

Midwest and Great Plains Climate and Drought Outlook

Kelsey Jencso

Montana State Climatologist

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

Next webinar: Pat Guinan (Missouri State Climatologist) on April 19th

Archive of past webinars:

- hprcc.unl.edu/webinars
- drought.gov/drought/calendar/webinars

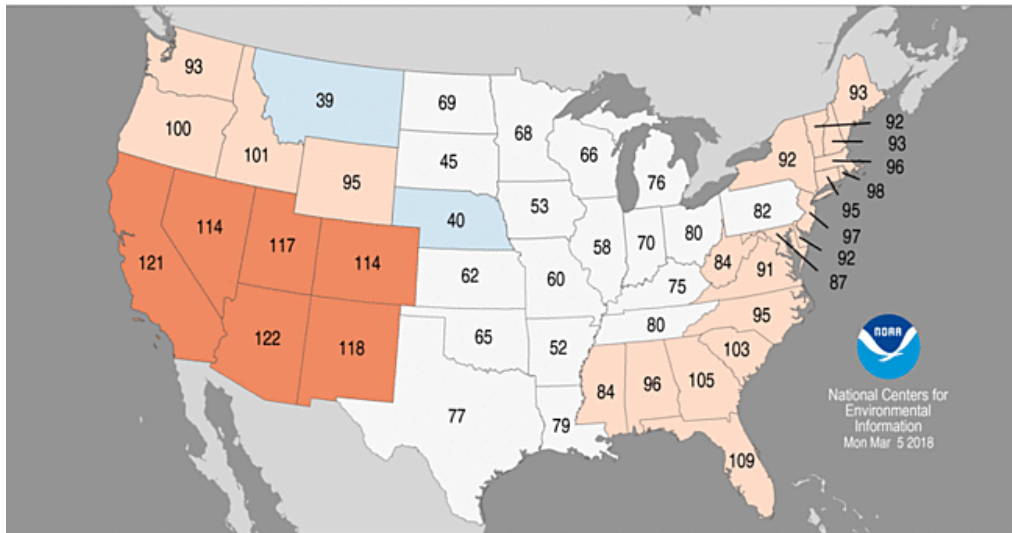
Agenda

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

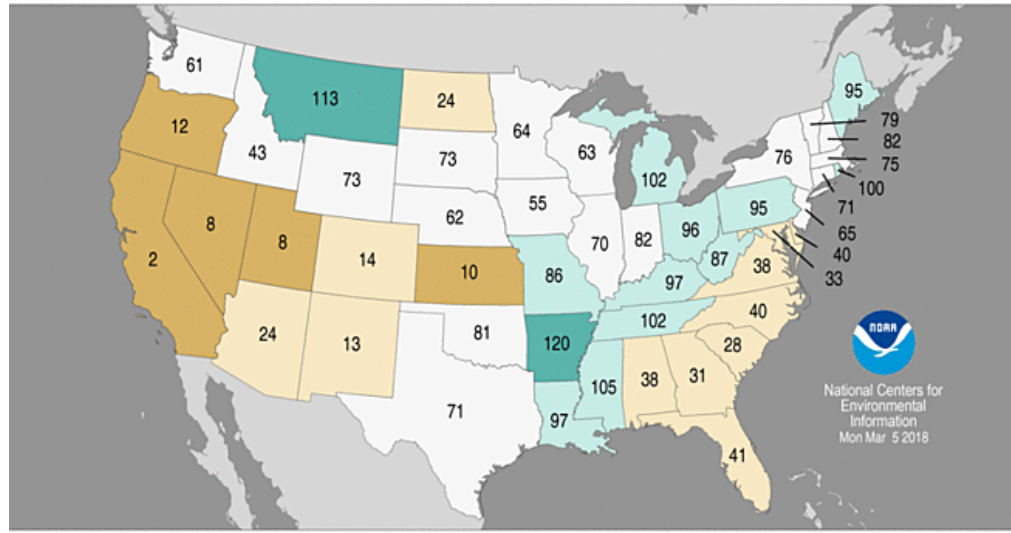


State Ranks: December - February

Statewide Average Temperature Ranks
December 2017–February 2018
Period: 1895–2018

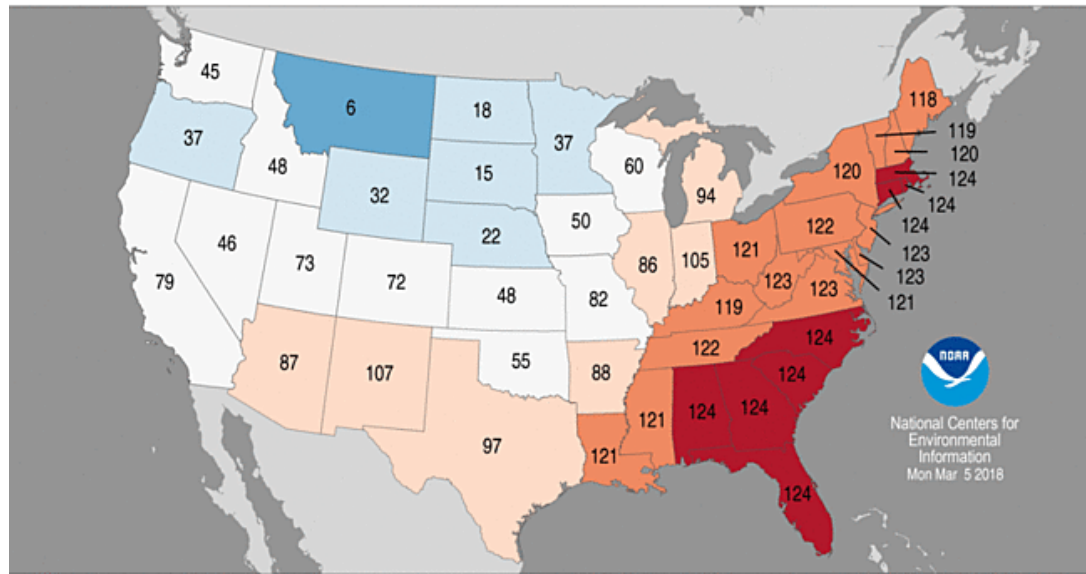


Statewide Precipitation Ranks
December 2017–February 2018
Period: 1895–2018

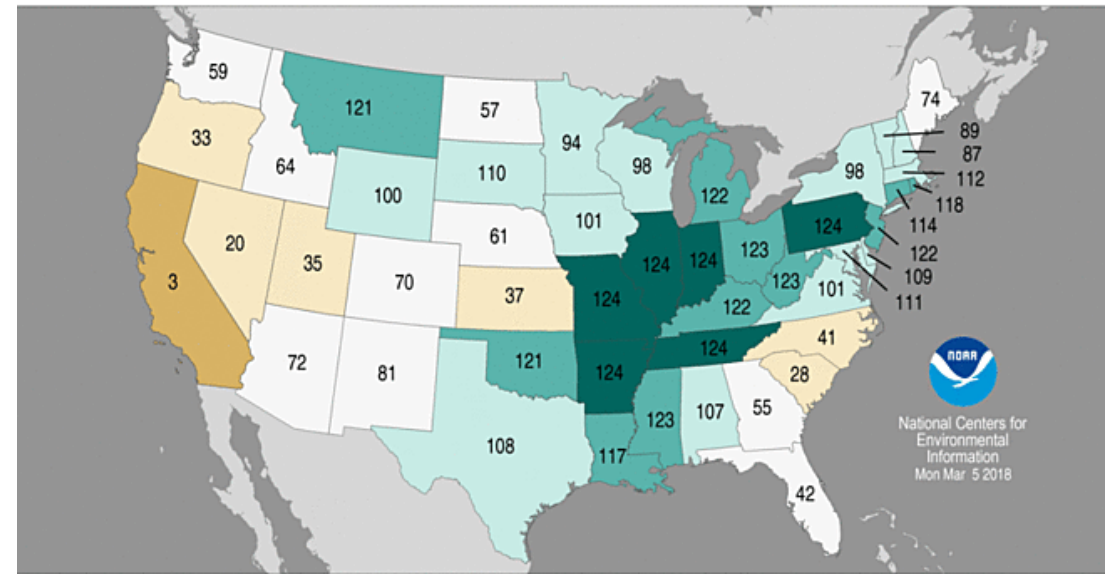


State Ranks: February

Statewide Average Temperature Ranks
February 2018
Period: 1895–2018



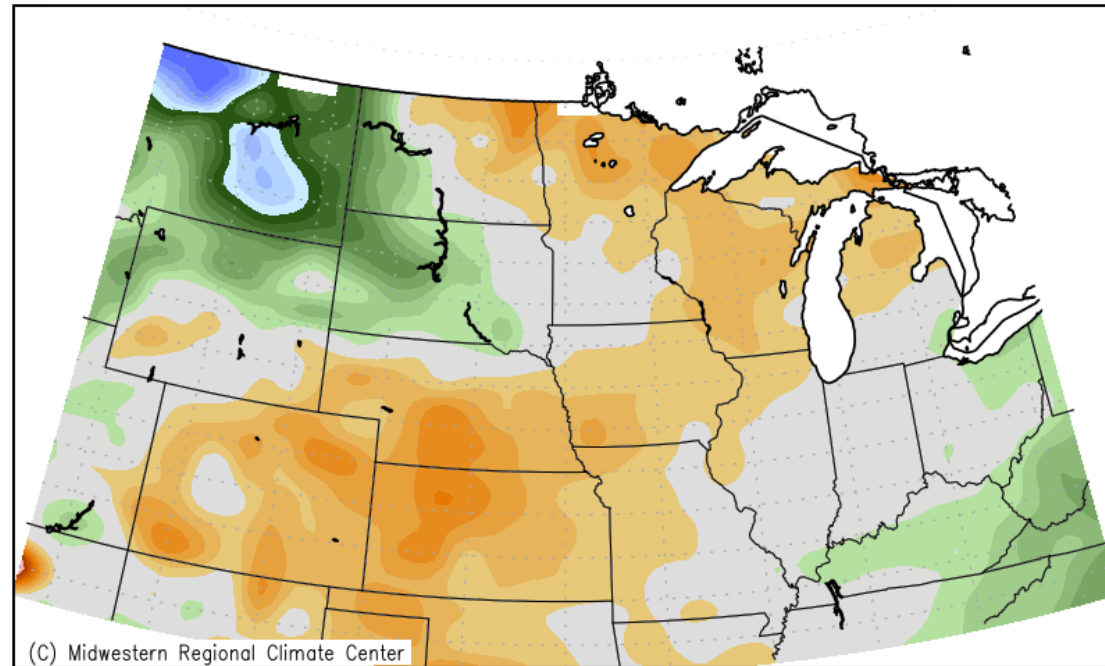
Statewide Precipitation Ranks
February 2018
Period: 1895–2018



March: Temperature departure from mean

mrcc.isws.illinois.edu/cliwatch

Average Temperature (°F): Departure from Mean
March 1, 2018 to March 12, 2018



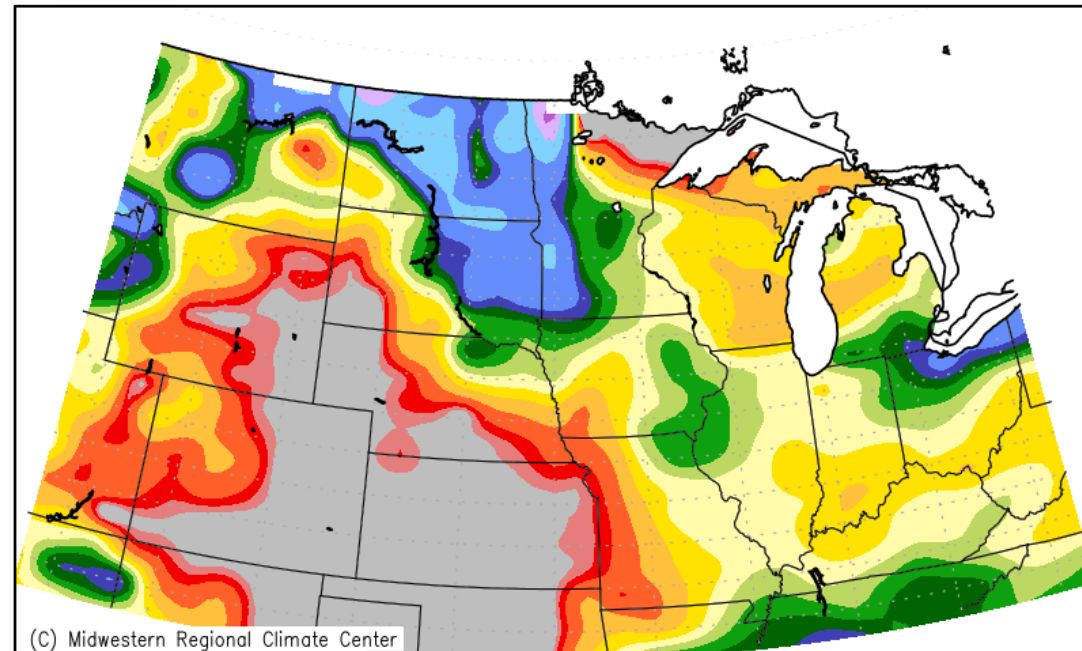
Mean period is 1981–2010.



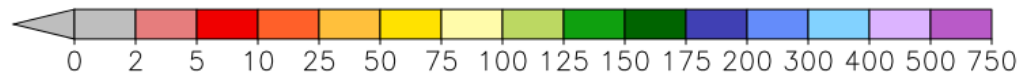
March: Precipitation percent of mean

mrcc.isws.illinois.edu/cliwatch

Accumulated Precipitation: Percent of Mean
March 1, 2018 to March 12, 2018



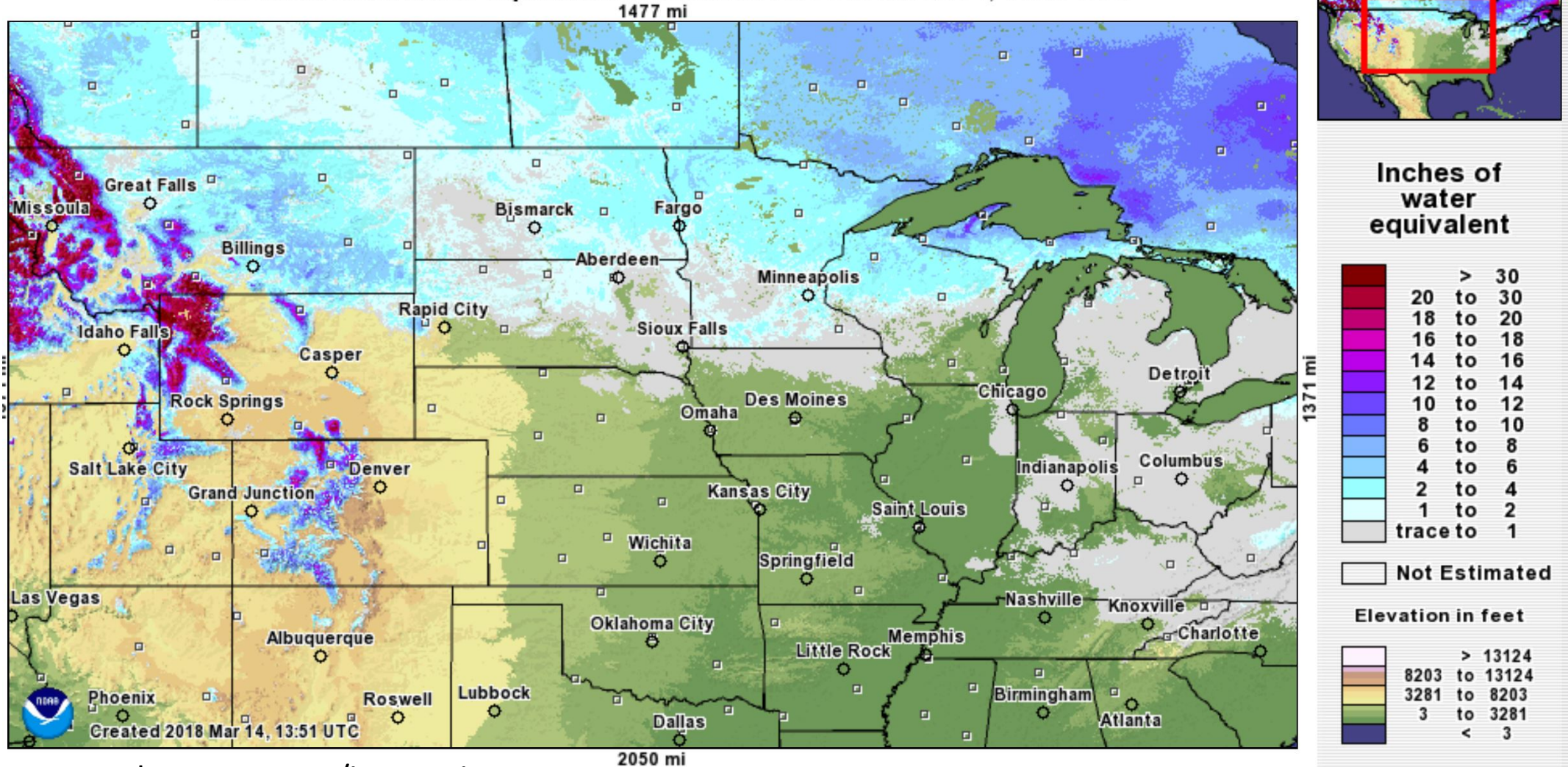
Mean period is 1981–2010.



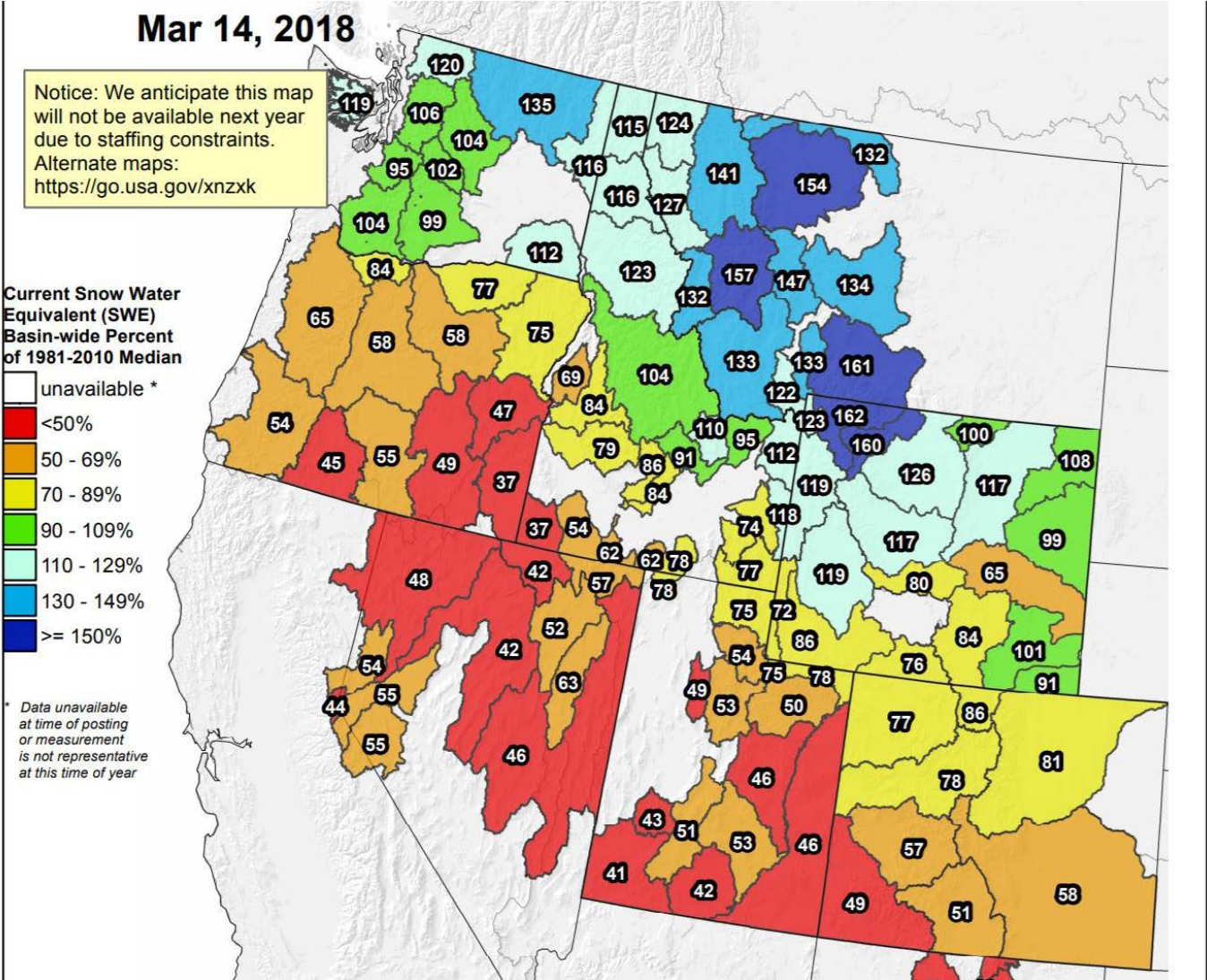
Midwestern Regional Climate Center

Snow Water Equivalent

Modeled Snow Water Equivalent forecasted for 2018 March 14, 14:00 UTC

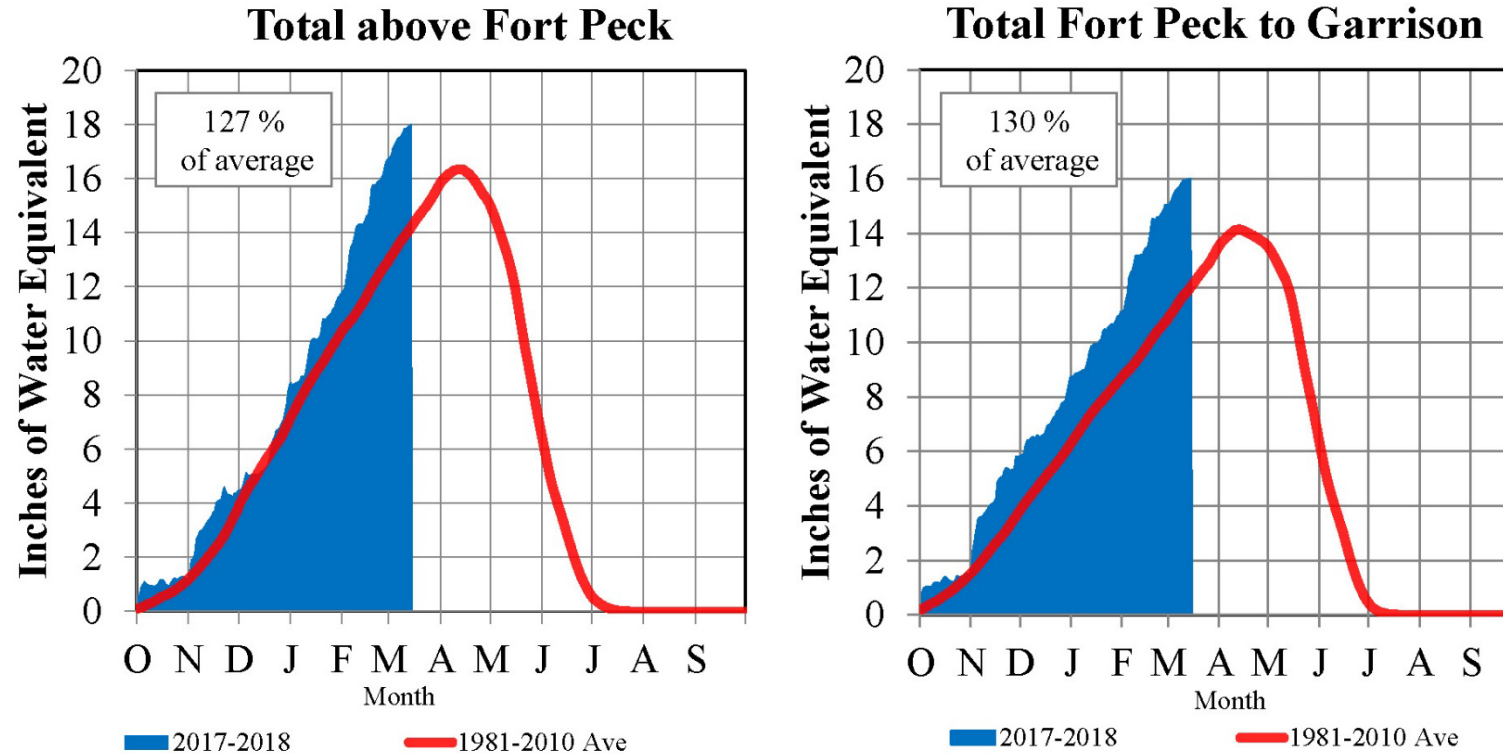


West wide SNOTEL current SWE % of normal



Missouri River Basin - Mountain Snowpack Water Content

March 14, 2018

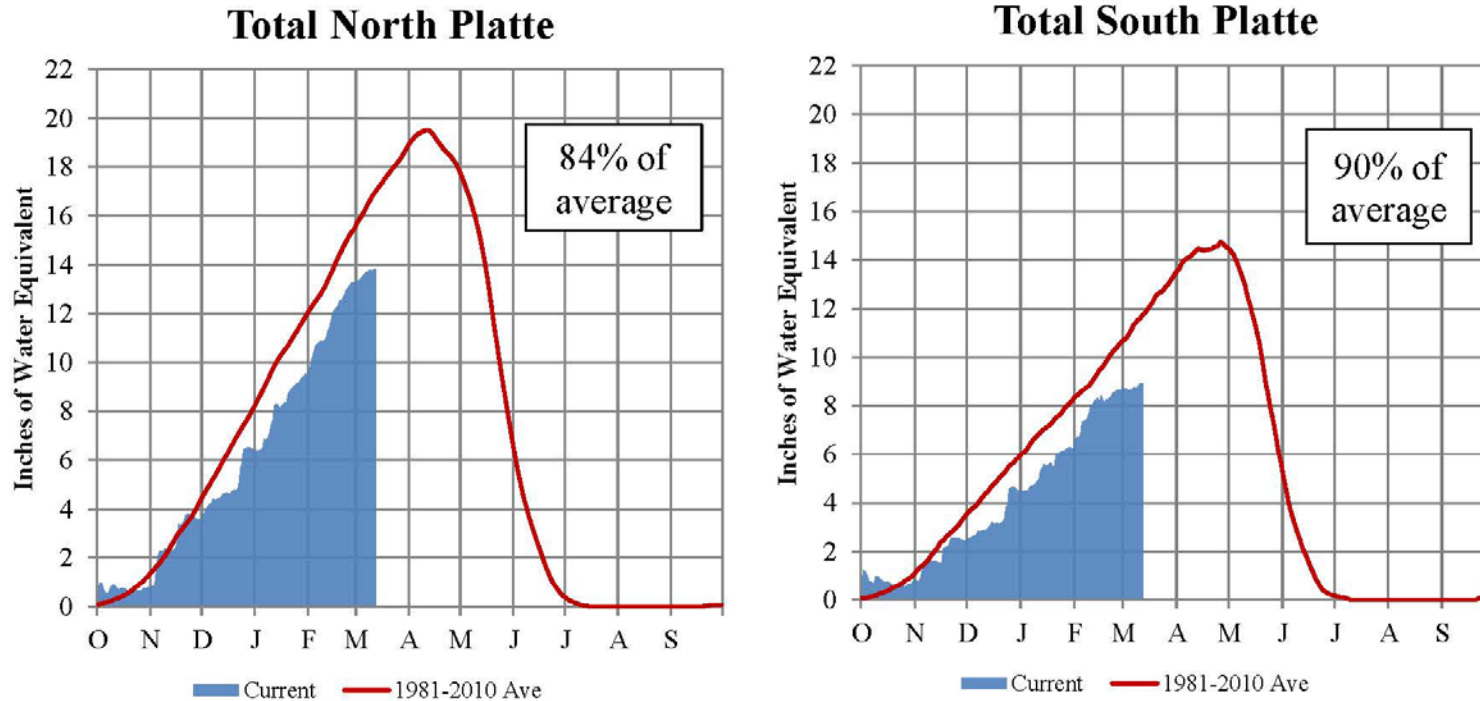


Normally by March 15 about 87% of the peak mountain SWE has occurred in both reaches.

Source: USDA-NRCS

Platte River Basin - Mountain Snowpack Water Content

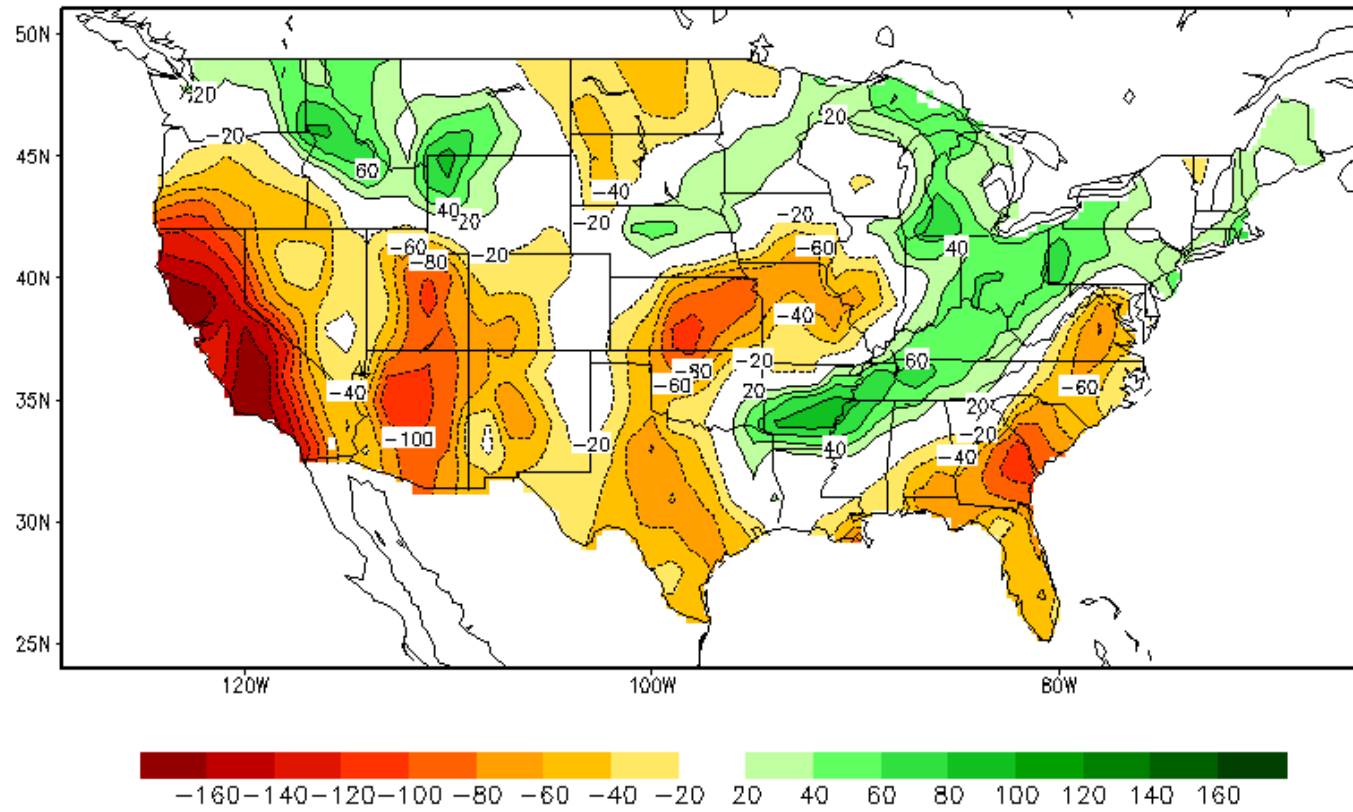
March 13, 2018



The North and South Platte River Basin mountain snowpacks normally peak near April 15 and the end of April, respectively. As of March 13, 2018, the mountain snowpack SWE in the "Total North Platte" reach is currently 13.8", 81% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 8.9", 76% of average.

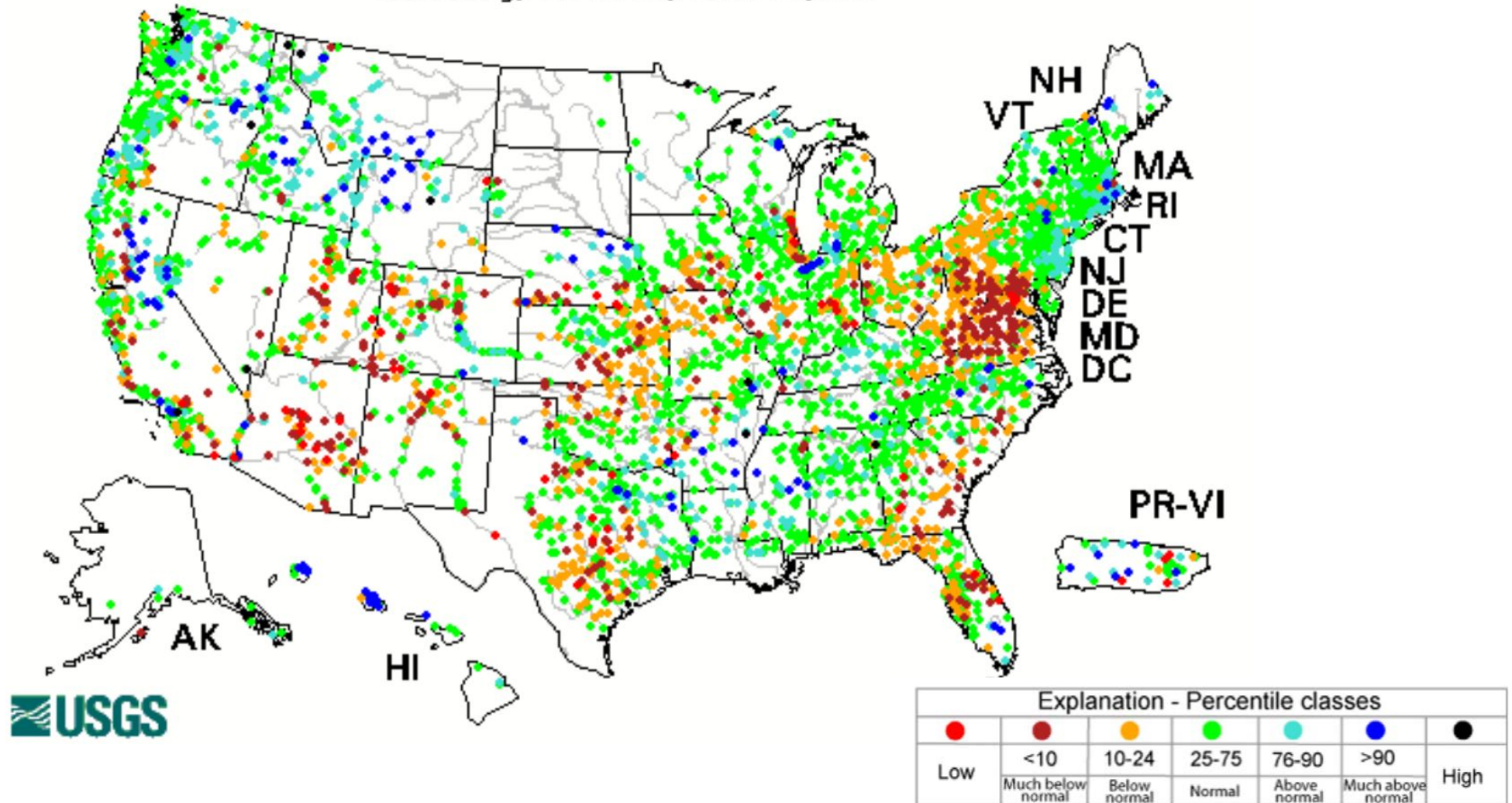
Soil Moisture Anomaly

Calculated Soil Moisture Anomaly (mm)
MAR 14, 2018

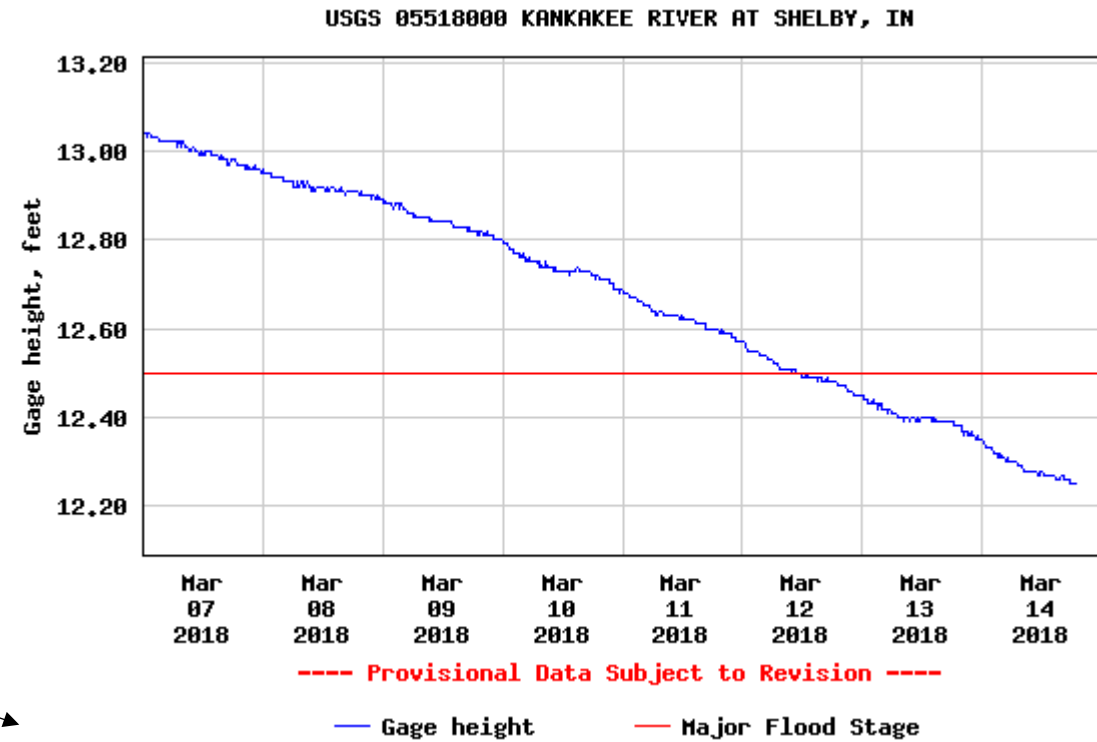
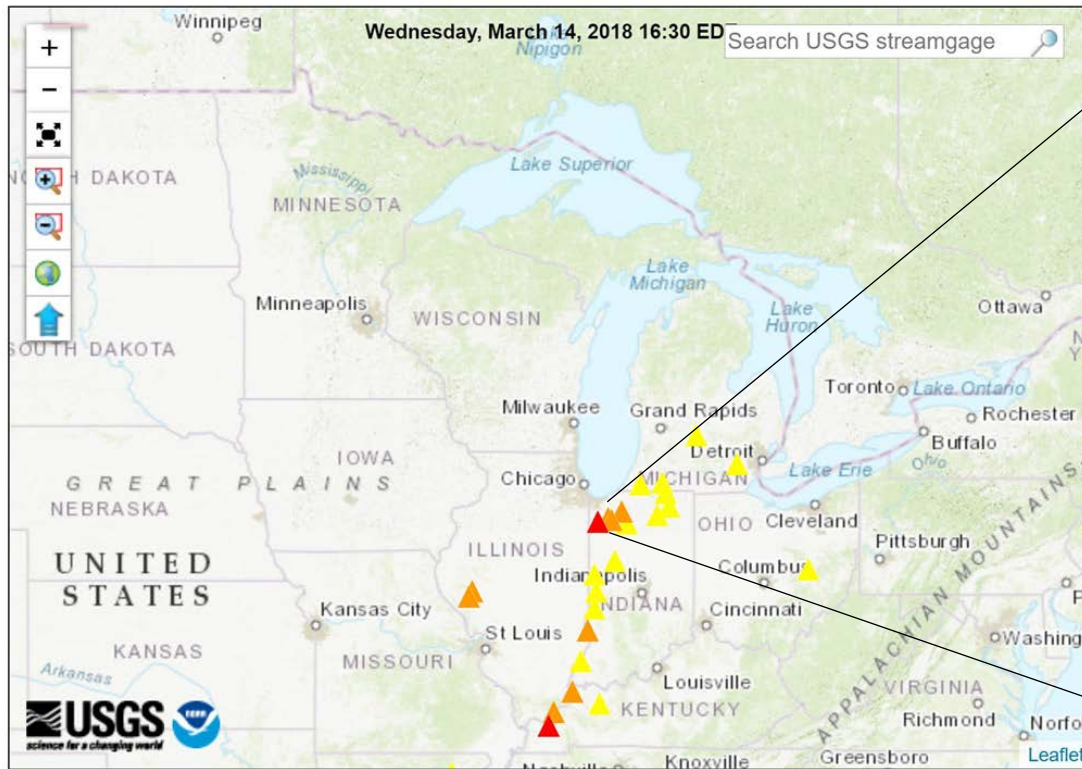


7 Day Average Streamflow

Wednesday, March 14, 2018 10:30ET



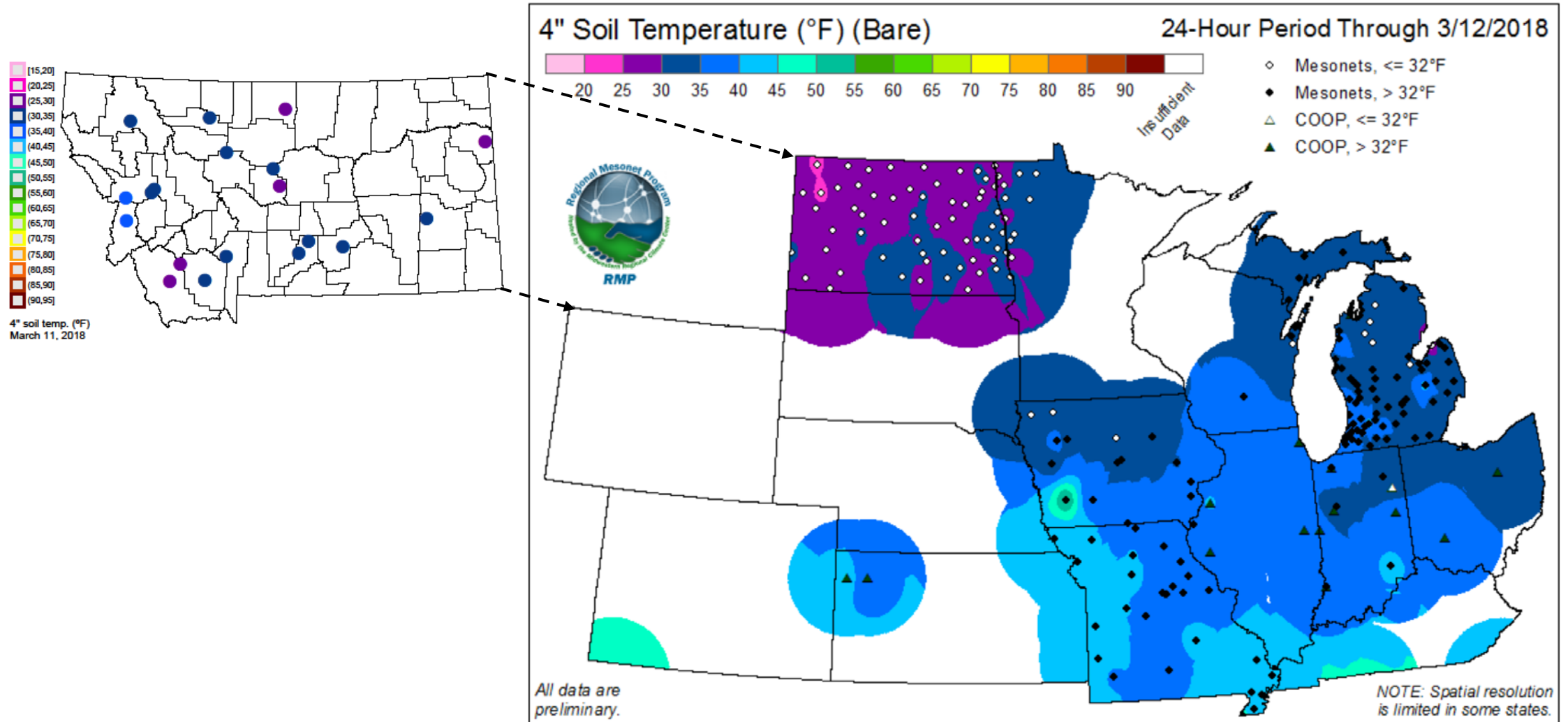
Current Flood Stages



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			

Flows are receding following the wettest February on record for Indiana, Illinois, Michigan and Kentucky

Surface Soil Temperature

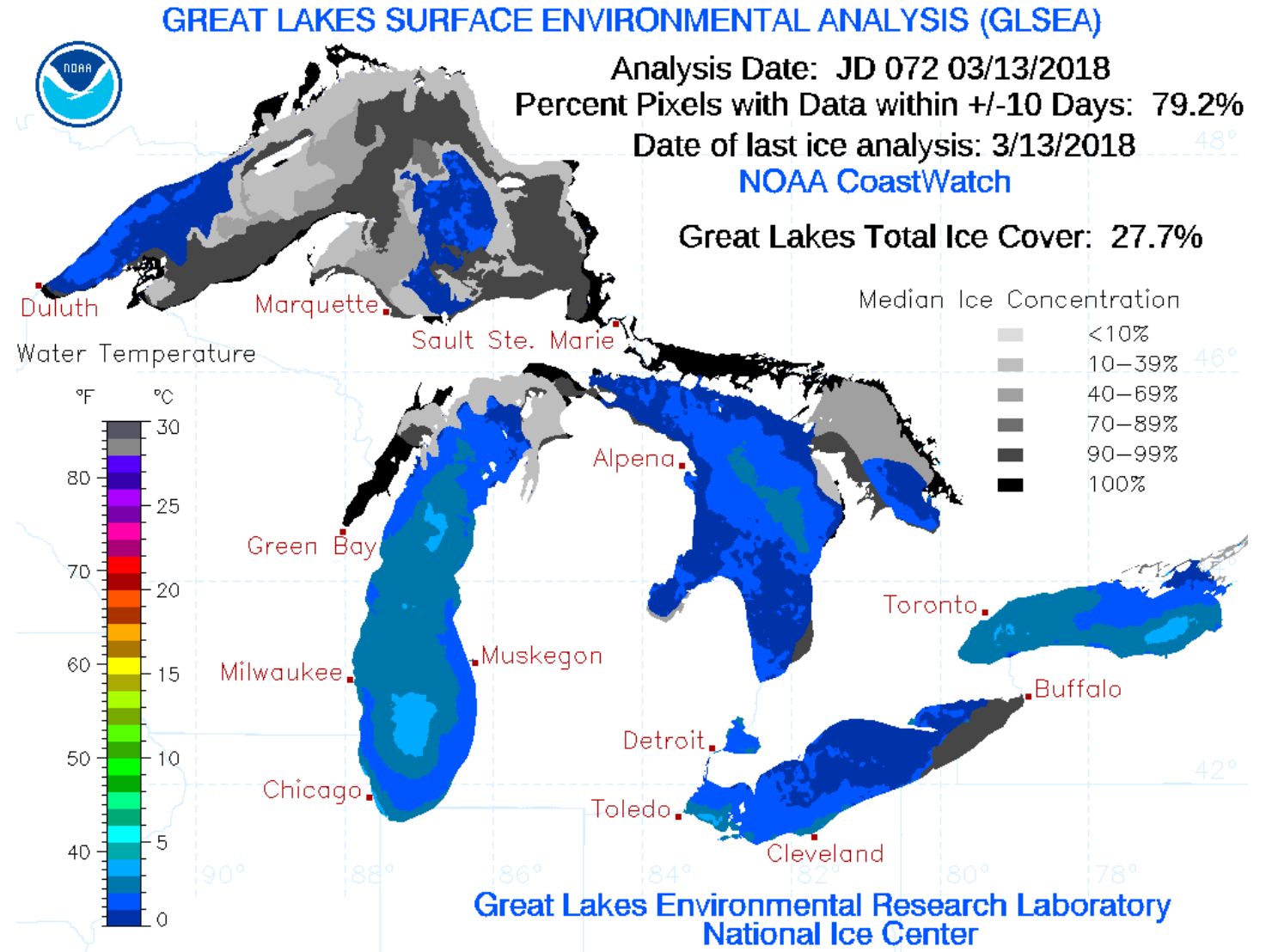


Great Lakes Ice Cover

Recent warmer than average temperatures (>3 to 5°F) in the Great Lakes region have contributed to a 30% reduction of ice cover from February

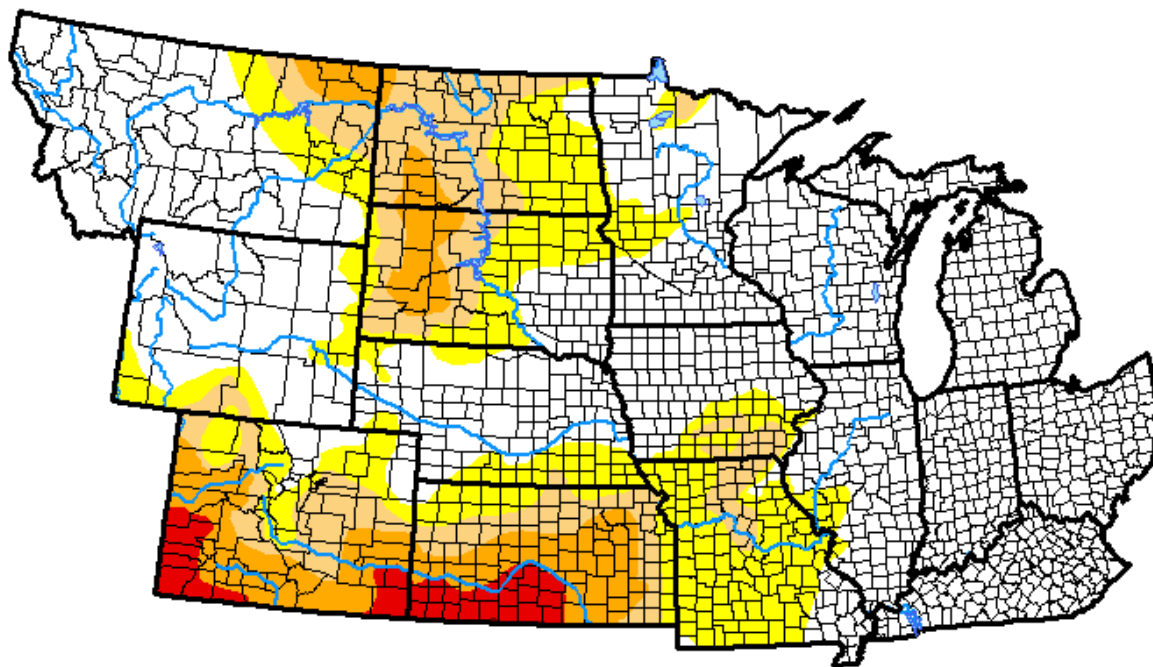
Percent ice cover

Superior = 50%
 Michigan = 12%
 Huron = 22%
 Erie = 14%
 Ontario = 3%








U.S. Drought Monitor NWS Central Region

March 13, 2018
(Released Thursday, Mar. 15, 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:

Richard Tinker
CPC/NOAA/NWS/NCEP



Impacts: Cold and Snow



Blizzard affects Blackfoot Nation – Feb 23-27 & March 6

- Winds 60-75 mph combined with recent heavy snow & extreme cold temperatures led to a blizzard - 10 to 15+ feet snow drifts
- Impassable roads and driveways caused people to be trapped in their homes & stranded on roadways - numerous road closures
- Dennis Longknife - No work for the tribe here in north central Montana. Another blizzard hit and dropped at least 2 more feet of snow, shutting down all travel.
- state of emergency on the Blackfoot, Fort Belknap, and Northern Cheyenne reservations and in Glacier and Golden Valley counties

Ohio

- March 14 storm in Central Ohio caused 81 vehicle pileup

Impacts: Agriculture



Montana & Dakotas

- Cattle loss due to extreme cold and lack of feed
- Worry persists in Eastern MT, and the Dakotas about drought impacts on rangelands going into spring

Kansas

- emergency drought status – water hauling from federal and state reservoirs and travel restrictions lifted for hauling hay and feed
- Winter wheat is ~10 days behind in development. Crops planted after October haven't developed deeper roots.
- 28 percent of the wheat in Kansas in poor to very poor condition. About 44 percent was reported as fair.

Ohio

- Red maples and silver maples went into first bloom due to warmer temps.

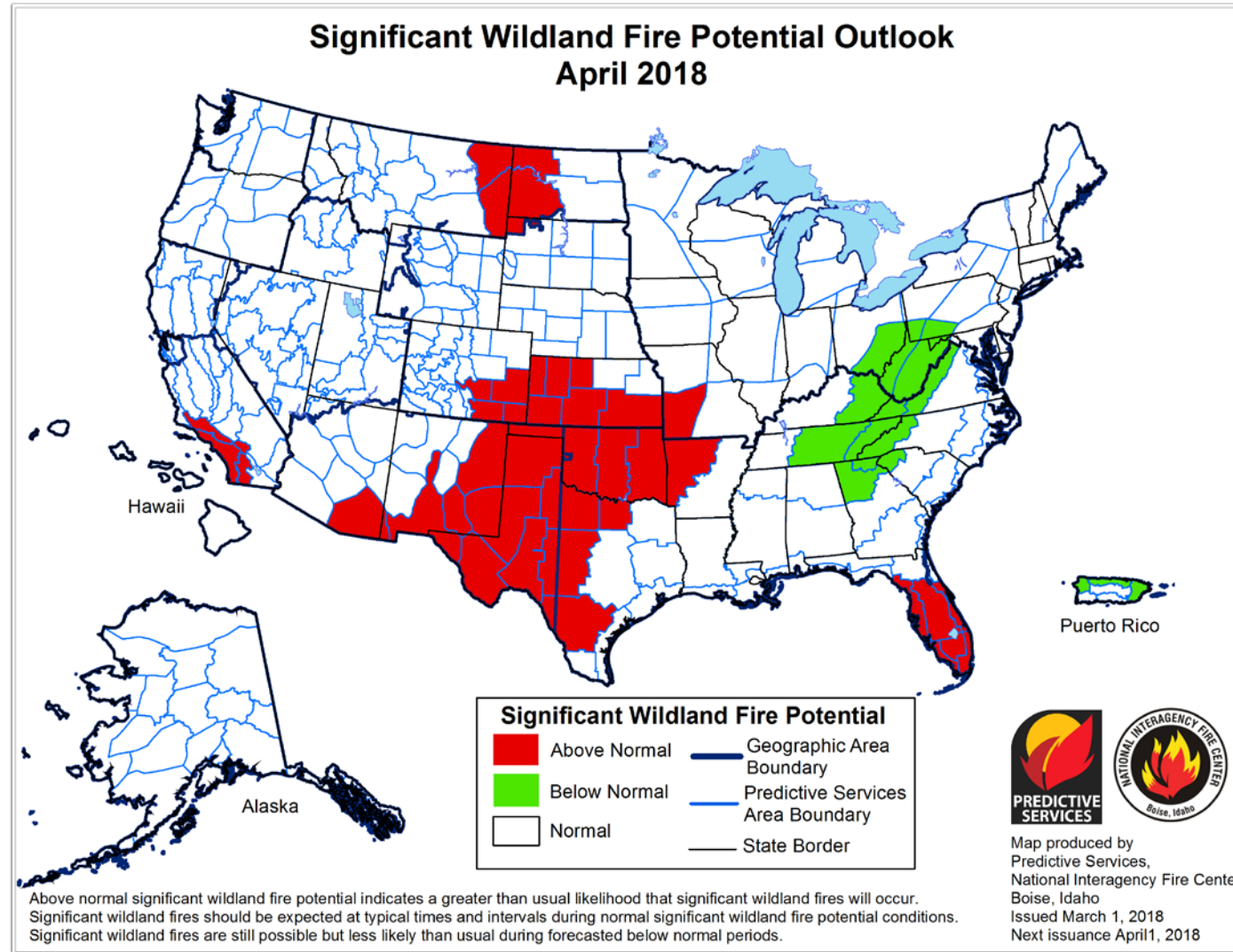
Impacts: Flooding in the Midwest



Record precipitation in late February led to extensive flooding:

- At least 3 deaths
- Extensive damage to homes, buildings and vehicles across Indiana, Illinois, Ohio, Michigan, and Kentucky
- Extensive road closures
- Ohio river flooding at Cincinnati. Crested at 16.5' - highest since 1997
- 2nd highest historical crest on Grand River in Michigan
- Ohio River at Uniontown Dam in Kentucky recorded its highest stage

Impacts: Wildfire potential

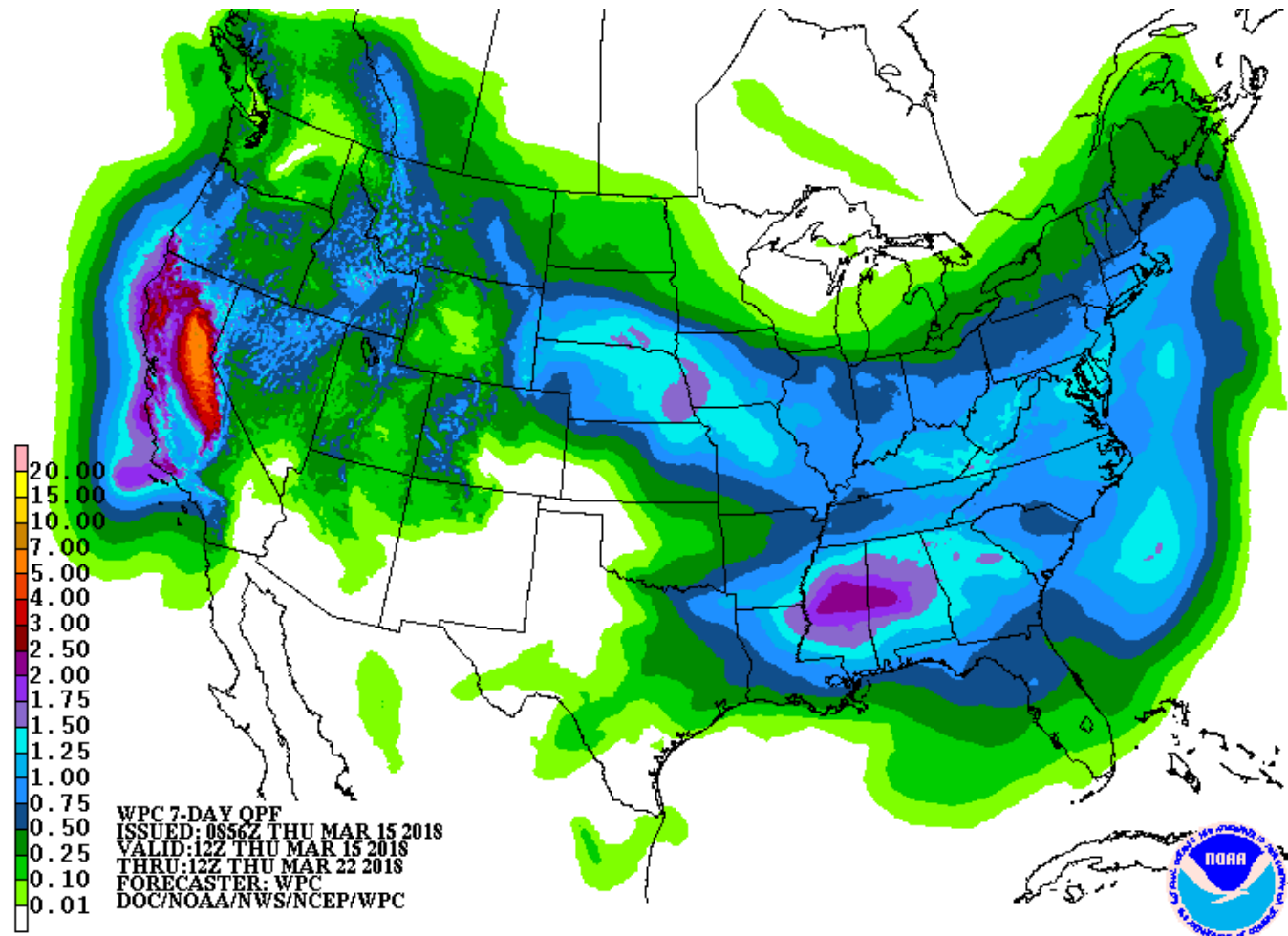


Kansas

- Governor Declares Drought Emergency, Warnings and Watches for all 105 Kansas Counties
- 12 small fires across the state
- Two larger wildfires
 - Boller
 - I-70 Milepost 310

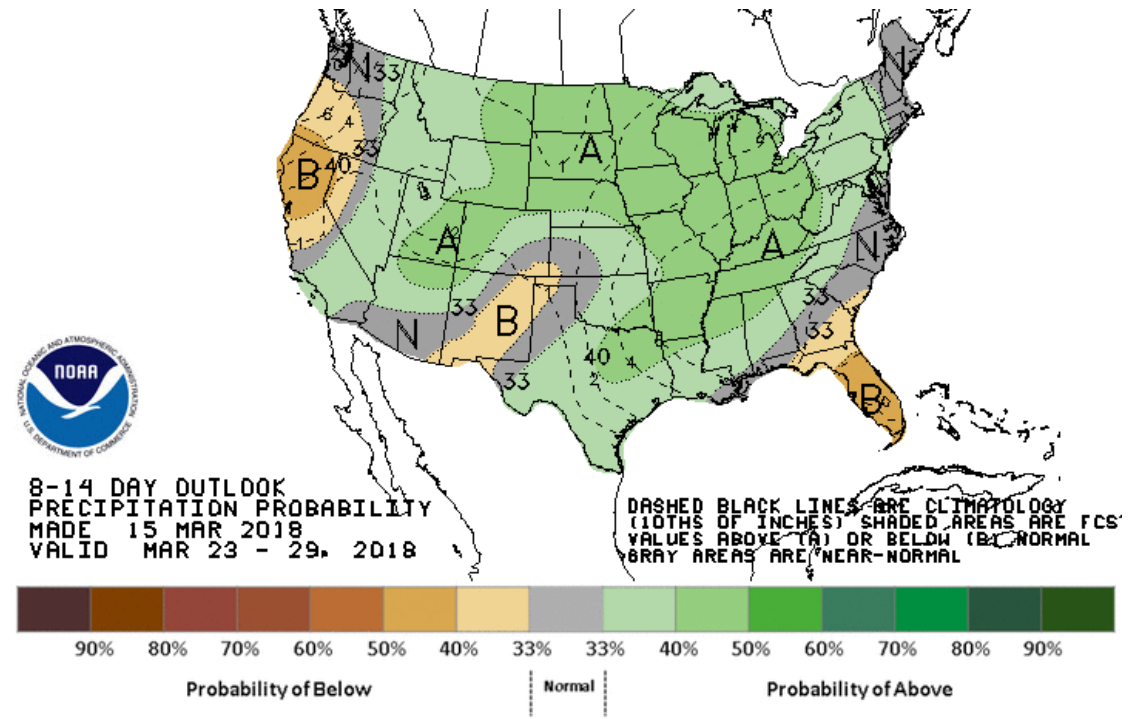
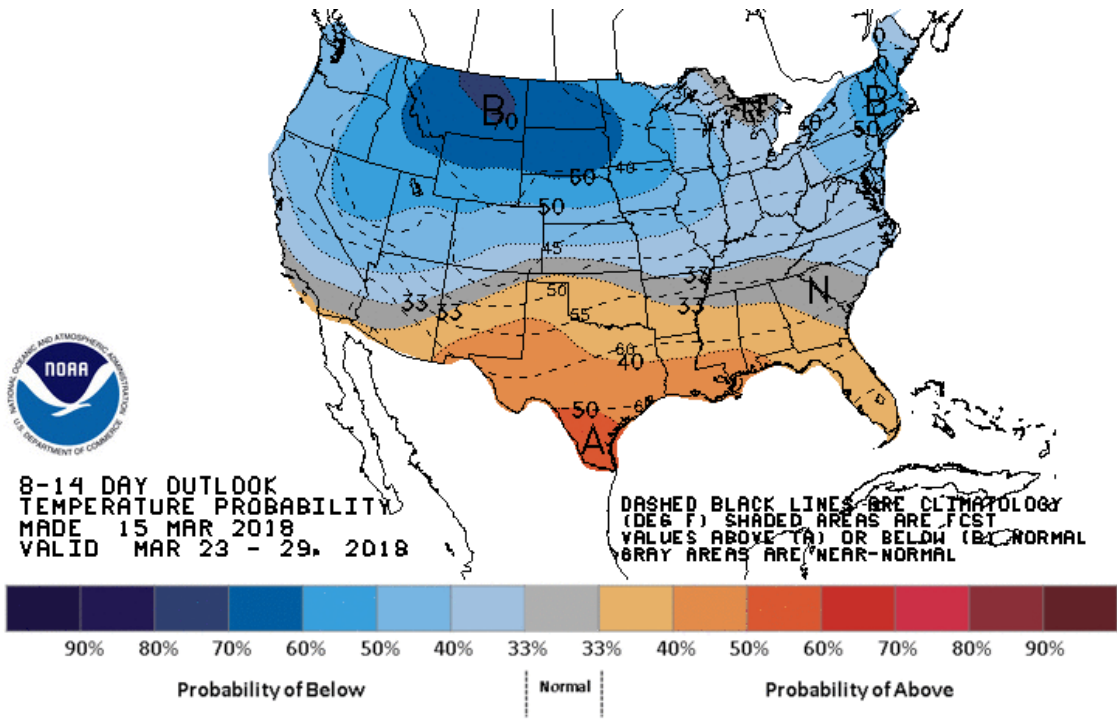


7 Day Quantitative Precipitation Forecast



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

8-14 Day Outlook



ENSO Forecast

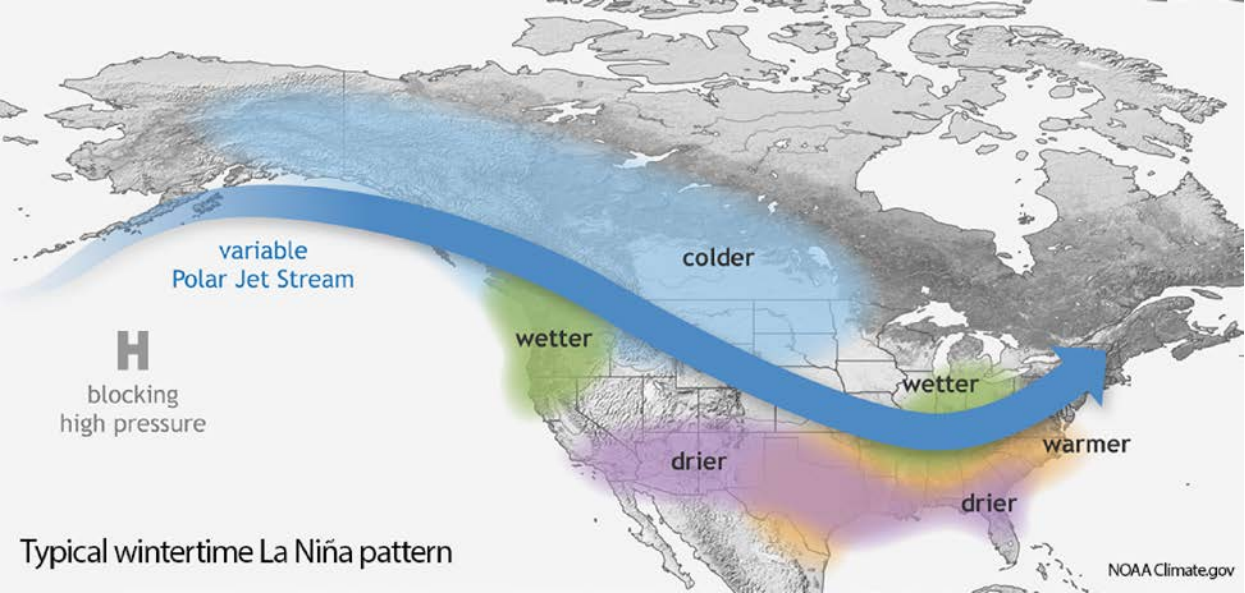
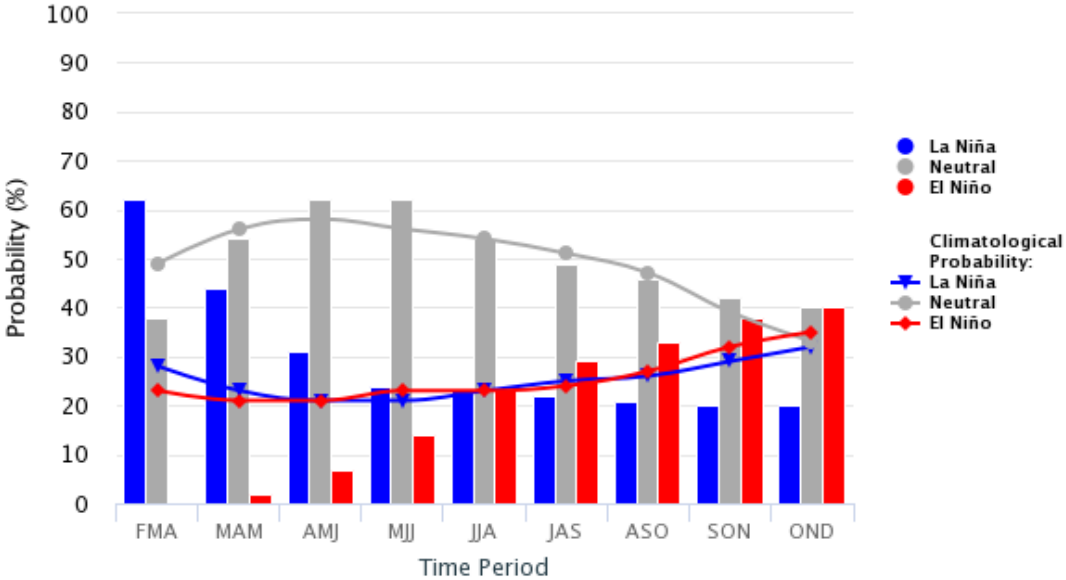


Image Credit: Fiona Martin, NOAA Climate.gov

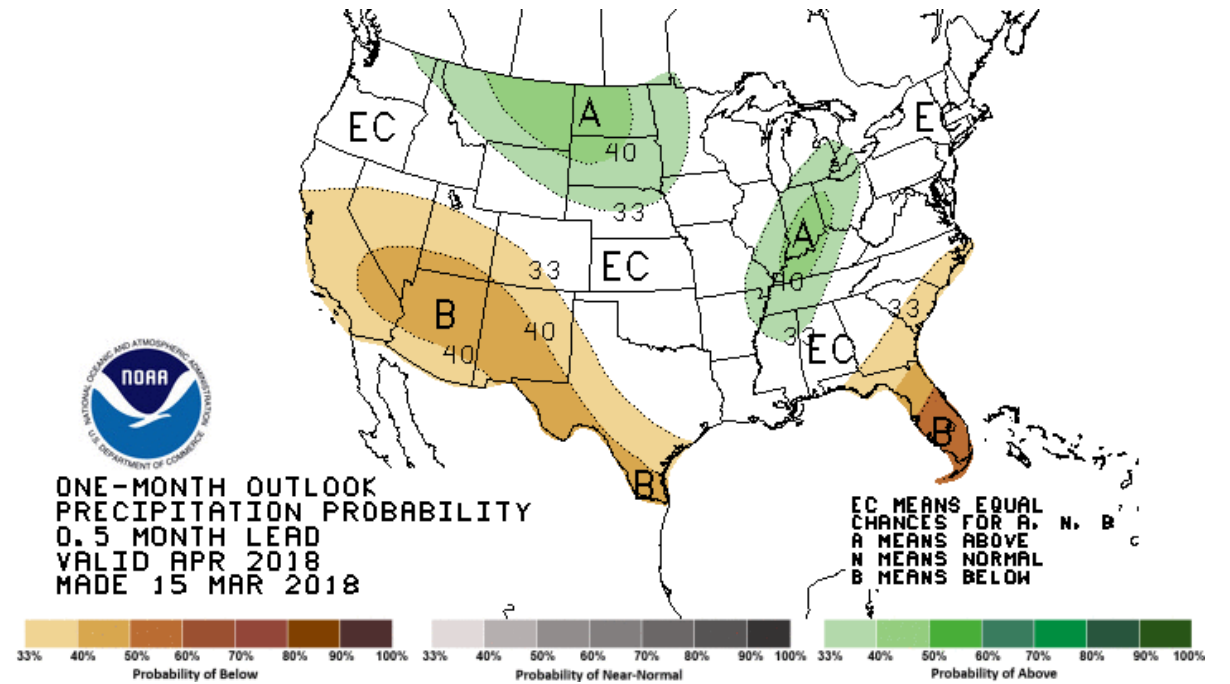
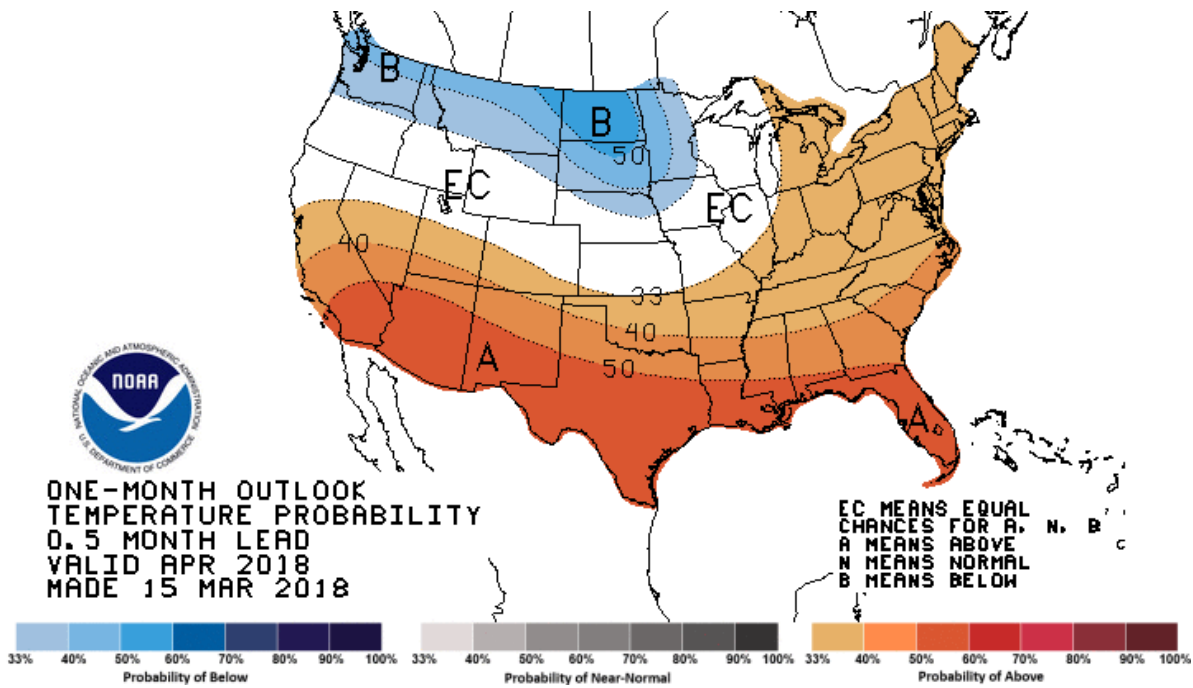
Early-Mar CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5 °C to 0.5 °C

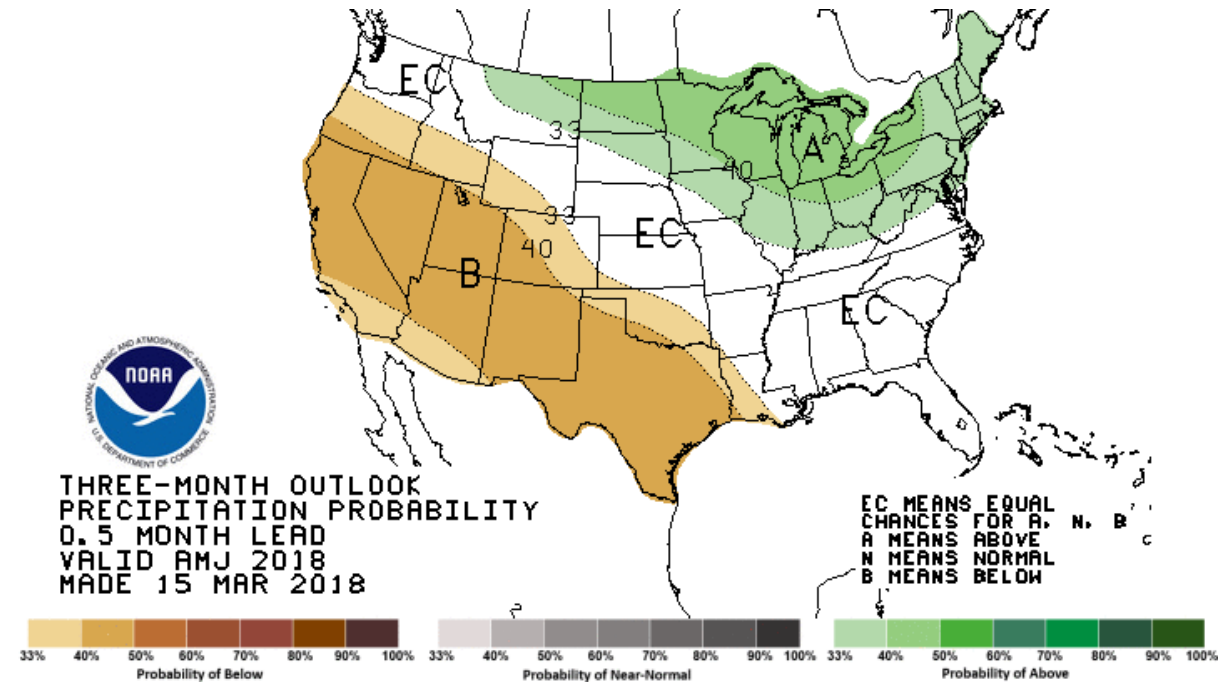
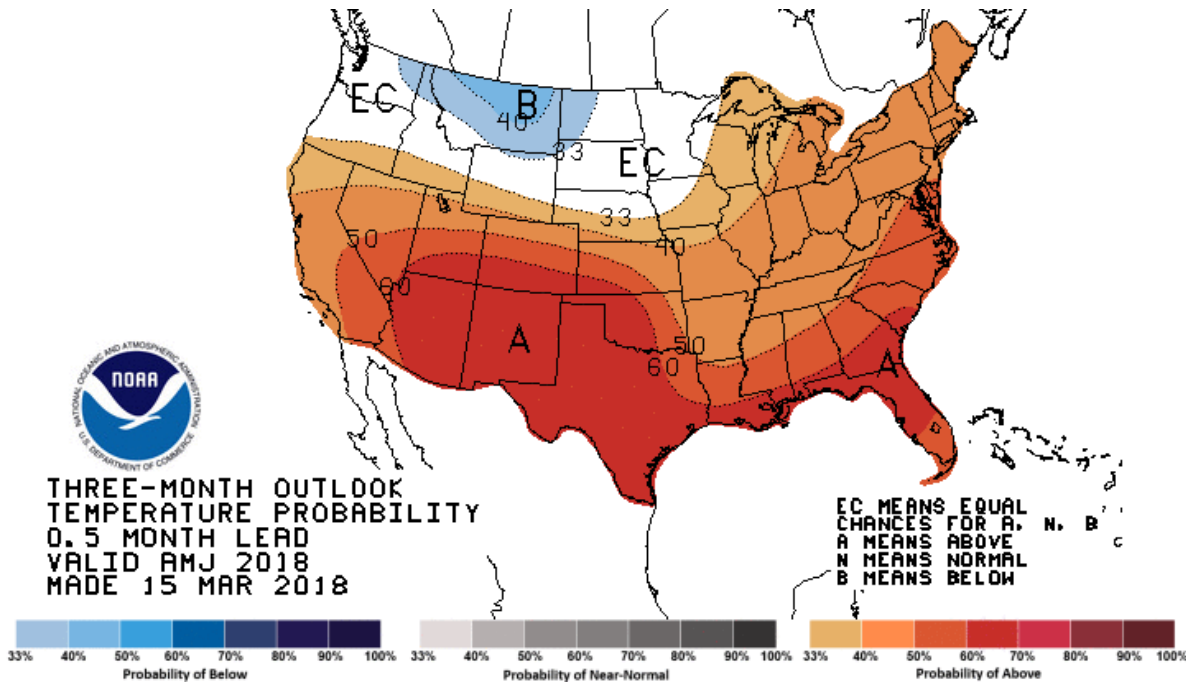


Transition from La Niña to ENSO-neutral is most likely (~55% chance) during the March-May season

Monthly outlook for April



Outlook for April - June



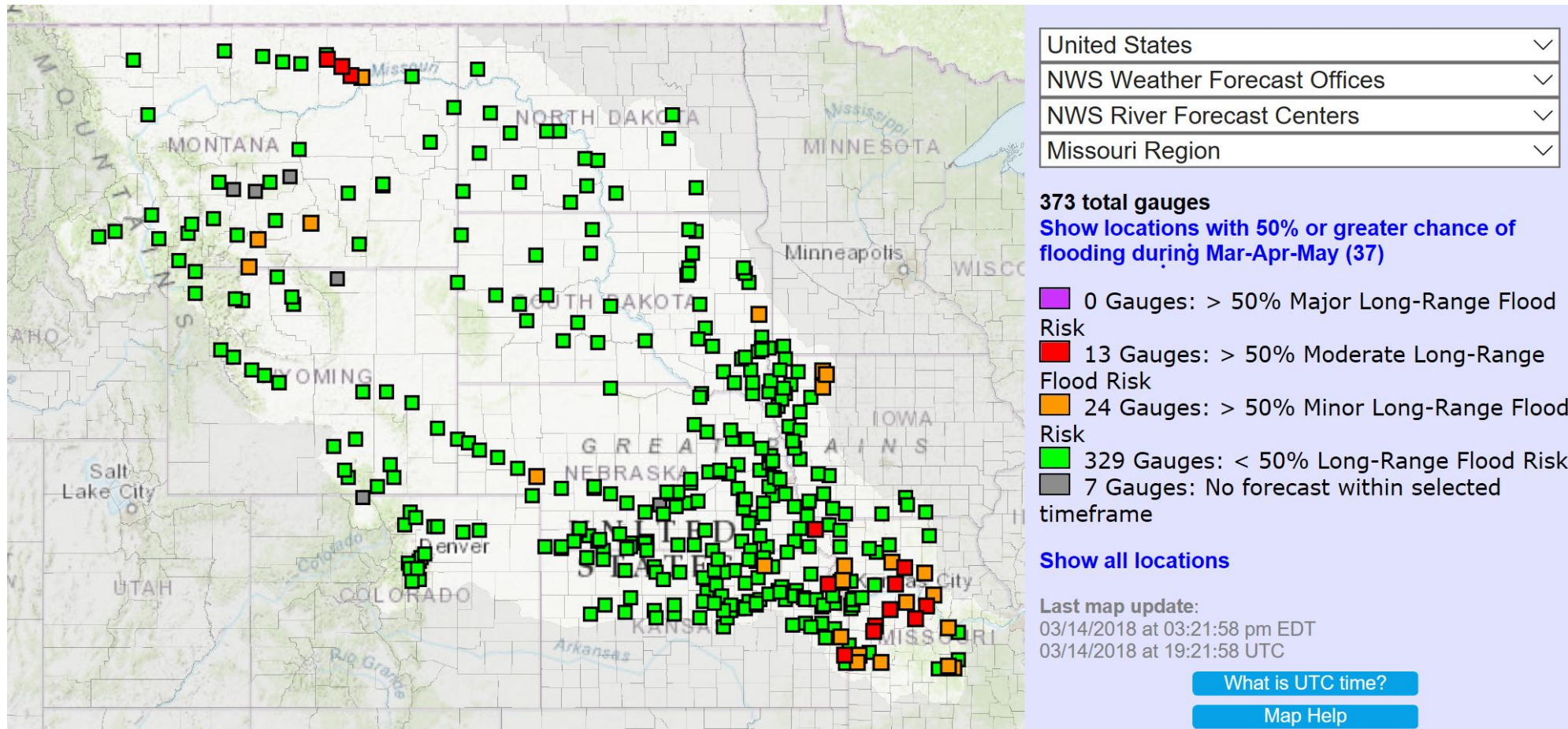
Summary

- It has been a particularly cold winter in the upper high plains region and normal to slightly above normal for the Midwest.
- Record to near record rainfall in February for Michigan, Ohio, Indiana and Illinois, Kentucky and Missouri contributed to extensive flooding across the mid-west.
- Snow pack is above normal in the Missouri basin and approaching normal in and Platte river basin. It remains below average farther south across much of Colorado.
- Drought is expanding in the southern plains region from Colorado, Kansas and into Missouri.
- Drought persists in Northeastern Montana, and the Dakotas.
- A transition to ENSO neutral conditions is likely in the March-May season

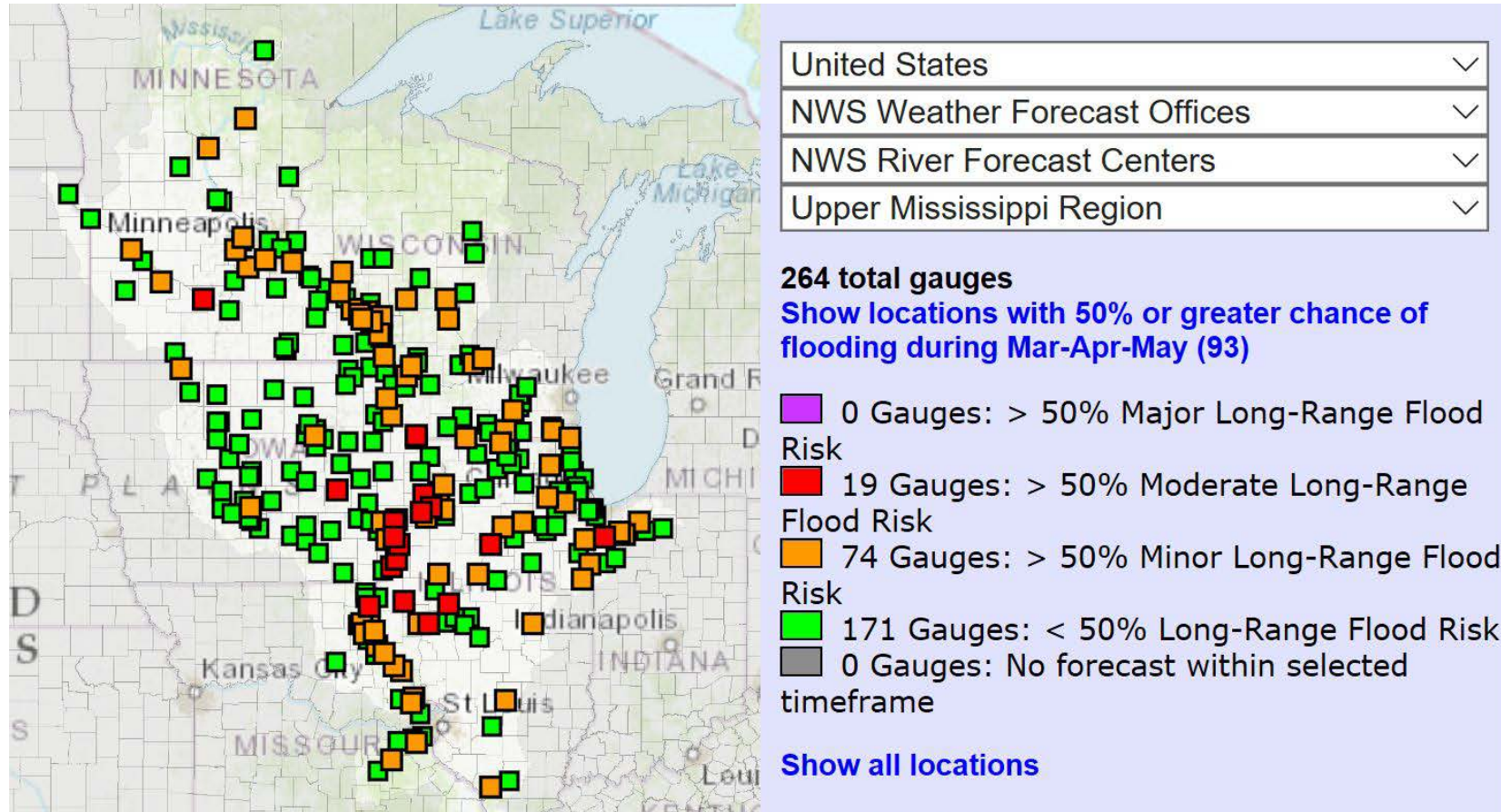
Additional Information

- Today's and Past Recorded Presentations
 - <http://mrcc.isws.illinois.edu/multimedia/webinars.jsp>
 - <http://www.hprcc.unl.edu/webinars.php>
- NOAA's National Centers for Environmental Information: <https://www.ncei.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/>
- American Association of State Climatologists: <http://www.stateclimate.org>
- Regional Climate Centers serving the Central Region
 - Midwestern RCC <http://mrcc.isws.illinois.edu>
 - High Plains RCC <http://www.hprcc.unl.edu>

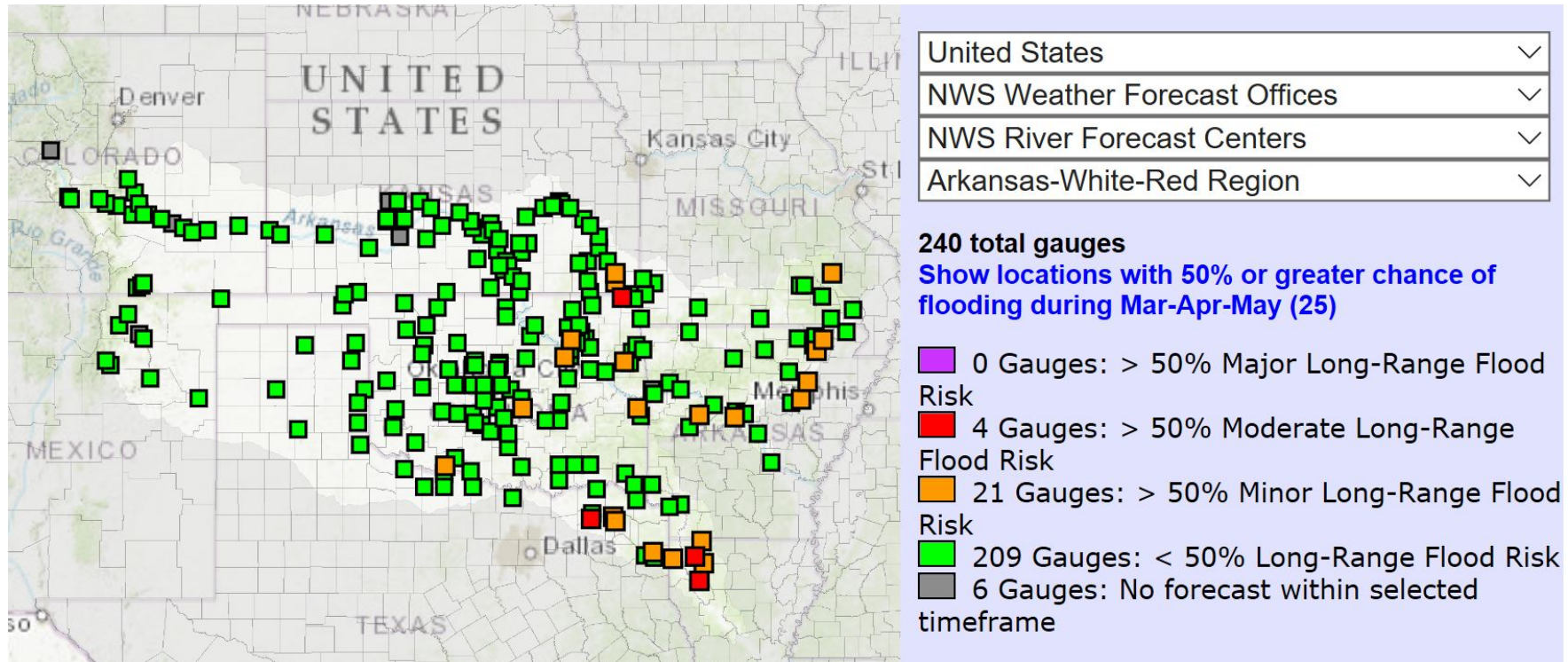
Missouri Region Flood Potential



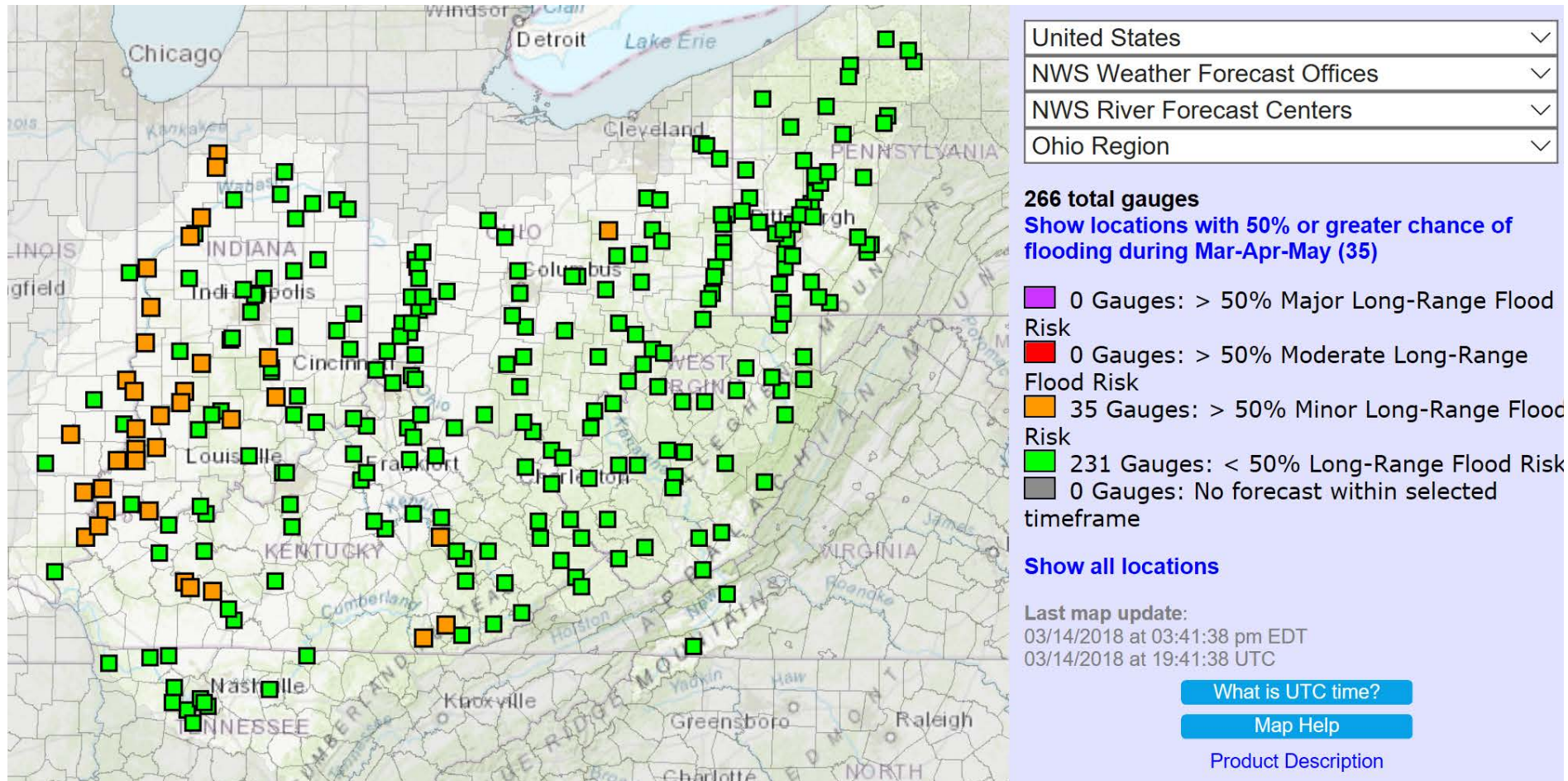
Upper Mississippi Flood Risk



Arkansas-White-Red Basin Flood Risk



Ohio River Basin Flood Risk



Impacts: Agriculture

Kansas:

- Continues to be dry (less than percent of normal for precip)
- Temperatures are cooler (9 degrees cooler to normal)
- Fire danger is high – half a dozen fires over 1000 acres – fire starts due to power lines, sparks, cigarettes.
- Governor signed proclamation declaring emergency drought status – water hauling from federal/state reservoirs and transportation.
- Ag – winter wheat is holding on, planted before October your doing ok, if planted after October roots haven't developed and is looking poor. About 1 week to 10 days behind in development – need rain to make it.

North Dakota:

- De stocking of cattle to prepare for deficits

Ohio

- 4-8" of rain across state, most in February when warm
- Ohio river flooding – Ohio at Cincinnati. Crested at 16.5' 22nd highest. Highest since 1997. Can find state ranking on NCEI.
- Red maples and silver maples went into first bloom due to warmer temps.
- March – returned to cooler temps (4-7 deg. Below normal) and drier.