

North Central U.S. Monthly Climate and Drought Summary and Outlook

April 19, 2018

Morton County, KS
Apr 17, 2018

Pic provided by Mary Knapp

El Paso County, CO
Apr 17, 2018



Univ. of MN-St. Paul
Pete Boulay



Blizzard, Apr 13-16, 2018

NE Colorado
Joel Schneekloth



Blizzard, Apr 13-16, 2018

Lake Andes, SD
Tabitha Ann
Blizzard, Apr 13-16, 2018



El Paso County, Colorado
Apr 17, 2018



Public Info. Officer



Cherokee, IA

Tammy Paschal Jones
Blizzard, Apr 13-16, 2018



North Platte, NE

Blizzard, Apr 13-16, 2018

Scott Odle

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University of Missouri
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United States Department of Agriculture
Midwest Climate Hub



General Information

- **Providing climate services to the Central Region**
 - Collaboration Activity Between:
 - USDA Climate Hubs
 - American Association of State Climatologists
 - Midwest and High Plains Regional Climate Centers
 - NOAA NCEI/NWS/OAR/NIDIS
 - National Drought Mitigation Center
- **Next Climate/Drought Outlook Webinar**
 - May 17th, 2018, Dennis Todey, USDA Midwest Climate Hub
- **Access to Future Climate Webinars and Information**
- <http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars>
- **Past PDF slide decks are here:**
- <http://mrcc.isws.illinois.edu/multimedia/webinars.jsp>
- <http://www.hprcc.unl.edu/webinars.php>
- **Current and past recordings are here:**
- <http://www.hprcc.unl.edu/webinars.php>
- **Open for questions at the end**

Agenda

- **Jan-Mar and March Recap**
- **April Conditions**
- **Snow/Water**
- **Agriculture**
- **State Impacts**
- **Climate Outlooks**
- **Questions/Comments**

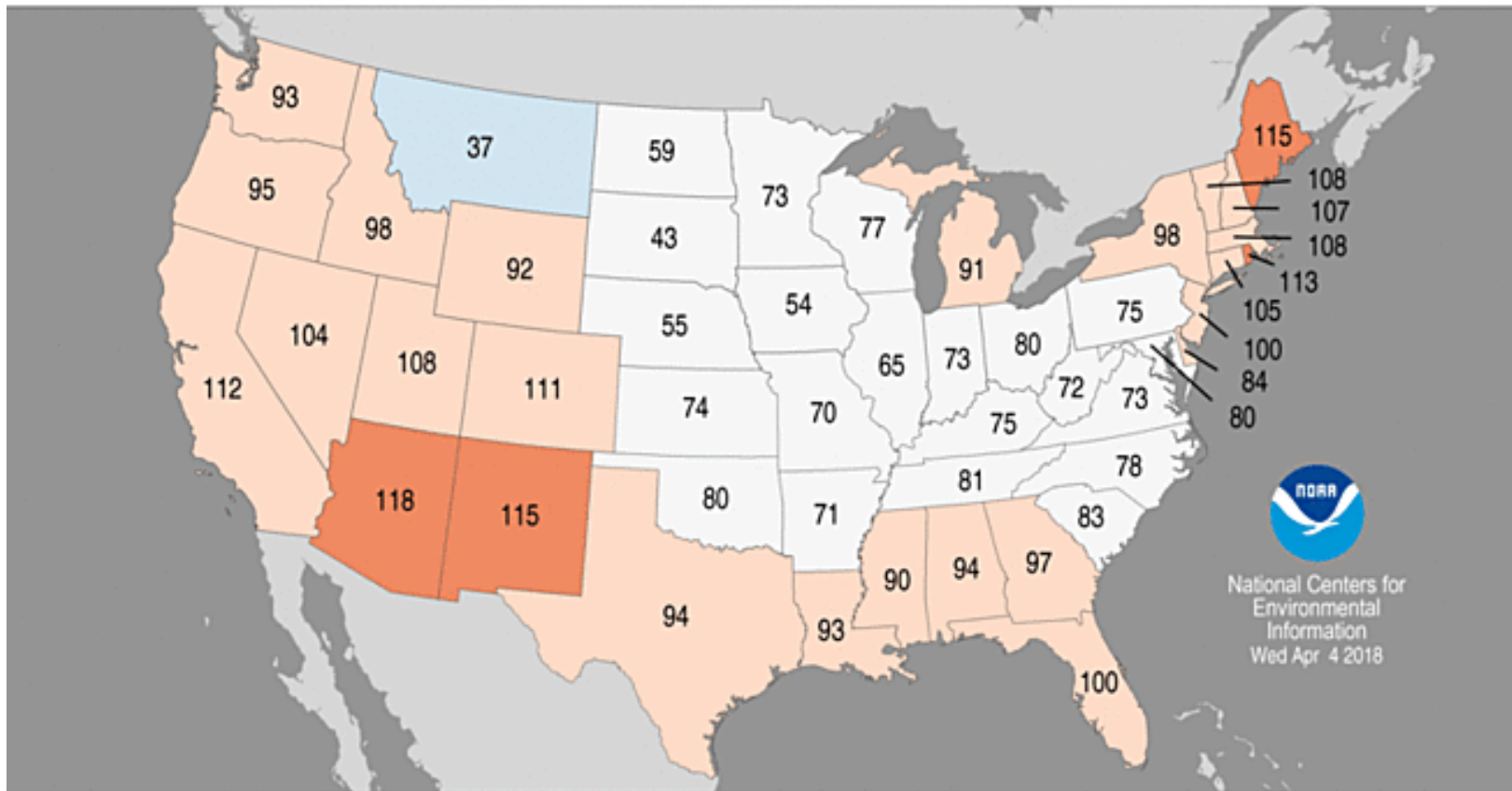
Jan-Mar Recap

The contiguous U.S. Jan-Mar temperature was 1.6°F above the 20th century average.
It was the coldest start to year since 2014.

Statewide Average Temperature Ranks

January–March 2018

Period: 1895–2018



National Centers for
Environmental
Information
Wed Apr 4 2018



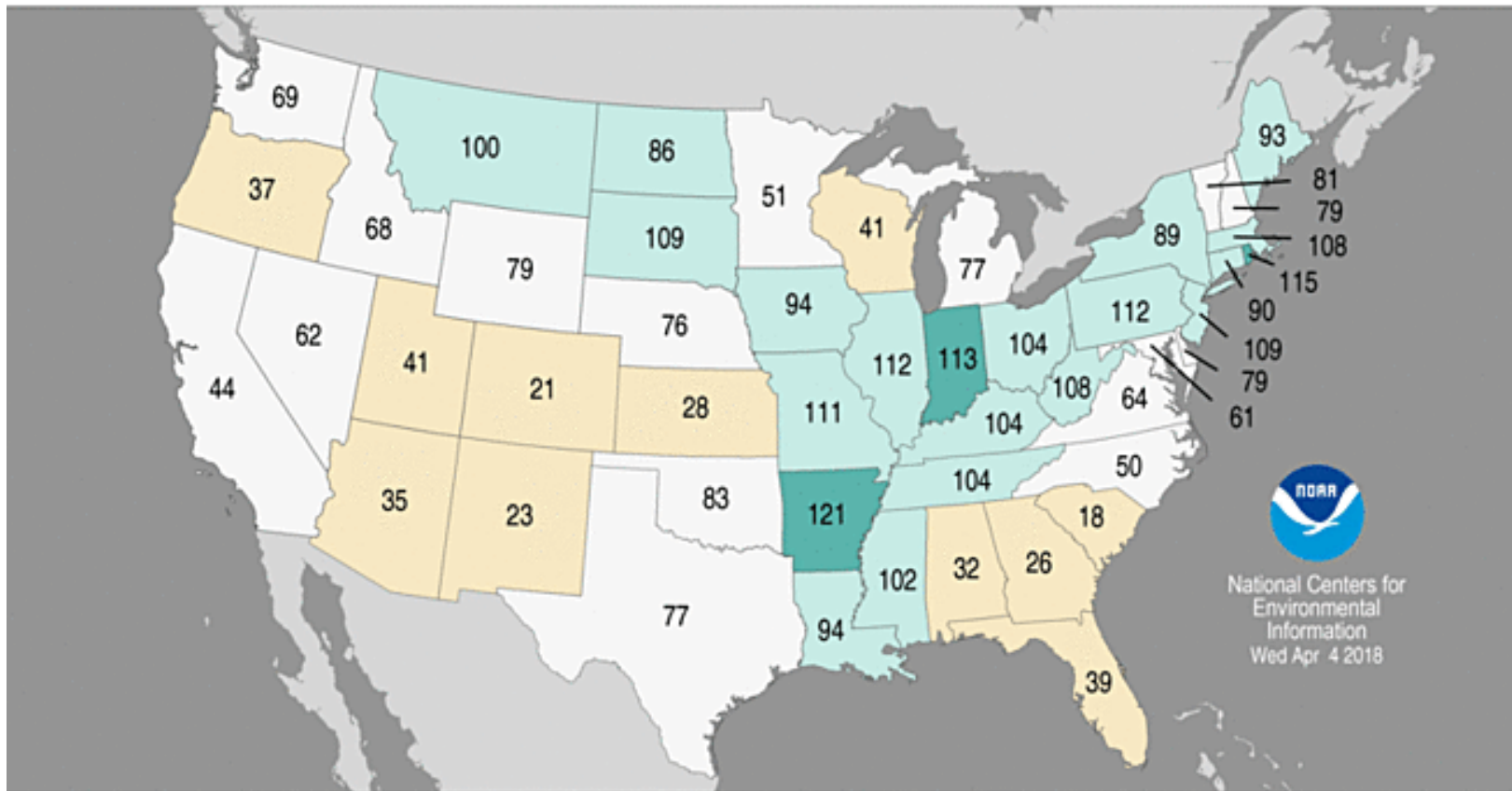
<https://www.ncdc.noaa.gov/sotc/national/201803>

The contiguous U.S. Jan-Mar precipitation total was 7.3", or 0.17" above average.

Statewide Precipitation Ranks

January–March 2018

Period: 1895–2018




National Centers for
Environmental
Information
Wed Apr 4 2018

<https://www.ncdc.noaa.gov/sotc/national/201803>

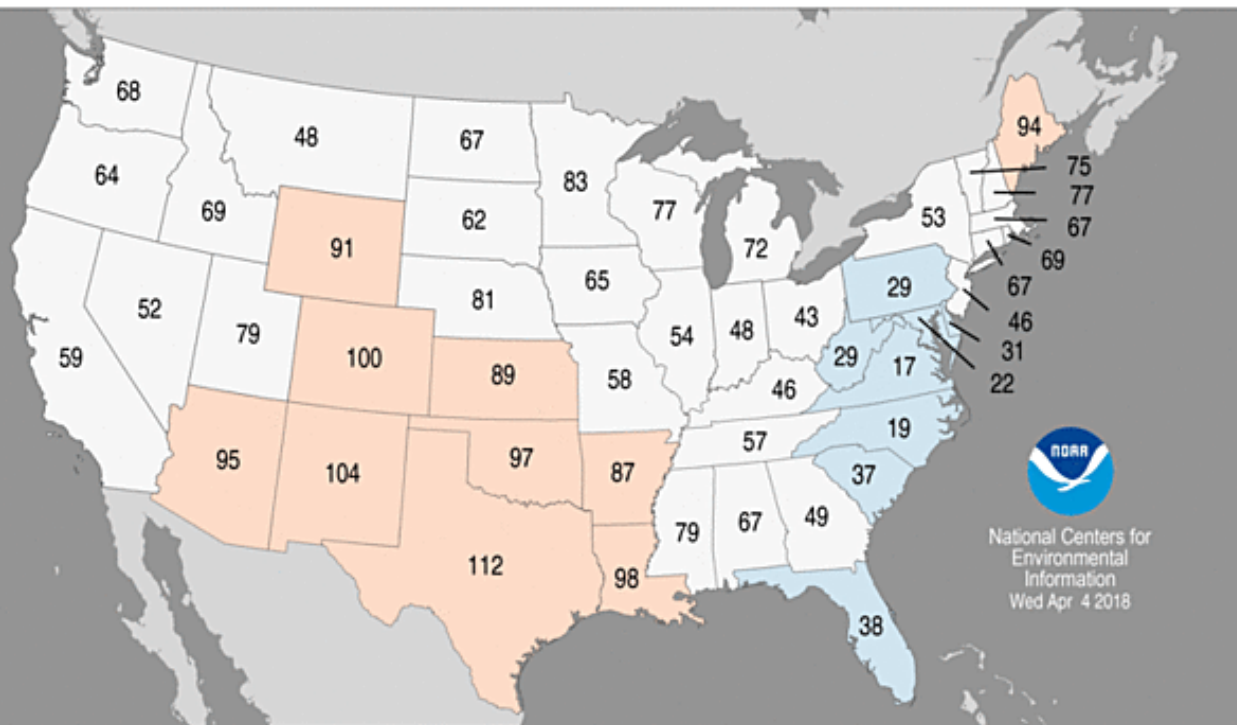
March Recap

The contiguous U.S. March temperature was 1.1°F above the 20th century average, near the median value for the period of record, 1895-2018.

Statewide Average Temperature Ranks

March 2018

Period: 1895-2018



- Warmer than average from Central Rockies to Southwest and Southern Plains and parts of New England and Upper Midwest

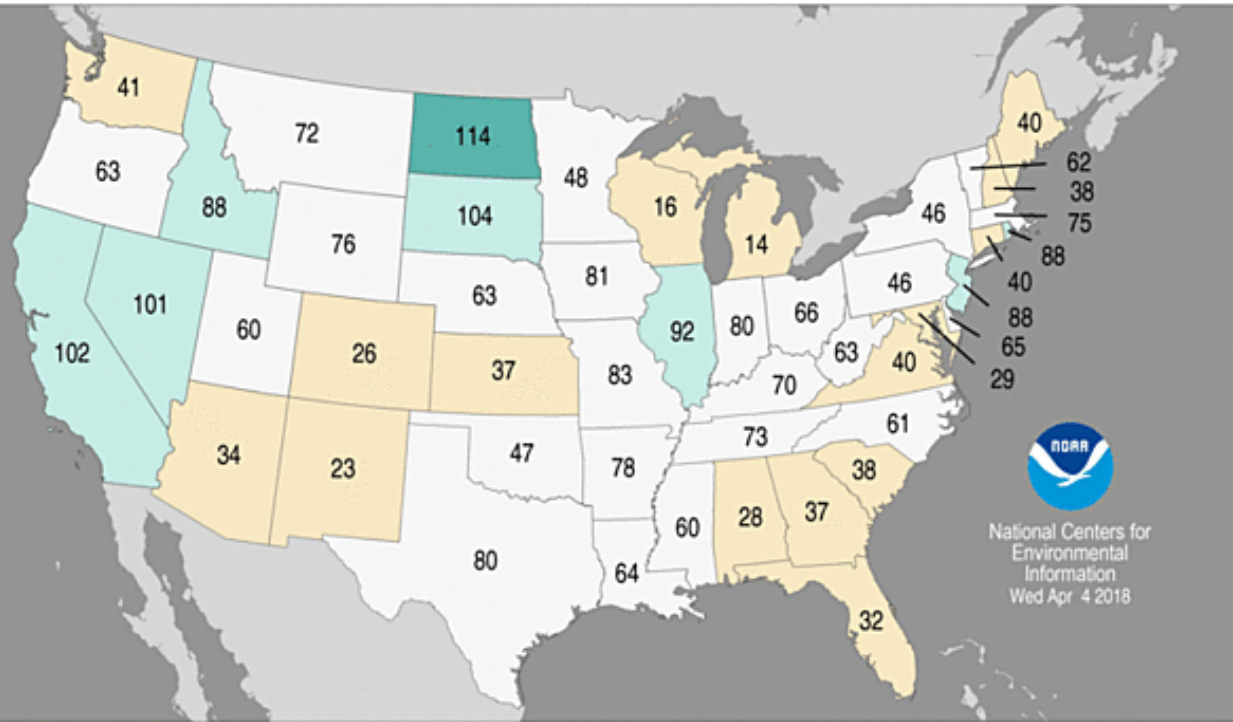
- Cooler than average along parts of East Coast, Northern High Plains and West.

The contiguous U.S. March precipitation was 0.09 inches below the 20th century average, near the median value for the period or record.

Statewide Precipitation Ranks

March 2018

Period: 1895–2018



- Above average precipitation across parts of the West, N. Rockies, N. Plains, Midwest and South.

- Below average precipitation across parts of NW, SW, Great Lakes, Southeast & East Coast.

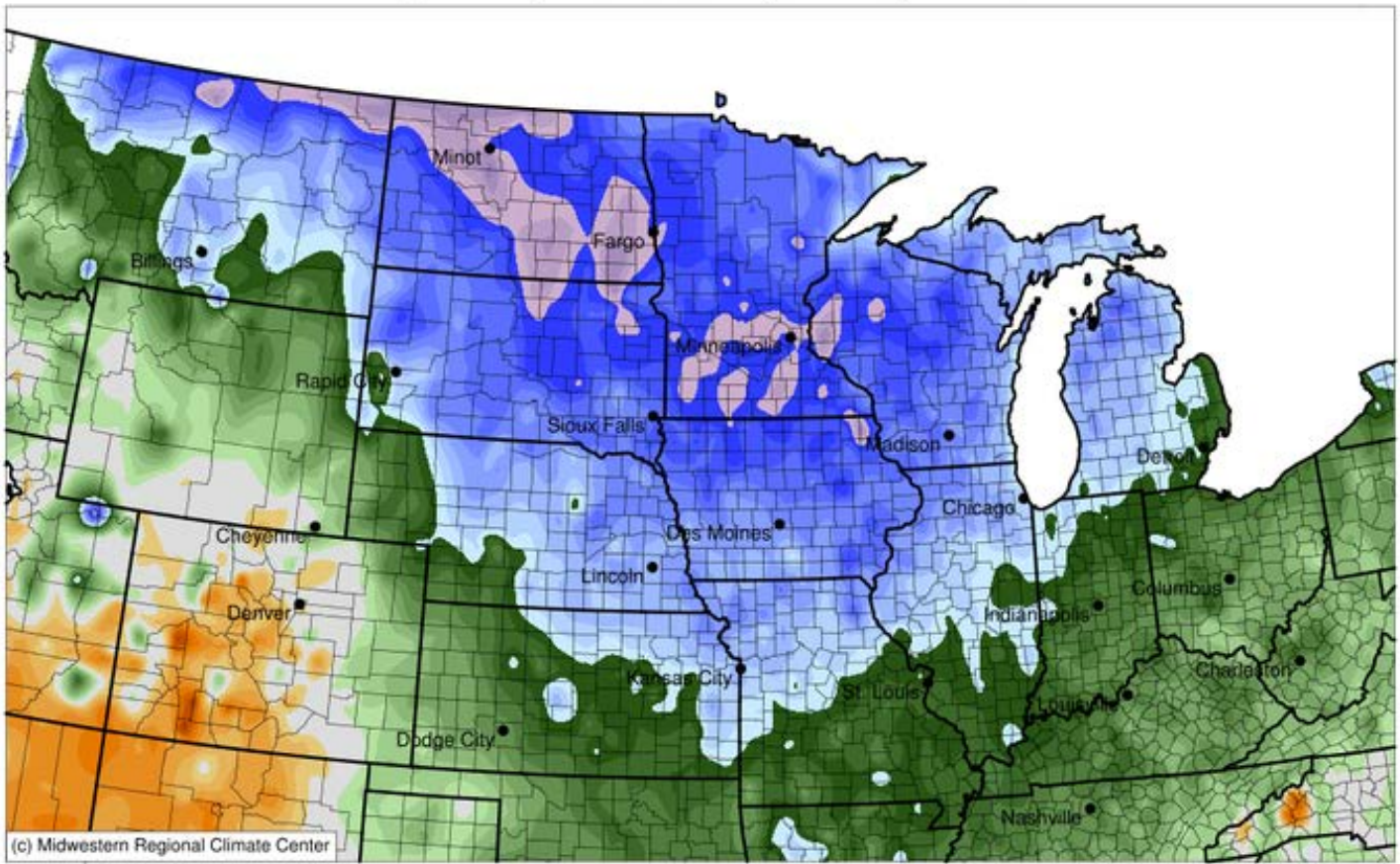
- Snowpack was boosted in Sierra Nevada, Northern Rockies and Northern Plains; low snowpack persisted in Southern Rockies, Central Plains and Great Lakes.

April Conditions

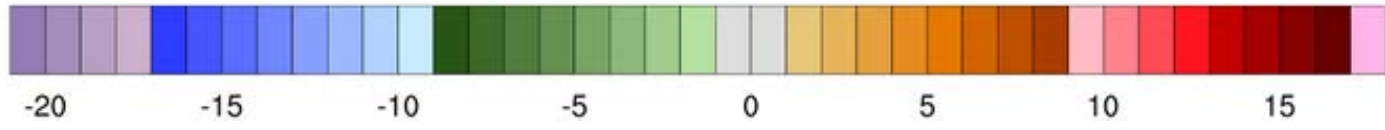
The slide features a solid blue background. At the bottom, there are several overlapping, wavy, light blue shapes that create a sense of movement or a horizon line.

Several Northern Plains and Upper Midwestern states are experiencing their coldest April on record so far...

Average Temp (°F) Departure from Mean April 1 to April 18, 2018



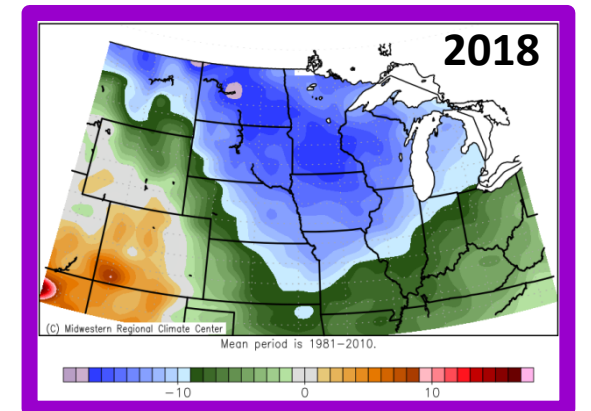
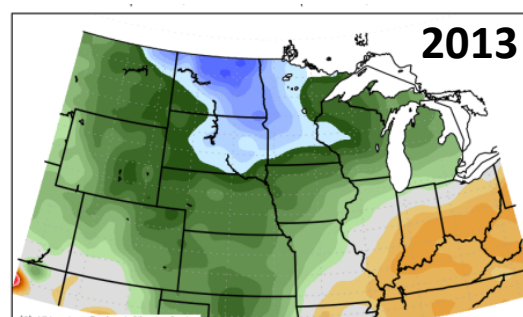
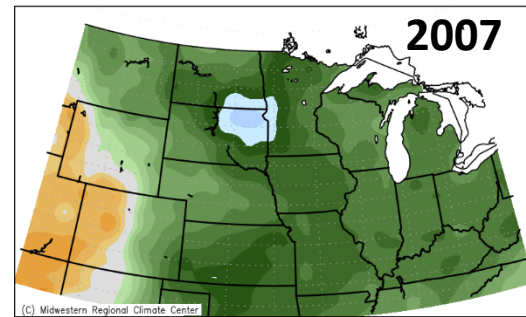
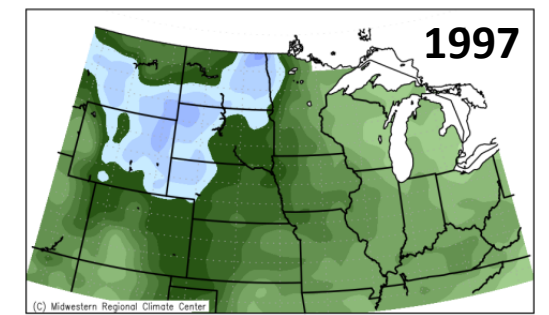
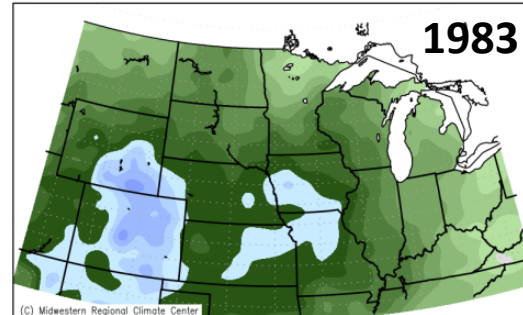
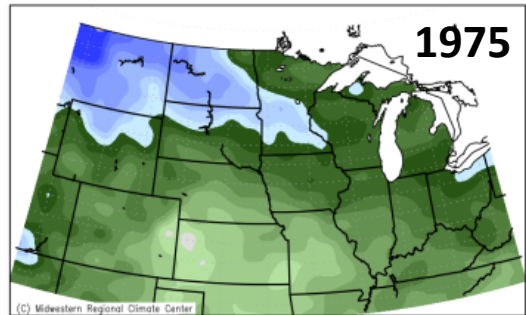
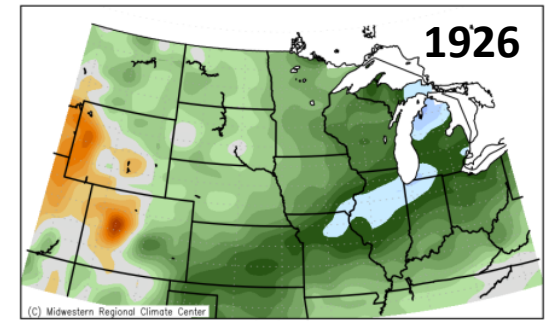
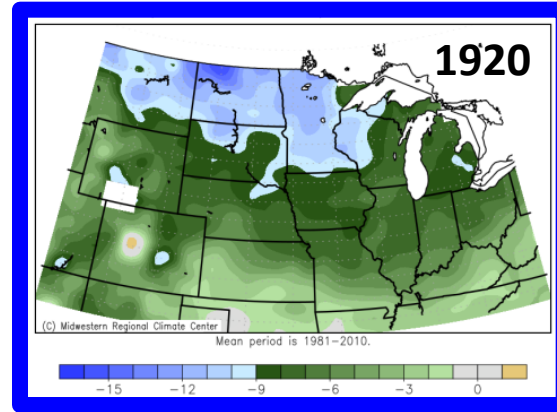
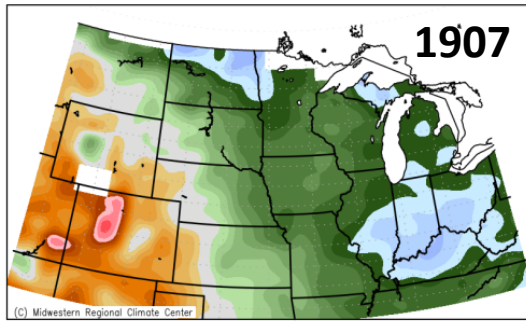
- Record coldest conditions across much of the NWS Central Region.
- Near to above average temperatures in the Central and Southern Rockies.



Average Temperature ($^{\circ}\text{F}$) Departure from Mean

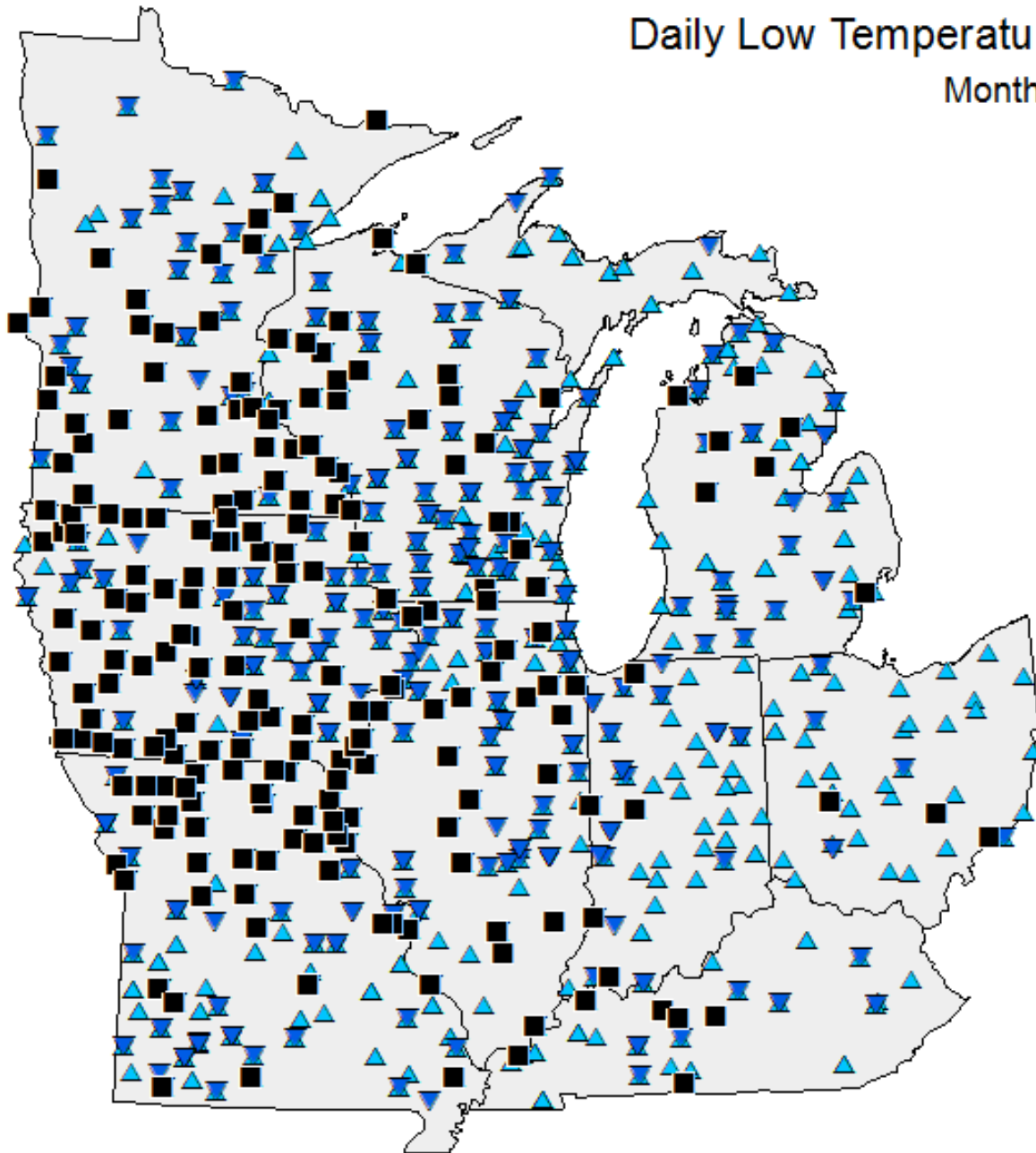
April 1 to April 18

Period of record: 1895-2018



Daily Low Temperature Records broken or tied

Month-to-Date: 4/1/2018 - 4/18/2018



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



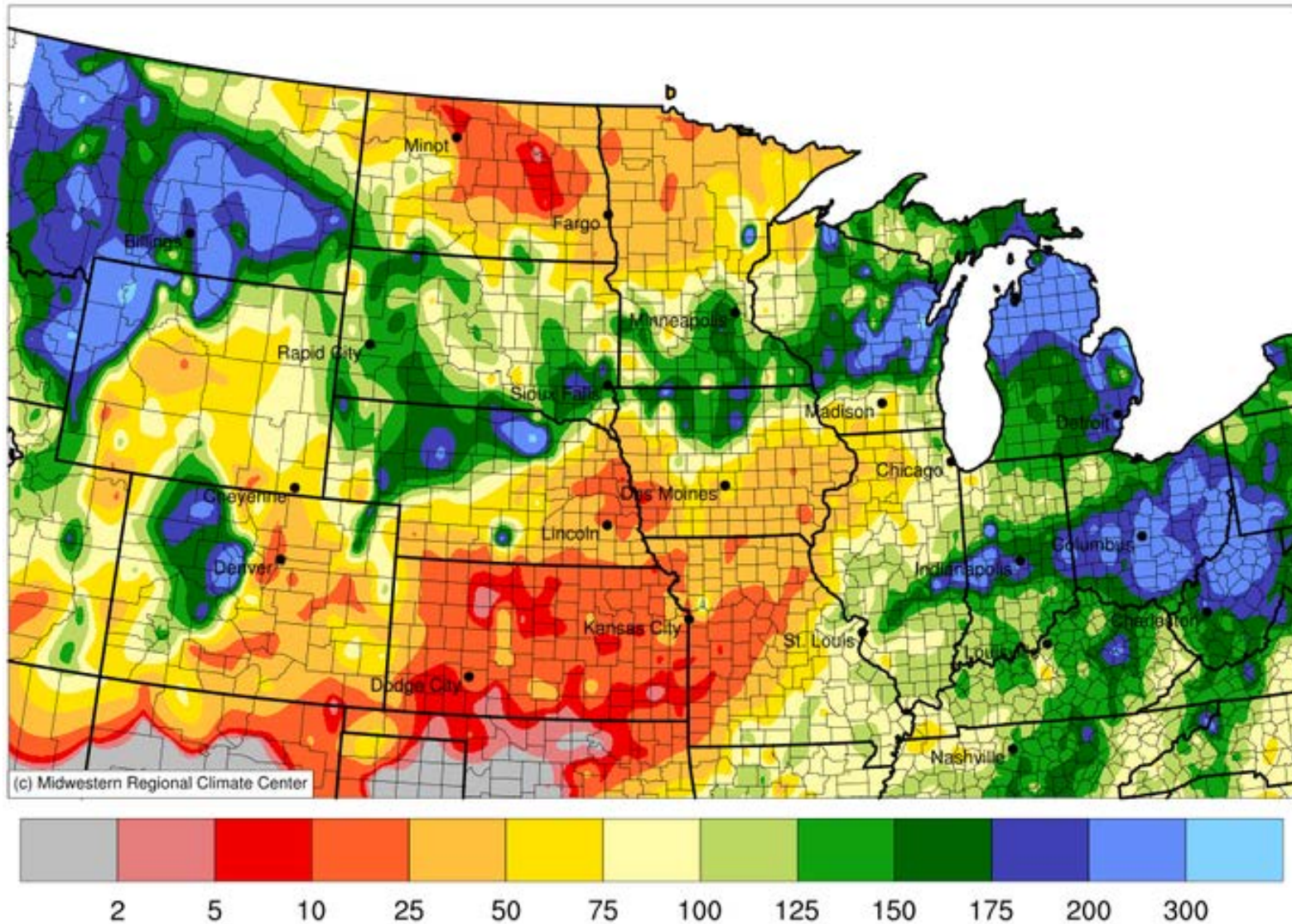
Powered by **ACIS**
Regional Climate Centers

Minimum 30 years of data

All Reports Are Considered Preliminary

Notable precipitation variability across the North Central Region...

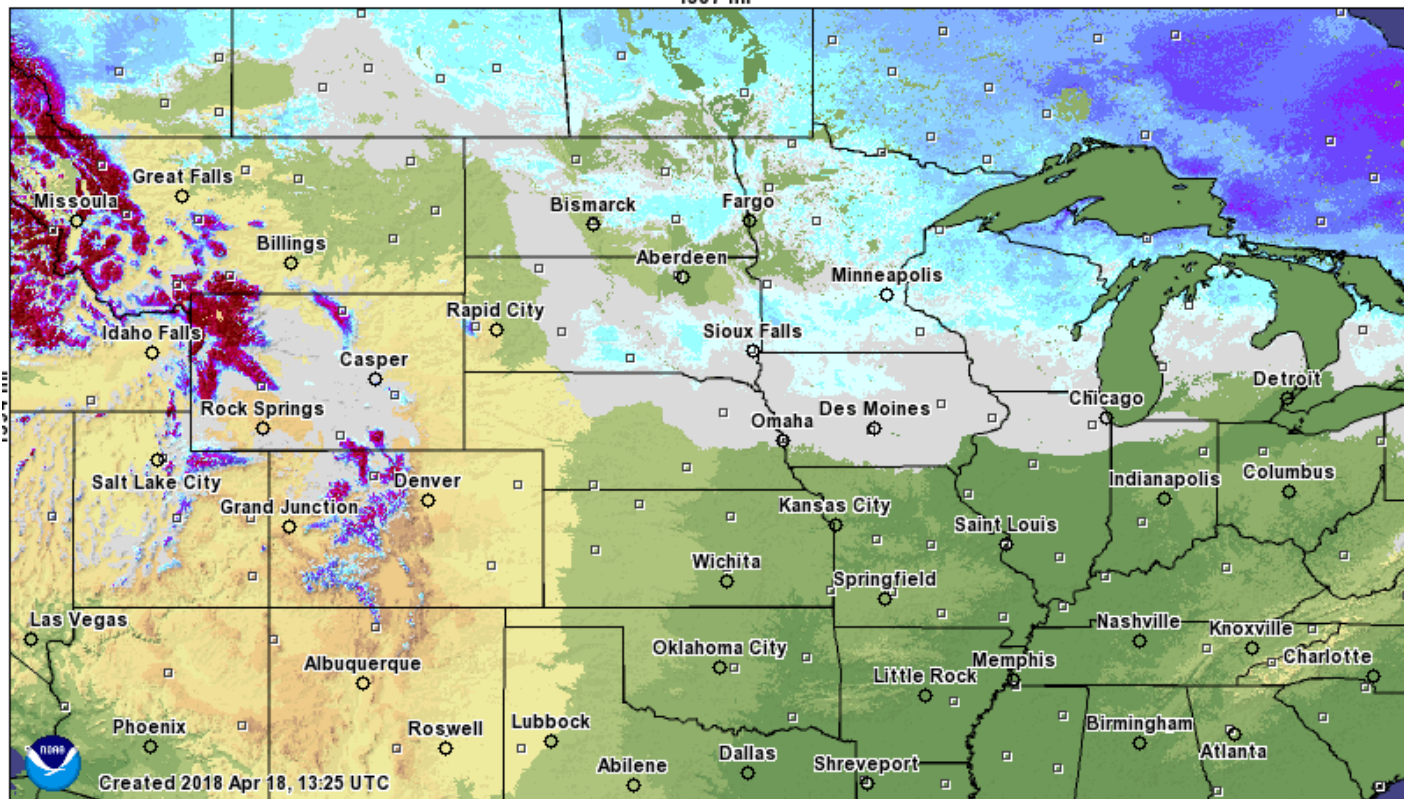
Precipitation Percent of Mean April 1, 2018 to April 18, 2018



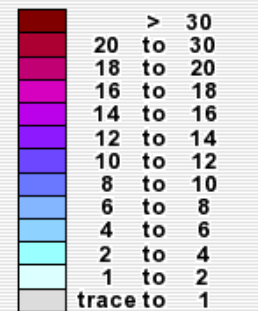
Snow/Water

Current Snow Water Equivalent April 18, 2018

Modeled Snow Water Equivalent forecasted for 2018 April 18, 22:00 UTC

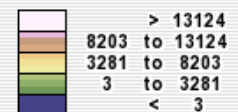


Inches of
water
equivalent



Not Estimated

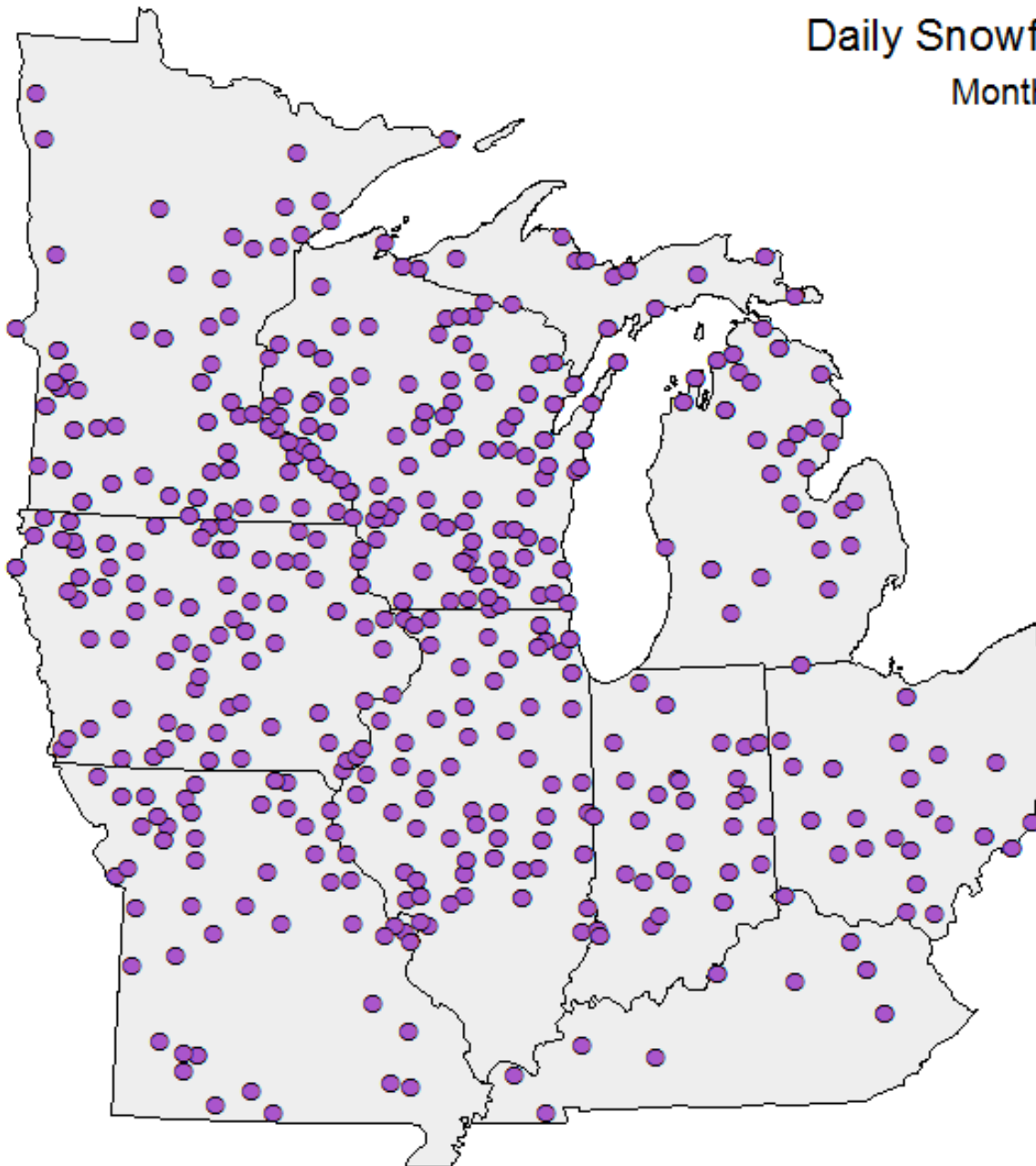
Elevation in feet



Daily Snowfall Records broken or tied

Month-to-Date: 4/1/2018 - 4/18/2018

● Snowfall



Minimum 30 years of data

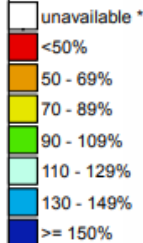
All Reports Are Considered Preliminary

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

Apr 17, 2018

Notice: We anticipate this map will not be available next year due to staffing constraints.
Alternate maps:
<https://go.usa.gov/xnzxk>

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



0 75 150 300 Miles

The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL 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>

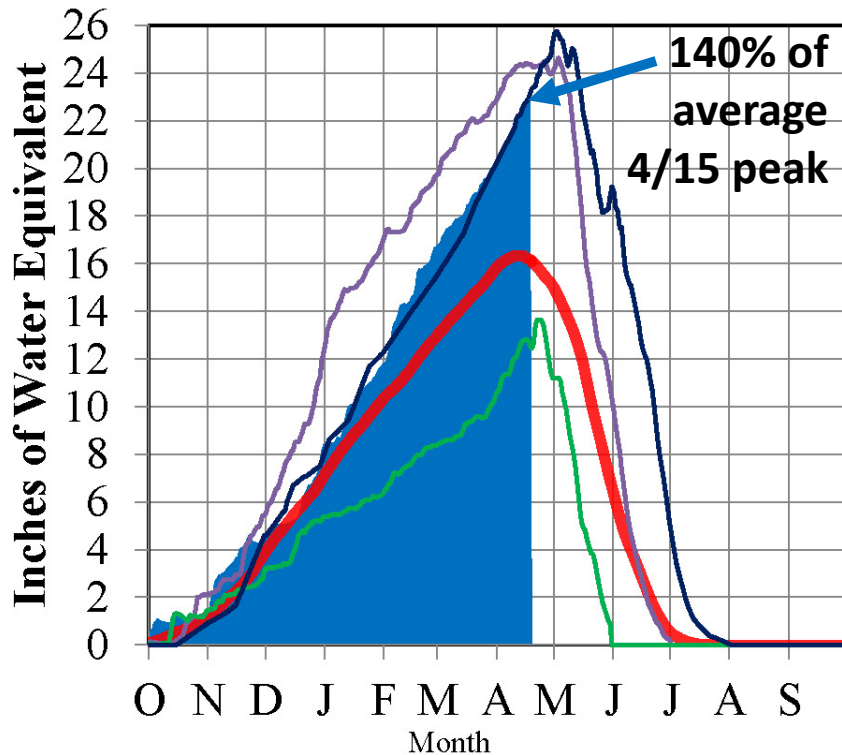
NRCS Snow Water Equivalent

- * Watersheds in northern Rockies and North Cascades are in excess of 100% SWE
- * Less than 50% SWE for much of the Great Basin, Colorado Plateau, southern Rockies.

Missouri River Basin – Mountain Snowpack Water Content 2017-2018 with comparison plots from 1997*, 2001*, and 2011

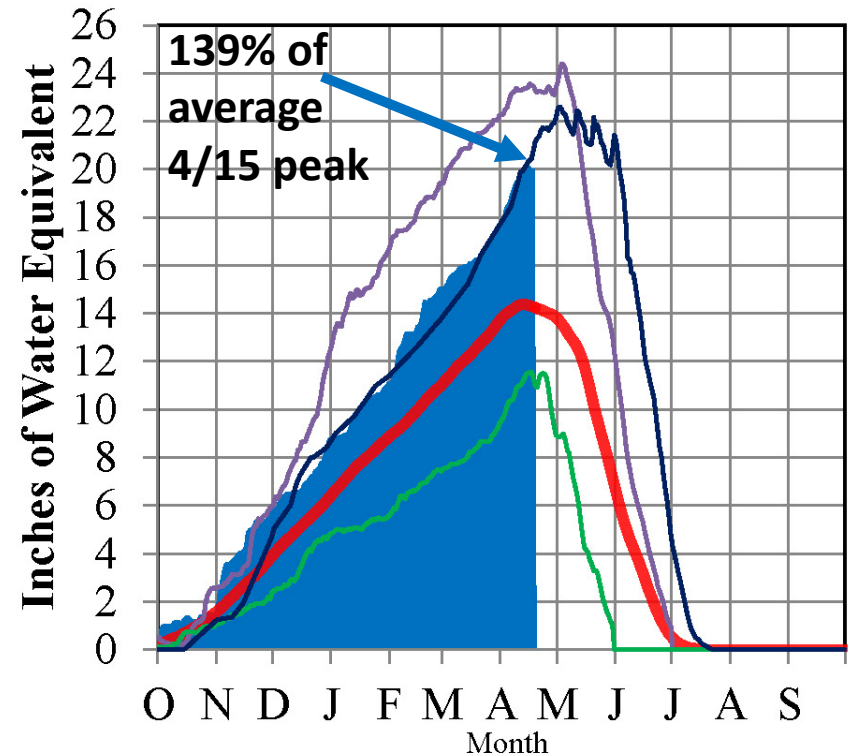
April 18, 2018

Total above Fort Peck



■ 2017-2018 ■ 1981-2010 Ave ■ 1997 ■ 2001 ■ 2011

Total Fort Peck to Garrison



■ 2017-2018 ■ 1981-2010 Ave ■ 1997 ■ 2001 ■ 2011

The Missouri River Basin mountain snowpack normally peaks near April 15. On April 18, 2018 the mountain Snow Water Equivalent (SWE) in the “Total above Fort Peck” reach is 22.9”, 140% of the average April 15 peak. The mountain SWE in the “Total Fort Peck to Garrison” reach is 20.0”, 139% of the average April 15 peak.

*Generally considered the high and low year of the last 20-year period, respectively.

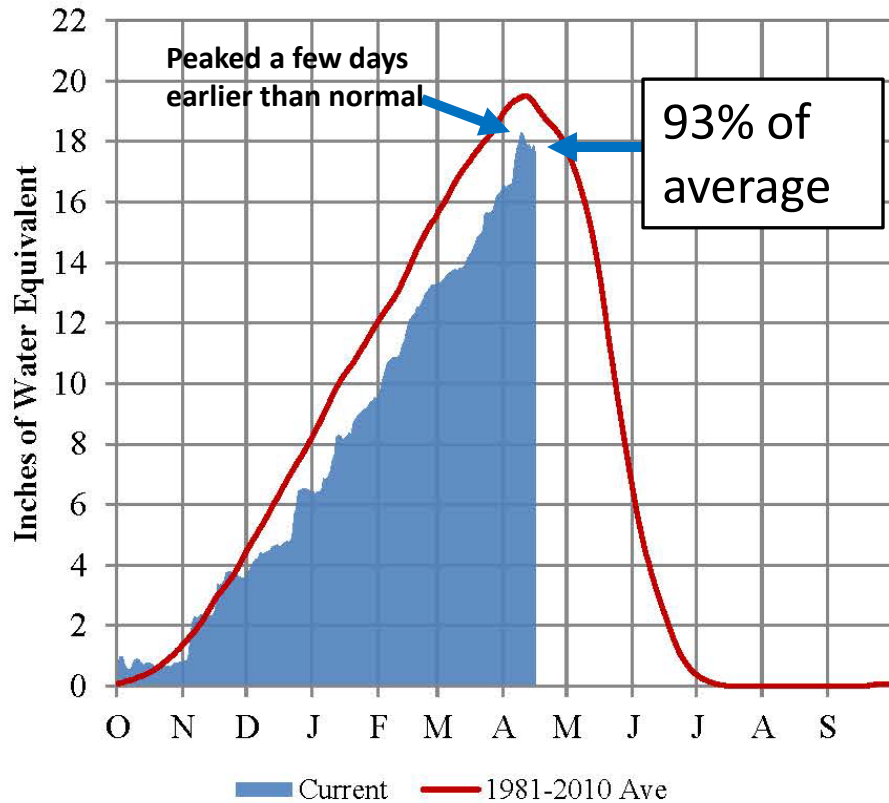
Provisional data. Subject to revision.

Platte River Basin - Mountain Snowpack Water Content

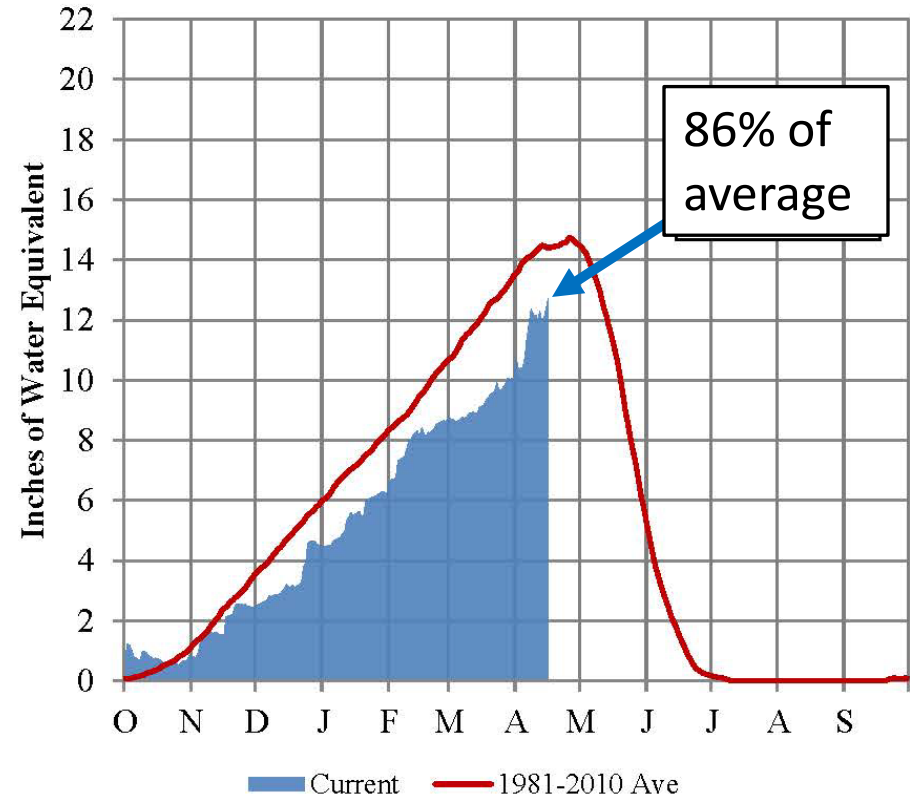
Water Year 2017-2018

April 16, 2018

Total North Platte



Total South Platte

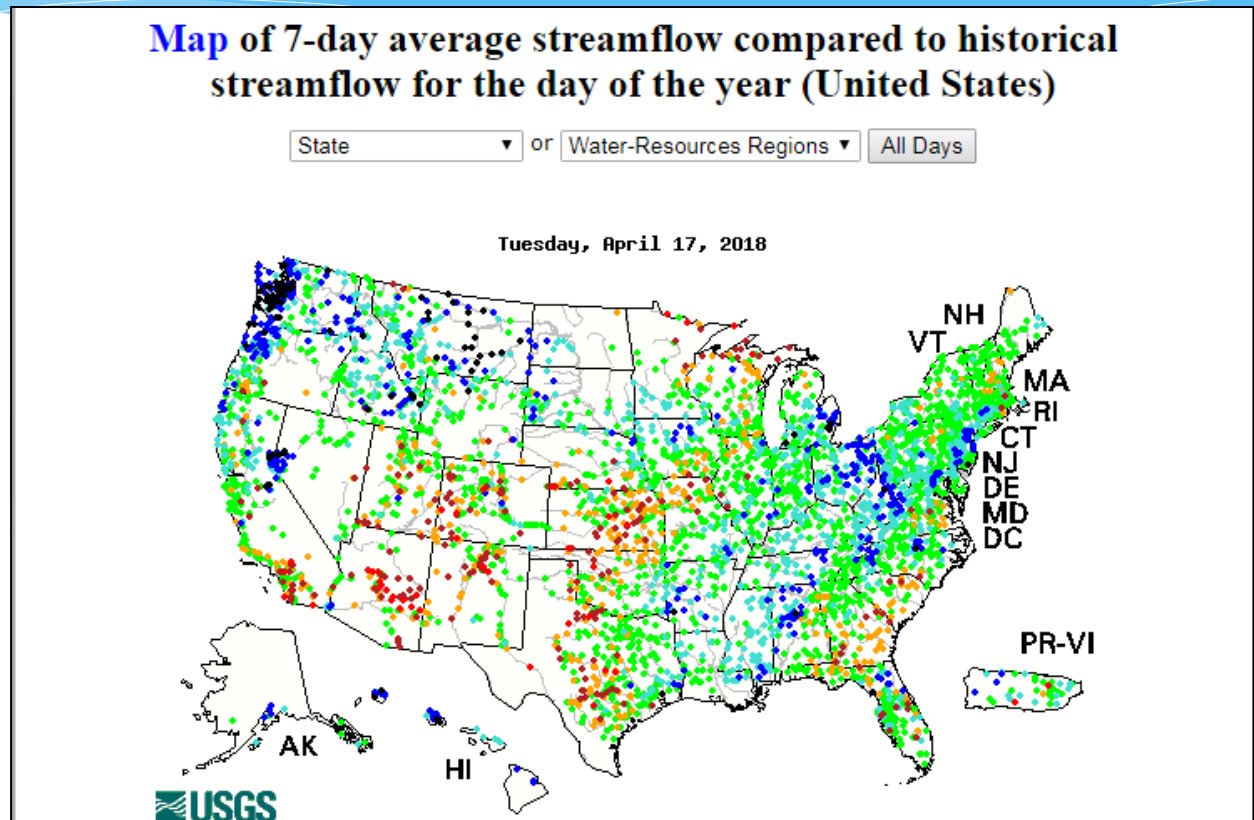


The North and South Platte River Basin mountain snowpacks normally peak near April 15 and the end of April, respectively. As of April 16, 2018, the mountain snowpack SWE in the "Total North Platte" reach is currently 17.9", 93% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 12.4", 86% of average.

7-Day Average Streamflow

Tuesday, Apr 17, 2018

- Generally normal to much above average streamflows across the northern Rockies, northern Great Plains, northern IA, southern MN, southern MI and Ohio River Valley.
- Below to much below normal streamflows impacting southwestern CO, KS, northern MO and upper Midwest.
- Some ongoing record streamflows in MT.



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

<https://waterwatch.usgs.gov/?id=pao7d>



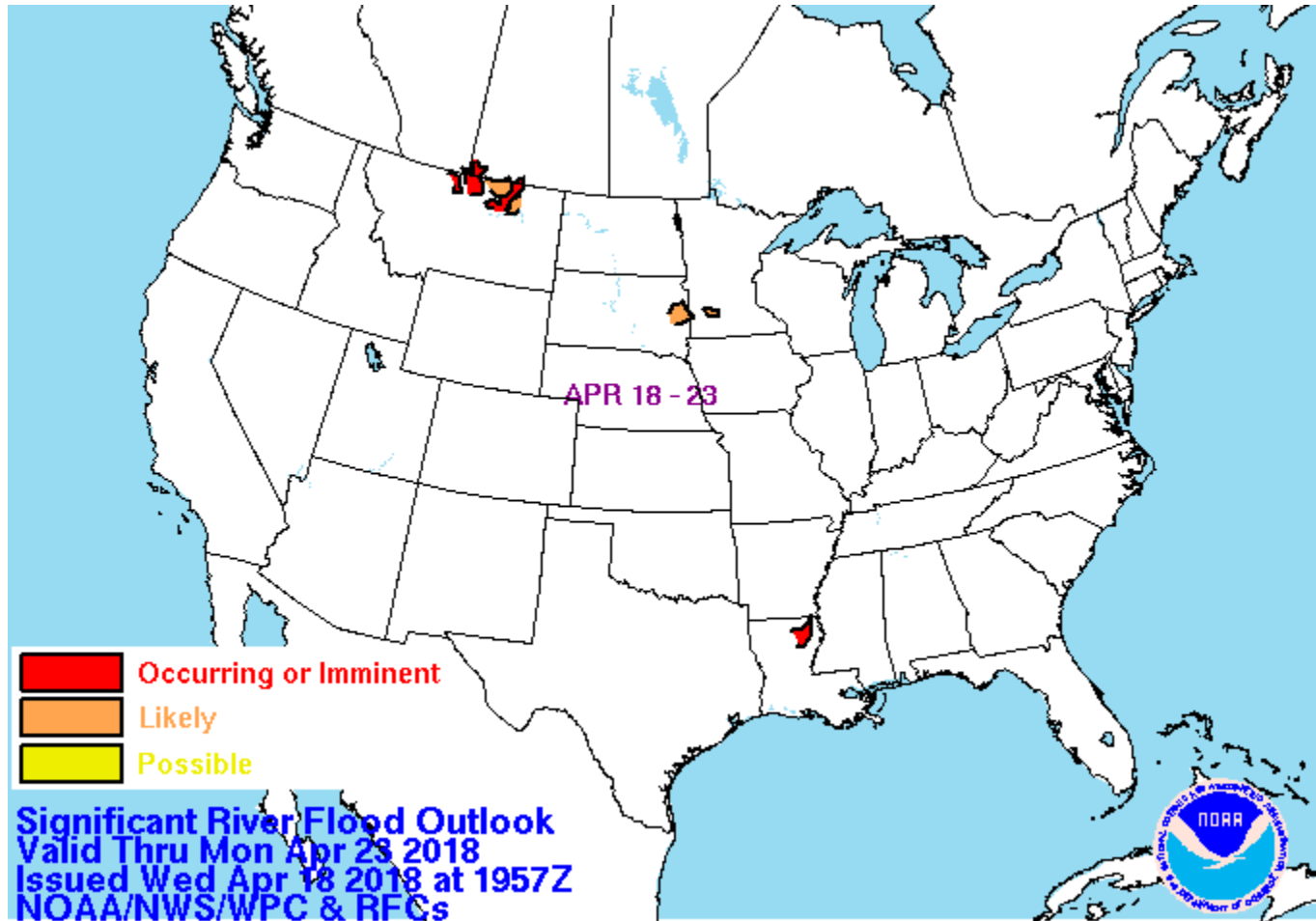
NATIONAL WEATHER SERVICE

Significant River Flood Outlook

Click a region on the national map below to access more detailed RFC data.



Issued Wed, April 18, 2018 and valid thru Mon, April 23, 2018



<http://www.wpc.ncep.noaa.gov/nationalfloodoutlook>



MISSOURI BASIN

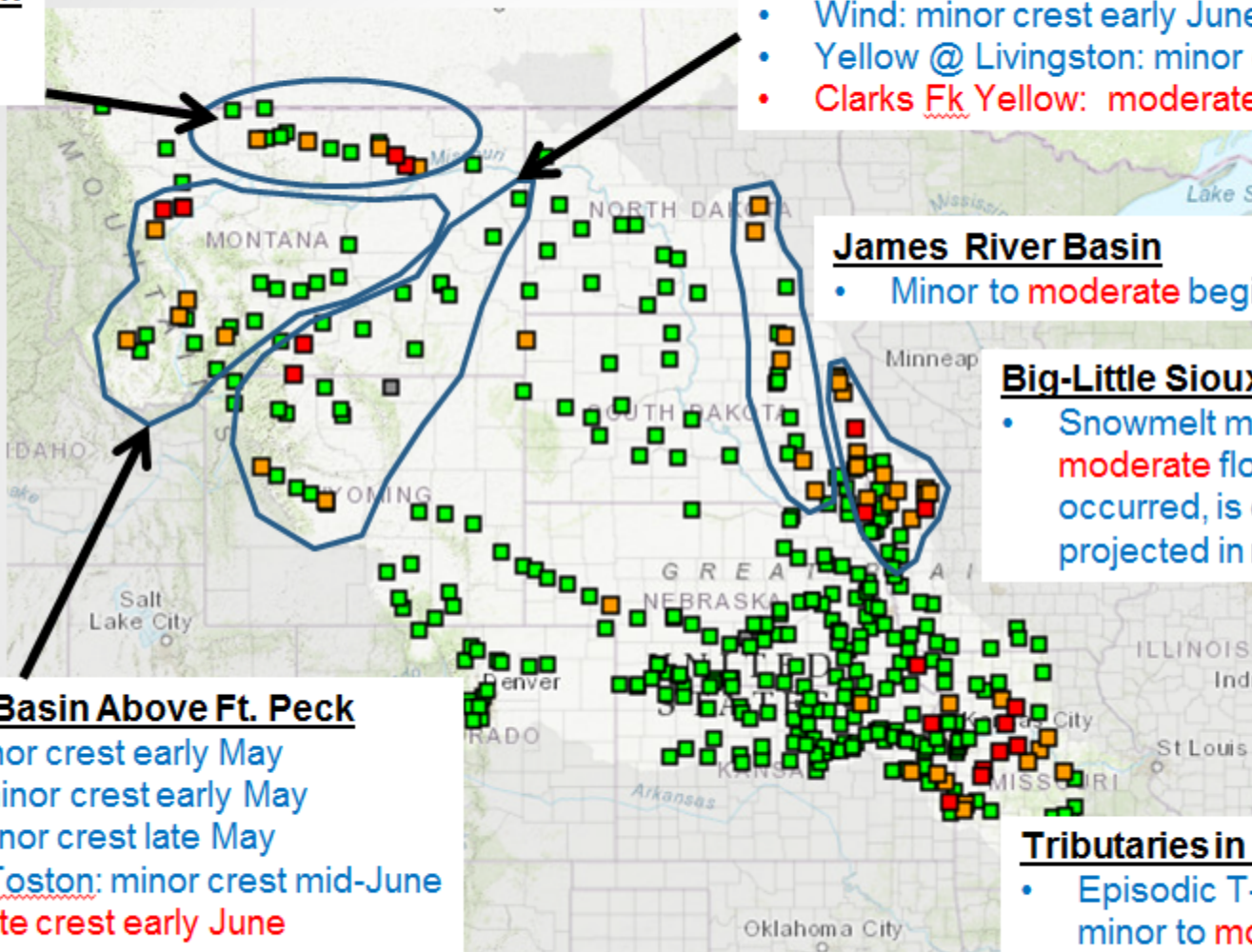
FLOOD SUMMARY (timing/categories are provisional)



Milk River Basin
 Major flooding underway

Yellowstone River Basin

- Wind: minor crest early June
- Yellow @ Livingston: minor crest early June
- Clarks Fk Yellow: moderate crest mid-June



James River Basin

- Minor to moderate beginning next week

Big-Little Sioux River Basins

- Snowmelt minor-to-moderate flooding already occurred, is occurring, and is projected in near-term.

Missouri River Basin Above Ft. Peck

- Big Hole: minor crest early May
- Dearborn: minor crest early May
- Jefferson: minor crest late May
- Missouri @ Toston: minor crest mid-June
- Sun: moderate crest early June

Tributaries in E-KS & MO

- Episodic T-storm driven minor to moderate (typical stuff)

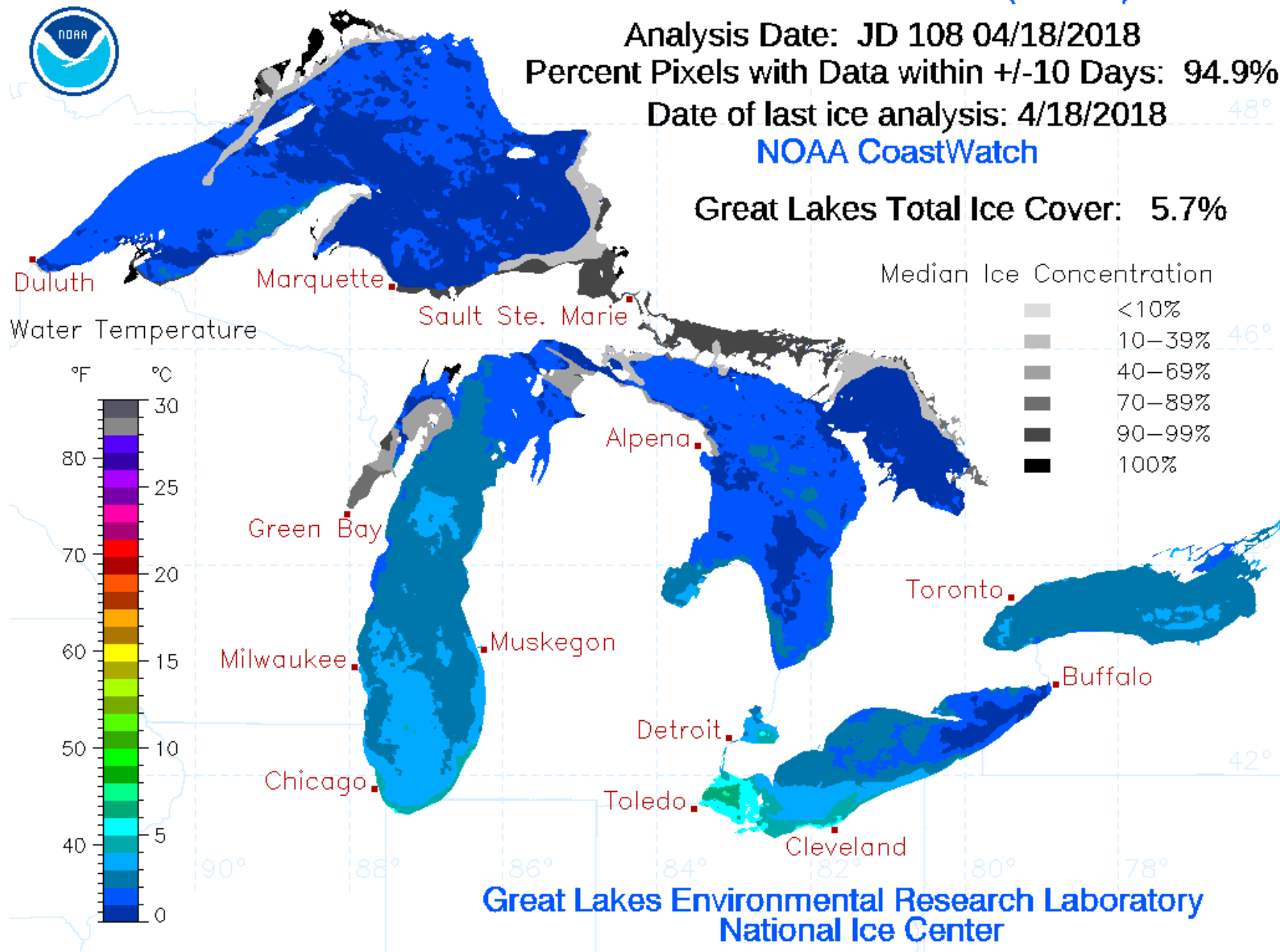


GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)



Analysis Date: JD 108 04/18/2018
Percent Pixels with Data within +/-10 Days: 94.9%
Date of last ice analysis: 4/18/2018 48°
NOAA CoastWatch

Great Lakes Total Ice Cover: 5.7%



Great Lakes Environmental Research Laboratory
National Ice Center

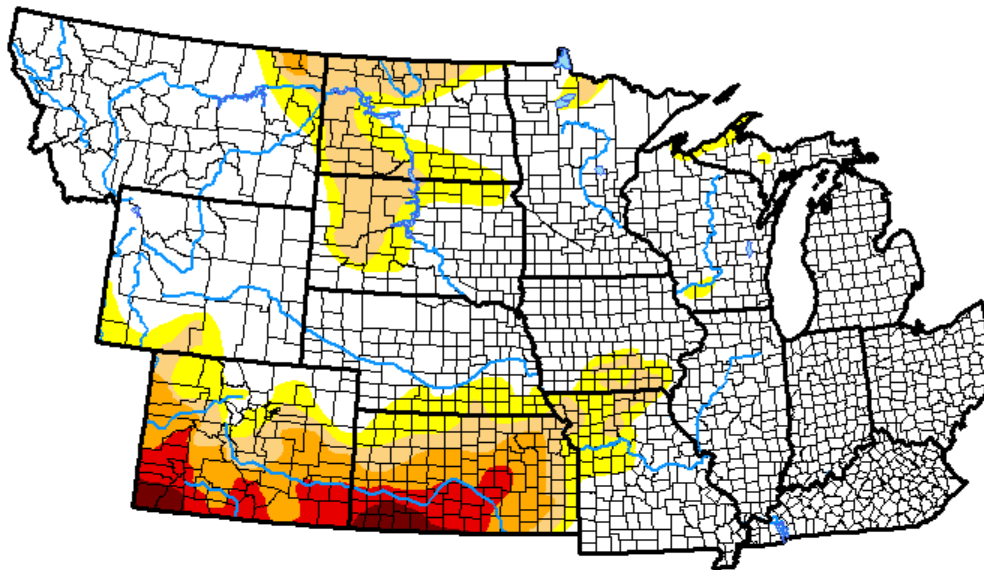
Agriculture

The image features a solid blue background with a white wavy line at the bottom. The word "Agriculture" is centered in white text.






US Drought Monitor

U.S. Drought Monitor **NWS Central Region**

April 17, 2018
(Released Thursday, Apr. 19, 2018)
Valid 8 a.m. EDT



Intensity:

-  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.

Author:

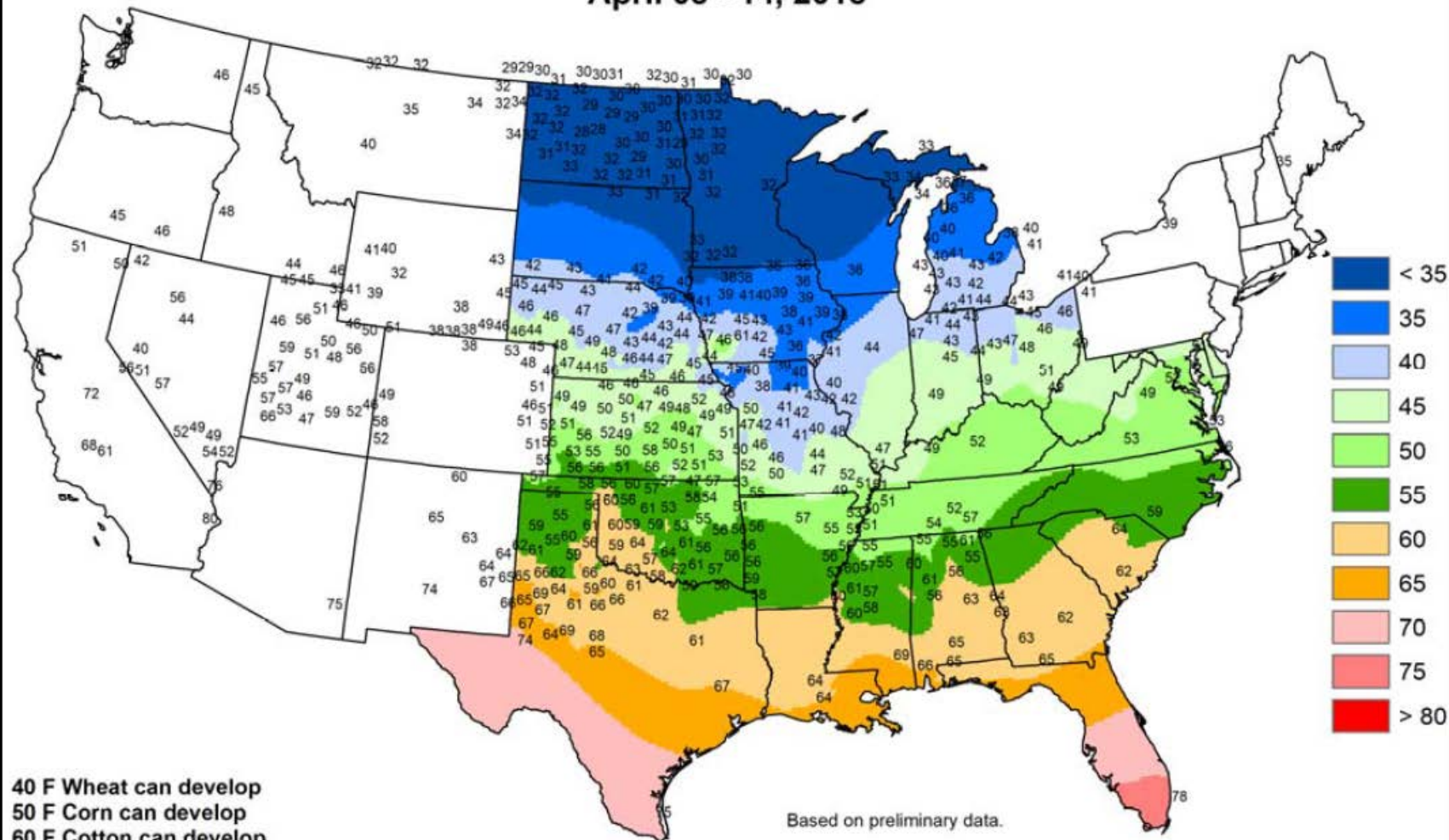
Brad Rippey
U.S. Department of Agriculture



<http://droughtmonitor.unl.edu/>

Average Soil Temperature (Deg. F, 4" Bare)

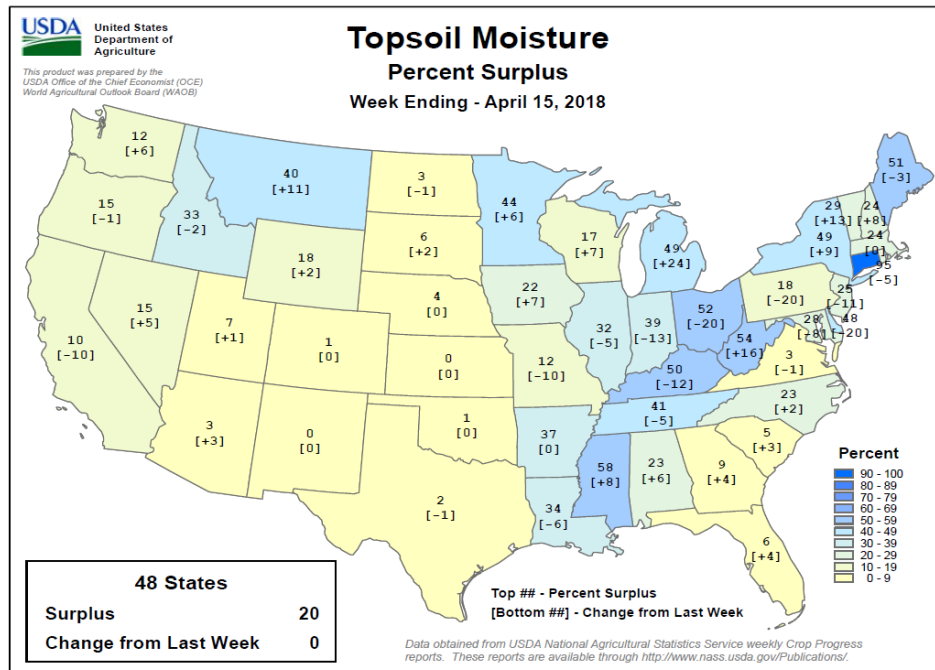
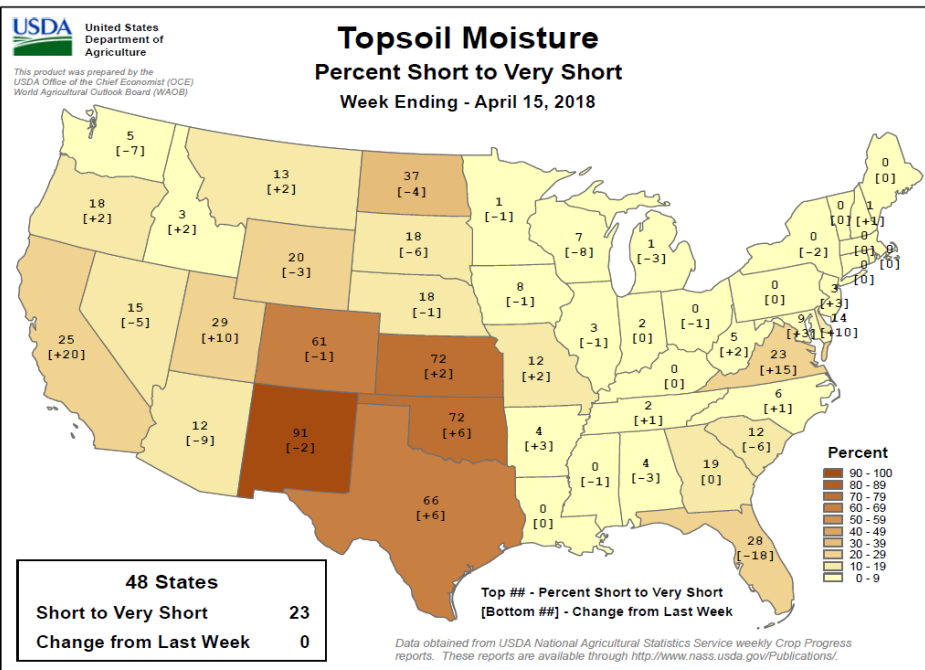
April 08 - 14, 2018



Data provided by the Climate Prediction Center, High Plains Regional Climate Center, Nebraska Mesonet at Univ of Nebraska, CoAgMet at Colorado State Univ, Kansas Mesonet at Kansas State Univ, North Dakota Agricultural Weather Network at North Dakota State Univ, Wyoming State Climate Office at the Univ of Wyoming, Illinois State Water Survey, Iowa State University, Oklahoma Mesonet, Purdue University, University of Missouri, Illinois State Water Survey, Michigan Automated Weather Network, West Texas Mesonet, South Dakota State Univ. Mesonet, Ohio Agricultural Research and Development Center, Univ. of Missouri and USDA/NRCS.



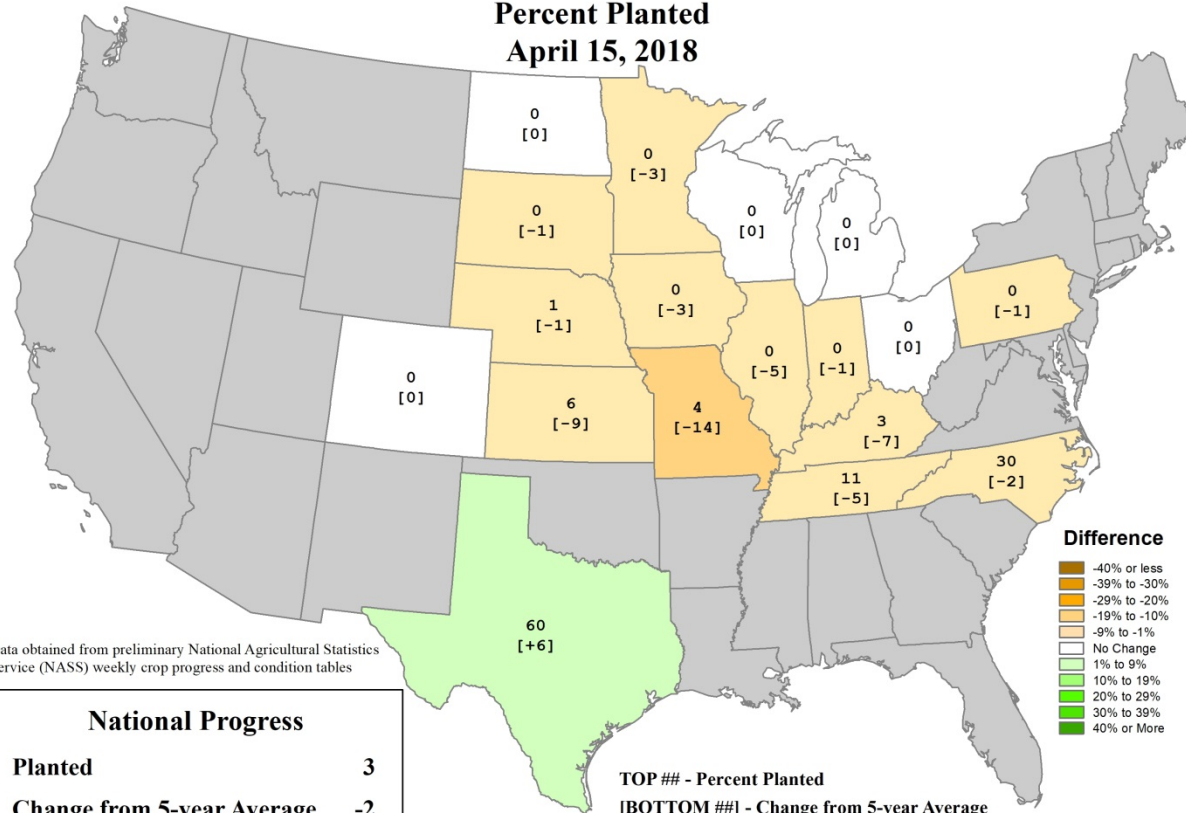
NASS Topsoil moisture



Corn Progress

U.S. Corn Progress

Percent Planted
April 15, 2018



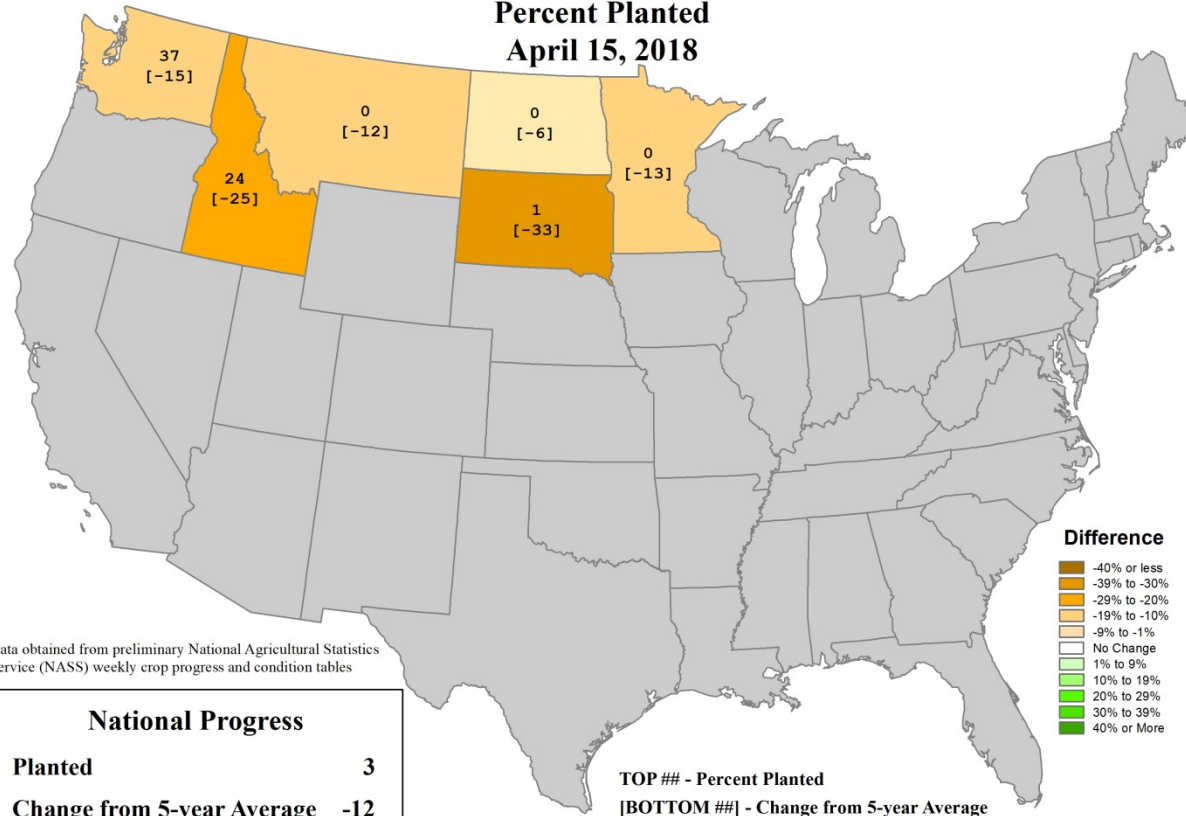
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

Spring Wheat Progress

U.S. Spring Wheat Progress

Percent Planted
April 15, 2018

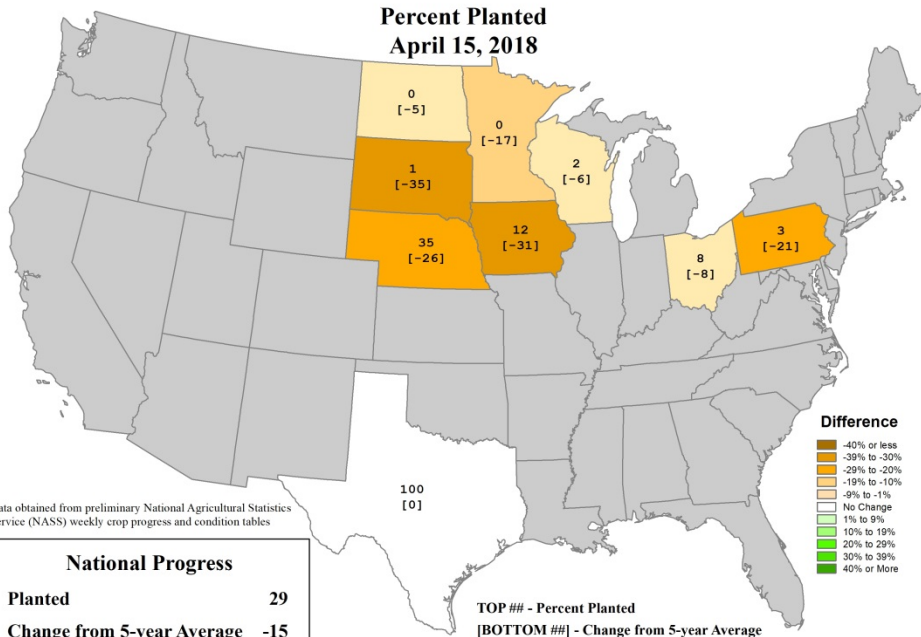


Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

Oats Progress

U.S. Oats Progress

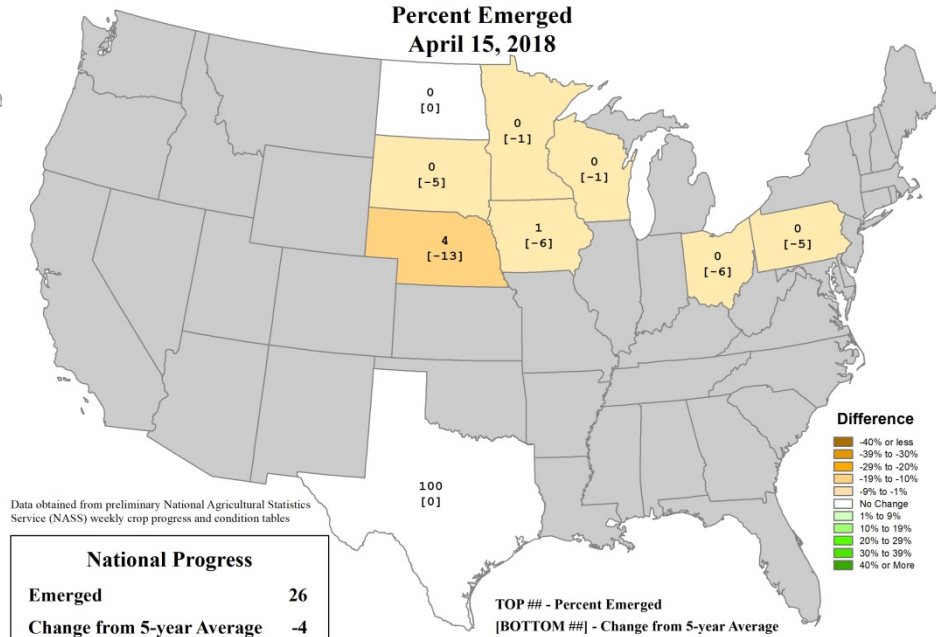
Percent Planted
April 15, 2018



USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. Oats Progress

Percent Emerged
April 15, 2018

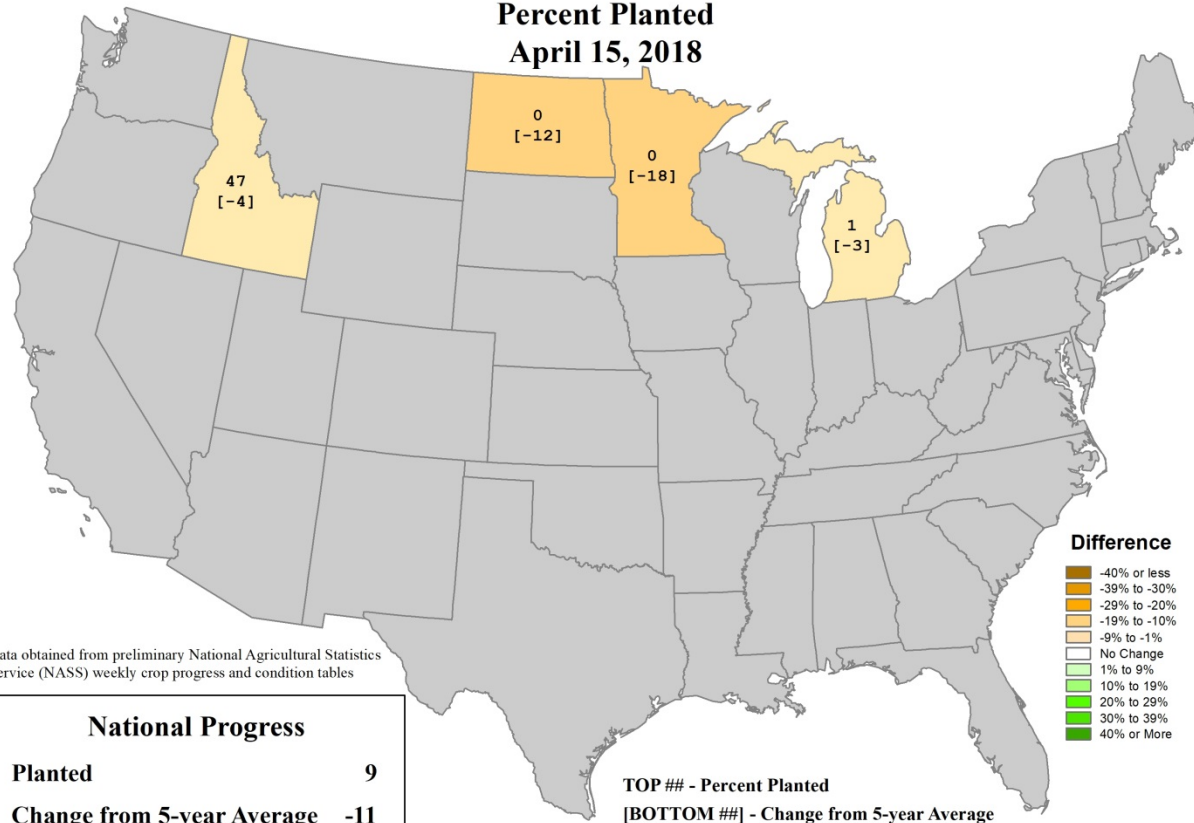


USDA Agricultural Weather Assessments
World Agricultural Outlook Board

Sugarbeets Progress

U.S. Sugarbeets Progress

Percent Planted
April 15, 2018



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

State Impacts

Snowmelt commencing, w/ widespread areal flooding likely across North Central MT for rest of the week, i.e. Milk River, Big Sandy Creek. Keep an eye on situation since faster melting snow will affect forecasts and other areas.

Coldest April on record so far. Frost line still exist over most of the state. Spring wheat and corn are usually planted on April 15 and May 1 respectively, 0% planted so far. Pastures not fully recovered from last year's drought, but overall some drought improvement.

Coldest April on record so far. No lakes are ice free. Typically, southern 2/3 of state should be ice free this time of year. Blizzard dropped 1ft or more over 20% of state. Snowiest April on record for many. Late planting concerns, frost line still in soil

Coldest April on record so far. Soil temps much b.n. Several April snowfall records broken. Blizzard improved existing dryness in NC and NE WI. Minimal spring growth.

Coldest April on record so far, cold soil temps Great Lakes water levels running high

Coldest April on record so far. Blizzard dropped 1ft or more across many locations, newborn livestock adversely affected w/losses. Snowiest Apr for many locations. Drought mitigated in western and central SD. Winter wheat better, but no spring wheat planted. Cold soil temps.

Coldest April on record so far. Plant progression 3 weeks behind norm, which has limited freeze damage. Soil temps much b.n., no corn planted. Several April snowfall records broken.

Coldest April on record so far for northern IL. Spring growth at least 3 weeks behind normal, with limited freeze damage. Also wet, no corn planting across northern half of IL. Snowy April.

Cold and wet April delaying planting, cold soil temps. Streamflows above avg. Some wheat leaf burn reported in southern IL. Wet/cold fields have delayed planting Highly unusual April snow events.

Cold and wet April delaying fieldwork activity and planting, cold soil temps. Streamflows above avg with localized flood/

Many locations experiencing coldest April on record. Soil temps much below avg. inhibiting planting and herbicide effectiveness; wheat in OK condition.

Blizzard brought significant moisture but livestock were stressed, deep soil moist low in SC

Coldest Apr on record so far across northern MO. Cold soil temp typical of 2nd week of March. Spring growth at least 3 weeks behind. Low forage supplies. Several Apr snow events. Corn planting behind schedule. Dry Apr for NW half of MO long-term dry in NW MO.

Intensifying drought across southern CO. D4 introduced this week in SW. Many locations in SW experienced driest water year to date. Dryland crops native grasses taking a hit. Dry ponds, hauling H2O, major wildfires occurring. Blizzard in NE CO improved moisture status. Bleak snowpack south, much better conditions north.

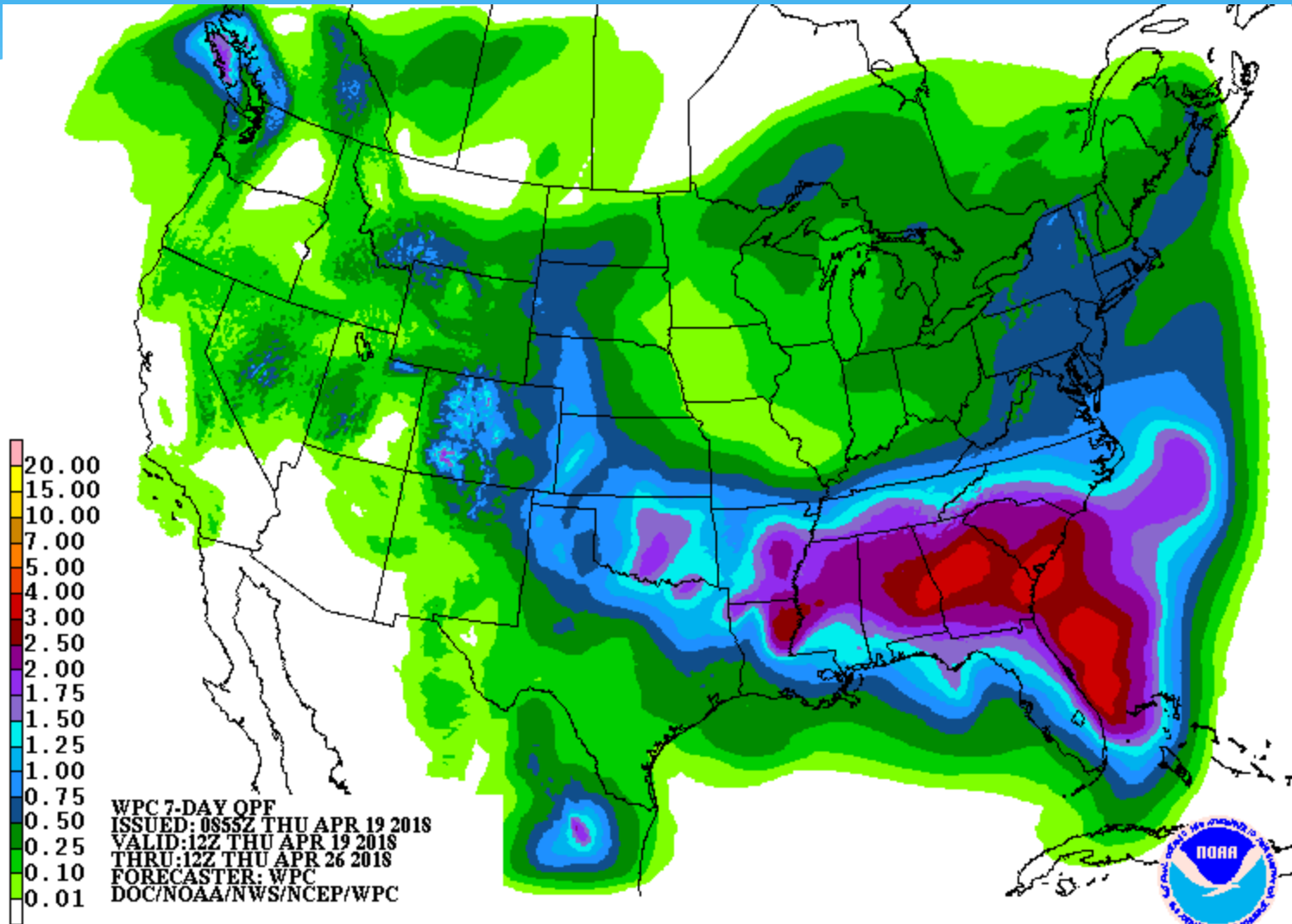
Many locations experiencing coldest April on record. Vegetation running about 3 weeks behind development, which has limited freeze damage. Corn planting delayed. D4 drought impacting SW. Wildfires occurring. Year to date precip only 37% of norm.

Climate Outlooks

- * **7-day precipitation forecast**
- * **6-10 day outlook**
- * **ENSO Predictions**
- * **May**
- * **May-Jun-Jul**
- * **Jun-Jul-Aug**

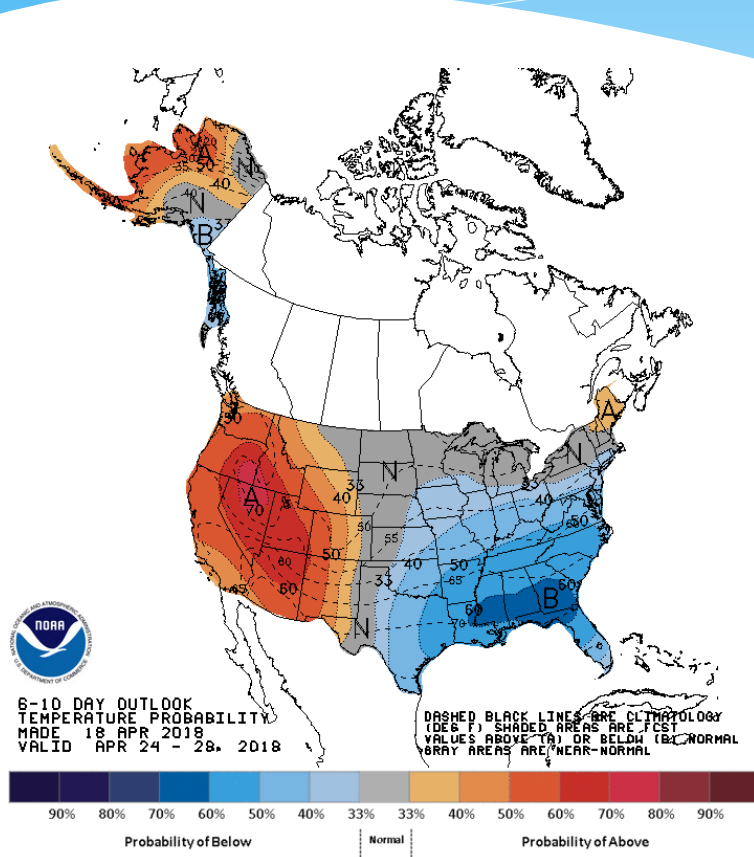
7-day Quantitative Precipitation Forecast

Valid: 7 AM Thu, Apr 19 – 7 AM, Thu, Apr 26, 2018

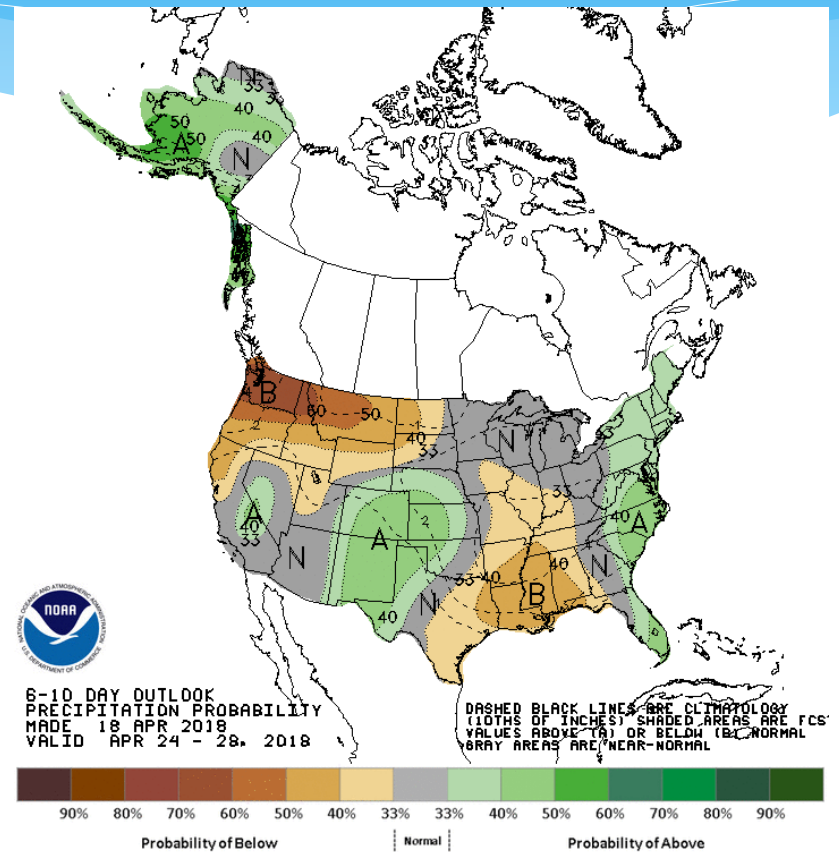


<http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml>

Temperature and Precipitation Probabilities for Apr 24-28, 2018



Temperature



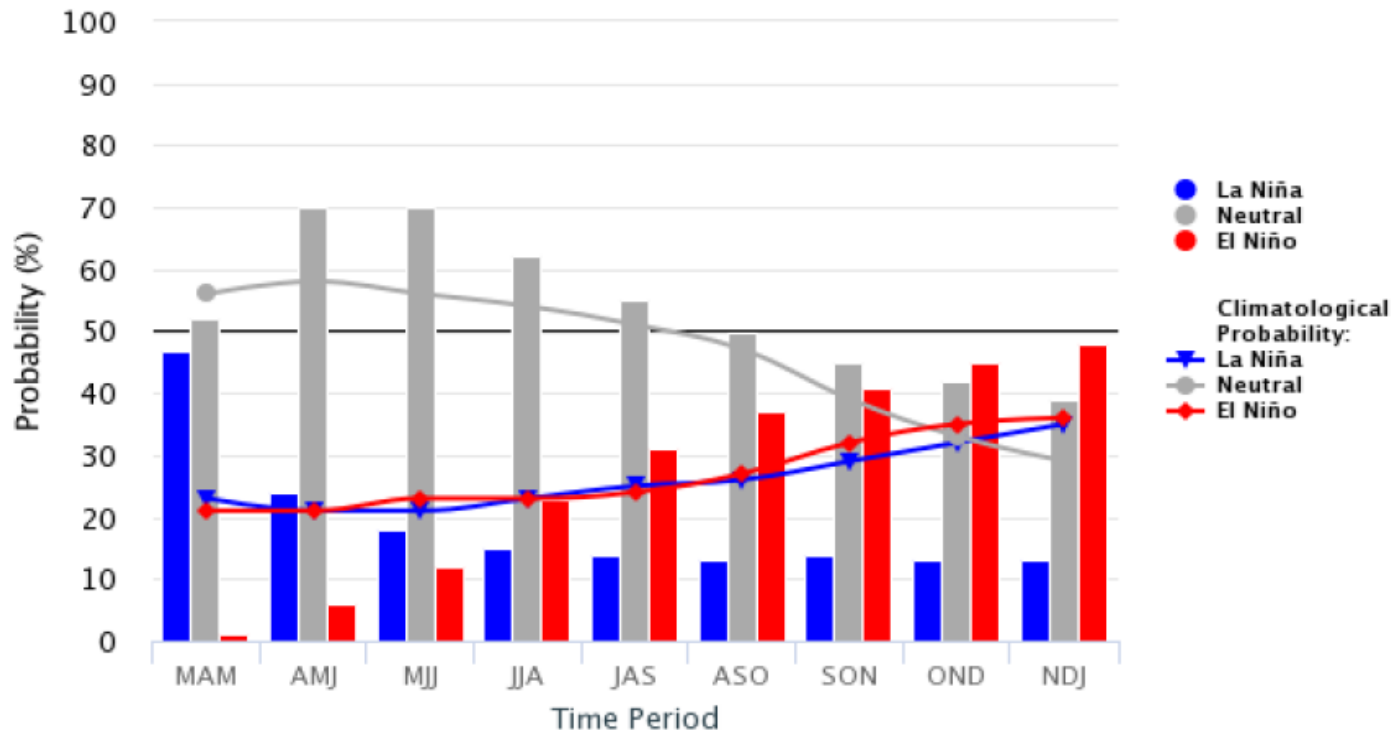
Precipitation

ENSO Forecast

Early-Apr CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly

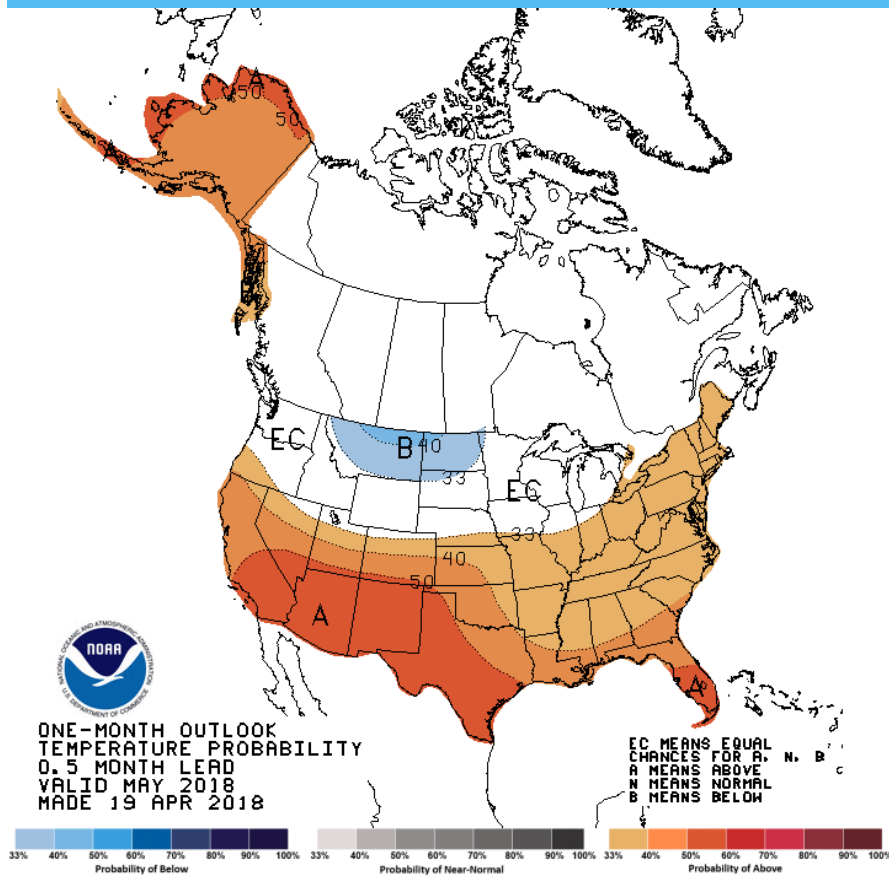
Neutral ENSO: $-0.5\text{ }^{\circ}\text{C}$ to $0.5\text{ }^{\circ}\text{C}$



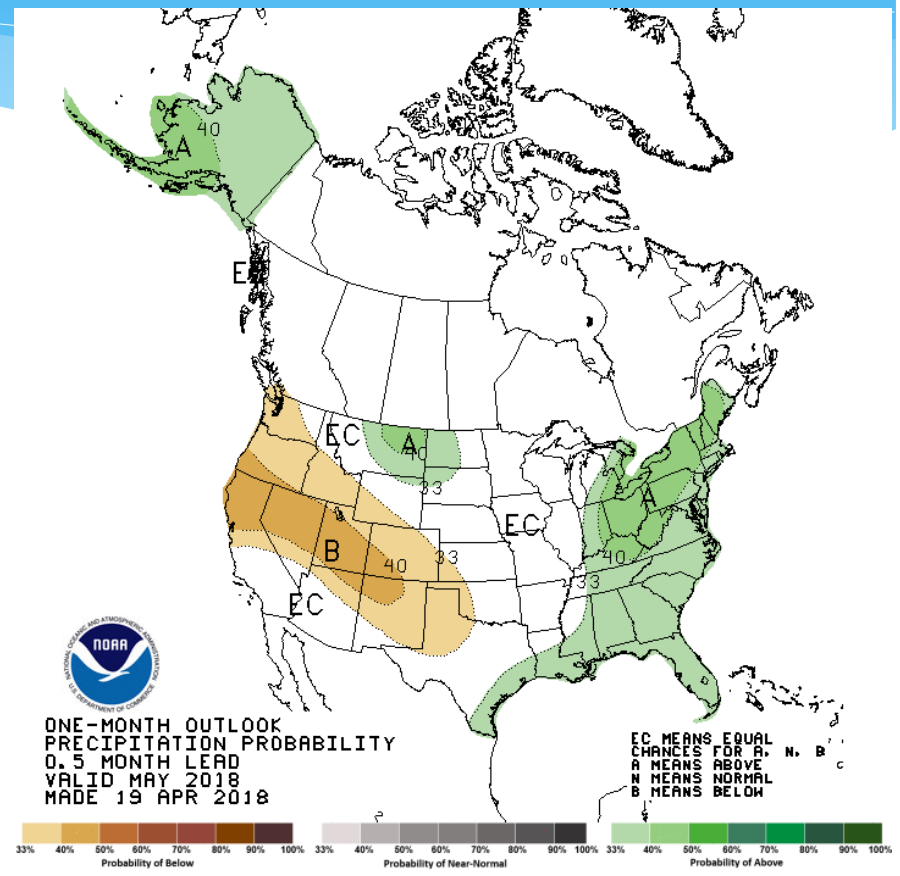
A transition from La Niña to neutral is expected April-May, with neutral favored (greater than 50%) into summer 2018. El Niño may emerge by end of summer or early fall.

Updated:
April 12, 2018

May Temperature and Precipitation Probabilities

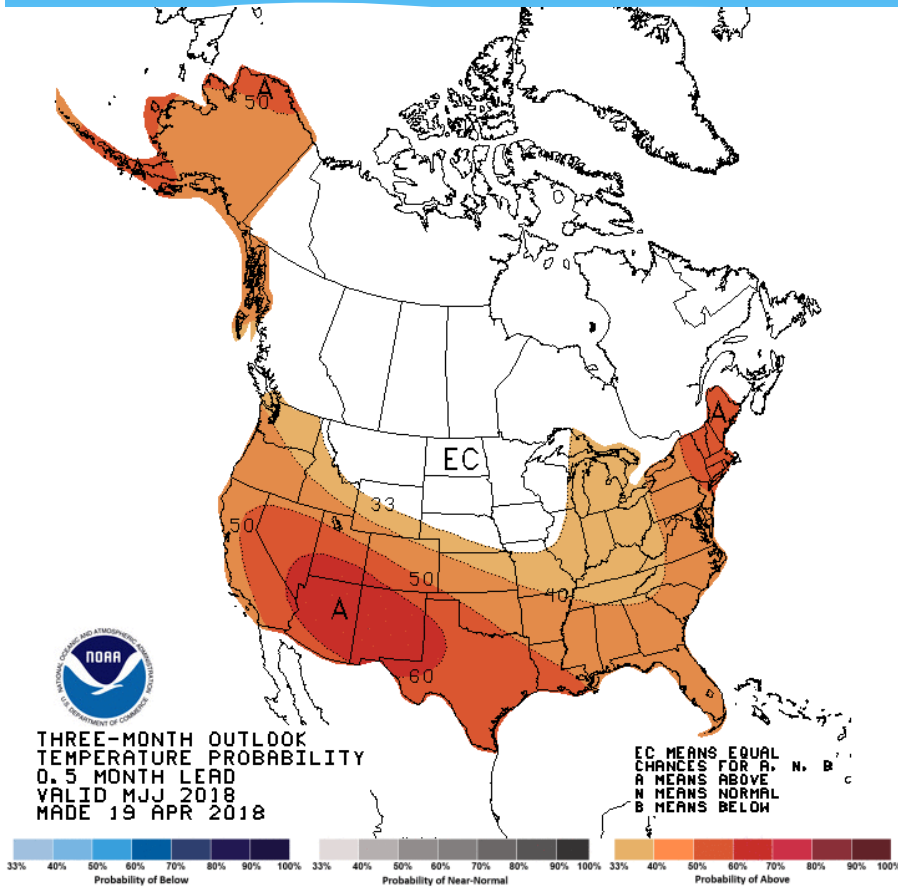


Temperature

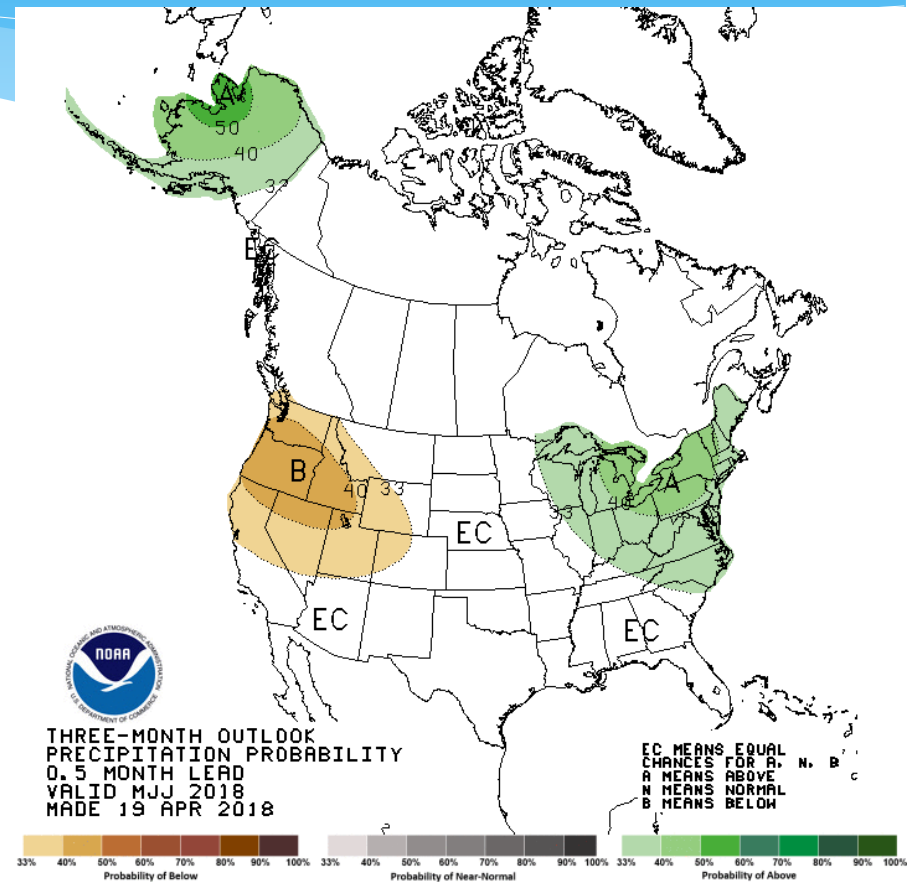


Precipitation

May-Jun-Jul Temperature and Precipitation Probabilities

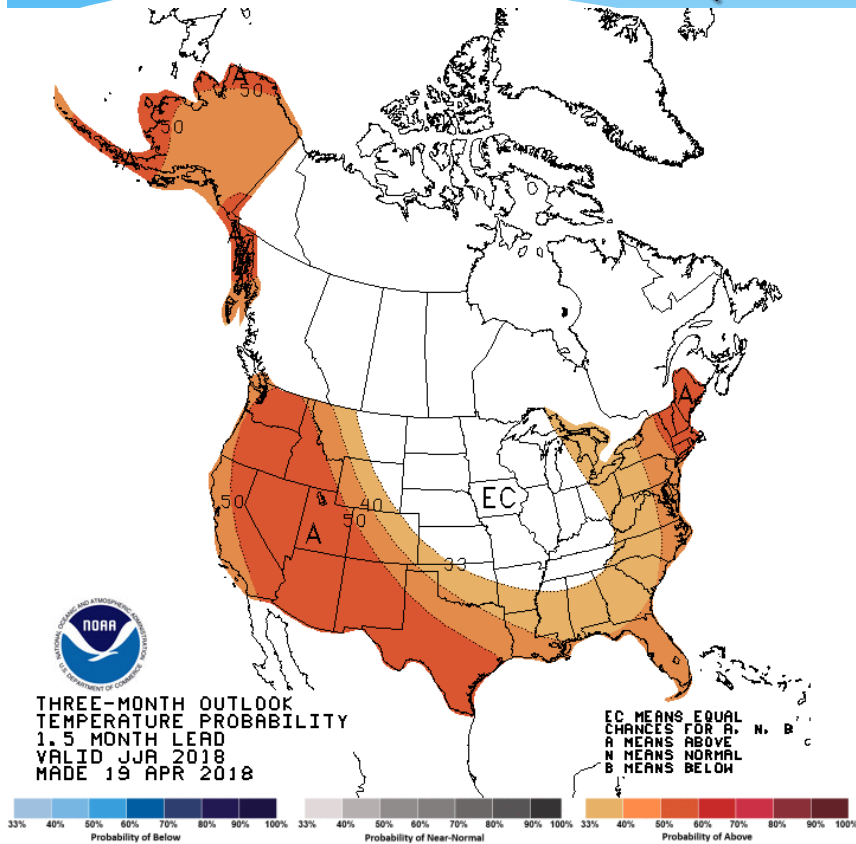


Temperature

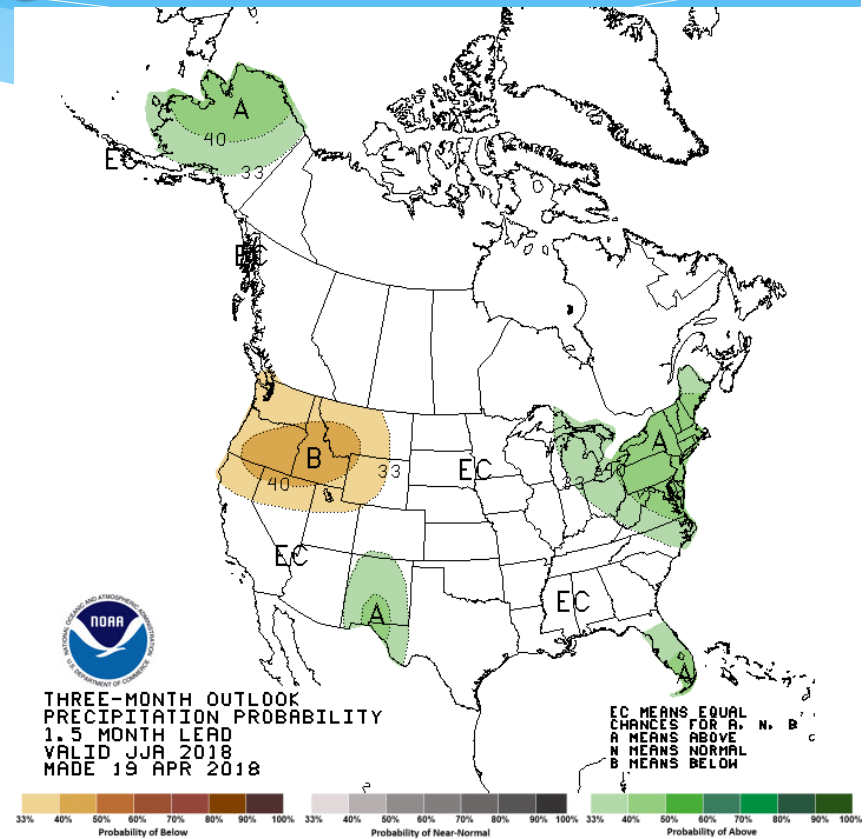


Precipitation

Summer Temperature and Precipitation Probabilities (June-August)



Temperature



Precipitation

Summary - Conditions

- * **Many North Central States experiencing coldest April on record so far;**
- * **Wet conditions across MT, northern CO, blizzard corridor from CO to MI and Ohio River Valley.**
- * **Dry across southern and eastern CO, KS, southern NE, portions of Dakotas, northern MN, southern and eastern IA, northern and western MO, NW IL.**
- * **Vegetative growth, fieldwork activity and planting behind schedule.**

Summary - Outlooks

- * **Flood potential across Upper Missouri Basin**
- * **Drought concerns for CO, KS, southern NE, portions of Dakotas, southern IA and northern and western MO.**
- * **Delayed planting**
- * **Disease opportunities, crop emergence issues**

Further Information - Partners

- * **Today's and Past Recorded Presentations and :**
- * <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
 - * <http://mrcc.isws.illinois.edu>
 - * <http://www.hprcc.unl.edu>

Thank You and Questions?

- * Questions:

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