



Bear Butte Fire, SD



Kansas Fire

Unusual winter fire danger

North Central U.S. Climate Summary and Outlook Webinar February 15, 2018

Mary Knapp

Assistant State Climatologist for Kansas

Department of Agronomy

Kansas State University

mknapp@ksu.edu

785.532.7019



United States Department of Agriculture
Midwest Climate Hub



General Information

- ❑ Regional climate services for the North Central U.S., including the Great Plains and Midwest, are provided through collaboration among federal, regional, and state partners:
 - NOAA: NCEI/NWS/OAR/NIDIS
 - State Climatologists/American Association of State Climatologists
 - Midwestern and High Plains Regional Climate Center
 - USDA Climate Hubs
 - National Drought Mitigation Center

- ❑ Next webinar
 - Kelsey Jencso (Montana State Climatologist) March 15, 2018

- ❑ Archive of past webinars
 - <http://mrcc.isws.illinois.edu/multimedia/webinars.jsp>
 - <http://www.hprcc.unl.edu/webinars.php>
 - <https://www.drought.gov/drought/calendar/webinars>

Agenda

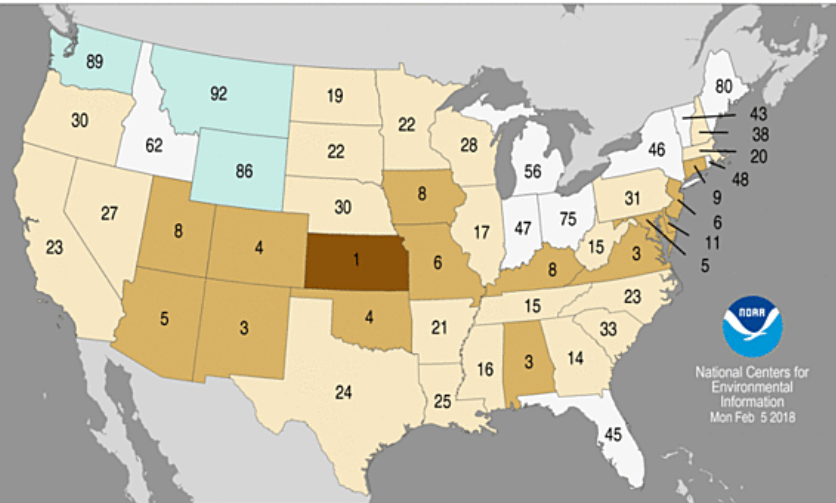
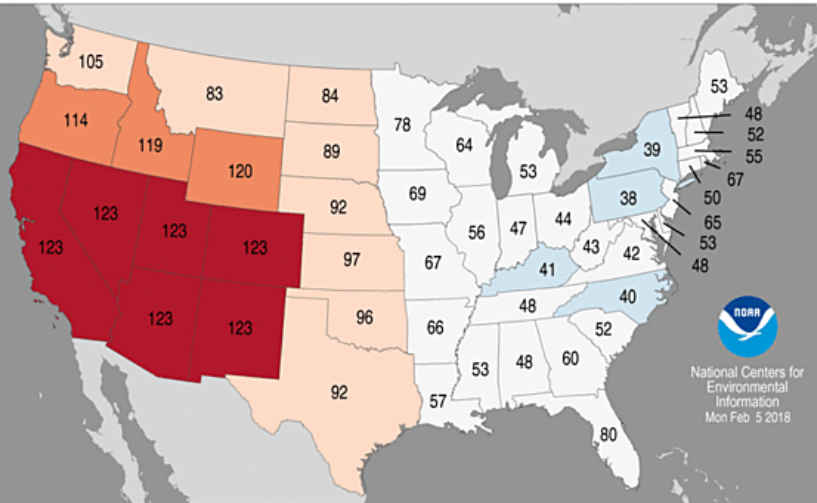
- Current climate conditions in historical context
- Current and prospective climate impacts
- Climate outlooks
- Questions, answers, and further discussion



Statewide Ranks: November-January

Statewide Average Temperature Ranks
November 2017–January 2018
Period: 1895–2018

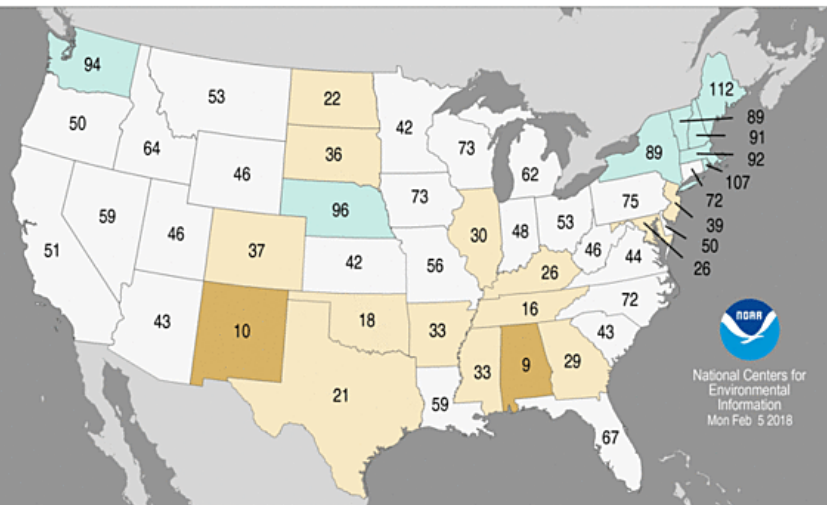
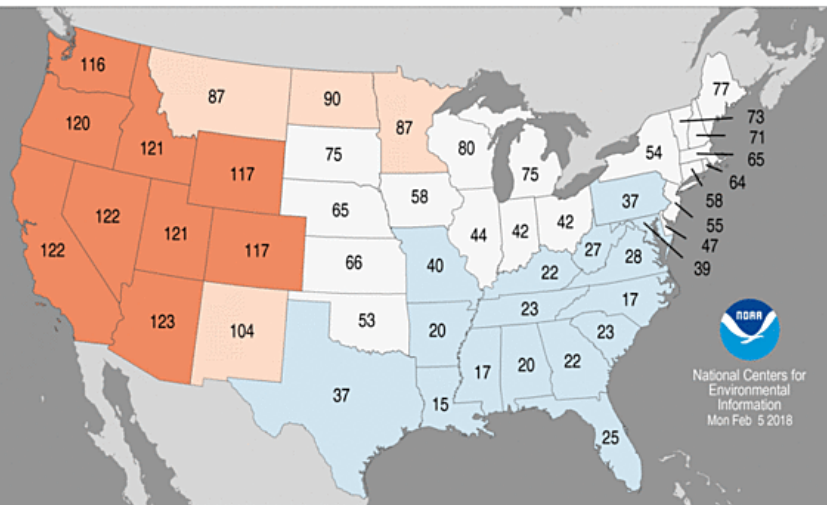
Statewide Precipitation Ranks
November 2017–January 2018
Period: 1895–2018



Statewide Ranks: January

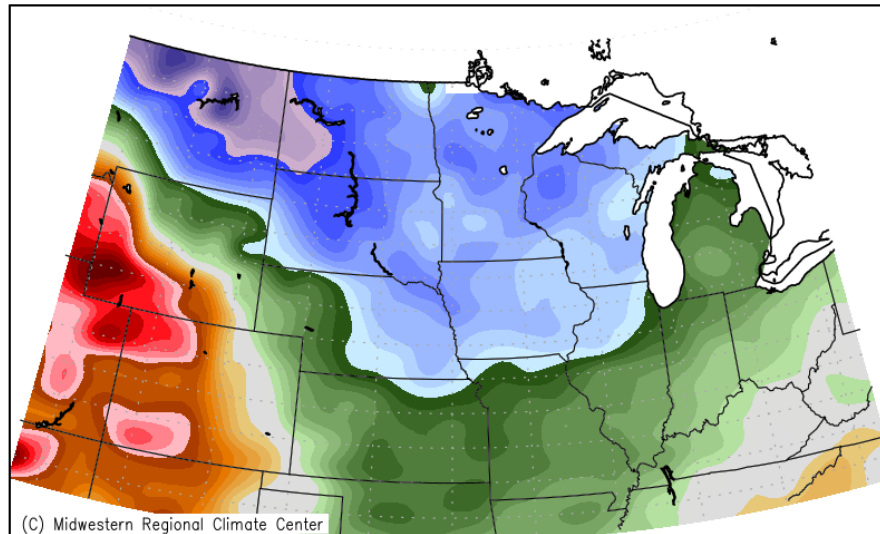
Statewide Average Temperature Ranks
January 2018
Period: 1895-2018

Statewide Precipitation Ranks
January 2018
Period: 1895-2018



Temperature Departure from Mean

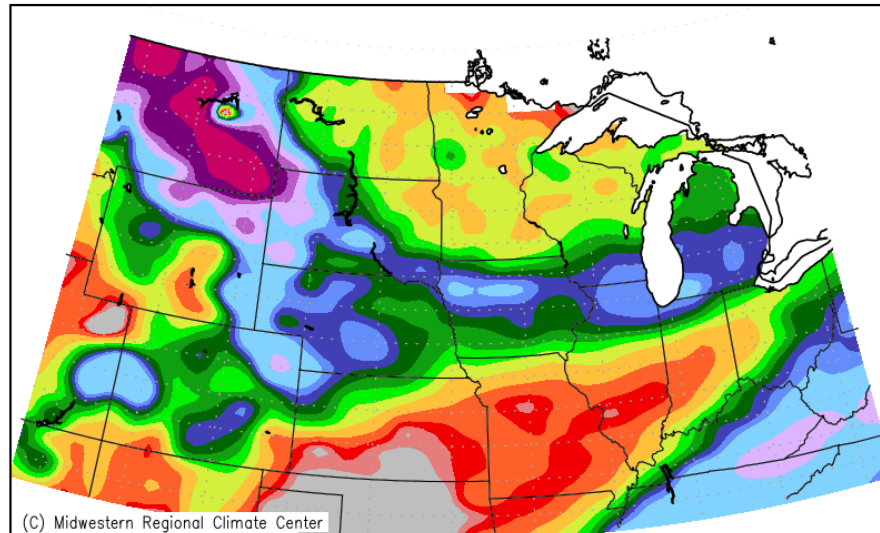
Average Temperature ($^{\circ}\text{F}$): Departure from Mean
February 1, 2018 to February 13, 2018



Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana–Champaign

Precipitation Percent of Mean

Accumulated Precipitation: Percent of Mean
February 1, 2018 to February 13, 2018

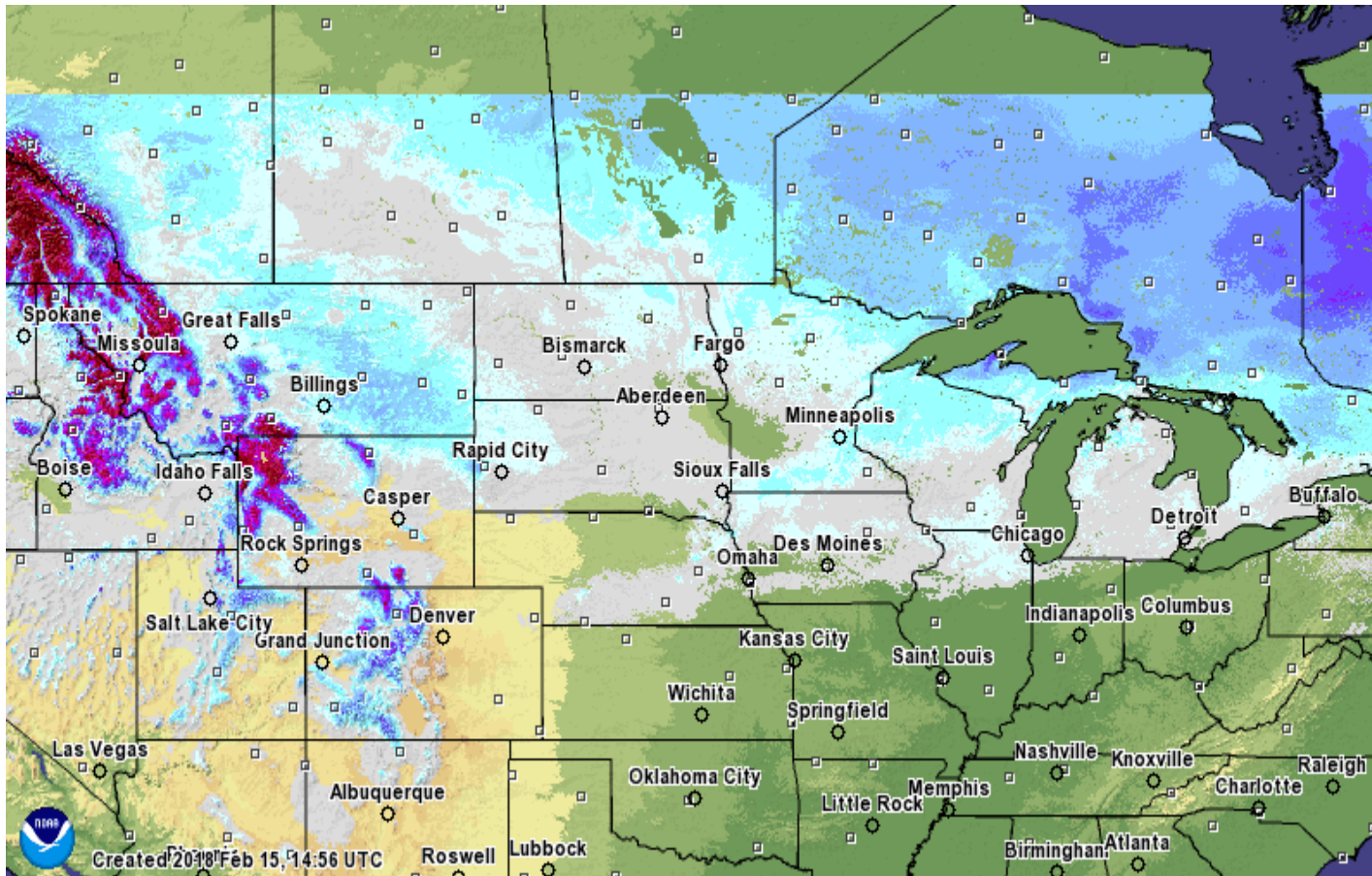


Mean period is 1981–2010.

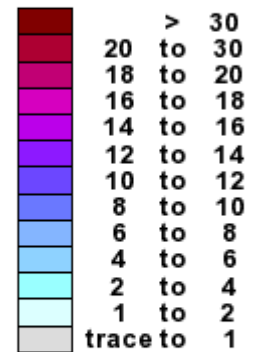


Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana–Champaign

Snow Depth

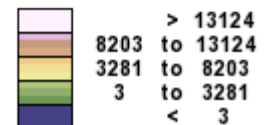


Inches of water equivalent

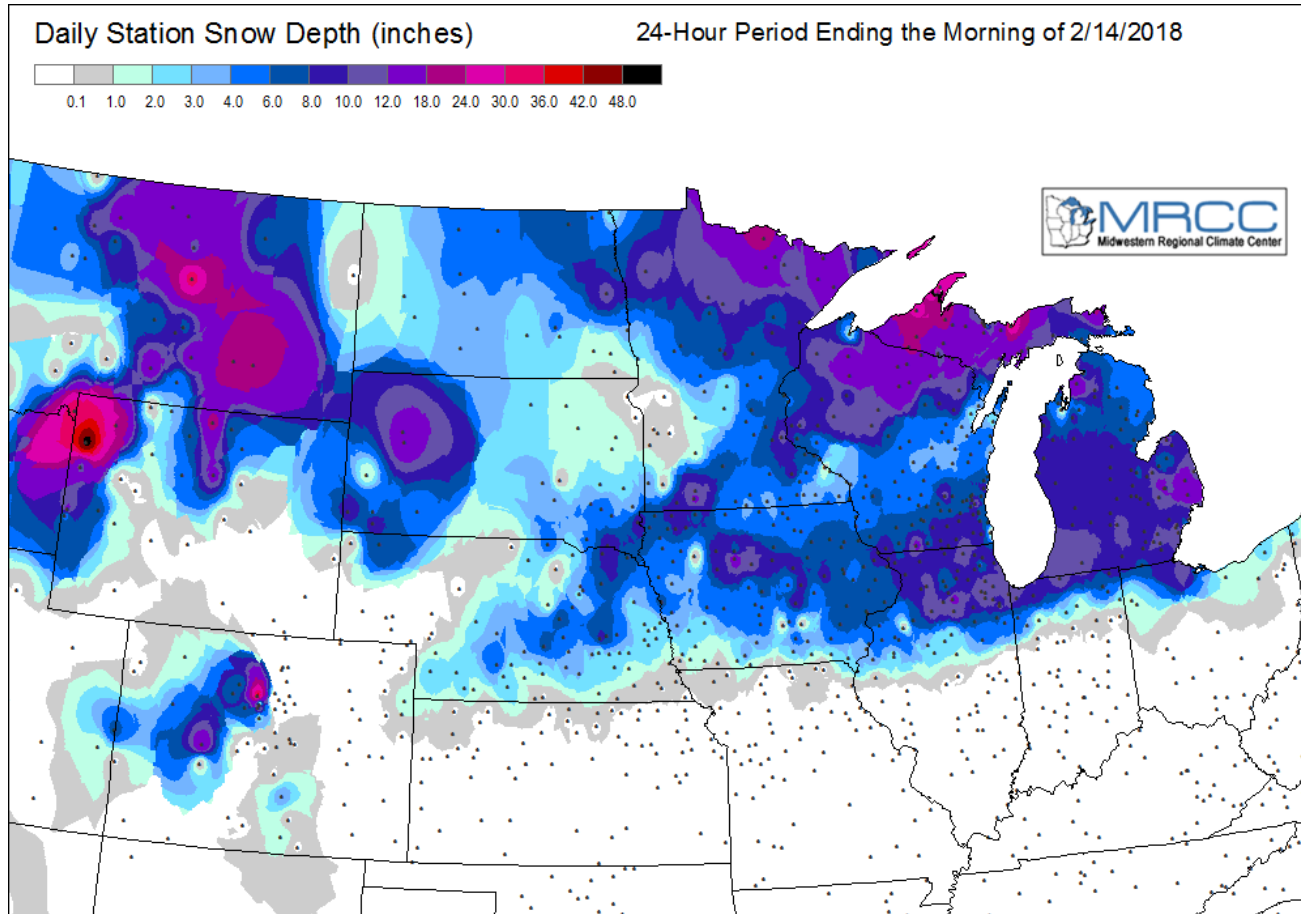


Not Estimated

Elevation in feet

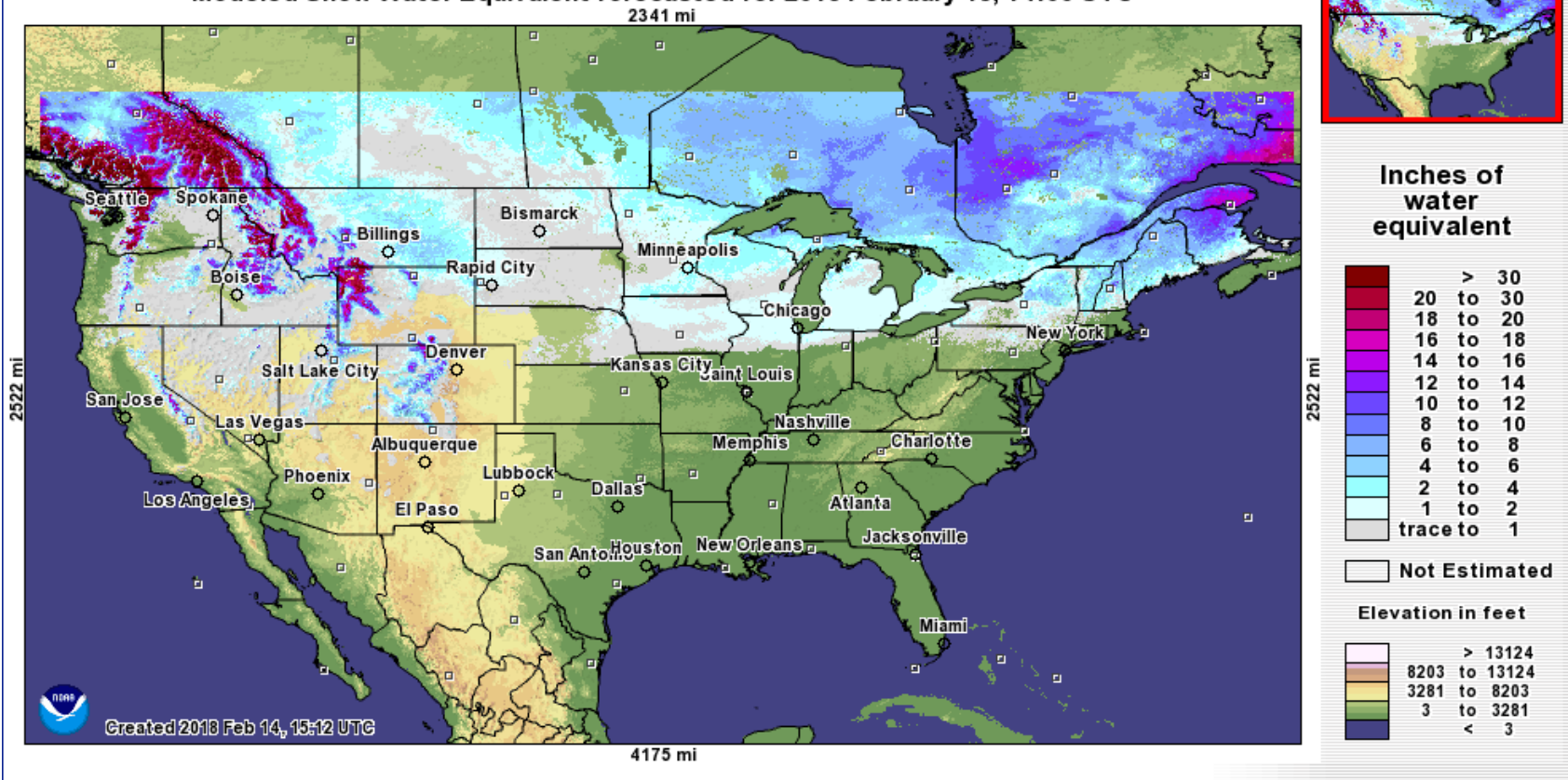


Snow Coverage



Snow Water Equivalent

Modeled Snow Water Equivalent forecasted for 2018 February 15, 14:00 UTC

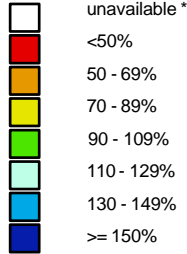


Feb 15, 2018

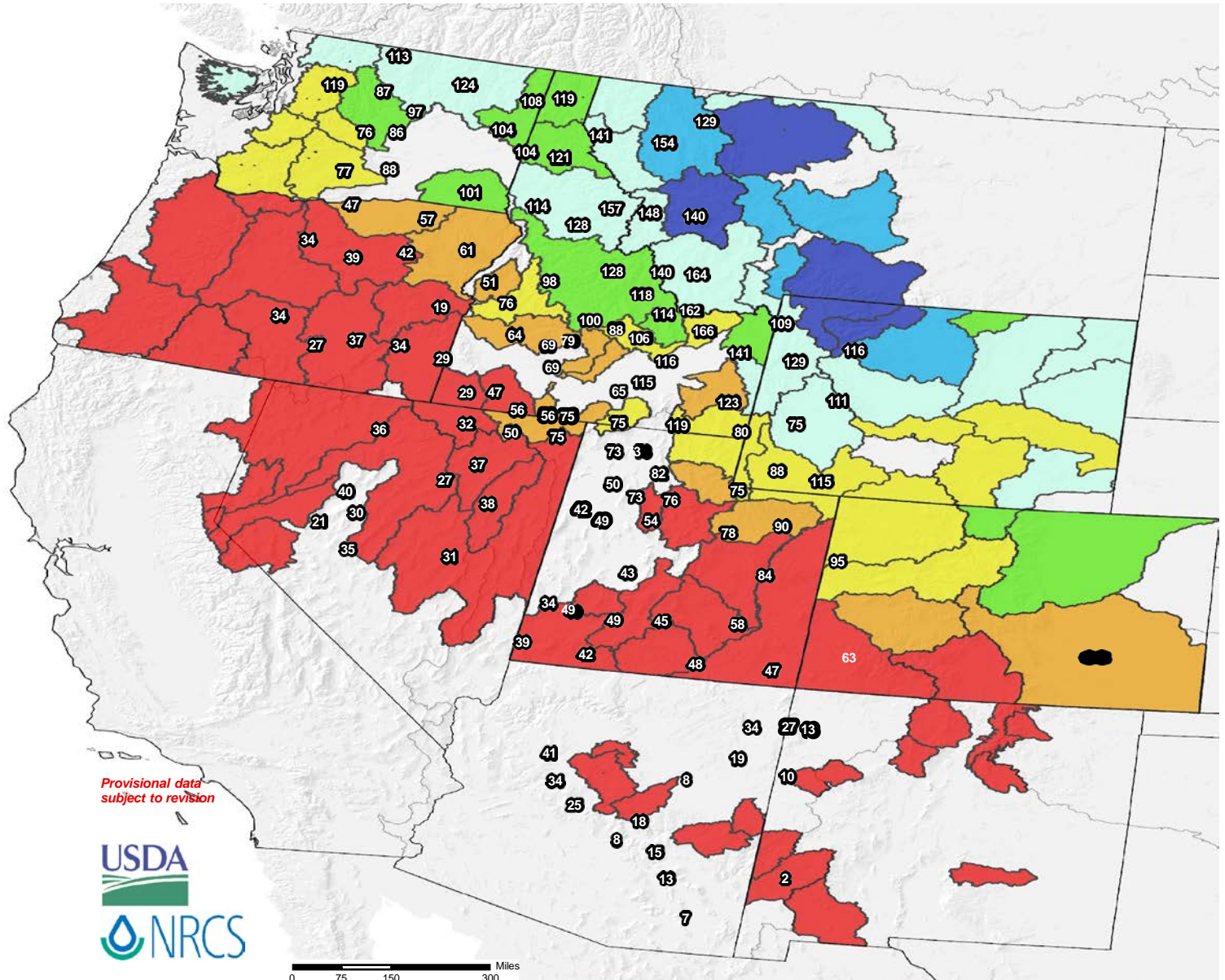
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

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

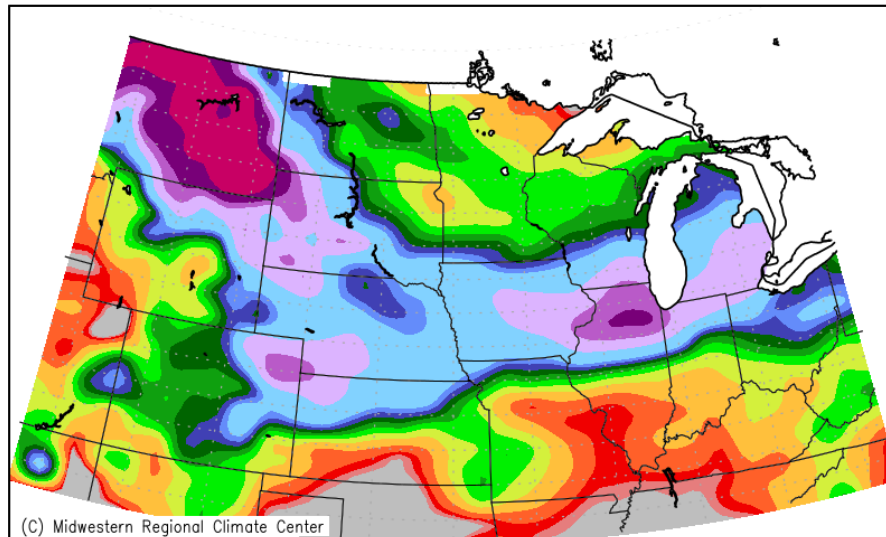


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

Snowfall Percent of Mean

Accumulated Snowfall: Percent of Mean
February 1, 2018 to February 13, 2018



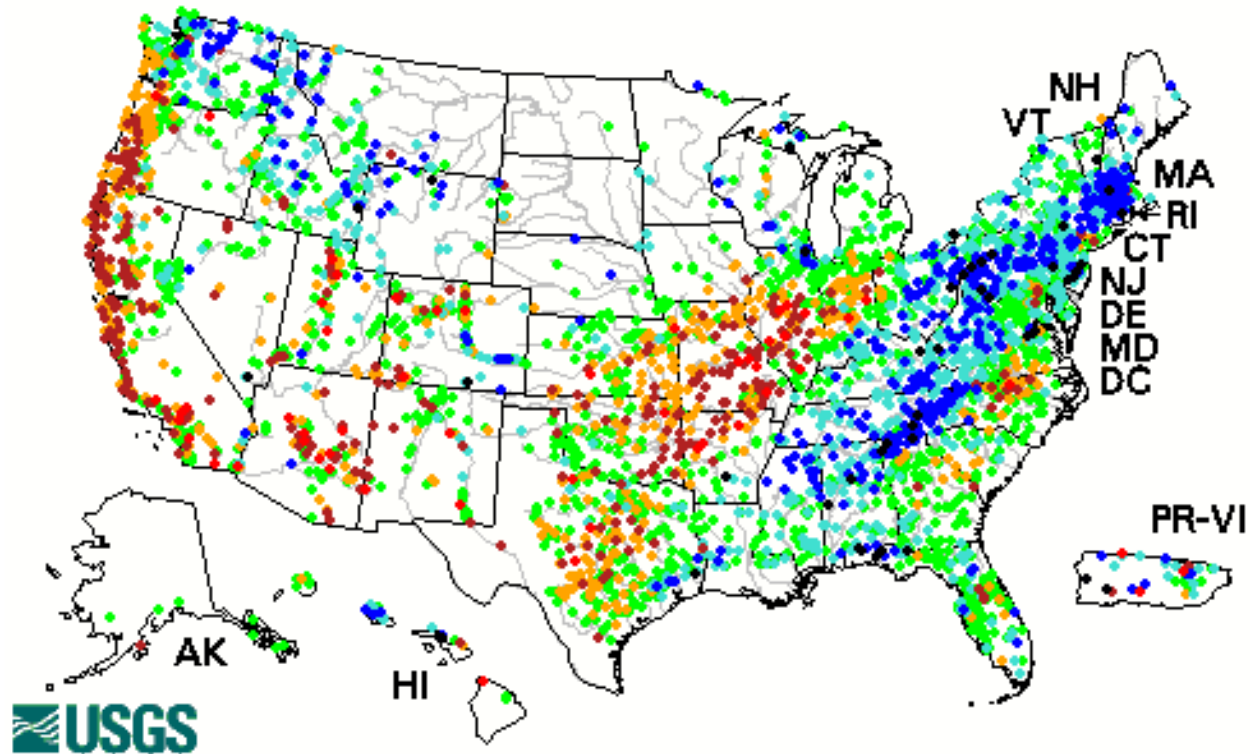
Mean period is 1981–2010.



Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana–Champaign

7-day Average Streamflow

Thursday, February 15, 2018 09:30ET

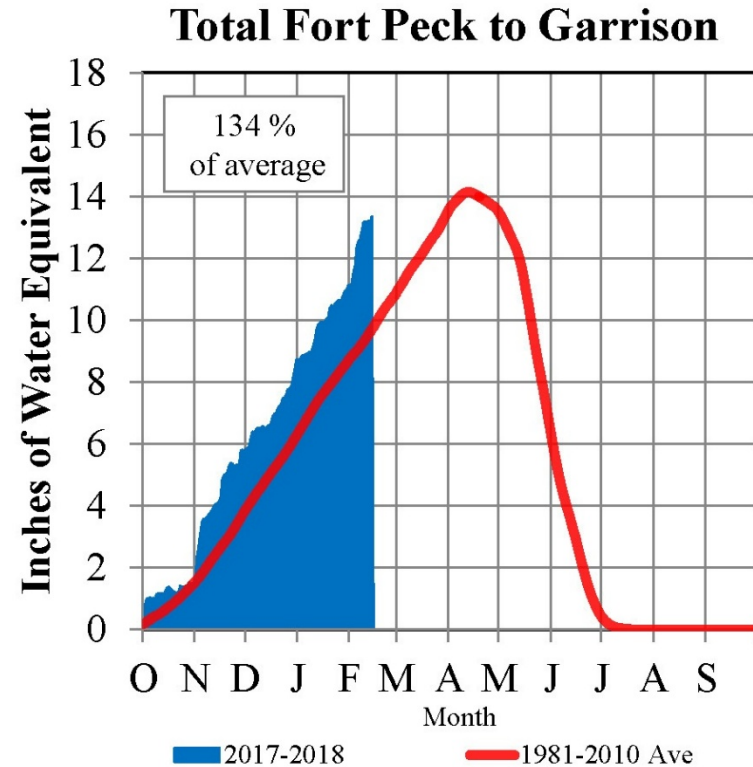
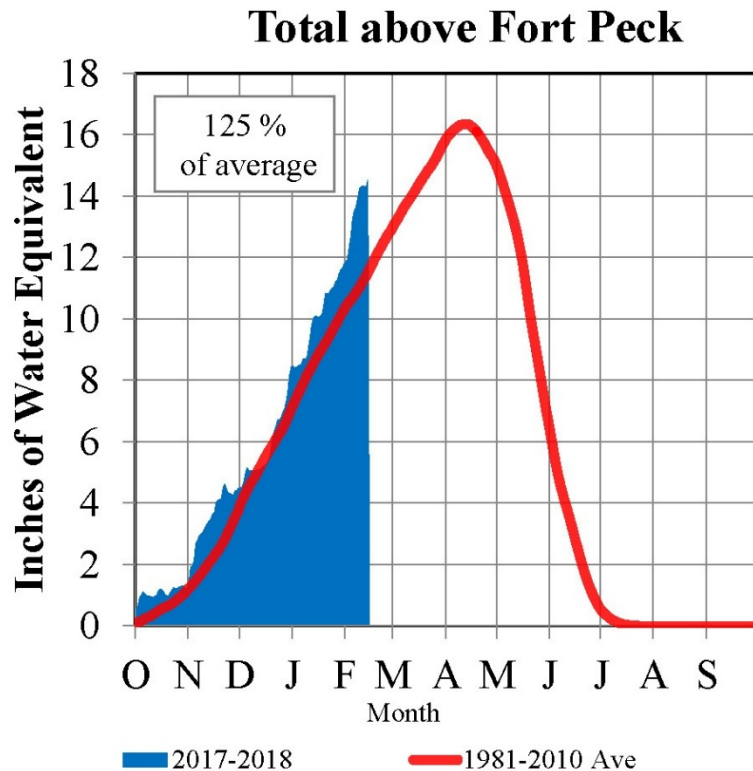


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Upper Missouri River Basin – Snow Water Equivalent

Mountain Snowpack

February 14, 2018



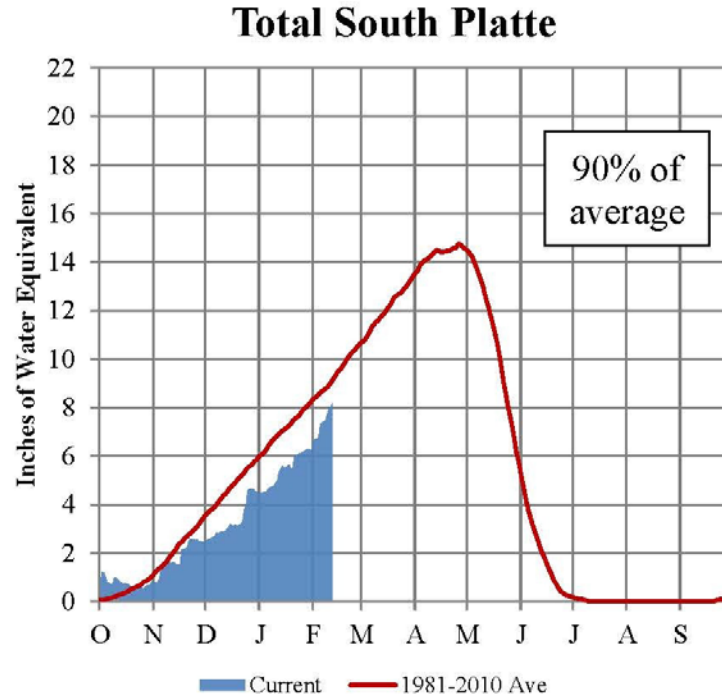
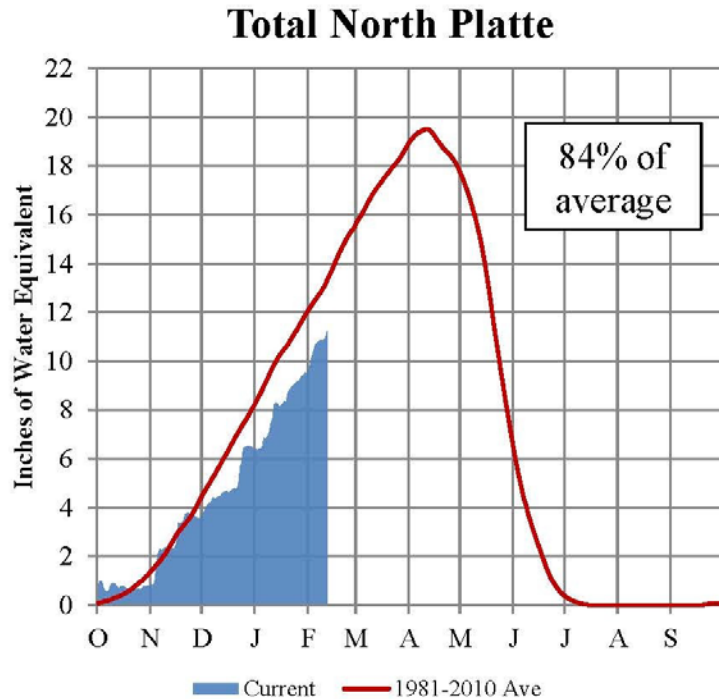
Normally by February 15 about 70% of the peak mountain SWE has occurred in both reaches.

Source: USDA-NRCS

Platte River Basin – Snow Water Equivalent

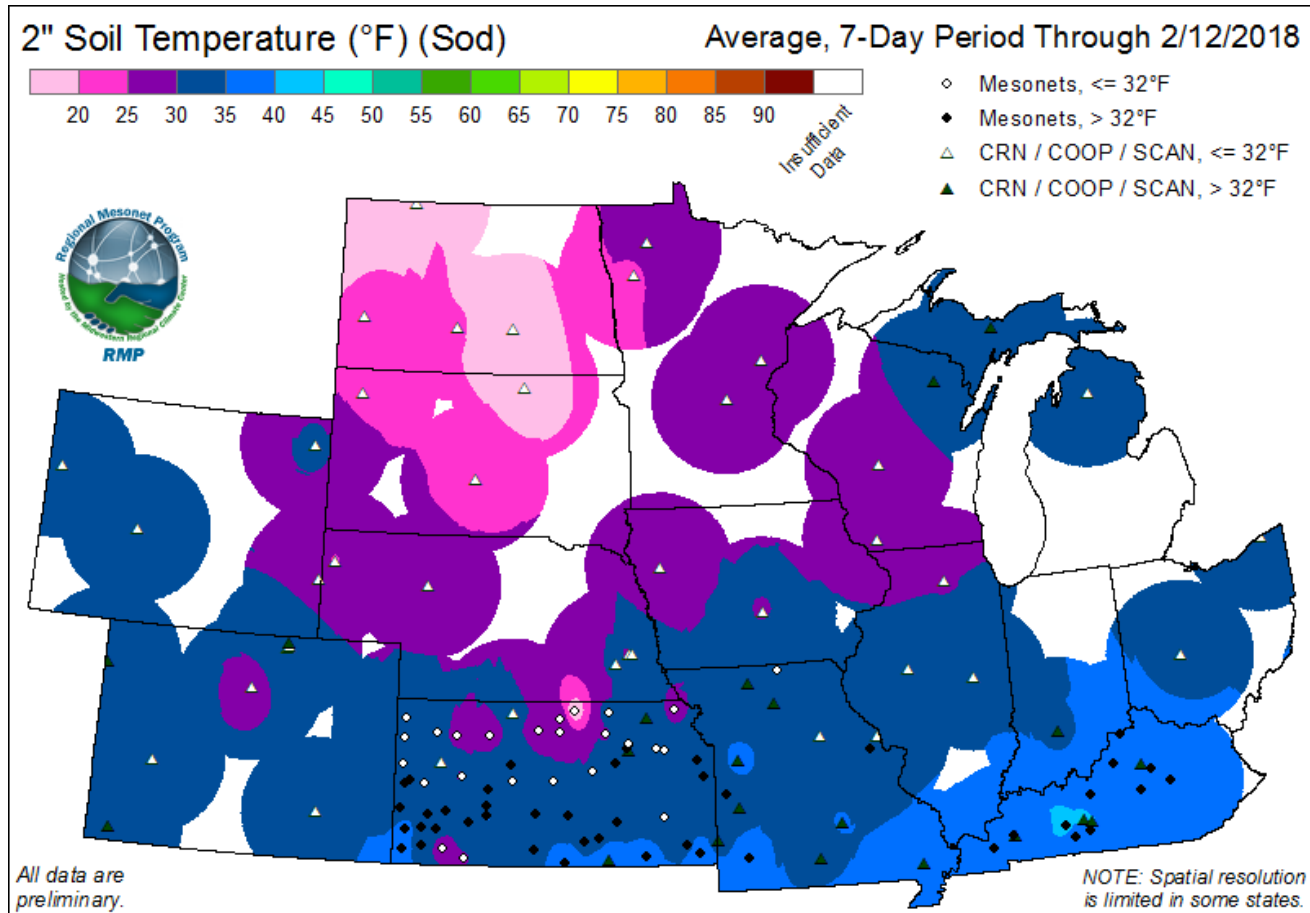
Platte River Basin - Mountain Snowpack Water Content Water Year 2017-2018

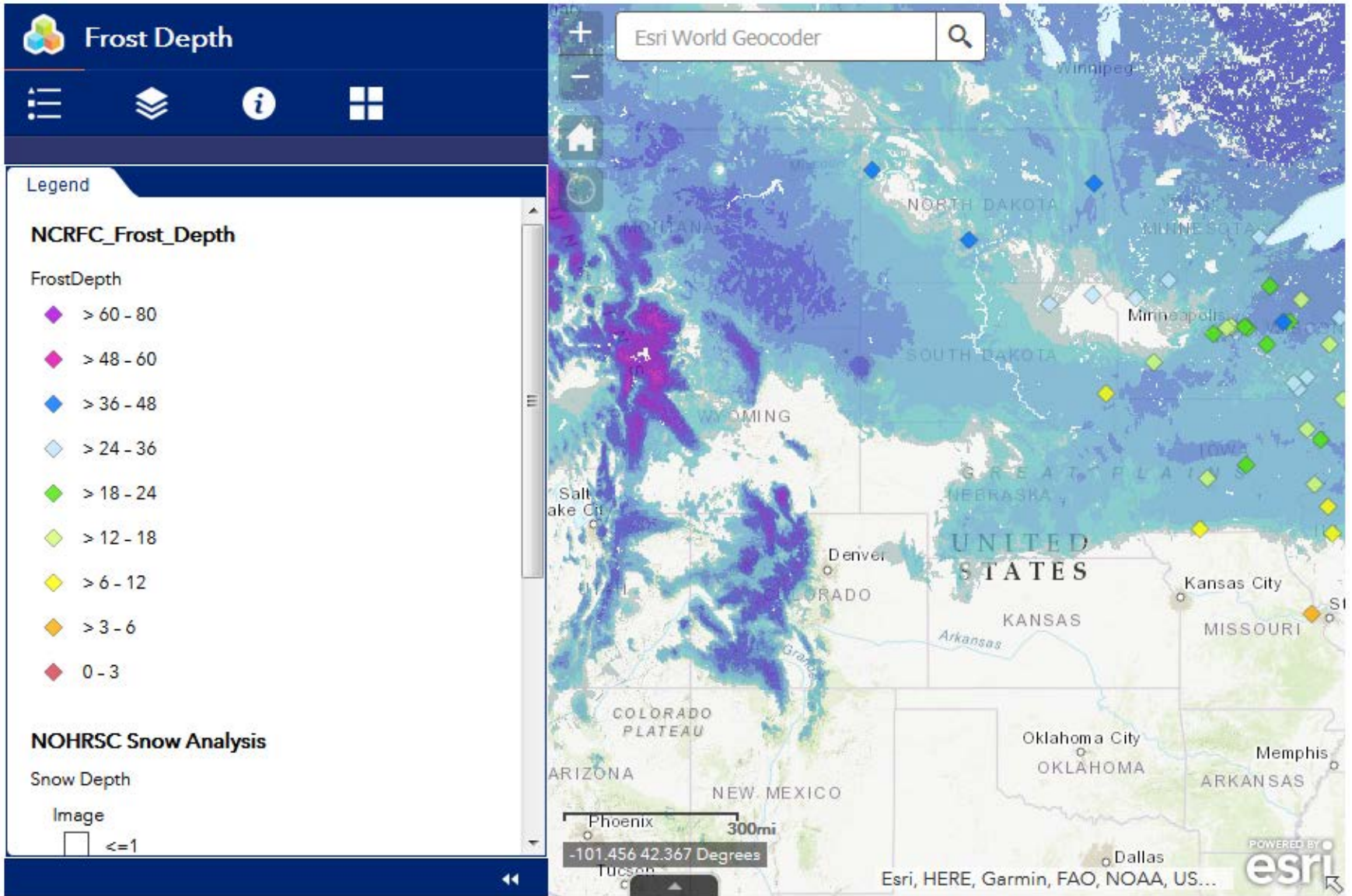
February 13, 2018



The North and South Platte River Basin mountain snowpacks normally peak near April 15 and the end of April, respectively. As of February 13, 2018, the mountain snowpack SWE in the "Total North Platte" reach is currently 11.3", 84% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 8.2", 90% of average.

Soil Temperatures





GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)



Analysis Date: JD 044 02/13/2018

Percent Pixels with Data within +/-10 Days: 42.1%

Date of last ice analysis: 2/13/2018

NOAA CoastWatch

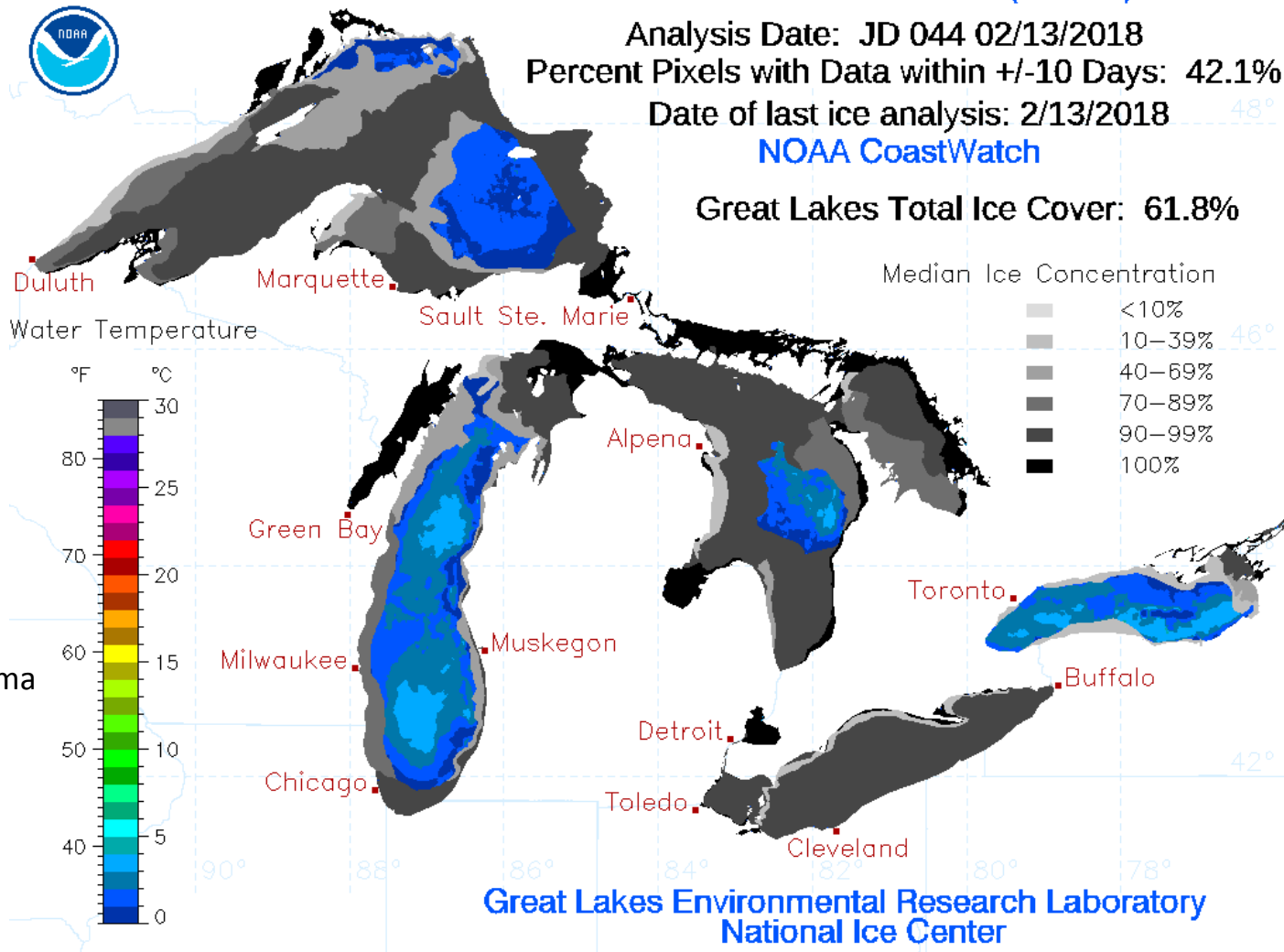
Great Lakes Total Ice Cover: 61.8%

Projected Maximum Ice Coverage: 60%

Long-term Average: 55%

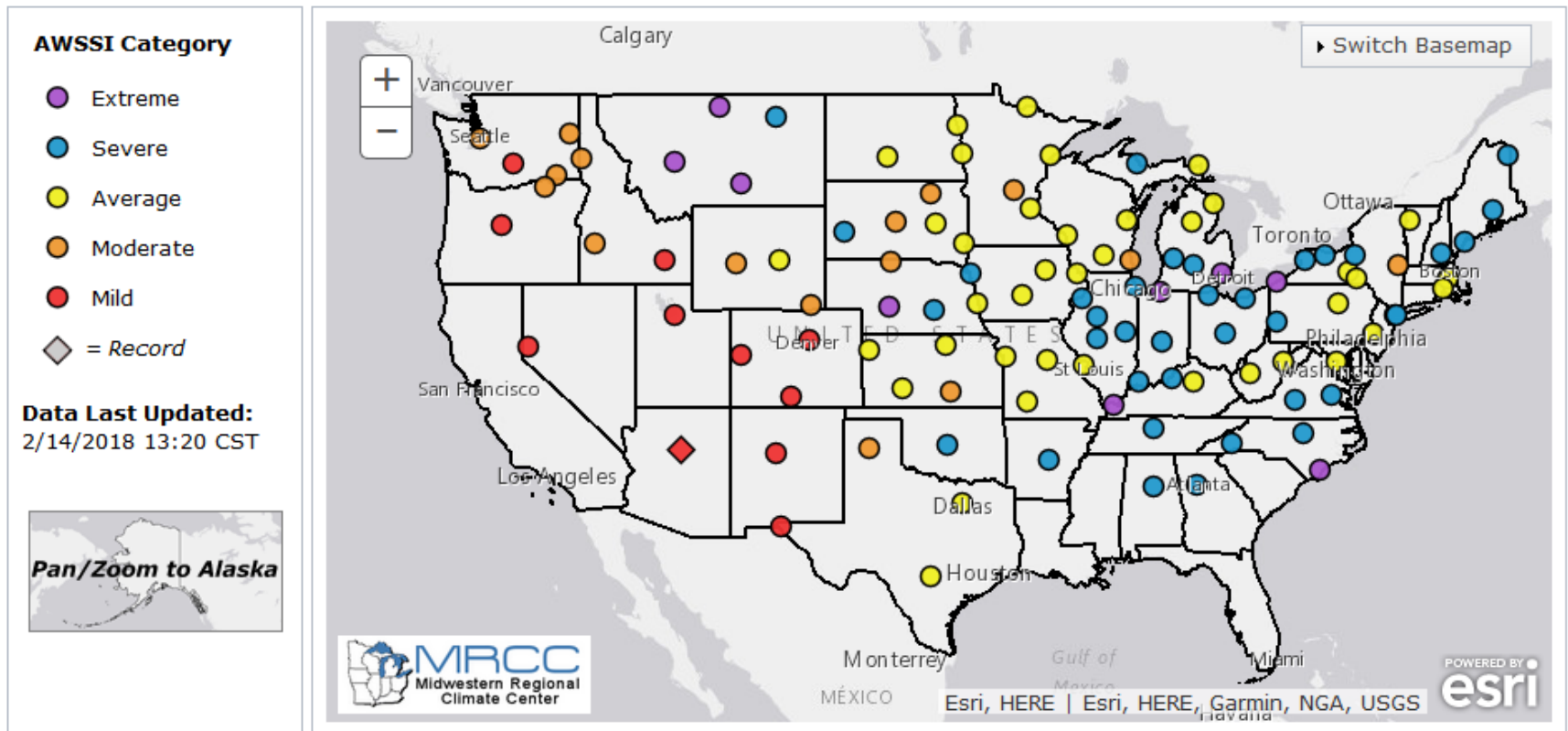
Projected Ice Coverage Maxima

- Superior: 68%
- Michigan: 43%
- Huron: 62%
- Erie: 90%
- Ontario: 29%



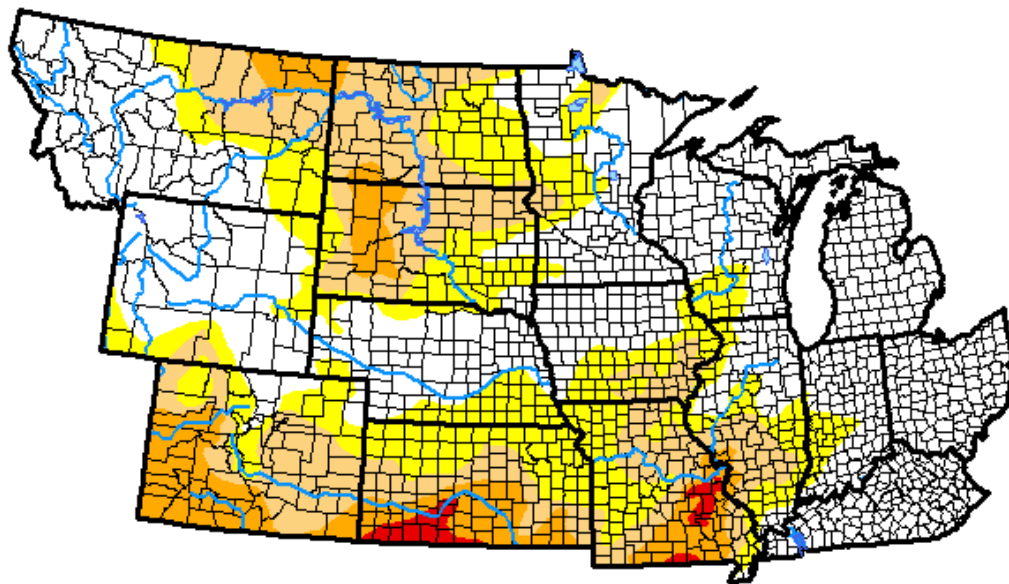
Accumulated Winter Season Severity Index (AWSSI)

Current Season



U.S. Drought Monitor NWS Central Region

February 13, 2018
(Released Thursday, Feb. 15, 2018)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	49.36	50.64	28.12	9.47	1.01	0.00
Last Week <i>02-06-2018</i>	44.60	55.40	28.67	10.12	0.75	0.00
3 Months Ago <i>11-14-2017</i>	67.00	33.00	16.30	6.32	1.96	0.00
Start of Calendar Year <i>01-02-2018</i>	44.74	55.26	22.30	7.69	2.03	0.00
Start of Water Year <i>09-26-2017</i>	50.80	49.20	24.09	12.89	6.13	2.26
One Year Ago <i>02-14-2017</i>	74.89	25.11	10.46	0.54	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

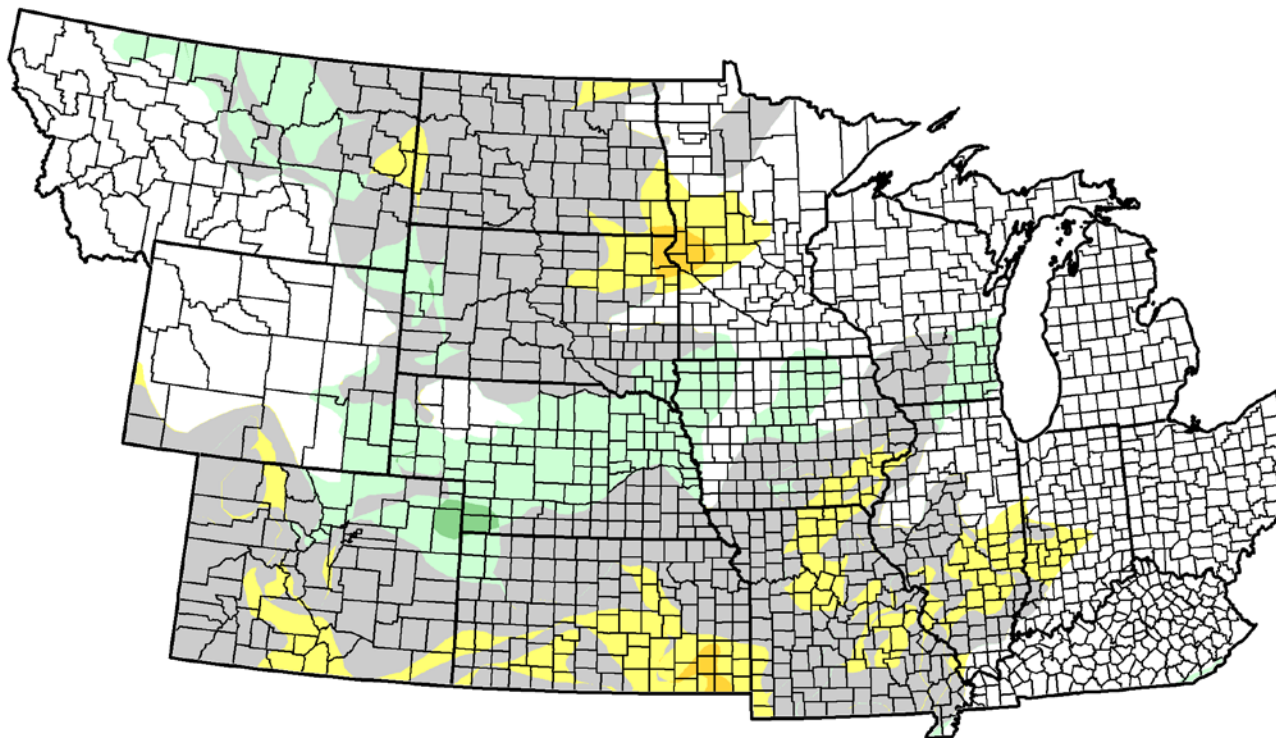
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.












Author:

Eric Luebehusen
U.S. Department of Agriculture



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

February 13, 2018
compared to
January 16, 2018

<http://droughtmonitor.unl.edu>

Agriculture

- Concern for available moisture as winter wheat emerges from dormancy.
- Cold damage to fruit tree and vines, particularly in Ohio where temperatures dipped to -15 and -22 °F
- Continued issues with drought, including low stock ponds and increased feeding of hay. North Dakota reports livestock water assistance program, increased hay hauling and will begin county drought assessments in March (2 months earlier than usual).
- Positive – possible reduction in insect pressure due to cold.



Cold damage to wheat. Photo by Romulo Lolatto.



Dry stock pond in Missouri. Photo by Jamie Gundel.

Stream Flows

- Deficit of precipitation combined with freezing conditions have continued low stream flows.
- Low flow conditions observed on the Mississippi River near St. Louis.
- Heavy rains in the eastern areas, particularly eastern Kentucky have resulted in flooding.
http://www.weather.gov/jkl/20180211_flood

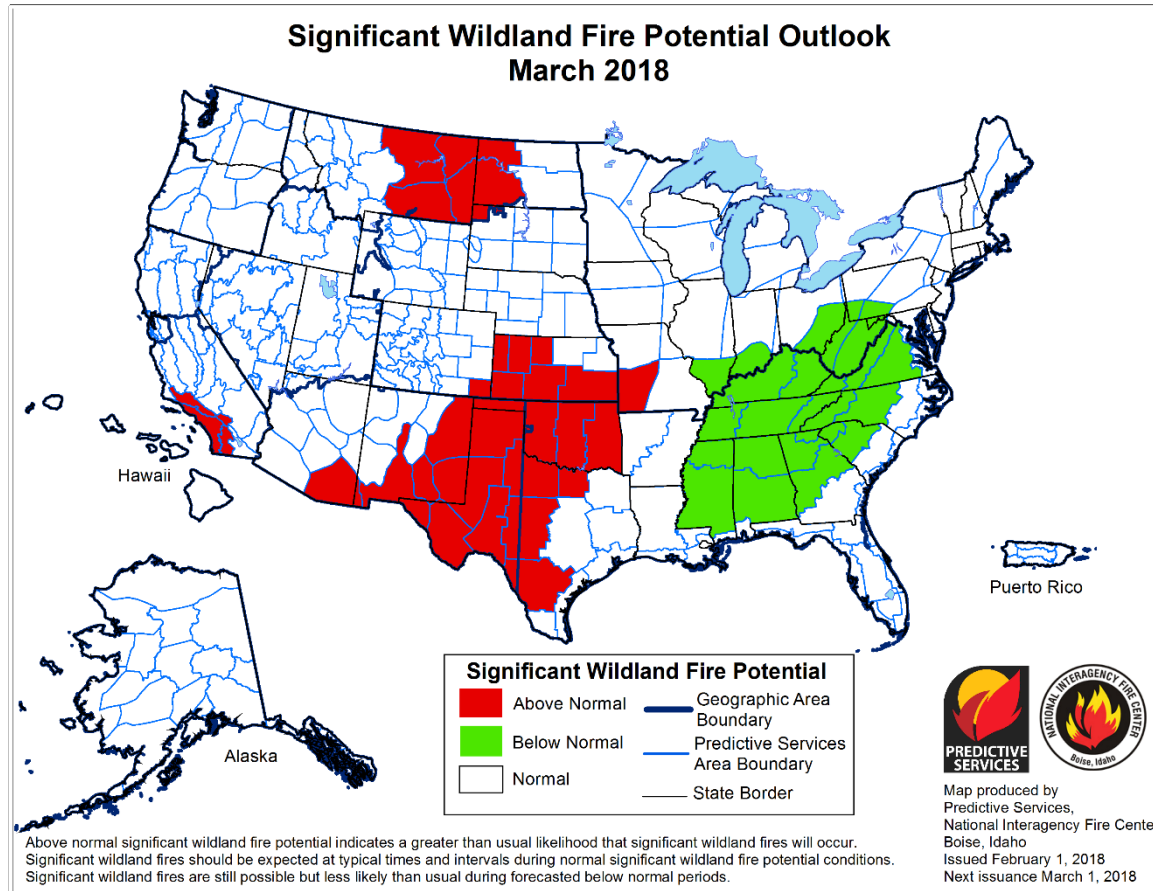


Flooding on Troublesome Creek, KY.
Photo courtesy of NWS-Jackson, KY.

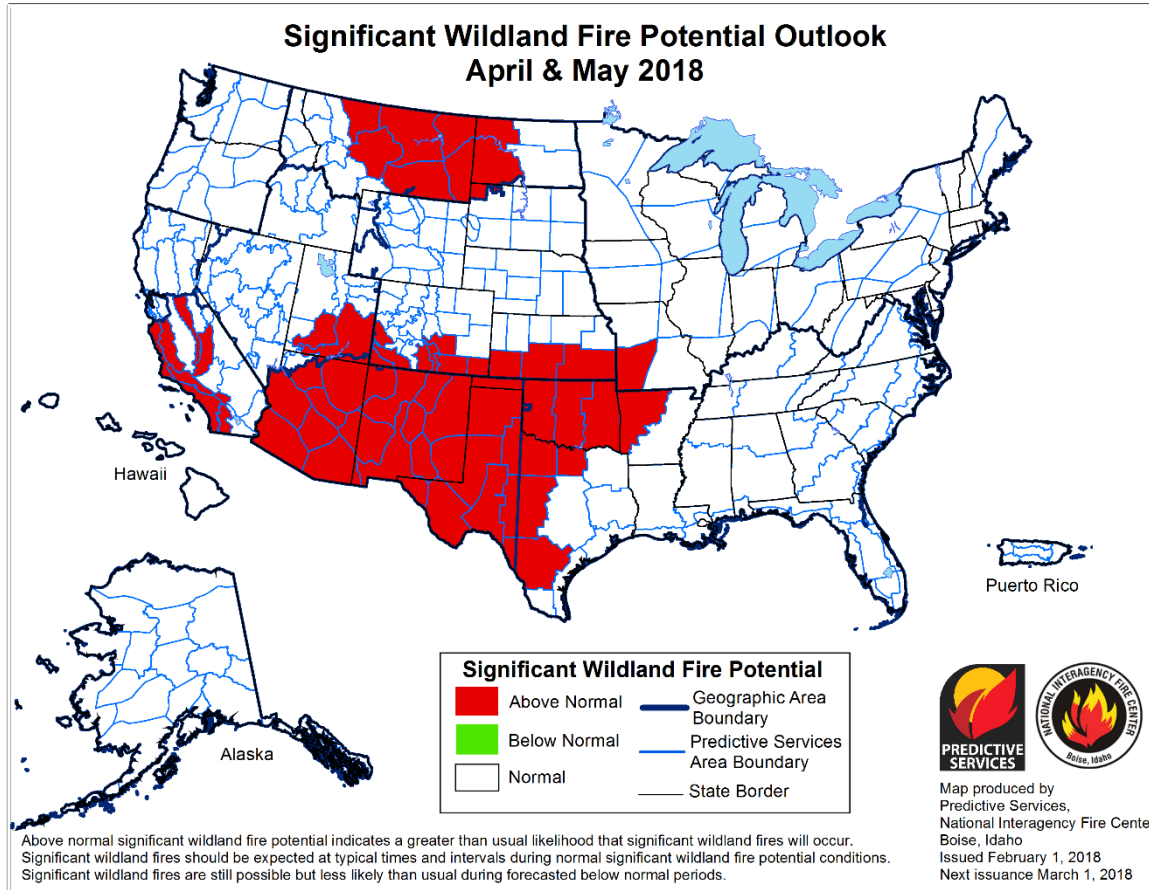


Wolverine Hollow, North Fork of the Kentucky River.
Photo courtesy of NWS-Jackson, KY.

Fire

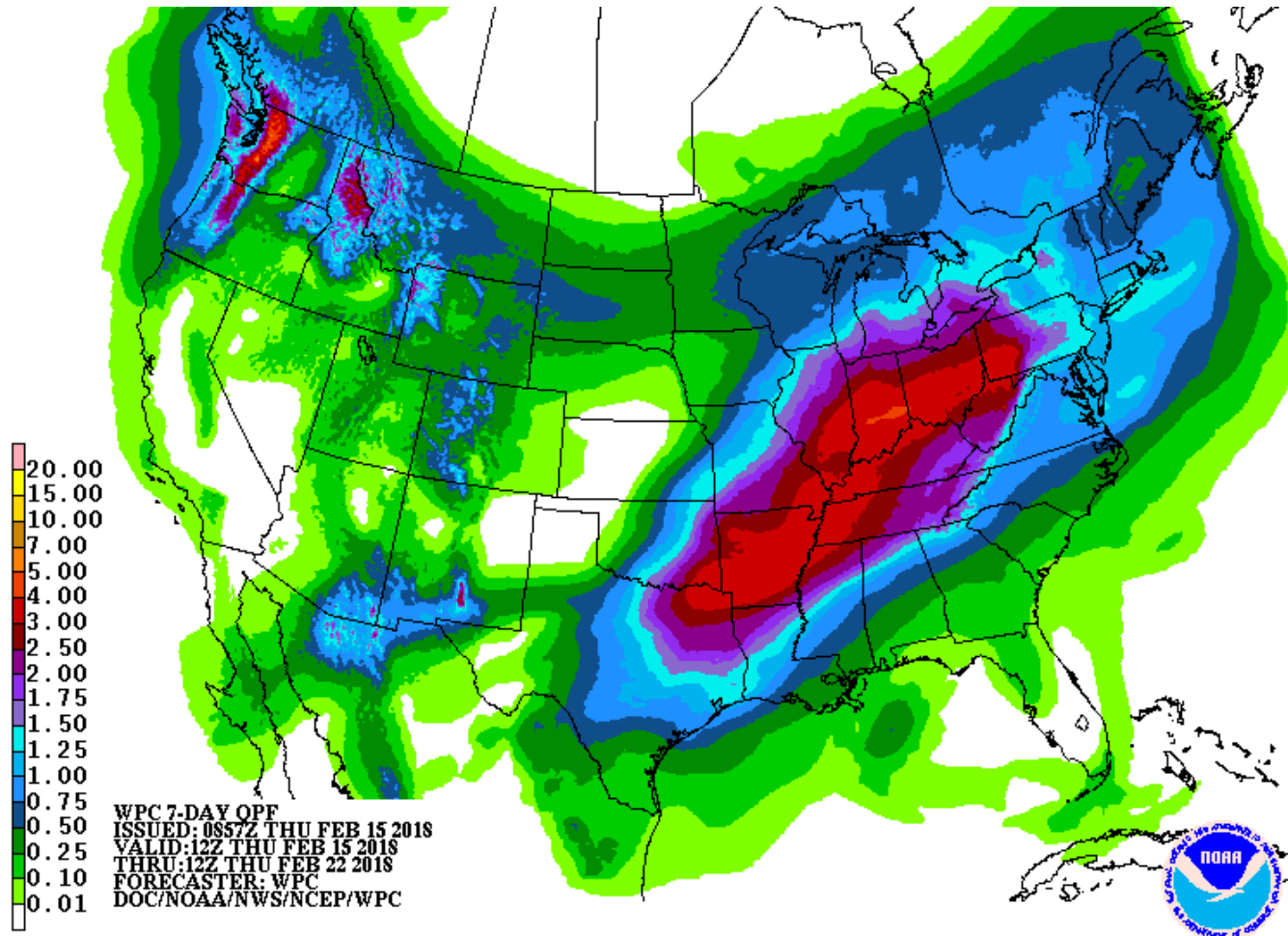


Fire



<https://www.nifc.gov/>

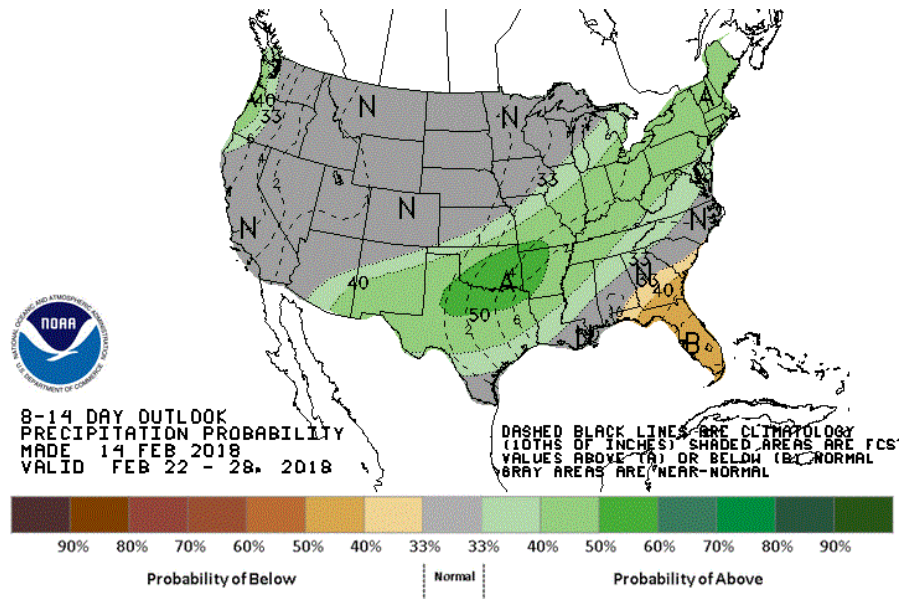
7-day Quantitative Precipitation Forecast



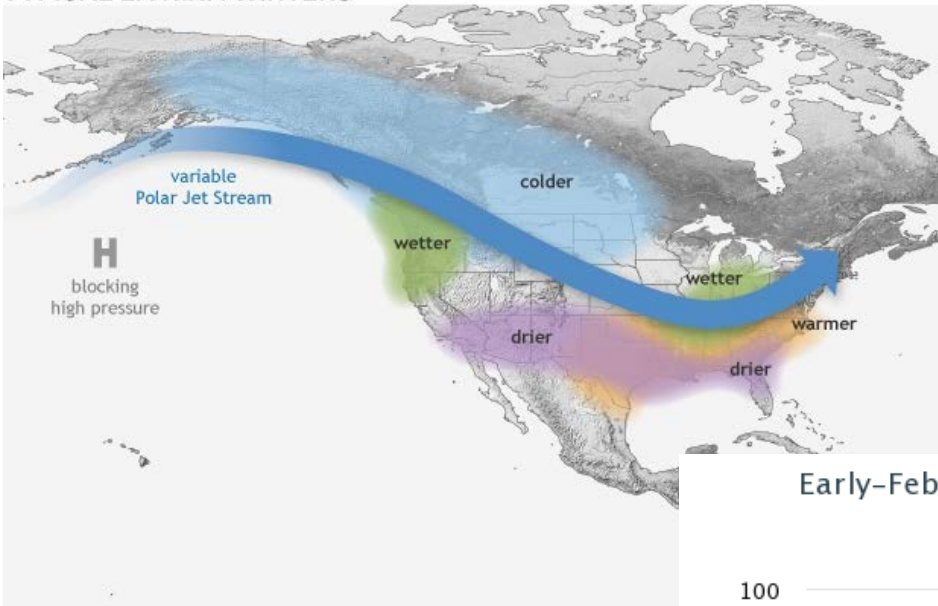
8-14 Day Outlook

February 22 - 28

Climate Prediction Center



TYPICAL LA NIÑA WINTERS

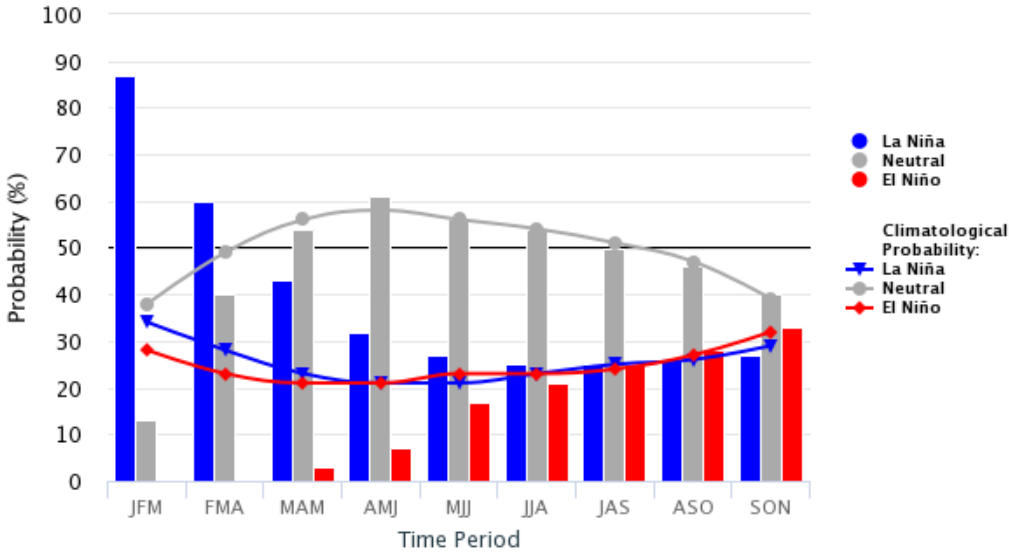


Probabilistic ENSO Forecast

Image Credit: Fiona Martin, NOAA Climate.gov

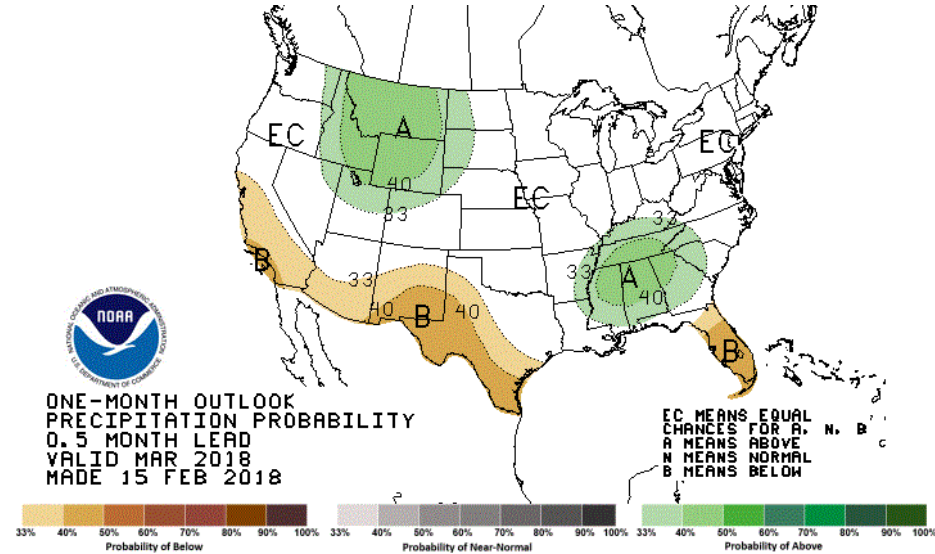
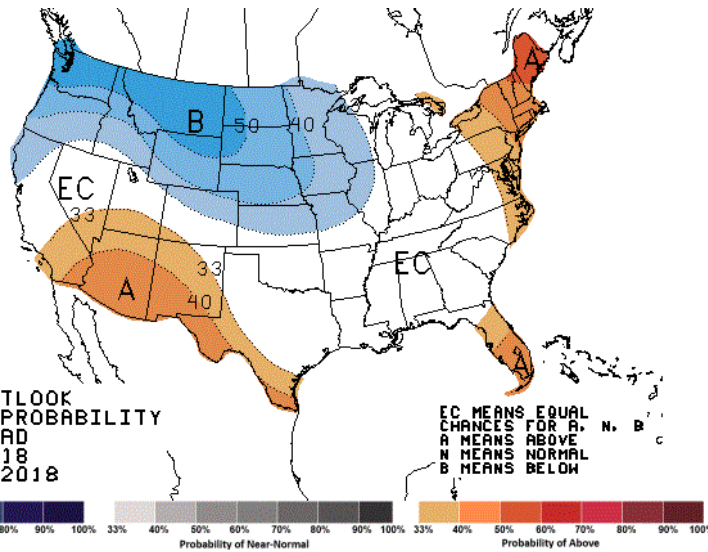
Early-Feb CPC/IRI Official Probabilistic ENSO Forecasts

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



Monthly Outlook for March

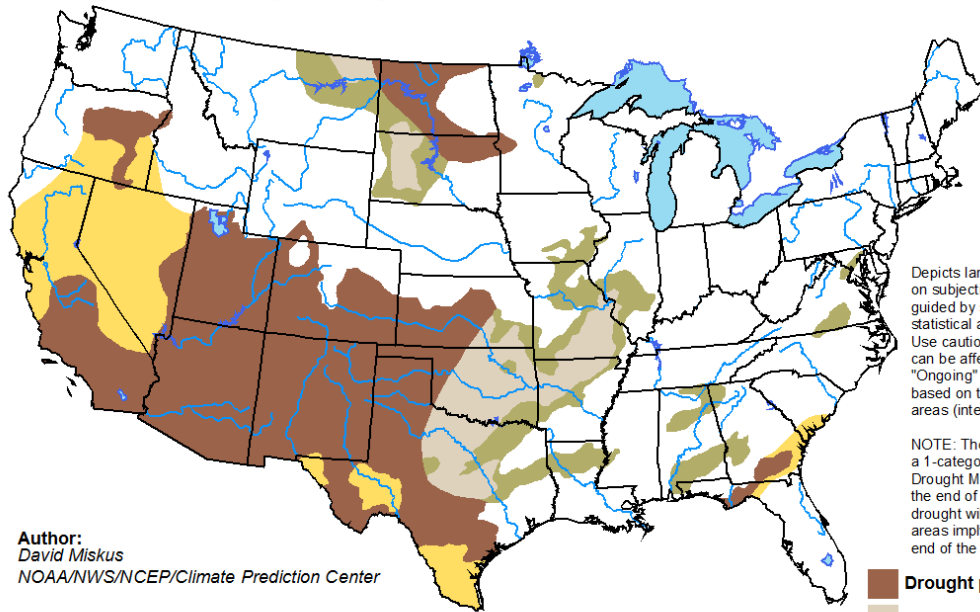
Climate Prediction Center



Drought Outlook

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





Valid for February 15 - May 31, 2018
Released February 15, 2018

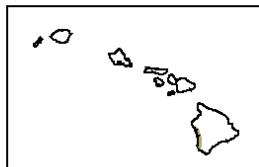
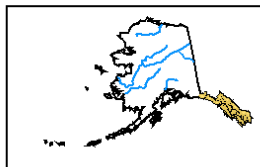


Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center

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).

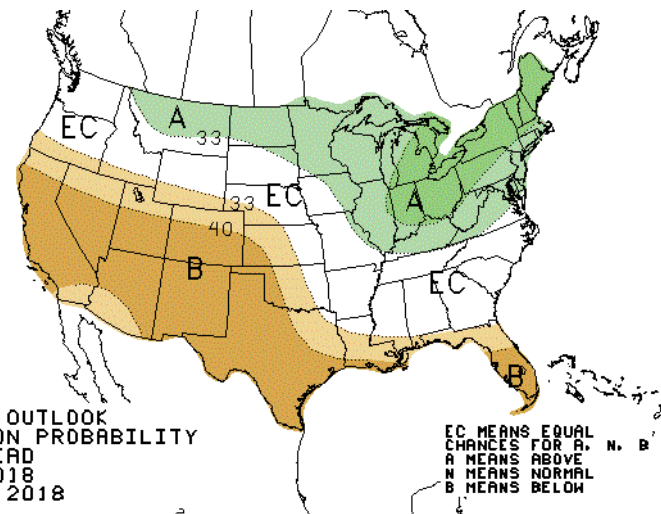
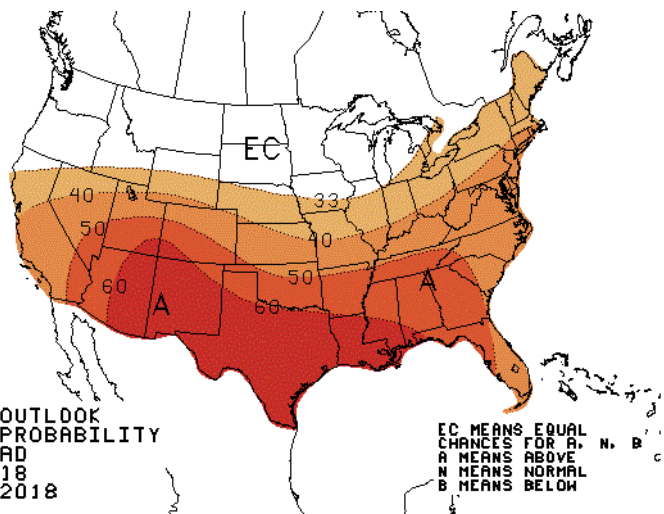
-  **Drought persists**
-  **Drought remains but improves**
-  **Drought removal likely**
-  **Drought development likely**



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

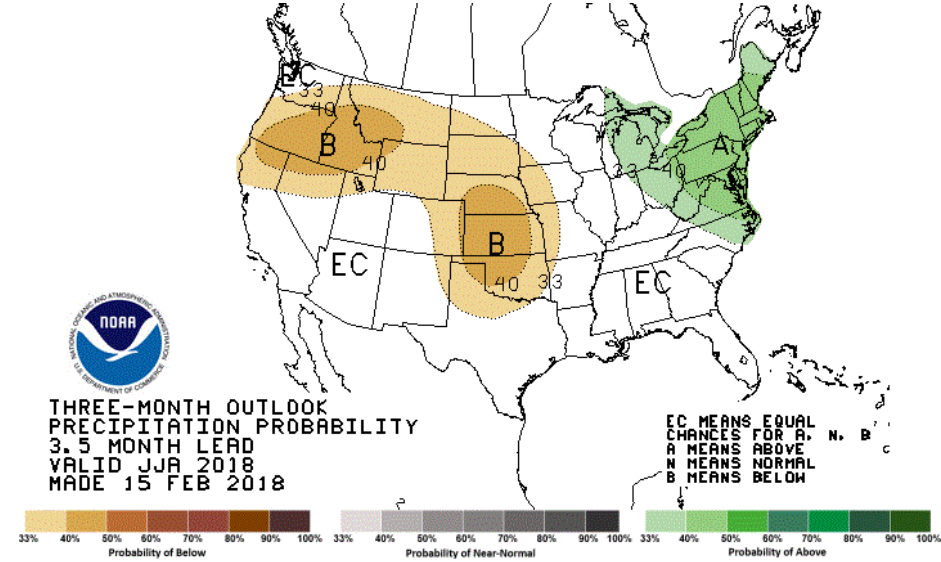
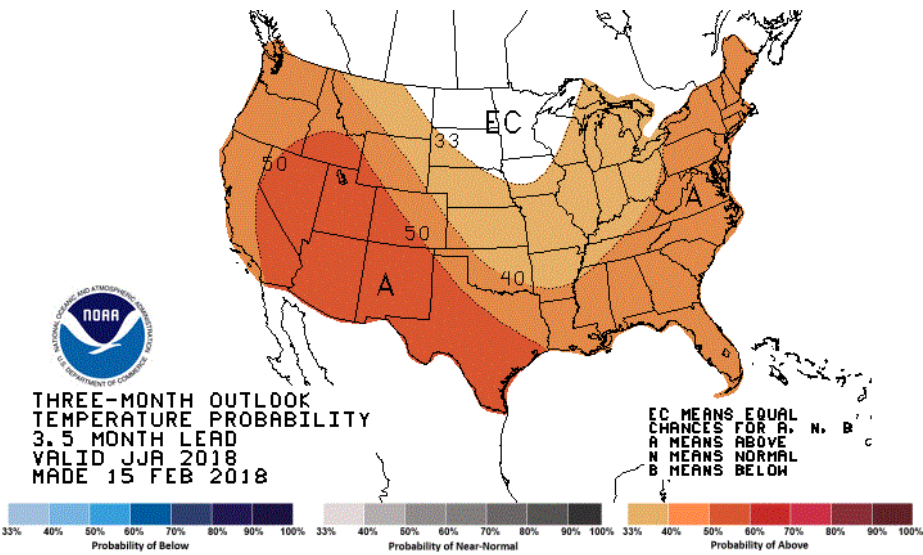
Seasonal Outlook for Apr-May-Jun

Climate Prediction Center

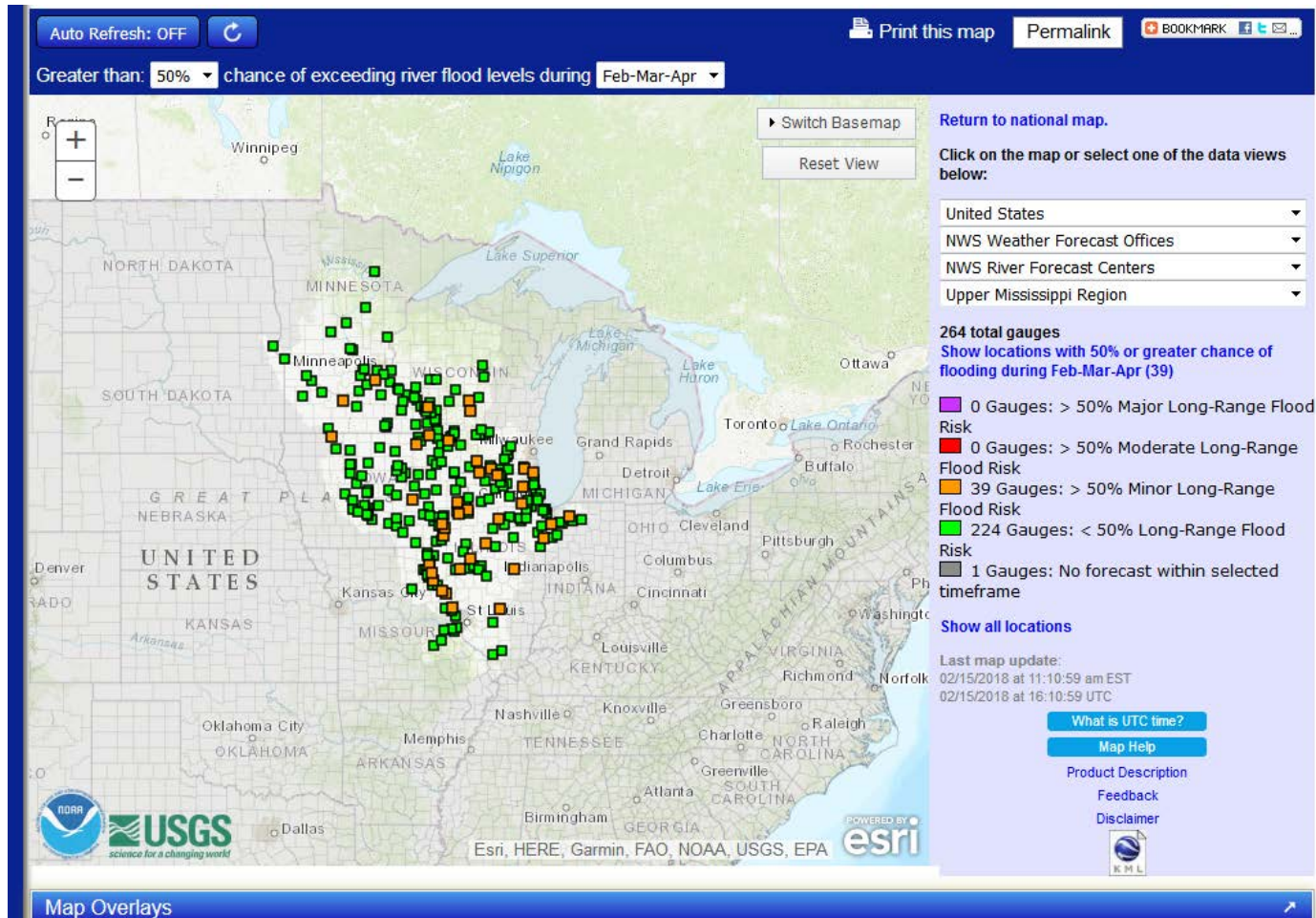


Seasonal Outlook for Jun-Jul-Aug

Climate Prediction Center



Upper Mississippi Basin

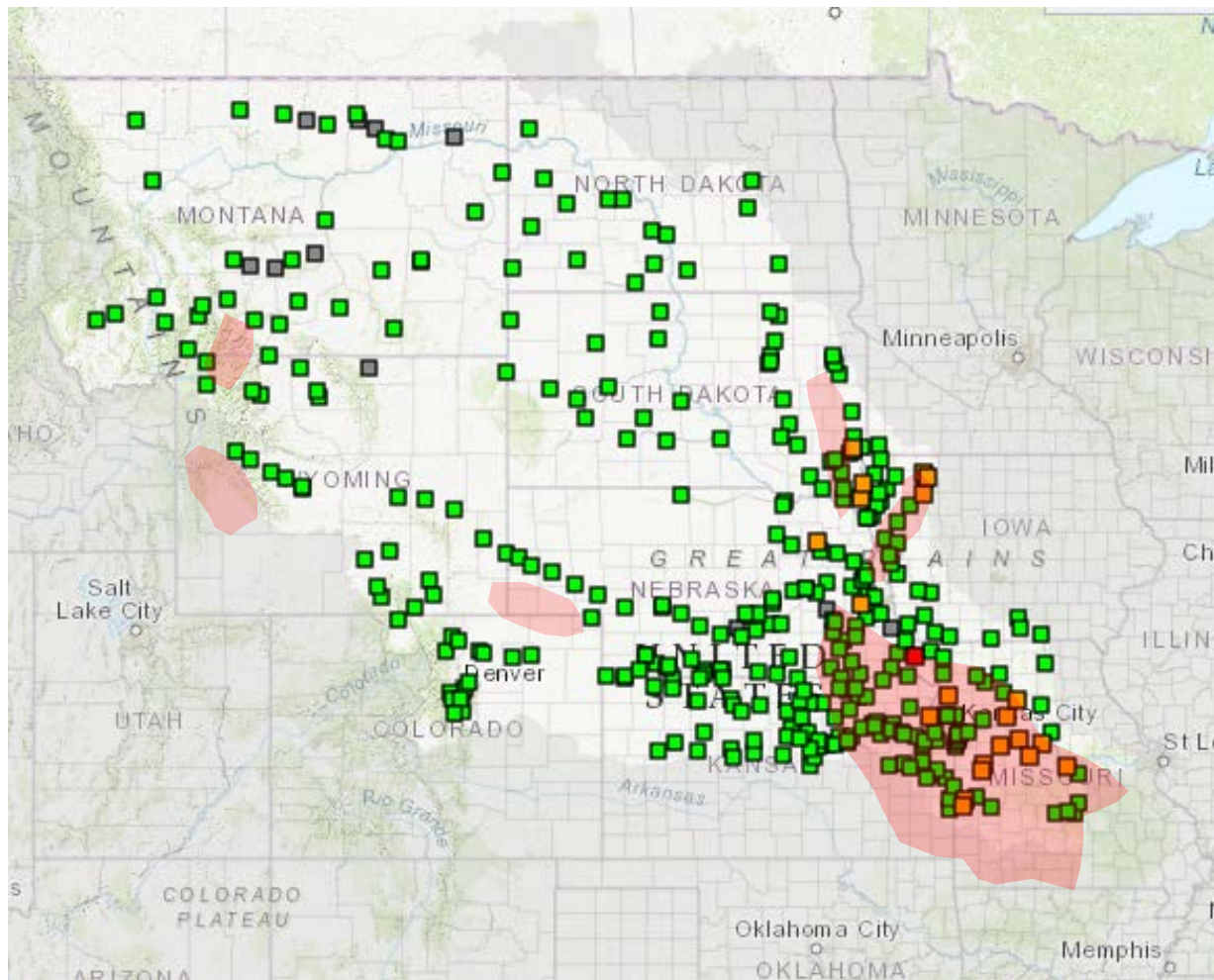


Ohio River Forecast Center

- Flood potential is much above normal in the Ohio River Basin and Cumberland basin the next 3 weeks and likely thru March before settling down in April or May.. We expect significant hydrologic events.
- More flooding is forecast in the eastern Ohio Valley the next few days then a shift to the western and southern Ohio Valley next week. Some moderate or even major flooding is possible.

MISSOURI BASIN

FLOOD POTENTIAL OUTLOOK



Montana: Flooding possible along Clarks Fork of Yellowstone.

Wyoming: Flooding possible in the Wind River basin.

South Dakota: Flooding possible along Big Sioux.

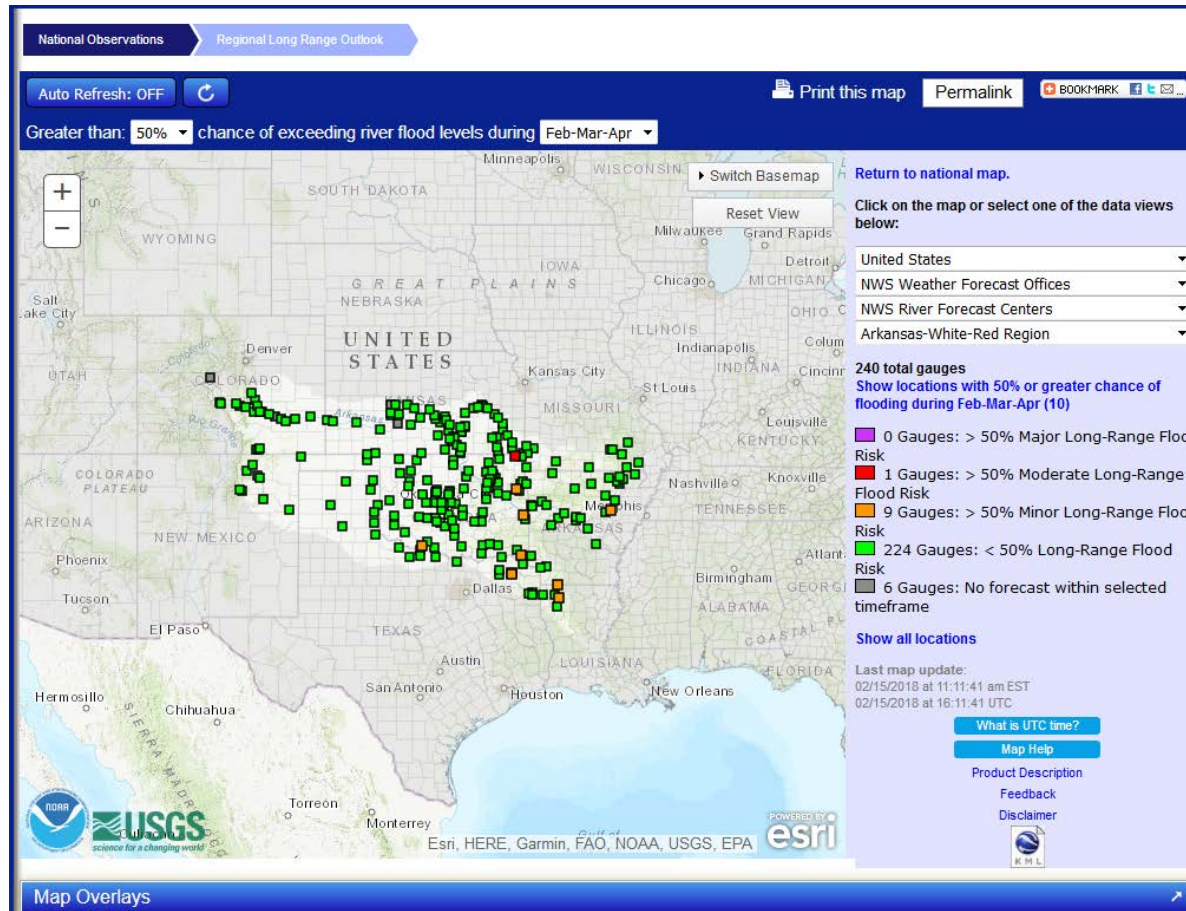
Iowa: Flooding possible along Big Sioux and Little Sioux.

Nebraska: Flooding possible along the lower reach of the North Platte, and in some of the smaller tributaries in southeast portion of the state.

Kansas: Flooding possible along smaller streams in eastern part of the state.

Missouri: Flooding possible within the Platte, Grand, and the Osage basins. Flooding along some of the smaller tributaries possible also.

Arkansas-White-Red River Basin



Summary

- It has been a cold winter, but temperatures are expected to moderate.
- Snow pack is approaching normal conditions in the Missouri and Platte river basins, but remains below average farther south across much of Colorado. Unlikely to recover, even with recent snows.
- Dryness is becoming increasingly noticeable, particularly across the Great Plains.
- La Niña is likely to diminish into spring.

Additional Information

- ❑ Today's and Past Recorded Presentations and
 - <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>

Questions?

Climate

- Mary Knapp: mknapp@ksu.edu, 785-532-7019
- Dennis Todey: dennis.todey@ars.usda.gov, 515-294-2013
- Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
- Mike Timlin: mtimlin@illinois.edu, 217-333-8506
- Natalie Umphlett: numphlett2@unl.edu, 402 472-6764

Weather

- crhroc@noaa.gov

Thank you for your participation!

