Great Plains and Midwest Climate Outlook
February 18, 2016

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General Information

- **Providing climate services to the Central Region**
  - Collaboration with Dennis Todey (South Dakota State Climatologist), Jim Angel (Illinois State Climatologist), Doug Kluck and John Eise (NOAA), State Climatologists and the Midwest Regional Climate Center, High Plains Regional Climate Center, NOAAs Climate Prediction Center, Iowa State University, National Drought Mitigation Center

- **Next Climate/Drought Outlook Webinar**
  - March 17, 2016, Dennis Todey (SDSU)

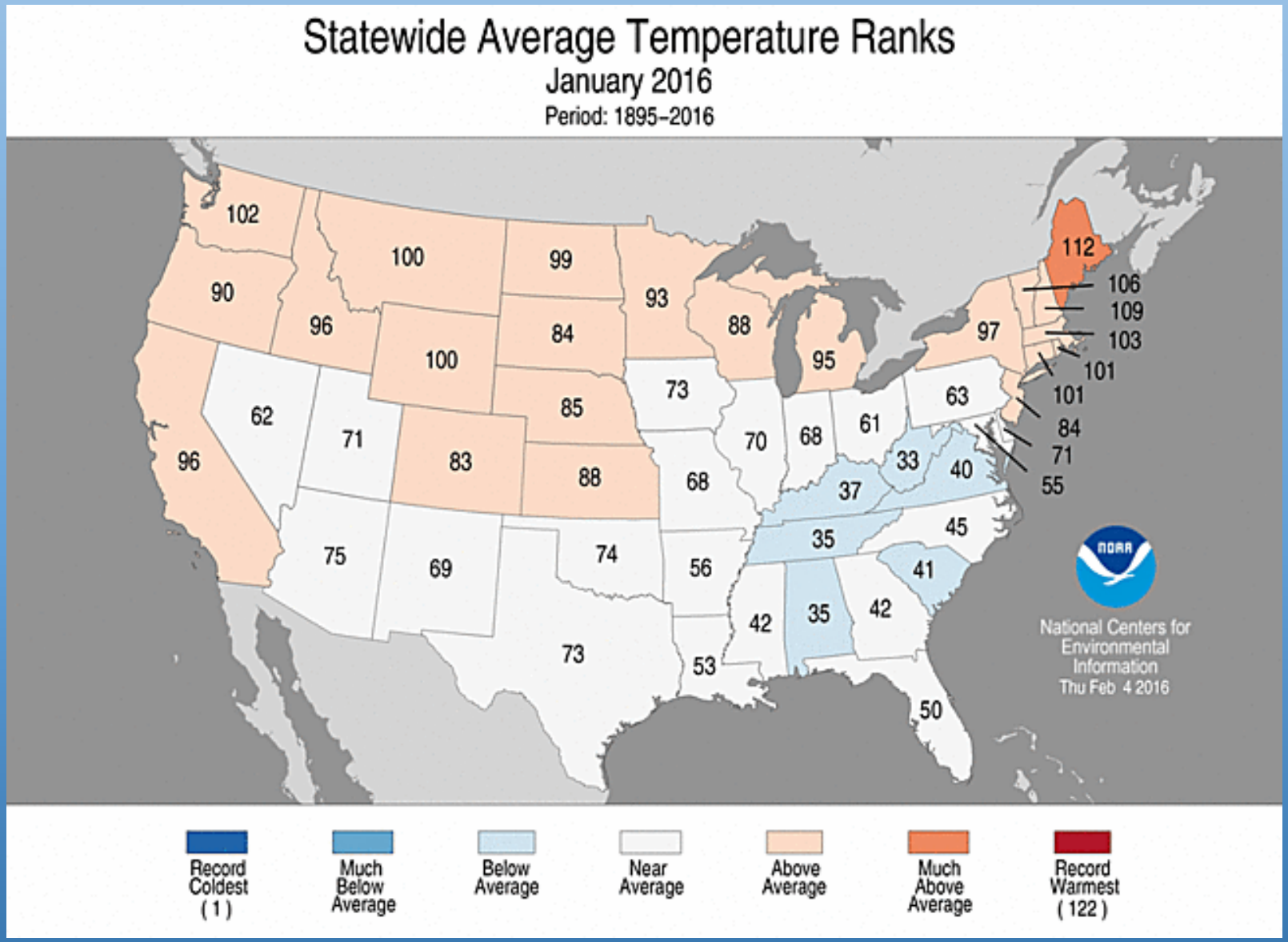
- **Access to Future Climate Webinars and Information**
- http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars

- **Past recorded presentations and slides can be found here:**
- *http://mrcc.isws.illinois.edu/webinars.htm*
- *http://www.hprcc.unl.edu/webinars.php*

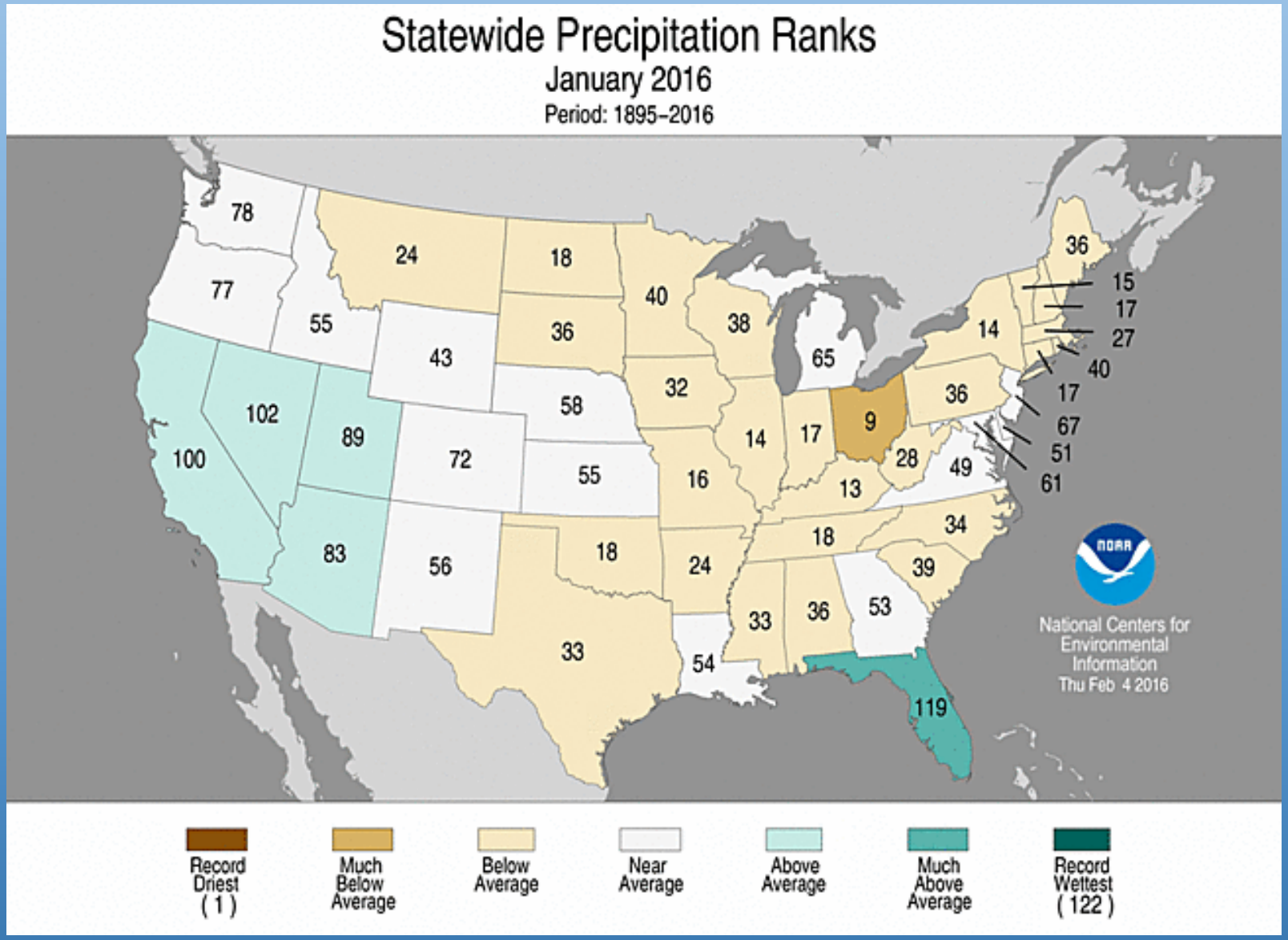
- **There will be time for questions at the end**

Agenda

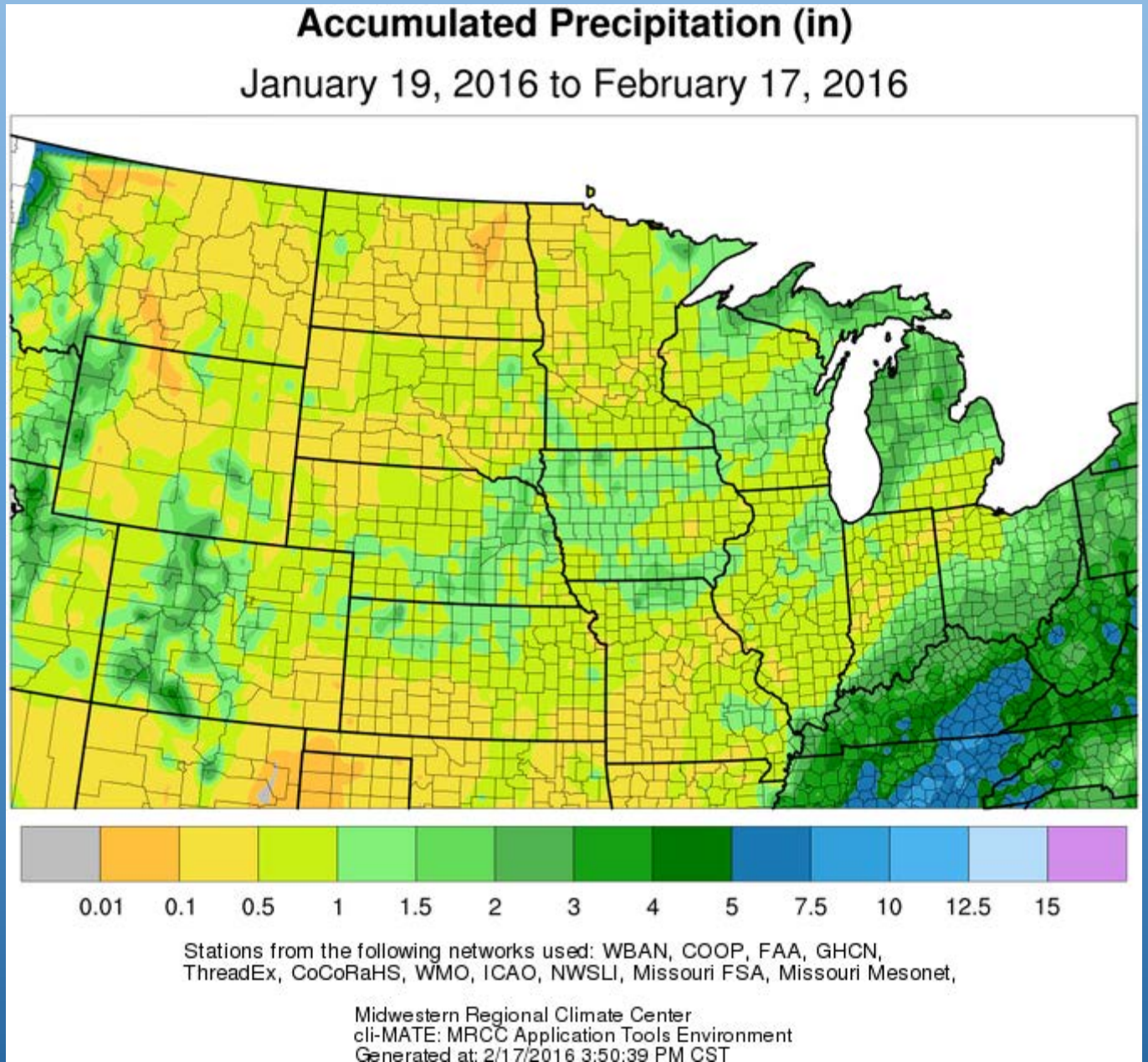
- **Current conditions**
- **Impacts**
- **Outlooks**



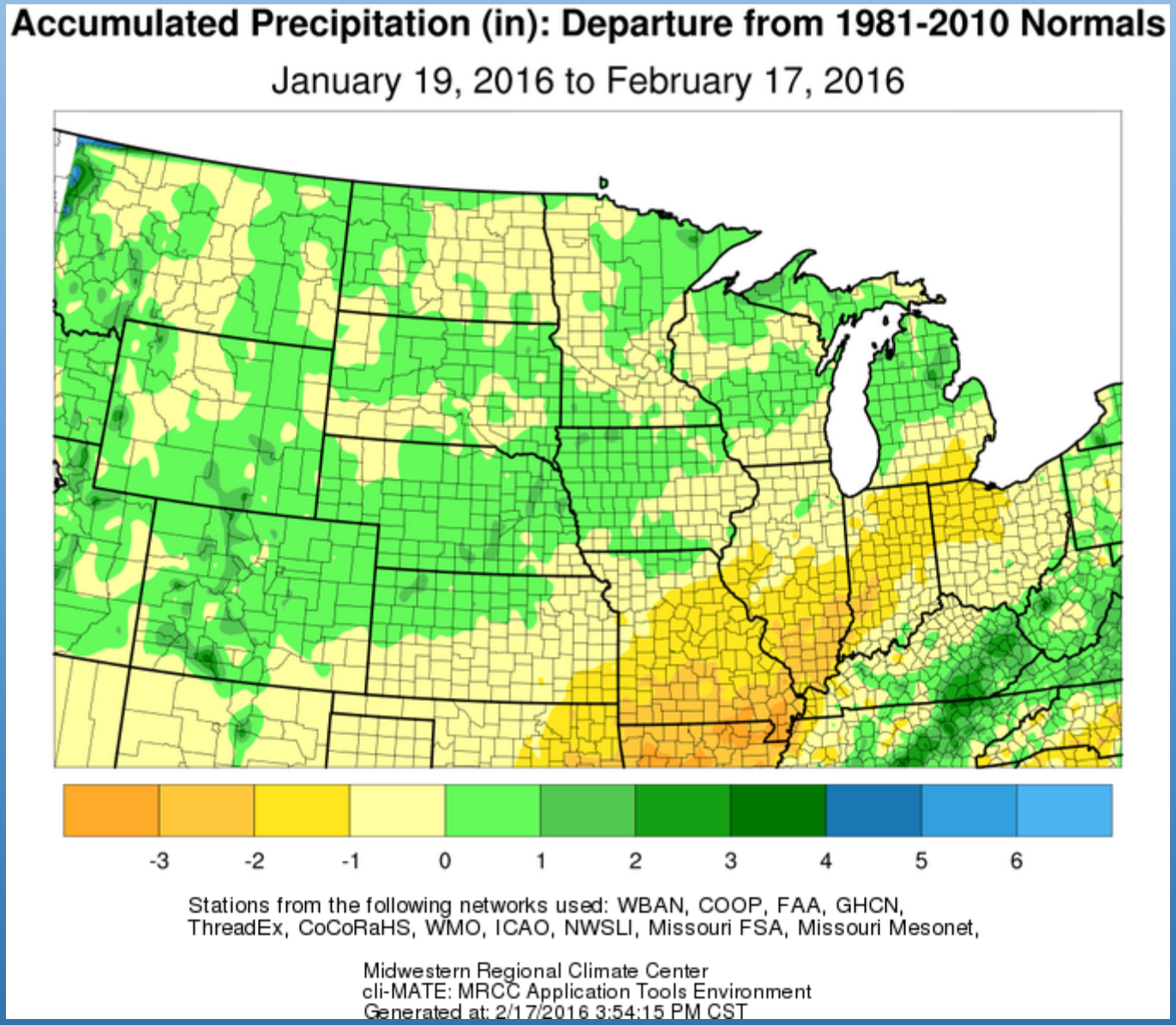
http://www.ncdc.noaa.gov/sotc/


Statewide Precipitation Ranks
January 2016
Period: 1895–2016
78
77
24
18
40
36
55
43
38
65
14
36
15
17
27
40
17
67
51
61
102
89
100
72
58
55
32
14
17
9
28
49
13
16
18
34
39
83
56
18
24
33
36
53
33
54
119
National Centers for Environmental Information
Thu Feb 4 2016
Record Driest (1)
Much Below Average
Below Average
Near Average
Above Average
Much Above Average
Record Wettest (122)

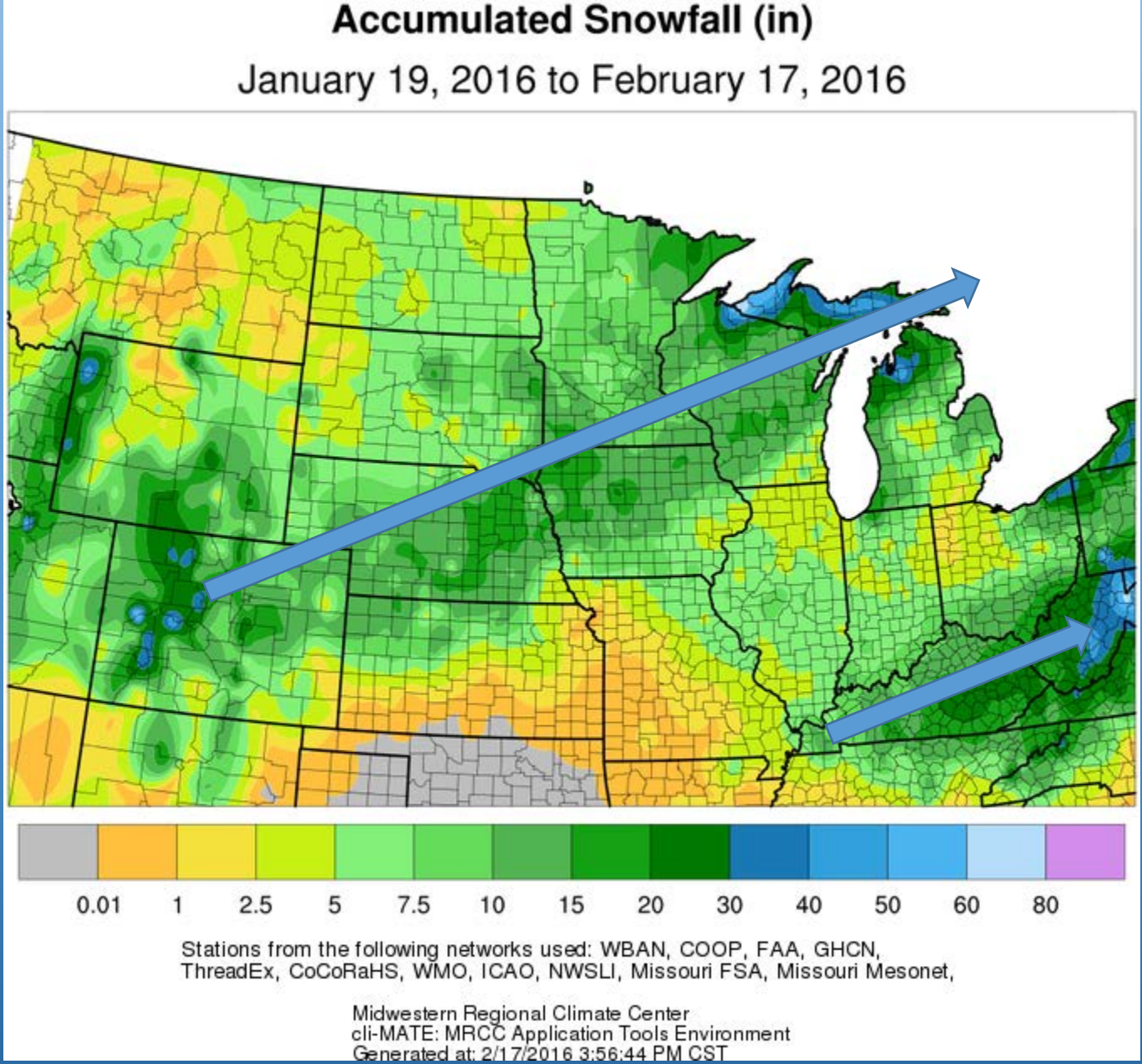
30 Day Precipitation



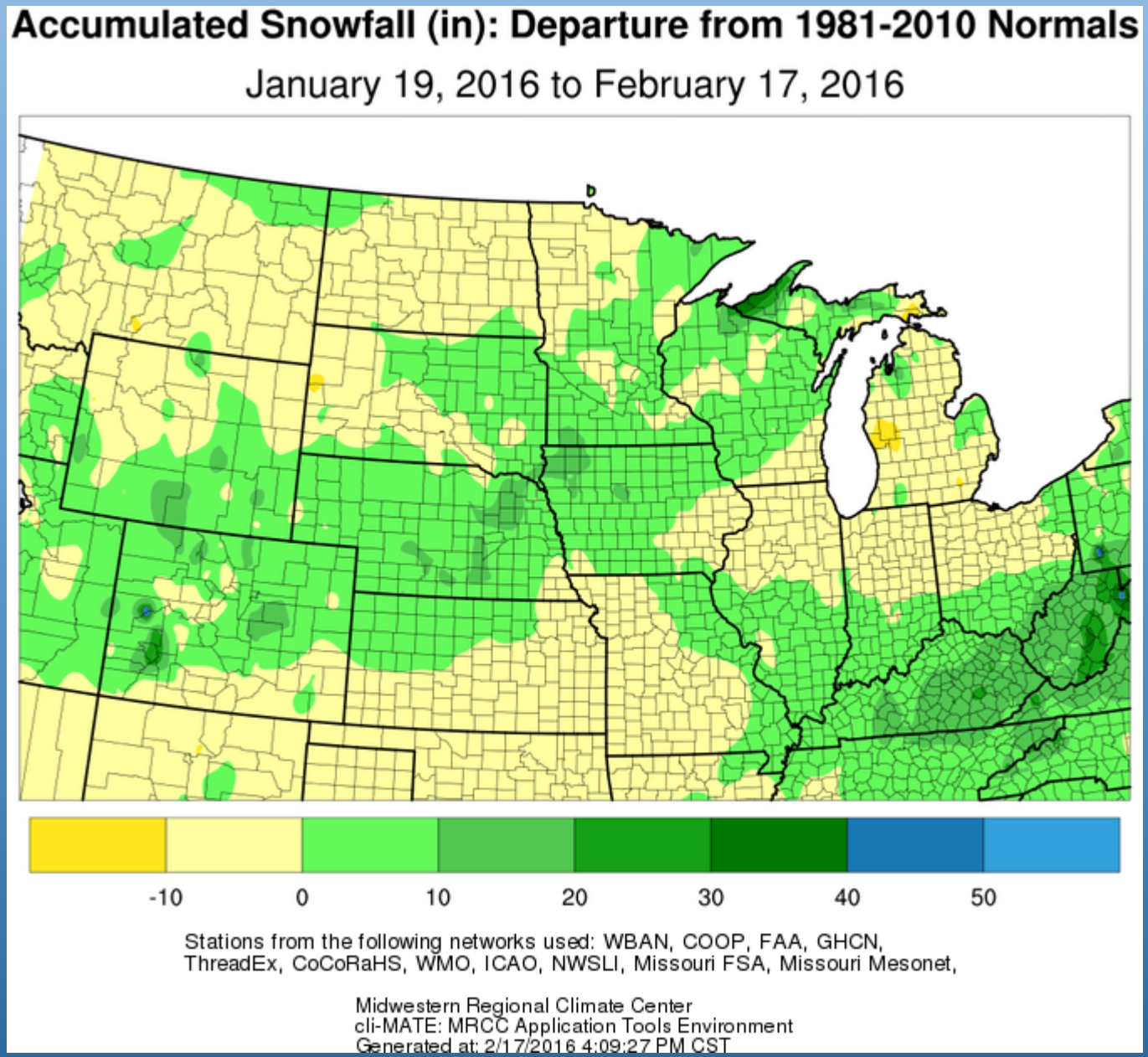
30-Day Precipitation Departure



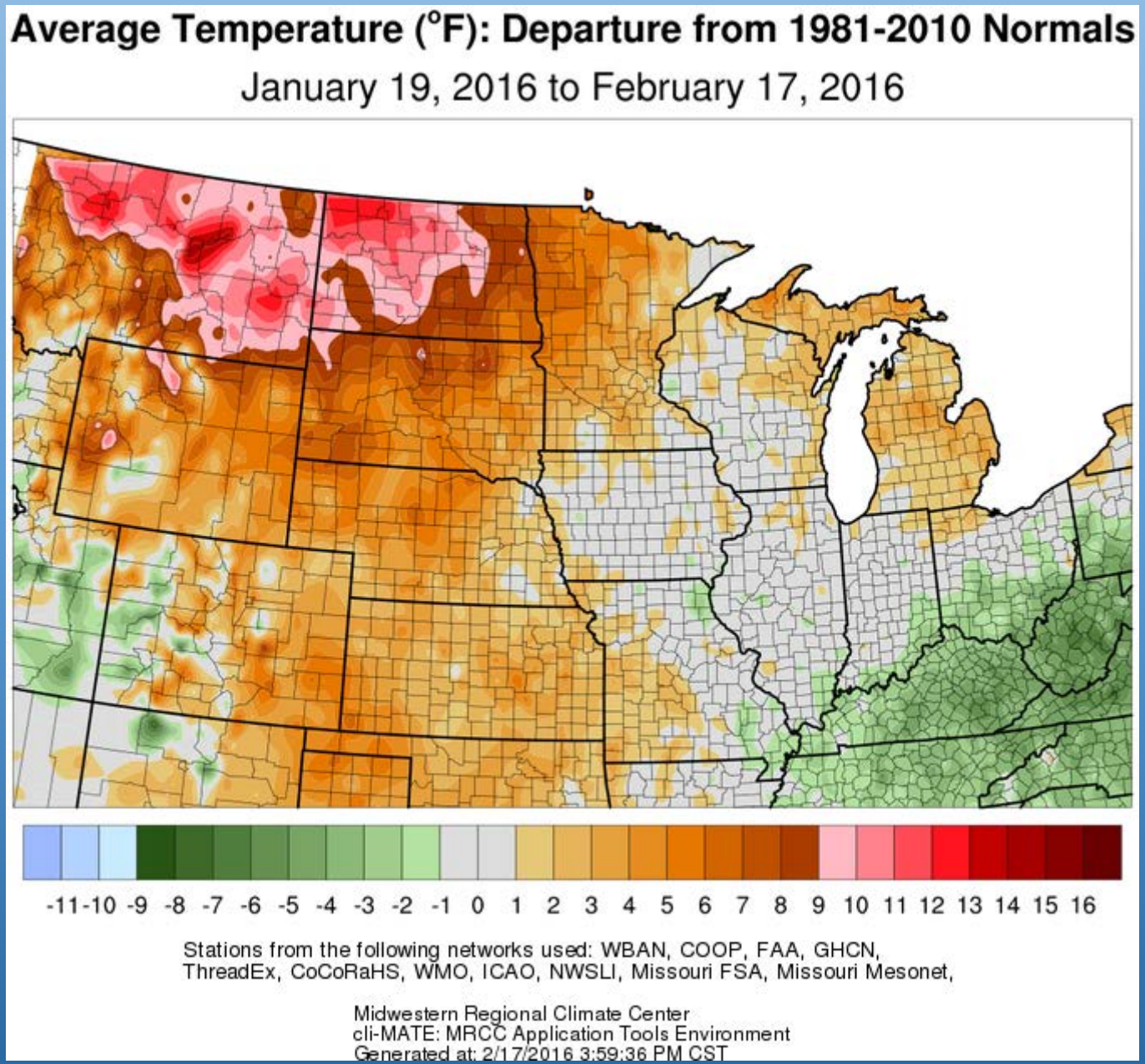
30-Day Snowfall



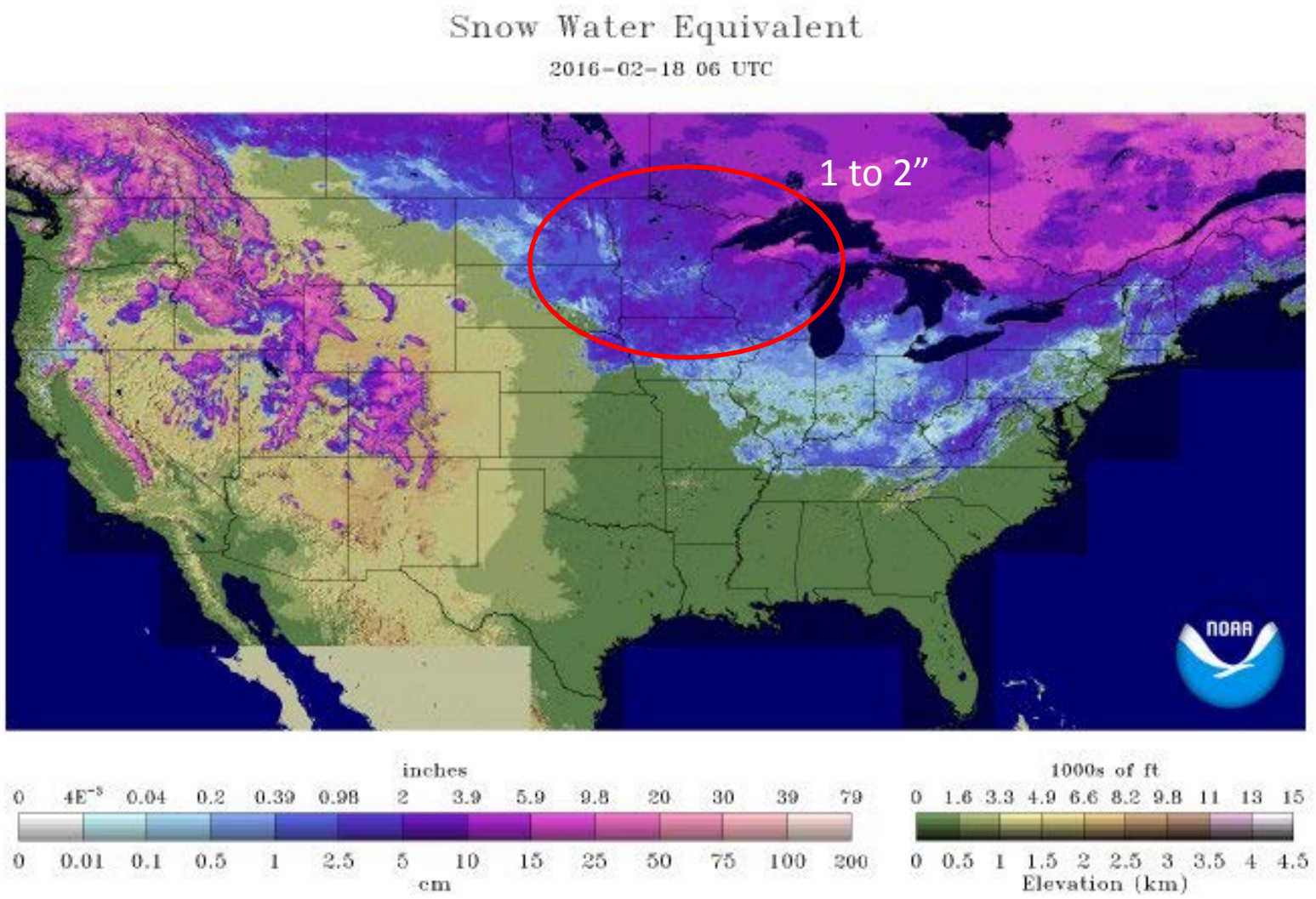
30-Day Snowfall Departure



30 Day Temperature Departure



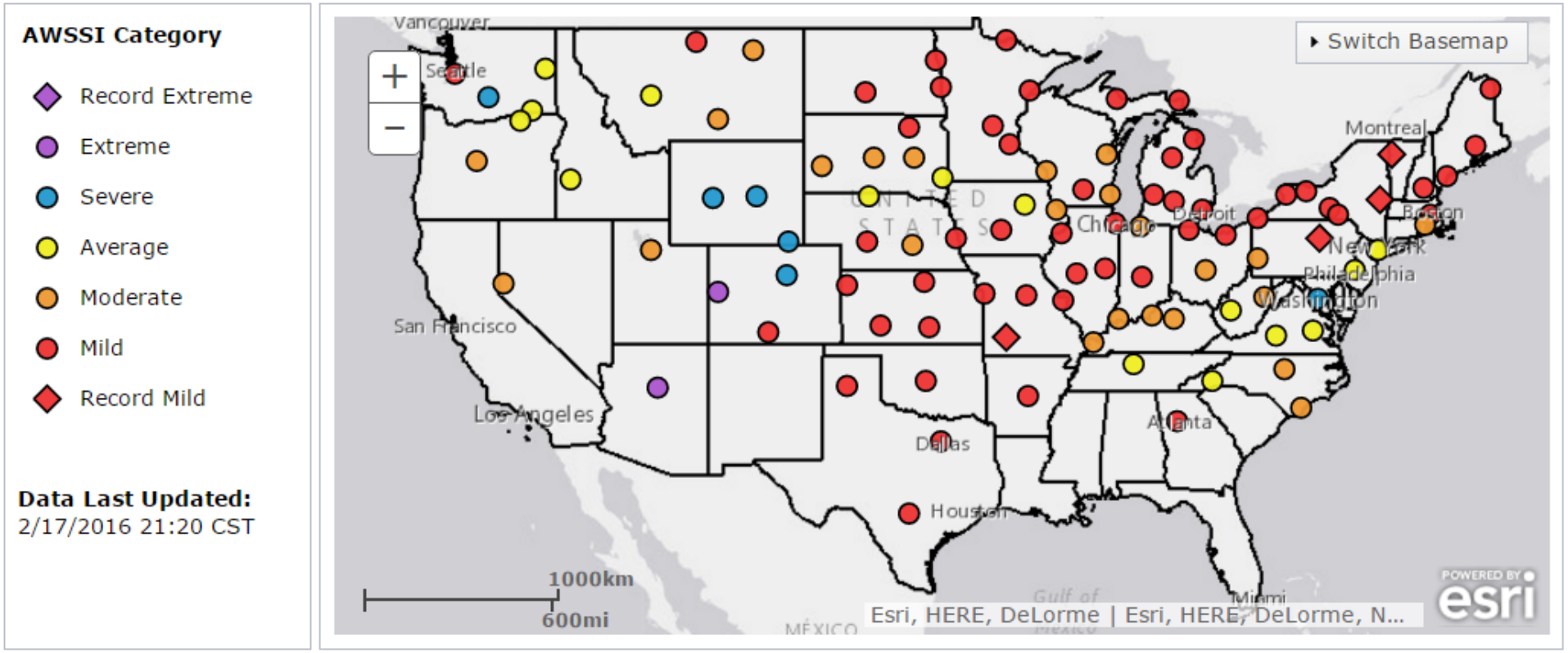
Water Content in SnowPack



National Snow Analysis 2015-2016

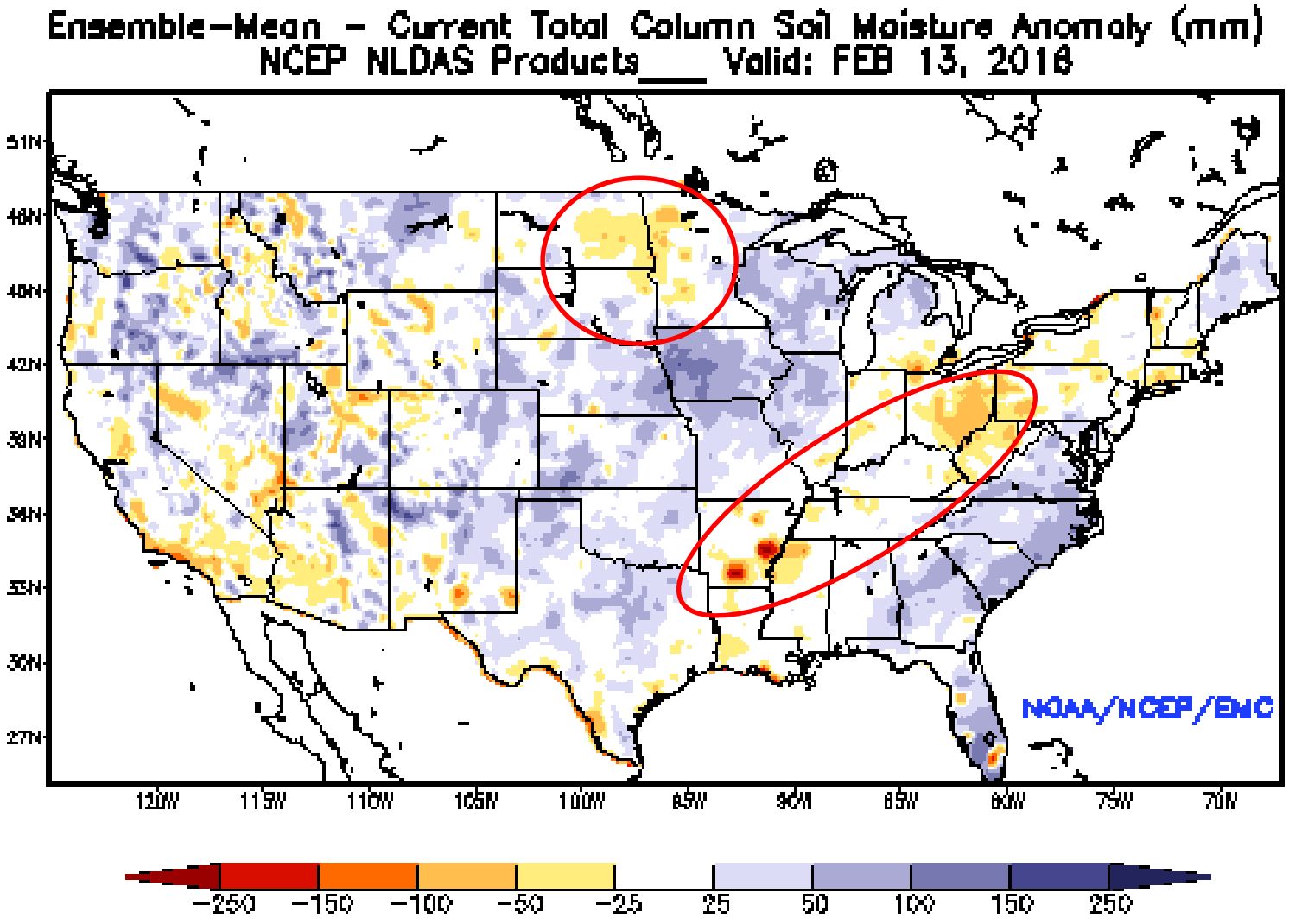
NWC | NATIONAL WATER CENTER

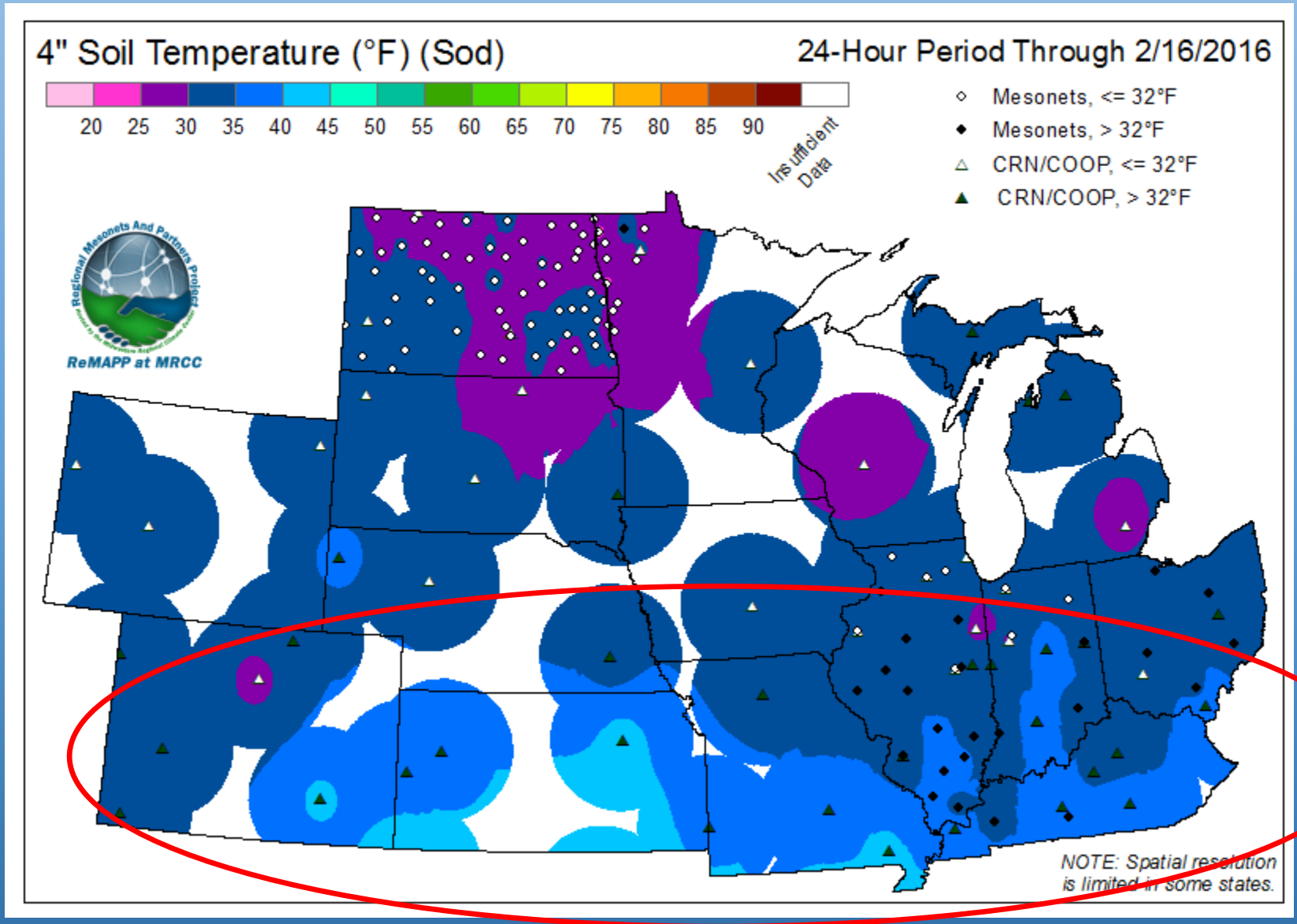
AWSSI – Accumulated Winter Season Severity Index



http://mrcc.isws.illinois.edu/ and look under the “Research” tab

Modeled Soil Moisture - NLDAS





http://mrcc.isws.illinois.edu/cliwatch/mesonets/soilTemp.html

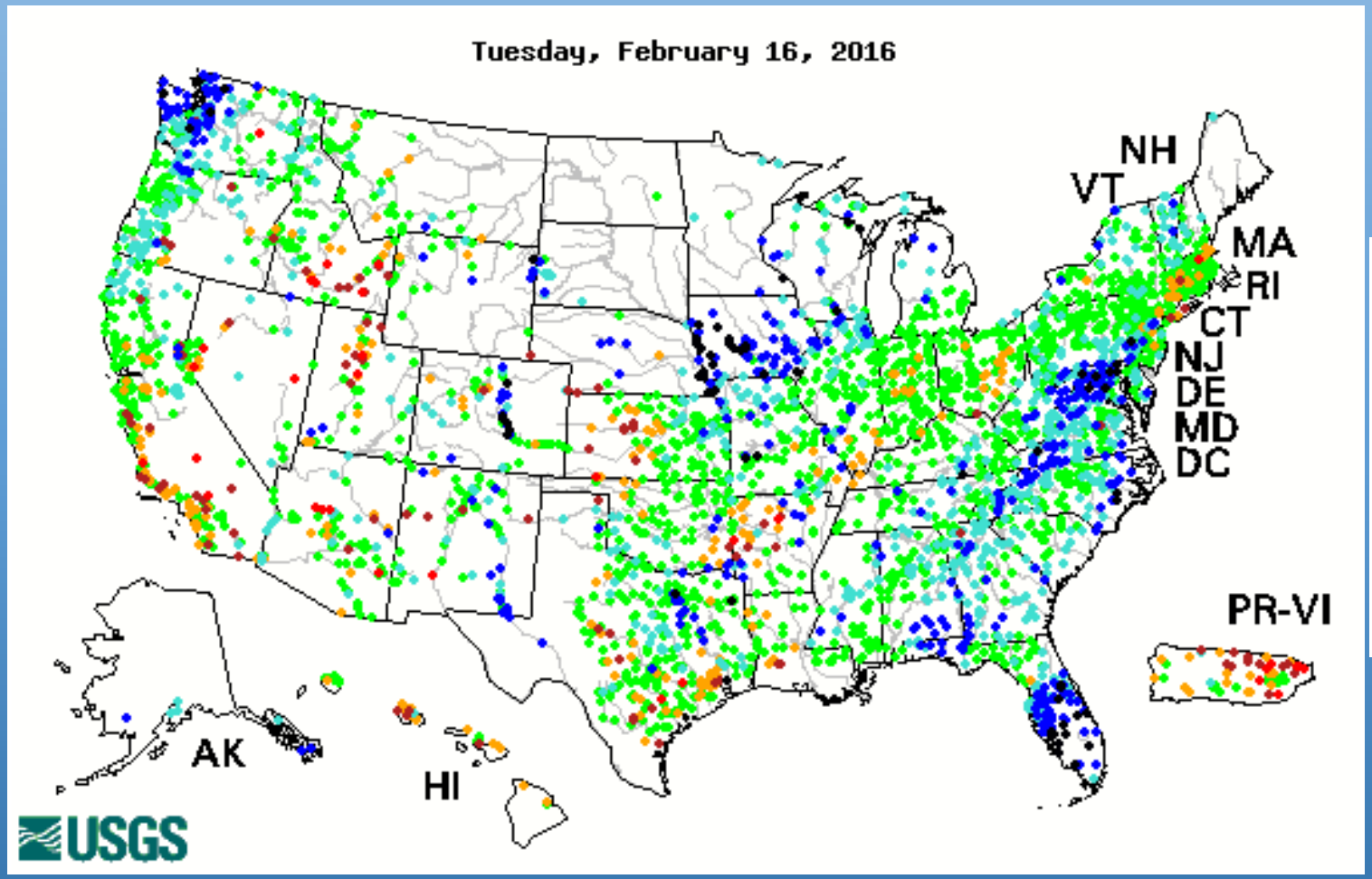
Soil Moisture - Illinois

	Top Soil	Top Soil	Sub Soil	Sub Soil
	Adequate	Surplus	Adequate	Surplus
December 31	43%	57%	59%	40%
January 31	74%	26%	81%	18%

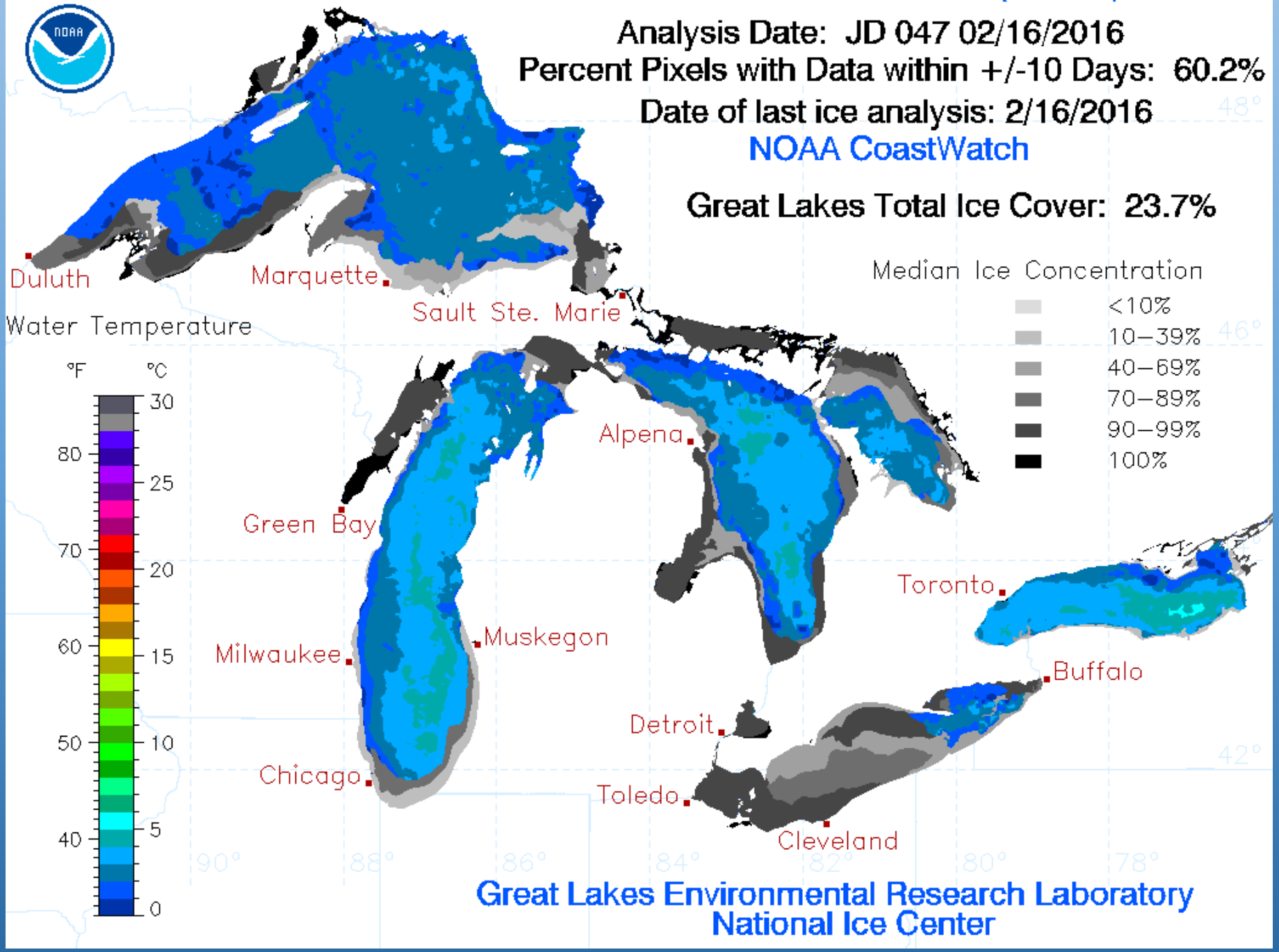
A shift in soil moisture from “surplus” or saturated, to “adequate” or field capacity

USDA NASS reports for Illinois

Stream Flow - USGS



http://waterdata.usgs.gov/nwis/rt


GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)
Analysis Date: JD 047 02/16/2016
Percent Pixels with Data within +/-10 Days: 60.2%
Date of last ice analysis: 2/16/2016
NOAA CoastWatch
Great Lakes Total Ice Cover: 23.7%
Median Ice Concentration
<10%
10–39%
40–69%
70–89%
90–99%
100%
Water Temperature
°F
°C
80
70
60
50
40
30
25
20
15
10
5
0
Duluth
Marquette
Sault Ste. Marie
Alpena
Green Bay
Milwaukee
Muskegon
Chicago
Toronto
Buffalo
Detroit
Toledo
Cleveland
48°
46°
42°
90°
88°
86°
84°
82°
80°
78°
Great Lakes Environmental Research Laboratory
National Ice Center

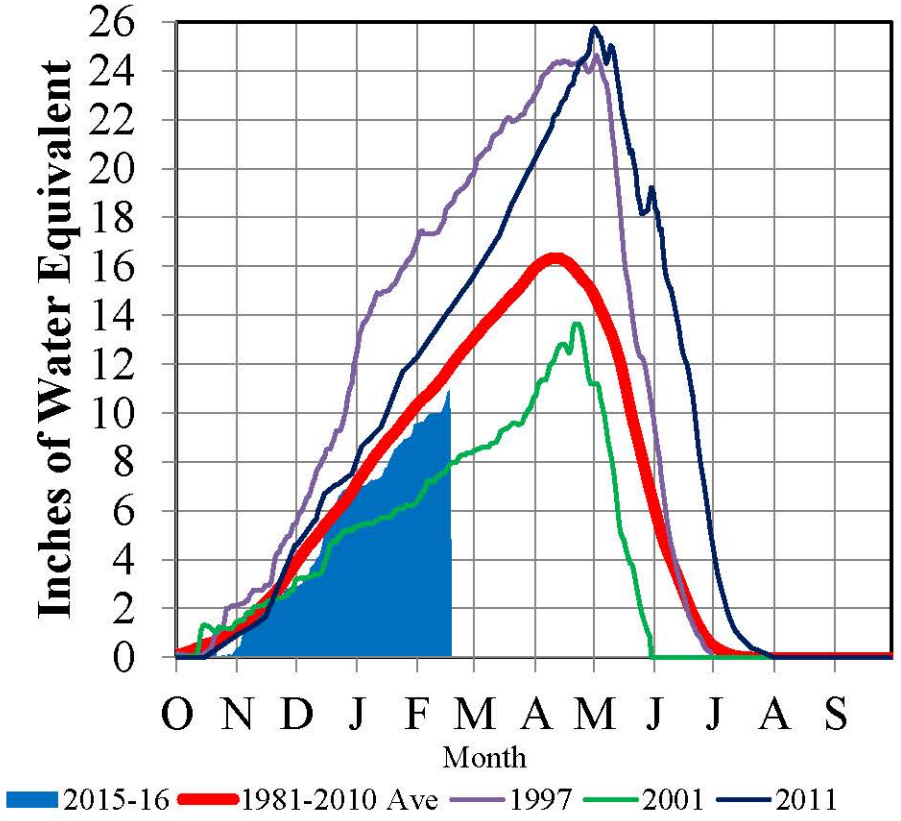
Great Lakes Water Levels

Lake	Departure from long-term average for February
Lake Superior	+1 inches
Lakes Michigan and Huron	+1 inches
Lake St. Clair	+1 inches
Lake Erie	+1 inches
Lake Ontario	+1 inches

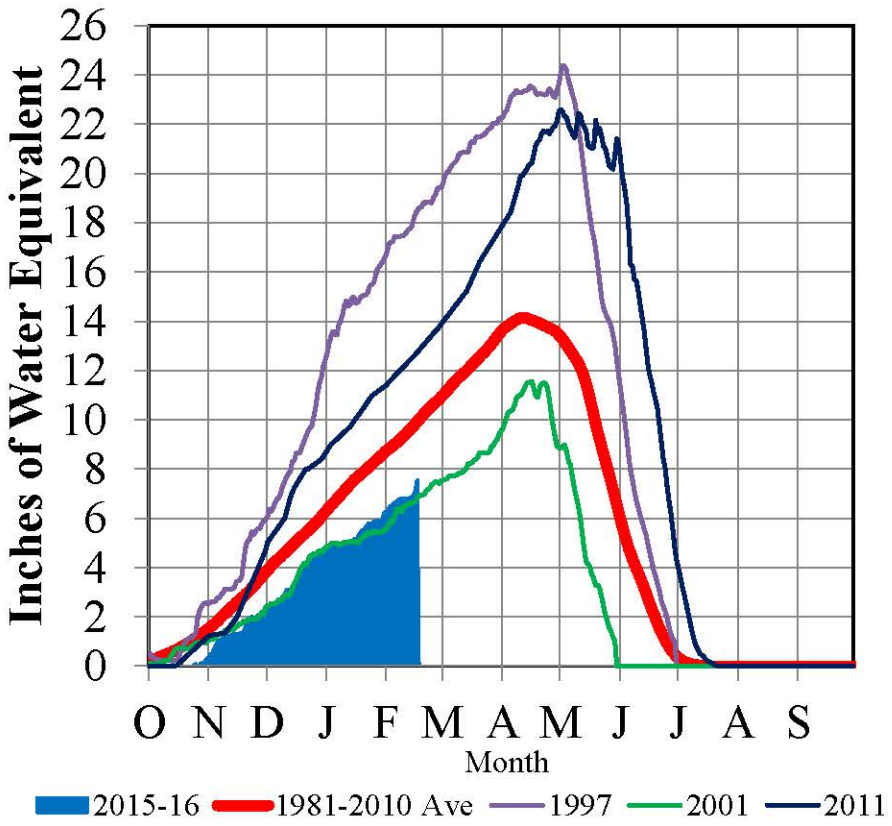
Missouri River Basin – Mountain Snowpack Water Content
2015-2016 with comparison plots from 1997*, 2001*, and 2011

February 17, 2016

Total above Fort Peck



Total Fort Peck to Garrison

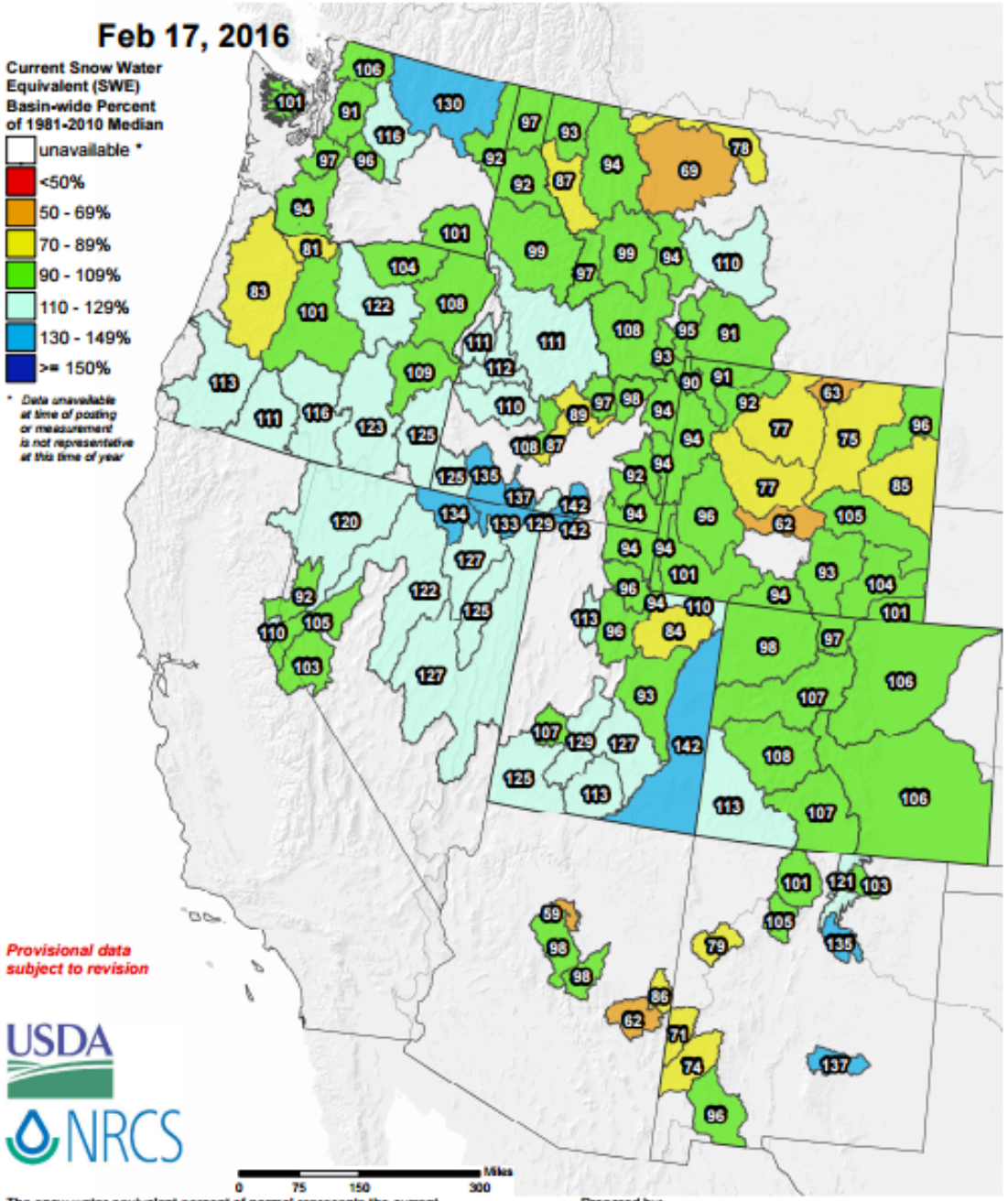


The Missouri River Basin mountain snowpack normally peaks near April 15. By February 15, normally 70% of the peak has accumulated. On February 17, 2016 the mountain snowpack Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach is currently 10.9", 93% of average. The mountain snowpack SWE in the "Total Fort Peck to Garrison" reach is currently 7.6", 76% of average.

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

Provisional data. Subject to revision.

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



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin

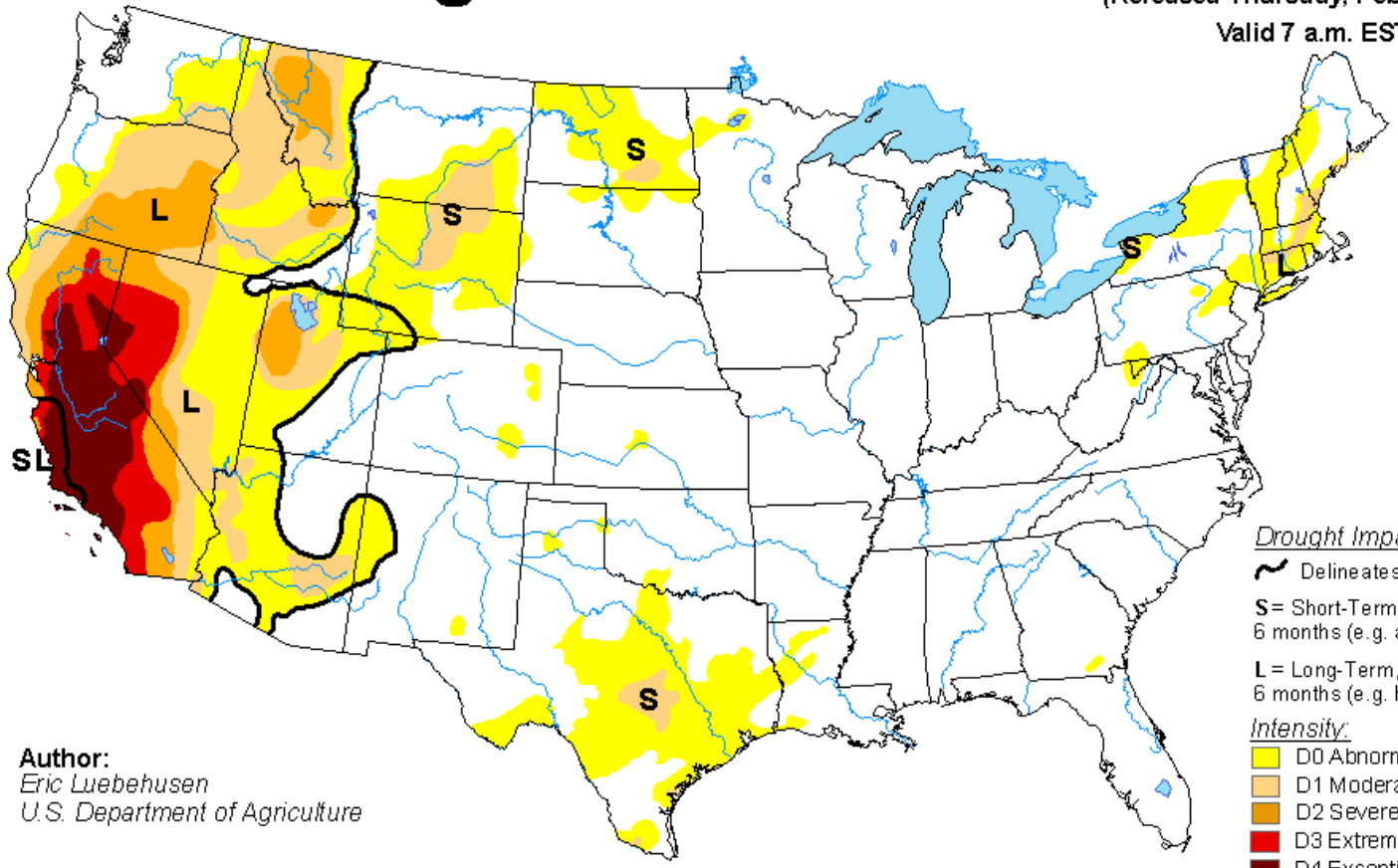
Prepared by:
USDA/NRCS National Water and Climate Center

U.S. Drought Monitor

February 16, 2016

(Released Thursday, Feb. 18, 2016)

Valid 7 a.m. EST



Author:
Eric Luebehusen
U.S. Department of Agriculture

Drought Impact Types:

Delineates dominant impacts

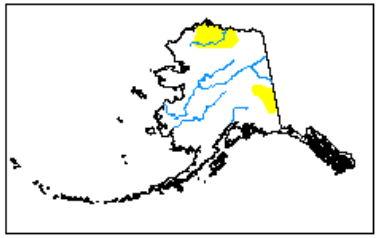
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

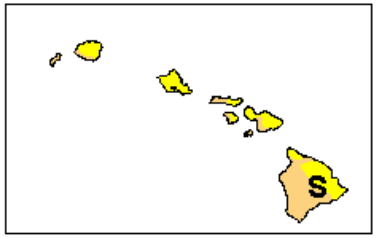
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

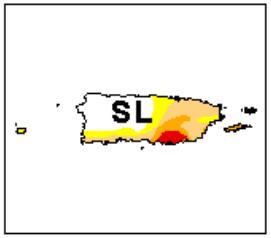
Intensity:

- 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.







USDA

National Drought Mitigation Center

http://droughtmonitor.unl.edu/

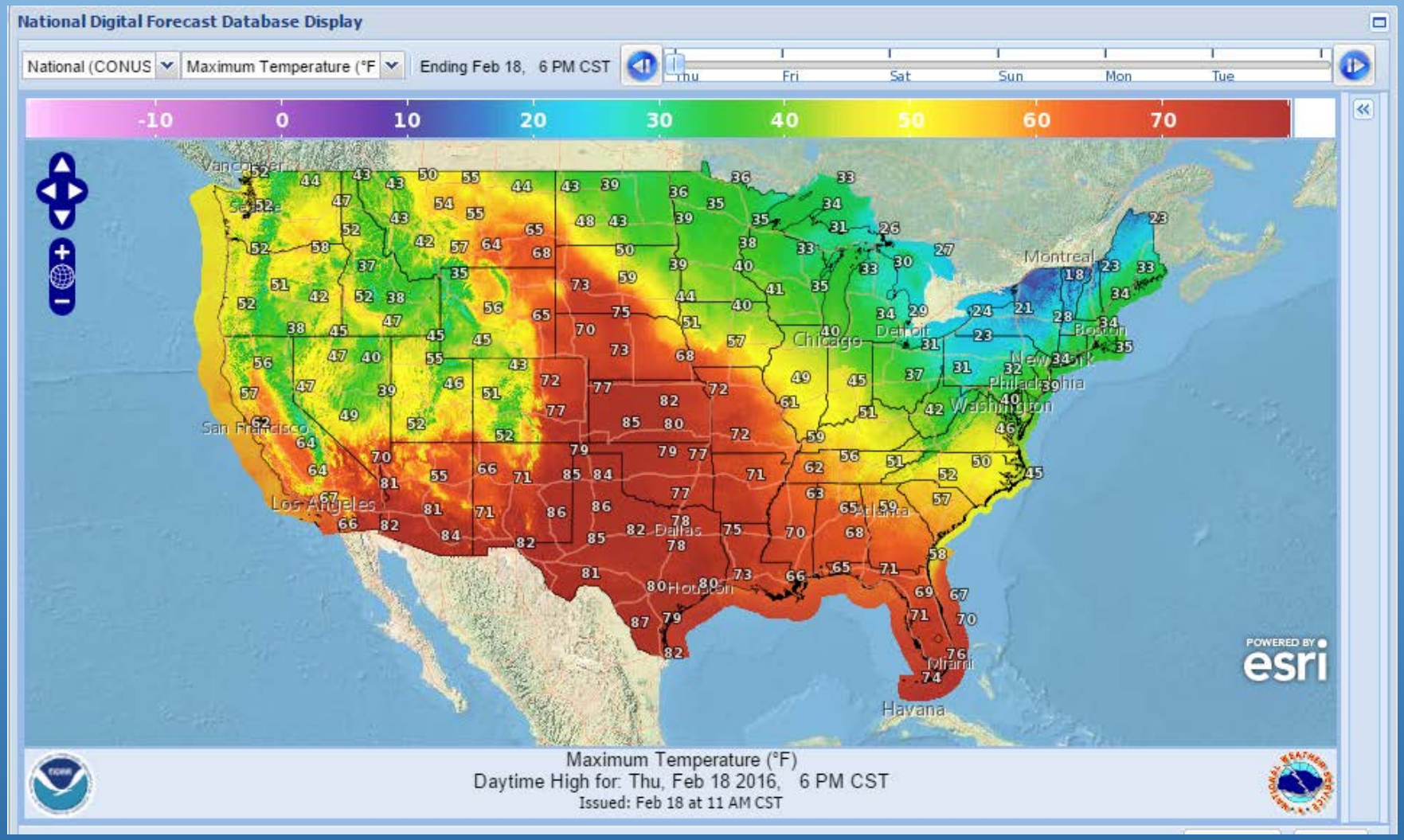
Impacts

- Colorado
  - Warm in the east, cold in the west
  - Ft. Collins received their 4th largest 2-day snow on February 1-2.
- North Dakota
  - Lack of snow in western ND, led to warmer temperatures
  - More snow in the east and colder temperatures
  - Increased risk of flooding along the Red River due to recent snow
- Iowa
  - Ground frost is at it's maximum for the season
  - Starting to see top thaw – with standing water and/or mud
- Minnesota
  - Streams and soil moisture high, frost depth about average
  - Snowdepth above-average in southern MN, below-average in central and north.

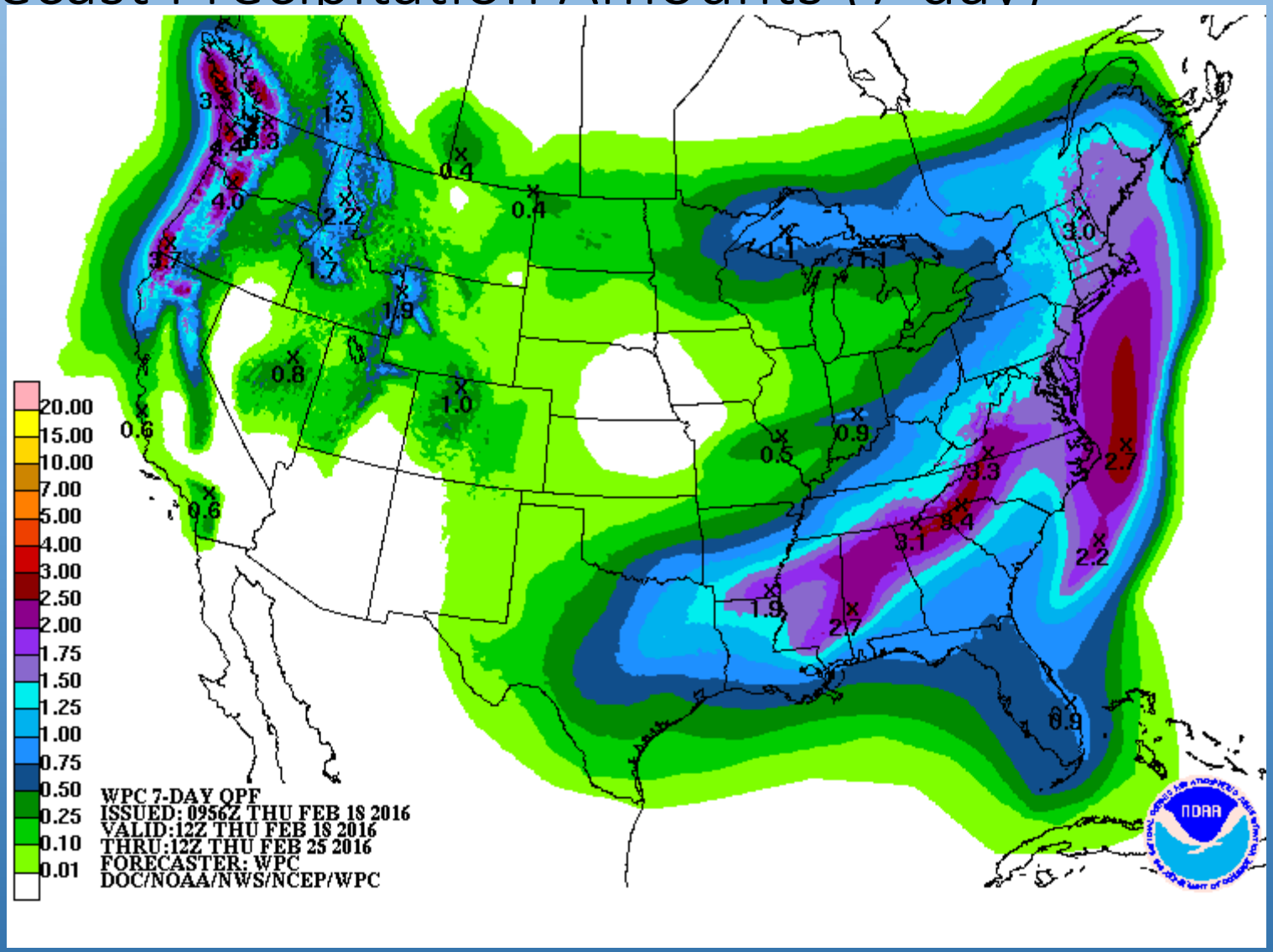
Climate Outlooks

- **7-day precipitation forecast**
- **6-10, 8-14 day outlook**
- **March**
- **Spring, Summer, Fall**
- **Drought Outlooks**
- **Flood Outlook**

Today

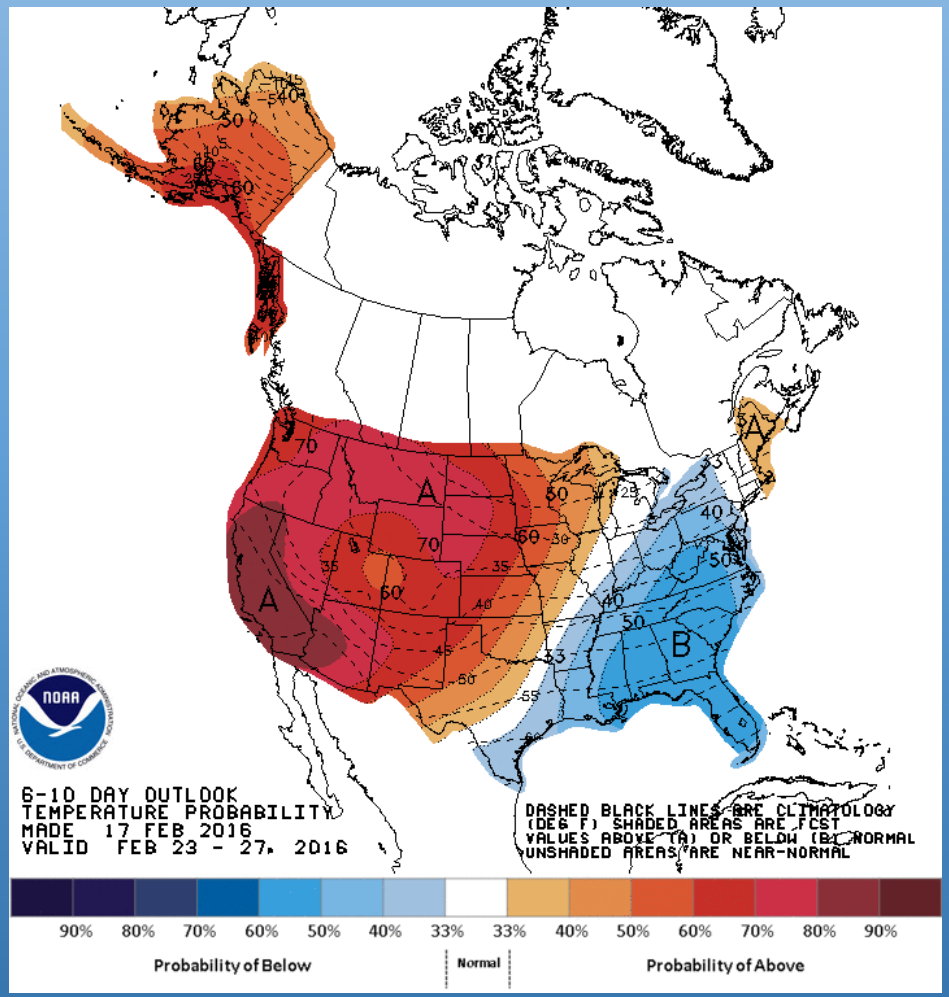

National Digital Forecast Database Display
National (CONUS
Maximum Temperature (°F
Ending Feb 18, 6 PM CST
Thu
Fri
Sat
Sun
Mon
Tue
-10
0
10
20
30
40
50
60
70
Montreal
Chicago
Detroit
Boston
New York
Philadelphia
Washington
San Francisco
Los Angeles
Dallas
Houston
Atlanta
Miami
Havana
POWERED BY esri
Maximum Temperature (°F)
Daytime High for: Thu, Feb 18 2016, 6 PM CST
Issued: Feb 18 at 11 AM CST

Forecast Precipitation Amounts (7 day)

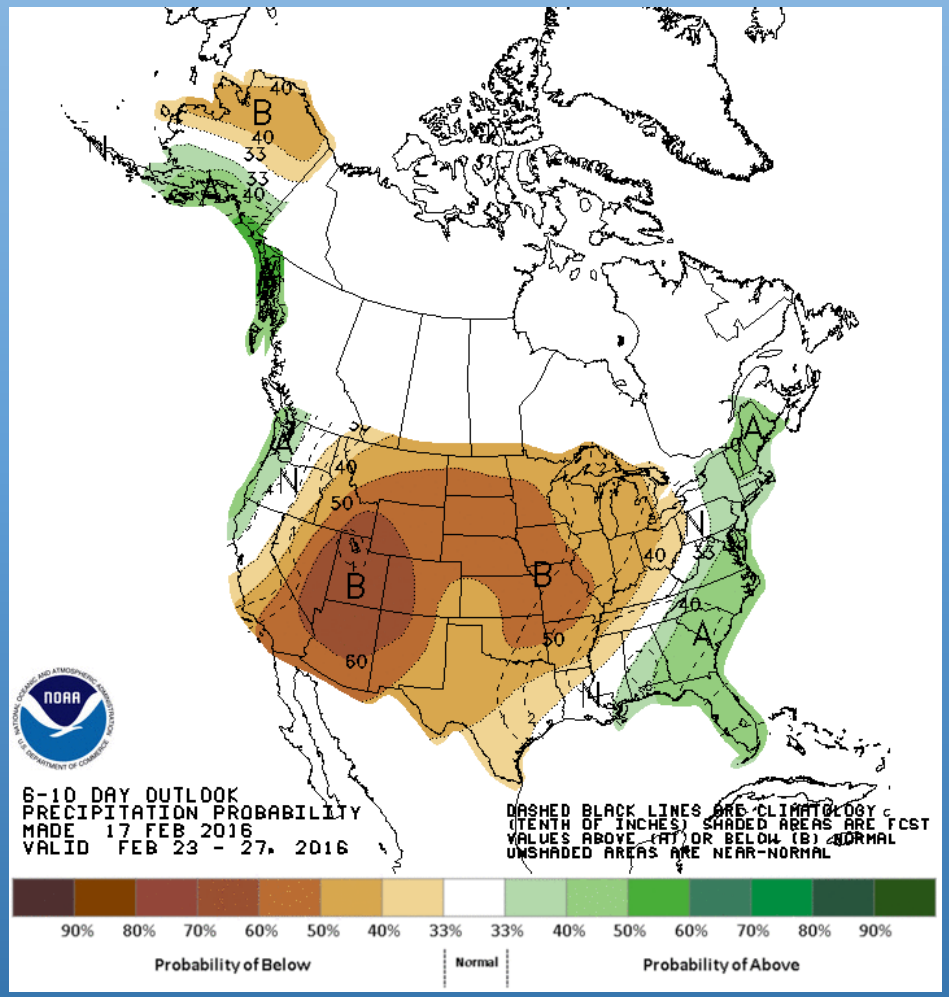


http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

6-10 Day Forecast Feb 23-27



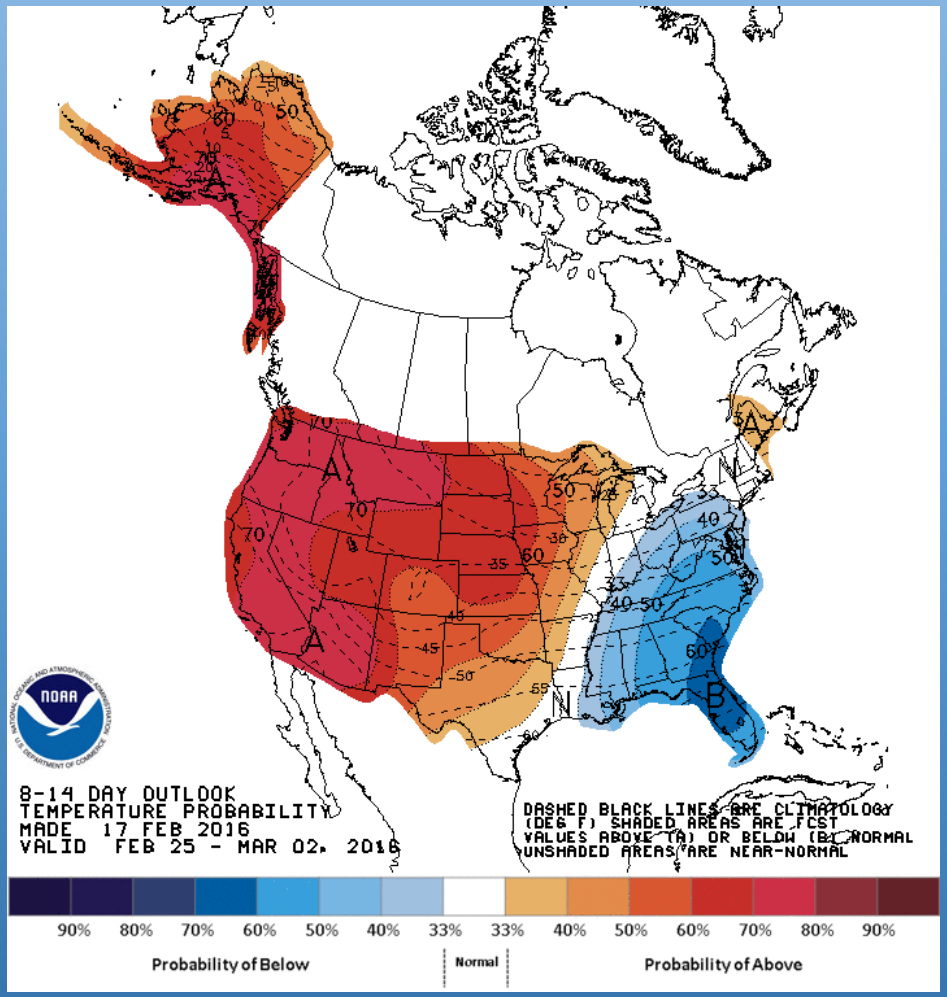
Temperature

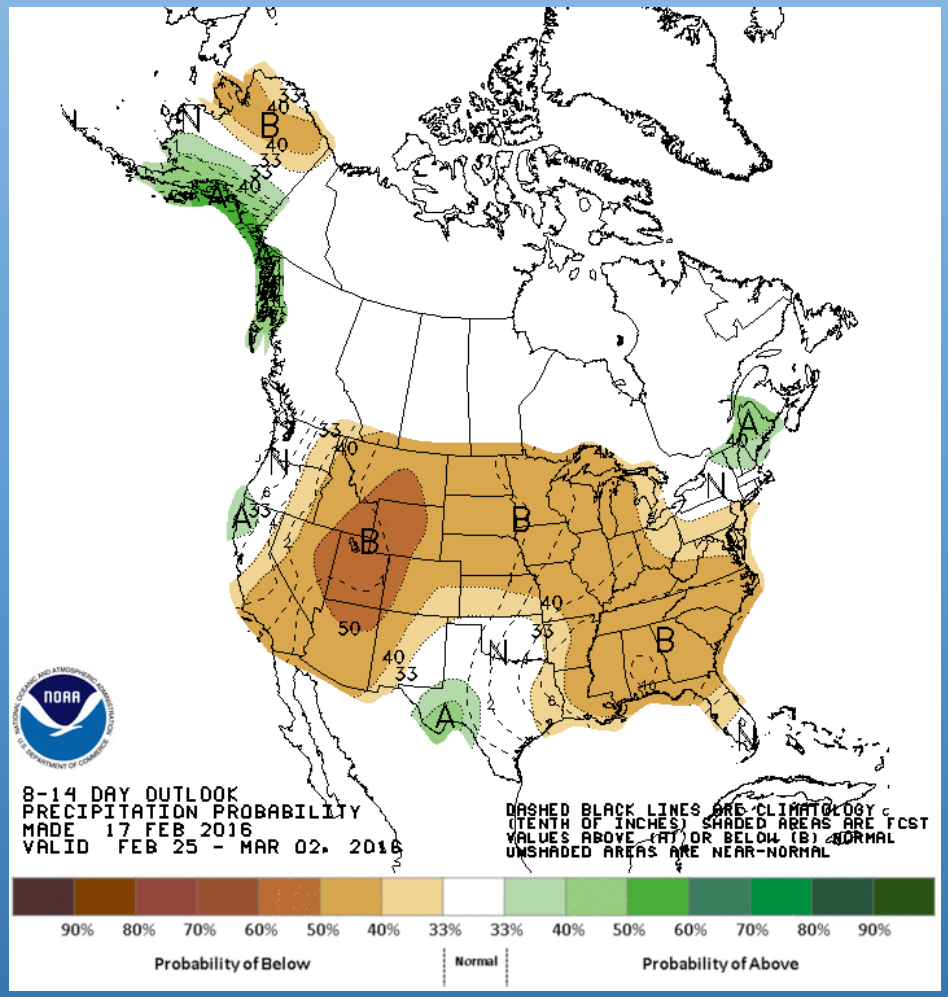


Precipitation

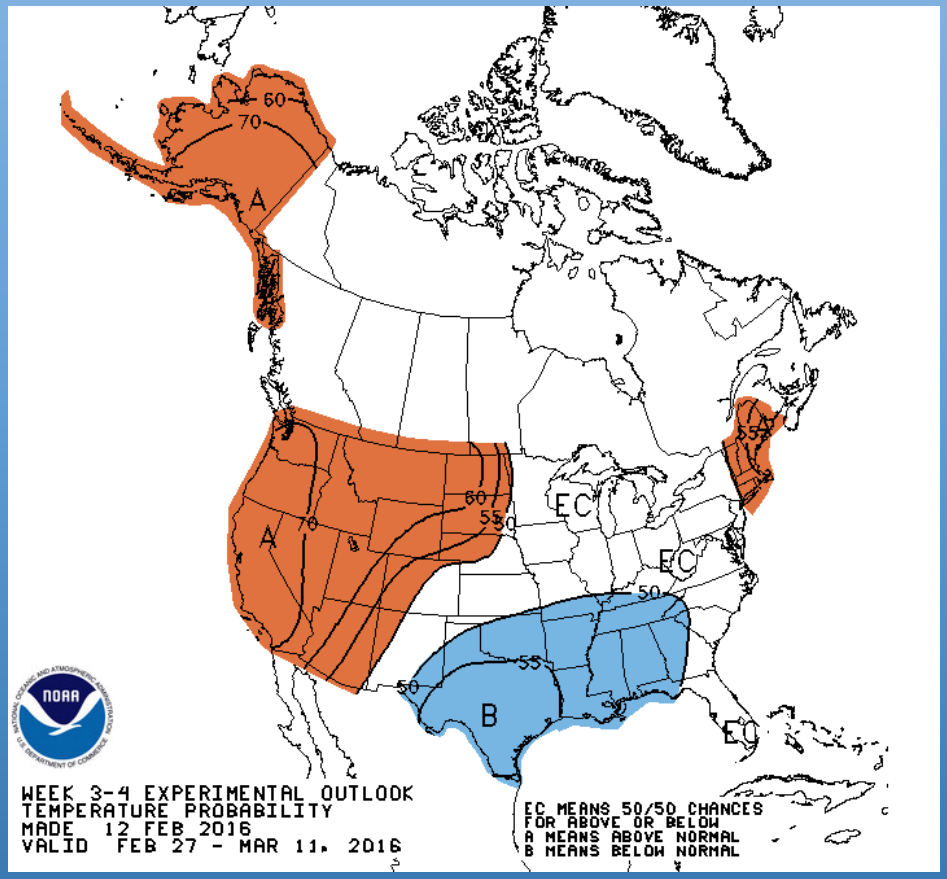
http://www.cpc.ncep.noaa.gov/

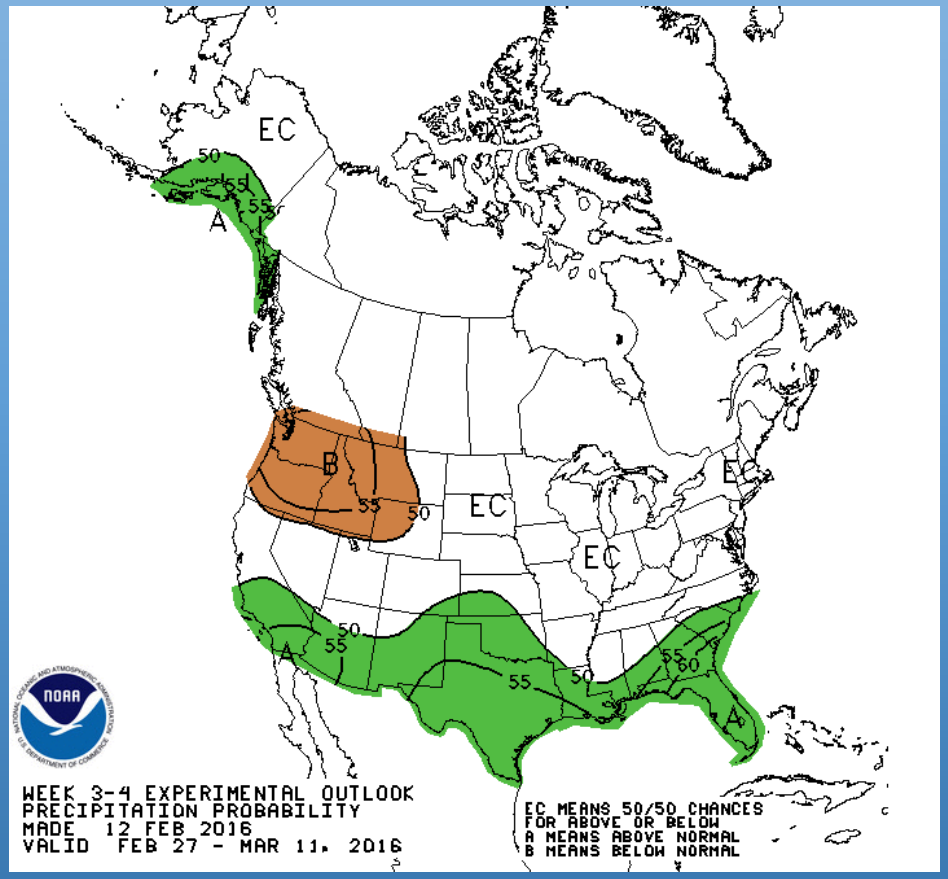
8-14 Day Forecast Feb 25 – Mar 02





Weeks 3 & 4 Forecast Feb 27 – Mar 11





El Niño

- **A transition to ENSO-neutral is likely during late Northern Hemisphere spring or early summer 2016, with a possible transition to La Niña conditions during the fall.**

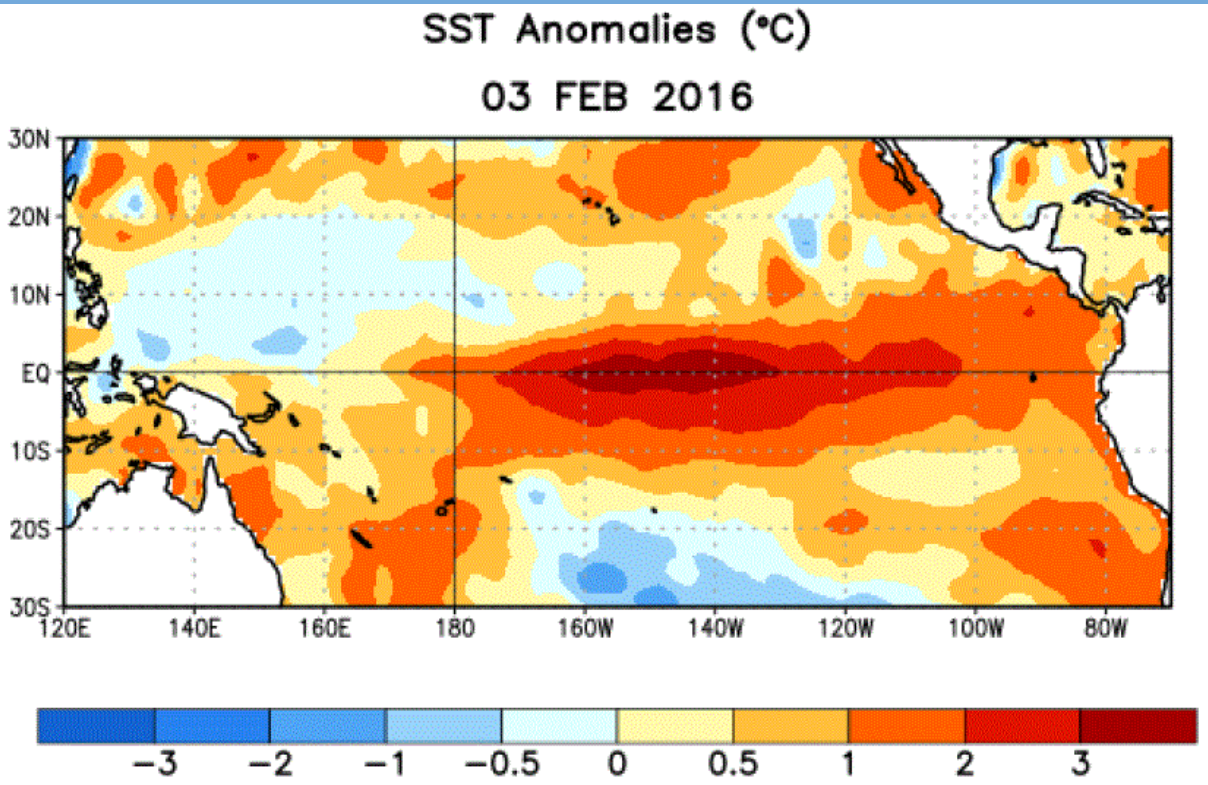
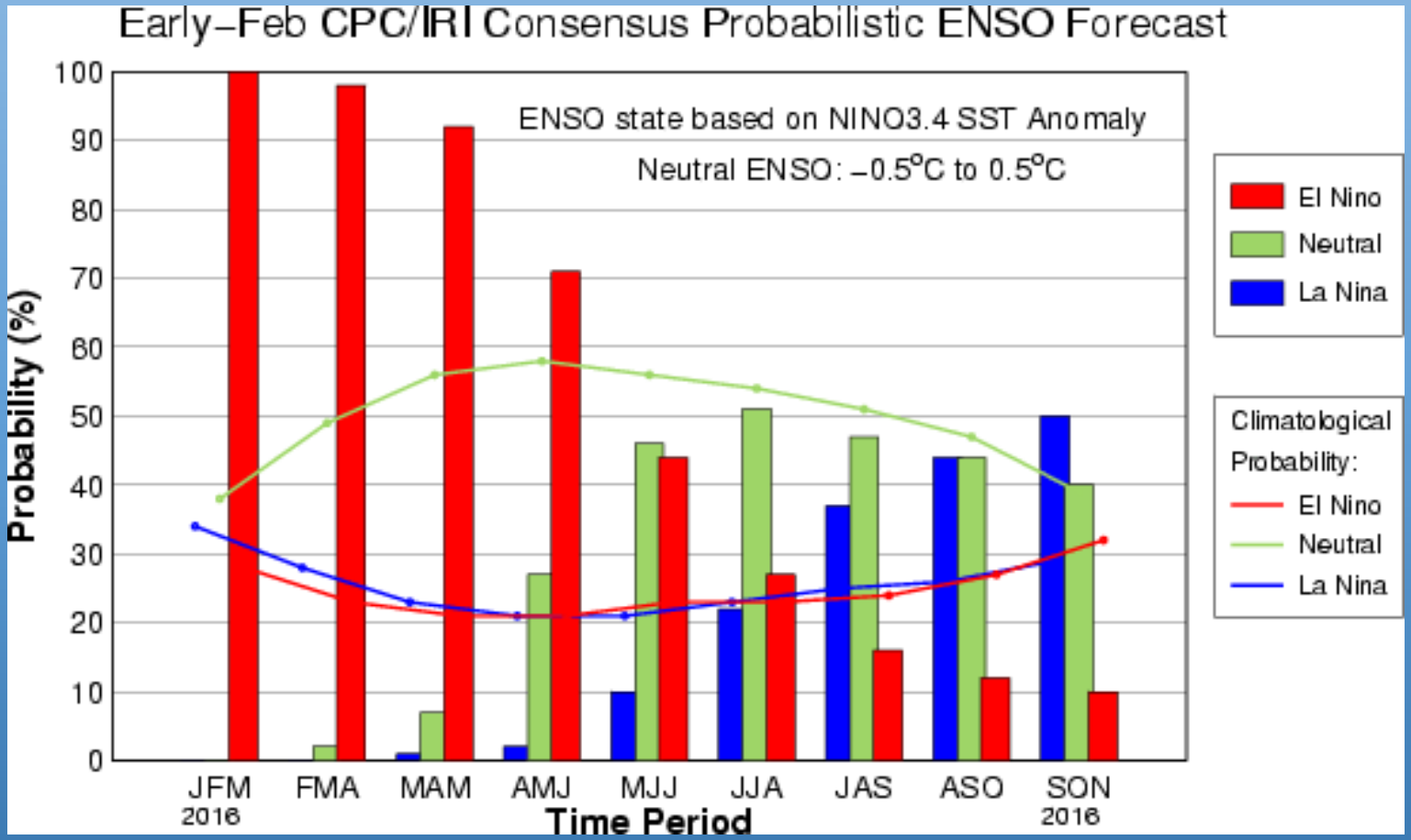
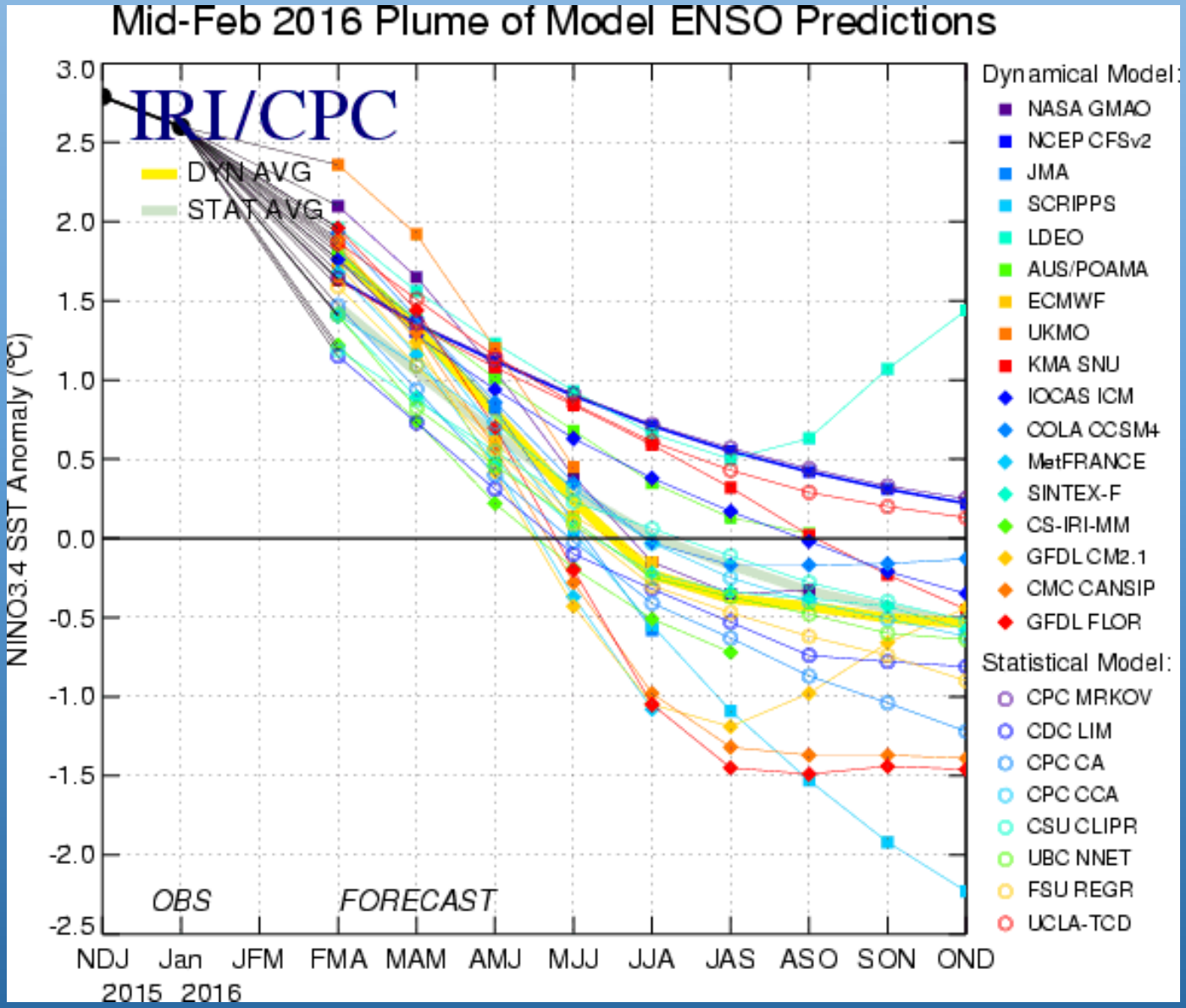


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 3 February 2016. Anomalies are computed with respect to the 1981-2010 base period weekly means.

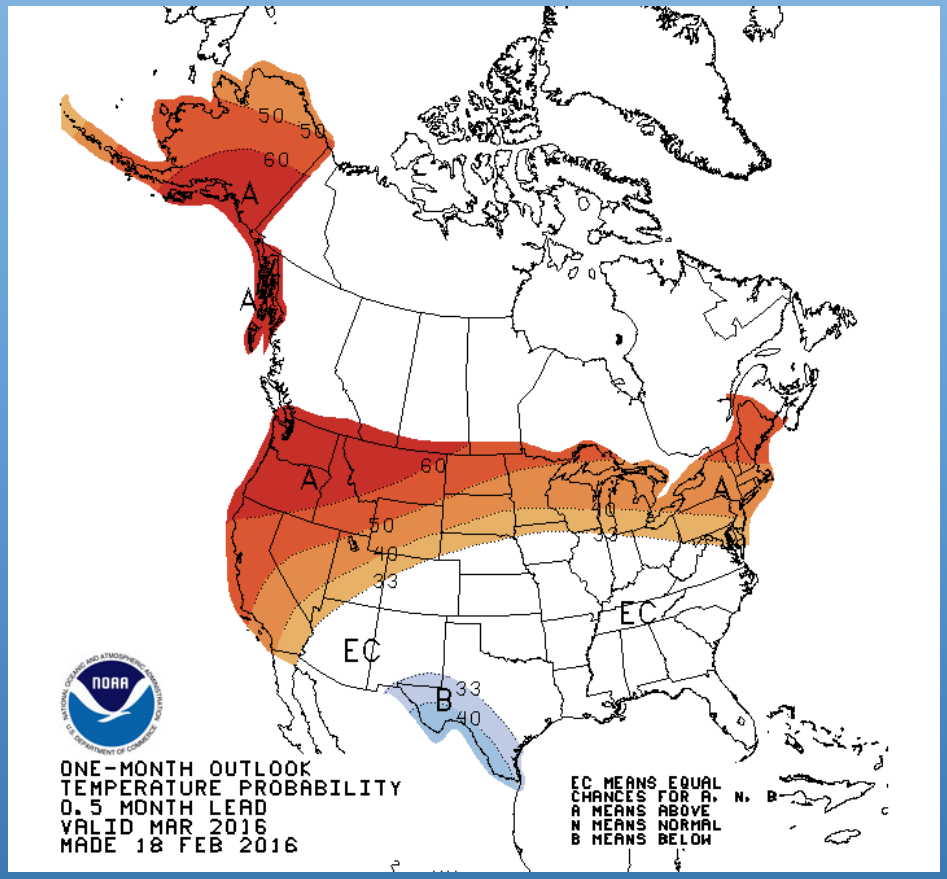
El Nino Forecast



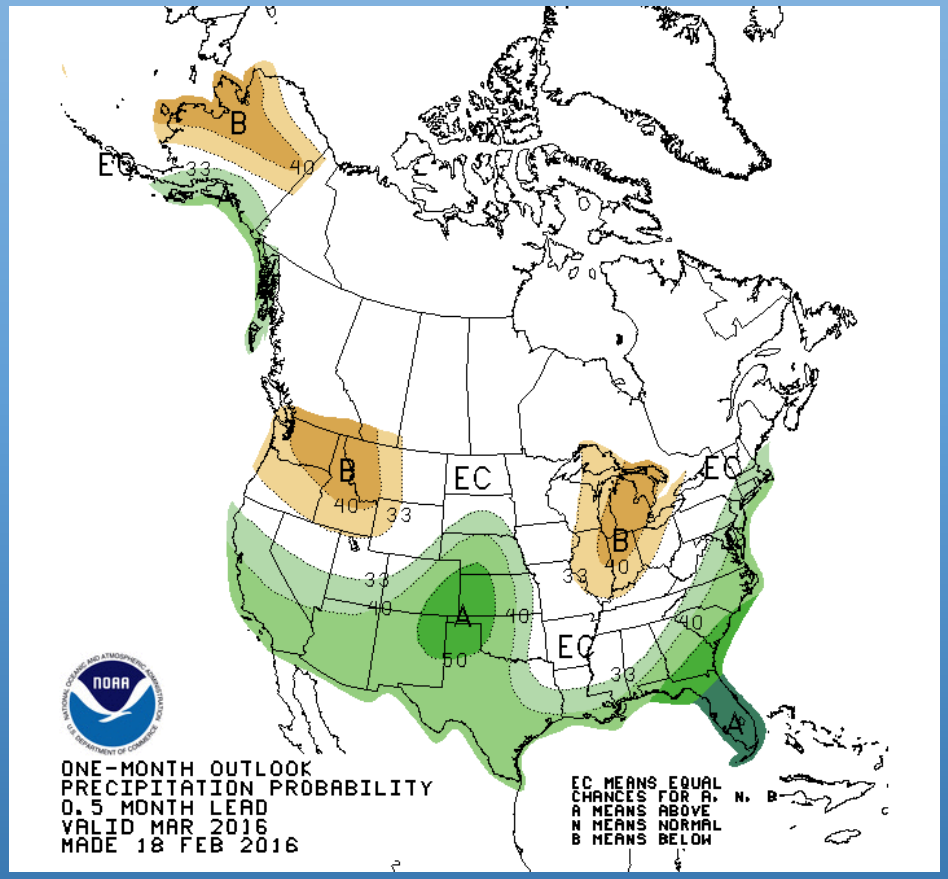
Forecast Plume for ENSO



March Outlook



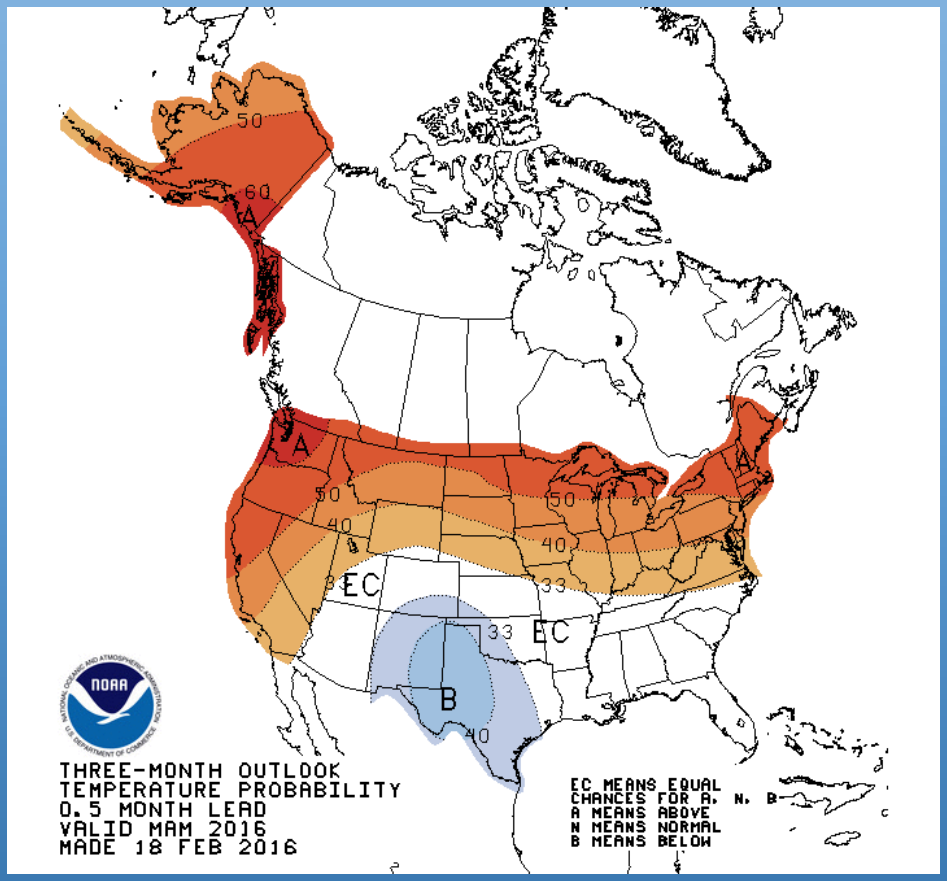
Temperature



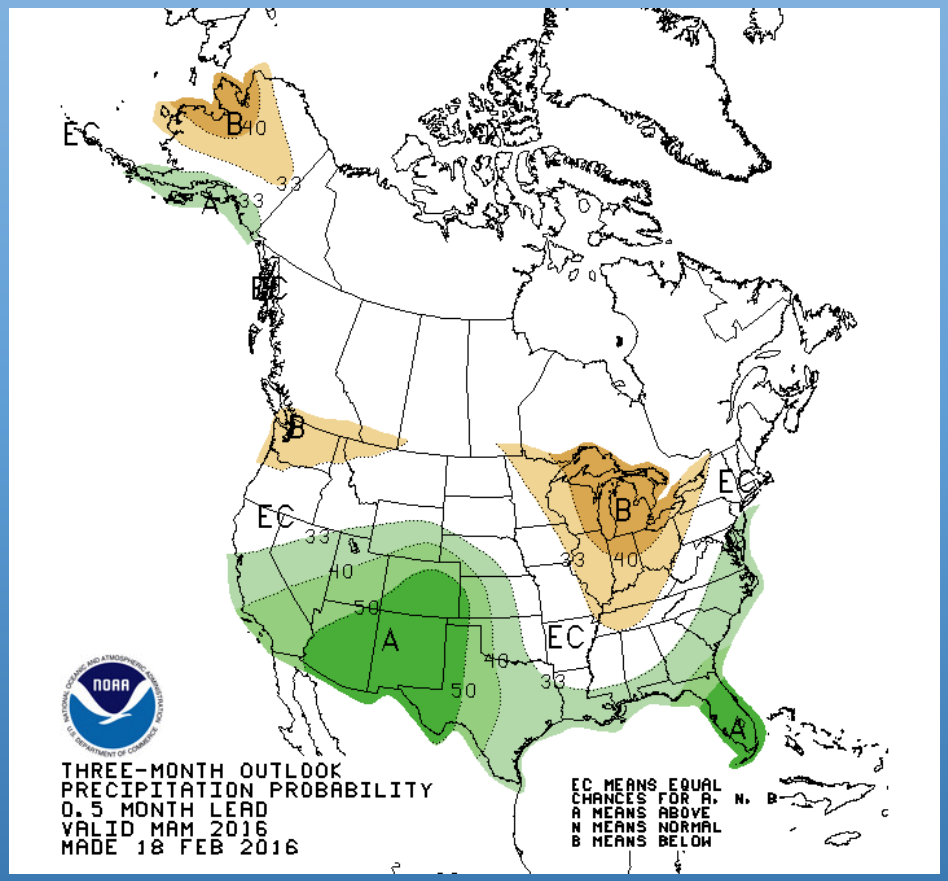
Precipitation

http://www.cpc.ncep.noaa.gov/

March - May Outlook

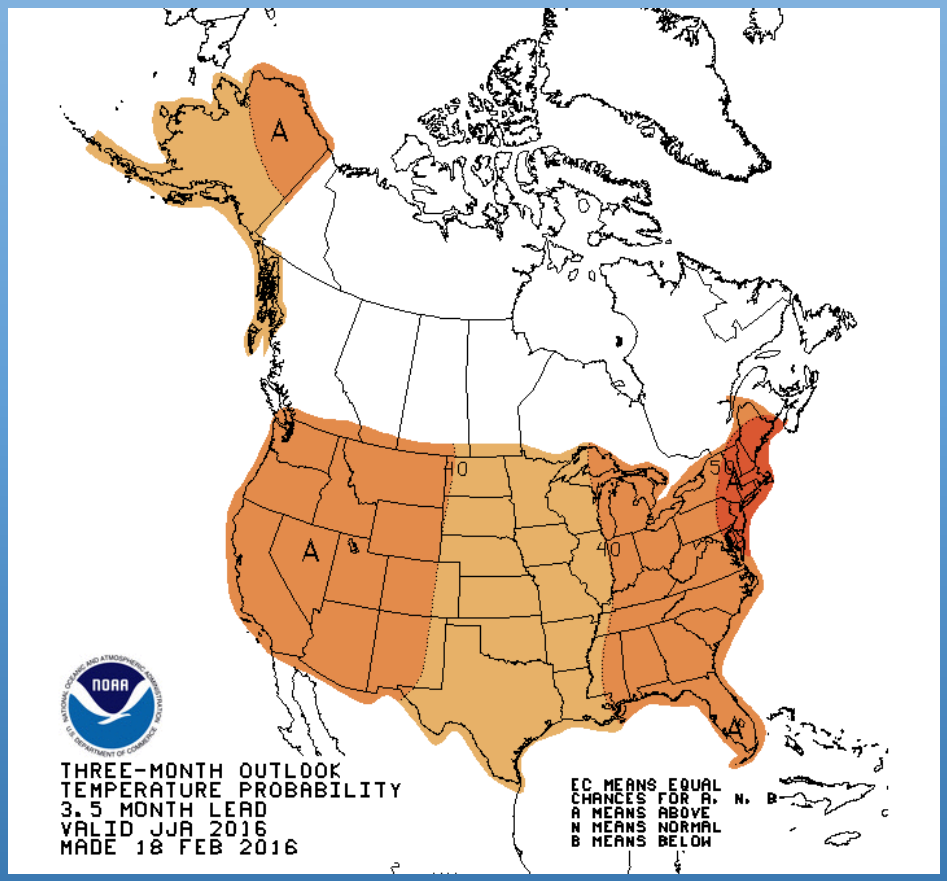


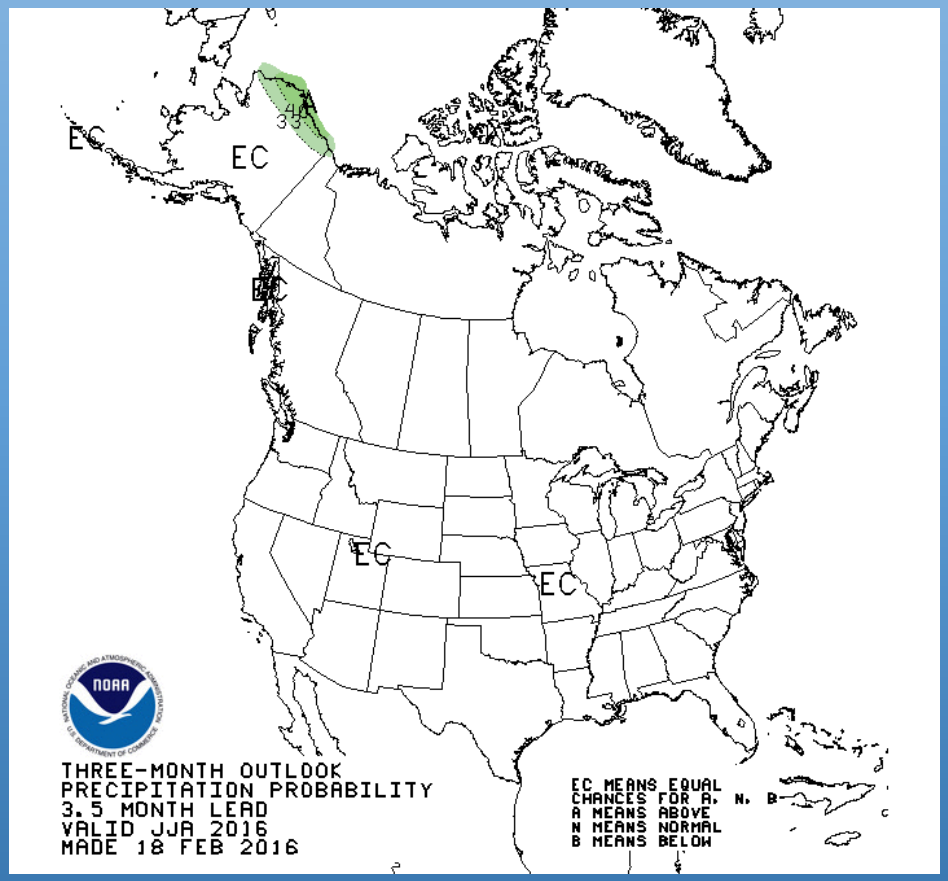
Temperature



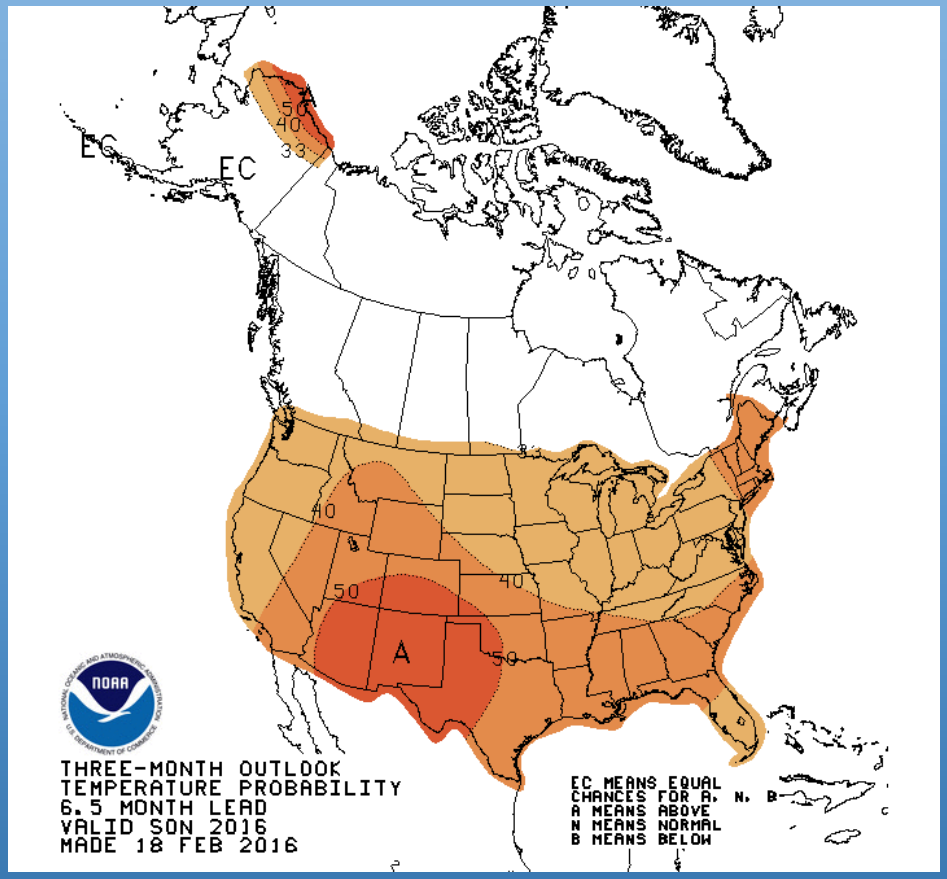
Precipitation

June – August Outlook

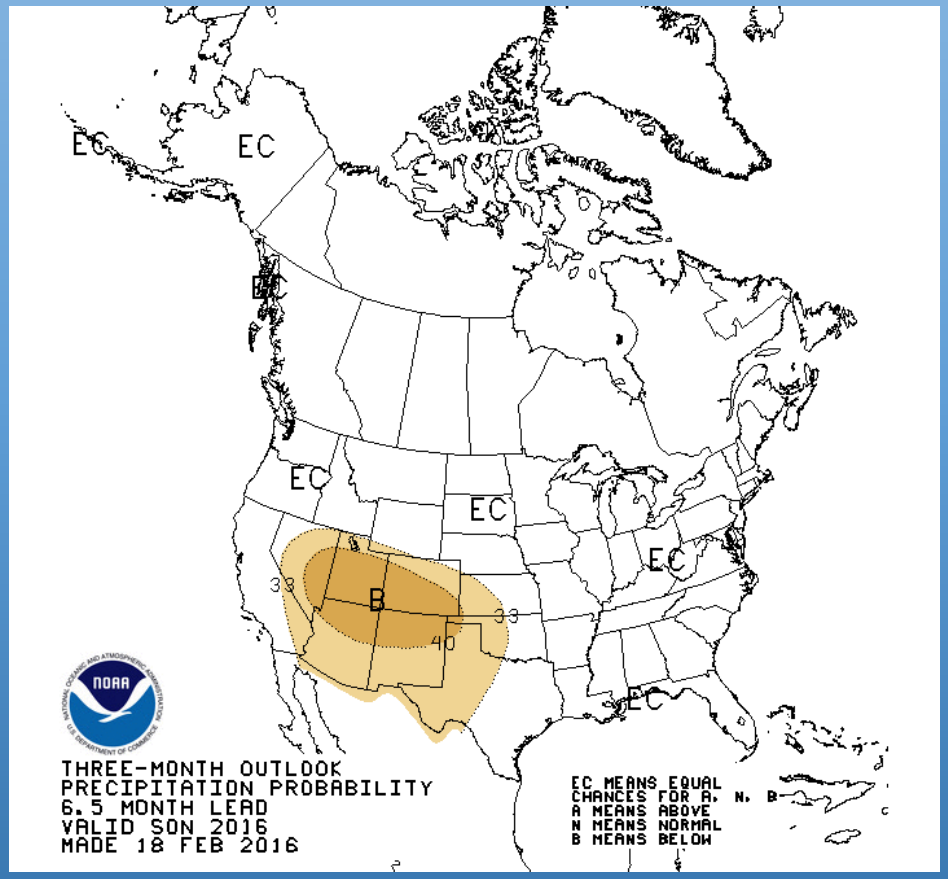




September – November Outlook



Temperature

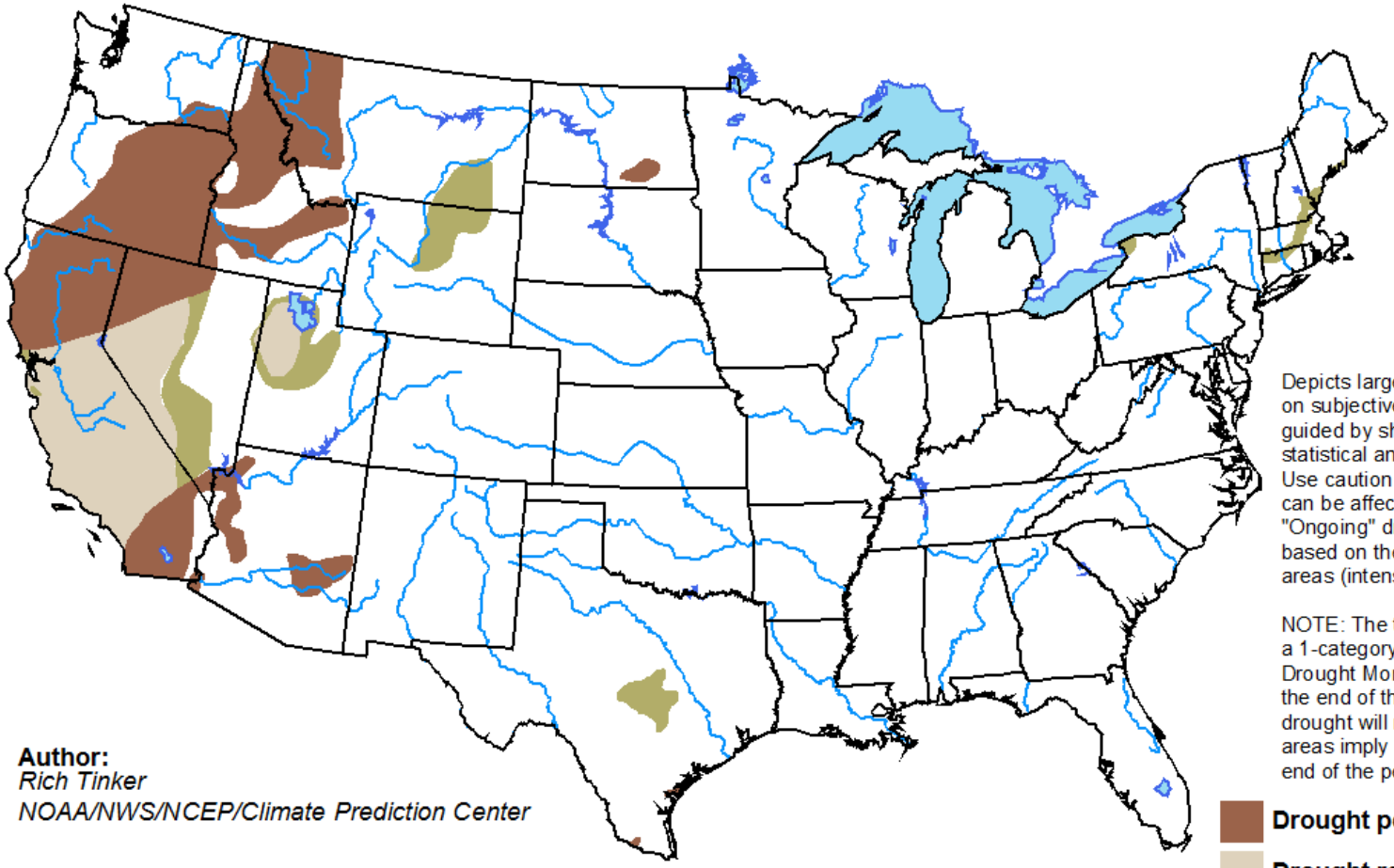


Precipitation

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

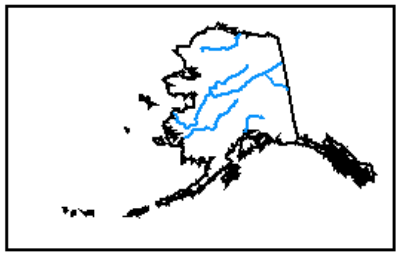
Valid for February 18 - May 31, 2016
Released February 18, 2016

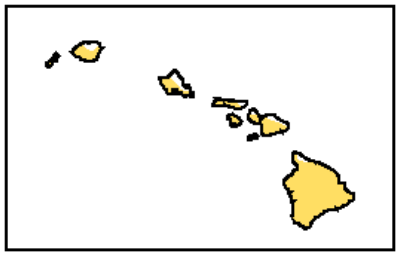


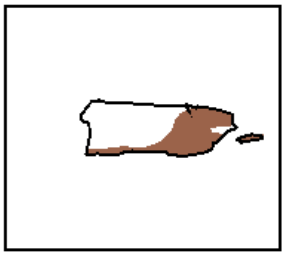
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

Flood Outlook

- The first spring flood outlook will be released later today
- For the most part, the risk of spring flooding is about average on most of the rivers.

Summary – In Last 30 Days …

- Temperatures were above-average in the upper Midwest and the High Plains
- Precipitation was average to above-average across the region except for parts of MO, IL, IN, MI
- Snowfall was below-average, except for the tracks of two major winter storms from CO to WI, and another through KY.

Summary - Forecast

- El Niño
- Increased chance of **above-average** temperatures over the next 6 months across central region.
- Increased chance of below-average precipitation for next three months in Great Lakes region.

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 Climatic Data Center: 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?

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