

# Midwest and Great Plains Climate and Drought Outlook

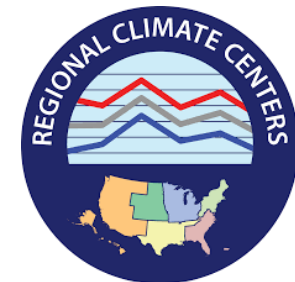
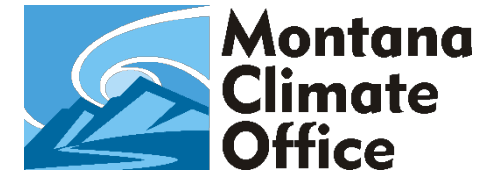
Thursday, June 20, 2019

Kelsey Jencso

Montana State Climatologist

[Kelsey.Jencso@umontana.edu](mailto:Kelsey.Jencso@umontana.edu)

406.243.6793



# General Information

Regional climate services for the North Central U.S., including the Great Plains and Midwest, are provided through partnerships among federal, regional, and state partners:

- National Oceanic and Atmospheric Administration
- U.S. Department of Agriculture
- National Drought Mitigation Center
- Midwestern Regional Climate Center
- American Association of State Climatologists
- State Drought Task Forces

Next webinar: On July 18<sup>th</sup>

Archive of past webinars:

- [hprcc.unl.edu/webinars](http://hprcc.unl.edu/webinars)
- [drought.gov/drought/calendar/webinars](http://drought.gov/drought/calendar/webinars)

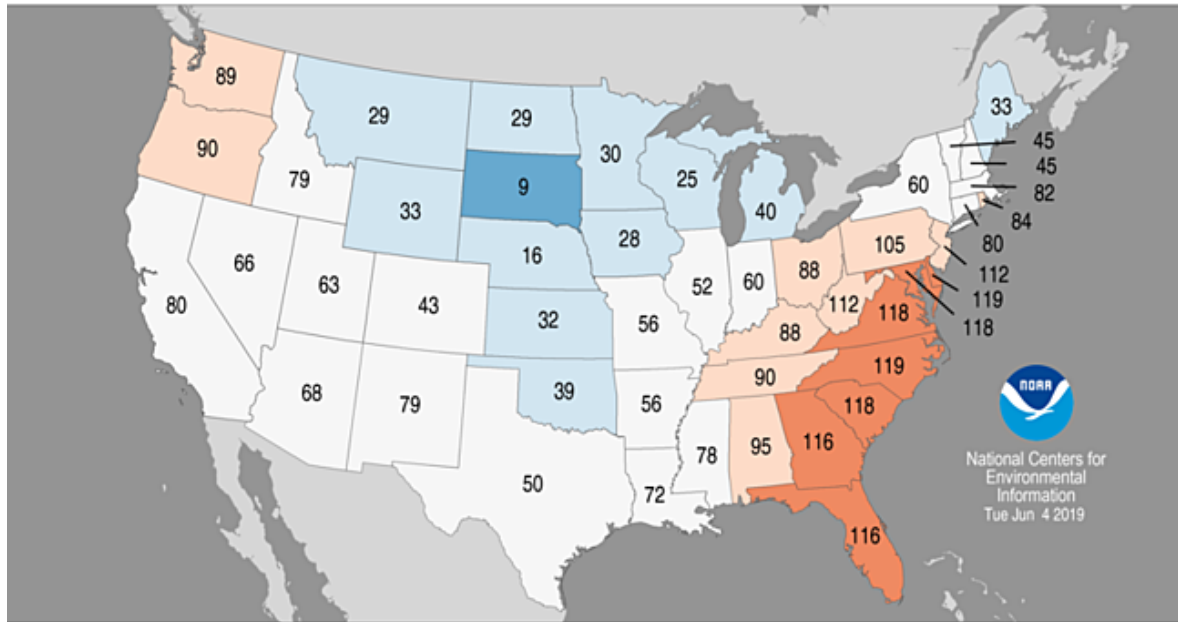
# Agenda

1. Current climate conditions in a historical context
2. Current and prospective climate impacts
3. Climate outlooks
4. Questions and Discussion

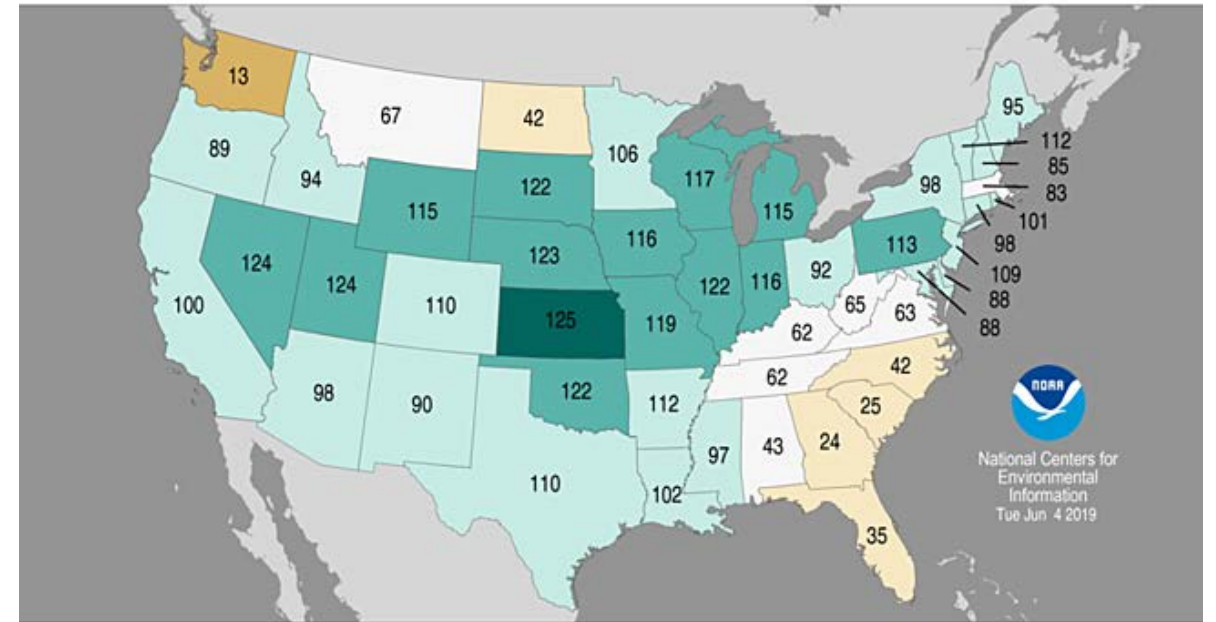


# State Ranks: March - May

Statewide Average Temperature Ranks  
March-May 2019  
Period: 1895-2019



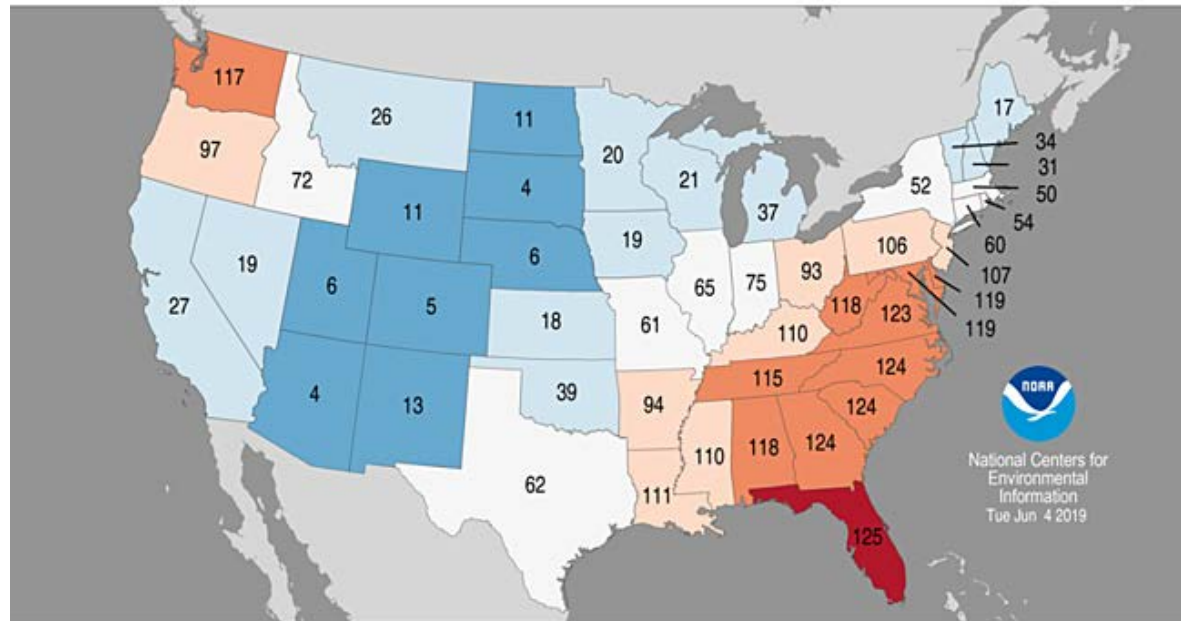
Statewide Precipitation Ranks  
March-May 2019  
Period: 1895-2019



# State Ranks: May

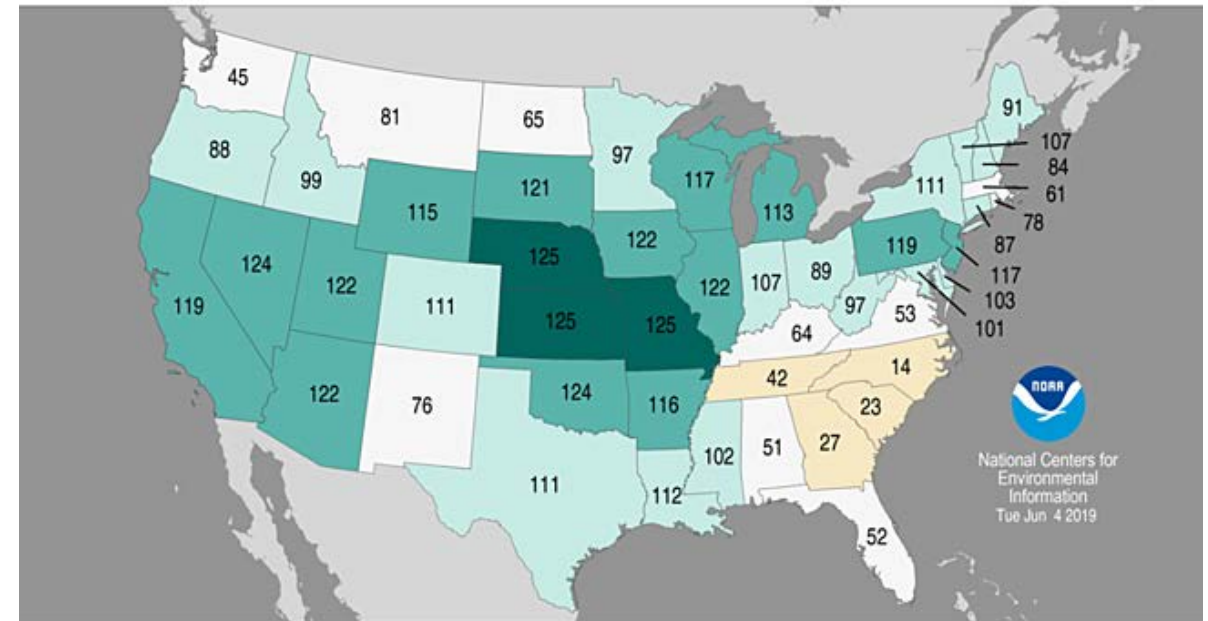
## Statewide Average Temperature Ranks

May 2019  
Period: 1895-2019



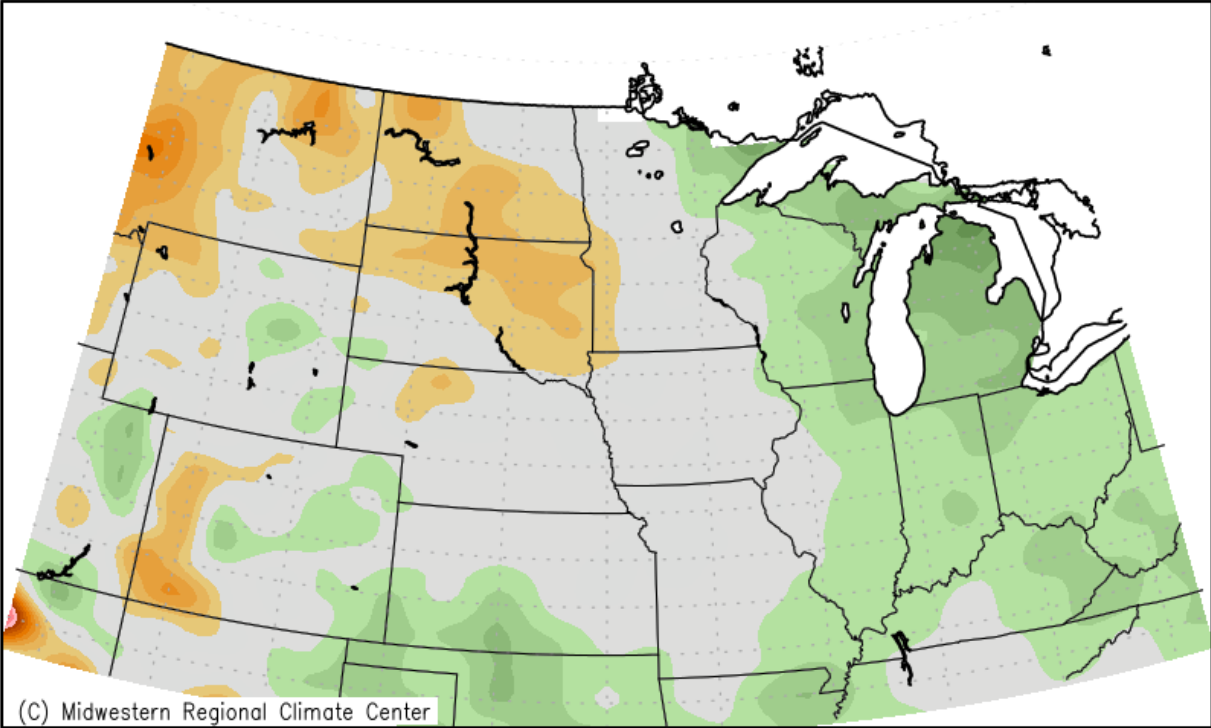
## Statewide Precipitation Ranks

May 2019  
Period: 1895-2019



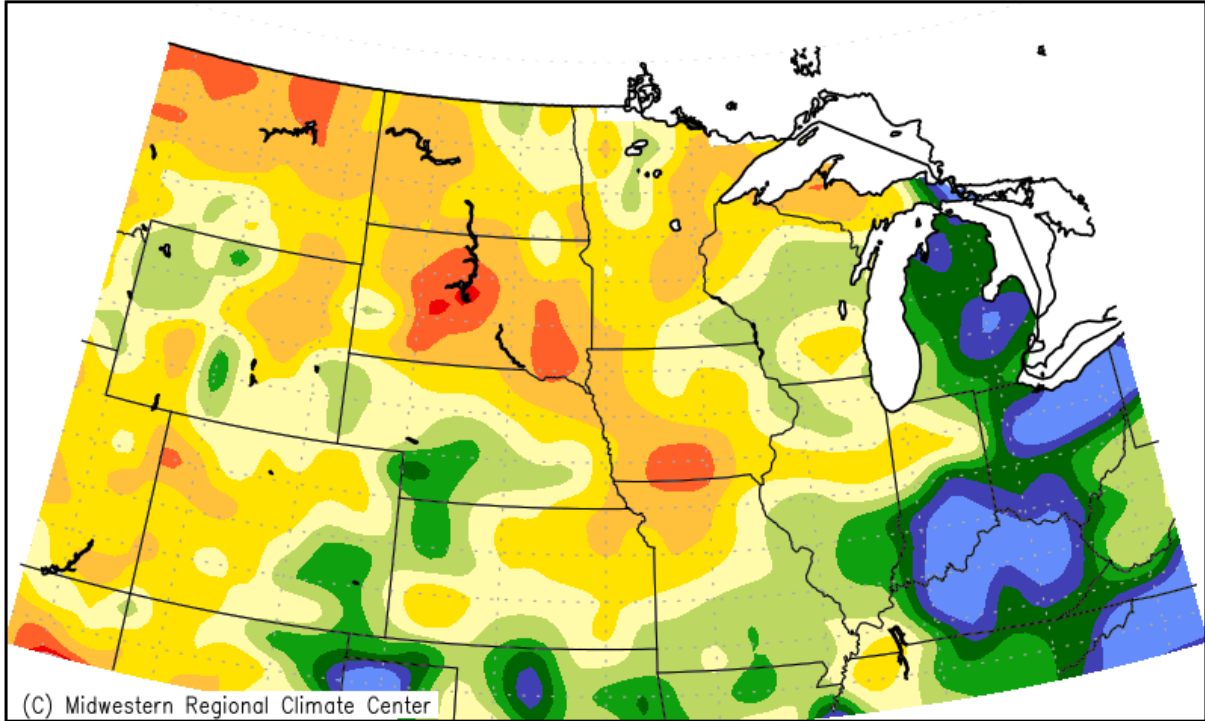
# June: Temperature departure from mean

Average Temperature (°F): Departure from Mean  
June 1, 2019 to June 18, 2019

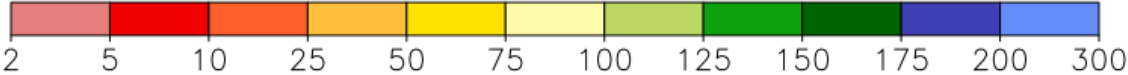


# June: Precipitation percent of mean

Accumulated Precipitation: Percent of Mean  
June 1, 2019 to June 18, 2019



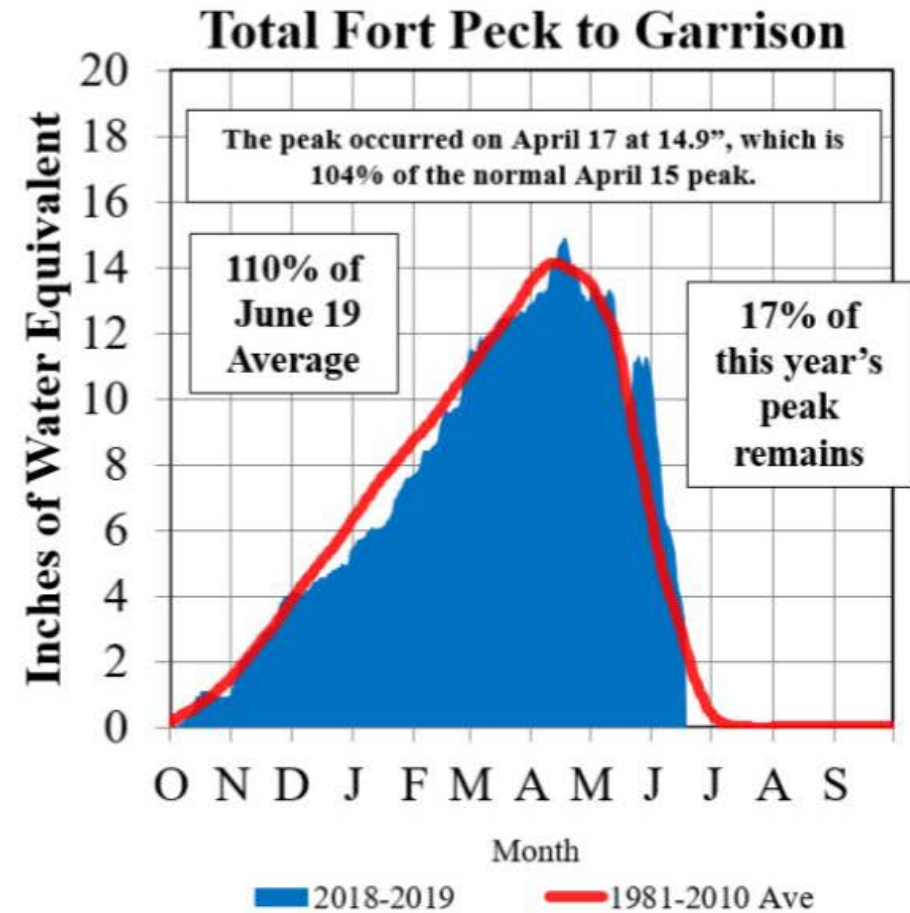
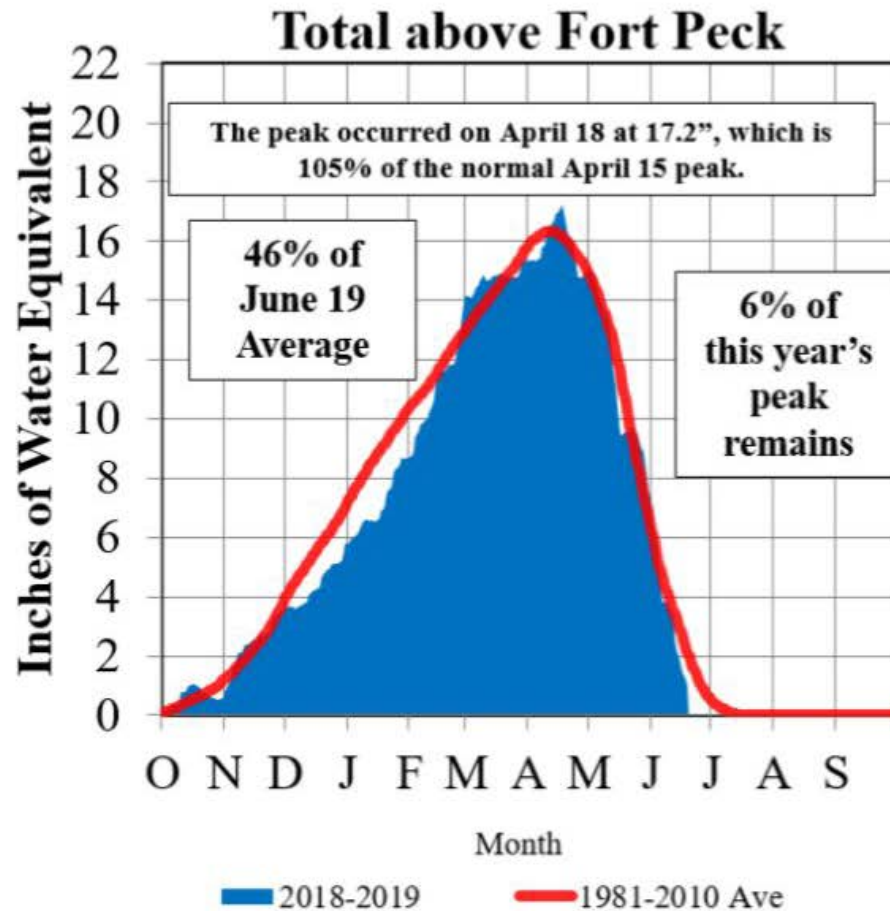
Mean period is 1981–2010.



Midwestern Regional Climate Center

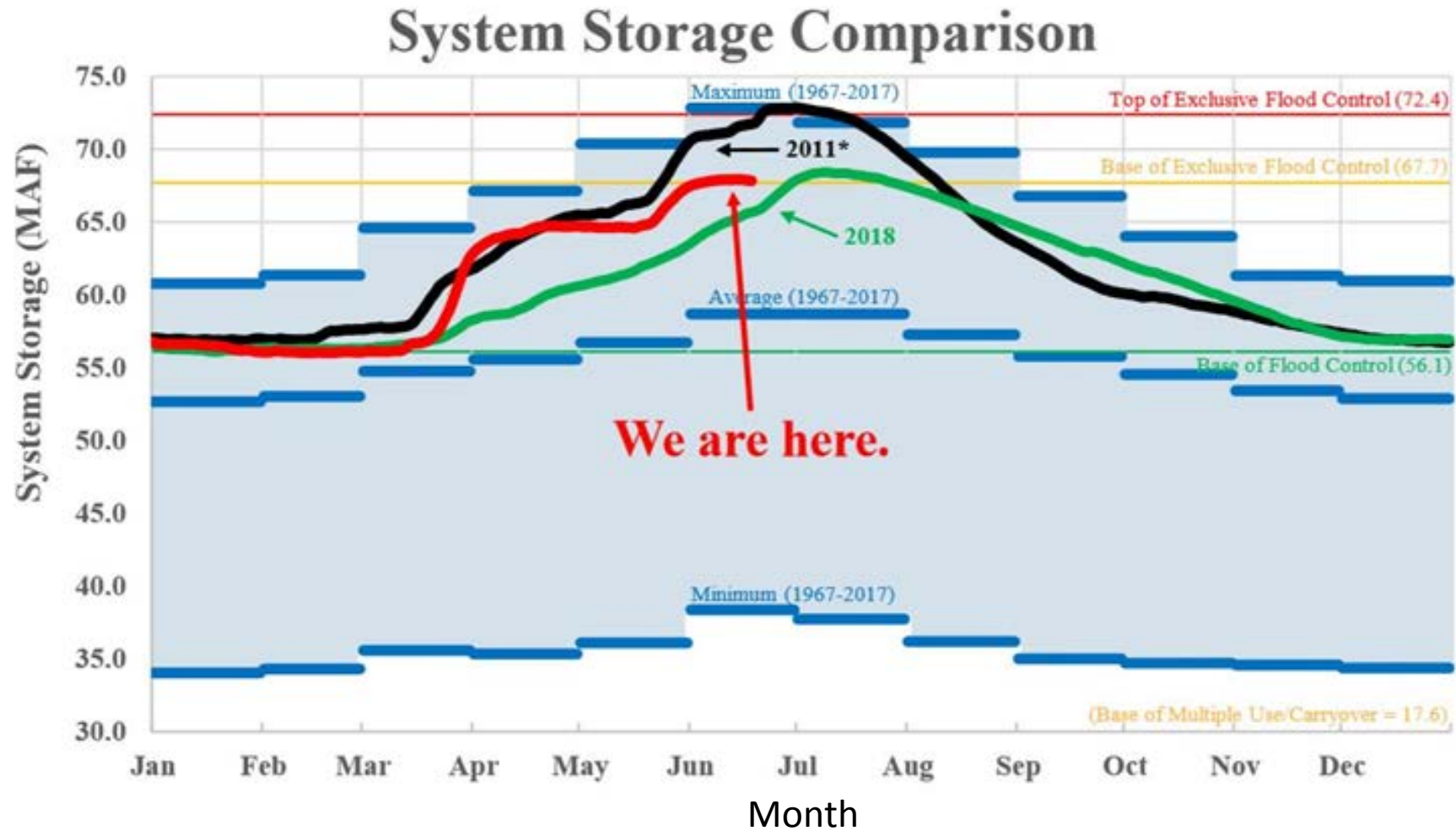
# Missouri River Basin - Mountain Snowpack Water Content

June 19, 2019



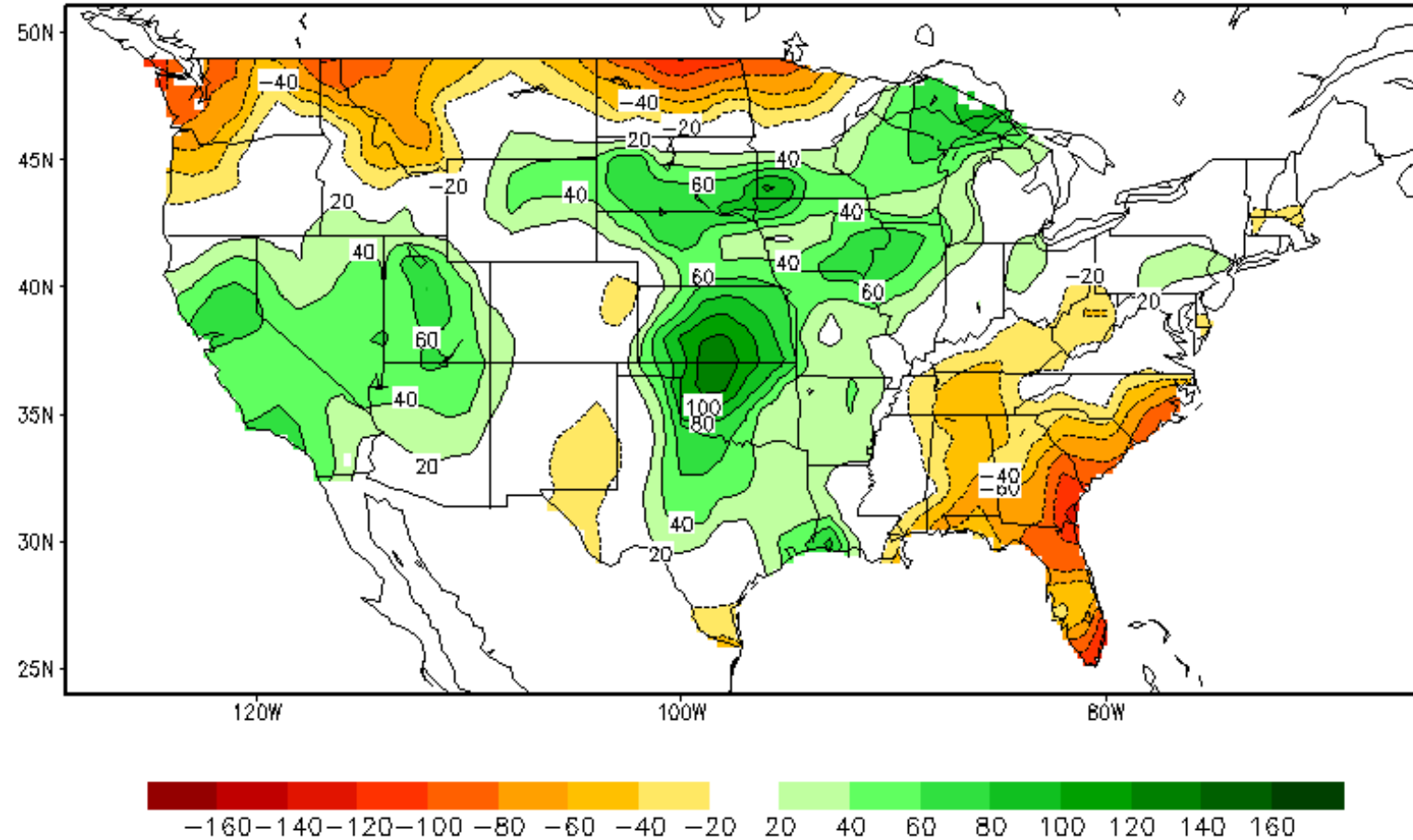


# Upper Missouri Reservoir Storage Comparison



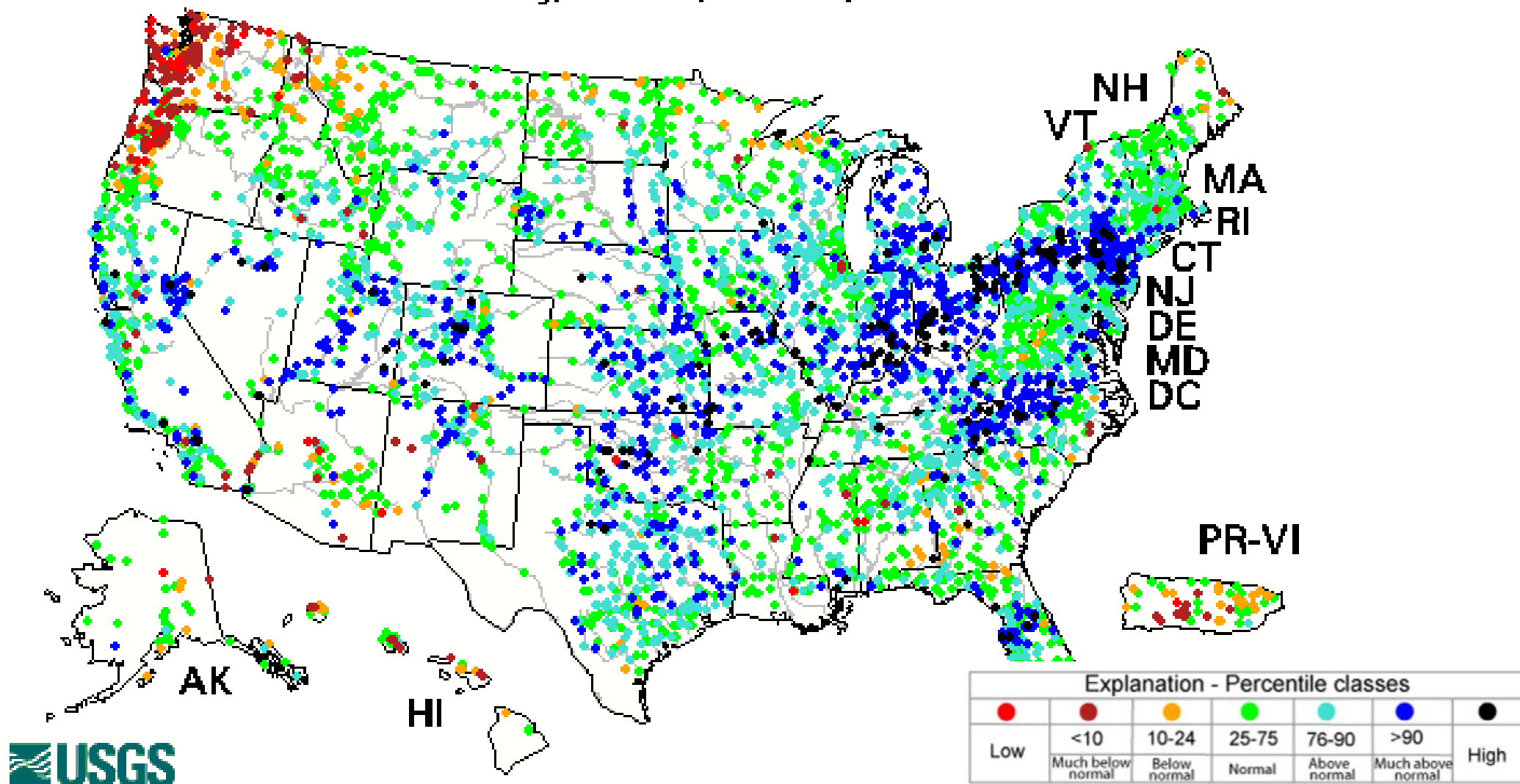
# Soil Moisture

Calculated Soil Moisture Anomaly (mm)  
JUN 18, 2019



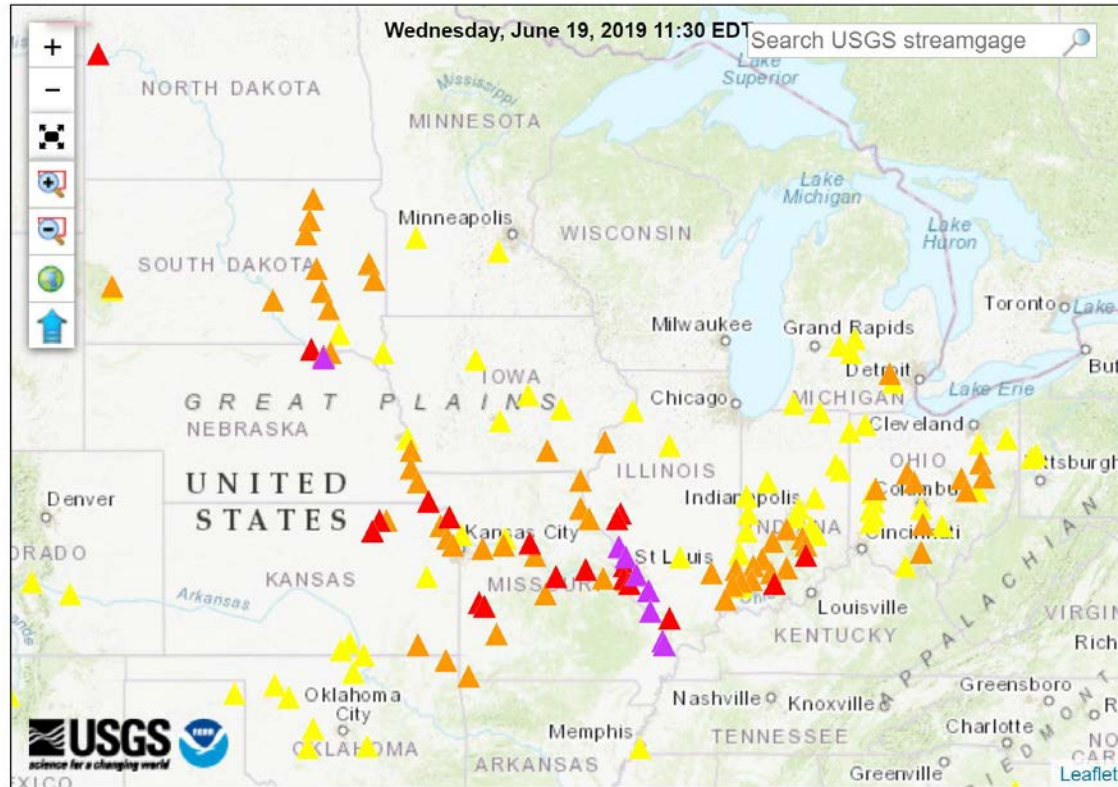
# Streamflow

Wednesday, June 19, 2019 22:30ET



# Current Flood Stages

(9 in major flood, 24 in moderate flood, 78 in minor flood, 99 in near flood)



Explanation - Percentile classes						
<95	95-98	>= 99	Above action stage	Above flood stage	Above moderate flood stage	Above major flood stage
△ Streamgage with flood stage			○ Streamgage without flood stage			

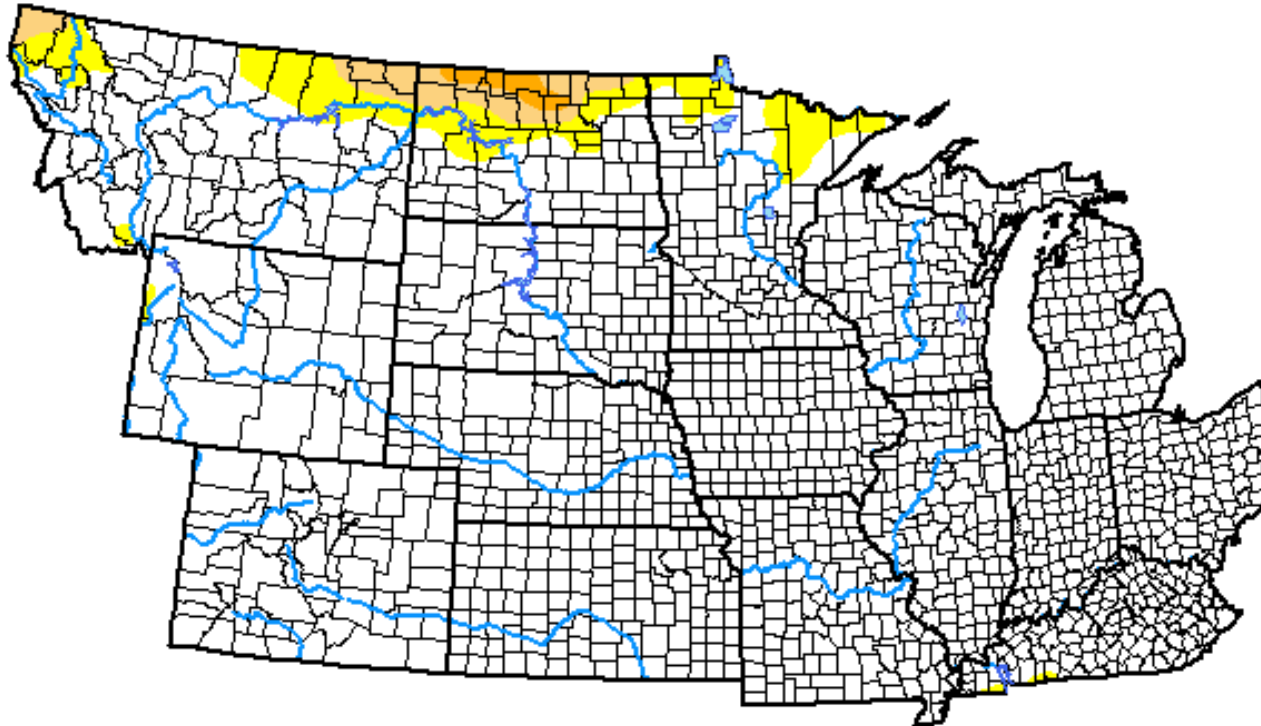


The Mississippi River at Rock Island was above flood stage for 96 days, shattering the previous record of 42 days set in 1993

Flows are receding but still high following one of the wettest 3 months on record across the Missouri, Mississippi and Ohio River Basins

# U.S. Drought Monitor NWS Central Region

**June 18, 2019**  
(Released Thursday, Jun. 20, 2019)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	93.45	6.55	1.98	0.42	0.00	0.00
<b>Last Week</b> <i>06-11-2019</i>	94.45	5.55	1.29	0.00	0.00	0.00
<b>3 Months Ago</b> <i>03-19-2019</i>	92.79	7.21	0.82	0.06	0.00	0.00
<b>Start of Calendar Year</b> <i>01-01-2019</i>	85.98	14.02	8.17	5.23	2.44	1.01
<b>Start of Water Year</b> <i>09-25-2018</i>	64.00	36.00	17.93	9.15	5.03	1.49
<b>One Year Ago</b> <i>06-19-2018</i>	69.55	30.45	15.88	8.30	3.59	0.70

Intensity:



*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

Author:

Brad Pugh  
CPC/NOAA

- Historically low drought coverage over the last 10 weeks!



# Impacts: Flooding



Photo: Tom Hawley, The Monroe News via AP

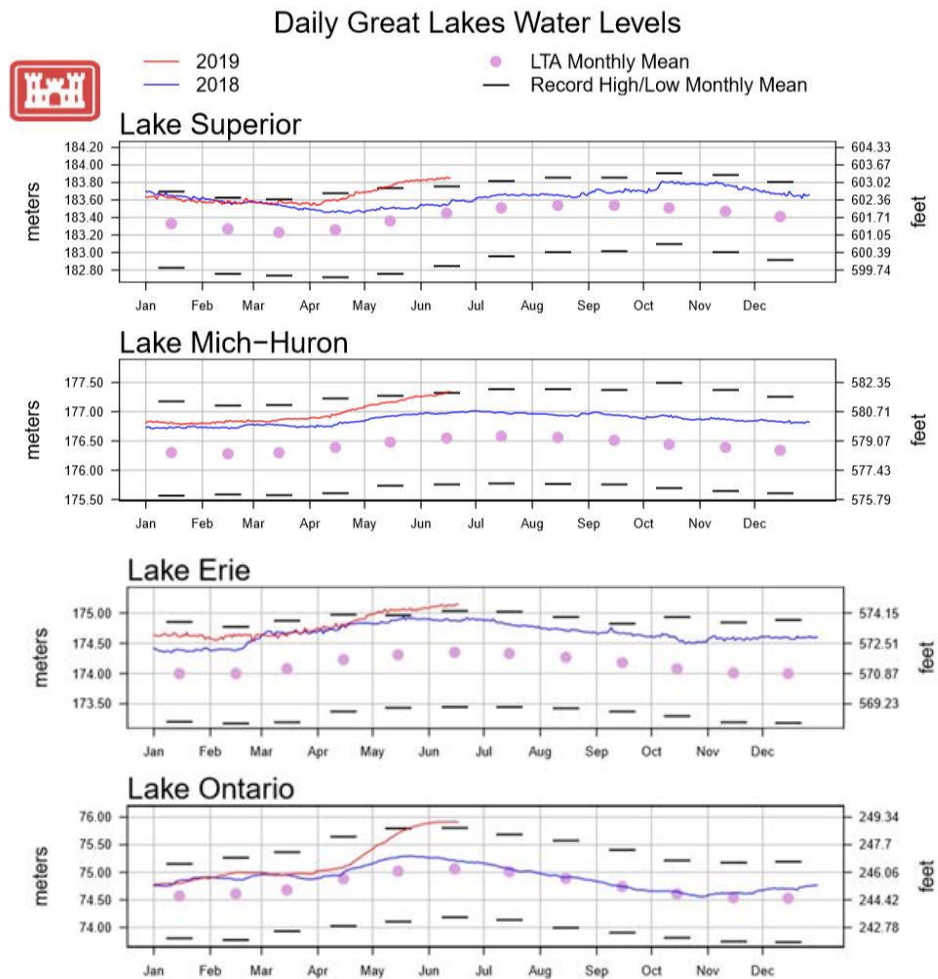


Photo: Laura Edwards

## Record precipitation in May and early June led to extensive flooding:

- At least 9 deaths
- Flooding of rivers and lakes has impacted homes, vehicles, navigation, roadways, railroads and water conveyance infrastructure across the region
- Record water levels in the Great Lakes combined with winds have led to storm surges and flooding of nearby homes and roads
- Significant erosion and nutrient export that are expected to cause harmful algal blooms in the Great Lakes and Gulf of Mexico
- Mosquito outbreaks in stagnant water bodies across the region

# Impacts: Flooding in the Great Lakes



- Record water levels that are expected to persist!

# Impacts: Agriculture Summary



Photo: Laura Edwards



Scott Olson/Getty Images via AP



Scott Olson/Getty Images via AP

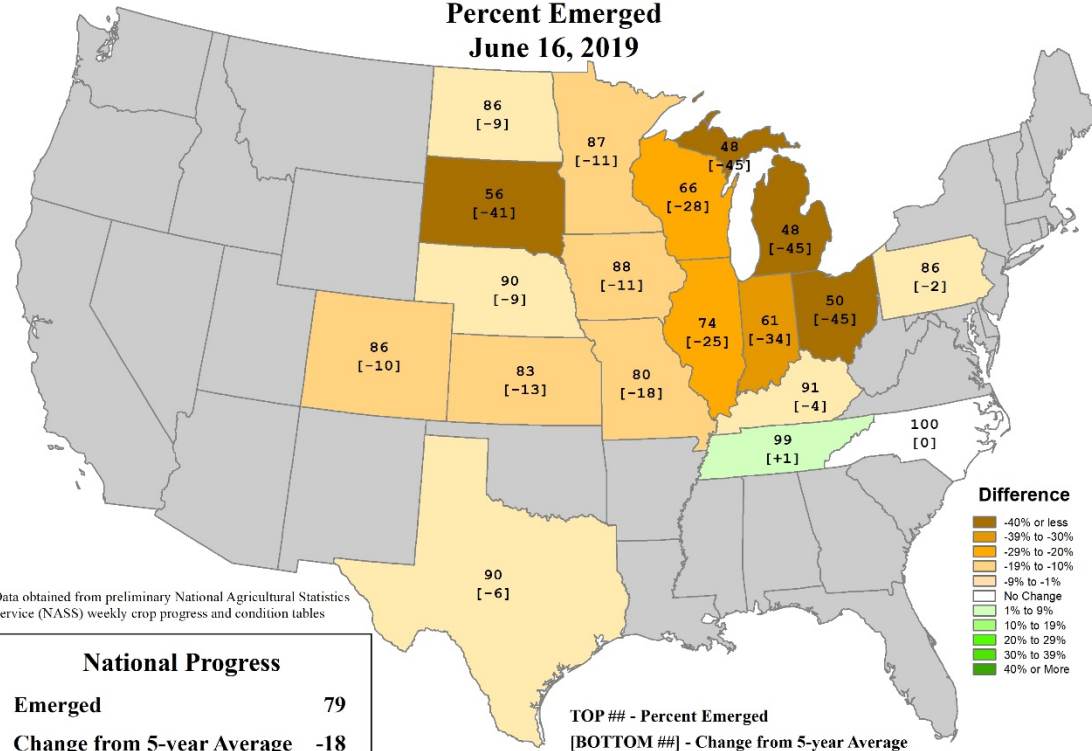
- Cold and wetness have delayed spring planting across the board.
- Development has also been delayed.
- Multiple millions of acres in the Midwest will not be planted due to wet conditions.
- Weeds are a problem because of delays getting into fields
- Crop diseases from ample moisture are widespread
- Crops not in great condition and will continue to struggle through the season unless we see near-perfect conditions
- Pasture and range are quite good except for ability to cut and dry hay
- Montana and North Dakota are beginning to experience dry conditions and impacts to rangeland forage and crops



# Impacts: Corn

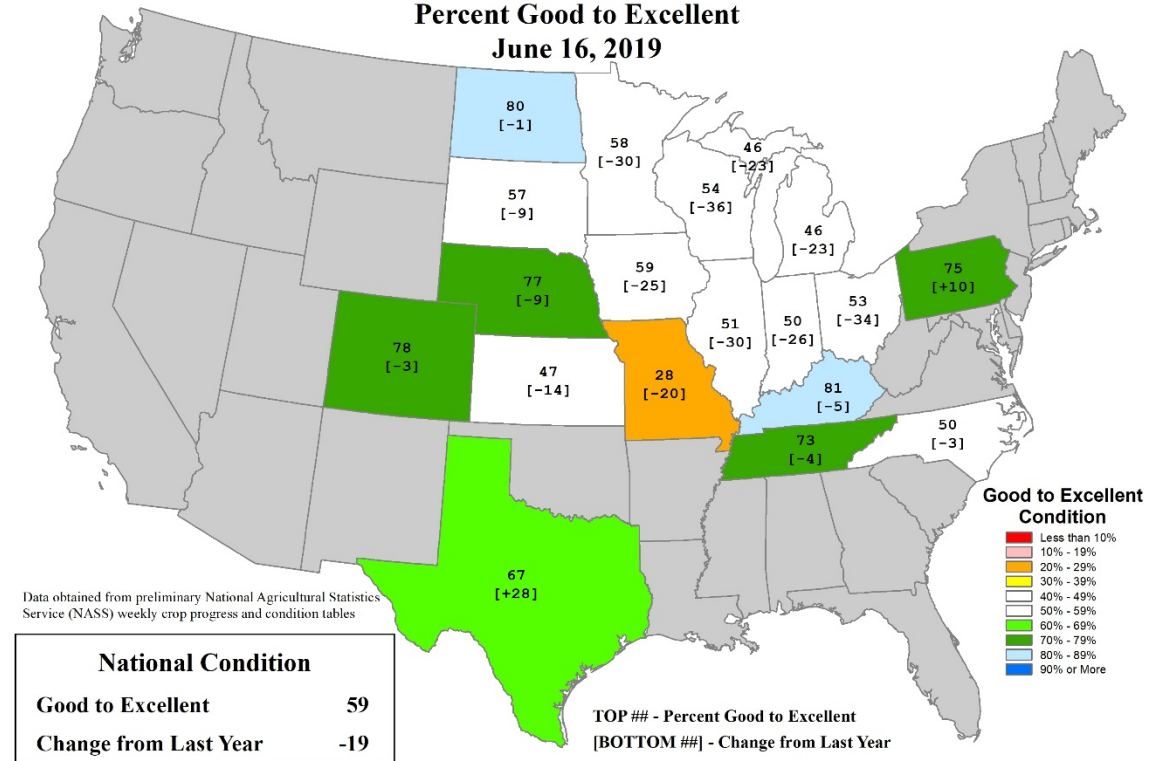
## U.S. Corn Progress

Percent Emerged  
June 16, 2019



## U.S. Corn Conditions

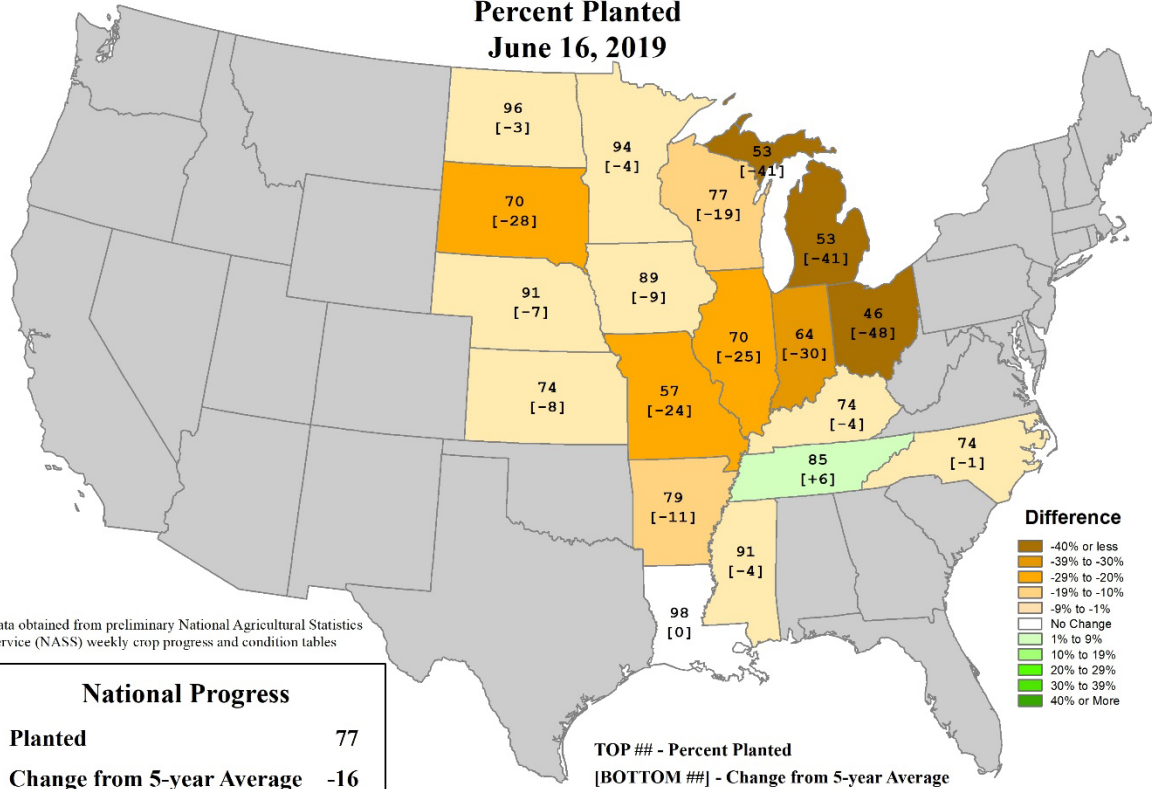
Percent Good to Excellent  
June 16, 2019



# Impacts: Soybean Progress

## U.S. Soybeans Progress

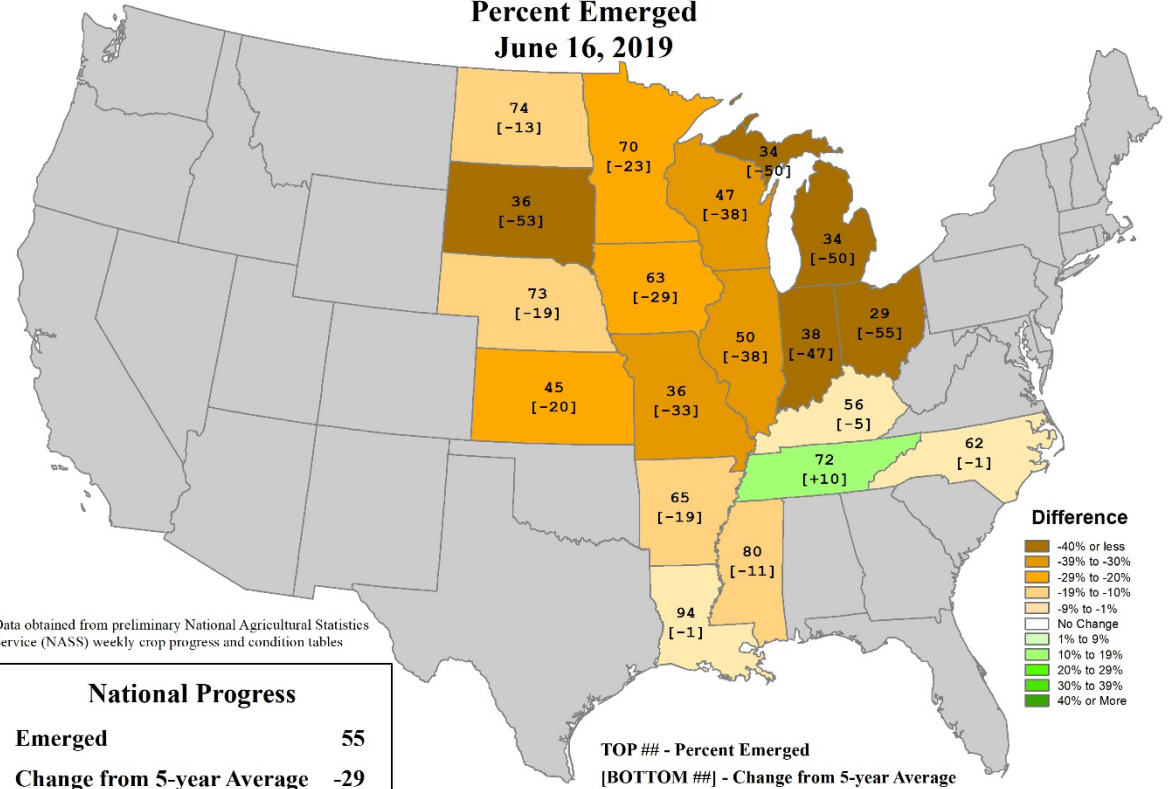
Percent Planted  
June 16, 2019



Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

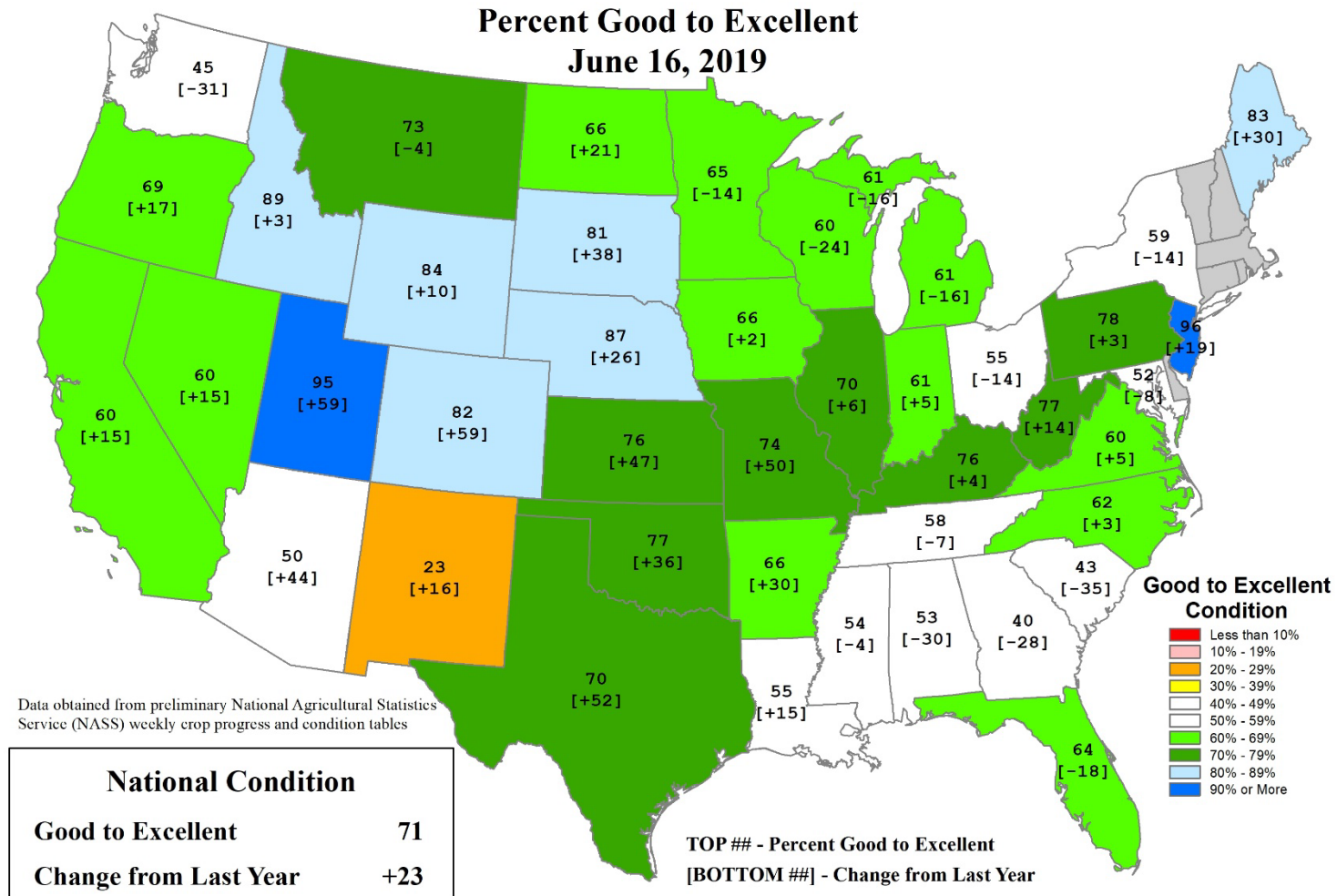
## U.S. Soybeans Progress

Percent Emerged  
June 16, 2019

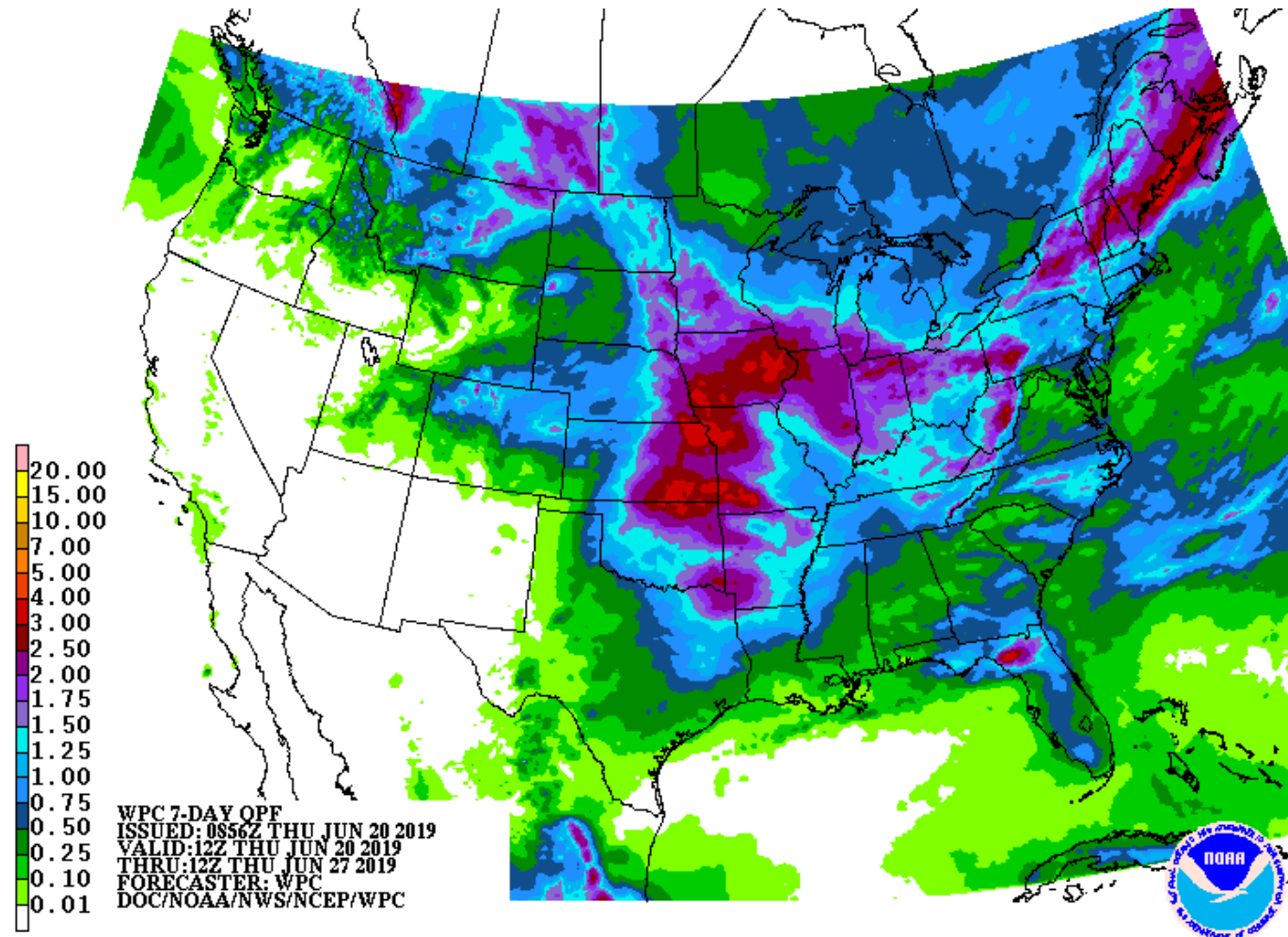


Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

# Impacts: Pasture and Range Conditions

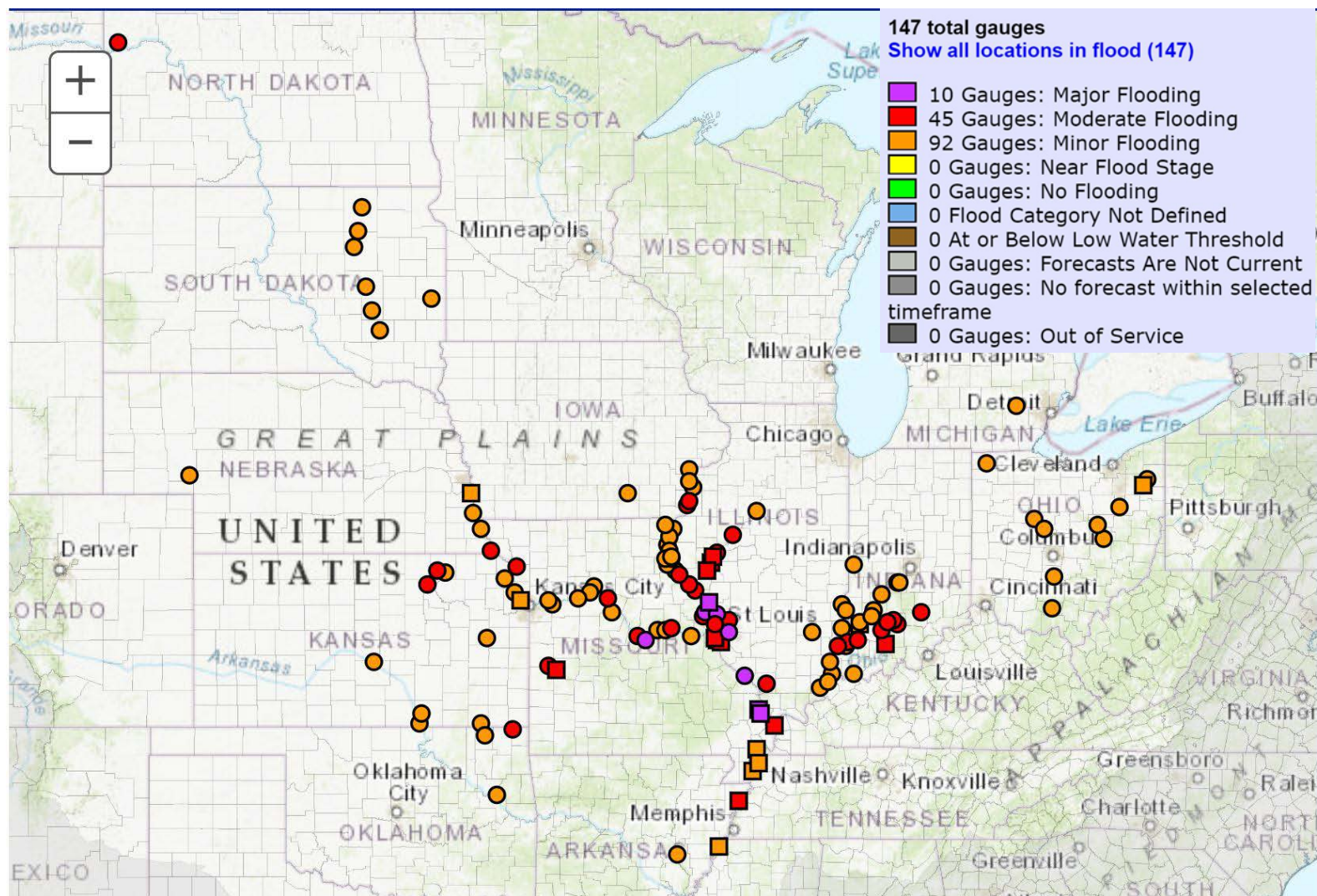


# 7 Day Quantitative Precipitation Forecast



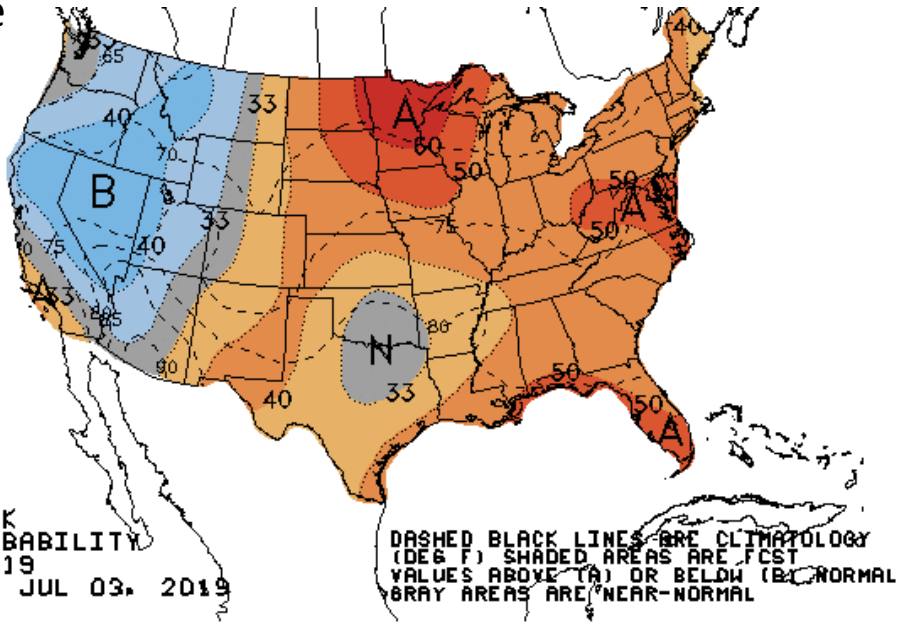
<http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml>

# Flood Forecast: 6/20 through 6/29

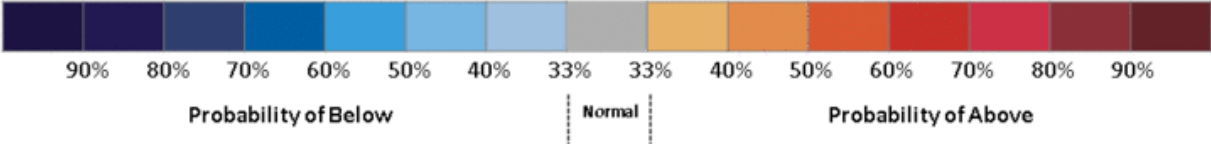


# 8-14 Day Outlook

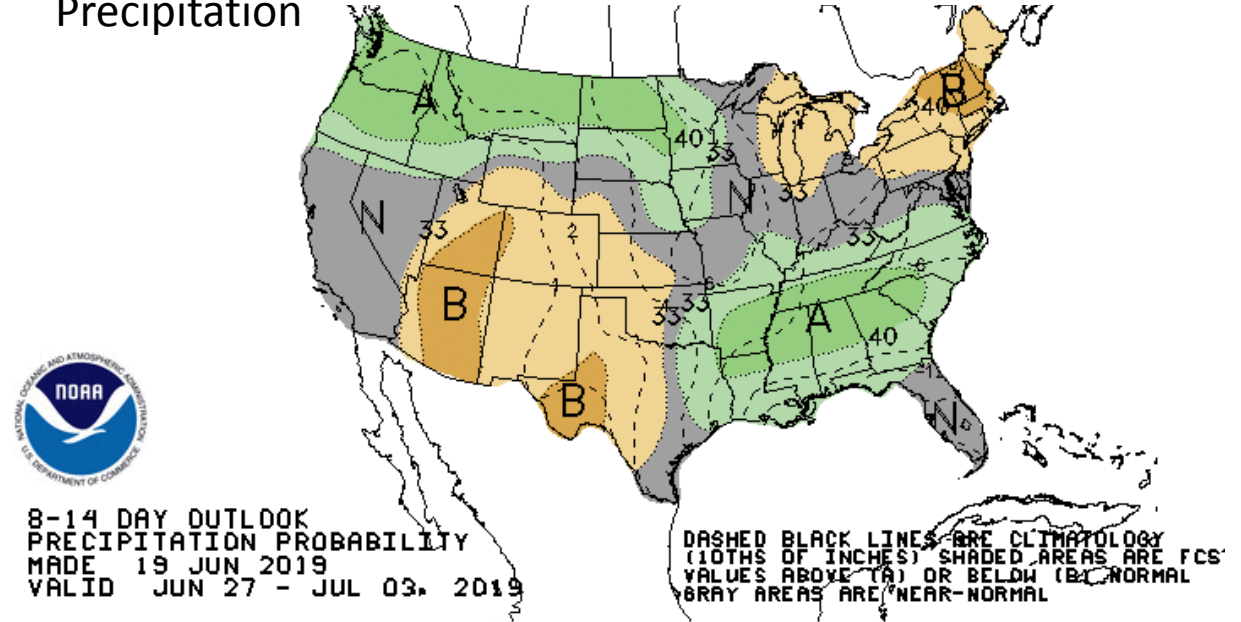
Temperature



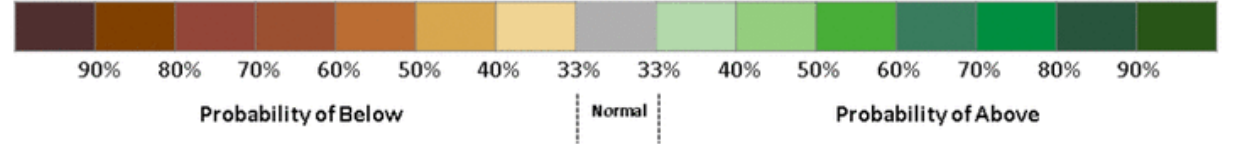
8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 19 JUN 2019  
VALID JUN 27 - JUL 03, 2019



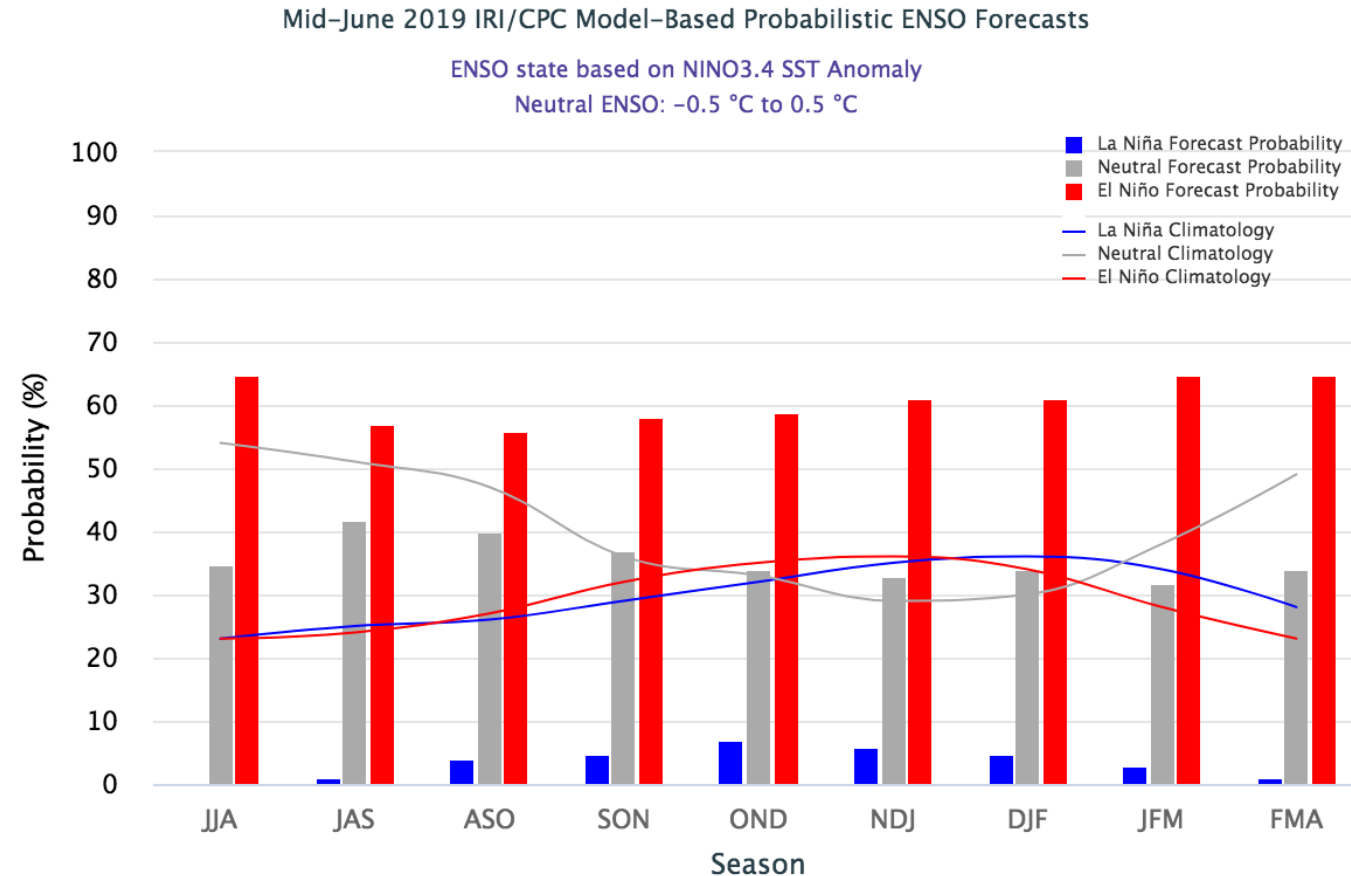
Precipitation



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 19 JUN 2019  
VALID JUN 27 - JUL 03, 2019



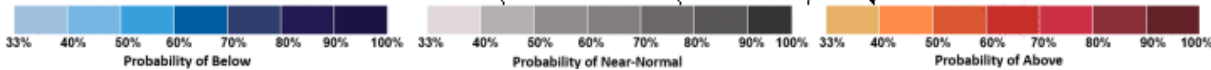
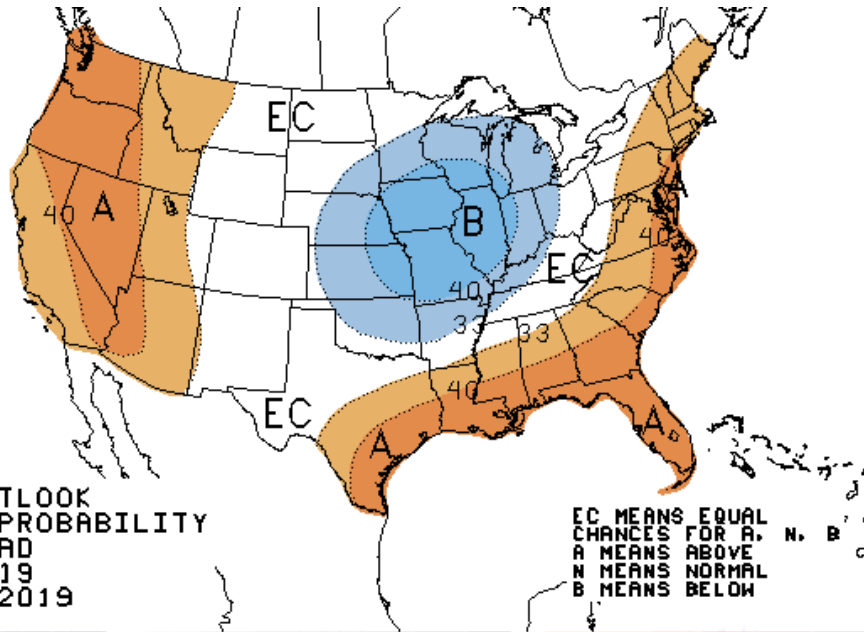
# ENSO Forecast



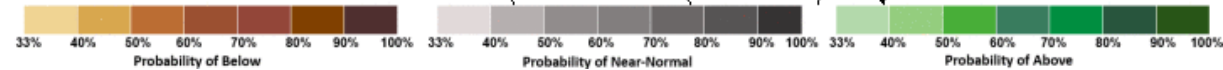
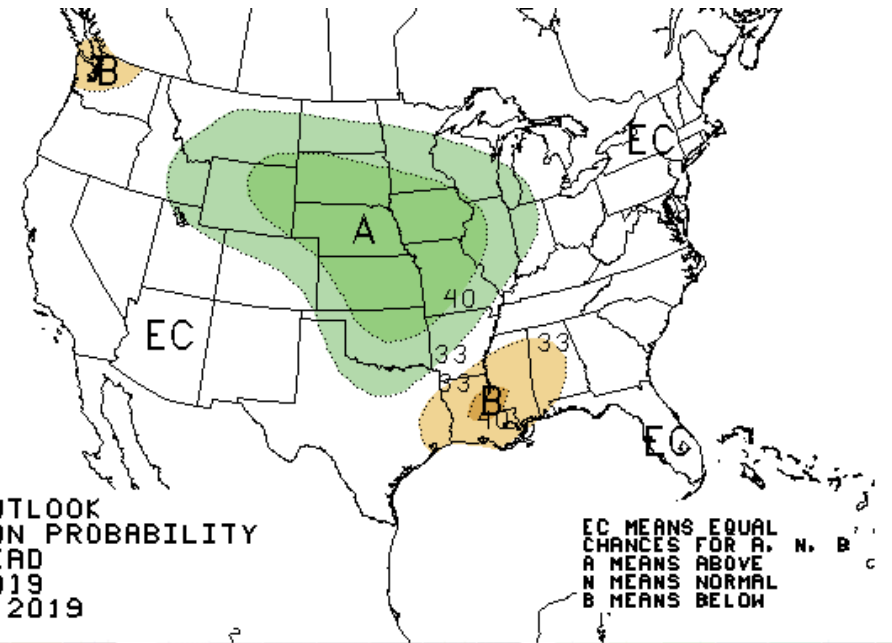
**El Niño is predicted to persist through the Northern Hemisphere summer 2019 (66% chance), with lower odds of continuing through the fall (50-55% chance).**

# Monthly outlook for July

## Temperature



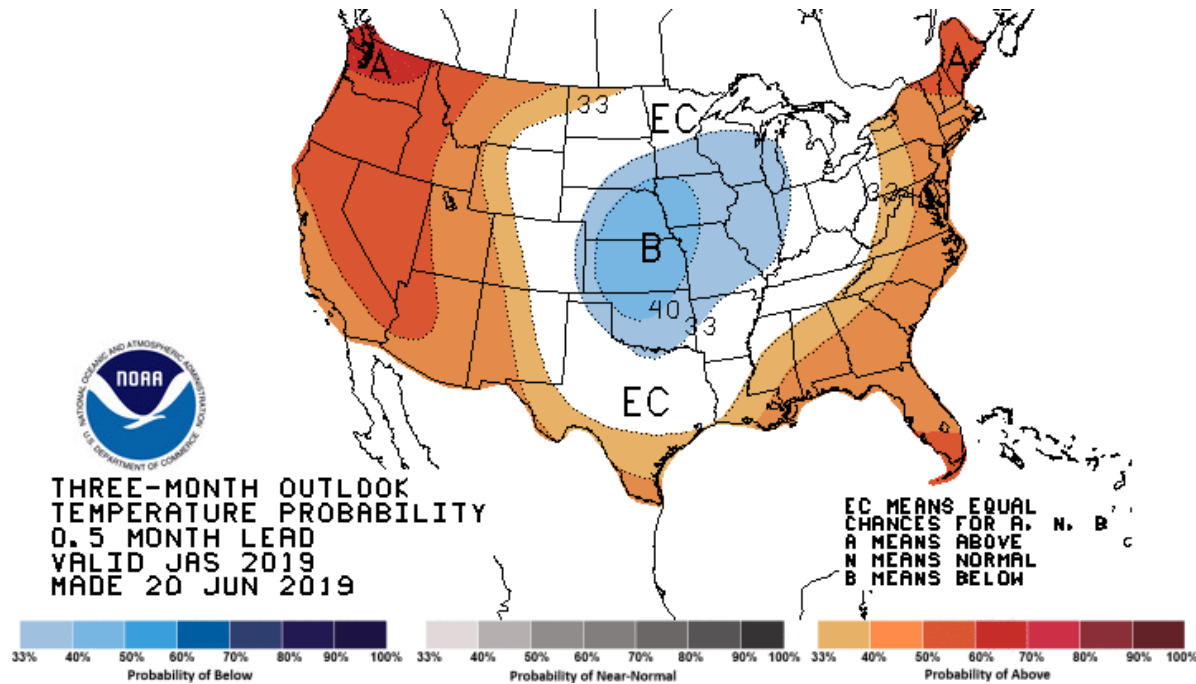
## Precipitation



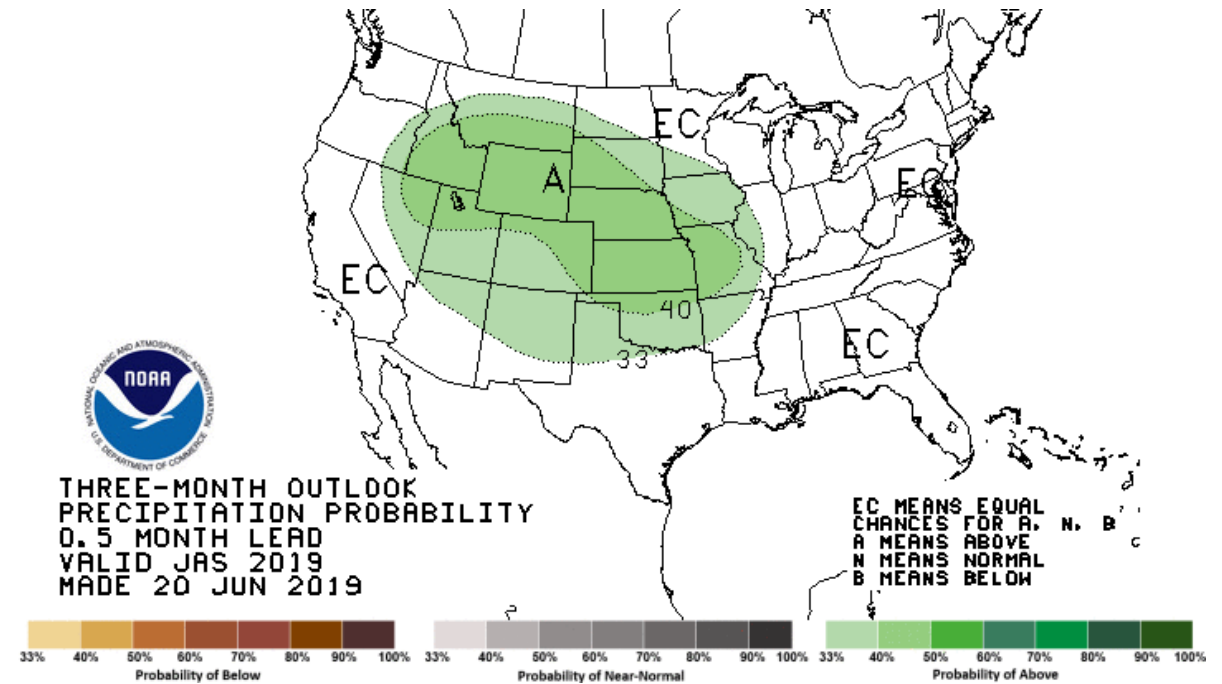


# Outlook for July-September

## Temperature



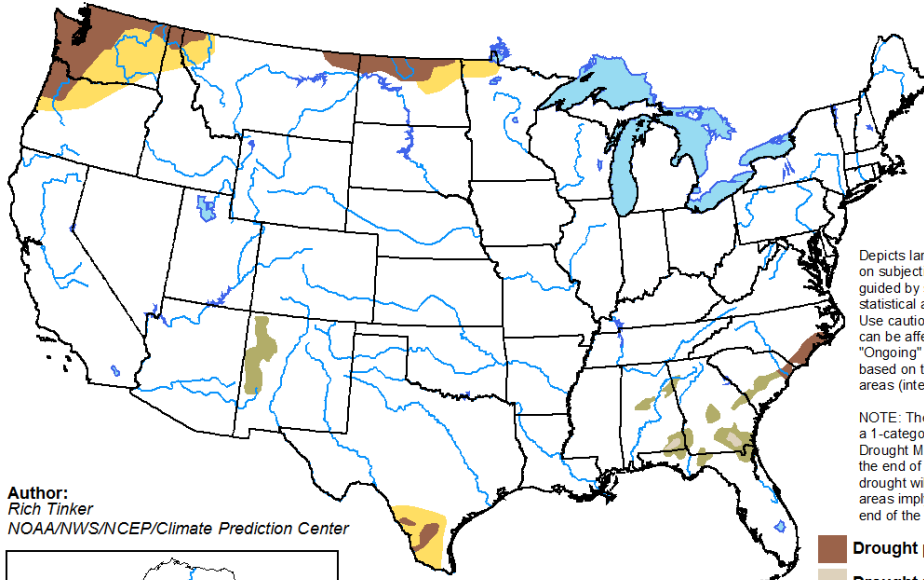
## Precipitation



# Outlook: Fire & Drought

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

Valid for June 20 - September 30, 2019  
Released June 20



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).

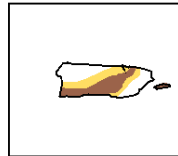
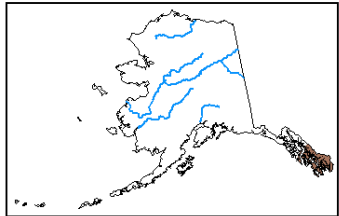
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

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



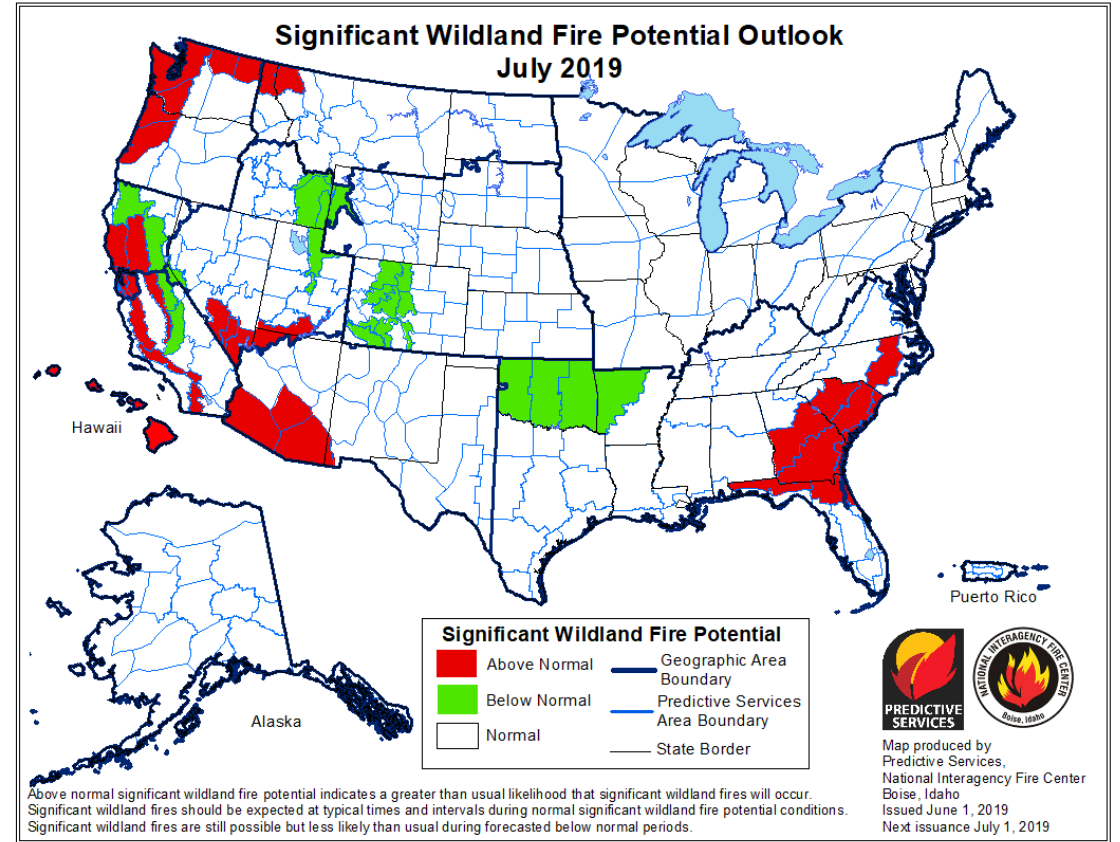
<http://go.usa.gov/3eZ73>

Author:  
Rich Tinker  
NOAA/NWS/NCEP/Climate Prediction Center



[www.cpc.ncep.noaa.gov/products/expert\\_assessment/](http://www.cpc.ncep.noaa.gov/products/expert_assessment/)

## Significant Wildland Fire Potential Outlook July 2019



- | Significant Wildland Fire Potential   |   |
|---|---|
| <span style="display: inline-block; width: 15px; height: 15px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> Above Normal   | <span style="display: inline-block; width: 15px; border-bottom: 1px solid blue; margin-right: 5px;"></span> Geographic Area Boundary          |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: green; border: 1px solid black; margin-right: 5px;"></span> Below Normal | <span style="display: inline-block; width: 15px; border-bottom: 1px solid blue; margin-right: 5px;"></span> Predictive Services Area Boundary |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> Normal       | <span style="display: inline-block; width: 15px; border-bottom: 1px solid black; margin-right: 5px;"></span> State Border                     |

Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur. Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.



Map produced by  
Predictive Services,  
National Interagency Fire Center  
Boise, Idaho  
Issued June 1, 2019  
Next issuance July 1, 2019

[www.wfas.net](http://www.wfas.net)

- Northeastern Montana and North Dakota have potential for drought development due to precipitation deficits and higher evaporative demand
- Fire potential is predicted to be low for the majority of the region

# Summary

- It's been historically wet and cooler than normal.
- Record setting floods across the region are beginning to decline.
- Significant agricultural impacts due to the historic weather conditions
- Millions of acres will remain unplanted.
- Warmer weather is needed for maturation of crops that did make it into ground.
- Pasture and range conditions are generally good.
- The 1 month and 3 month outlooks suggest continued wet and cool conditions for a large portion of the region.
- Significant drought and wildfire conditions are unlikely to develop for the majority of the region.