



North Central U.S. Climate and Drought Outlook

18 November 2020

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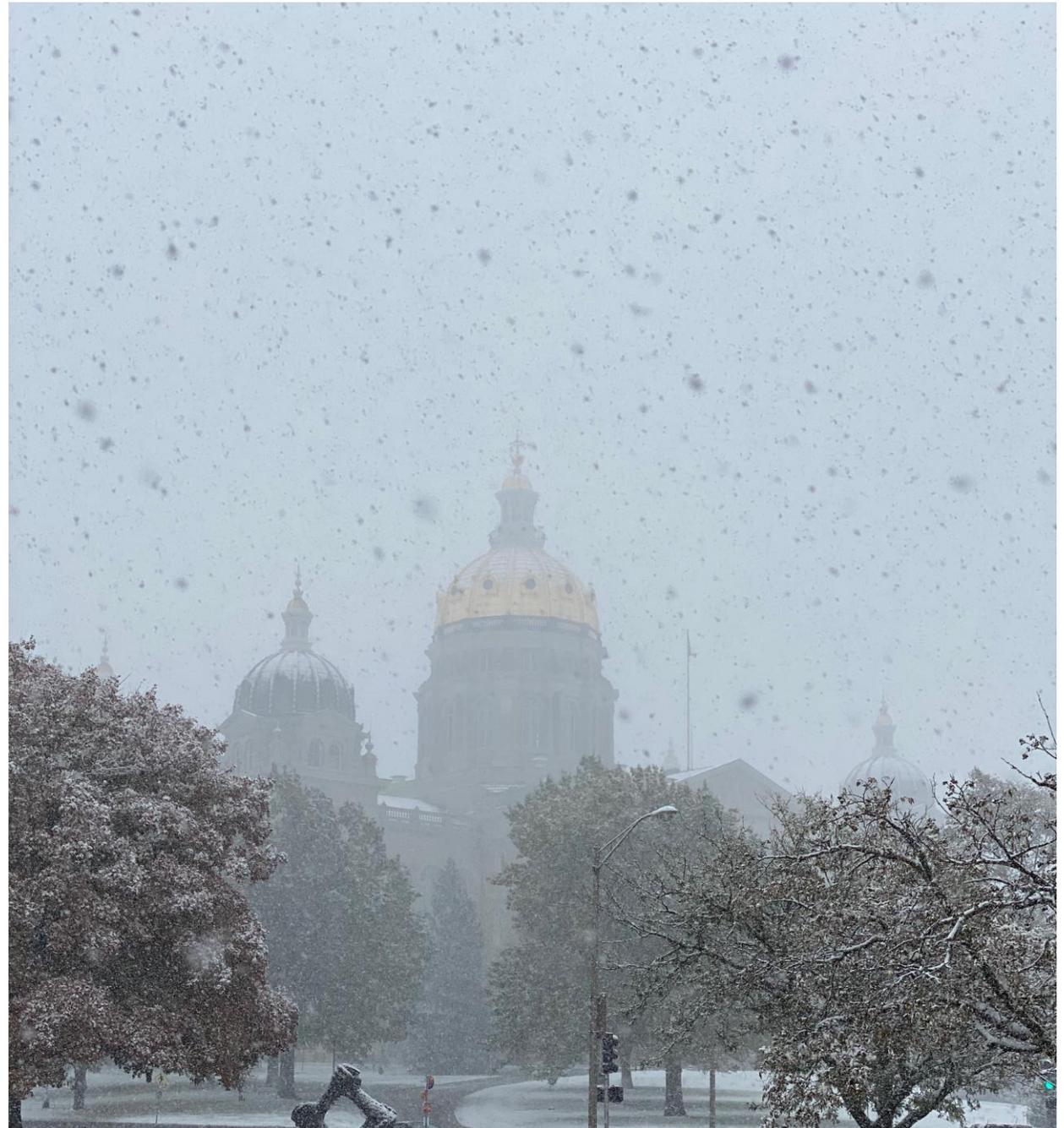


General Information

- **Providing climate services to the Central Region**
 - Collaboration Activity Between:
 - State Climatologists/American Association of State Climatologists
 - NOAA NCEI/NWS/OAR/NIDIS
 - USDA Climate Hubs
 - Midwest and High Plains Regional Climate Centers
 - National Drought Mitigation Center
- **Next Regular Climate/Drought Outlook Webinar**
 - December 17 (1 PM CST): Presenter: Dr. Beth Hall, State Climatologist of Indiana
- **Access to Future Climate Webinars and Information**
- <http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars>
- **Recordings of Past Webinars**
- <http://mrcc.isws.illinois.edu/webinars.htm>
- <http://www.hprcc.unl.edu/webinars.php>
- **Open for questions at the end**

Presentation Outline

- Recent Conditions
 - Temperature and precipitation ranks
 - 30-day temperature and precipitation
 - Drought
- Growing Season Progress
- Snow, Fire, Rivers and Lakes
- Impacts and Notable Events
- Outlooks
 - La Niña
 - Short-term
 - Winter season



Recent Conditions

October Temperature and Precipitation Ranks

YTD Temperature and Precipitation Ranks

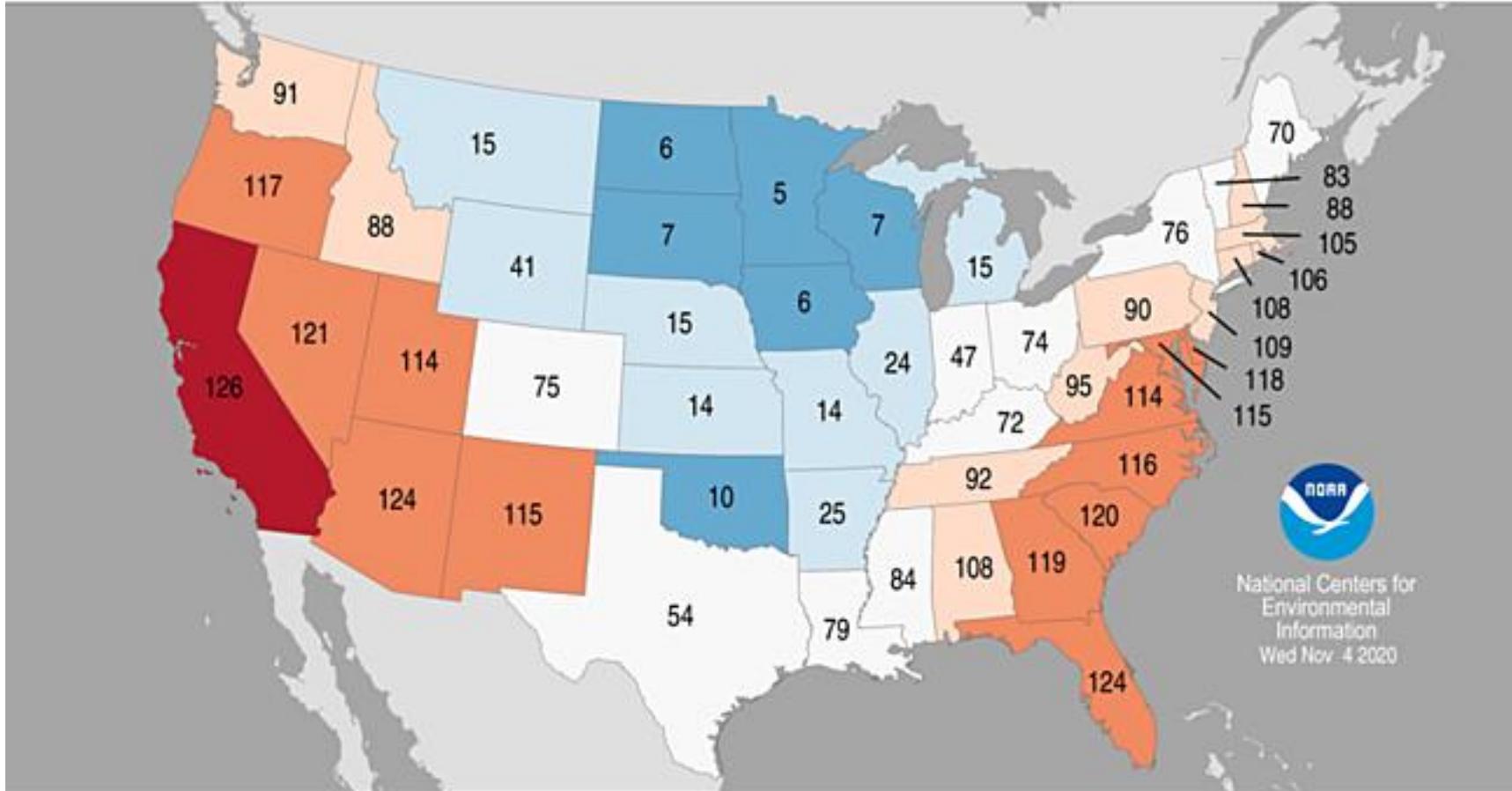
Departure from Normal Temperature and Precipitation

Soil Moisture, Streamflow and Drought

October Temperature Ranks

Statewide Average Temperature Ranks

October 2020
Period: 1895–2020



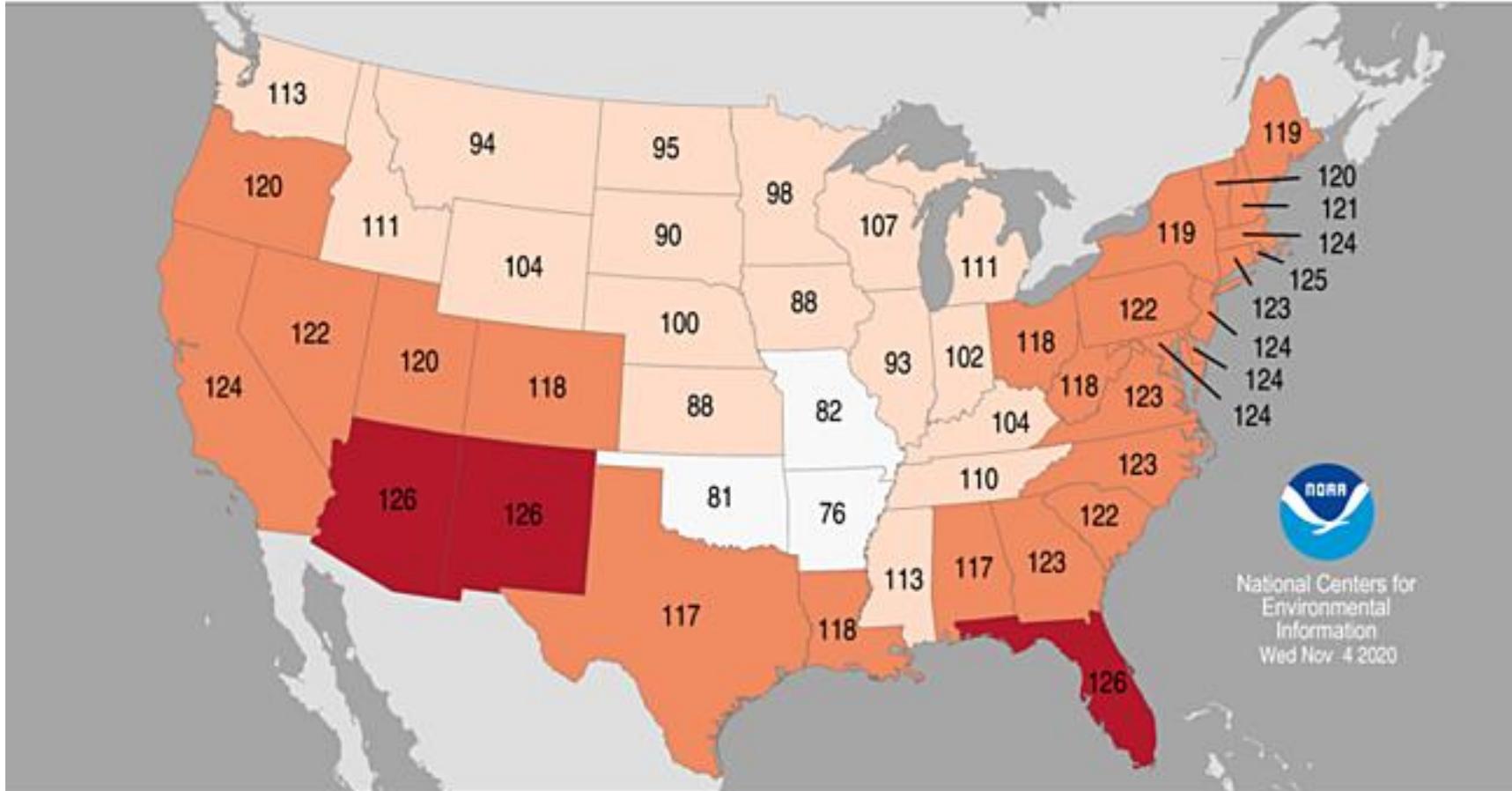
<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

Year-To-Date Temperature Ranks

Statewide Average Temperature Ranks

January - October 2020

Period: 1895-2020



National Centers for
Environmental
Information
Wed Nov 4 2020



Record
Coldest
(1)



Much
Below
Average



Below
Average



Near
Average



Above
Average



Much
Above
Average



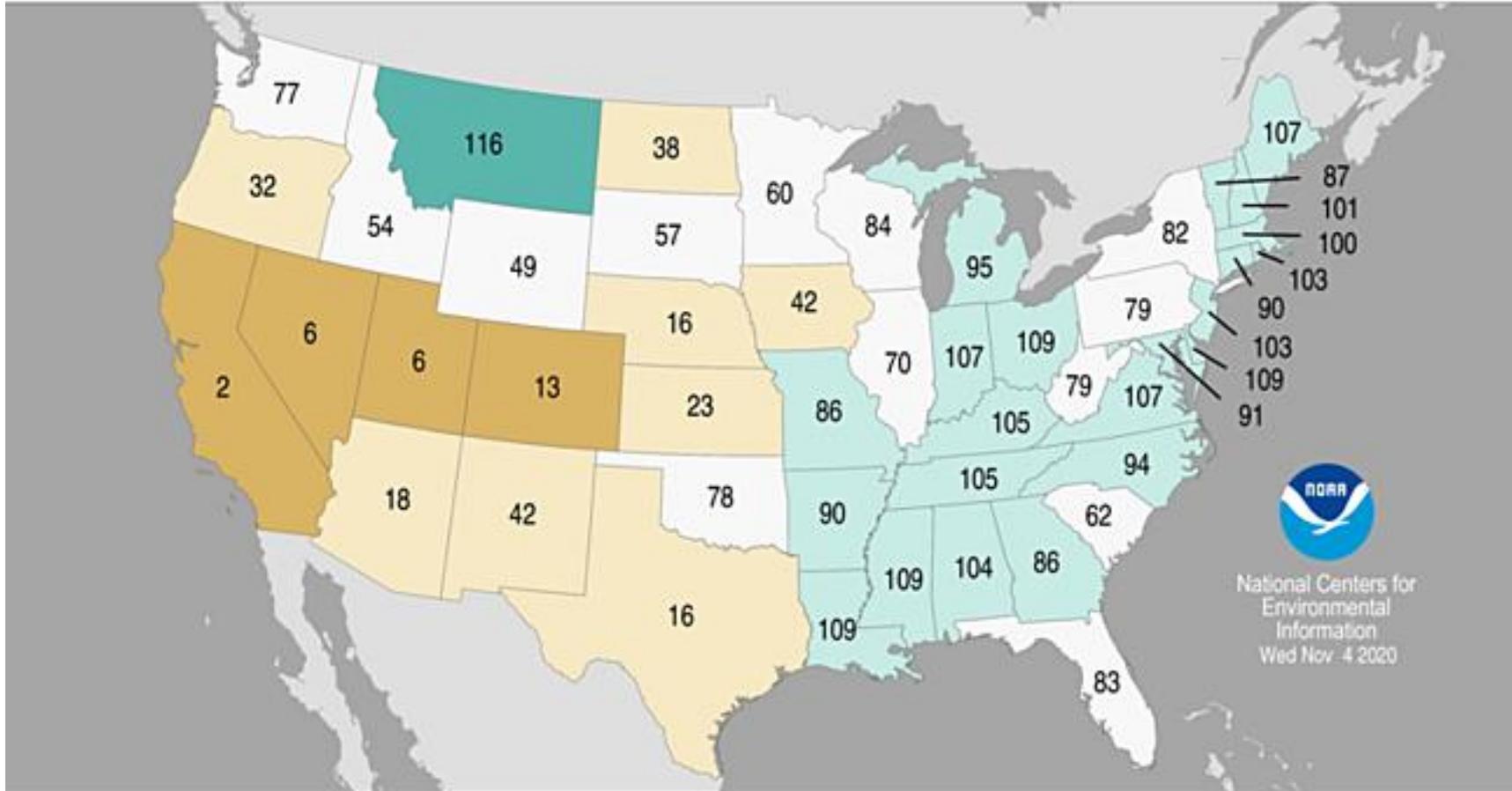
Record
Warmest
(126)

<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

October Precipitation Ranks

Statewide Precipitation Ranks

October 2020
Period: 1895–2020



National Centers for
Environmental
Information
Wed Nov 4 2020



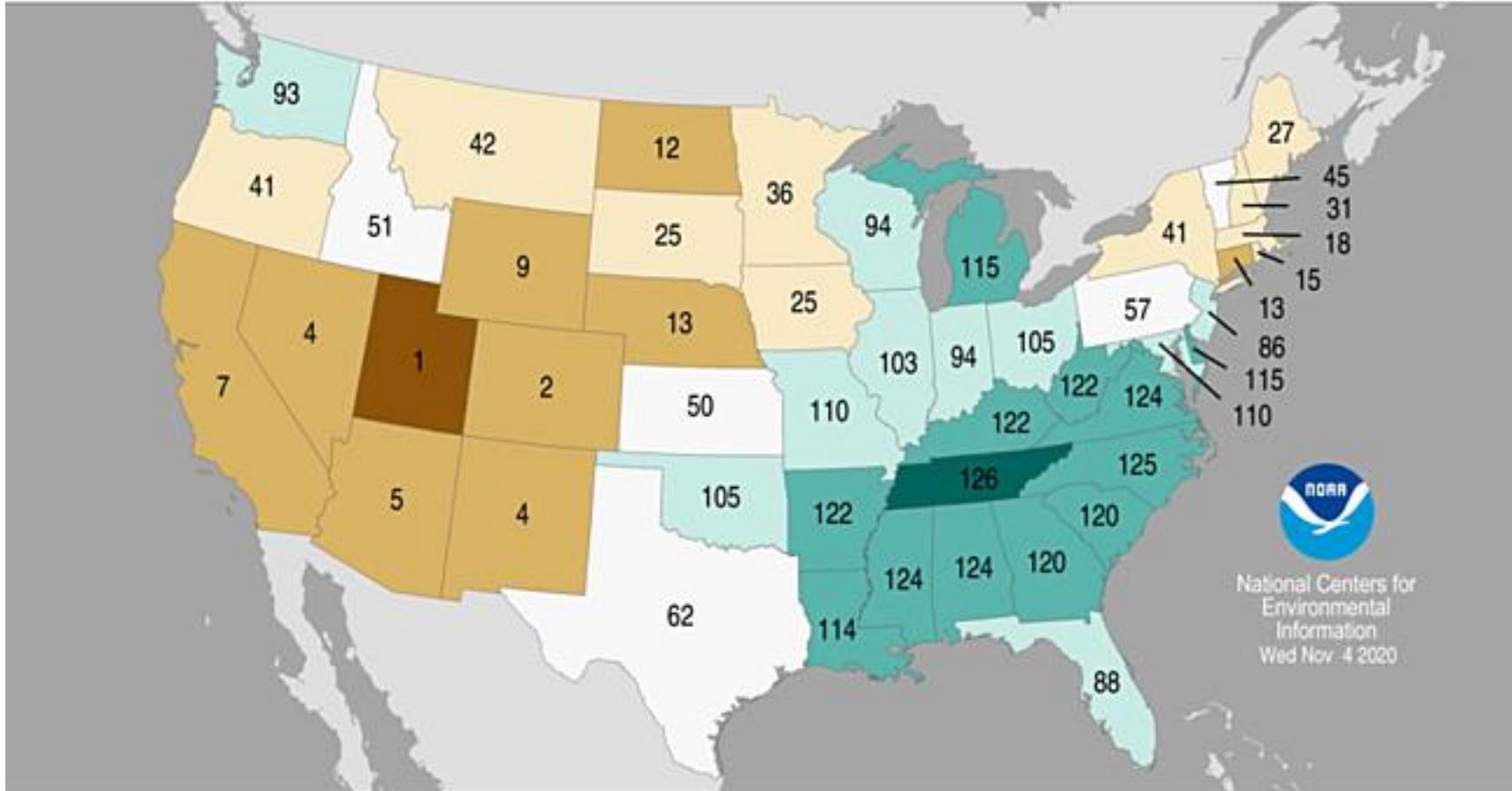
<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

Year-To-Date Precipitation Ranks

Statewide Precipitation Ranks

January – October 2020

Period: 1895–2020



National Centers for
Environmental
Information
Wed Nov 4 2020

Record
Driest
(1)

Much
Below
Average

Below
Average

Near
Average

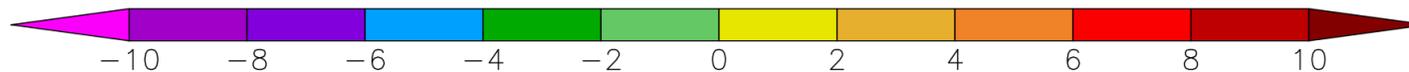
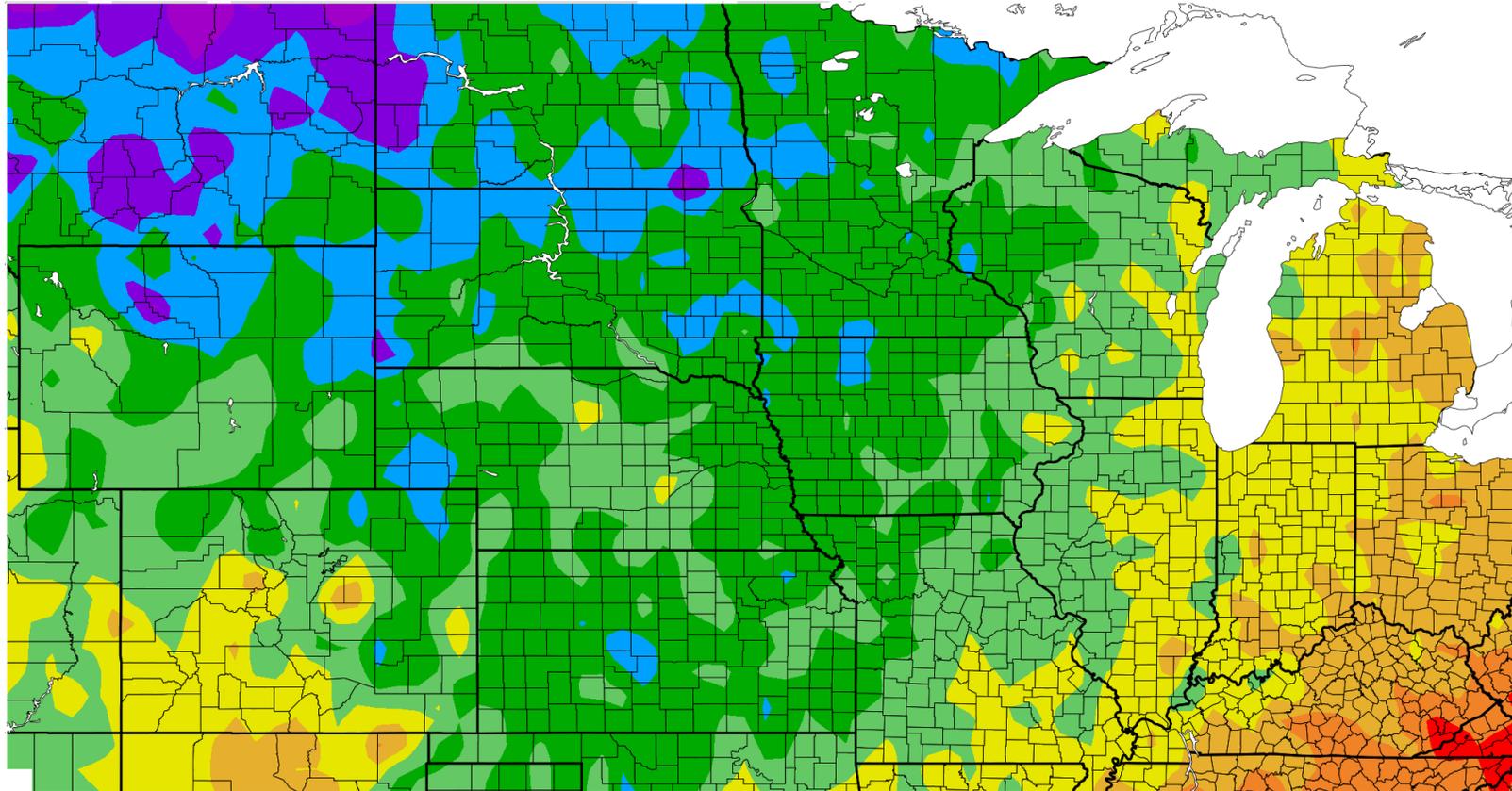
Above
Average

Much
Above
Average

Record
Wettest
(126)

<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

Departure from Normal Temperature (F) 10/19/2020 – 11/17/2020



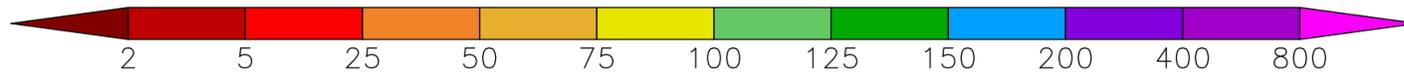
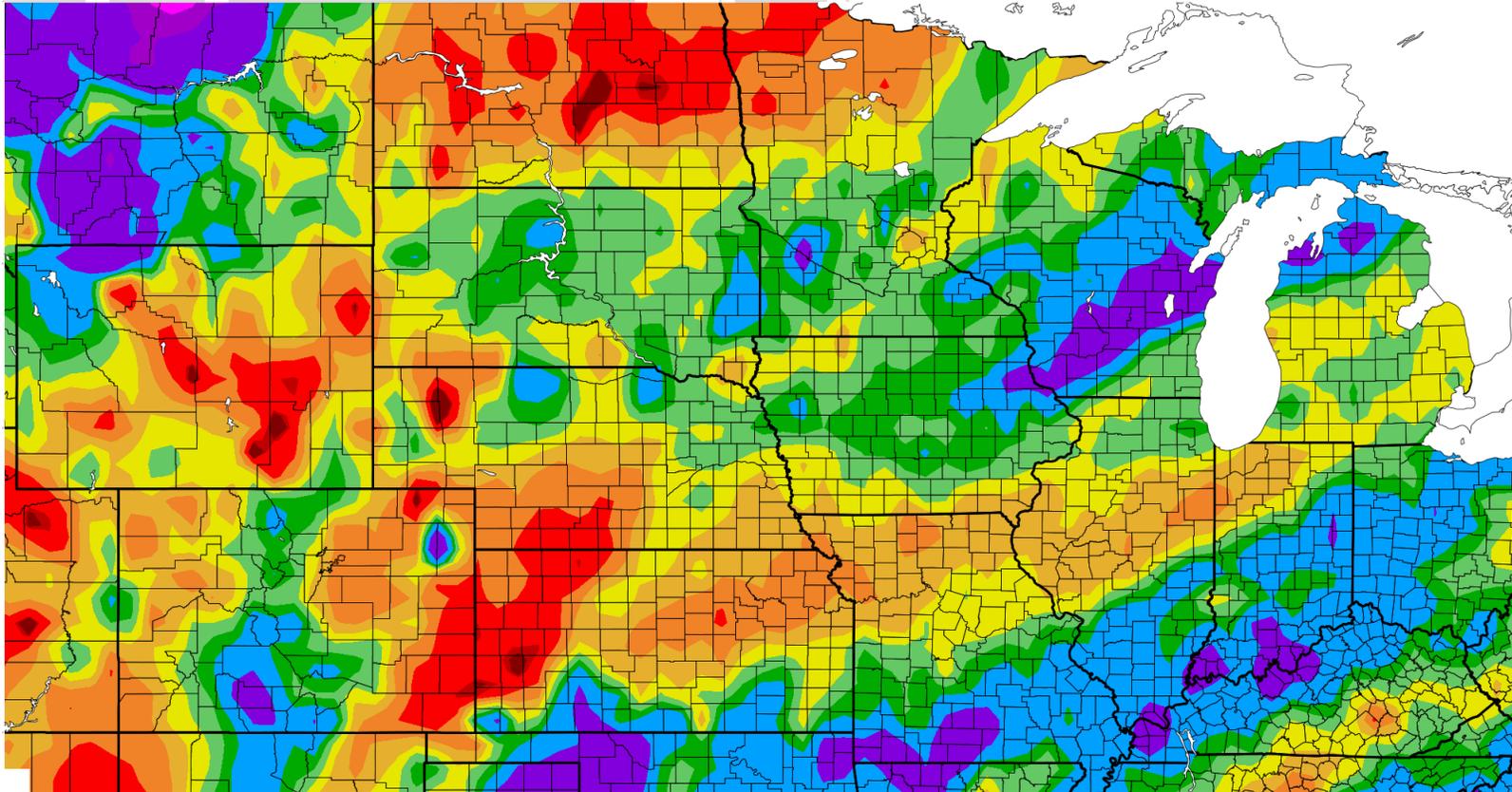
Generated 11/18/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>

Percent of Normal Precipitation (%)

10/19/2020 – 11/17/2020

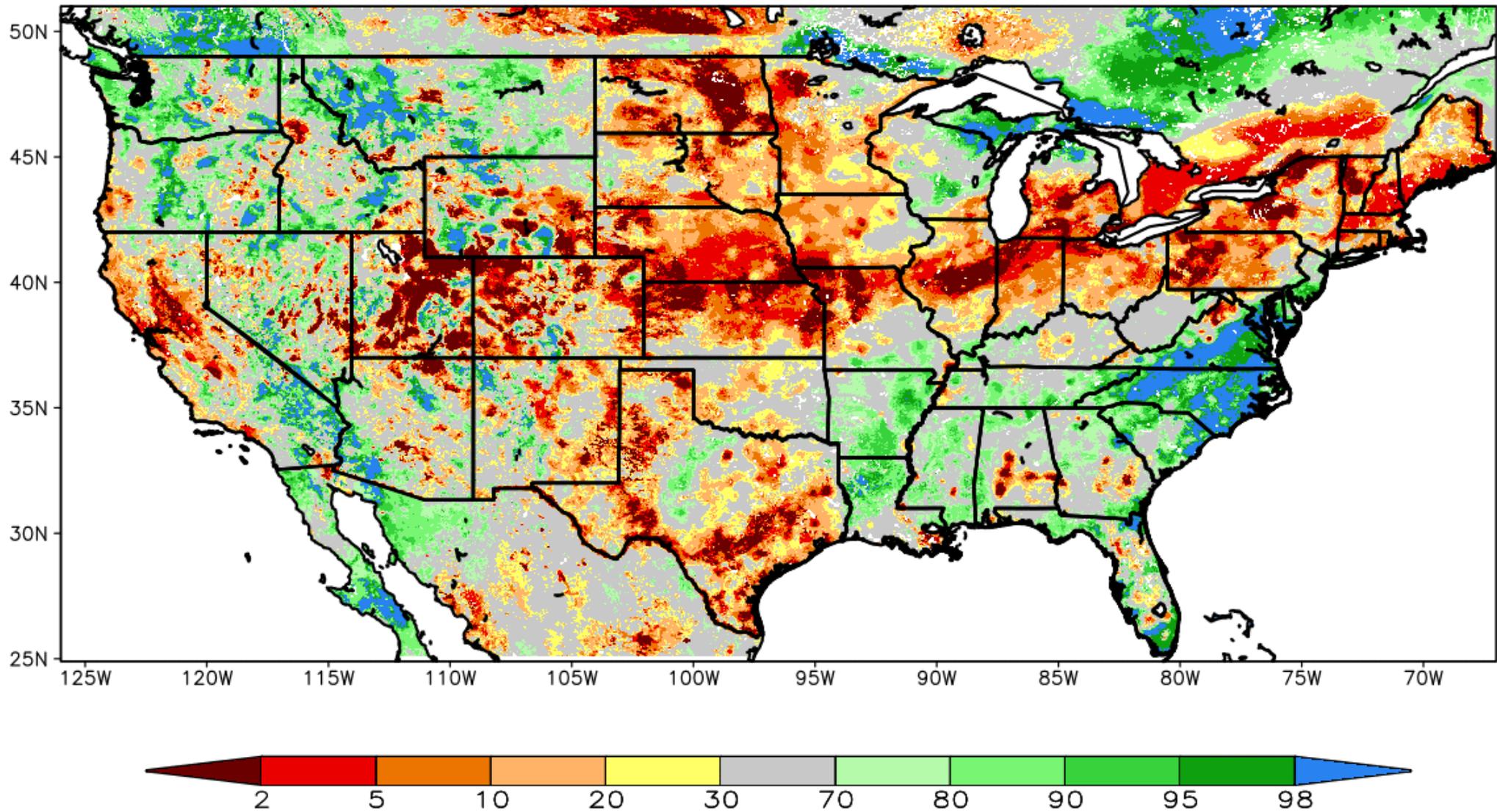


Generated 11/18/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>

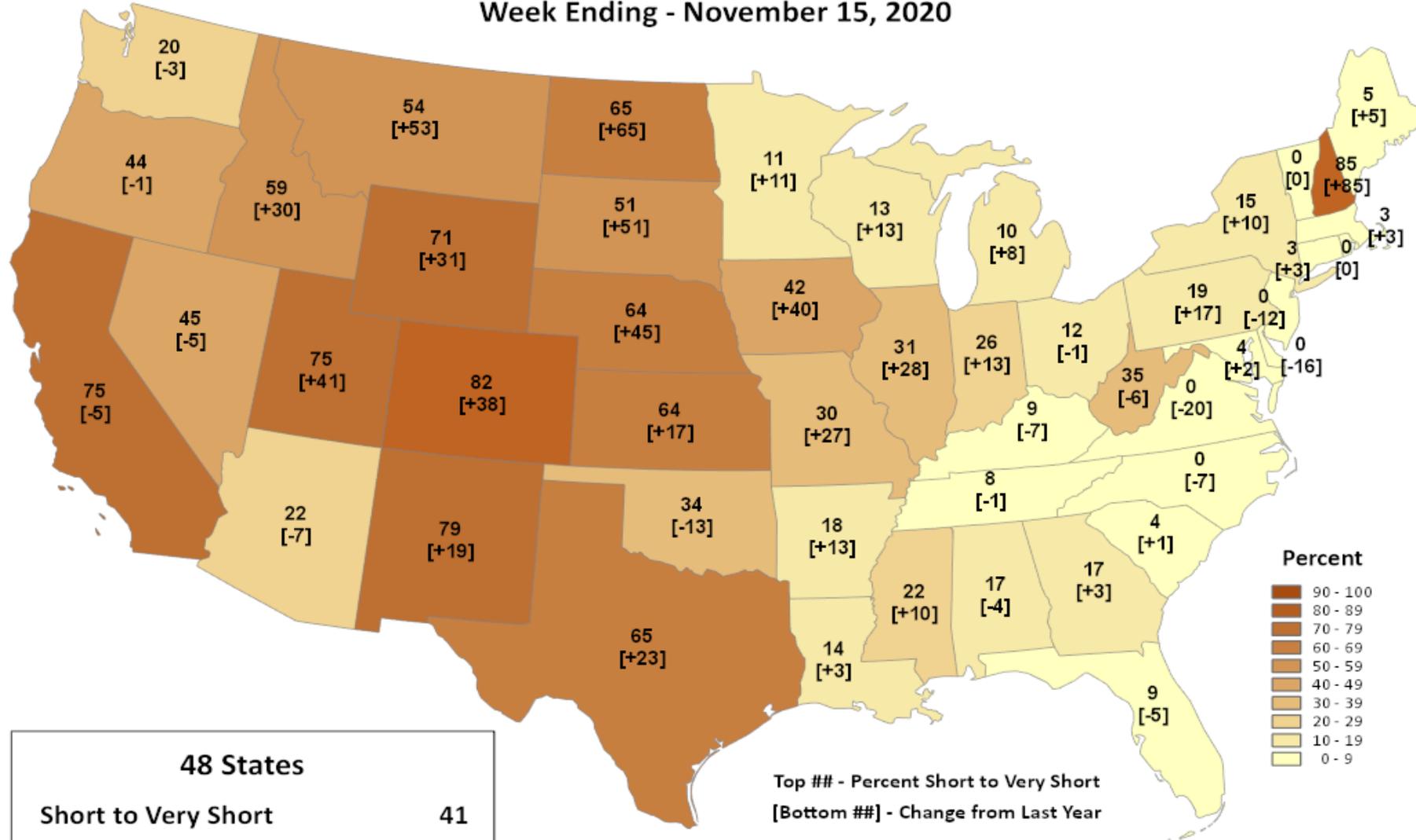
SPoRT-LIS 0-200 cm Soil Moisture percentile valid 18 Nov 2020



Topsoil Moisture

Percent Short to Very Short

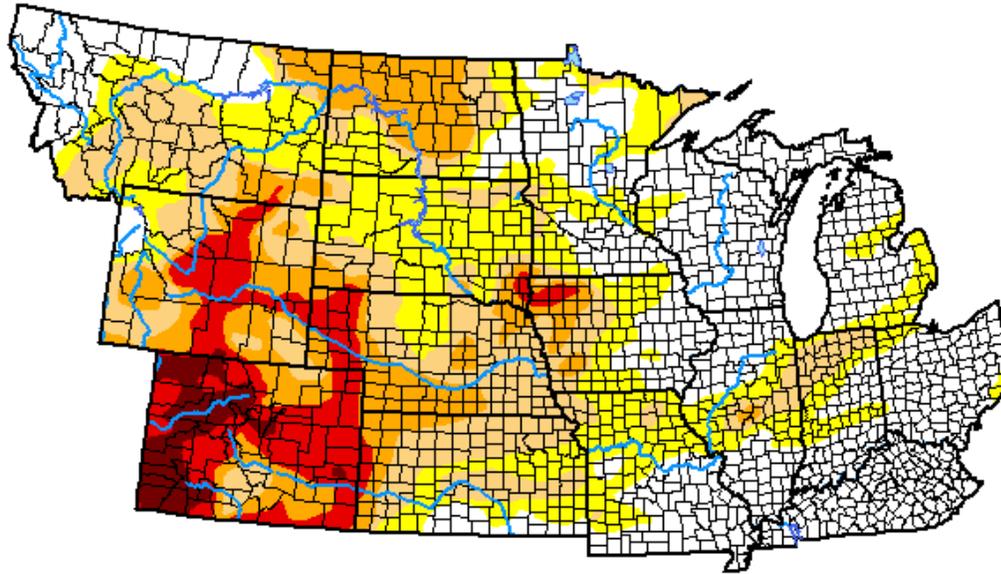
Week Ending - November 15, 2020



Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

U.S. Drought Monitor NWS Central Region

November 17, 2020
(Released Thursday, Nov. 19, 2020)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
Current	34.86	23.20	19.02	12.73	7.72	2.48
Last Week <i>11-10-2020</i>	31.15	26.50	19.63	12.56	7.91	2.25
3 Months Ago <i>08-18-2020</i>	50.53	23.53	13.79	8.93	3.22	0.00
Start of Calendar Year <i>12-31-2019</i>	87.81	6.86	3.21	2.11	0.00	0.00
Start of Water Year <i>09-29-2020</i>	29.60	33.06	19.38	10.83	6.89	0.24
One Year Ago <i>11-19-2019</i>	88.39	5.43	2.95	3.12	0.11	0.00

Intensity:



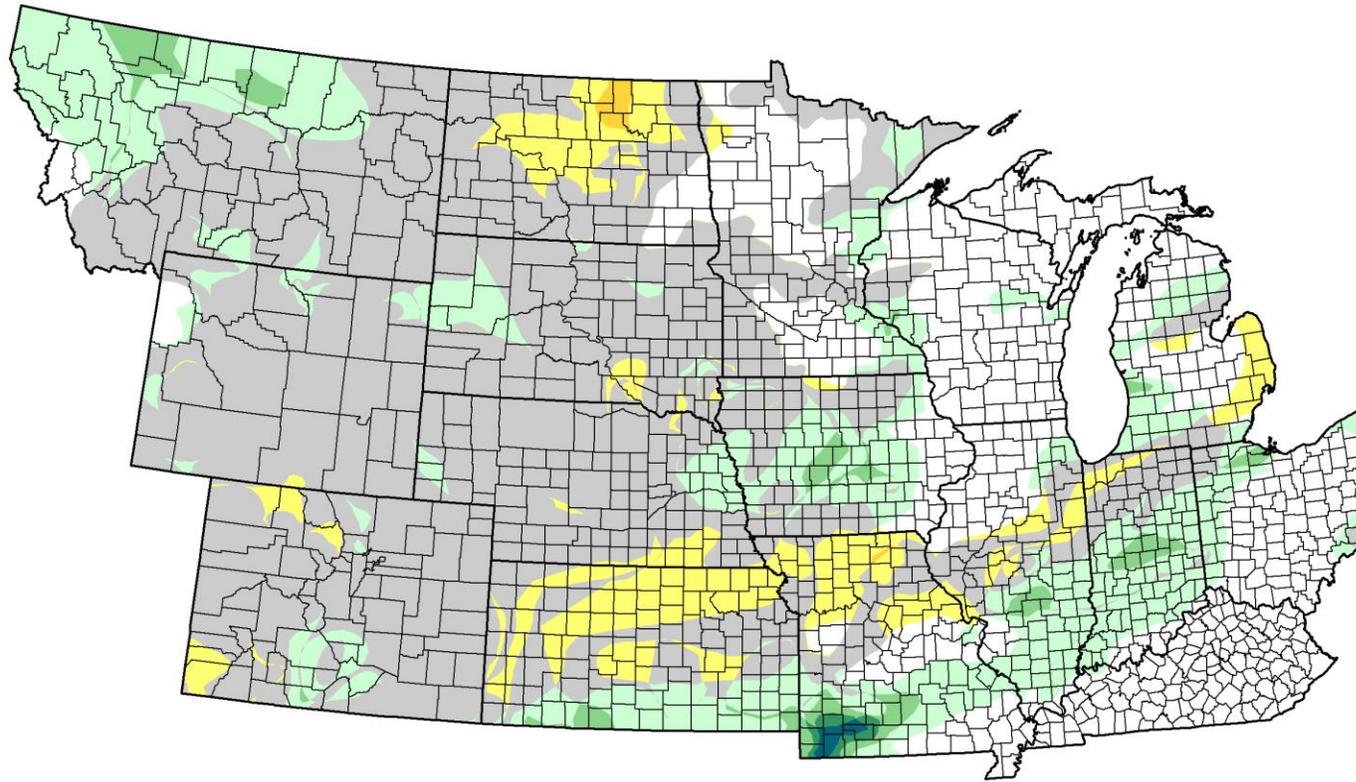
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Richard Tinker
CPC/NOAA/NWS/NCEP



U.S. Drought Monitor Class Change - NWS Central Region 1 Month



-  5 Class Degradation
-  4 Class Degradation
-  3 Class Degradation
-  2 Class Degradation
-  1 Class Degradation
-  No Change
-  1 Class Improvement
-  2 Class Improvement
-  3 Class Improvement
-  4 Class Improvement
-  5 Class Improvement

November 17, 2020
compared to
October 20, 2020

droughtmonitor.unl.edu

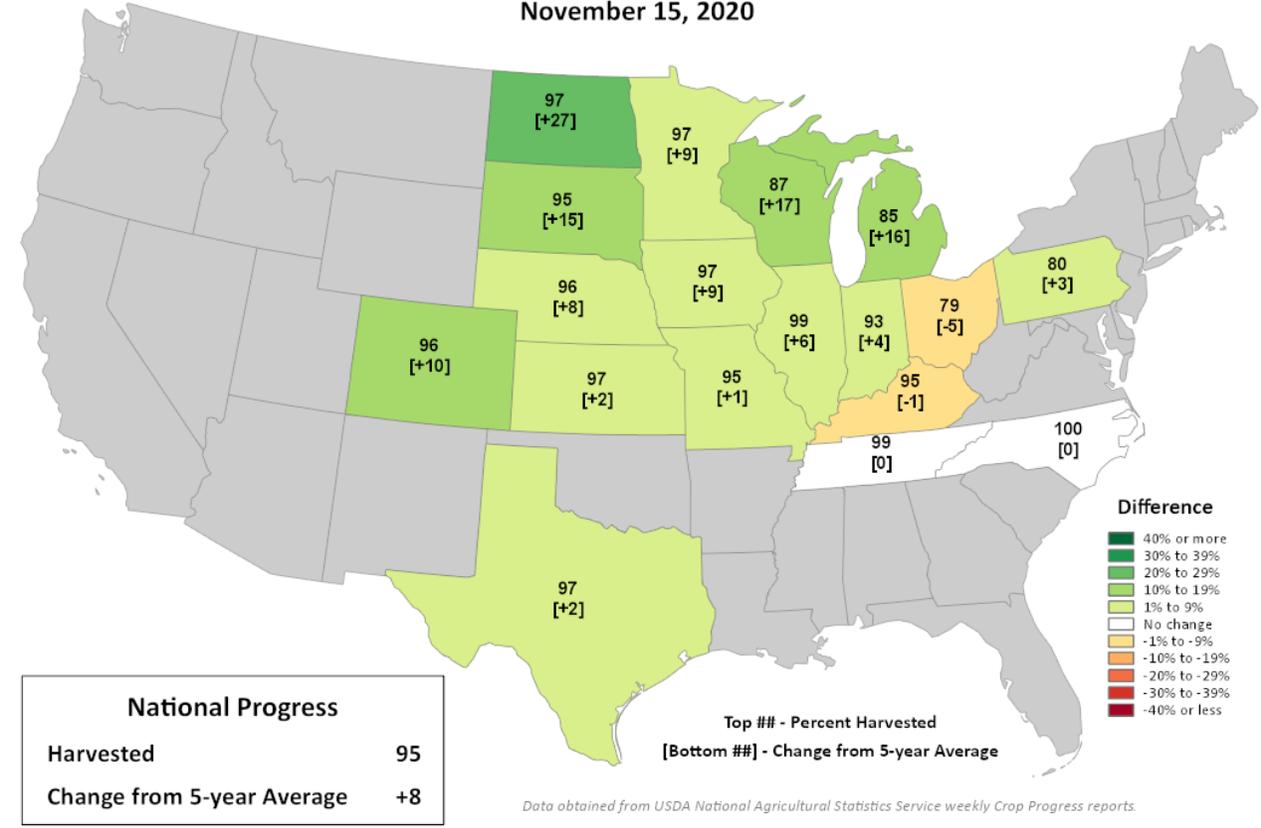
<https://droughtmonitor.unl.edu/Maps/ChangeMaps.aspx>

Growing Season Progress

Corn Progress

Percent Harvested

November 15, 2020



Soybeans Progress

Percent Harvested

November 15, 2020

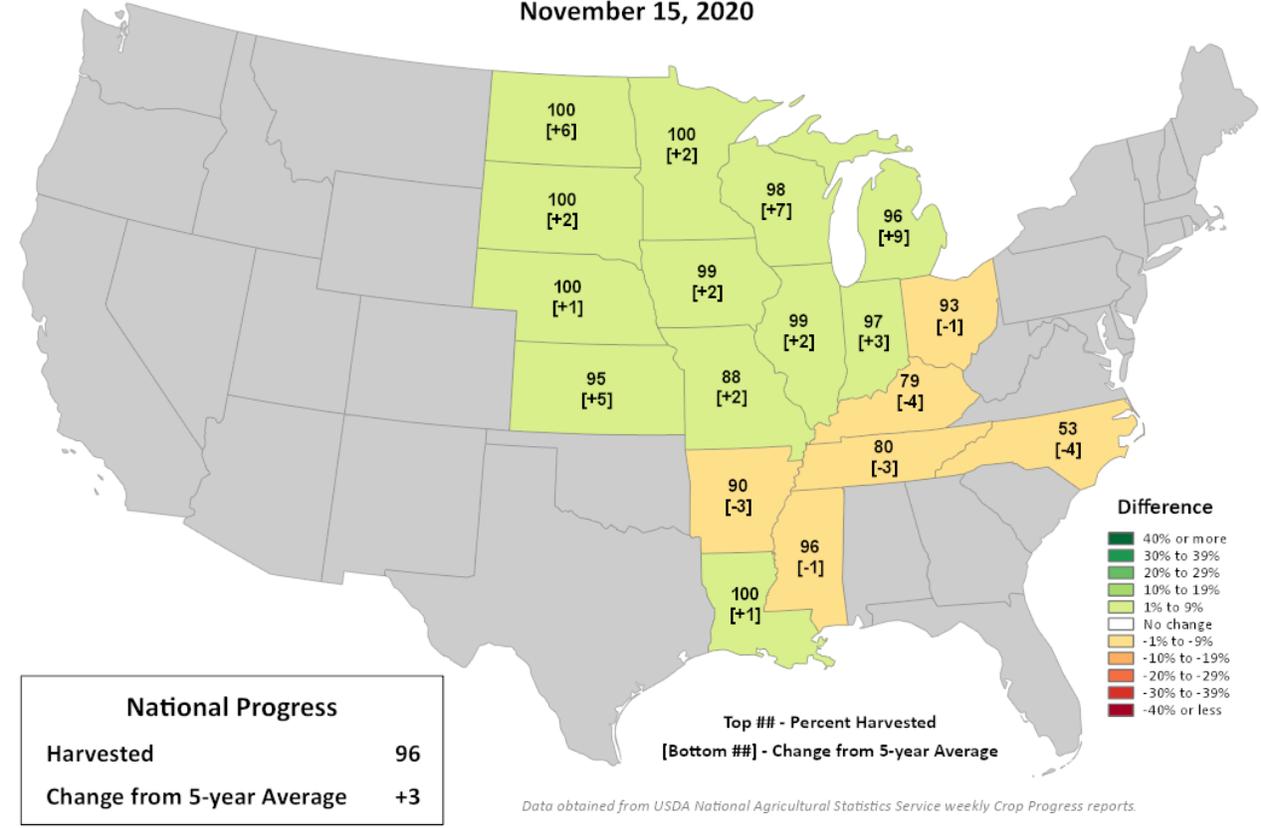
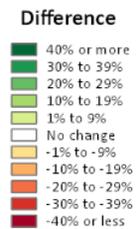
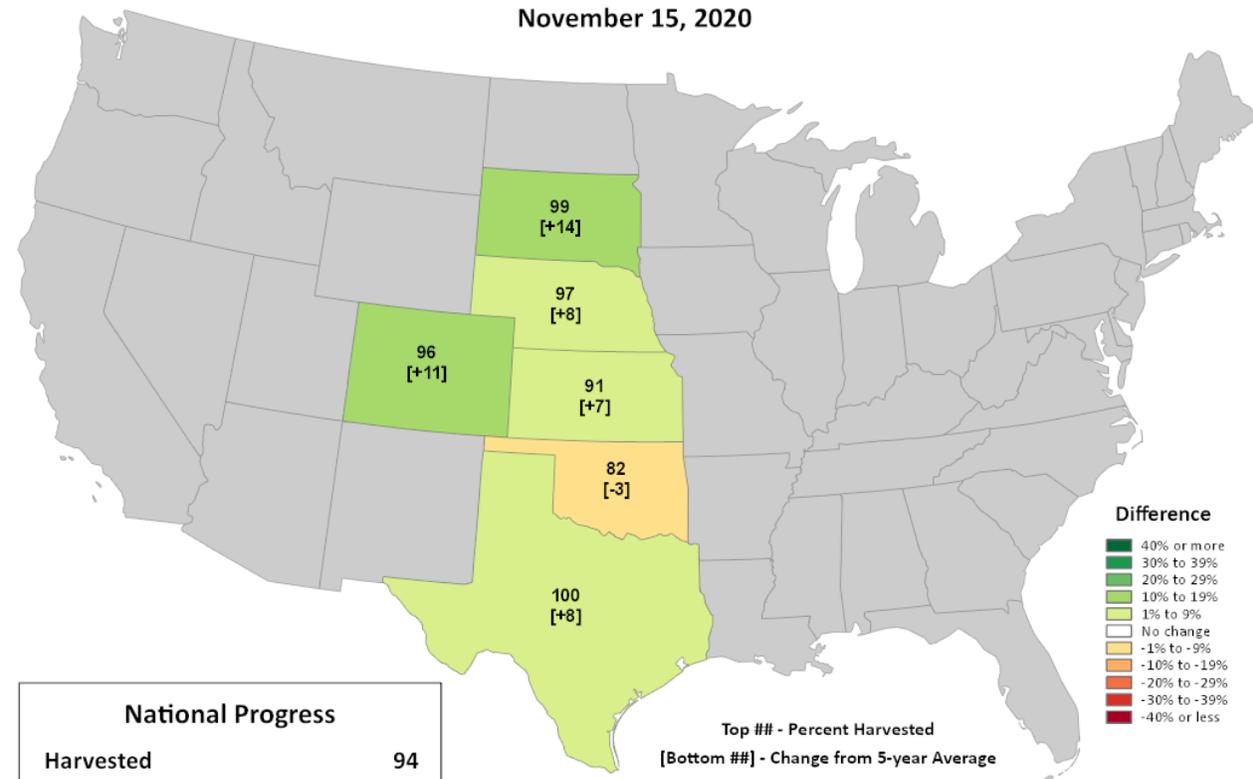


Figure Credit: Brad Rippey – USDA OCE/USDA NASS Data

Sorghum Progress

Percent Harvested

November 15, 2020



National Progress

Harvested	94
Change from 5-year Average	+7

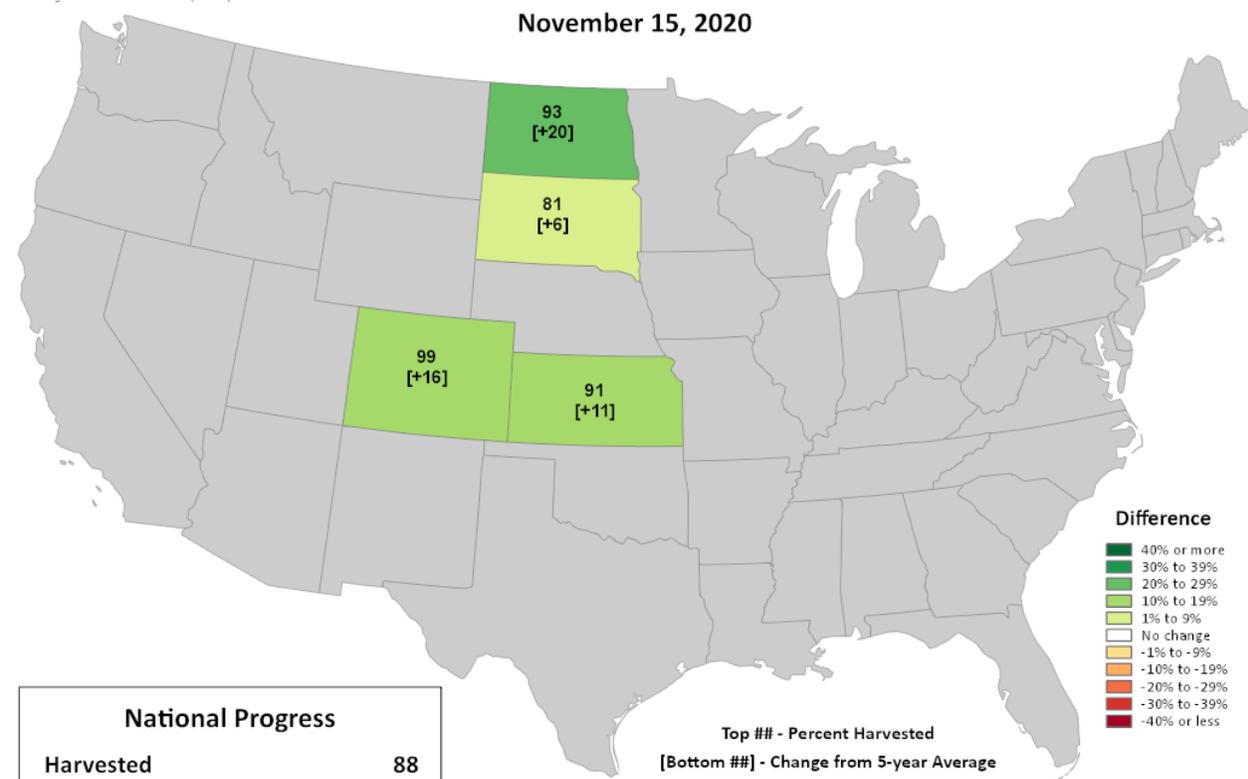
Top ## - Percent Harvested
Bottom ## - Change from 5-year Average

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

Sunflowers Progress

Percent Harvested

November 15, 2020



National Progress

Harvested	88
Change from 5-year Average	+13

Top ## - Percent Harvested
Bottom ## - Change from 5-year Average

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

Snow, Fire, Rivers and Lakes



Photo credit: Karen Nicolas

Modeled Snow Water Equivalent for 2020 November 18, 6:00 UTC

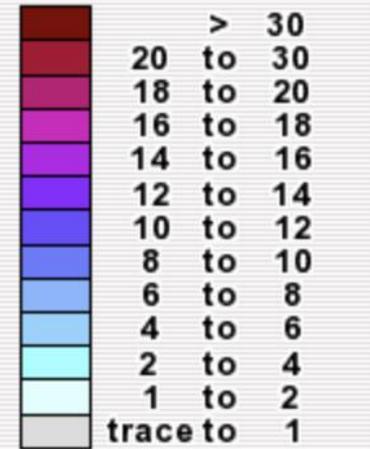
1507 mi



1464 mi

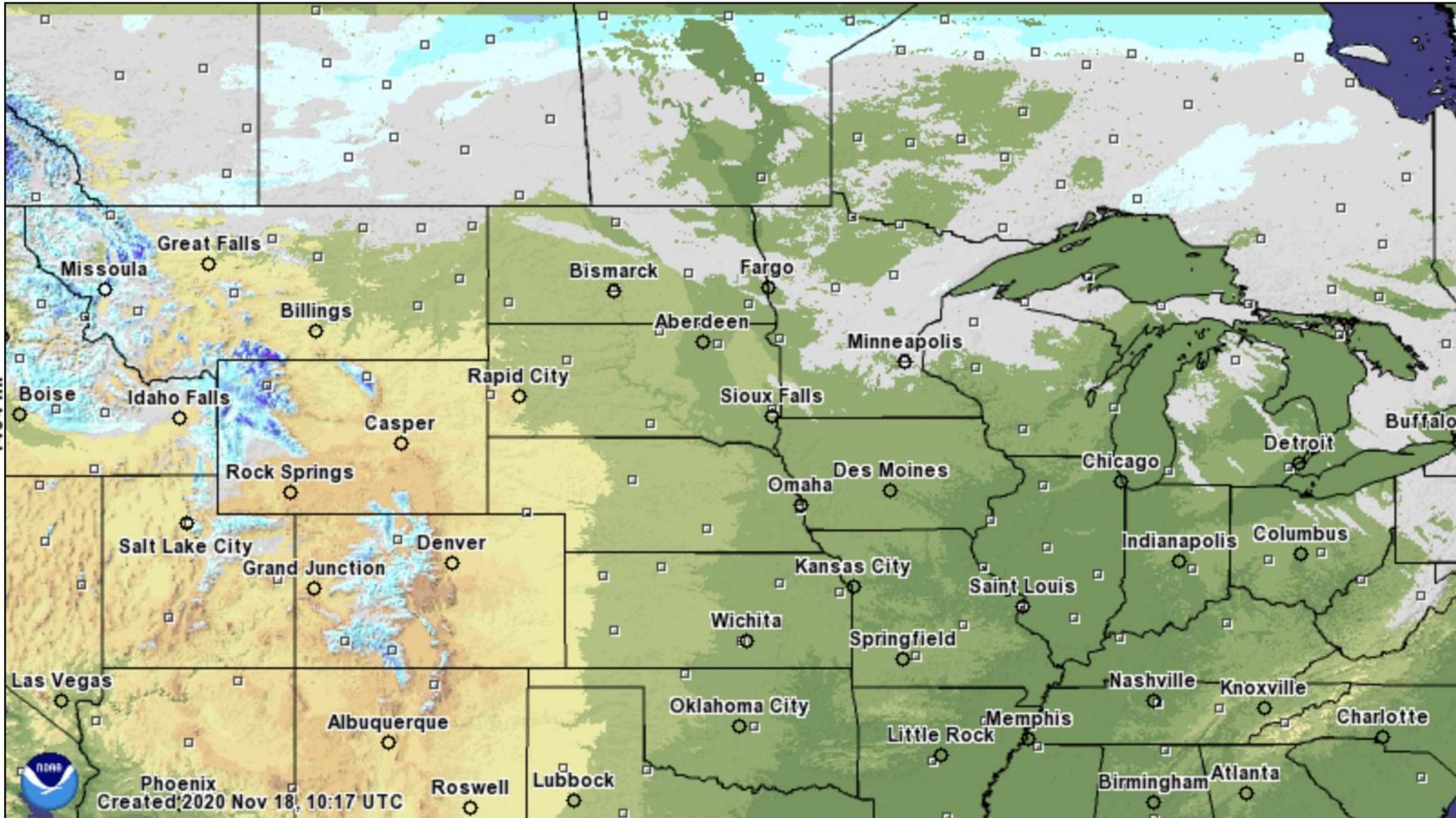
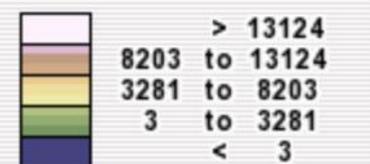
1464 mi

Inches of water equivalent



Not Estimated

Elevation in feet



2175 mi

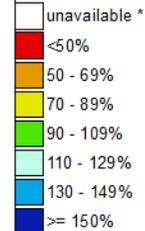


Created: 2020 Nov 18, 10:17 UTC

Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Nov 19, 2020

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



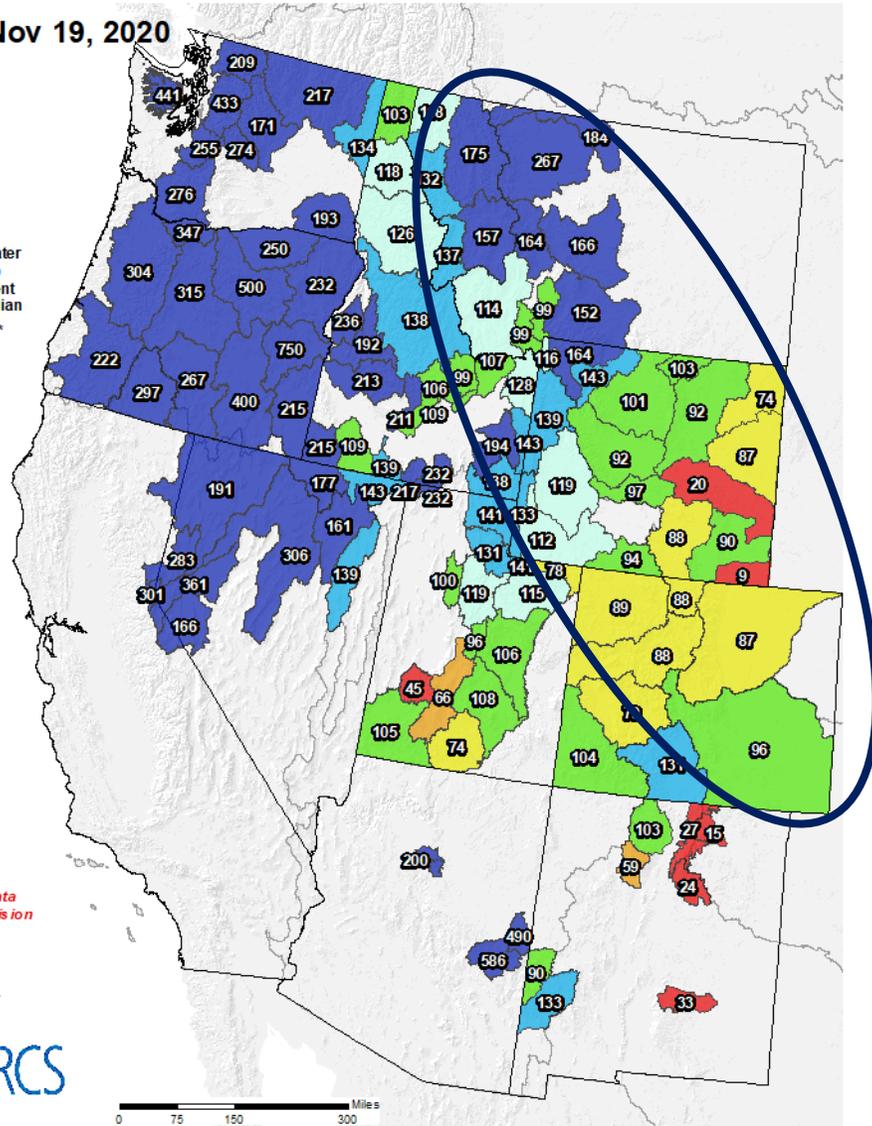
* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional data subject to revision

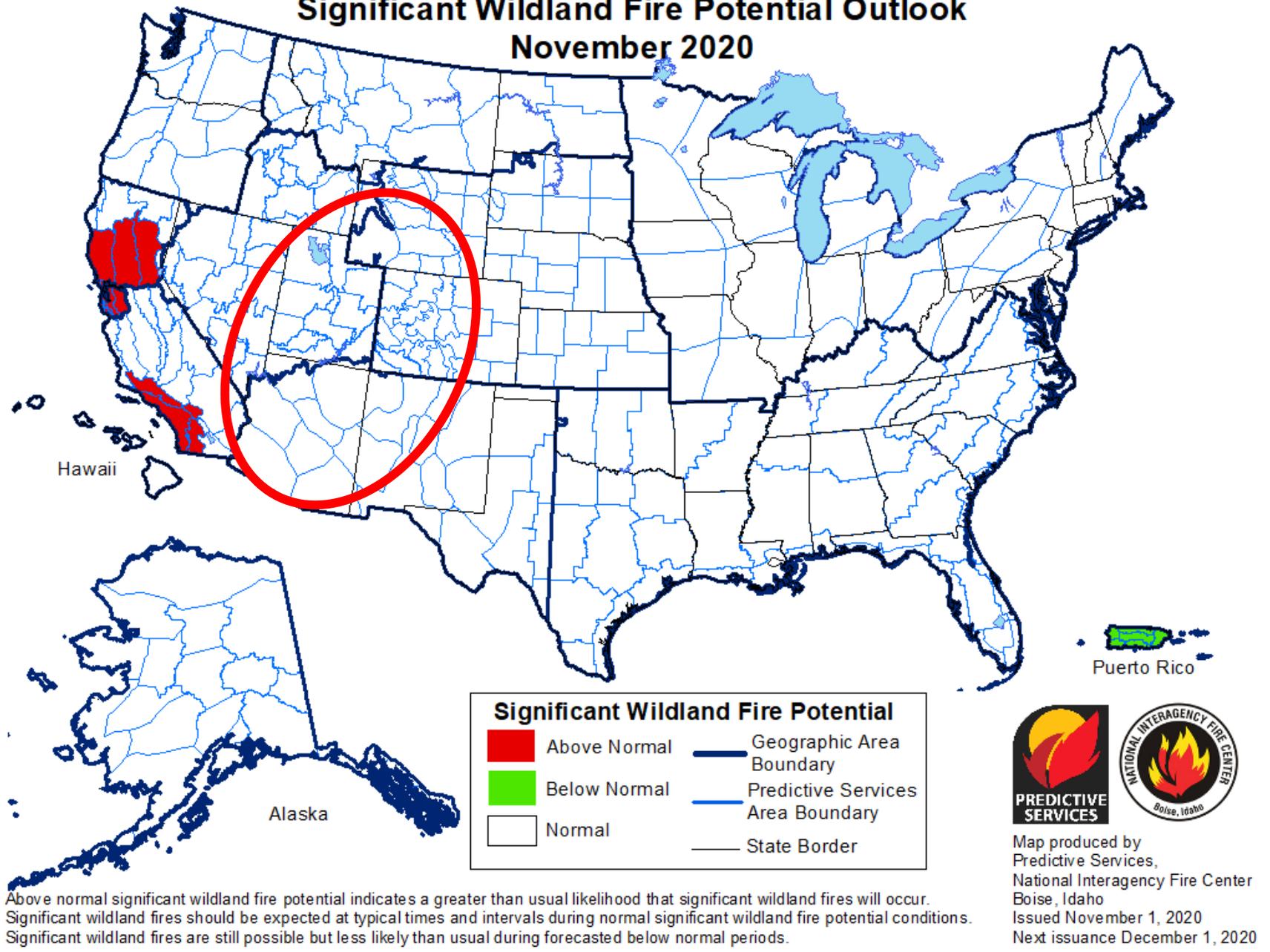


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTELs sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>



Significant Wildland Fire Potential Outlook November 2020

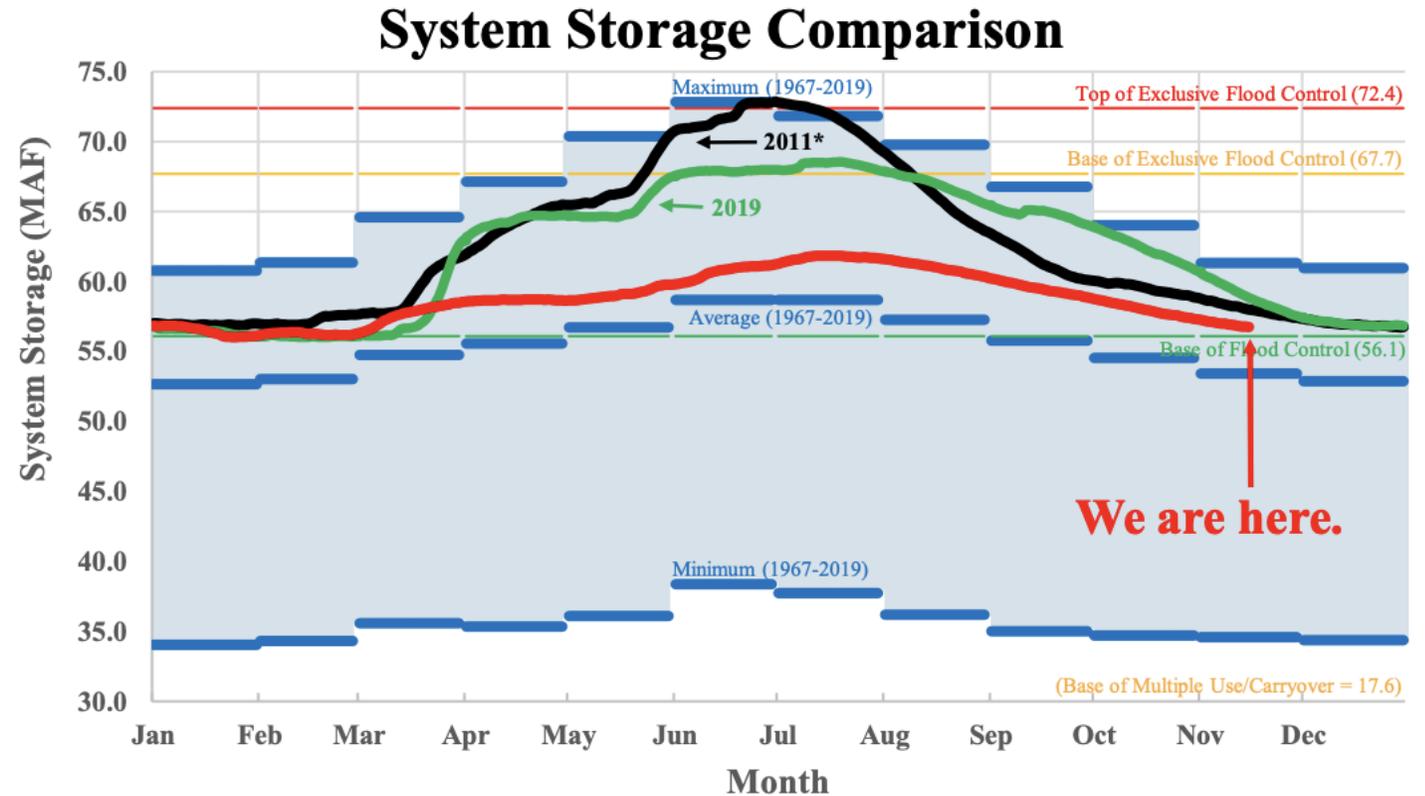


- Significant reduction of wildland fire potential from last month
- Expected as cooler and wetter conditions develop
- Most of the area within red ellipse had above normal potential in October

Missouri River

Missouri Mainstem Reservoir Status (as of 11/17/20):

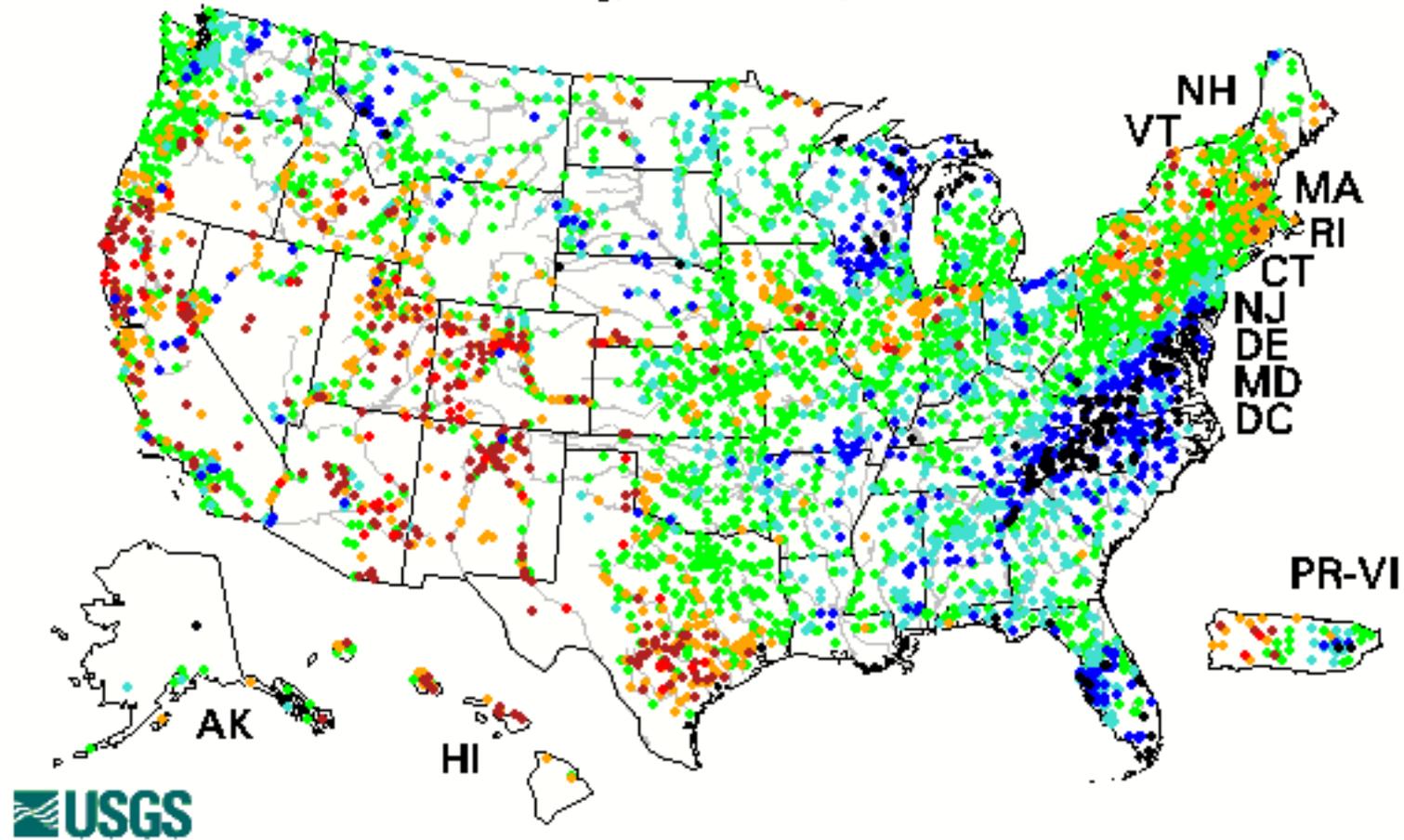
- System storage is 56.7 million-acre feet
- Reductions to Gavins Point winter release levels are scheduled to begin on November 24
- The Gavins Point release is currently 34,000 cfs. Releases will be adjusted as needed to meet full-service navigation targets



*In January 2011, the Base of Flood Control was 56.8 MAF, and the Top of Exclusive Flood Control was 73.1 MAF.

28-day Average Streamflow

Tuesday, November 17, 2020

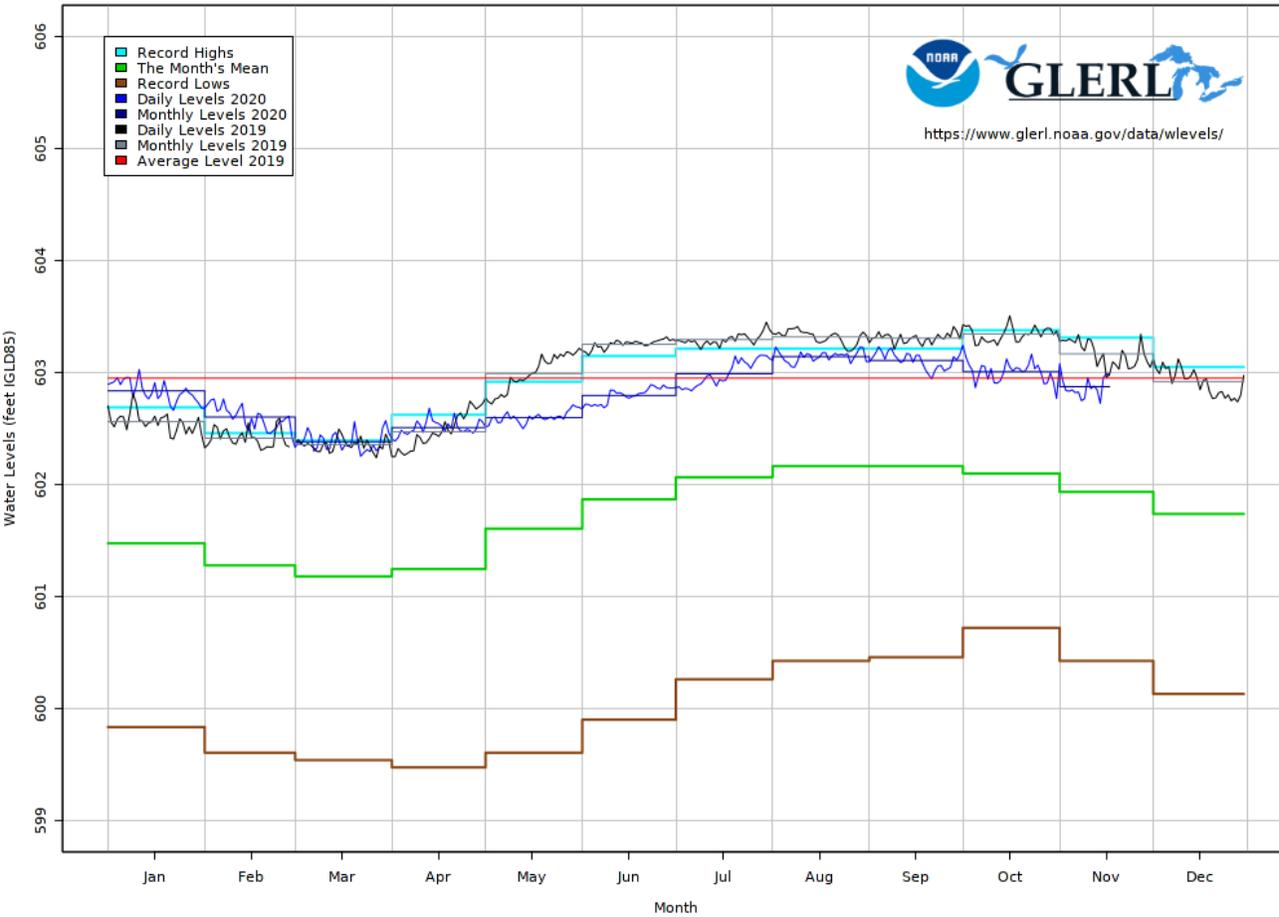


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

<http://waterwatch.usgs.gov/index.php?id=pa07d>

Great Lakes Water Levels

Lake Superior Water Levels from Marquette C.G., MI - 9099018 2019 - 2020
As of End of Day 11/17/2020 (Refresh your browser to ensure plot is up to date)



- All Great Lakes running well above their long-term averages
- However, they have dropped from record levels in 2018-2019
- Forecasted levels over the next six months should remain above the long-term average

Impacts and Notable Events

A large wildfire is burning in a mountainous area at dusk. The fire is intense, with bright orange and yellow flames rising into the sky, creating a thick plume of dark smoke. In the foreground, a town is visible, with its lights glowing against the dark landscape. The sky is a mix of deep blue and orange from the fire. A large white circular graphic is overlaid on the right side of the image, containing text.

State Impacts

- Big snow event at the end of October helped contain widespread and historic fires in Colorado
- The state has never had a 150,000 acre fire
- Have now had two since September – Cameron Peak and Pine Gulch fires

Photo Credit: The Denver Post



State Impacts

- Hundreds of waterfowl killed across northwestern Iowa due to rapid change in weather and standing water on roadways
- A record-setting October snowstorm dumped heavy snow in Minnesota, as well as parts of northern Wisconsin and the eastern Dakotas, causing slippery driving conditions.
- A snow squall warning for the Des Moines Metro on October 19th.

Dryness Concerns



Sub-soil conditions across much of the region show below normal percentiles



Recent warm and windy days produce higher evaporative demand (for this time of year)

Conditions allow for extraction of surface moisture, which does not help soil

This setup makes it hard for deep infiltration of moisture from rain events



Dry soils will freeze faster when temperatures get below freezing



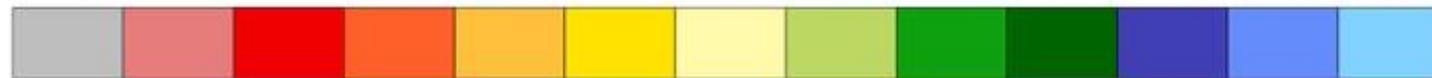
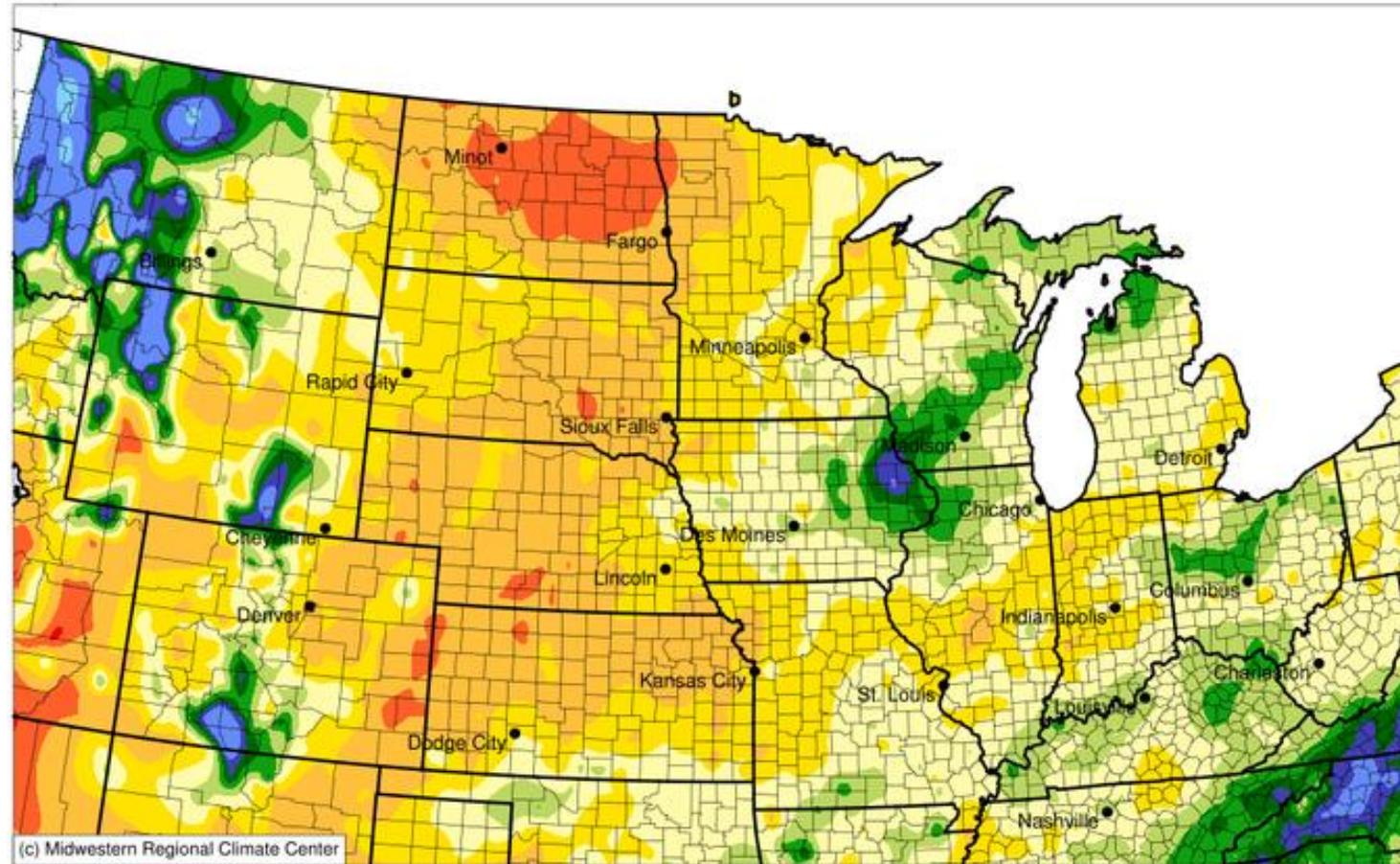
Soil recharge of concern for next growing season



Silver lining: Going into the growing season drier than normal will make field work/planting easier

Accumulated Precipitation (in): Percent of 1981-2010 Normals

September 01, 2020 to November 19, 2020



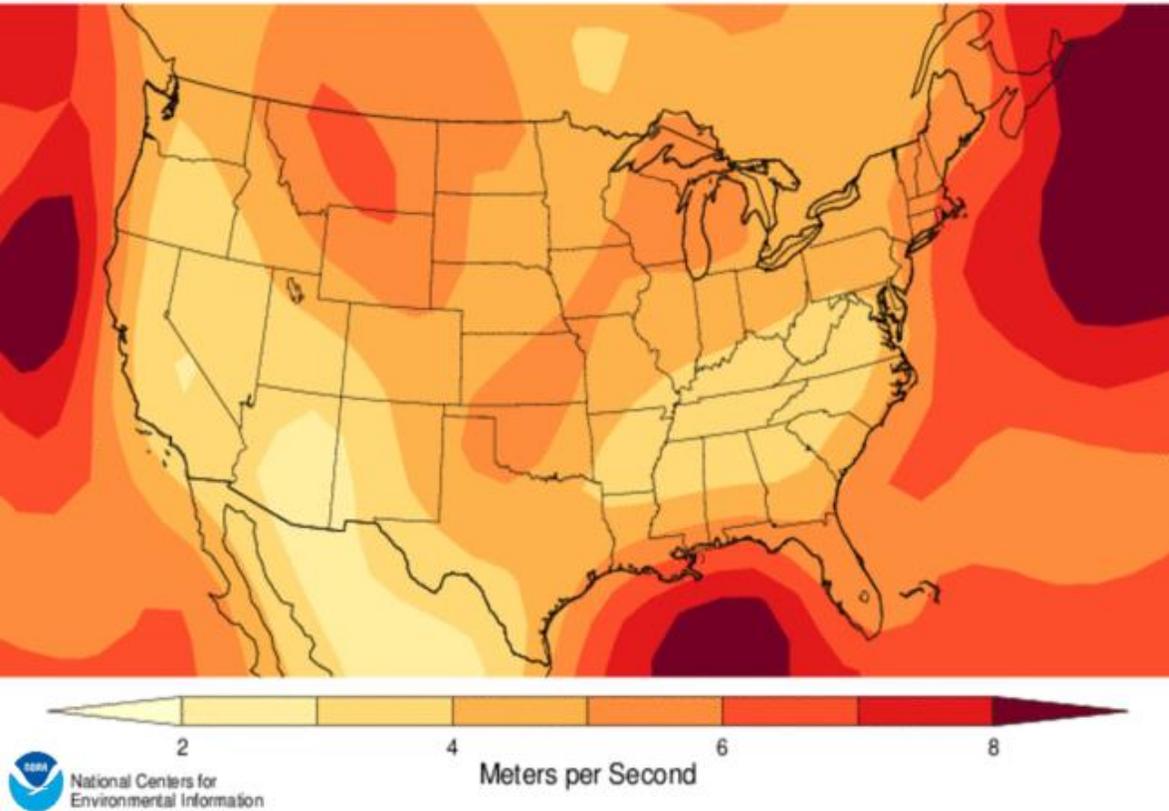
2 5 10 25 50 75 100 125 150 175 200 300

Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Missouri FSA, Missouri Mesonet, Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 11/19/2020 11:24:53 AM CST

https://mrcc.illinois.edu/CLIMATE/Maps/stnMap_btd2.jsp

Windy October

Monthly Mean 10m Wind Speed
October 2020



Our Windy Autumn of 2020

Autumn typically is the windiest season in northern Illinois & northwest Indiana, but this year, especially the past month or so, has seen a higher frequency of gusty days.

Wind Gusts at Chicago O'Hare from October 12 – November 15
35 day period

	<u>This Year</u> (% of days)	<u>5-Year Avg</u> (% of days)
>= 30 mph	20 days (57%)	11 days (31%)
>= 40 mph	9 days (26%)	2 days (6%)
>= 50 mph	3 days (9%)	1 day (3%)

National Weather Service Chicago

weather.gov/chicago

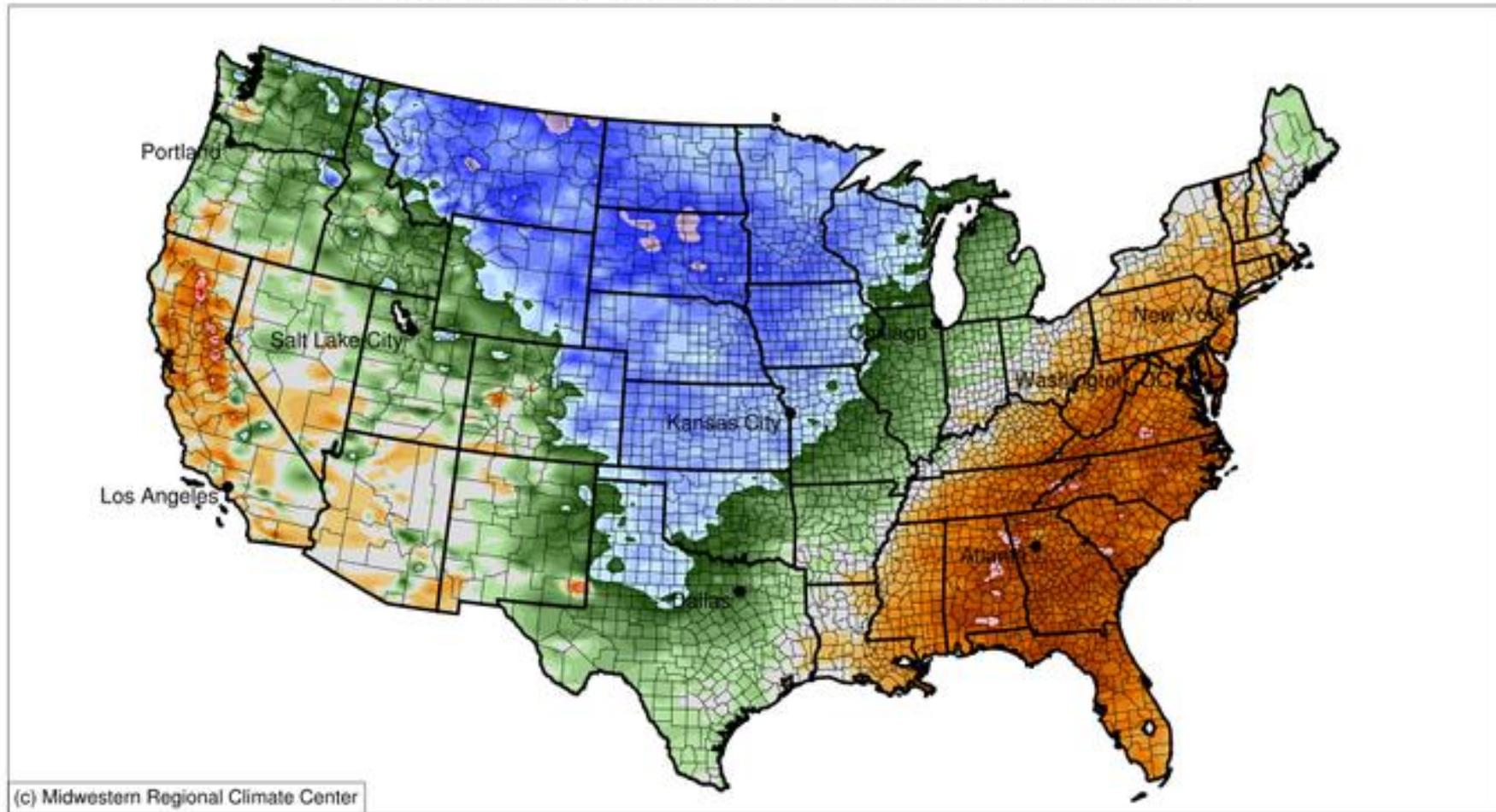
11/15/2020



<https://www.ncdc.noaa.gov/societal-impacts/wind/>

Average Temperature (°F): Departure from 1981-2010 Normals

October 19, 2020 to October 31, 2020



-23

-18

-13

-8

-3

2

7

12

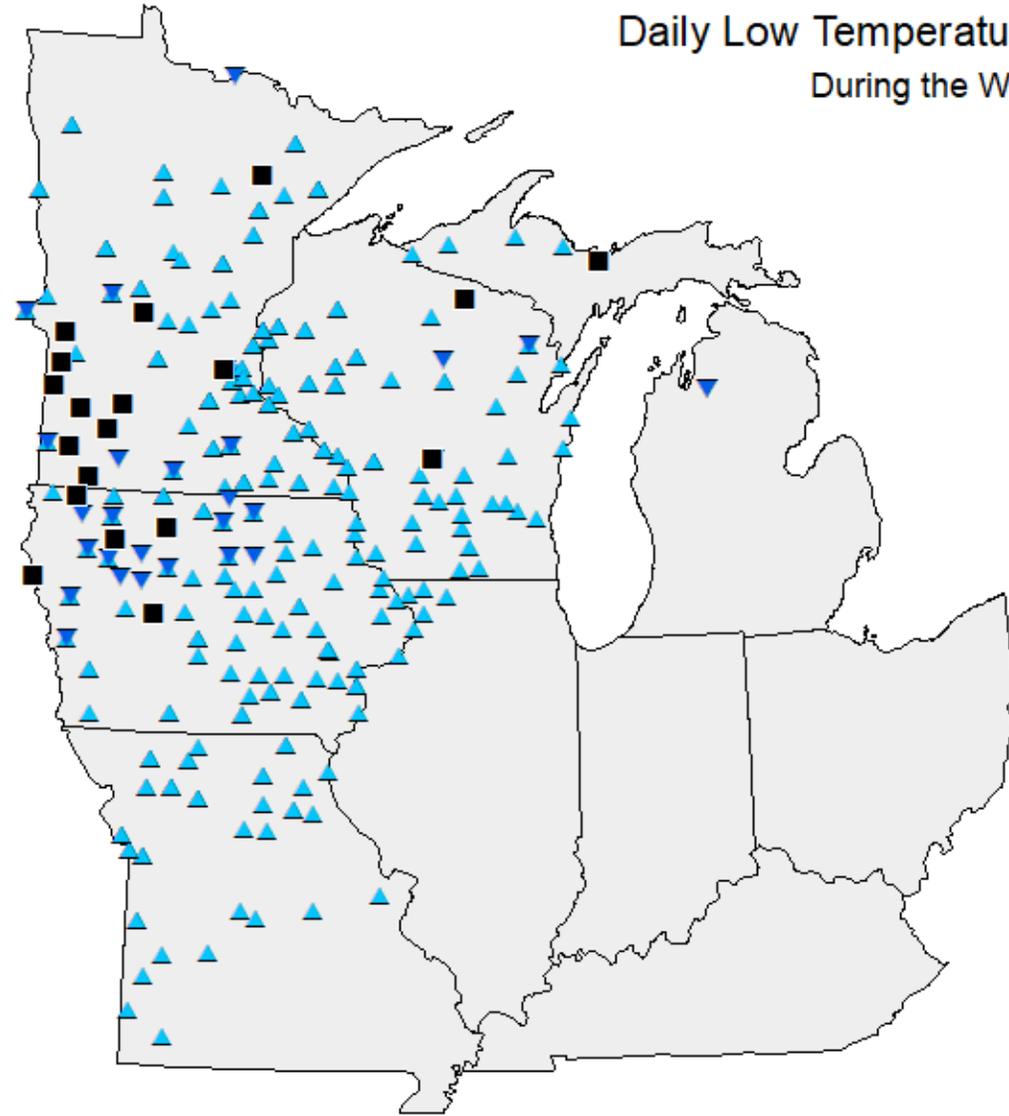
Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Missouri FSA, Missouri Mesonet,

Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

Generated at: 11/18/2020 2:53:03 PM CST

Daily Low Temperature Records broken or tied During the Week of 10/18/2020 - 10/24/2020



- Both Low Minimum and Maximum
- ▼ Low Minimum
- ▲ Low Maximum

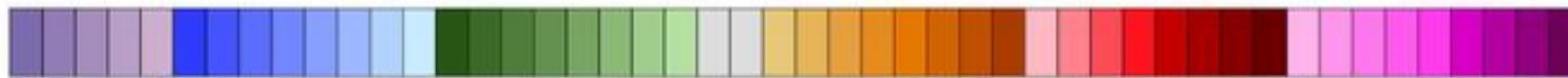
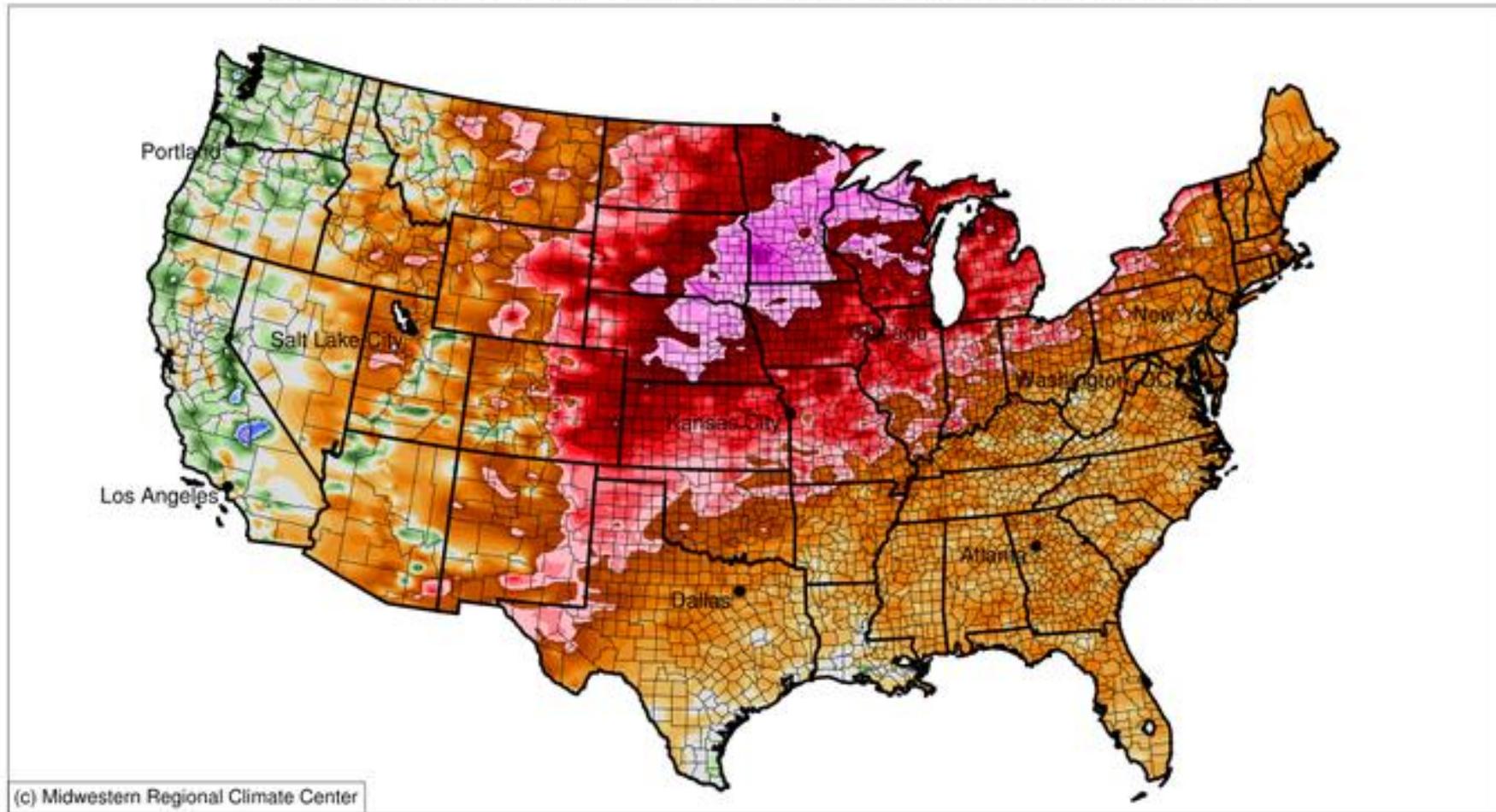
Low Min: 48
Low Max: 363



Minimum 30 years of data
All Reports Are Considered Preliminary

Average Temperature (°F): Departure from 1981-2010 Normals

November 03, 2020 to November 09, 2020



-21

-16

-11

-6

-1

4

9

14

19

24

Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Missouri FSA, Missouri Mesonet,

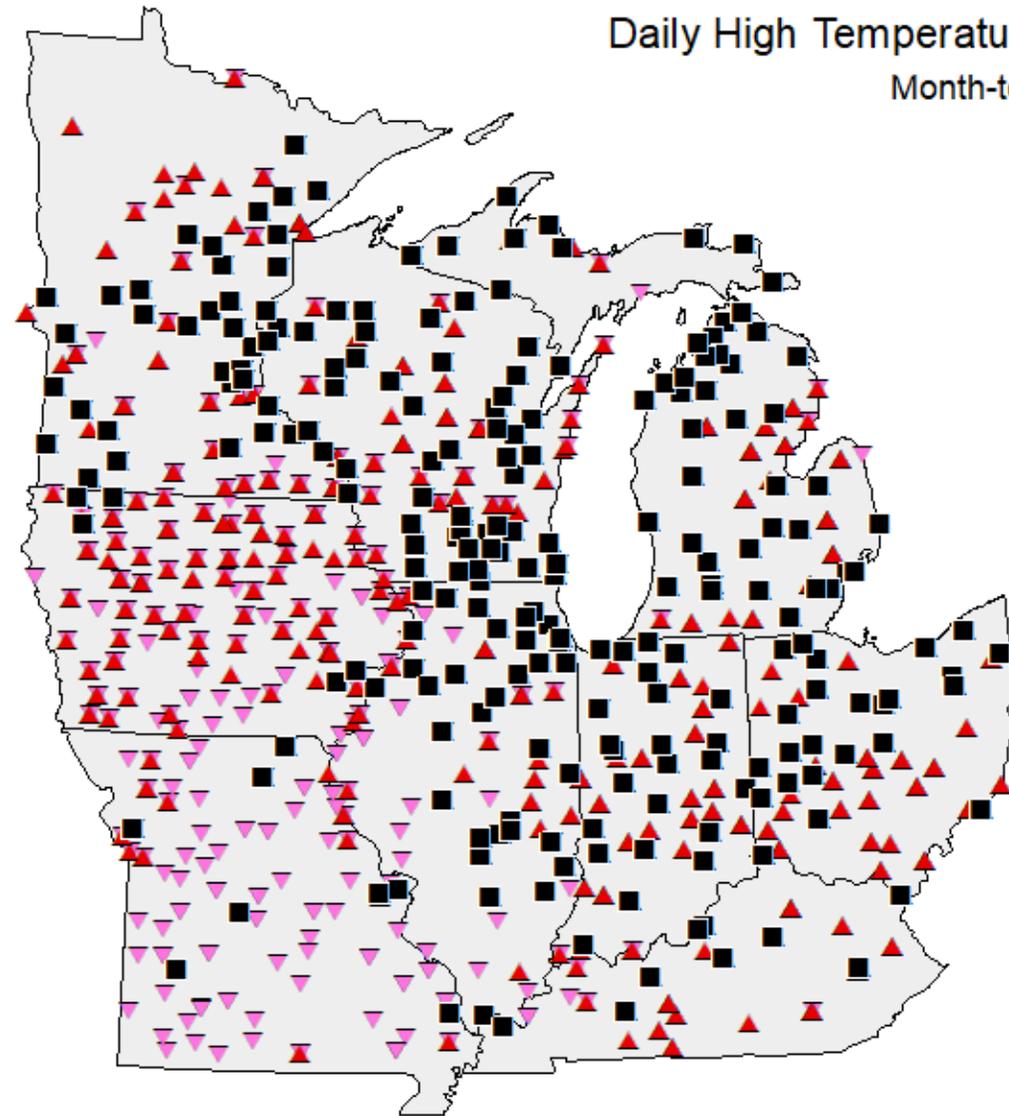
Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

Generated at: 11/18/2020 3:15:38 PM CST

Daily High Temperature Records broken or tied

Month-to-Date: 11/1/2020 - 11/18/2020



- Both High Maximum and Minimum
- ▲ High Maximum
- ▼ High Minimum

High Max: 1312

High Min: 686



Powered by **ACIS**
Regional Climate Centers

Minimum 30 years of data

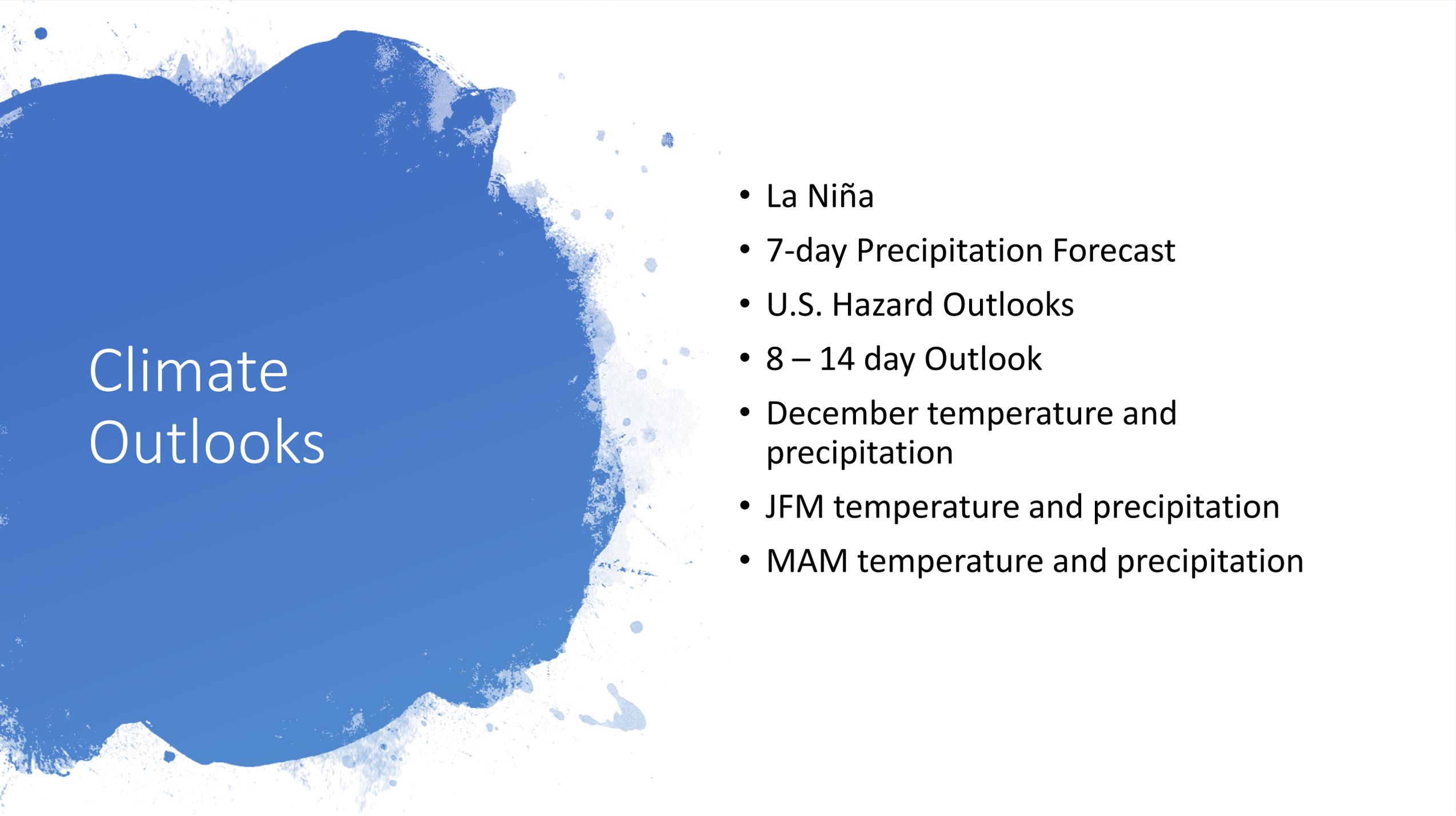
All Reports Are Considered Preliminary

Station Extremes:

- Finally, note that there were some monthly record lows in late October and monthly record highs in early November – at the same locations.
- Scottsbluff, Nebraska, was one of those stations:
 - October record low of -10°F on the 27th
 - November record-tying high of 80°F on the 3rd, followed by highs of 80°F on Nov. 4 and 81°F on Nov. 5



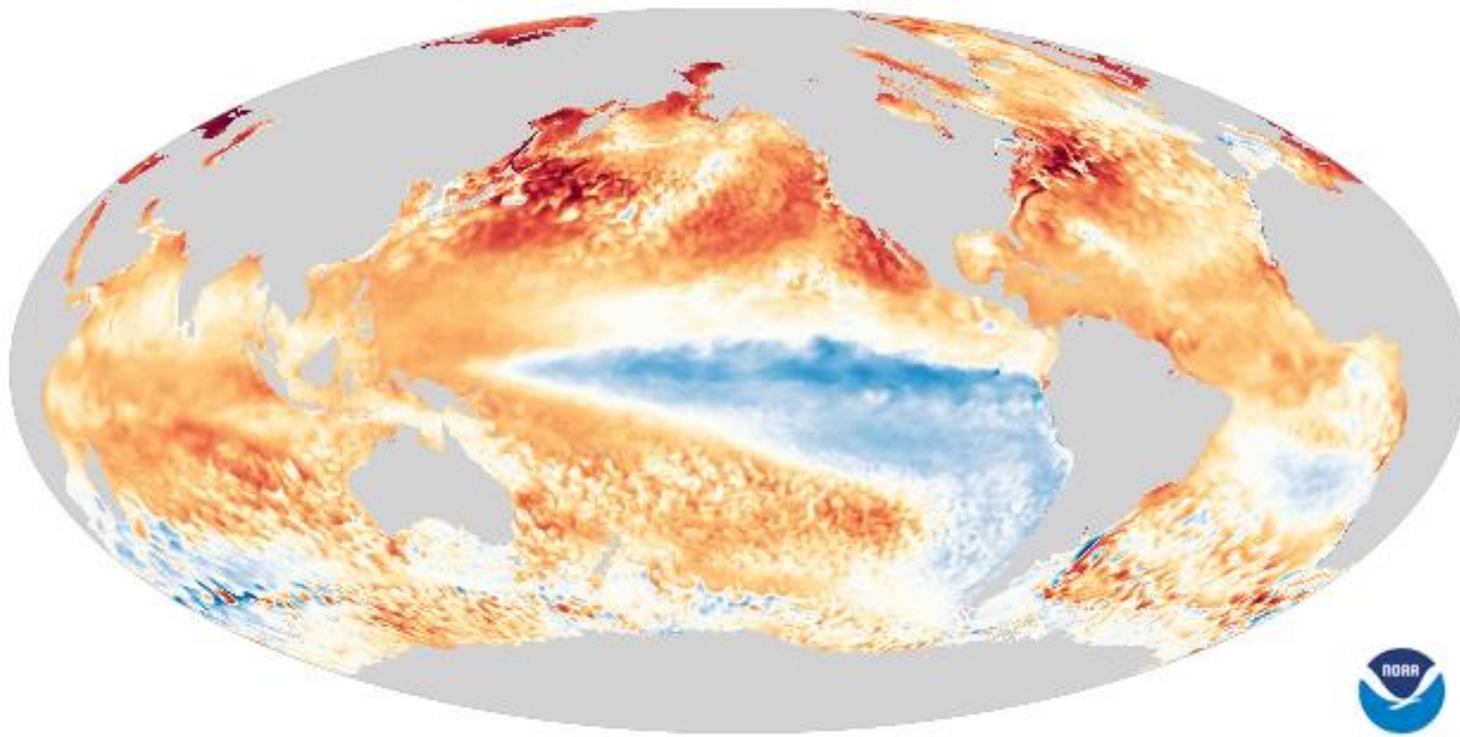
Photo: National Park Service



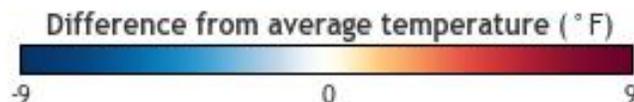
Climate Outlooks

- La Niña
- 7-day Precipitation Forecast
- U.S. Hazard Outlooks
- 8 – 14 day Outlook
- December temperature and precipitation
- JFM temperature and precipitation
- MAM temperature and precipitation

La Niña Advisory



October 2020
Compared to 1981-2010

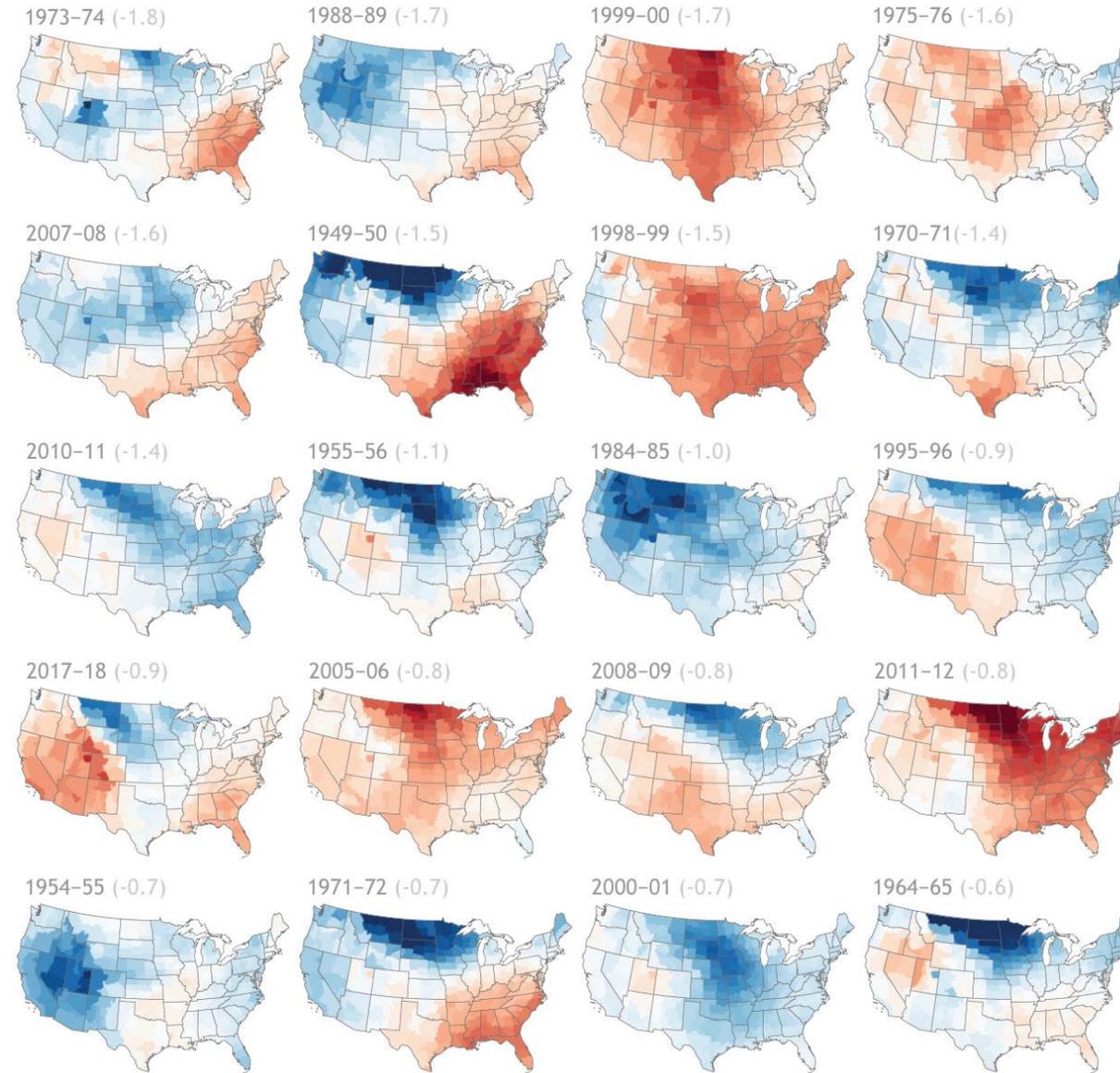


NOAA NNVL
Data: NCEI

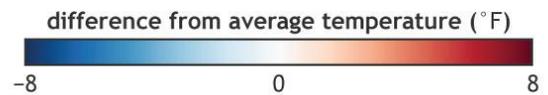
- In October, the tropical Pacific and atmosphere both indicated a strengthening La Niña
- La Niña is likely to continue across the Northern Hemisphere 2020-21 winter
 - ~95% chance during January-March and into spring 2021
 - ~65% chance in Spring 2021 during March-May
- At -1.3°F , this was the eighth-strongest negative October value on record, which dates back to 1950

Winter temperature patterns during the 20 strongest La Niña events since 1950

Dec-Feb (ONI value)

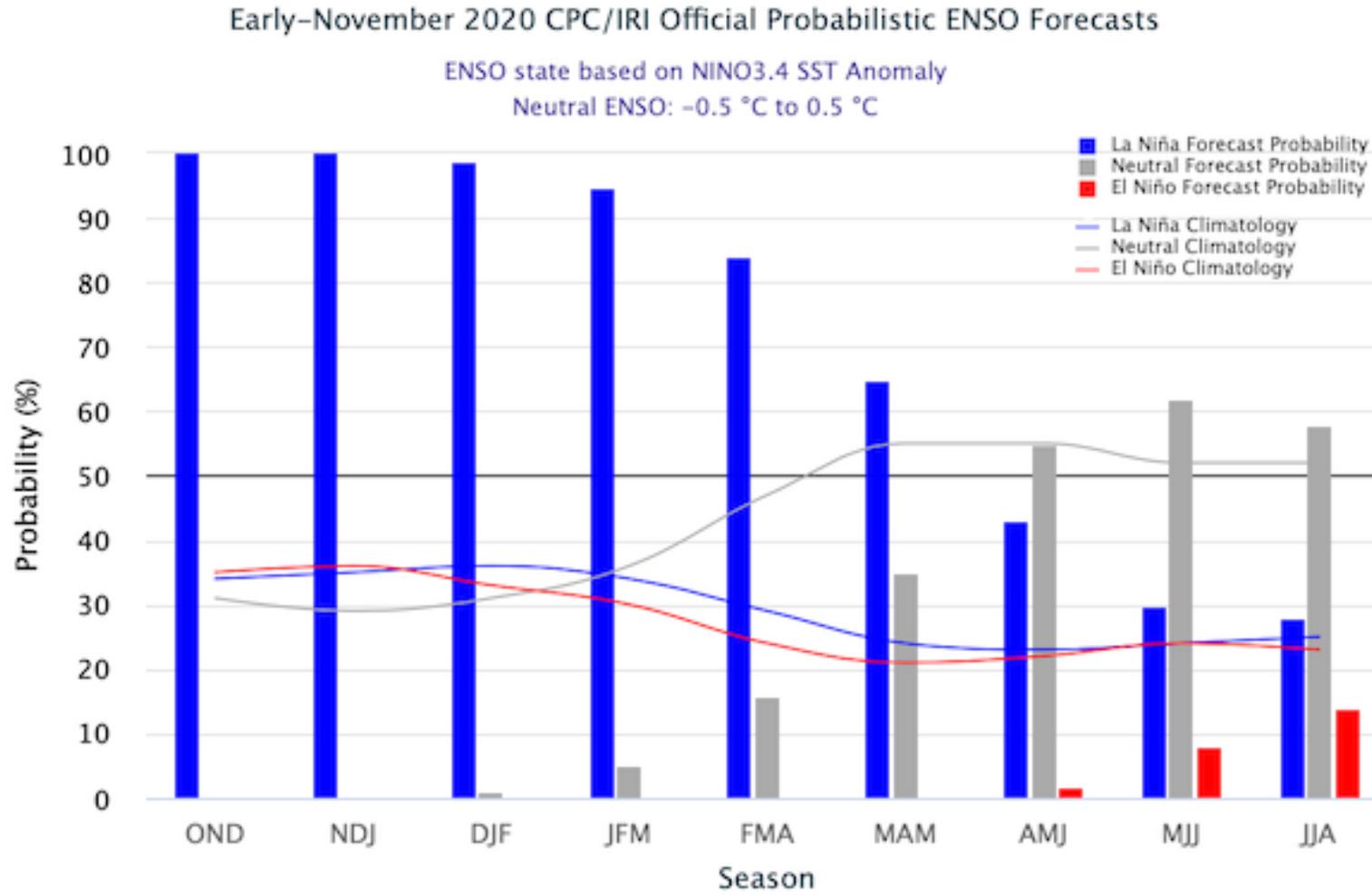


December-February
vs. 1981-2020 average



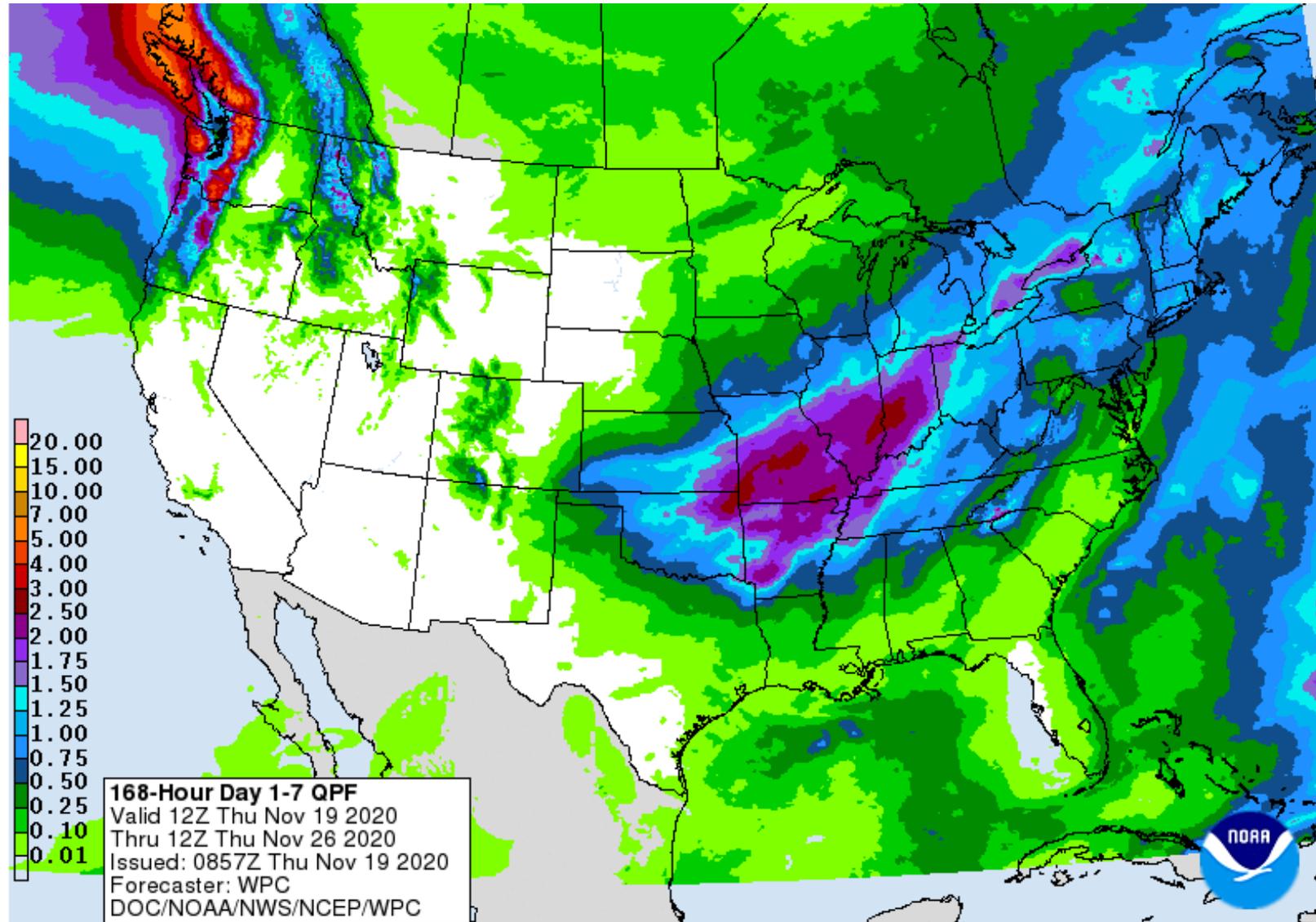
NOAA Climate.gov
Data: NCDC/ESRL

ENSO Probabilities



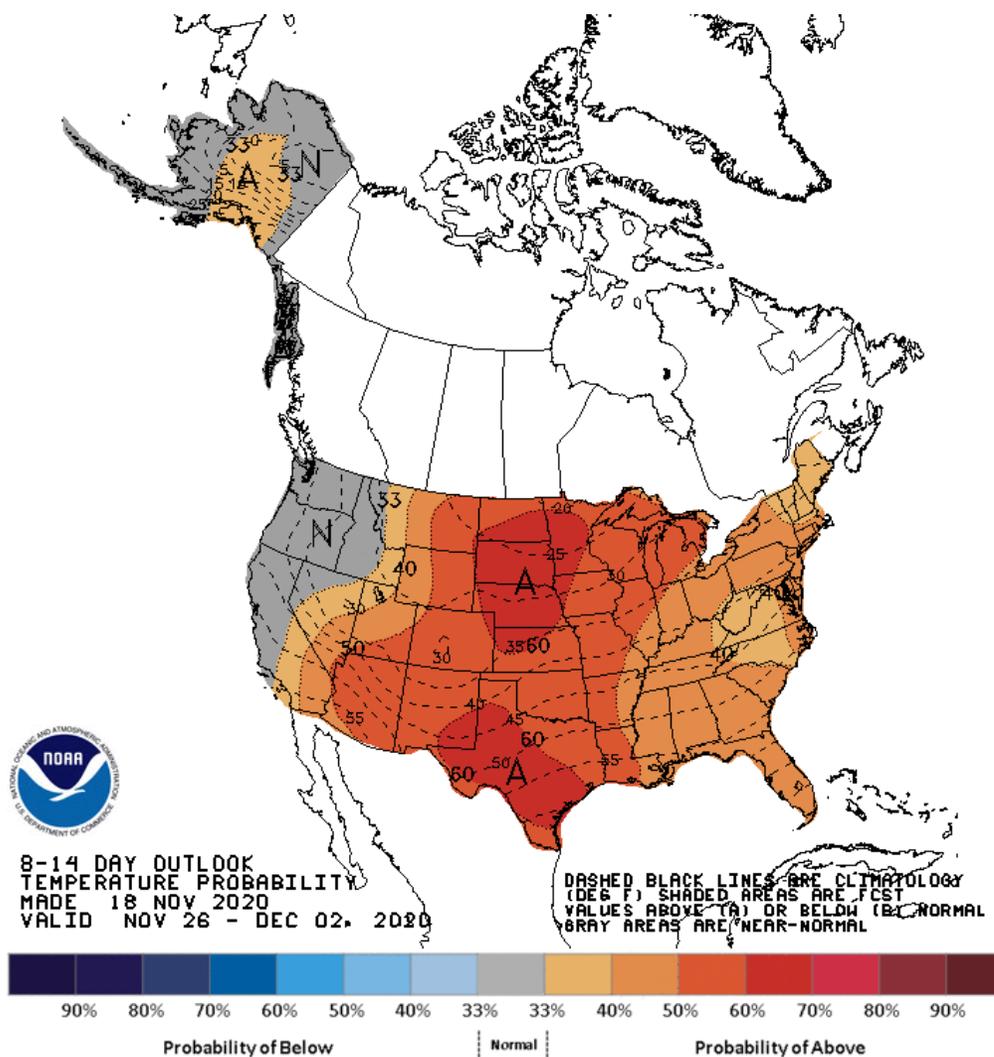
7-day Quantitative Precipitation Forecast

Valid: 19 Nov. – 26 Nov.

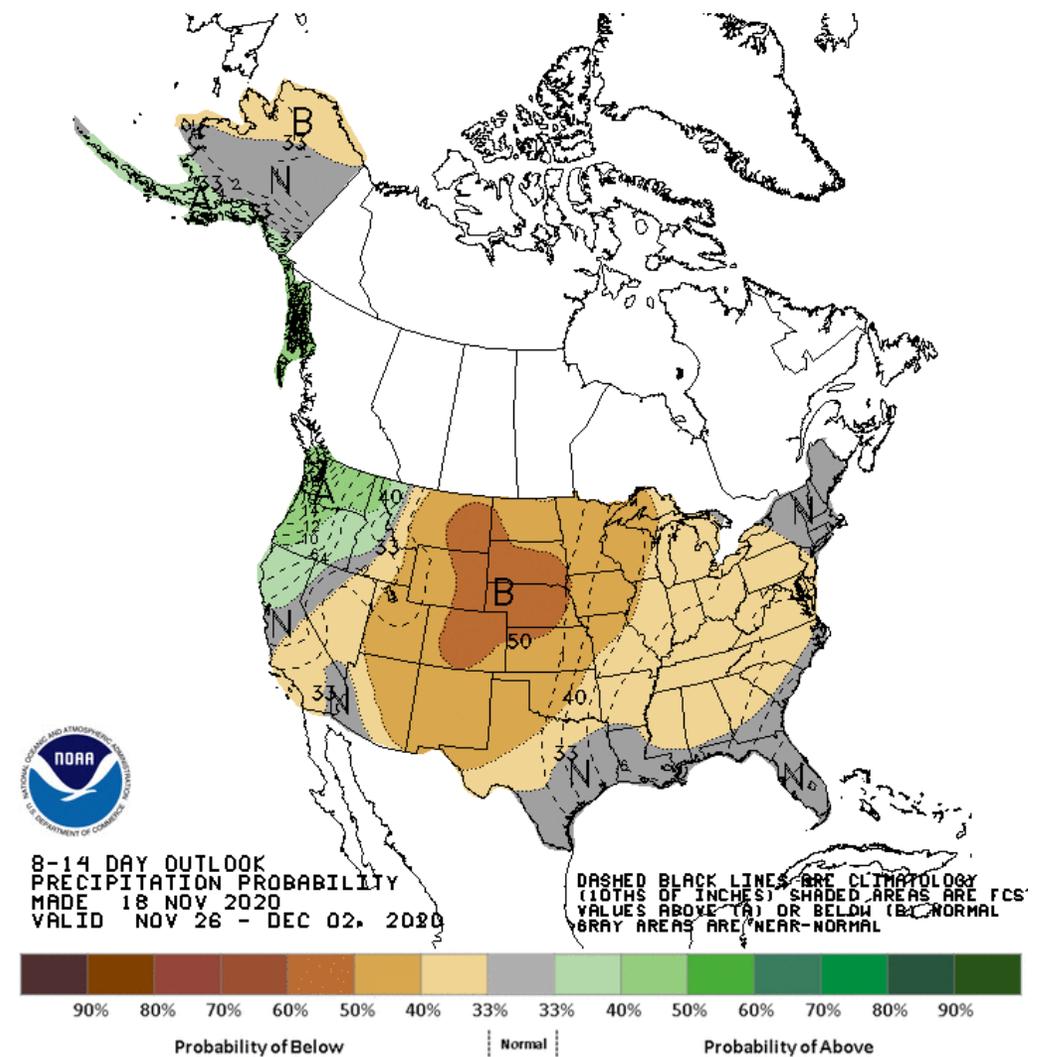


<https://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml>

8-14 Day Outlook

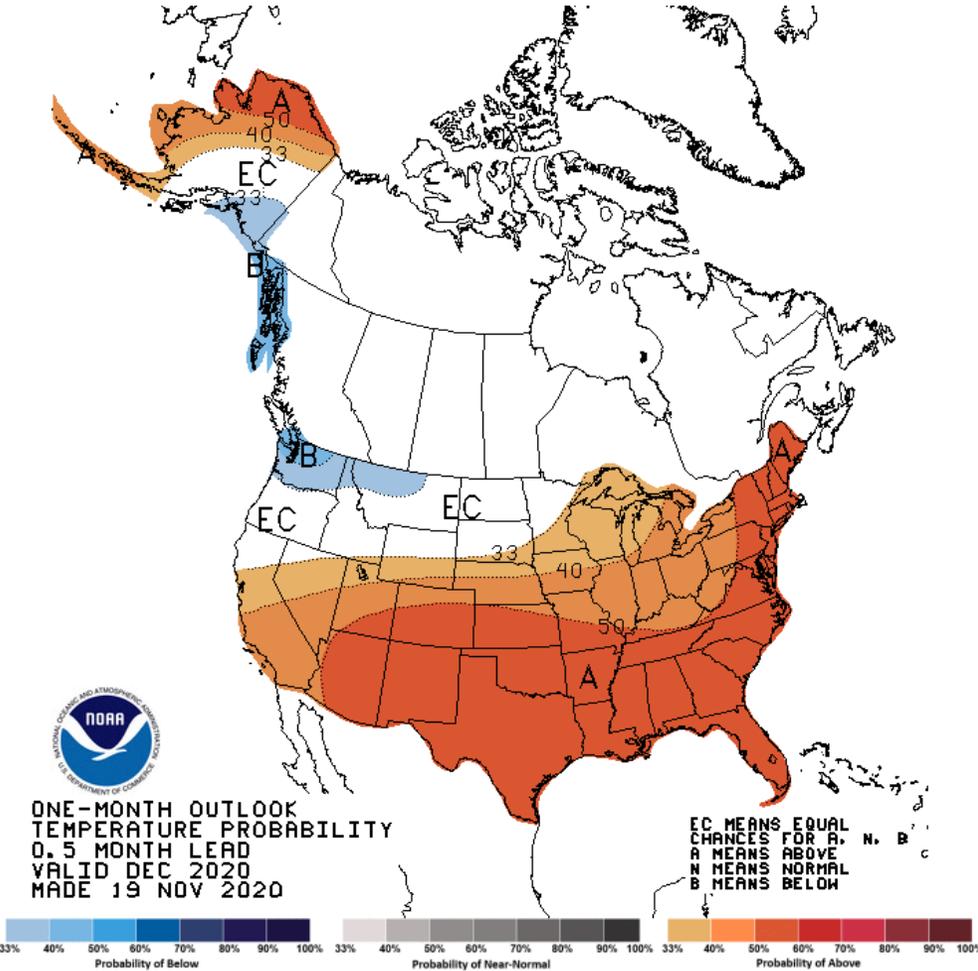


Temperature

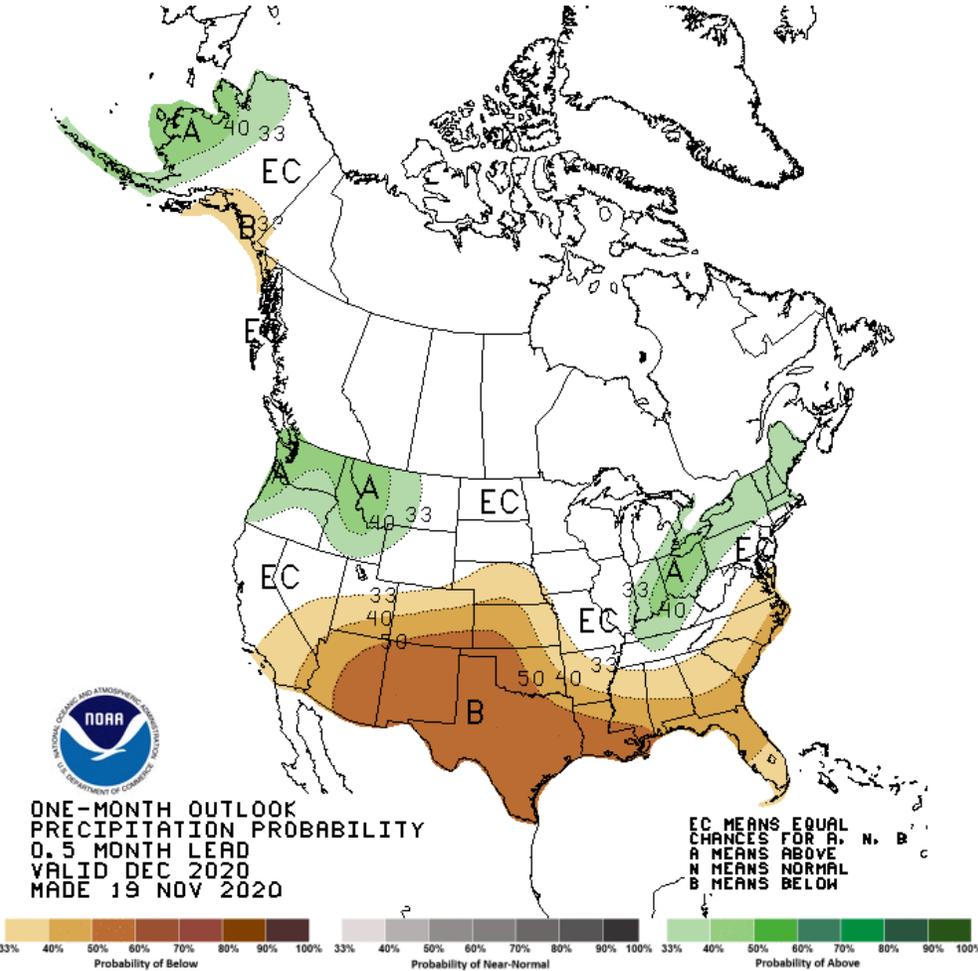


Precipitation

December Outlook

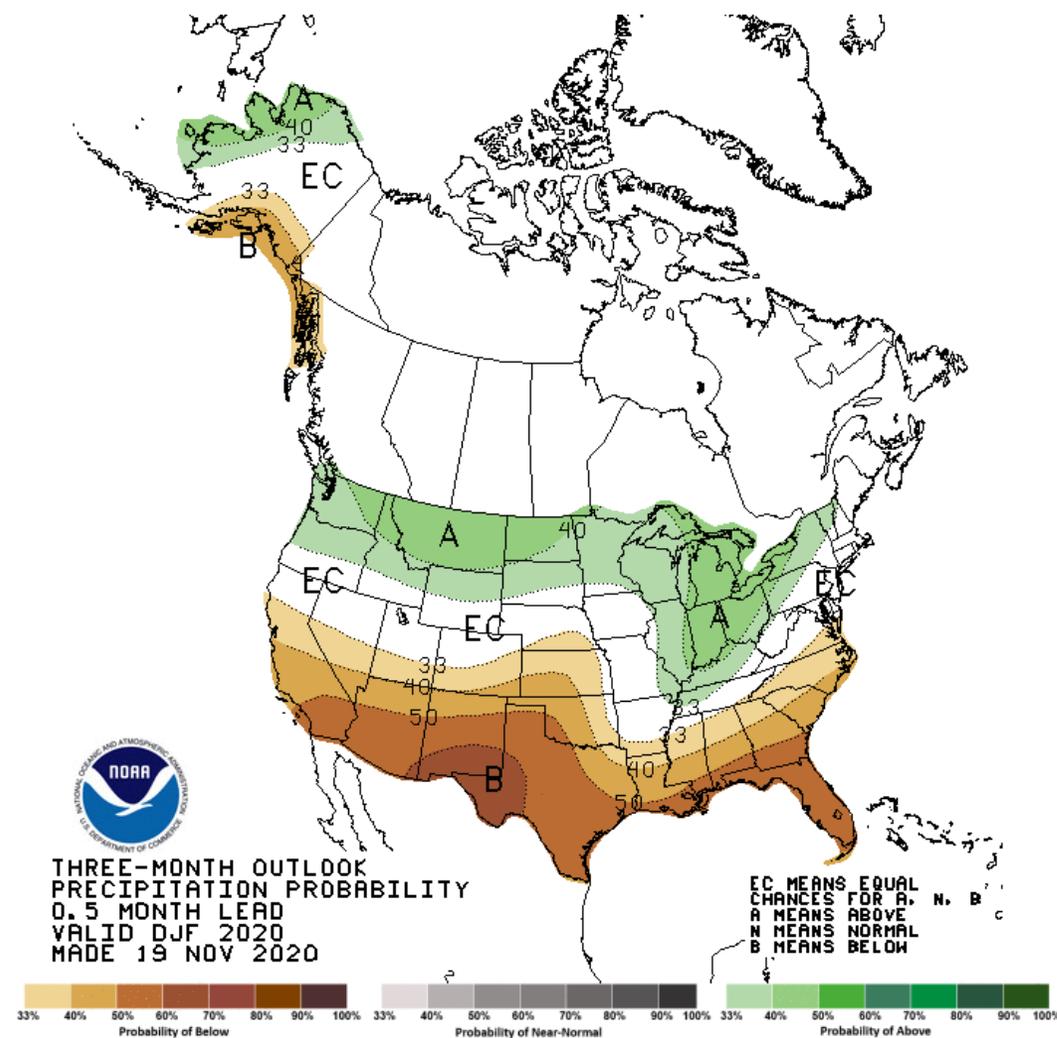
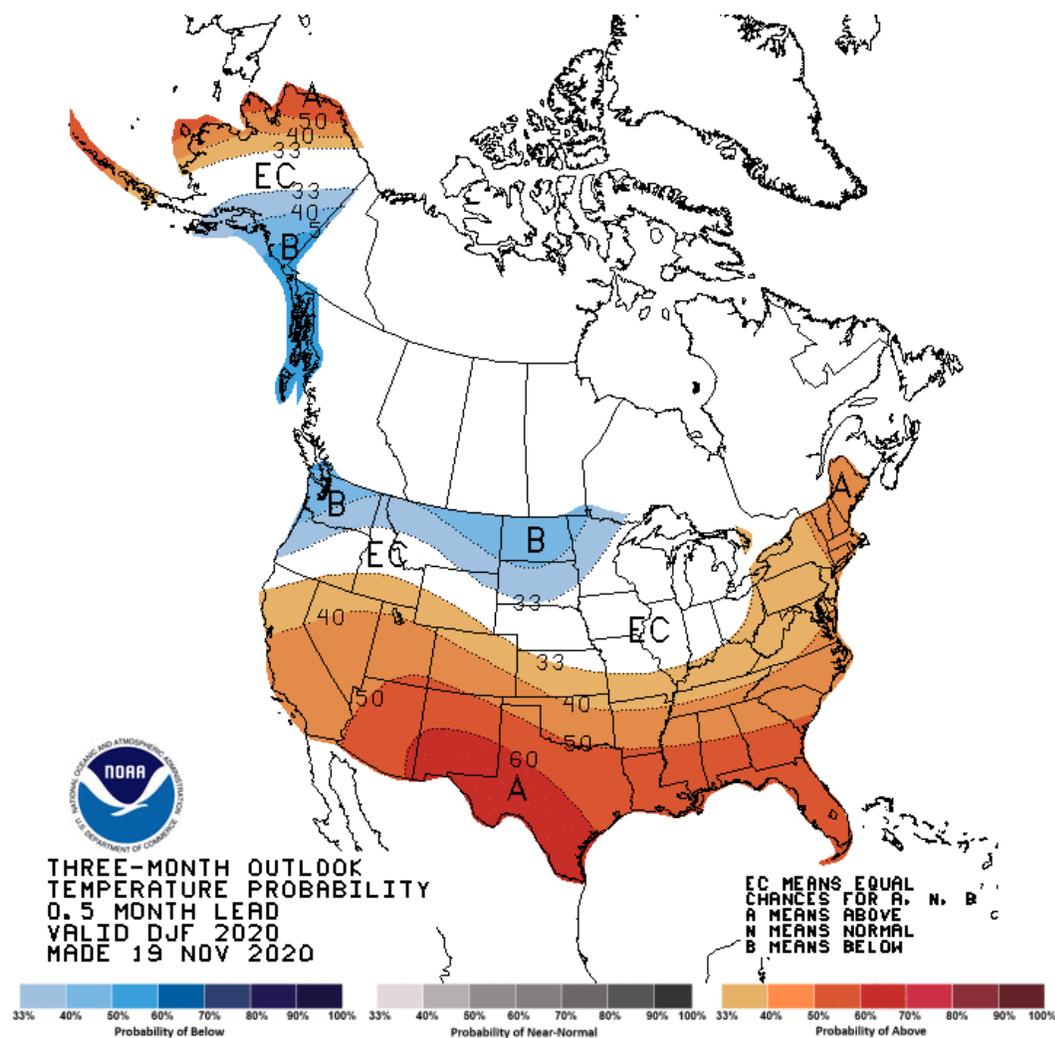


Temperature



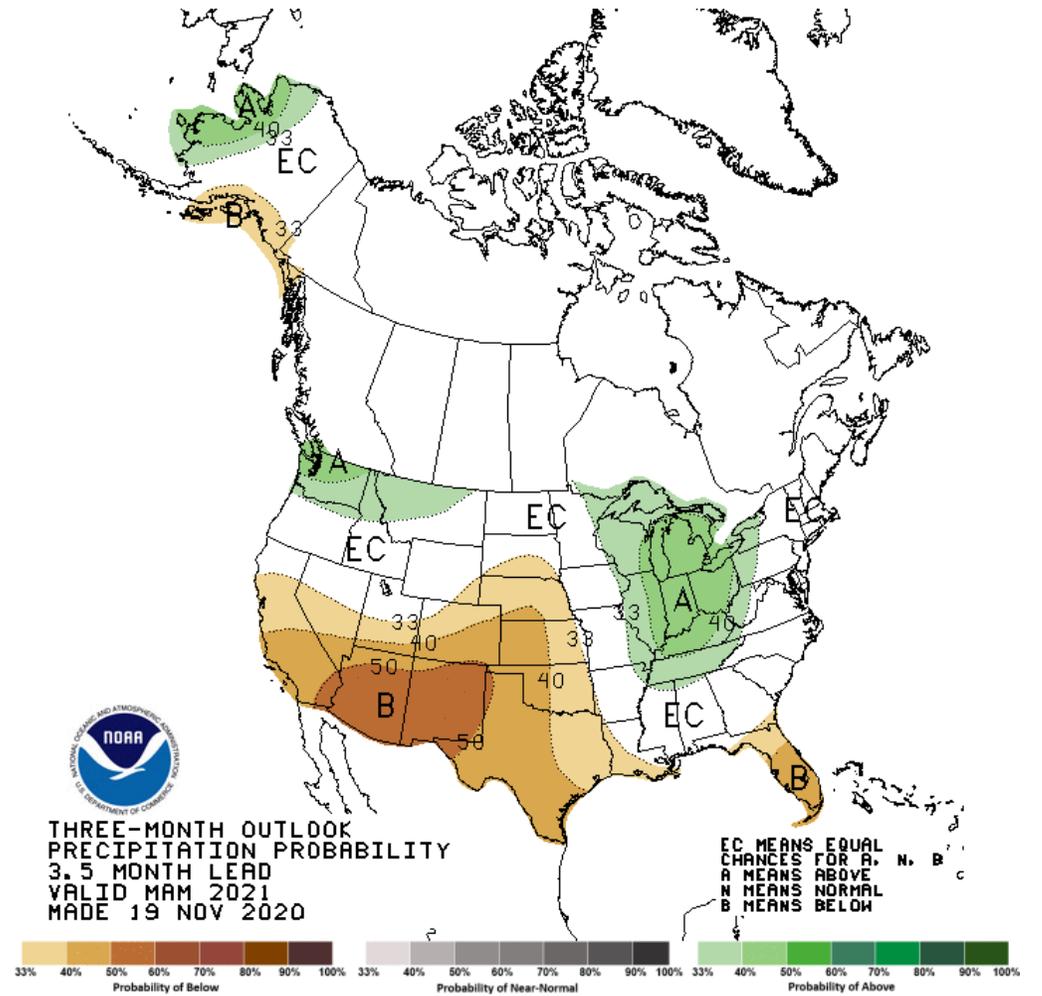
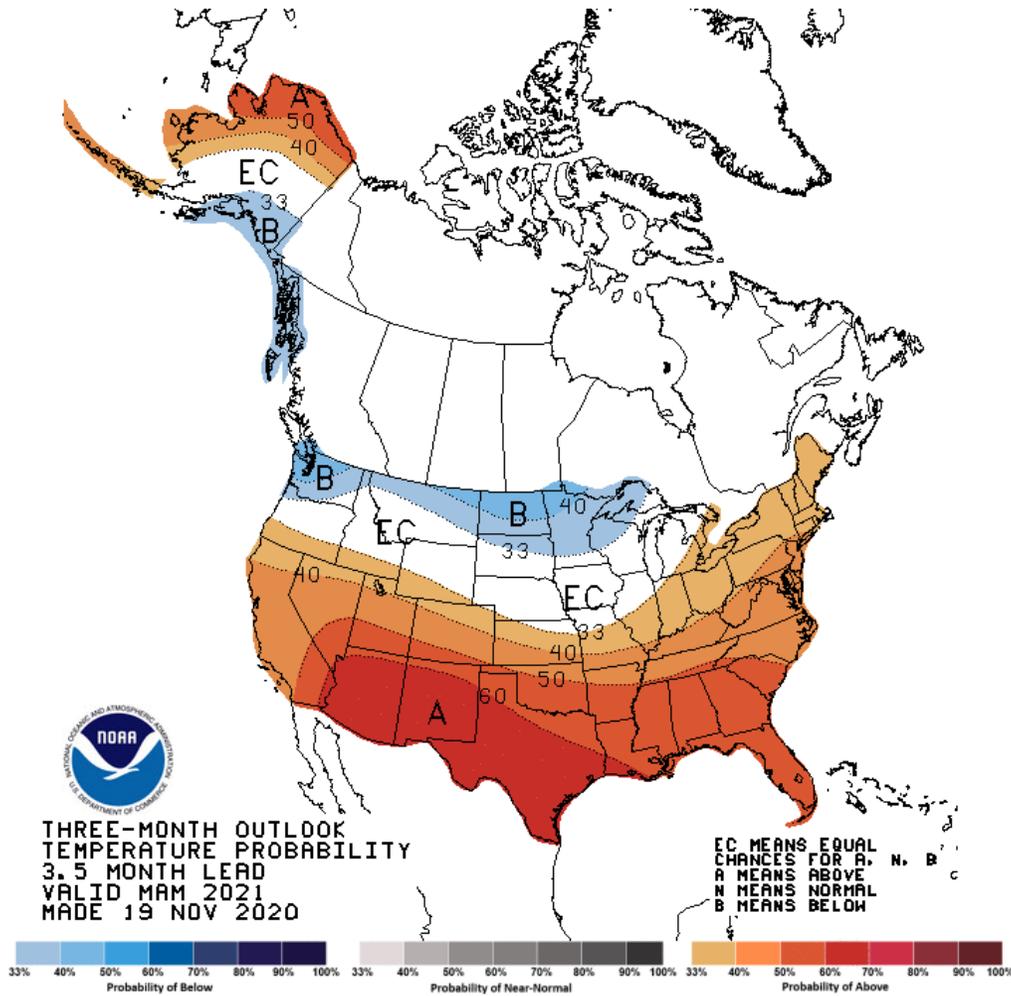
Precipitation

DJF 2020/2021 Outlooks



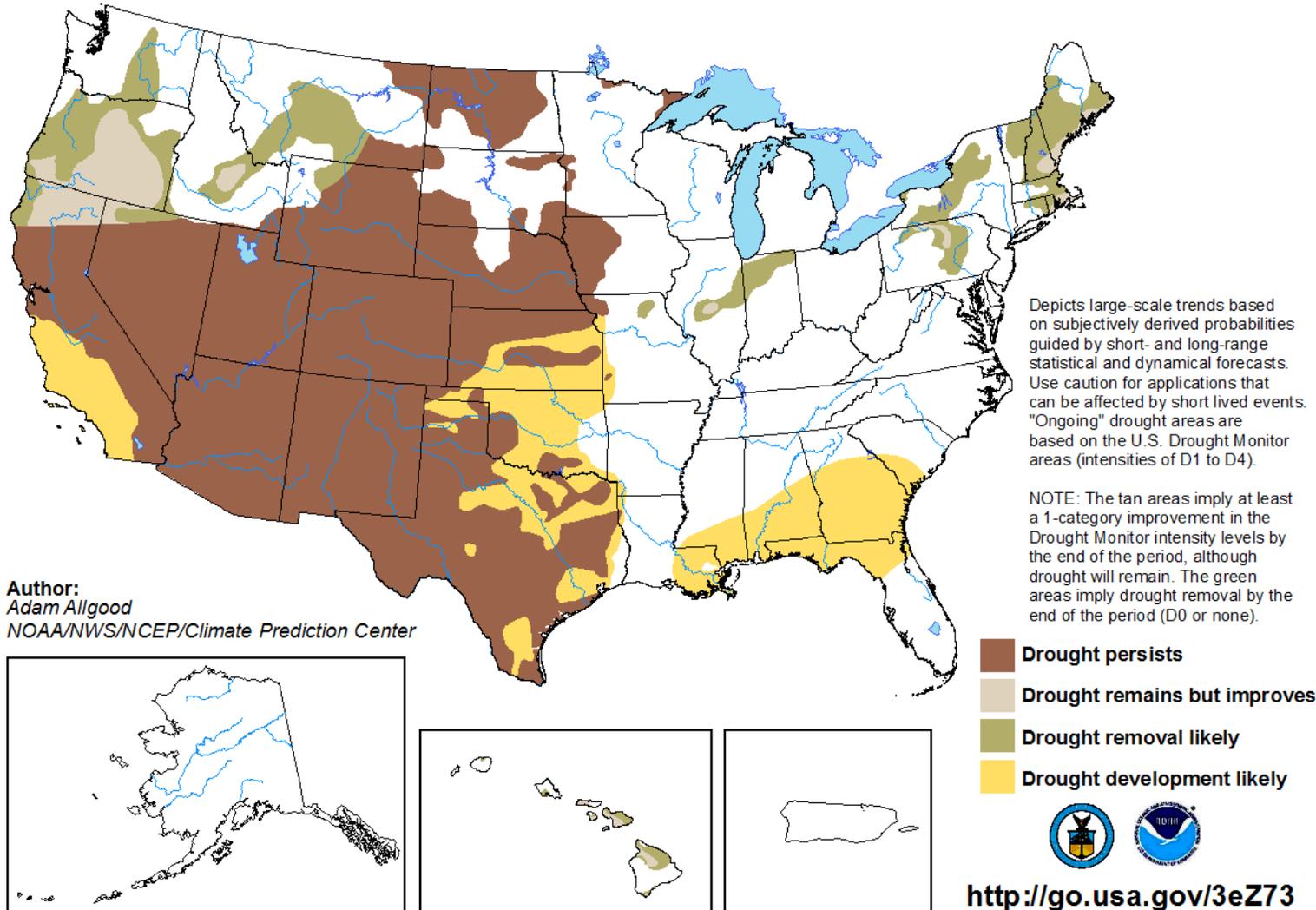
https://www.cpc.ncep.noaa.gov/products/predictions/long_range/

MAM 2021 Outlooks



Seasonal Drought Outlook

U.S. Seasonal Drought Outlook *Valid for November 19, 2020 - February 28, 2021*
Drought Tendency During the Valid Period *Released November 19, 2020*



Outlook Summary

- Short-term outlooks showing high probabilities of above average temperatures and below-average precipitation
- Classic La Niña signal showing in updated monthly and seasonal outlooks
 - High probability of a strong La Niña
 - We shouldn't expect major changes in the maps moving forward
 - Analog years show high variability in temperature and precipitation vs. El Niño phase
 - Some of the biggest signals from La Niña will be late winter and early spring, especially across the Ohio Valley and Great Lakes – wet.

Further Information - Partners

- **Today's and Past Recorded Presentations:**
- <http://mrcc.isws.illinois.edu/webinars.htm>
<http://www.hprcc.unl.edu>
- NOAA's National Centers for Environmental Information: www.ncdc.noaa.gov
 - Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov
- Climate Portal: www.climate.gov
- U.S. Drought Portal: www.drought.gov
- National Drought Mitigation Center: <http://drought.unl.edu>
- State climatologists
 - <http://www.stateclimate.org>
- Regional climate centers
 - <https://mrcc.illinois.edu>
 - <http://www.hprcc.unl.edu>

Thank You and Questions?

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