 5 – Climate Prediction Center Week 3 to 4 Experimental Precipitation Outlook

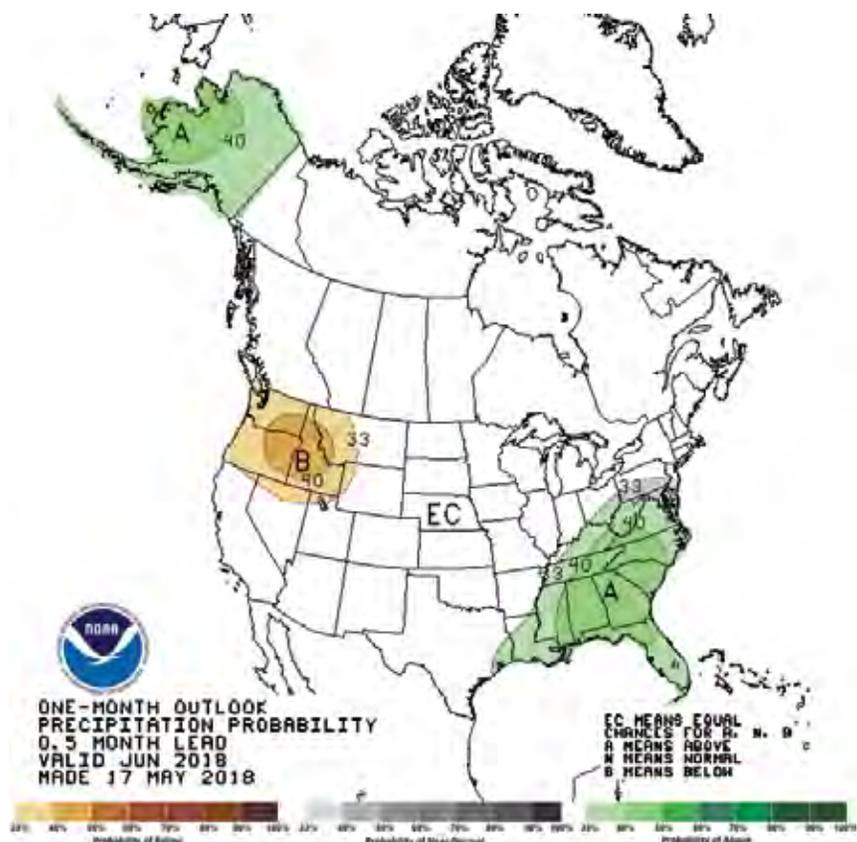


Figure 6 – Climate Prediction Center One-Month Precipitation Outlook

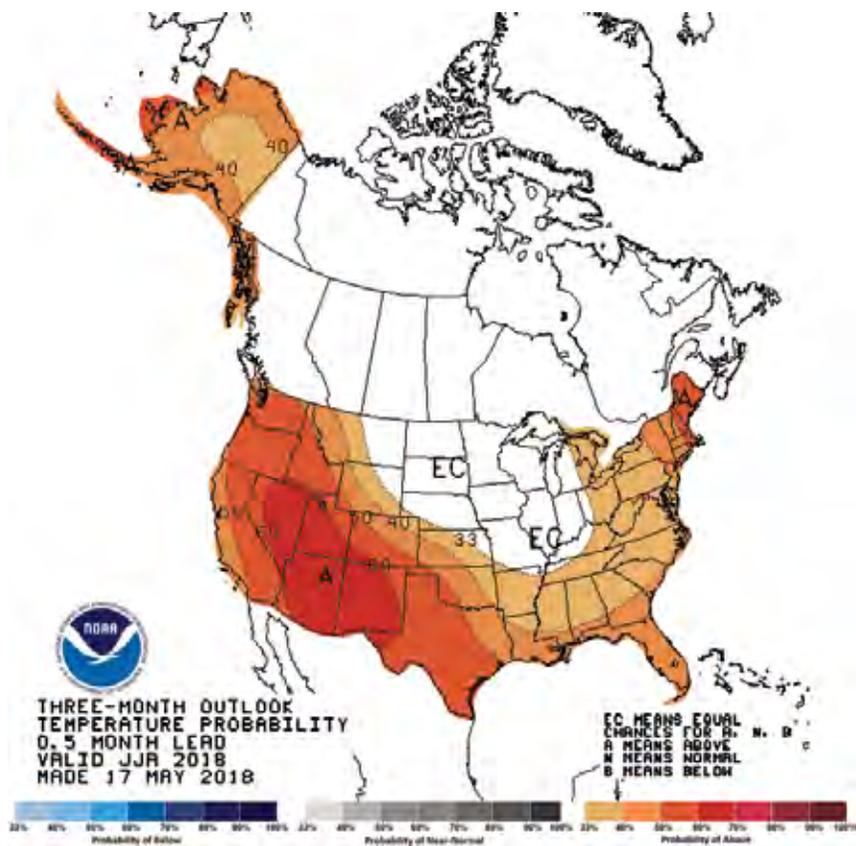


Figure 7 – Climate Prediction Center One-Month Temperature Outlook

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

Valid for May 17 - August 31, 2018  
Released May 17, 2018

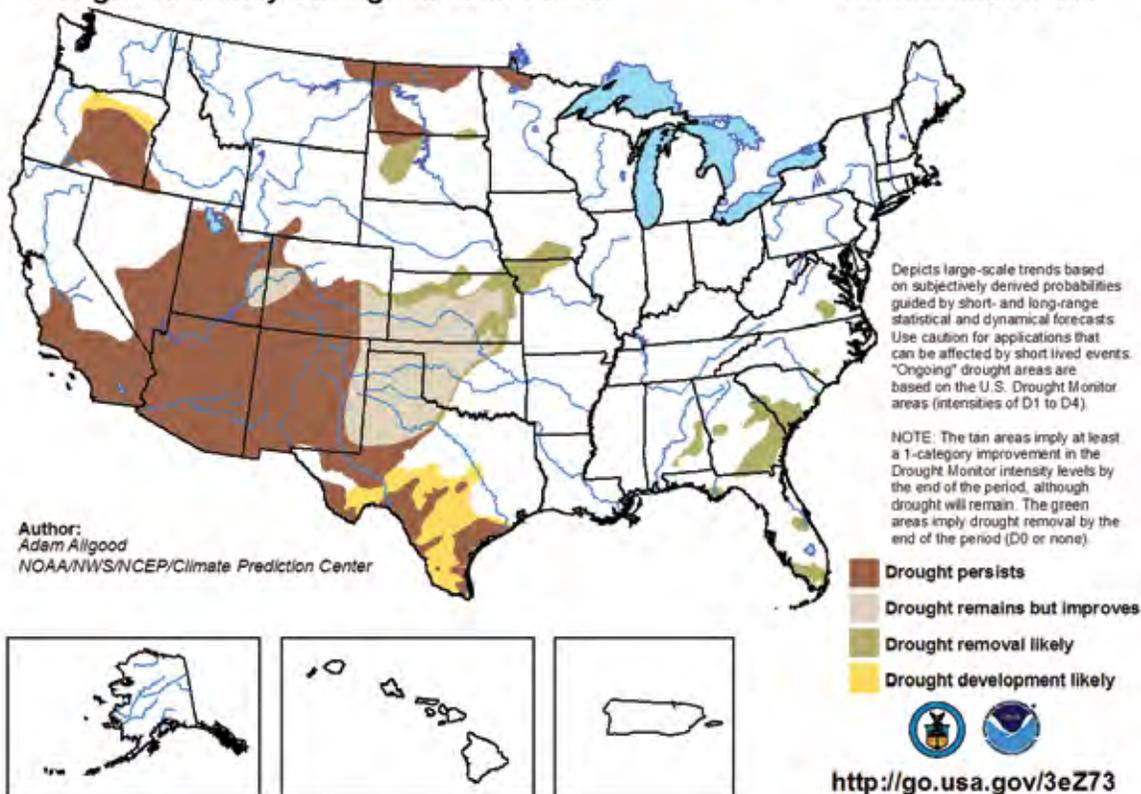


Figure No 8 – Climate Prediction Center Seasonal Drought Outlook

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## THESE RESOURCES AND OTHERS CAN BE FOUND AT:

*bookstore.ksre.ksu.edu*  
*factsheets.okstate.edu*  
*greatplainsgrazing.org*

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