



North Central U.S. Climate Summary and Outlook Webinar January 18, 2018

Stuart Foster

State Climatologist for Kentucky
Department of Geography and Geology
Western Kentucky University

stuart.foster@wku.edu

270.745.5983



United States Department of Agriculture
Midwest Climate Hub



*Landscape images from Kentucky
Mesonet field camera at station in
Marshall County*

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
 - February 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

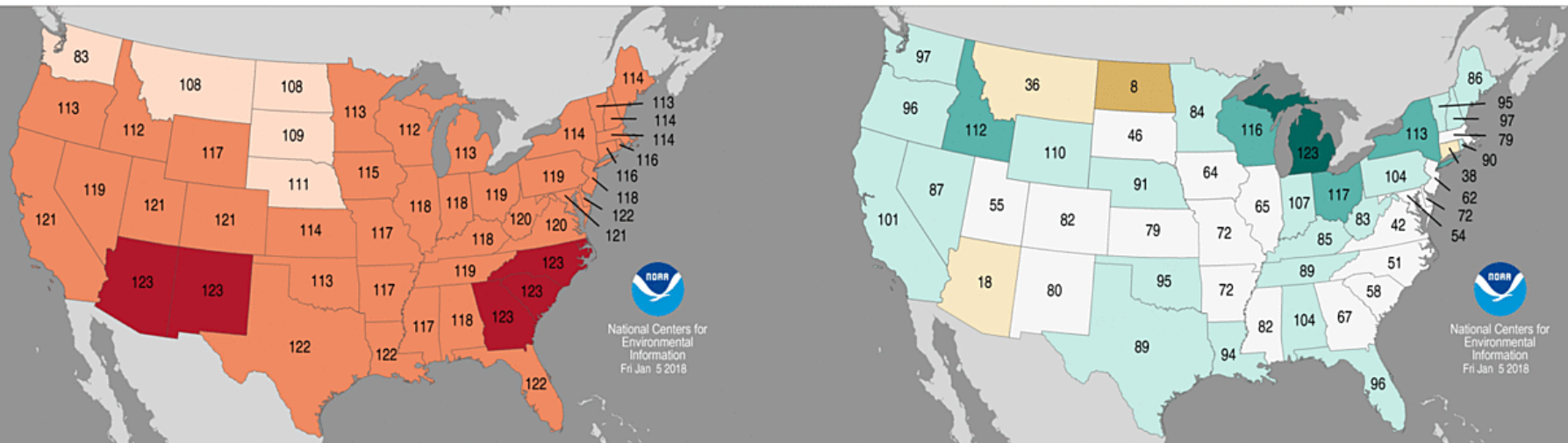
- Current climate conditions in historical context
- Current and prospective climate impacts
- Climate outlooks
- Questions, answers, and further discussion



Statewide Ranks: 2017

Statewide Average Temperature Ranks
January–December 2017
Period: 1895–2017

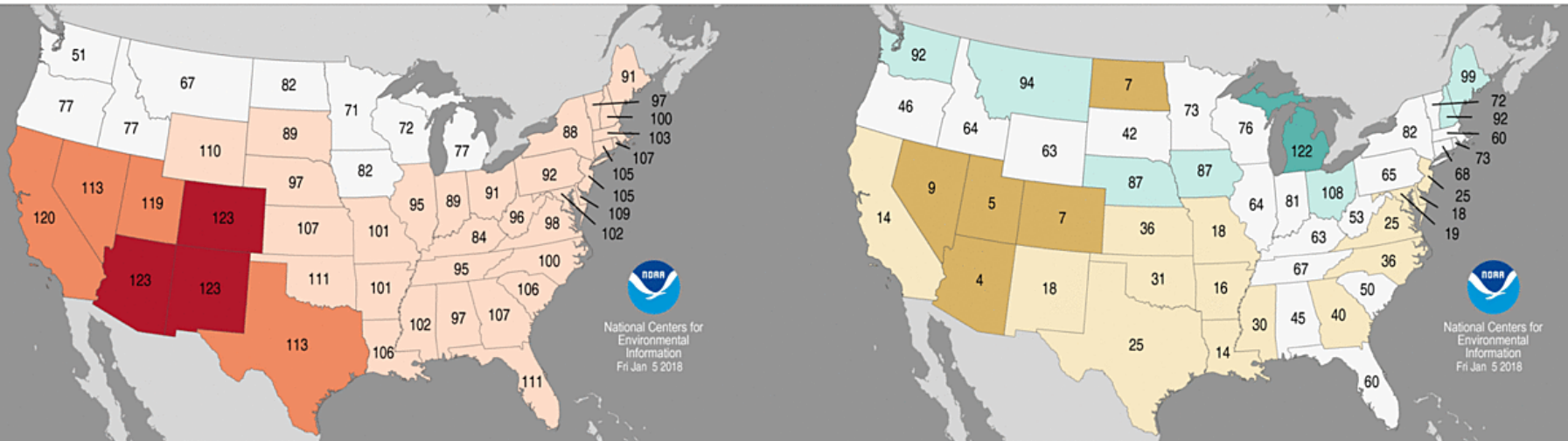
Statewide Precipitation Ranks
January–December 2017
Period: 1895–2017



Statewide Ranks: October - December

Statewide Average Temperature Ranks
October–December 2017
Period: 1895–2017

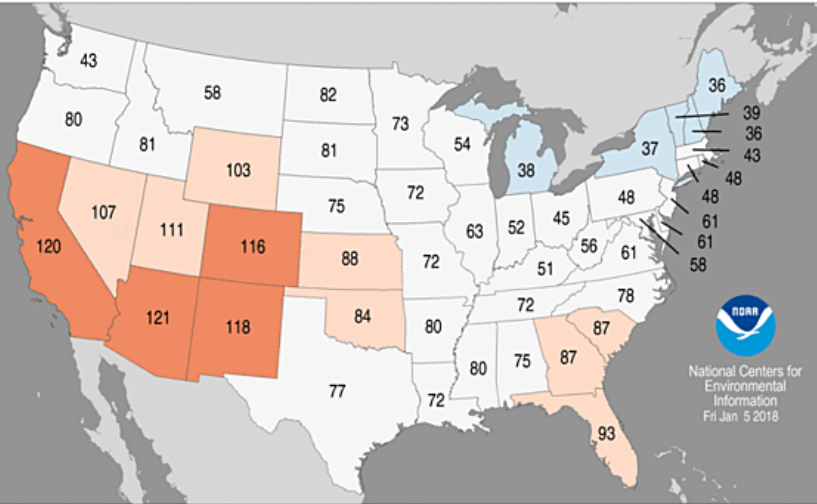
Statewide Precipitation Ranks
October–December 2017
Period: 1895–2017



Statewide Ranks: December

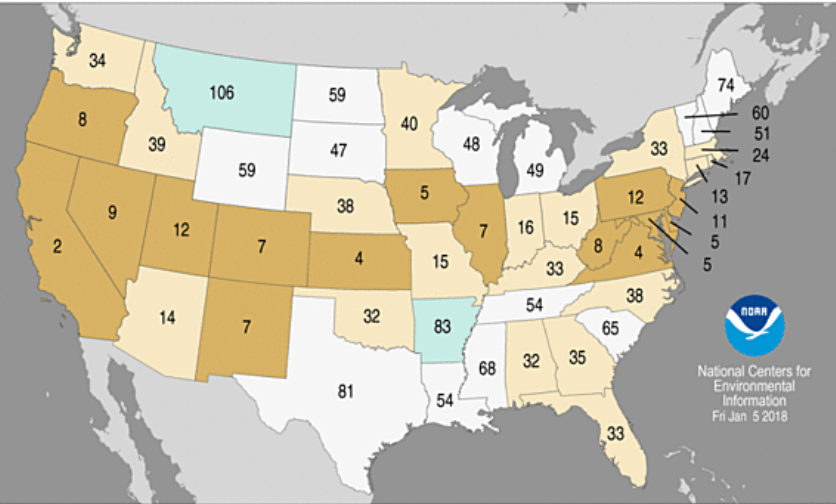
Statewide Average Temperature Ranks

December 2017
Period: 1895-2017



Statewide Precipitation Ranks

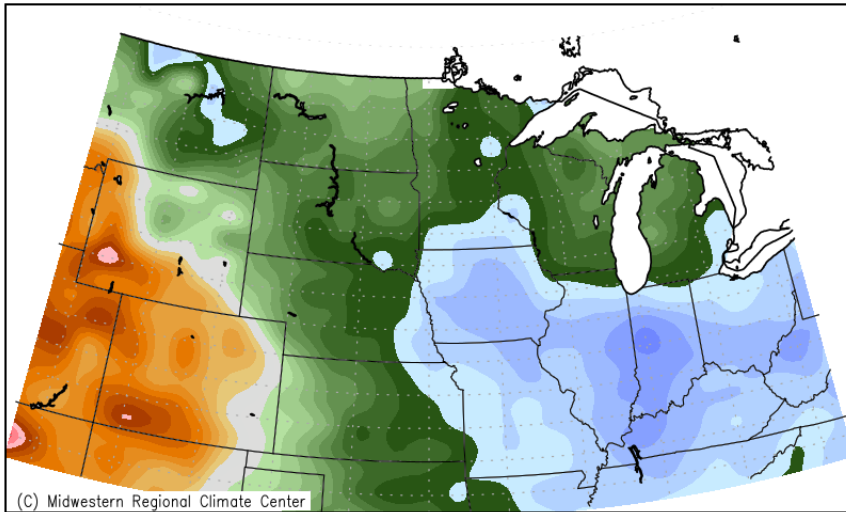
December 2017
Period: 1895-2017



Temperature Departure from Mean

Month-to-Date

Average Temperature (°F): Departure from Mean
January 1, 2018 to January 17, 2018



Mean period is 1981–2010.



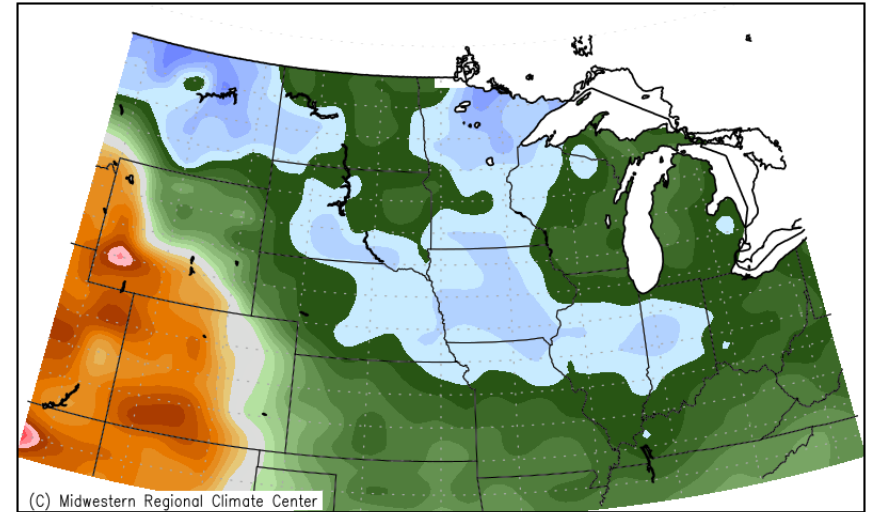
Midwestern Regional Climate Center

Illinois State Water Survey, Prairie Research Institute

University of Illinois at Urbana–Champaign

Past 30 Days

Average Temperature (°F): Departure from Mean
December 19, 2017 to January 17, 2018



Mean period is 1981–2010.



Midwestern Regional Climate Center

Illinois State Water Survey, Prairie Research Institute

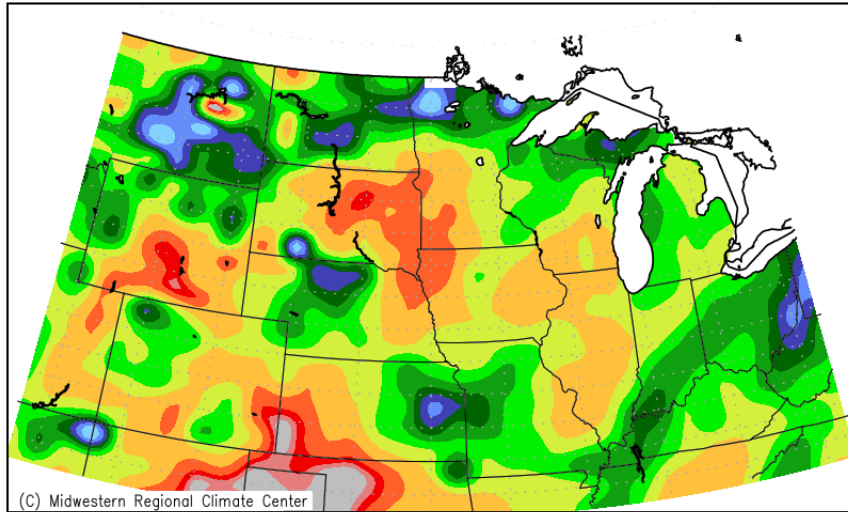
University of Illinois at Urbana–Champaign

Precipitation Percent of Mean

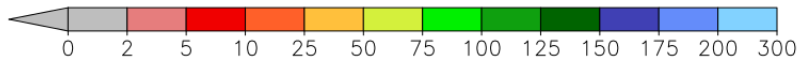
Month-to-Date

Past 30 Days

Accumulated Precipitation: Percent of Mean
January 1, 2018 to January 17, 2018



Mean period is 1981–2010.

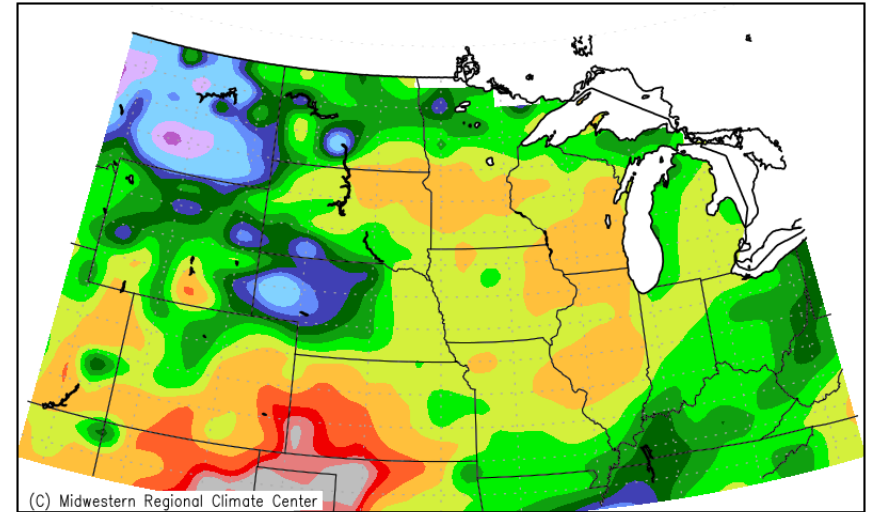


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University of Illinois at Urbana–Champaign

Accumulated Precipitation: Percent of Mean
December 19, 2017 to January 17, 2018



Mean period is 1981–2010.



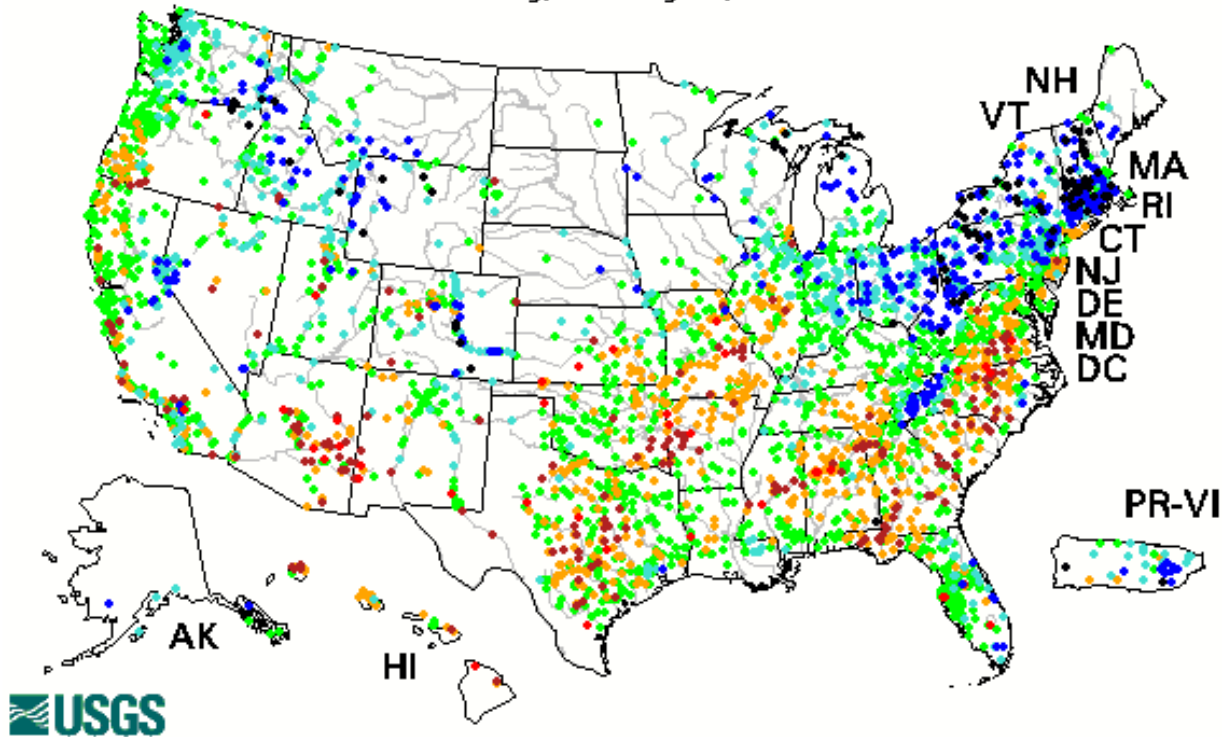
Midwestern Regional Climate Center

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University of Illinois at Urbana–Champaign

7-day Average Streamflow

Tuesday, January 16, 2018



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

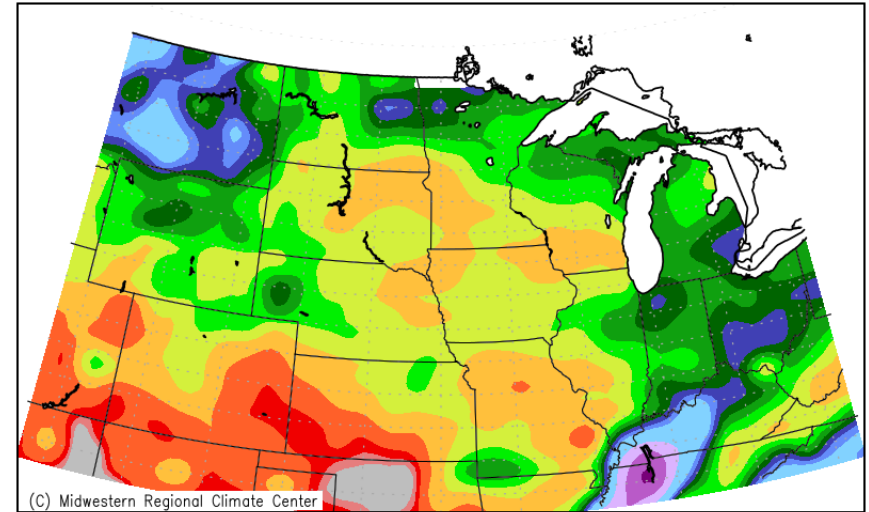
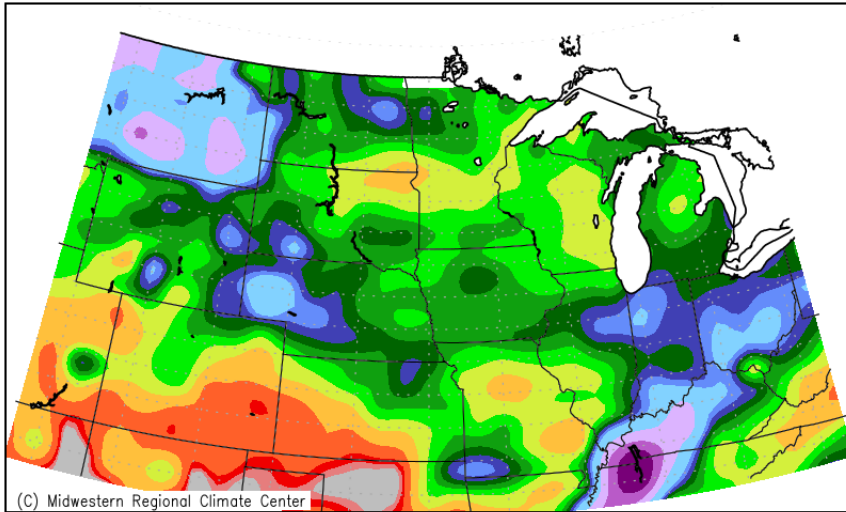
Snowfall Percent of Mean

Past 30 Days

Past 90 Days

Accumulated Snowfall: Percent of Mean
December 19, 2017 to January 17, 2018

Accumulated Snowfall: Percent of Mean
October 20, 2017 to January 17, 2018



(C) Midwestern Regional Climate Center

(C) Midwestern Regional Climate Center

Mean period is 1981–2010.

Mean period is 1981–2010.



Midwestern Regional Climate Center

Illinois State Water Survey, Prairie Research Institute

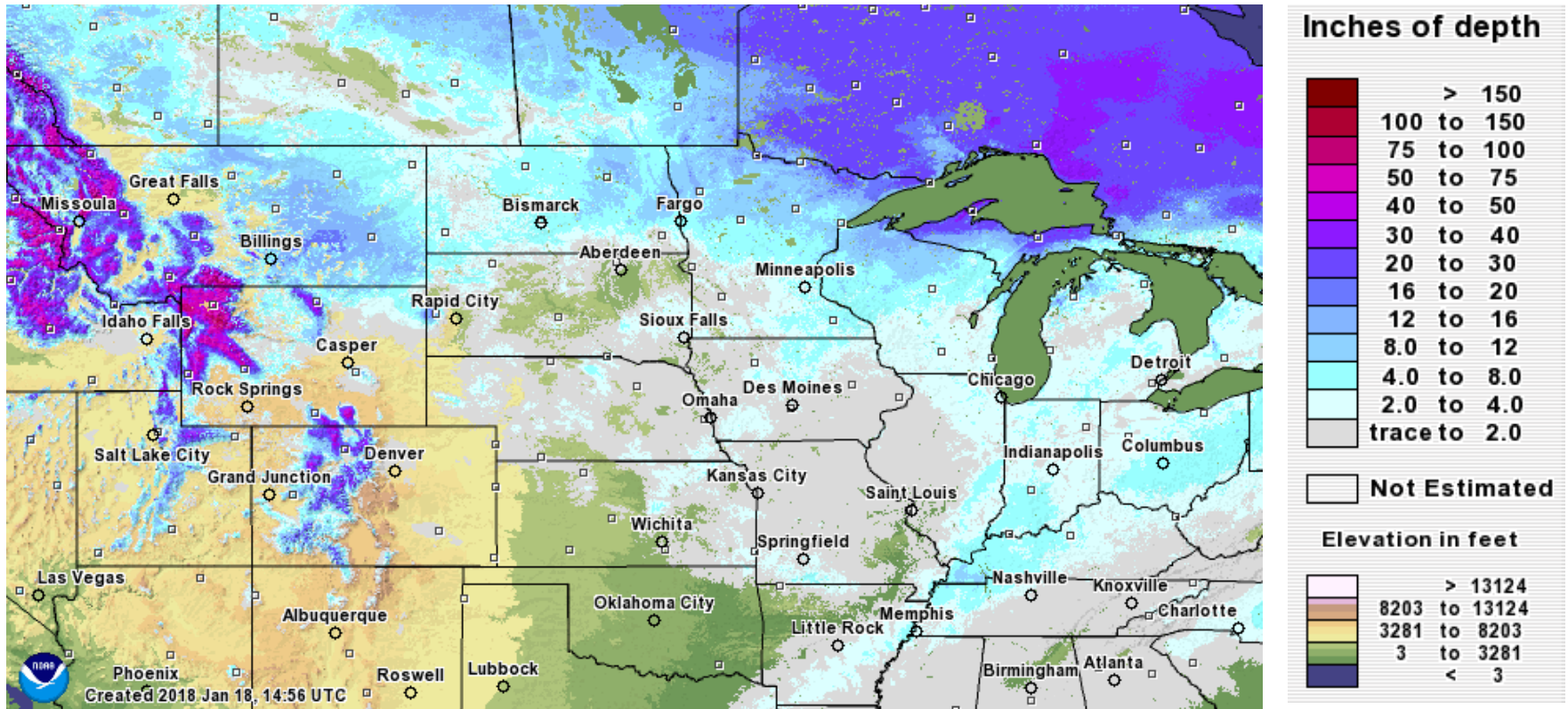
University of Illinois at Urbana–Champaign

Midwestern Regional Climate Center

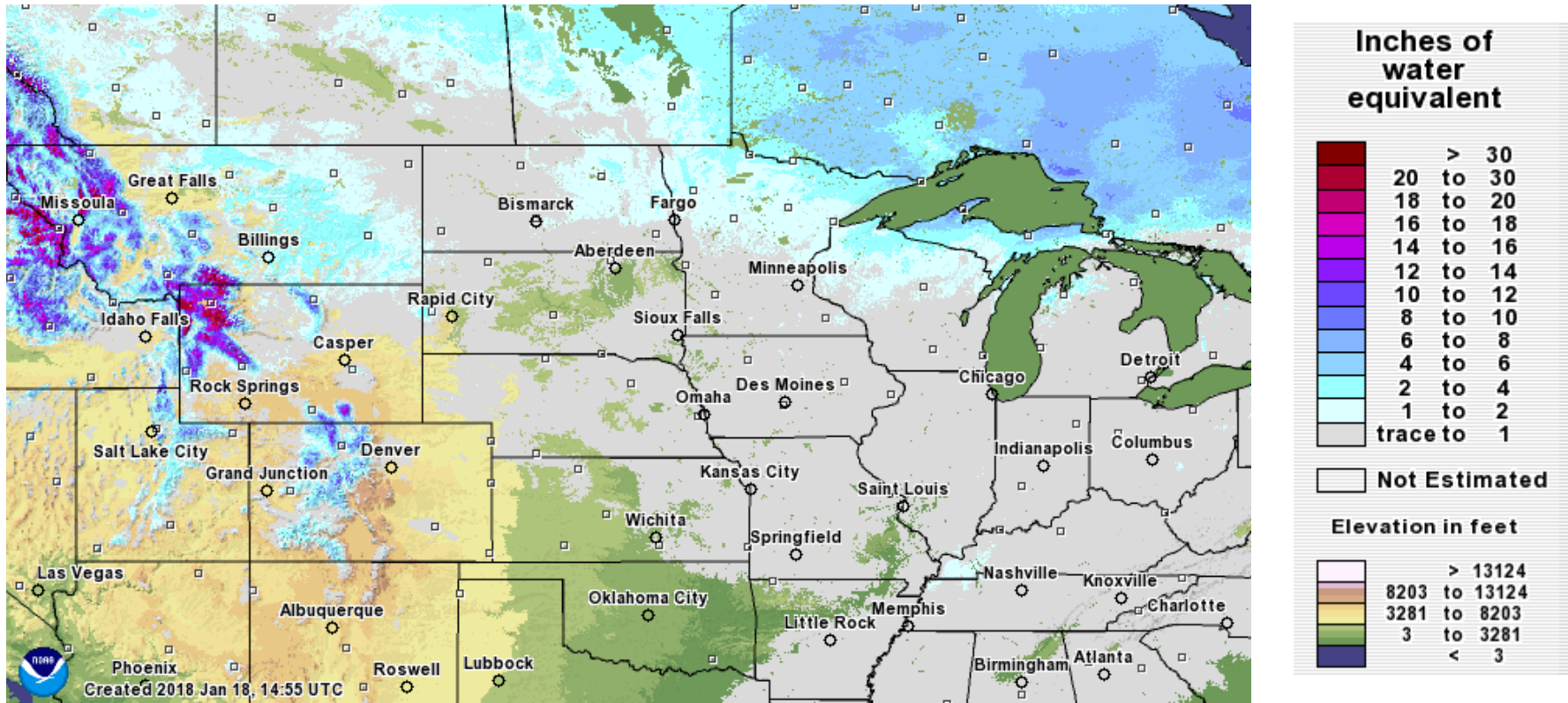
Illinois State Water Survey, Prairie Research Institute

University of Illinois at Urbana–Champaign

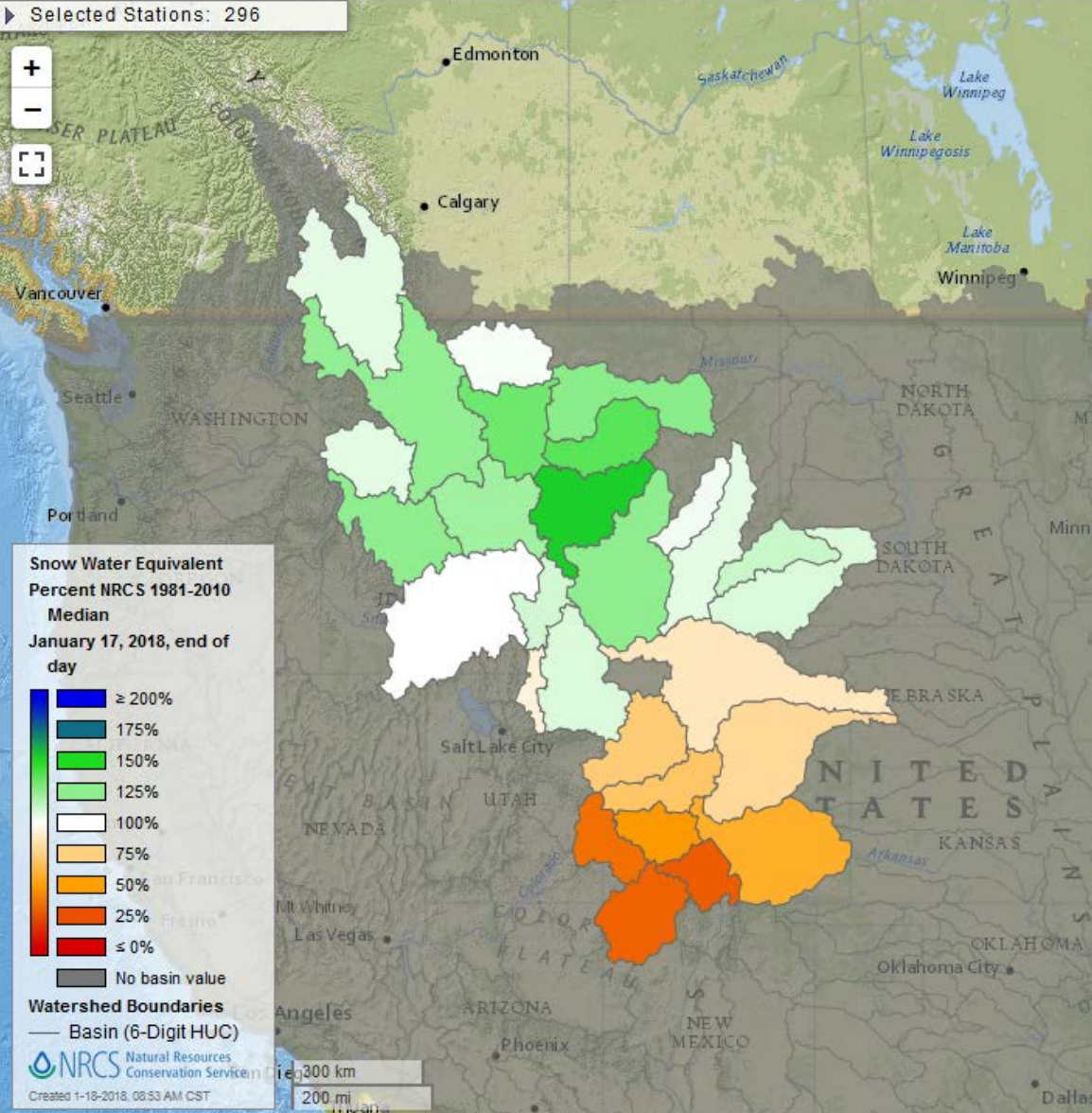
Snow Depth



Snow Water Equivalent



Selected Stations: 296

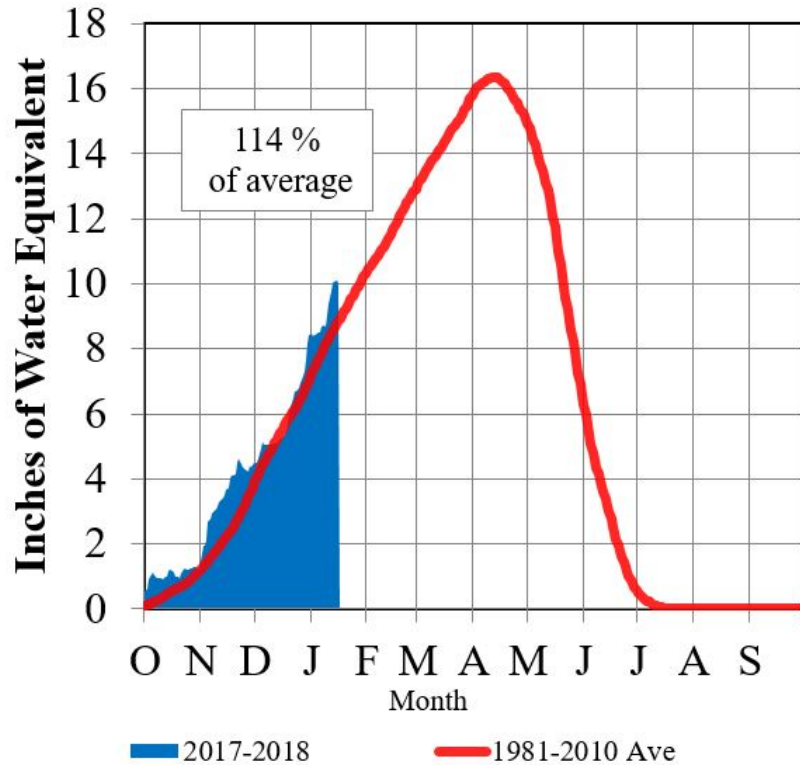


Upper Missouri River Basin – Snow Water Equivalent

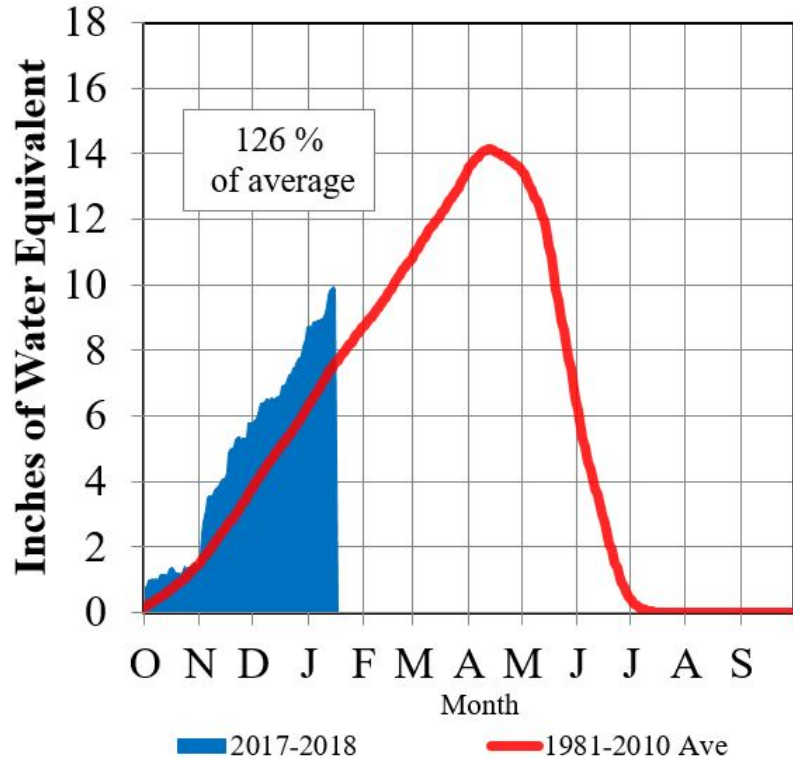
Mountain Snowpack

January 16, 2018

Total above Fort Peck



Total Fort Peck to Garrison



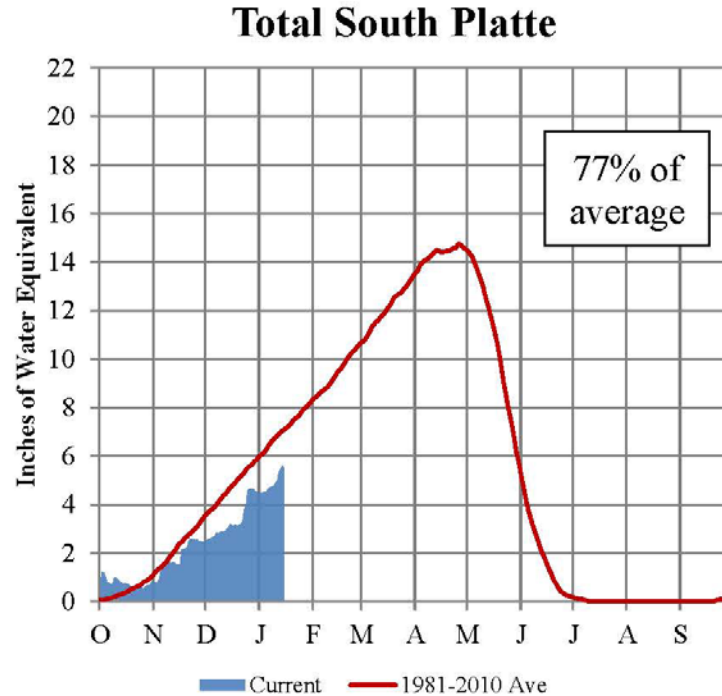
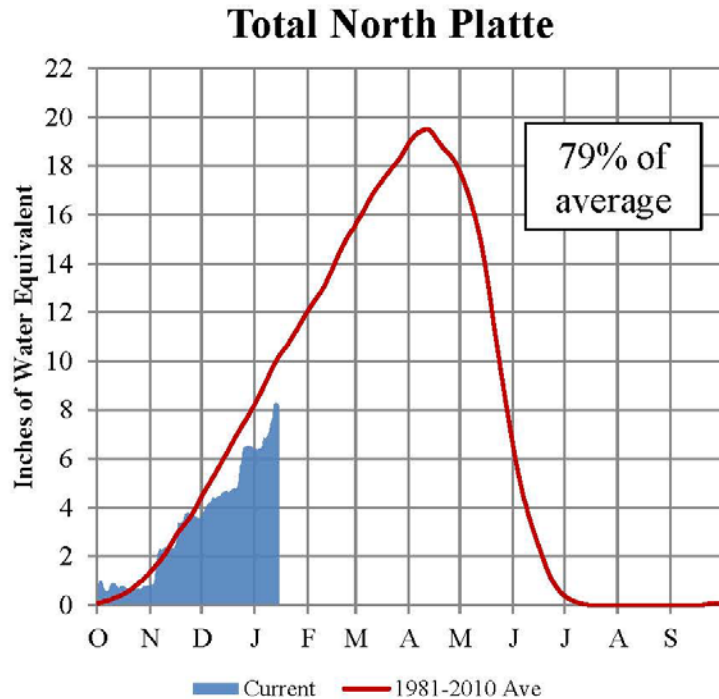
Normally by January 15 about 54% of the peak mountain SWE has occurred in both reaches.

Source: USDA-NRCS

Platte River Basin – Snow Water Equivalent

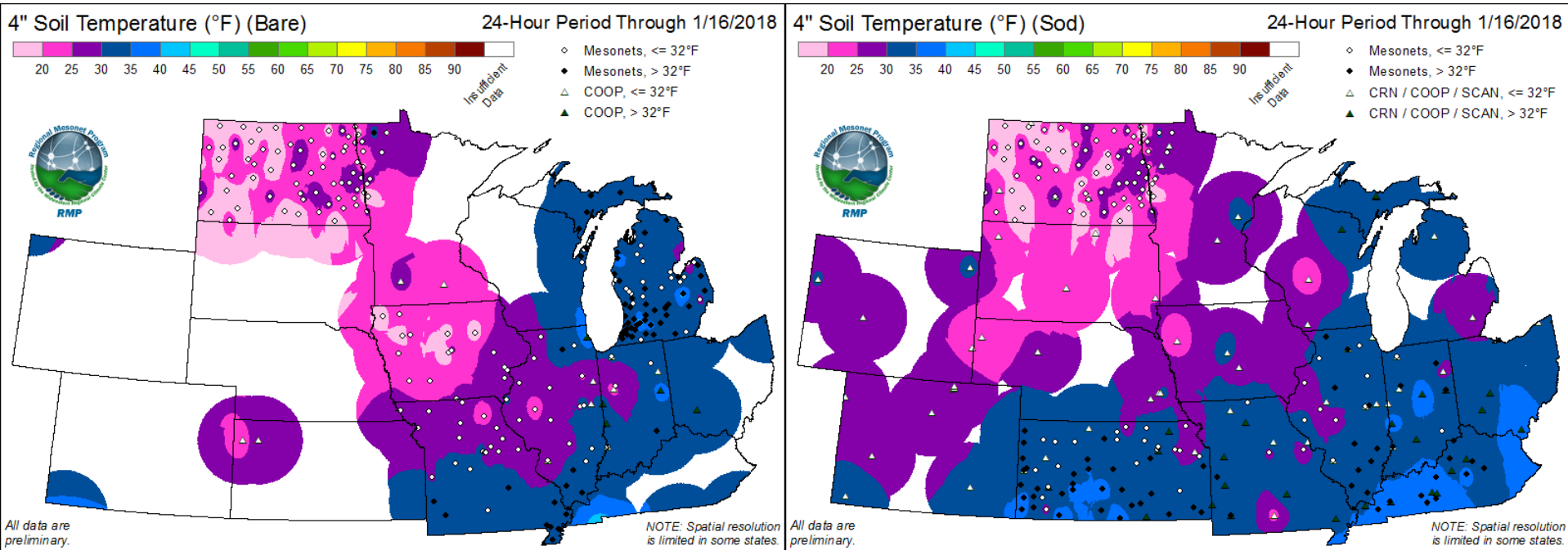
Platte River Basin - Mountain Snowpack Water Content Water Year 2017-2018

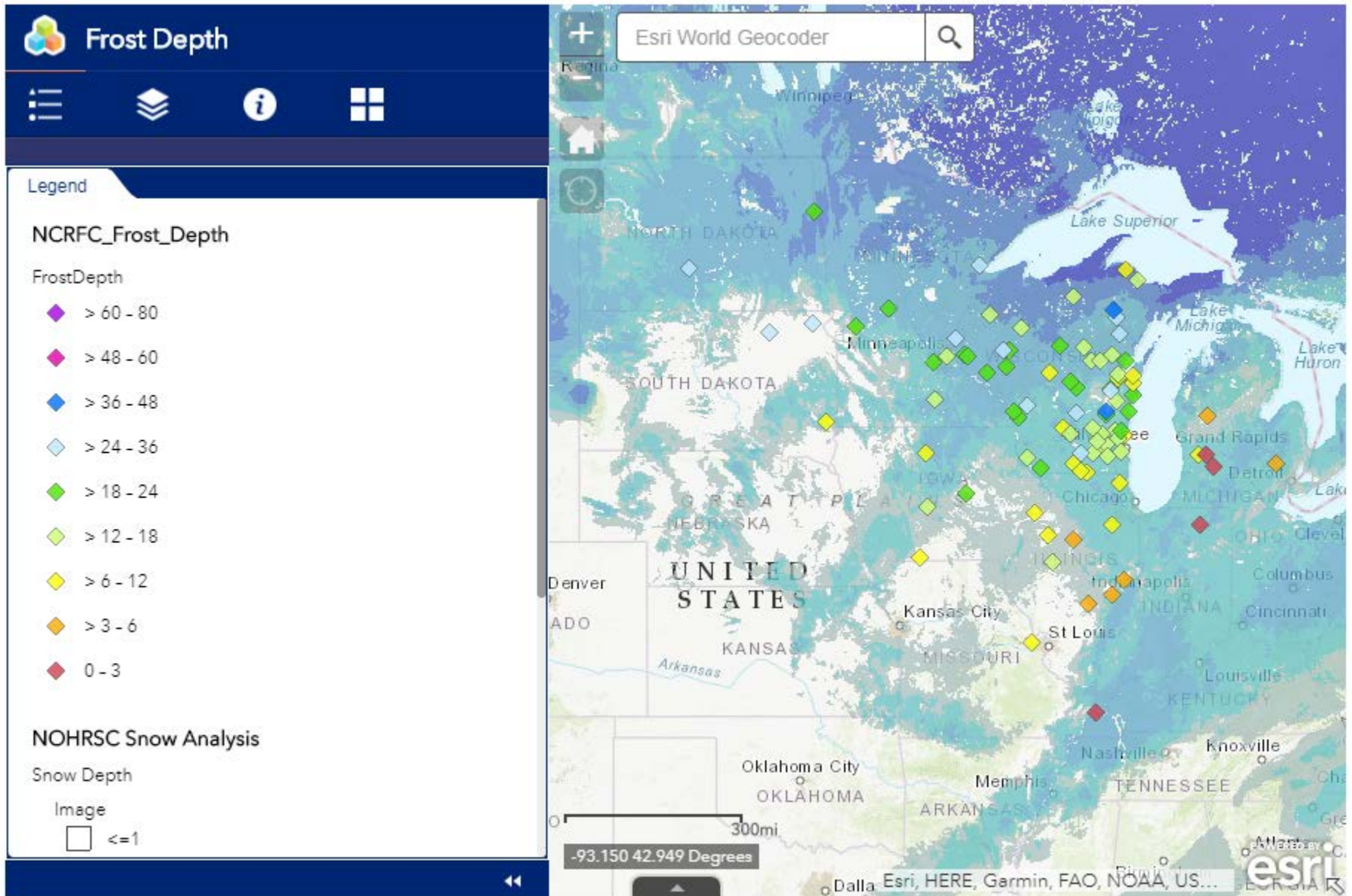
January 16, 2018



The North and South Platte River Basin mountain snowpacks normally peak near April 15 and the end of April, respectively. As of January 16, 2018, the mountain snowpack SWE in the "Total North Platte" reach is currently 8.1", 79% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 5.5", 77% of average.

Soil Temperatures





GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)



Analysis Date: JD 017 01/17/2018

Percent Pixels with Data within +/-10 Days: 71.6%

Date of last ice analysis: 1/17/2018

NOAA CoastWatch

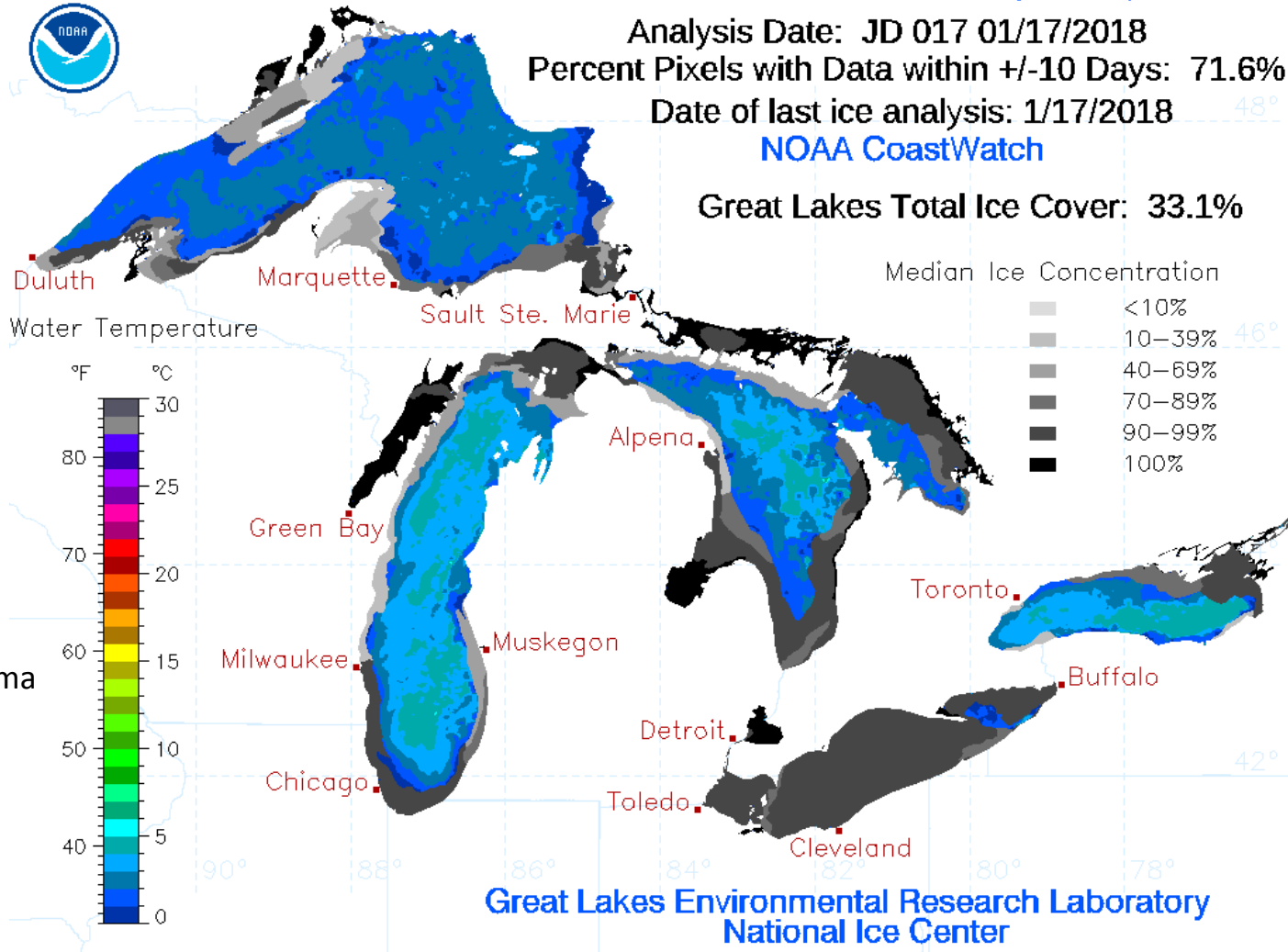
Great Lakes Total Ice Cover: 33.1%

Projected Maximum Ice Coverage: 60%

Long-term Average: 55%

Projected Ice Coverage Maxima

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

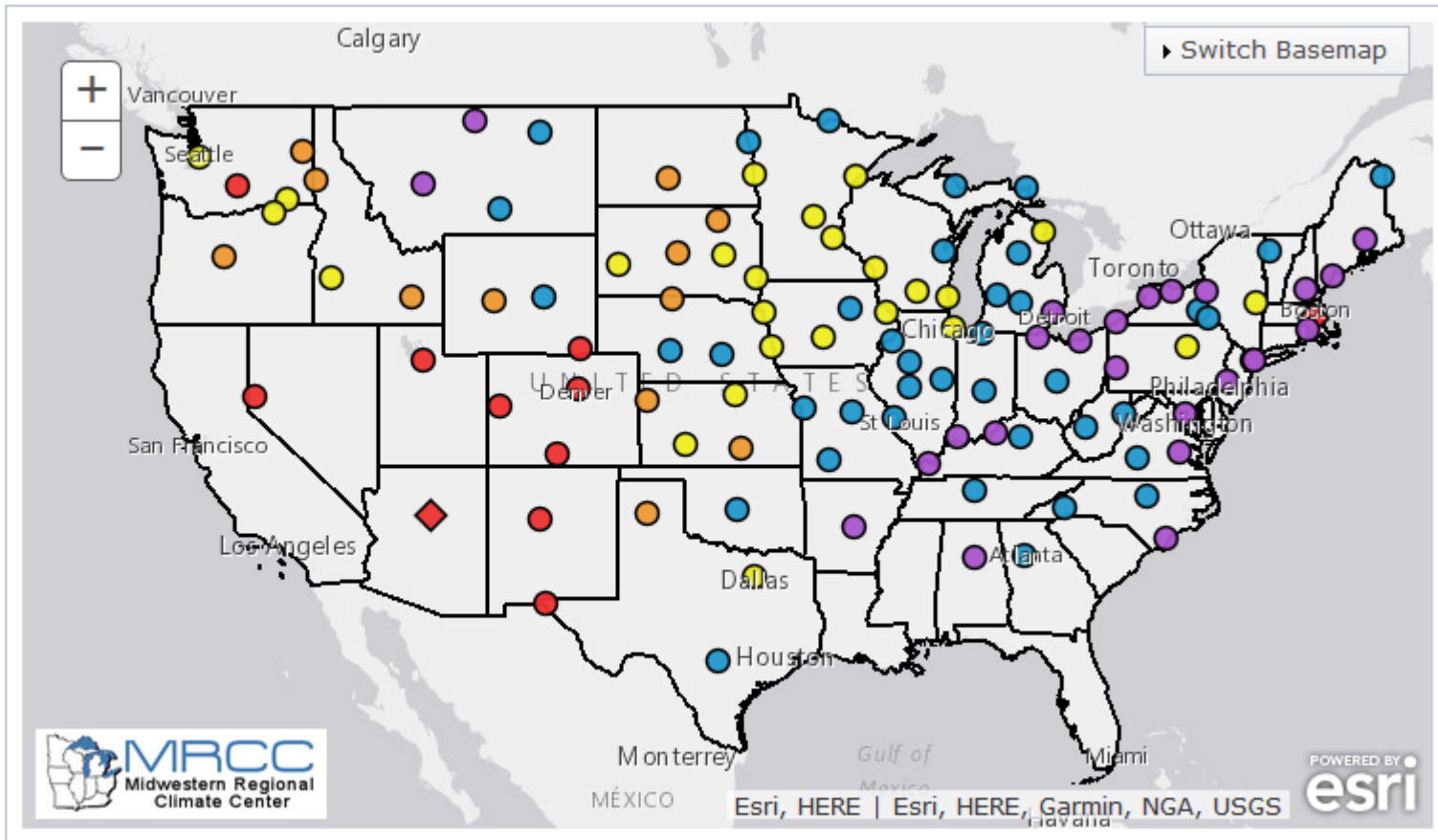


Accumulated Winter Season Severity Index (AWSSI)

AWSSI Category

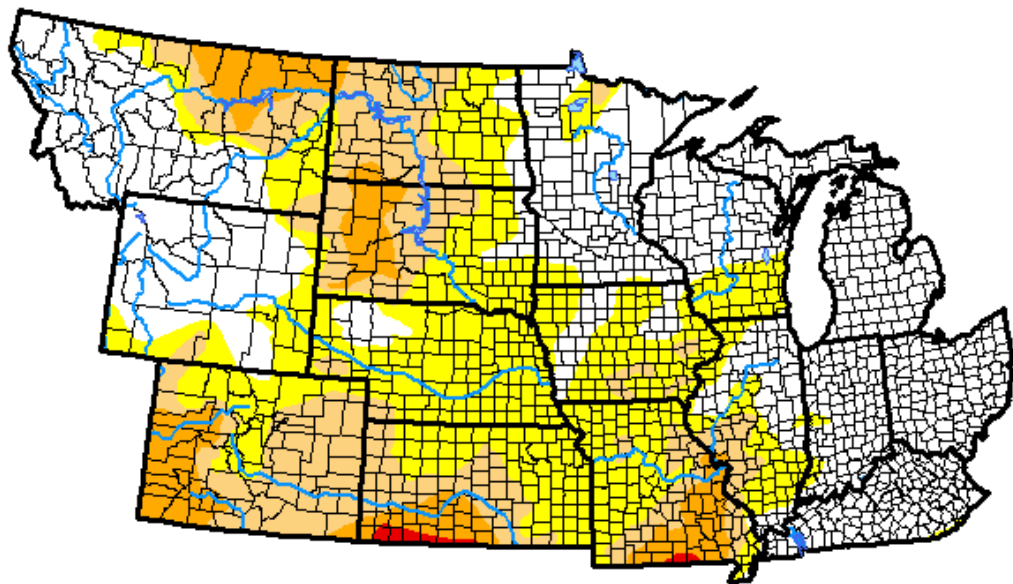
- Extreme
- Severe
- Average
- Moderate
- Mild
- = Record

Data Last Updated:
1/18/2018 08:20 CST



U.S. Drought Monitor NWS Central Region

January 16, 2018
(Released Thursday, Jan. 18, 2018)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	43.35	56.65	25.96	8.31	0.37	0.00
Last Week <i>01-09-2018</i>	45.39	54.61	25.96	8.06	0.58	0.00
3 Months Ago <i>10-17-2017</i>	60.34	39.66	18.82	7.67	2.14	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>01-17-2017</i>	72.70	27.30	11.32	1.02	0.00	0.00

Intensity:

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

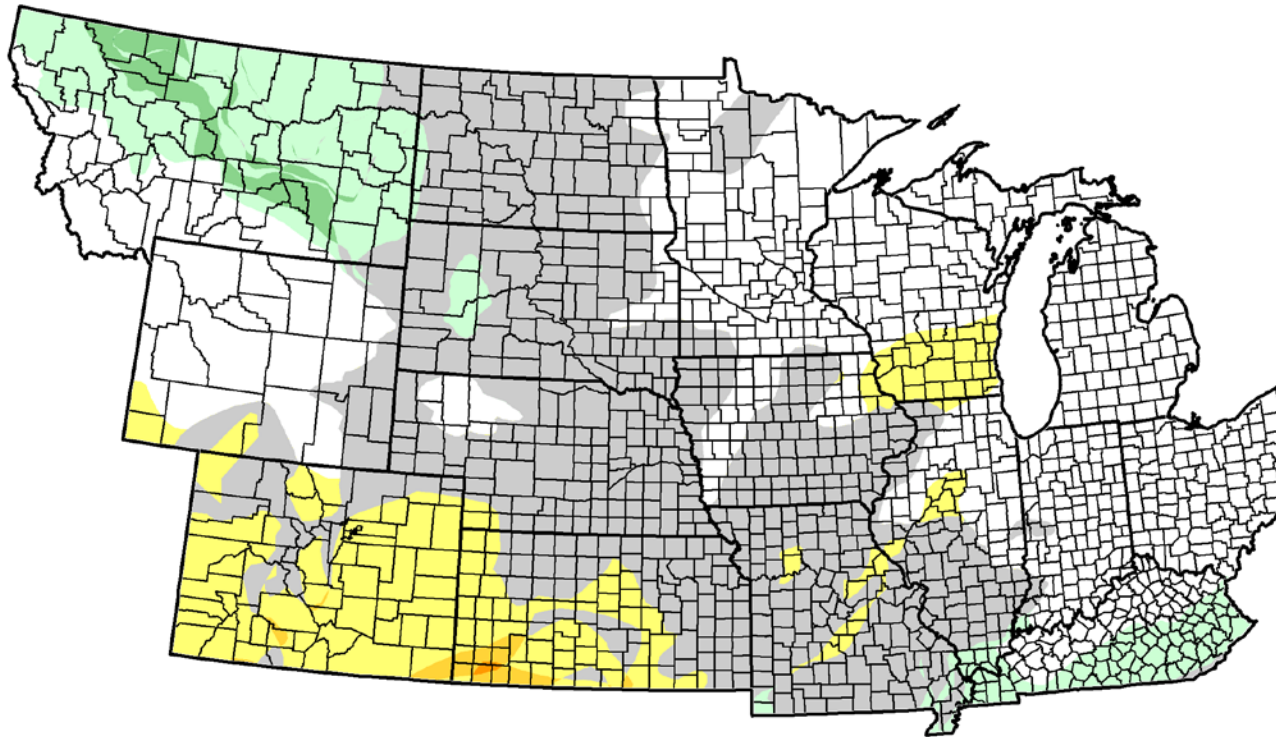
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Brian Fuchs
National Drought Mitigation Center



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

January 16, 2018
compared to
December 19, 2017

<http://droughtmonitor.unl.edu>

Agriculture

- Lingering impacts from wind damage to corn continues to leave unharvested ears on the ground across areas of Nebraska.
- Potential damage to wheat due to shallow snow cover, cold temperatures, and late planting. Too early to call.
- Drought impacts, including low stock ponds and increased feeding of hay.
- Concern about exposure of livestock to cold temperature and wind chill.



Ear drop in Nebraska. Photo provided by Jennifer Rees.



Dry stock pond in Missouri. Photo by Jamie Gundel.

Stream Flows

- Deficit of precipitation combined with freezing conditions have resulted in low stream flows.
- Ice jams in the Upper Ohio River Basin have accentuated minor flooding issues. Otherwise, ice jams have been common across northern portions of the region.
- Low flow conditions observed on the Mississippi River near St. Louis.

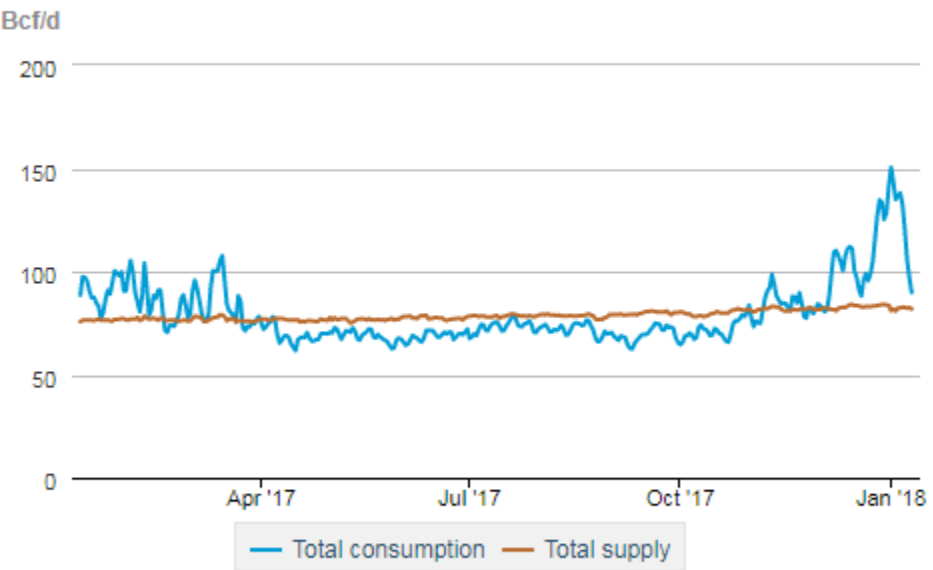


Ice jam on Gallatin River near Logan, MT.
Photo courtesy of WFO-Great Falls.

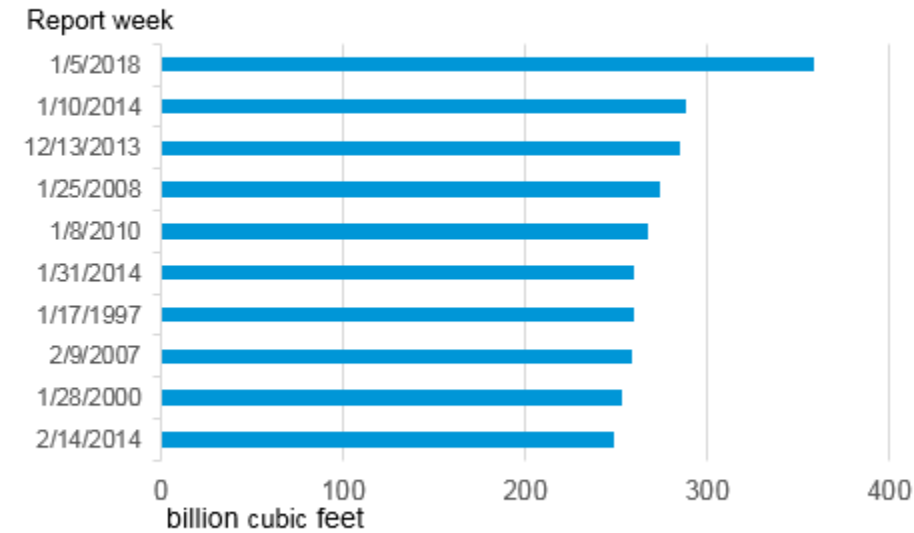
Energy

Weather Impact on Natural Gas Consumption


Total supply/demand balance (last 365 days)



Ten Largest weekly storage withdrawals (1994-2018)
billion cubic feet (Bcf)

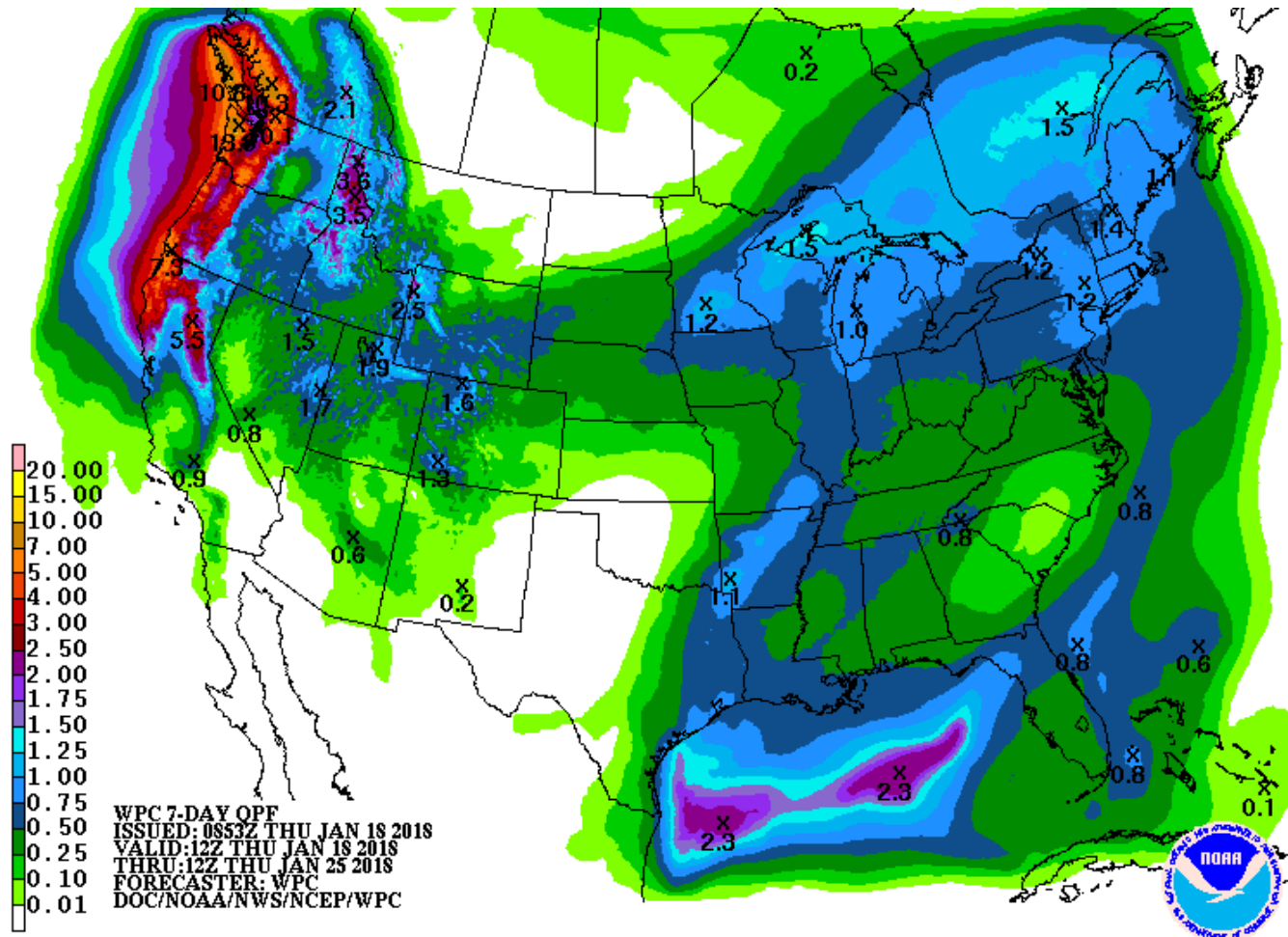


 Source: U.S. Energy Information Administration, *Weekly Natural Gas Storage Report*

 Source: OPIS PointLogic Energy, an IHS Company

<https://www.eia.gov/naturalgas/weekly/>

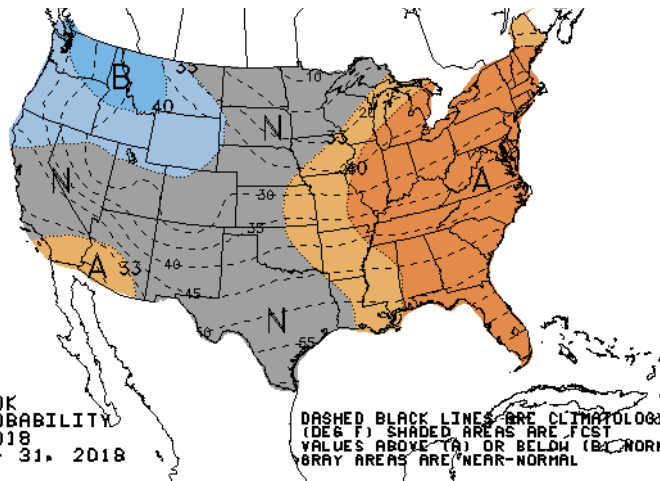
7-day Quantitative Precipitation Forecast



8-14 Day Outlook

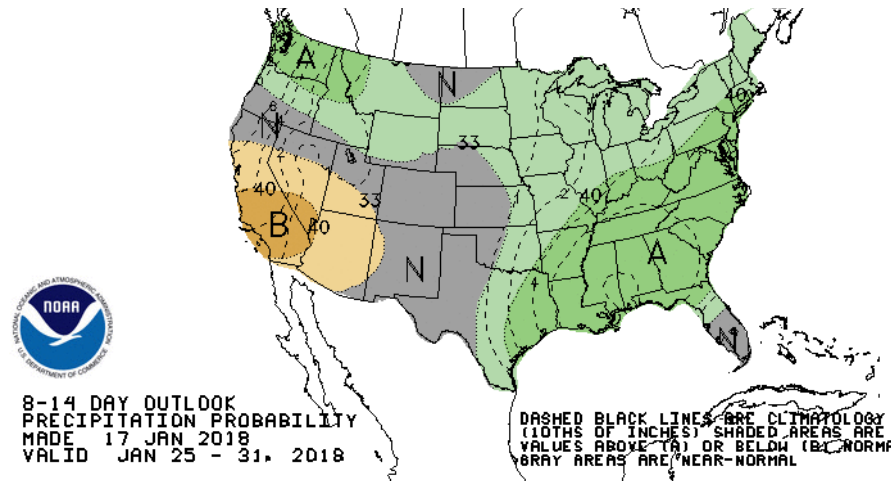
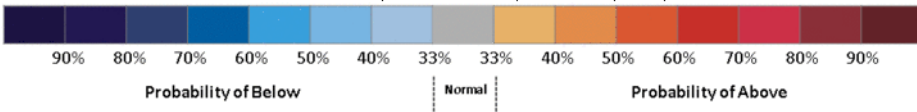
Jan 25 – Dec 31

Climate Prediction Center



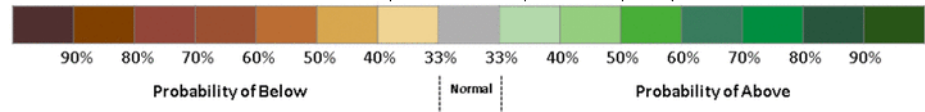
8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 17 JAN 2018
VALID JAN 25 - 31, 2018

DASHED BLACK LINES ARE CLIMATOLOGY (DEG F) SHADED AREAS ARE FCS' VALUES ABOVE (A) OR BELOW (B) NORMAL GRAY AREAS ARE NEAR-NORMAL



8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 17 JAN 2018
VALID JAN 25 - 31, 2018

DASHED BLACK LINES ARE CLIMATOLOGY (TENTHS OF INCHES) SHADED AREAS ARE FCS' VALUES ABOVE (A) OR BELOW (B) NORMAL GRAY AREAS ARE NEAR-NORMAL



TYPICAL LA NIÑA WINTERS

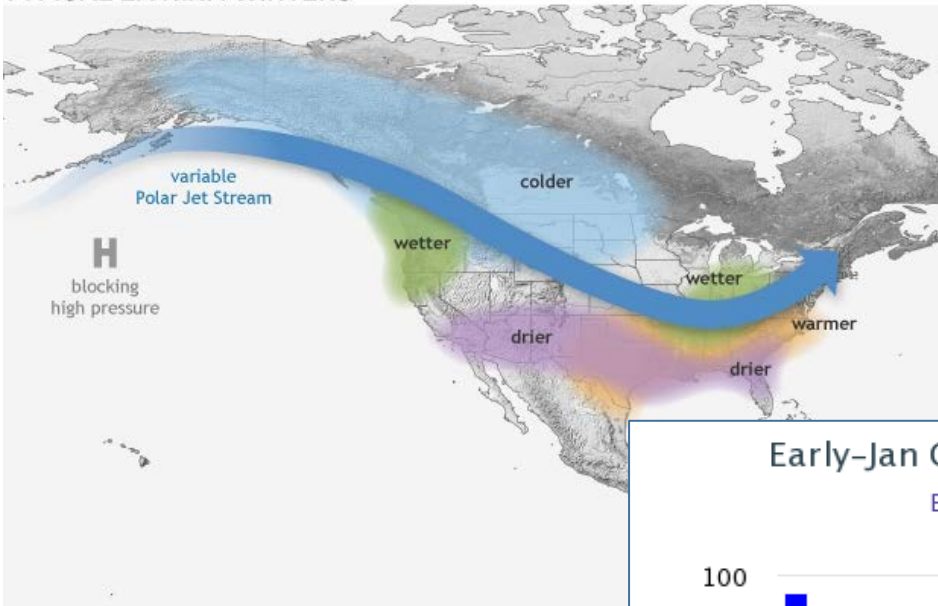
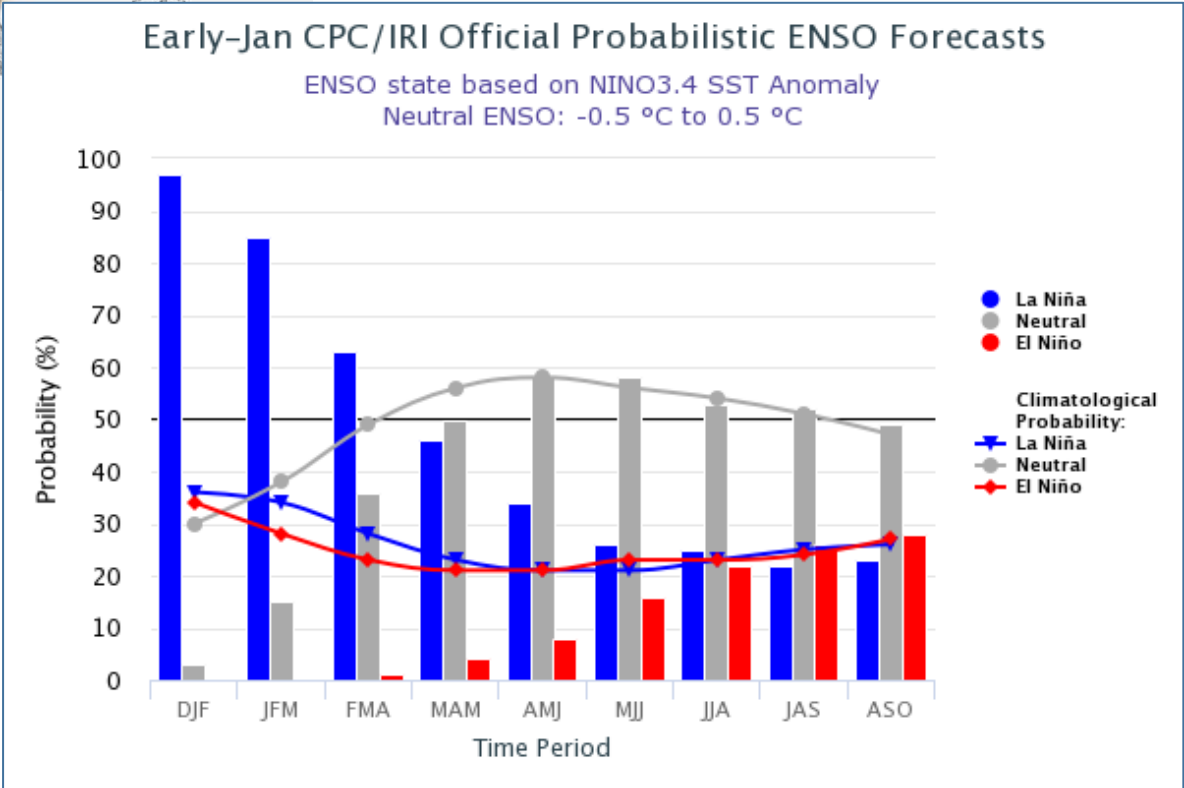


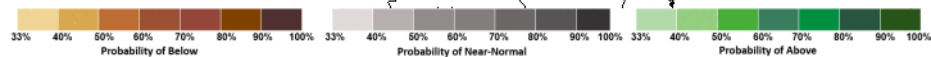
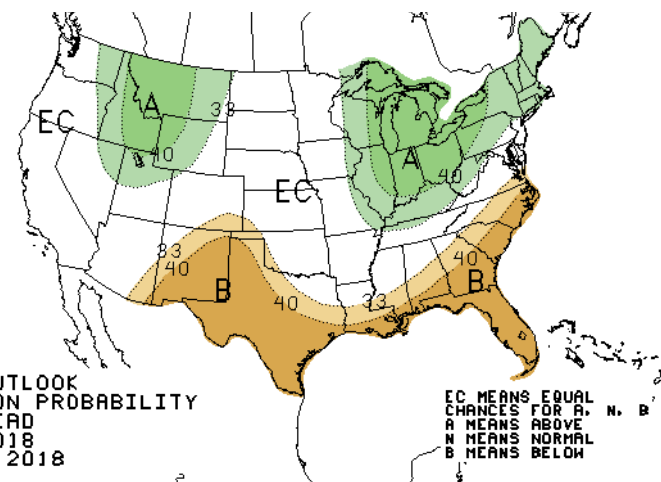
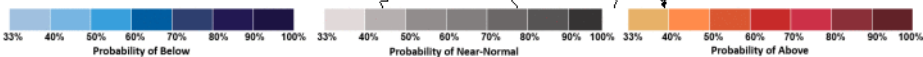
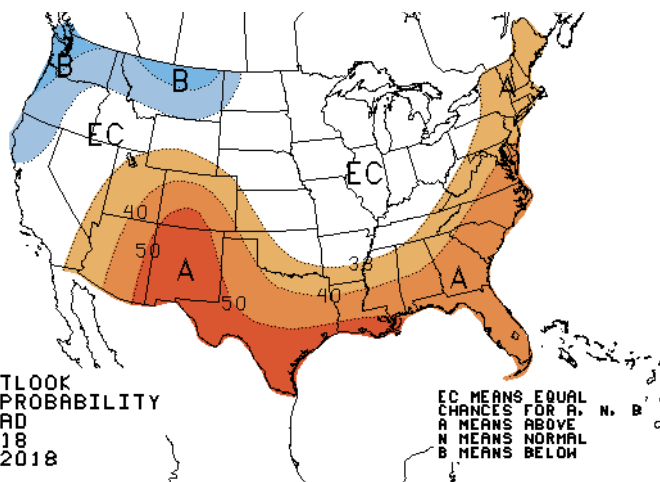
Image Credit: Fiona Martin, NOAA Climate.gov

Probabilistic ENSO Forecast



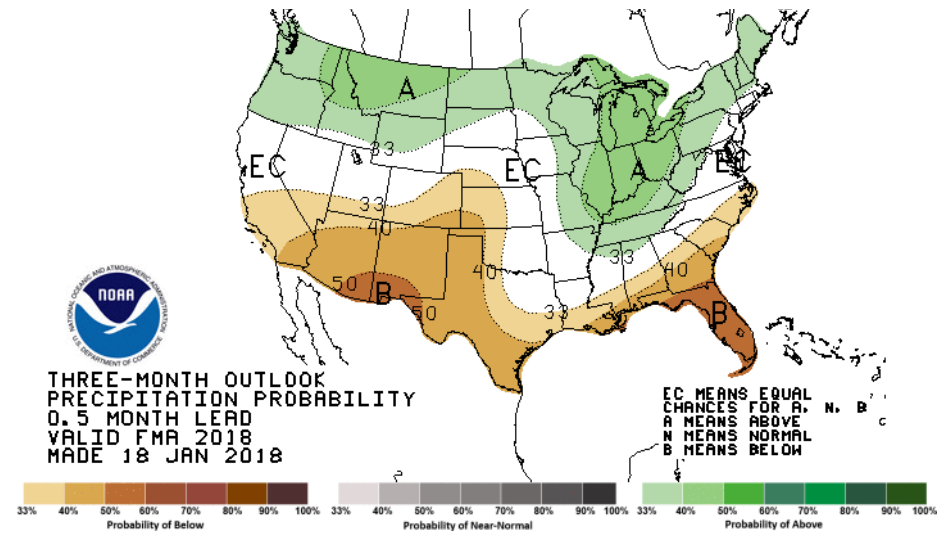
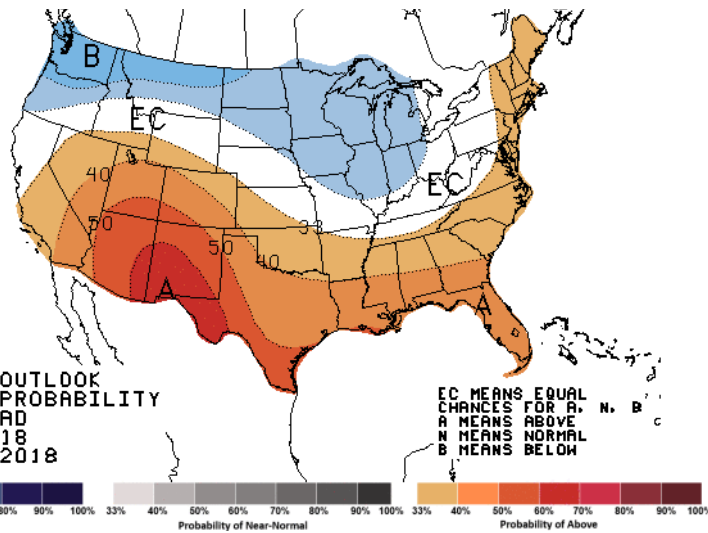
Monthly Outlook for February

Climate Prediction Center



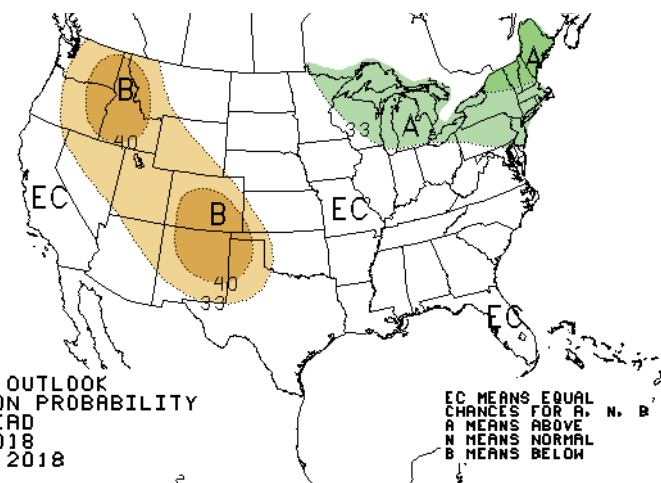
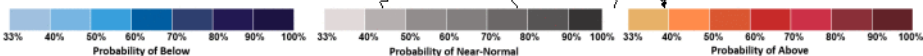
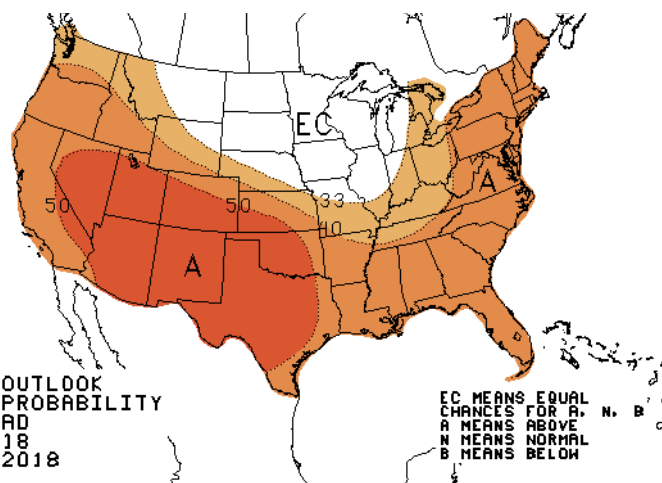
Seasonal Outlook for Feb-Mar-Apr

Climate Prediction Center



Seasonal Outlook for May-Jun-Jul

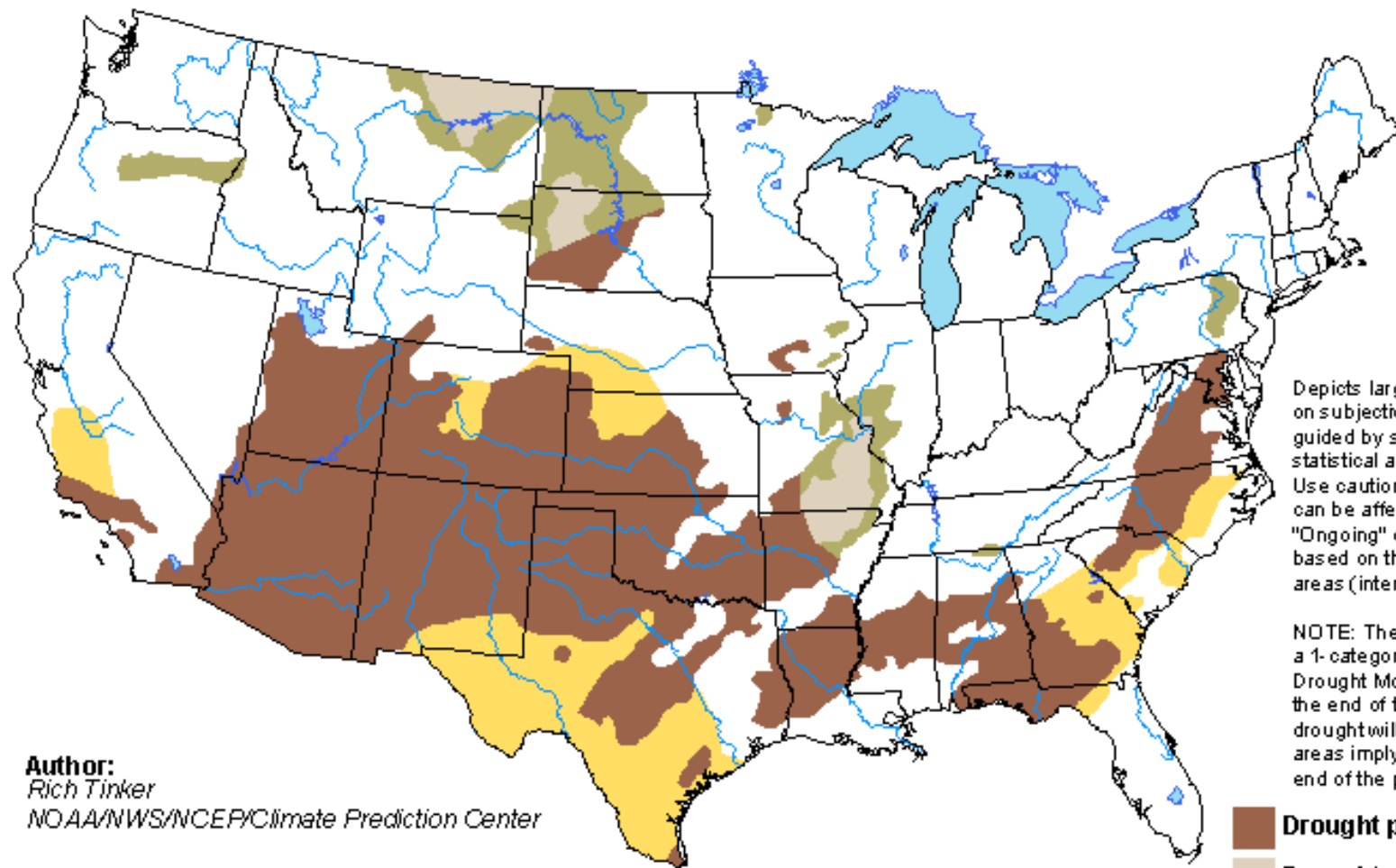
Climate Prediction Center



U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for January 18 - April 30, 2018
Released January 18, 2018

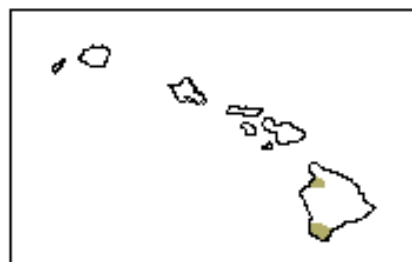
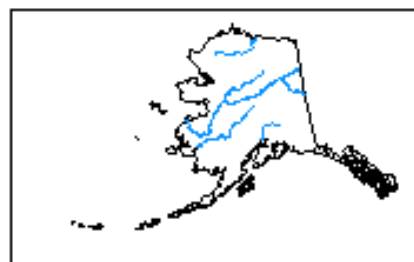


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to 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).

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

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



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

Summary

- It has been a cold winter, but conditions 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.
- 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

- Stuart Foster: stuart.foster@wku.edu, 270-745-5983
- Brian Fuchs: bfuchs2@unl.edu, 402-472-6775
- Jim Angel: jimangel@Illinois.edu, 217-333-0729
- 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!

