

Great Plains and Midwest Climate Outlook

January 15, 2015

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Illinois State Water Survey

University of Illinois

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January 7, 2015 Mississippi River
At Moline Illinois

General Information

- **Providing climate services to the Central Region**
 - Collaboration with Dennis Todey (South Dakota State Climatologist), Jim Angel (Illinois State Climatologist), Wendy Ryan (Colorado Assistant 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**
 - 19 February 2015
- **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

- **Recap of 2014**
- **Current conditions**
- **Impacts**
- **Outlooks**

You know it's cold when there is frost forming on the inside of the door.



Report on the 2012 Central US Drought

From Too Much to Too Little:

How the central U.S. drought of 2012
evolved out of one of the most
devastating floods on record in 2011

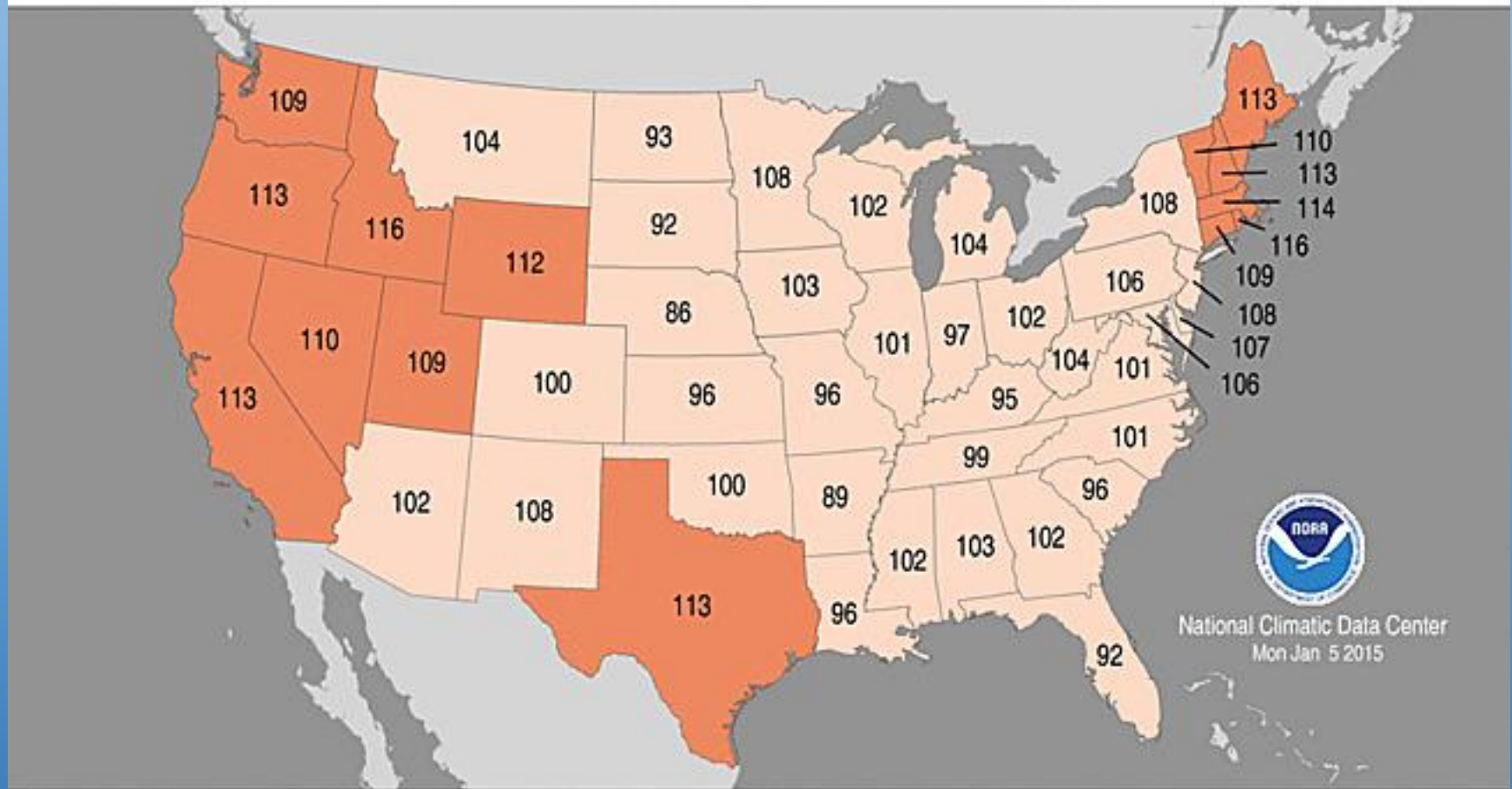


Second Warmest December on Record for US

Statewide Average Temperature Ranks

December 2014

Period: 1895-2014



National Climatic Data Center
Mon Jan 5 2015

Record Coldest
(1)

Much Below Average

Below Average

Near Average

Above Average

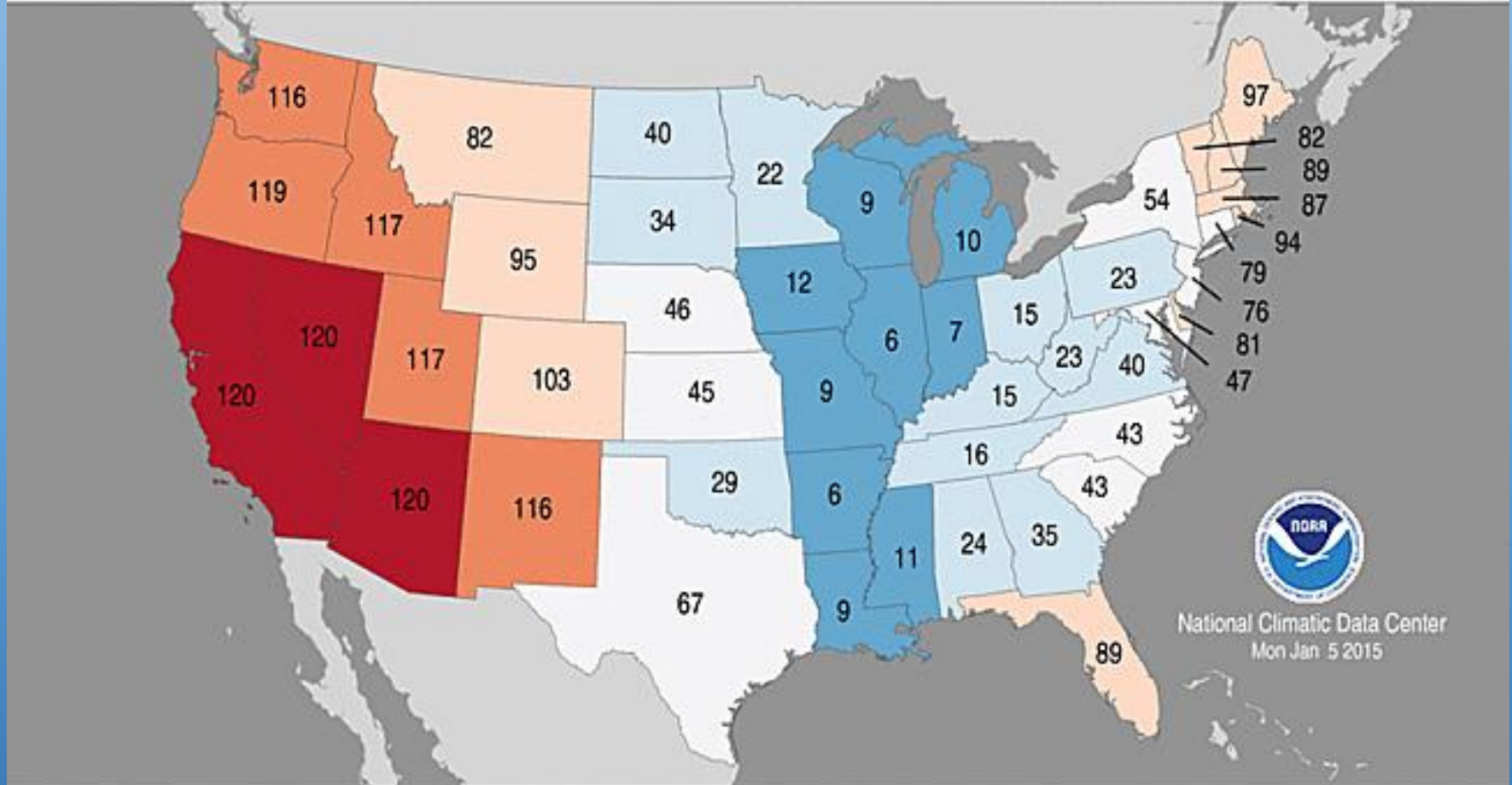
Much Above Average

Record Warmest
(120)

Statewide Average Temperature Ranks

January–December 2014

Period: 1895–2014



National Climatic Data Center
Mon Jan 5 2015

Record Coldest
(1)

Much Below Average

Below Average

Near Average

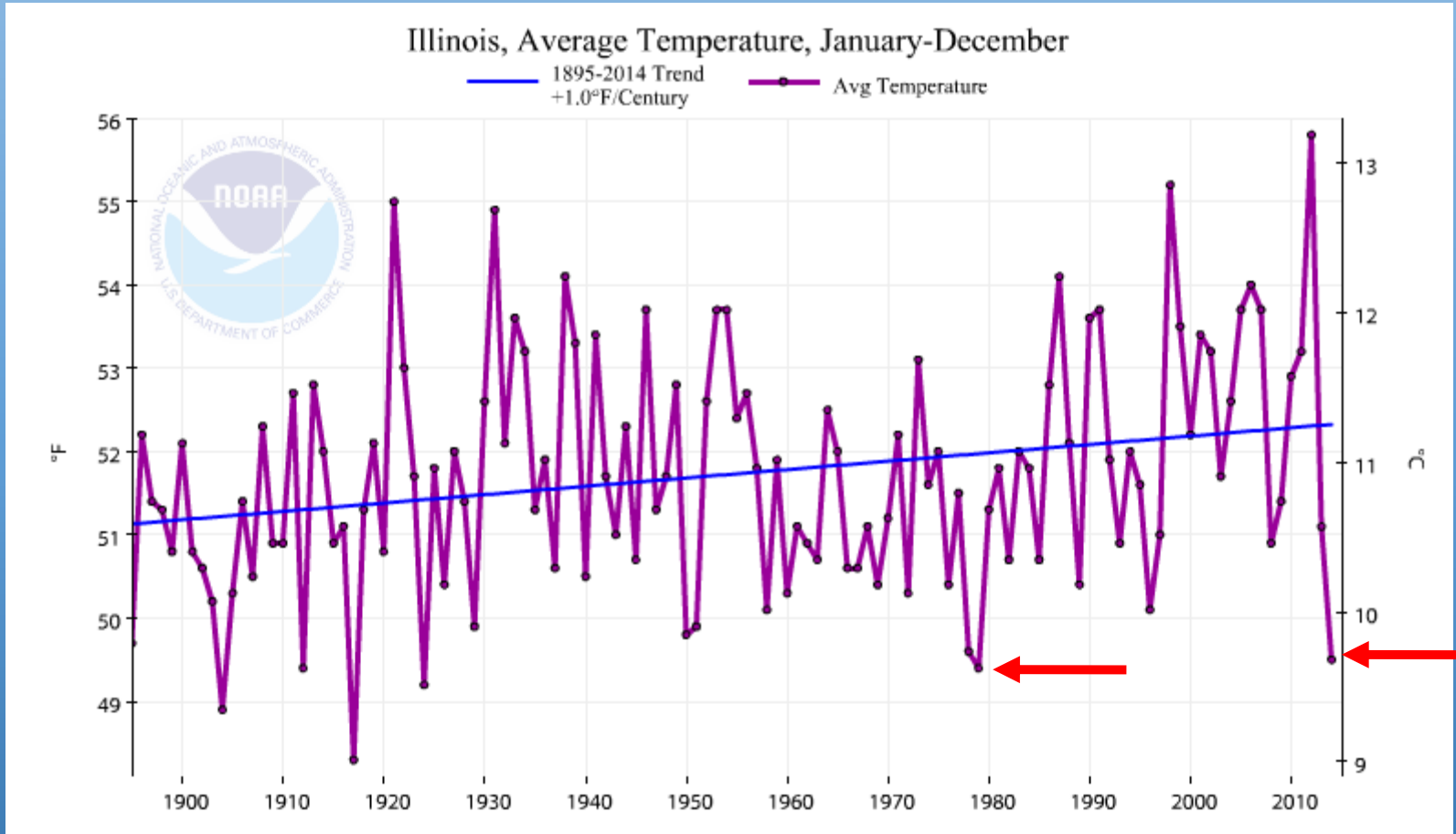
Above Average

Much Above Average

Record Warmest
(120)

34th Warmest Year on Record for the US

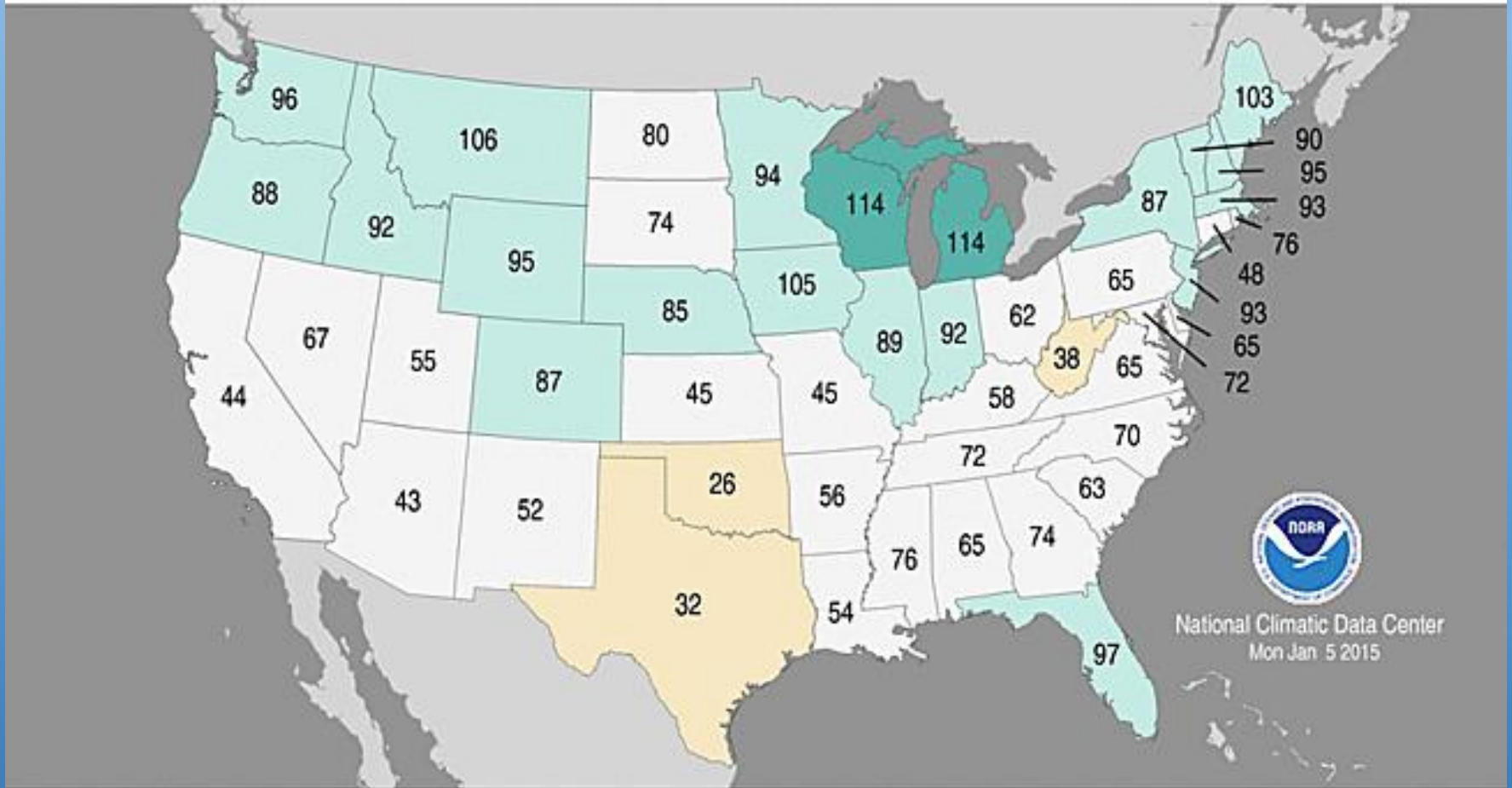
2014 and the historical record for Illinois



Statewide Precipitation Ranks

January–December 2014

Period: 1895–2014



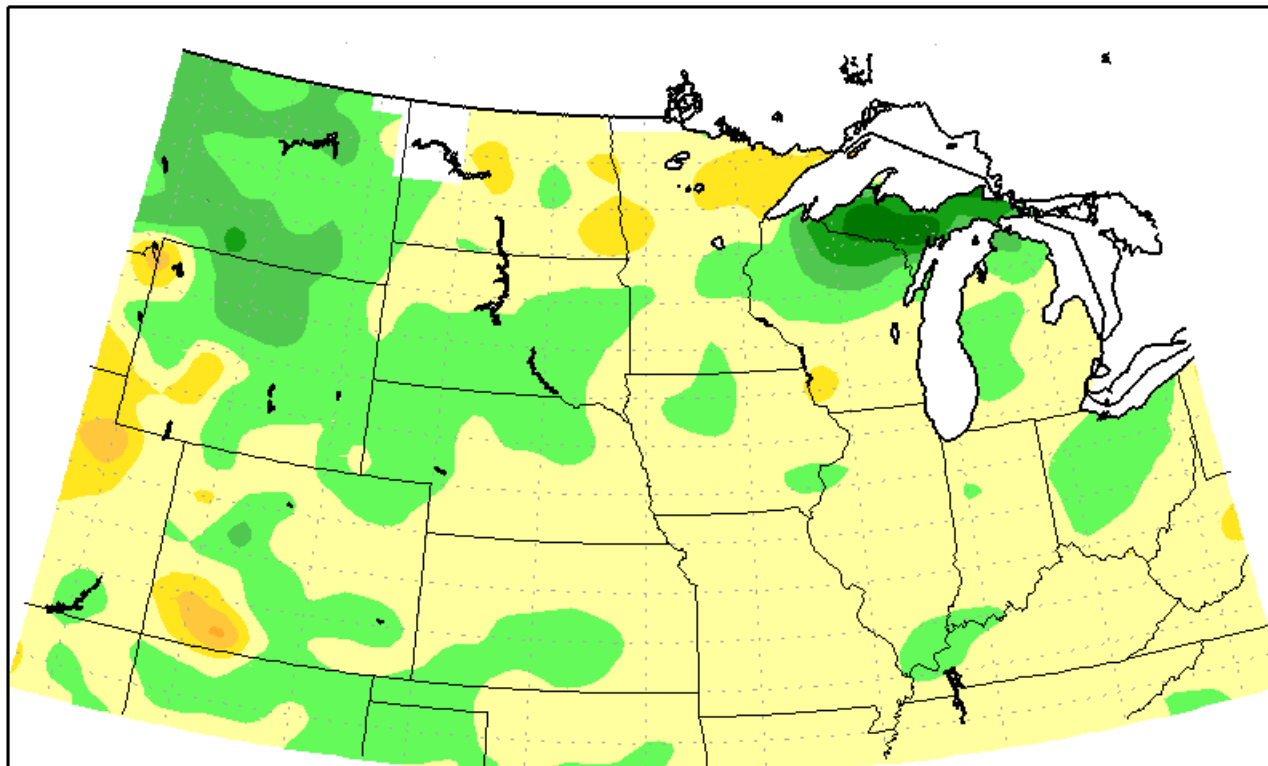
National Climatic Data Center
Mon Jan 5 2015

40th Wettest Year on Record for the US

Quiet Winter for Snowfall in the Central US

- For example, in Chicago
 - So far this winter, 13.7 inches
 - This time last winter, 35.0 inches
 - Long-term average through this date, 14.2 inches

Accumulated Snowfall (in): Departure from Mean September 1, 2014 to January 14, 2015



Mean period is 1981-2010.

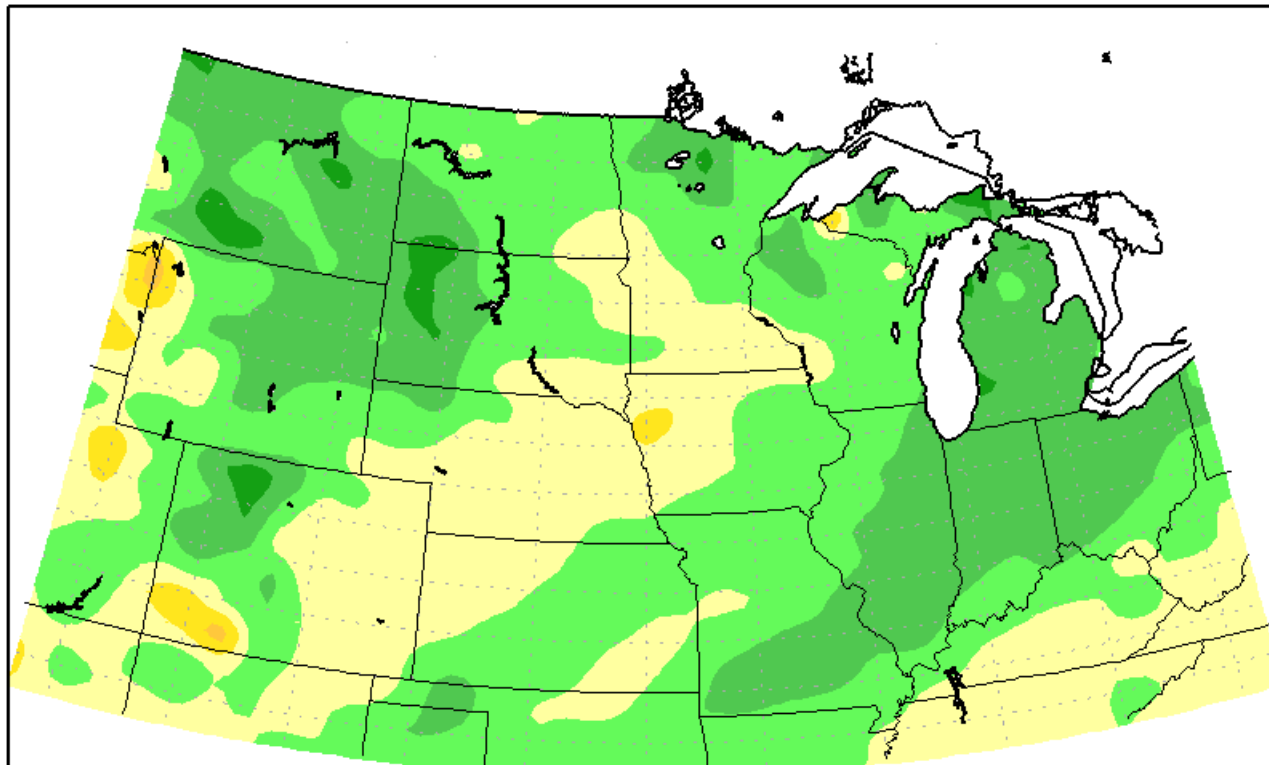


Midwestern Regional Climate Center

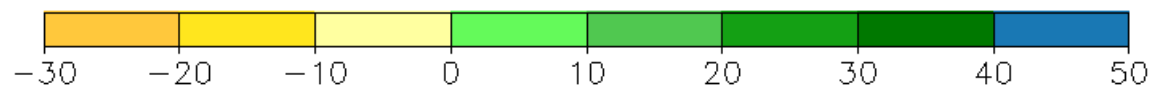
cli-MATE: MRCC Application Tools Environment

Generated at: 1/14/2015 10:14:33 AM CST

Accumulated Snowfall (in): Departure from Mean September 1, 2013 to January 14, 2014



Mean period is 1981–2010.

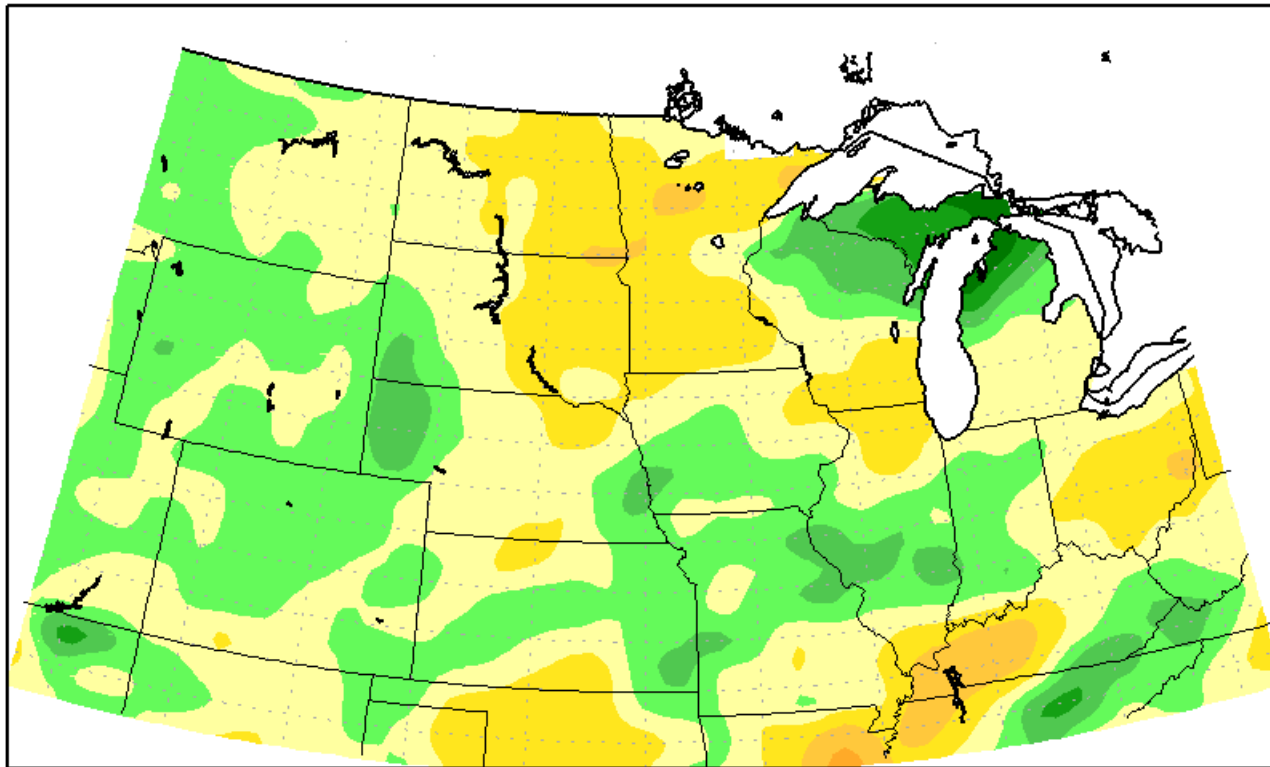


Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

Generated at: 1/14/2015 10:15:13 AM CST

Accumulated Precipitation (in): Departure from Mean September 1, 2014 to January 14, 2015



Mean period is 1981-2010.



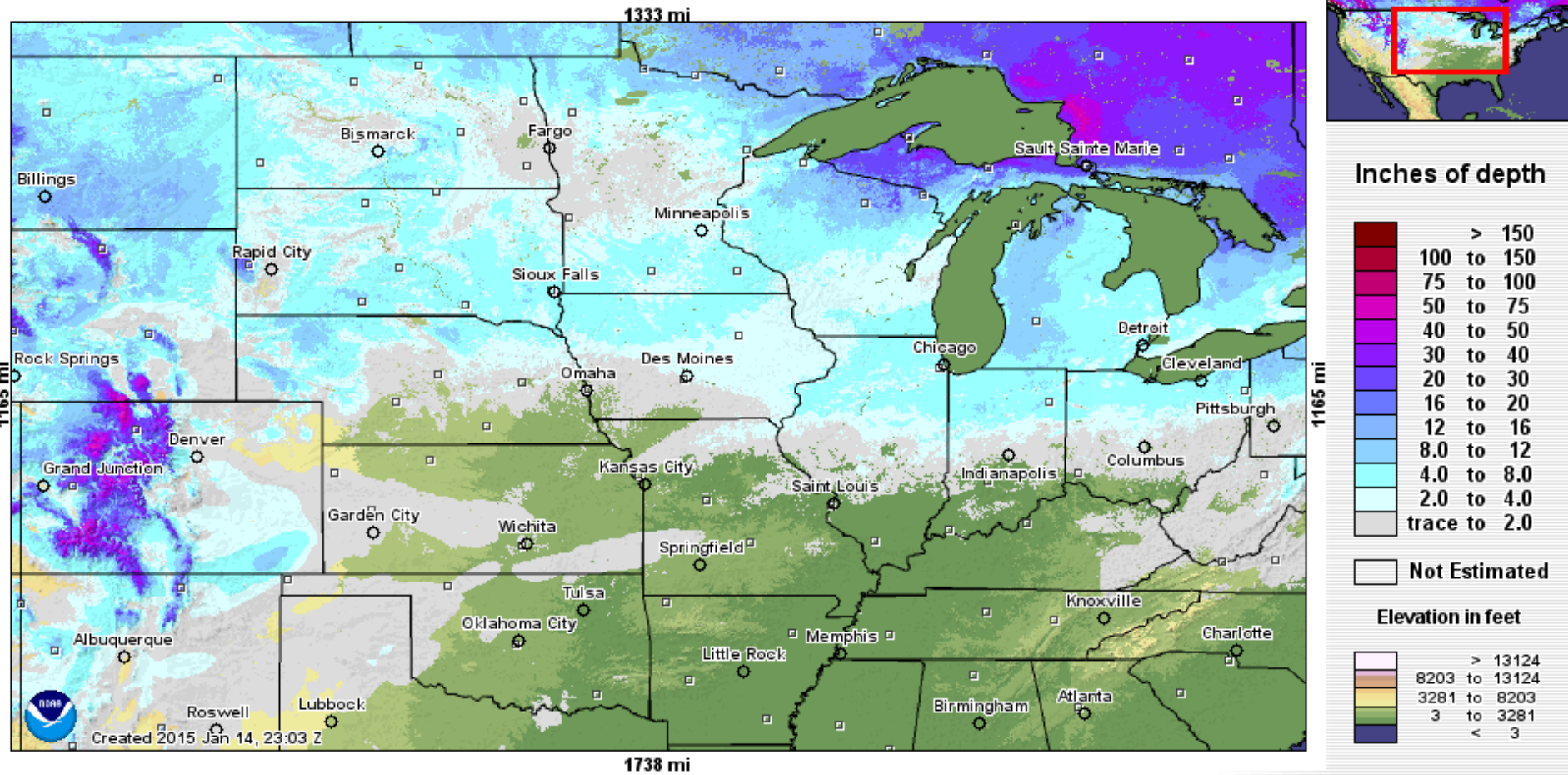
Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

Generated at: 1/14/2015 10:13:58 AM CST

Current North Central Snow Cover

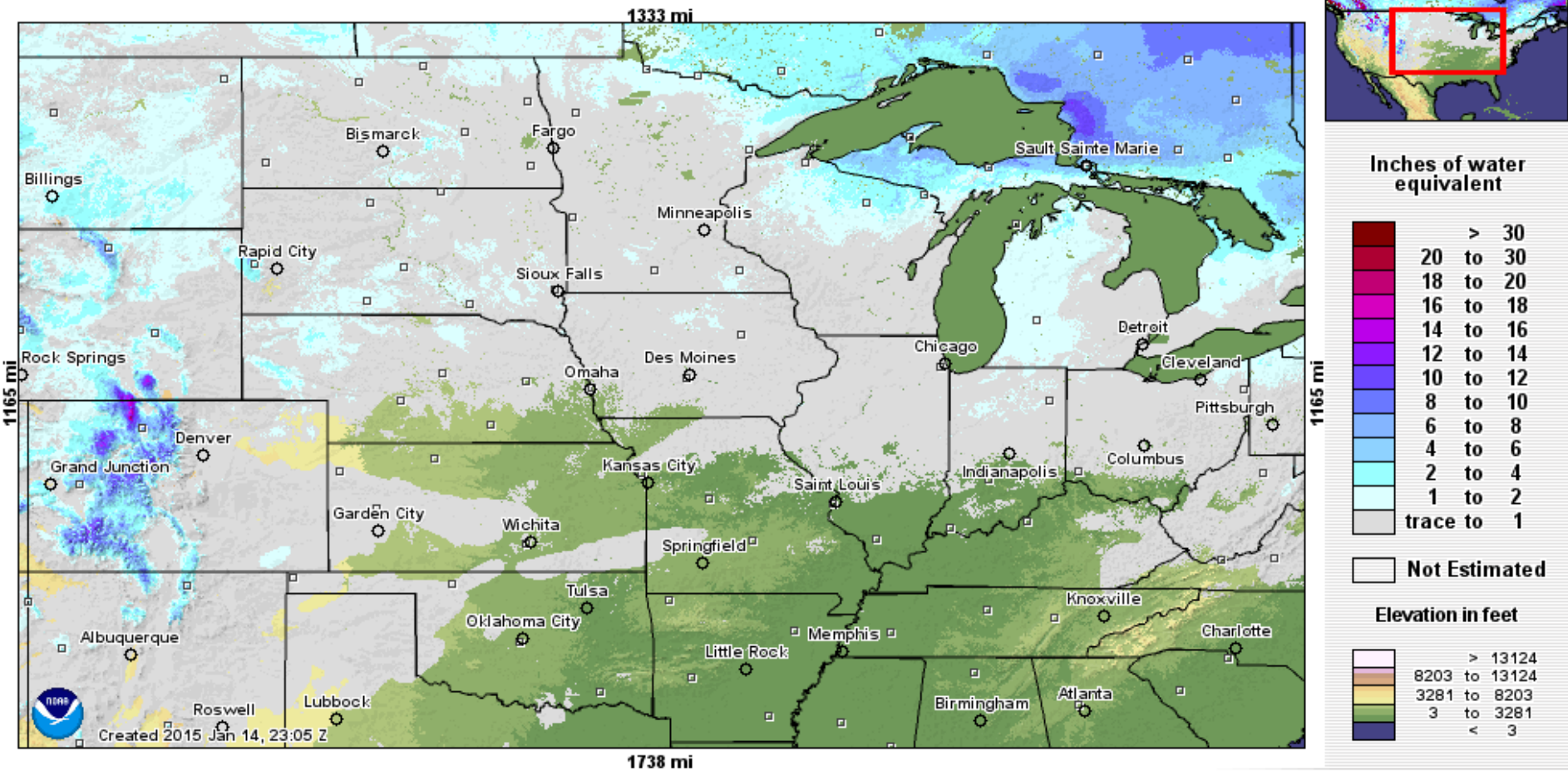
Modeled Snow Depth forecasted for 2015 January 15, 3:00 UTC



<http://http://www.nohrsc.noaa.gov/interactive/html/map.html?>

Current North Central Snow Equivalent

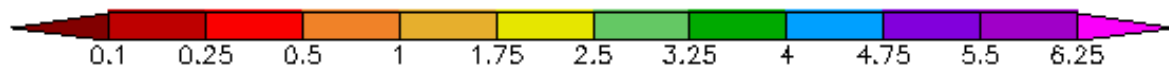
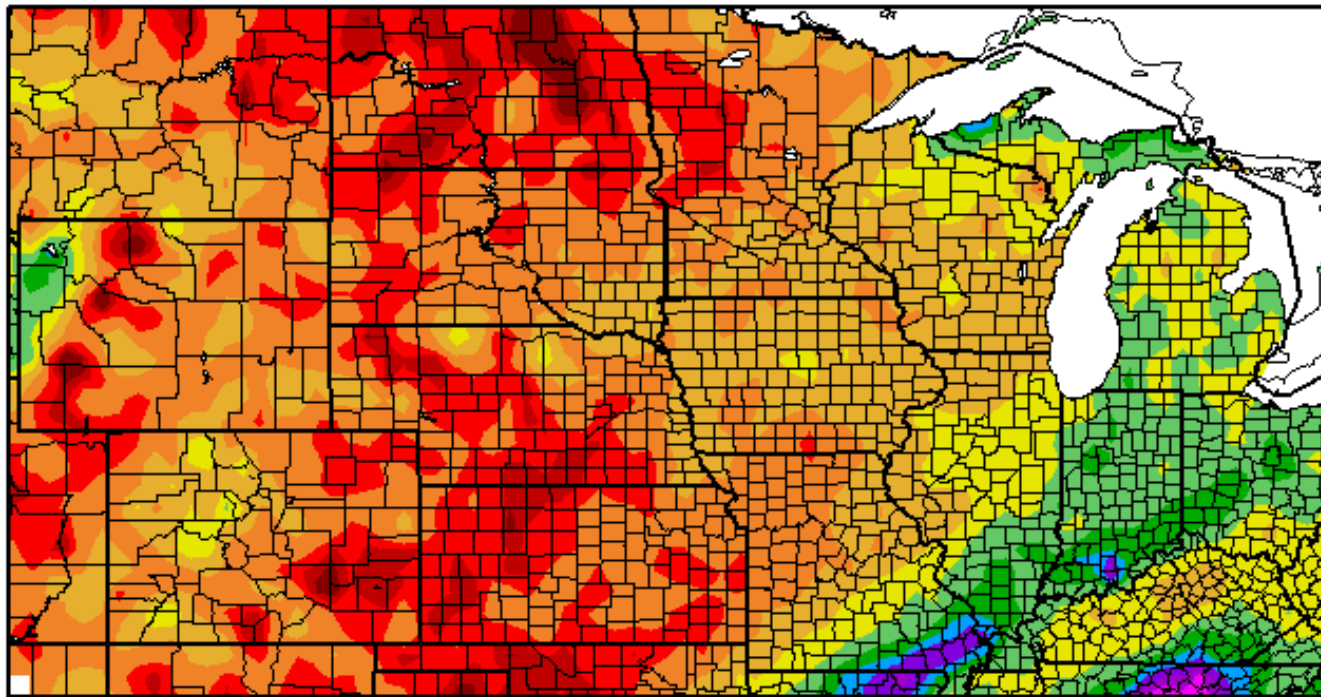
Modeled Snow Water Equivalent forecasted for 2015 January 15, 3:00 UTC



Very low water content in snowpack

30 Day Precipitation

Precipitation (in)
12/16/2014 - 1/14/2015

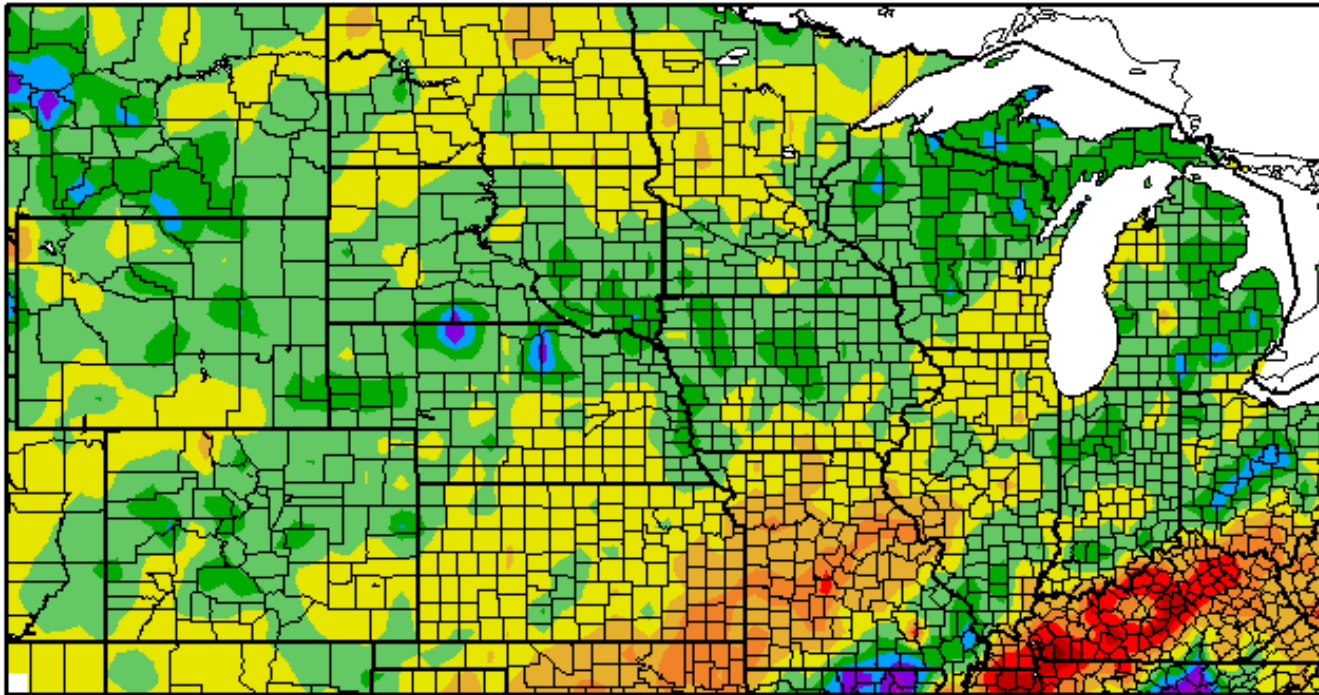


Generated 1/15/2015 at HPRCC using provisional data.

Regional Climate Centers

30-Day Precipitation Departure

Departure from Normal Precipitation (in)
12/16/2014 – 1/14/2015

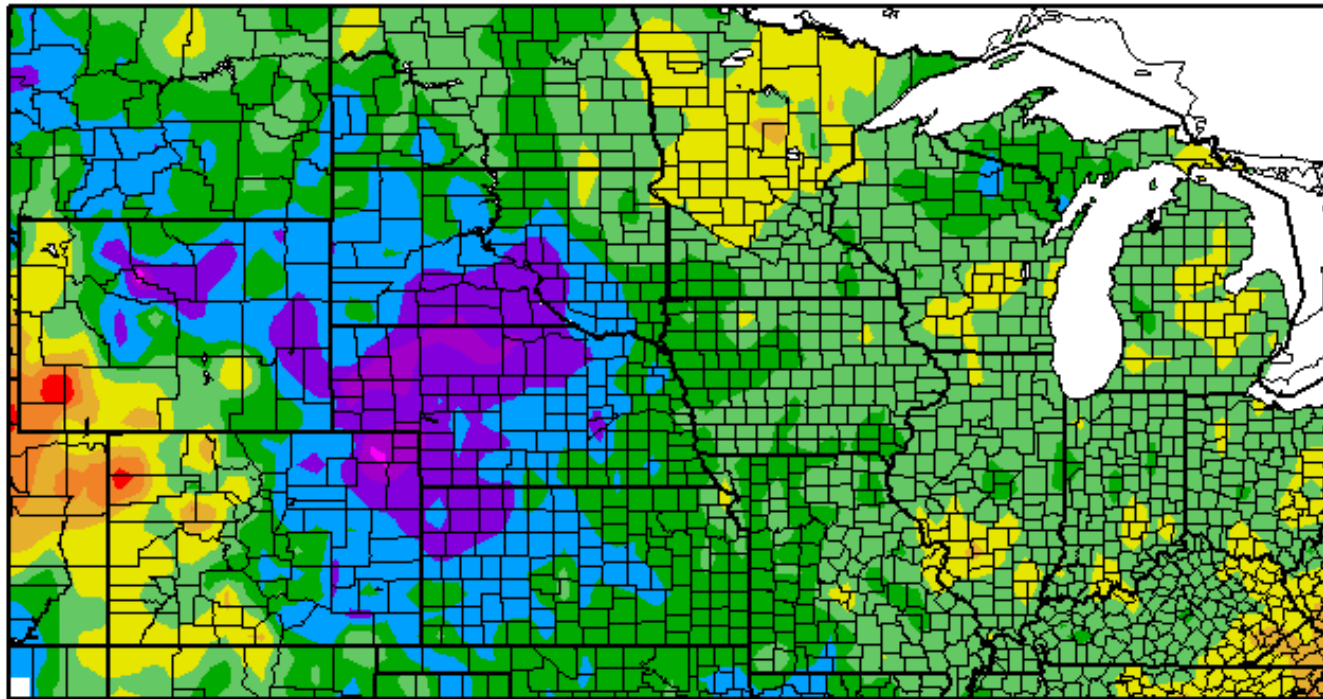


Generated 1/15/2015 at HPRCC using provisional data.

Regional Climate Centers

30 Day Temperature Departure

Departure from Normal Temperature (F)
12/16/2014 - 1/14/2015

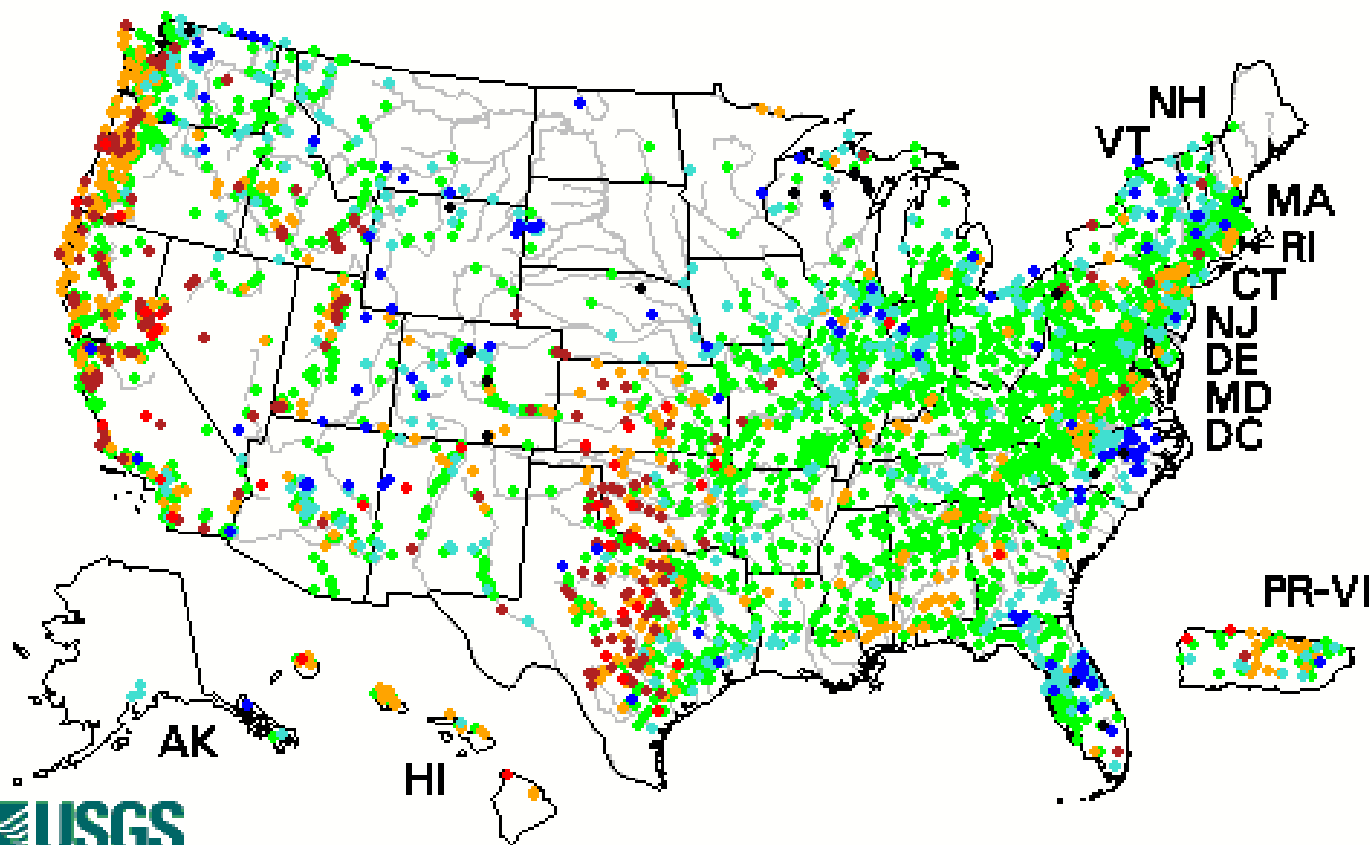


Generated 1/15/2015 at HPRCC using provisional data.

Regional Climate Centers

Stream Flow - USGS

Wednesday, January 14, 2015 22:30ET



Explanation

- High
- > 90th percentile
- 76th - 90th percentile
- 25th - 75th percentile
- 10th - 24th percentile
- < 10th percentile
- Low
- Not ranked

GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)



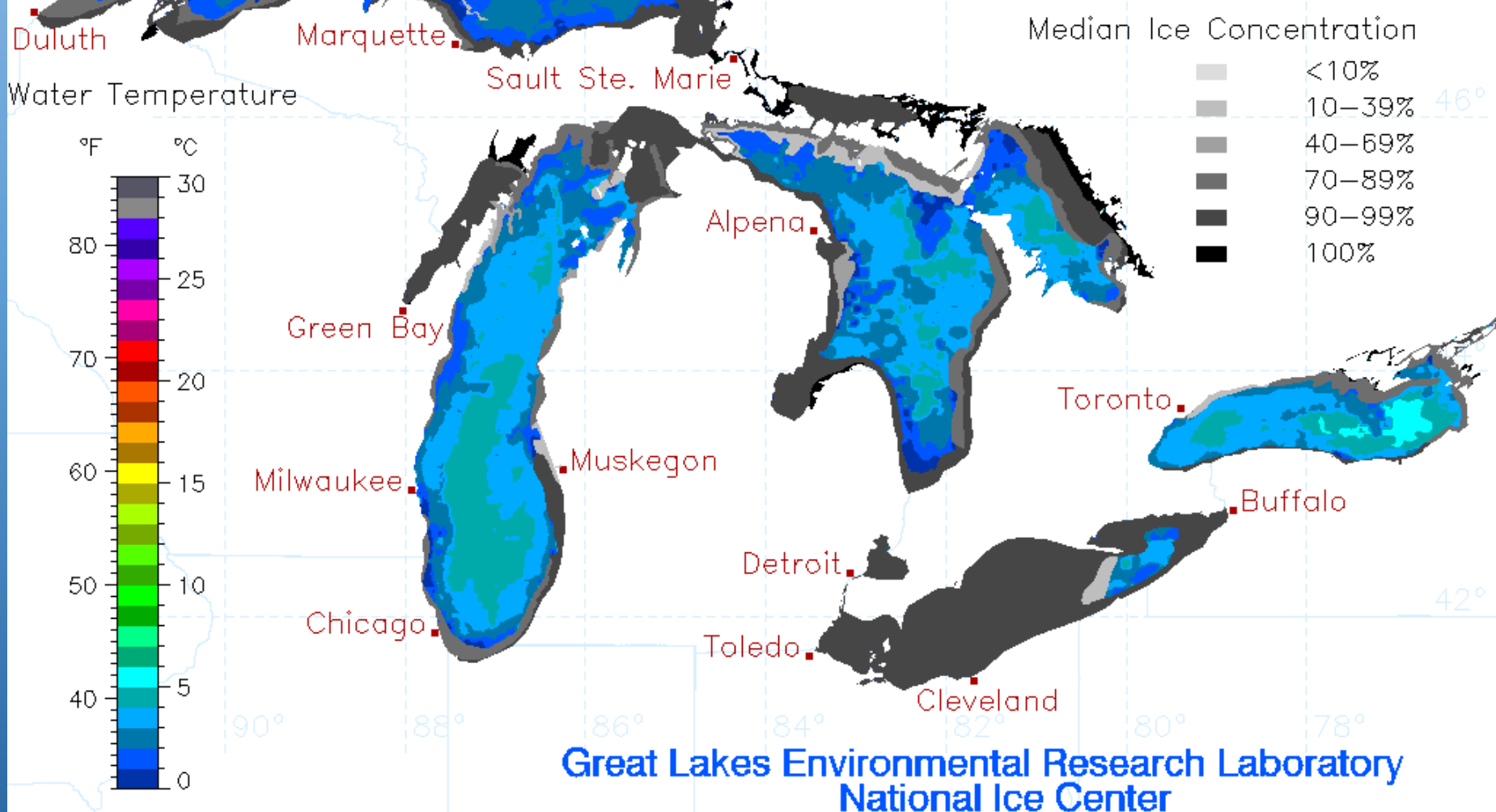
Analysis Date: JD 013 01/13/2015

Percent Pixels with Data within +/-10 Days: 46.5%

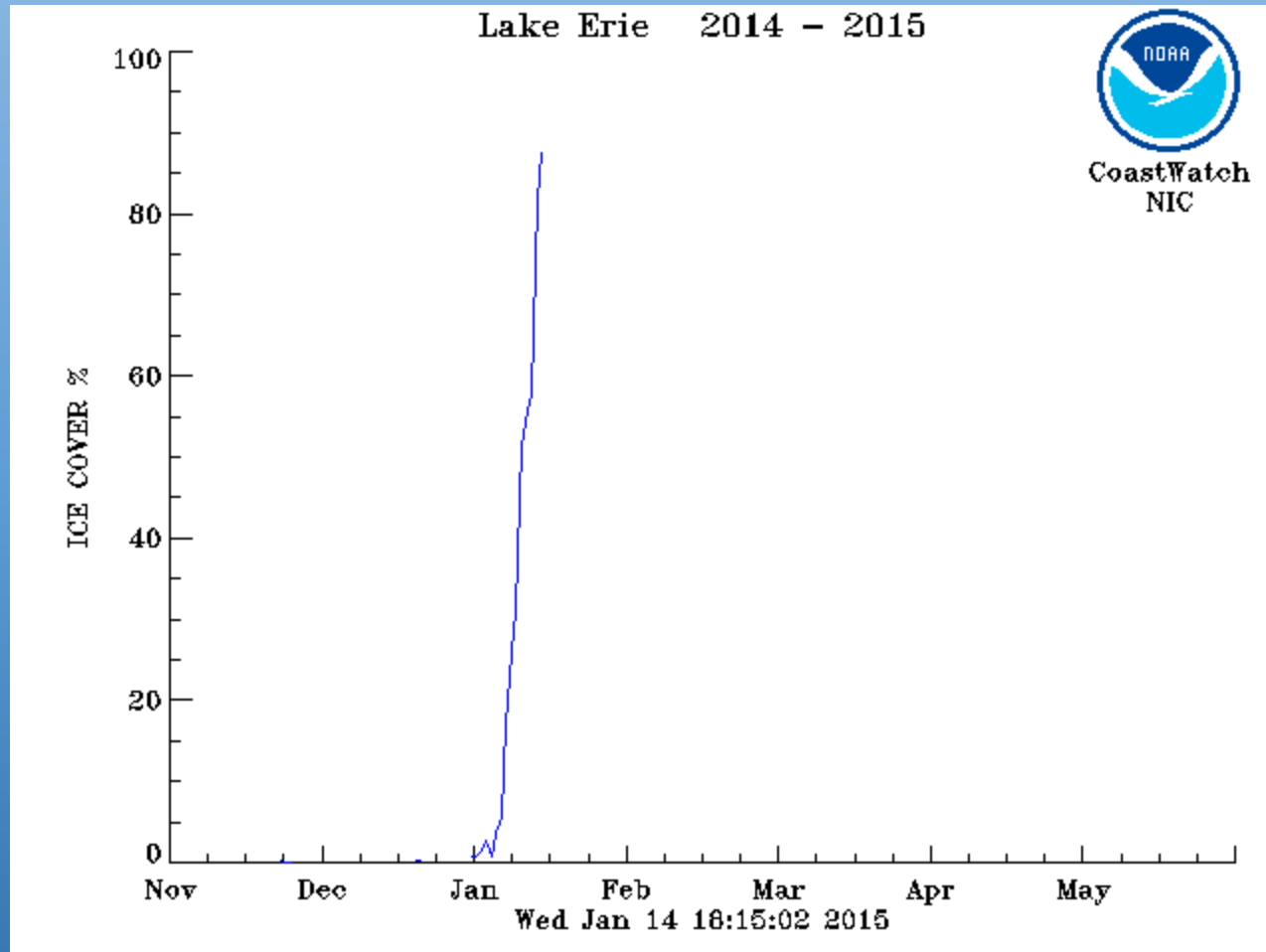
Date of last ice analysis: 1/13/2015

NOAA CoastWatch

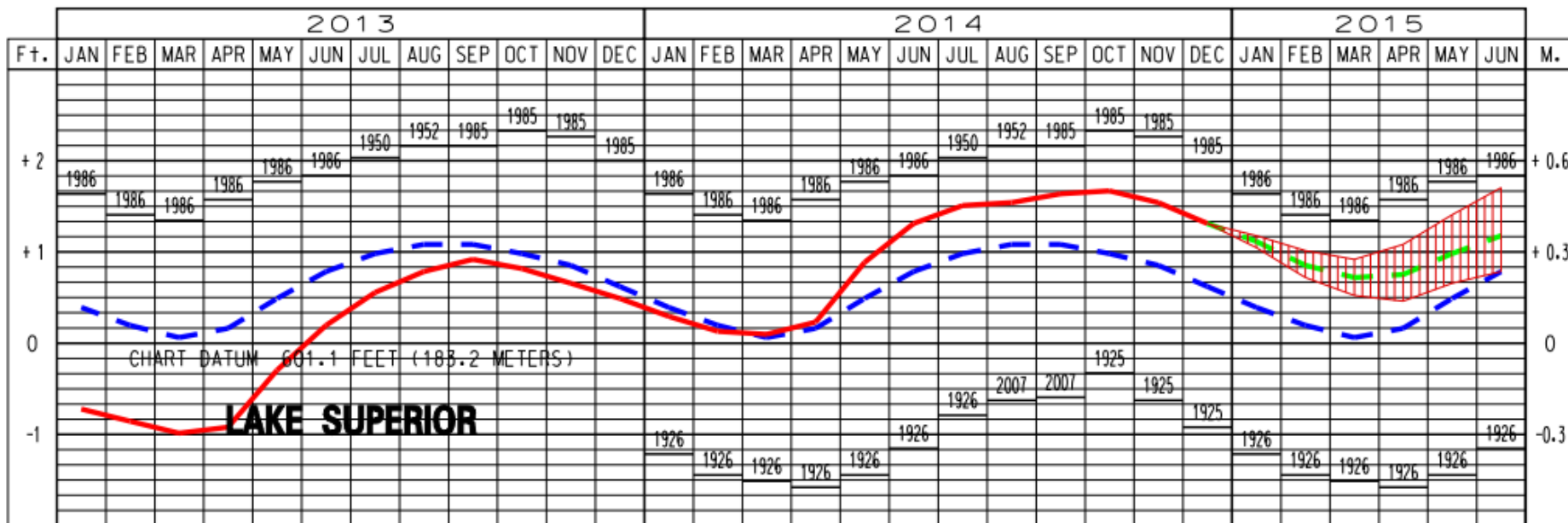
Great Lakes Total Ice Cover: 29.3%



Flash Freeze on Lake Erie



LAKE SUPERIOR WATER LEVELS – JANUARY 2015

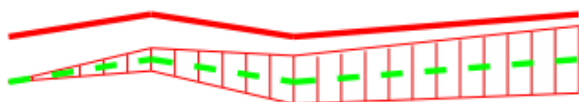


LEGEND

LAKE LEVELS

RECORDED

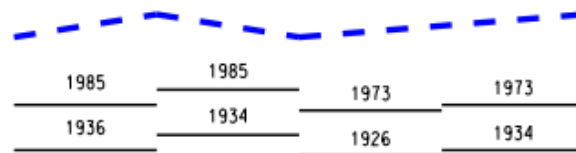
PROJECTED



AVERAGE **

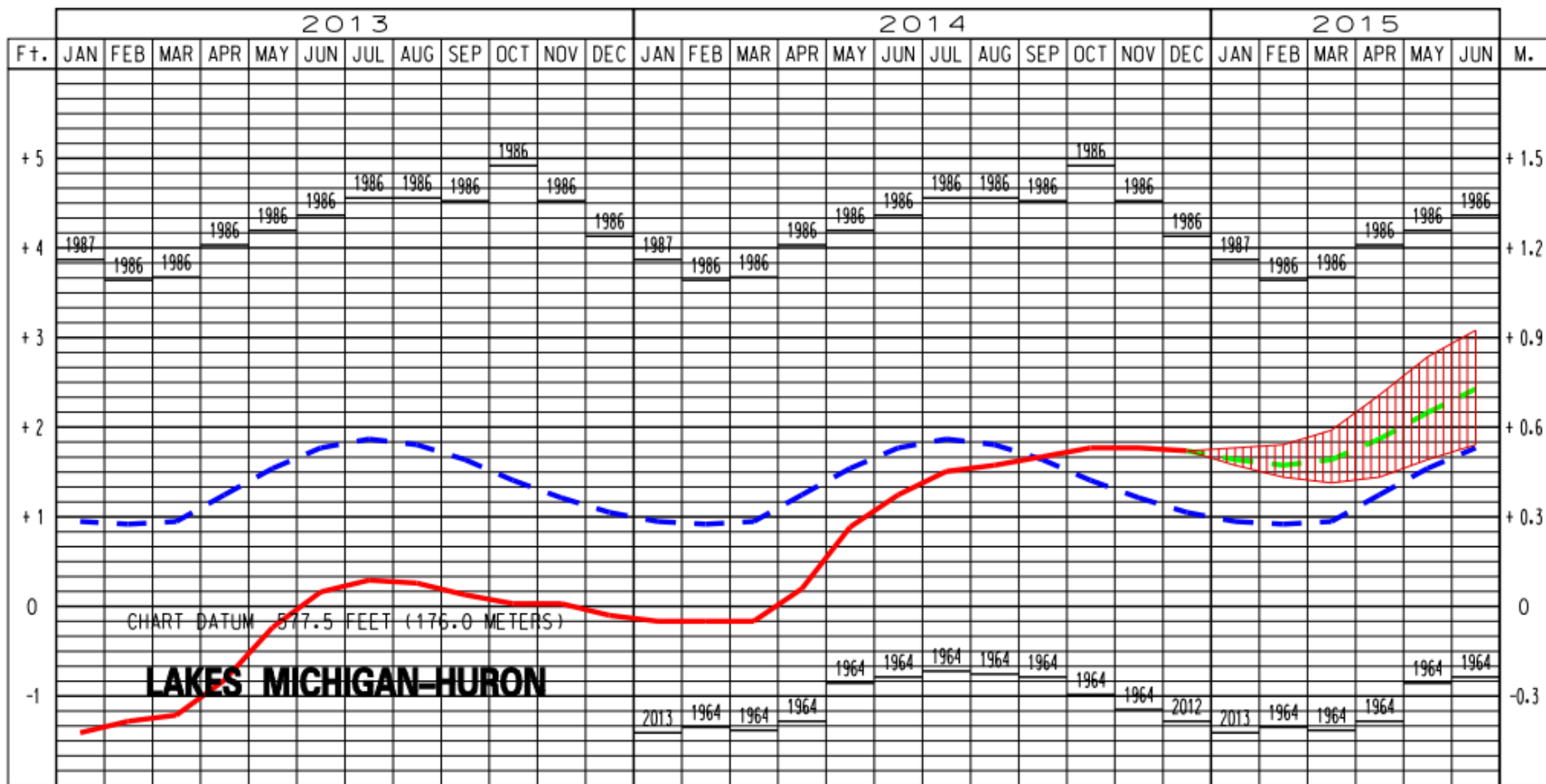
MAXIMUM **

MINIMUM **

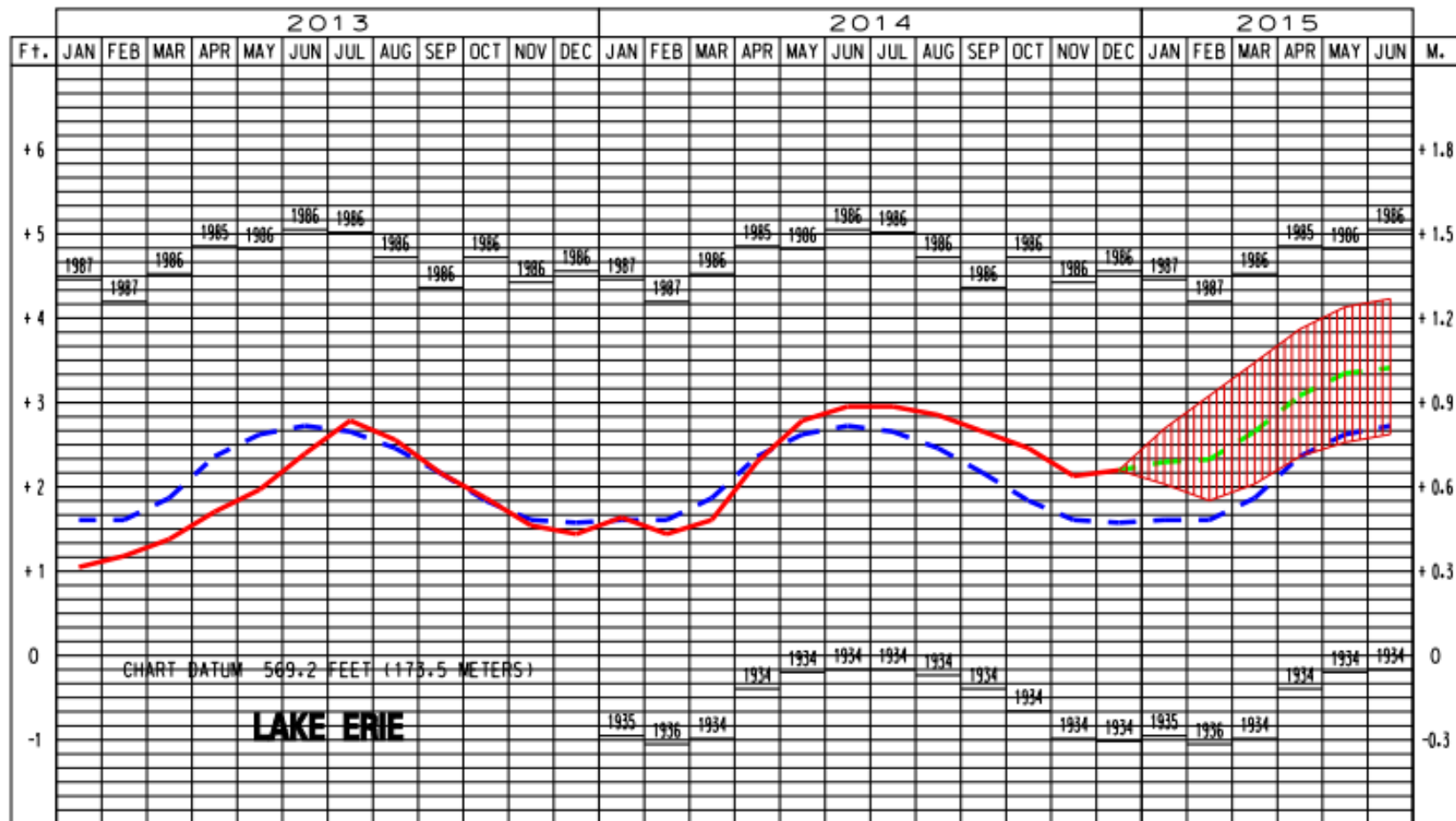


** Average, Maximum and Minimum for period 1918-2013

LAKES MICHIGAN-HURON WATER LEVELS - JANUARY 2015

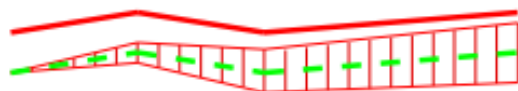


LAKE ERIE WATER LEVELS - JANUARY 2015

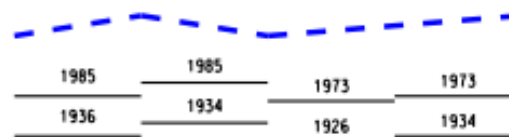


LEGEND LAKE LEVELS

RECORDED
PROJECTED



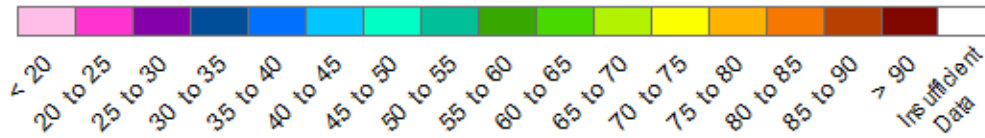
AVERAGE **
MAXIMUM **
MINIMUM **



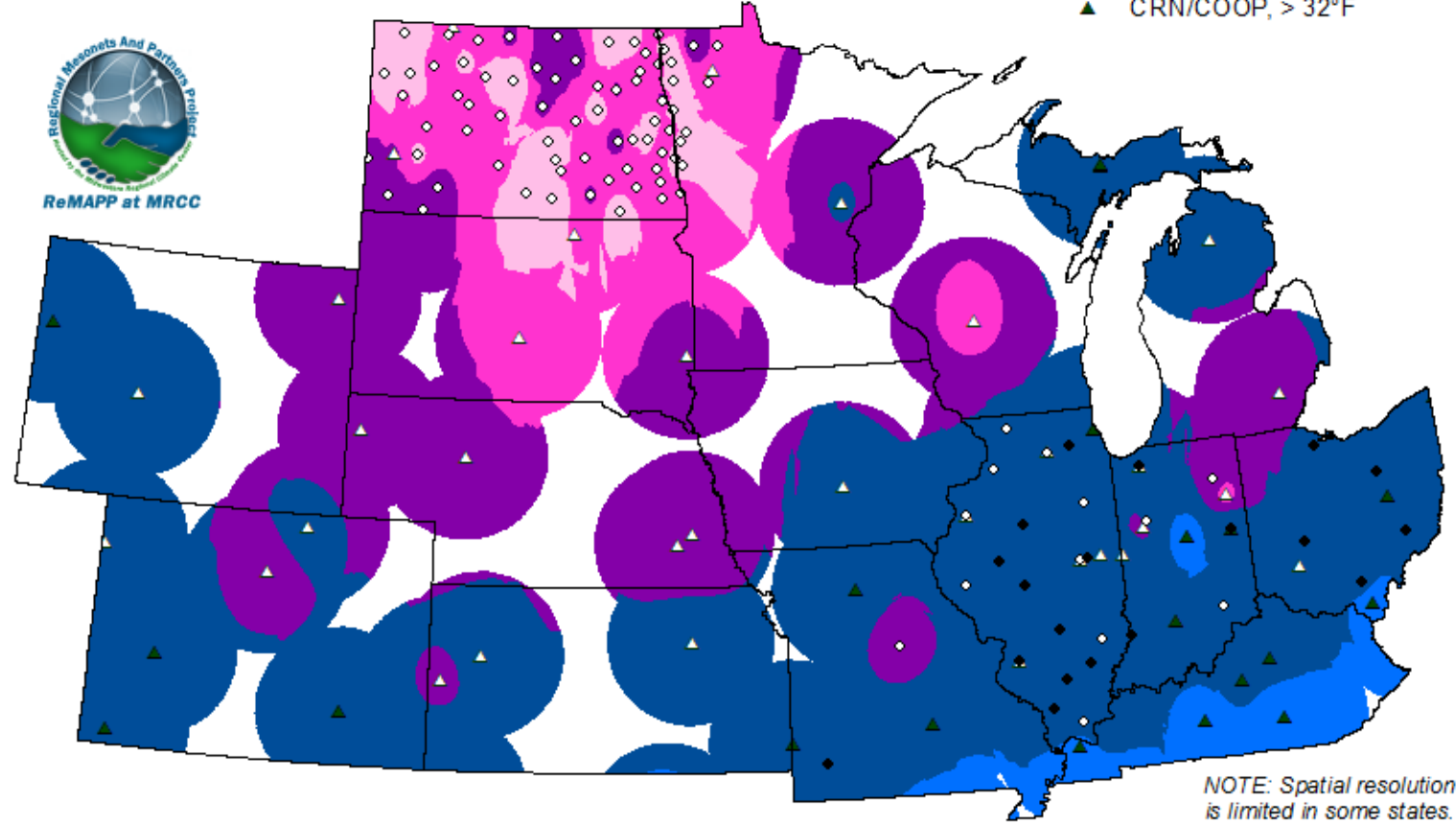
** Average, Maximum and Minimum for period 1918-2013

4" Soil Temperature (°F) (Sod)

24-Hour Period Through 1/13/2015



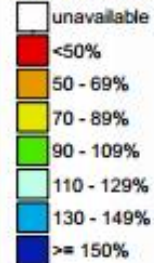
- ◊ Mesonets, <= 32°F
- ◆ Mesonets, > 32°F
- △ CRN/COOP, <= 32°F
- ▲ CRN/COOP, > 32°F



NOTE: Spatial resolution is limited in some states.

Jan 15, 2015

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

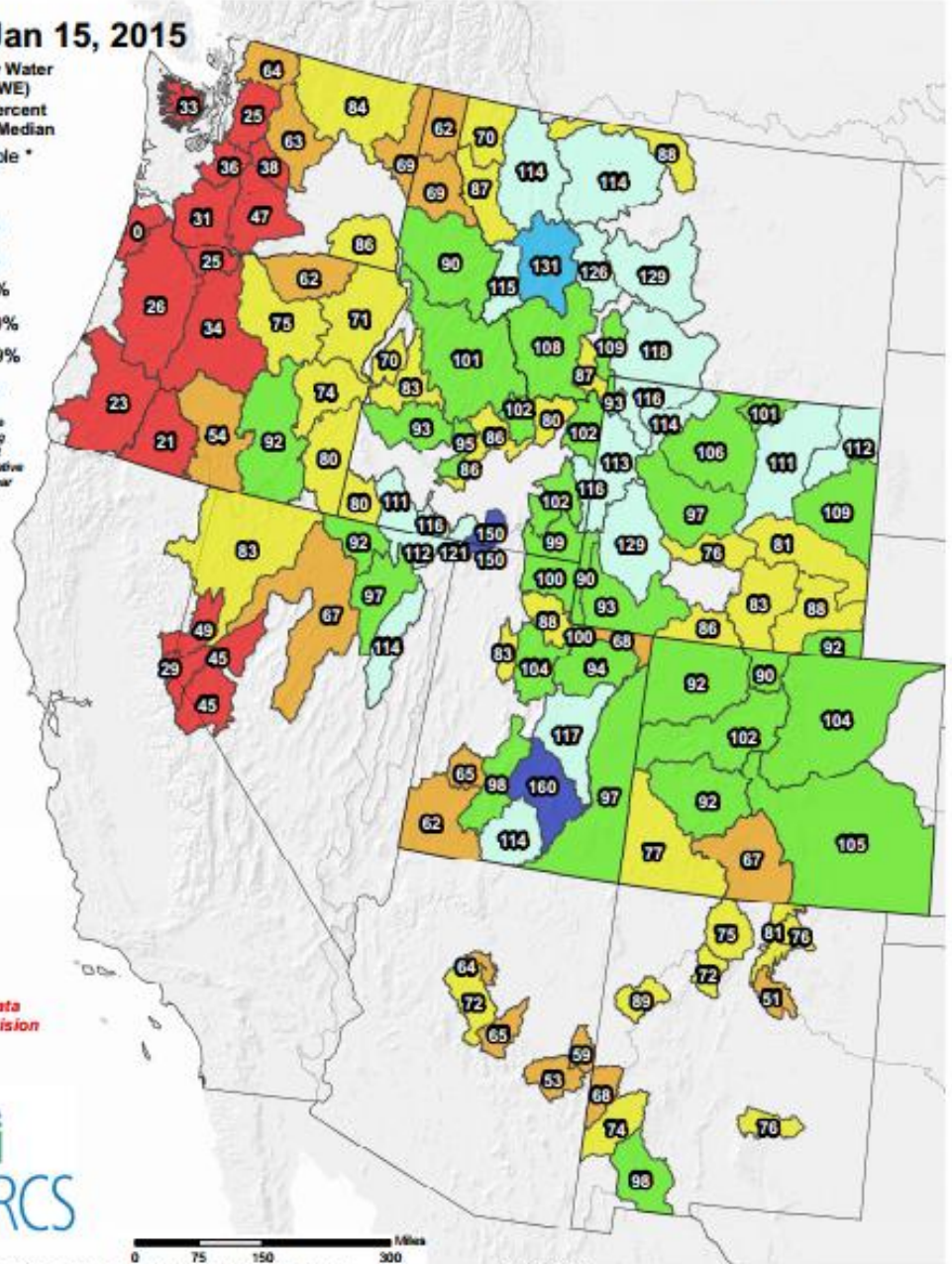
Provisional data subject to revision



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>

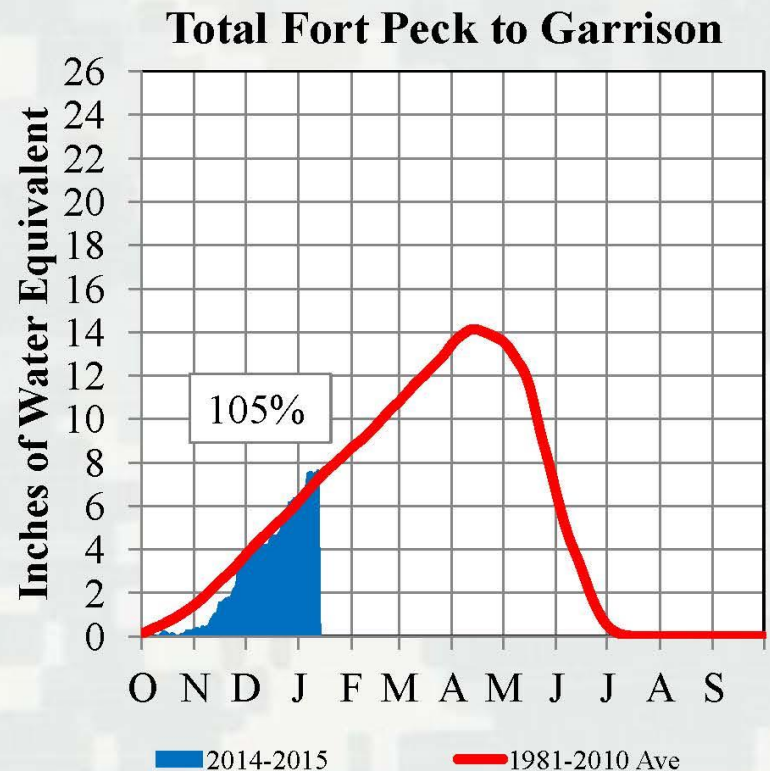
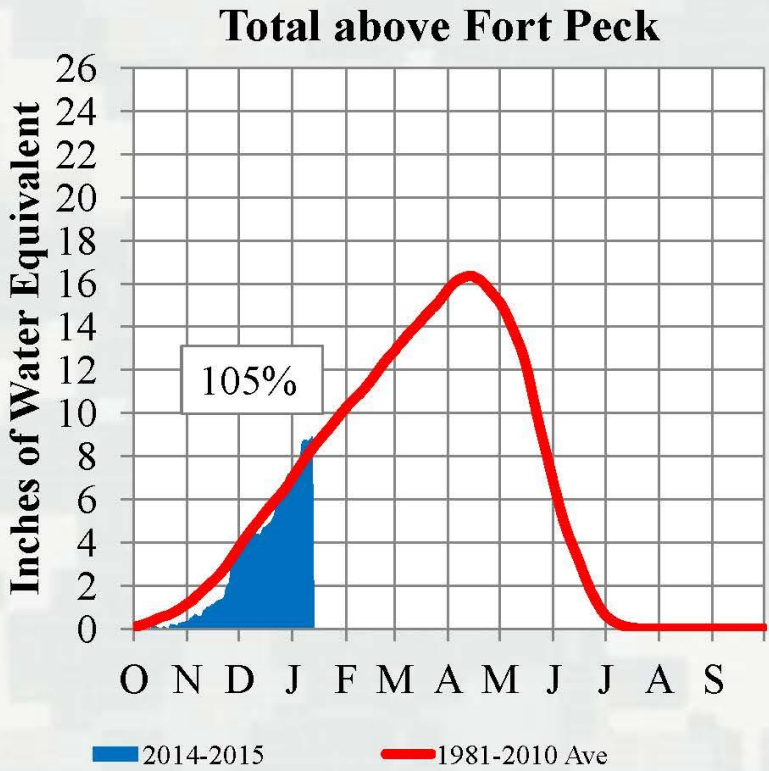
Western Snow Pack



Missouri River Basin

2014-15 Mountain Snowpack Water Content

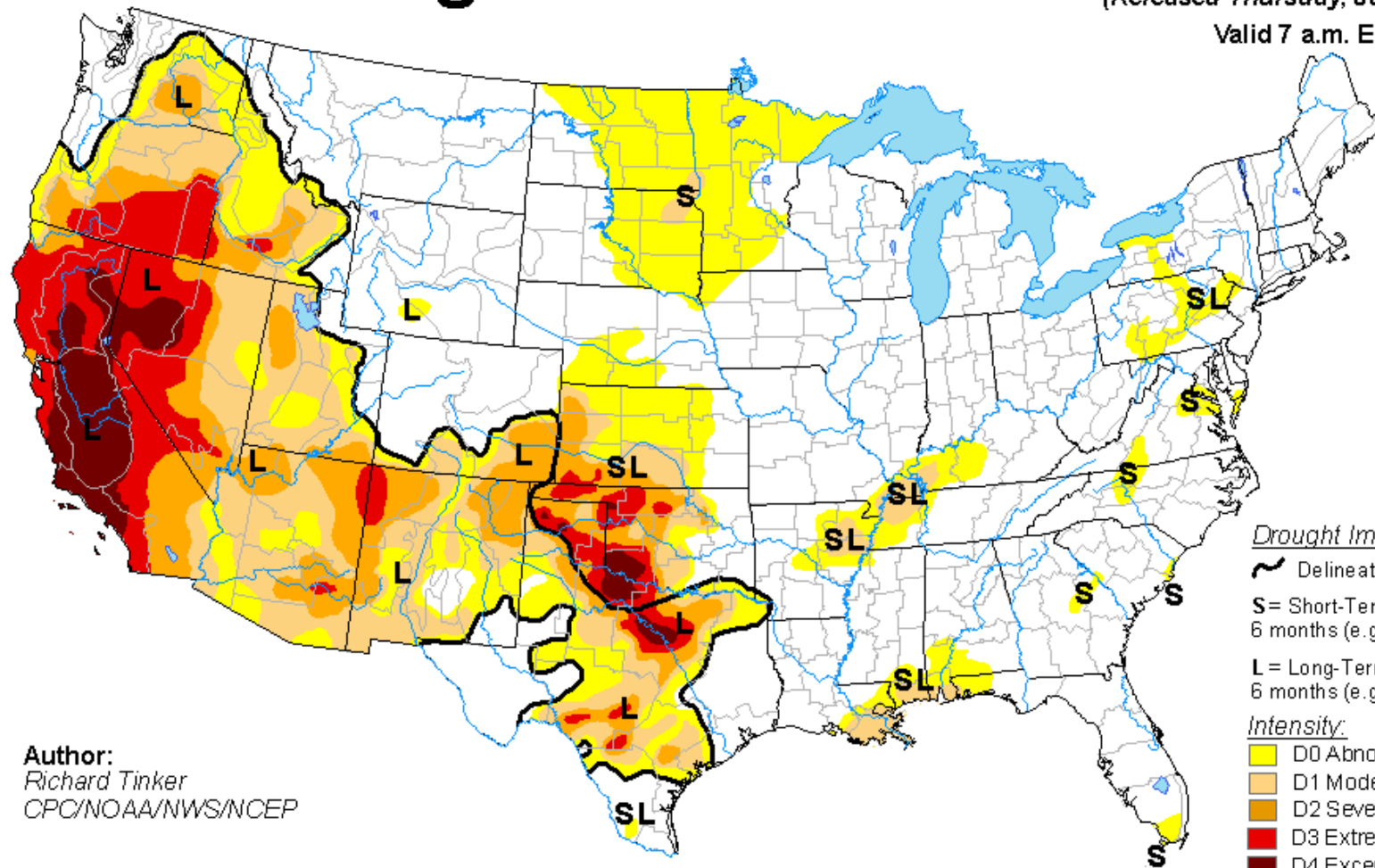
January 12, 2015



54% of normal peak accumulation has occurred by January 15

U.S. Drought Monitor

January 13, 2015
(Released Thursday, Jan. 15, 2015)
Valid 7 a.m. EST



Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

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:

Yellow: D0 Abnormally Dry

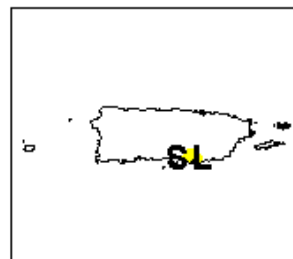
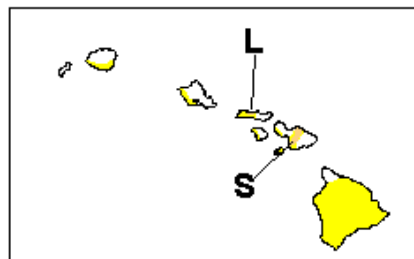
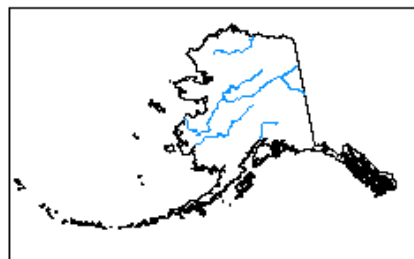
Light Orange: D1 Moderate Drought

Dark Orange: D2 Severe Drought

Red: D3 Extreme Drought

Dark Red: D4 Exceptional Drought

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

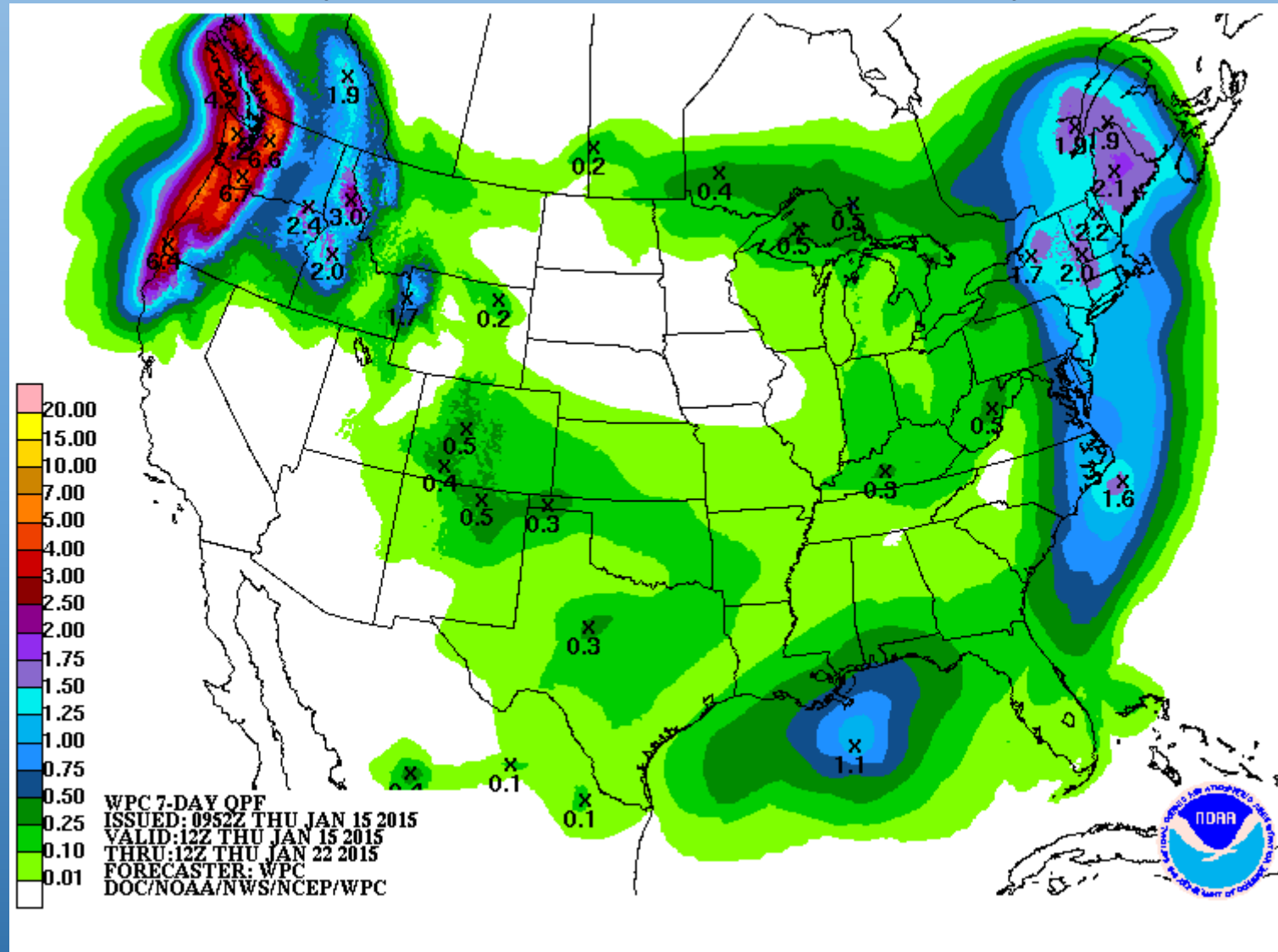


<http://droughtmonitor.unl.edu/>

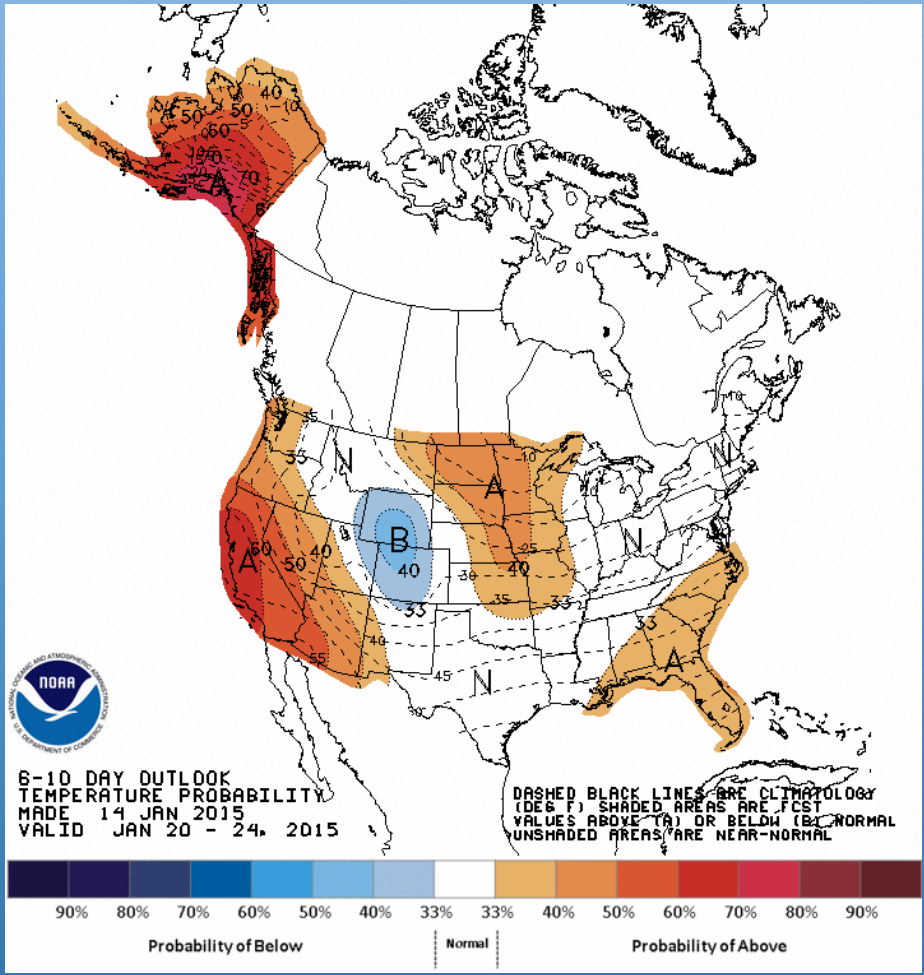
Climate Outlooks

- **7-day precipitation forecast**
- **6-10, 8-14 day outlook**
- **February**
- **Winter and Spring**
- **Drought Outlooks**

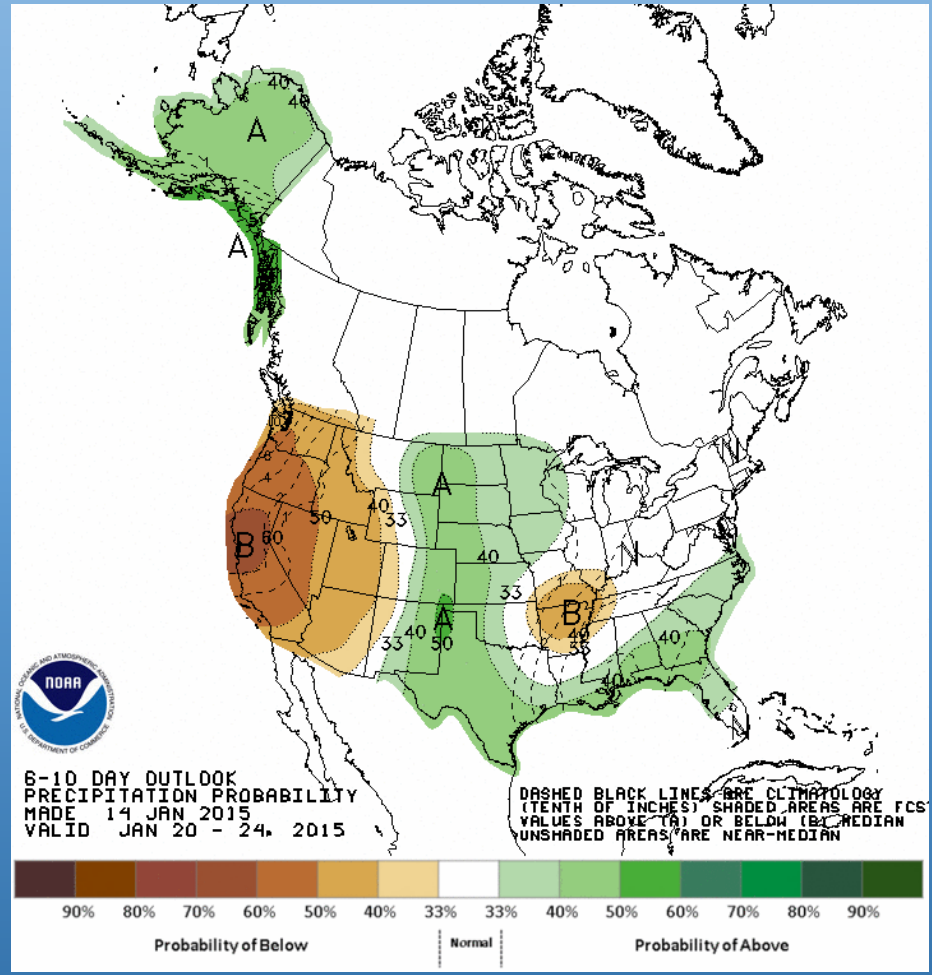
Forecast Precipitation Amounts (7 day)



6-10 Day Forecast for January 20 – 24, 2015

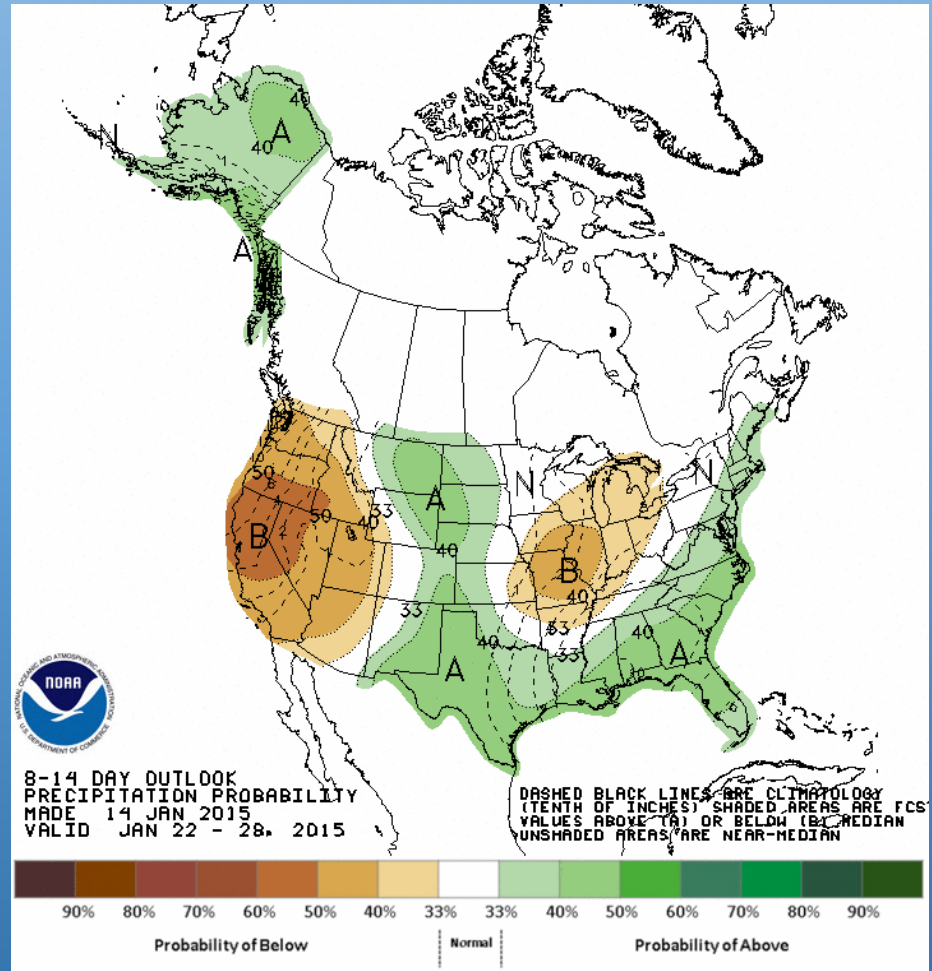
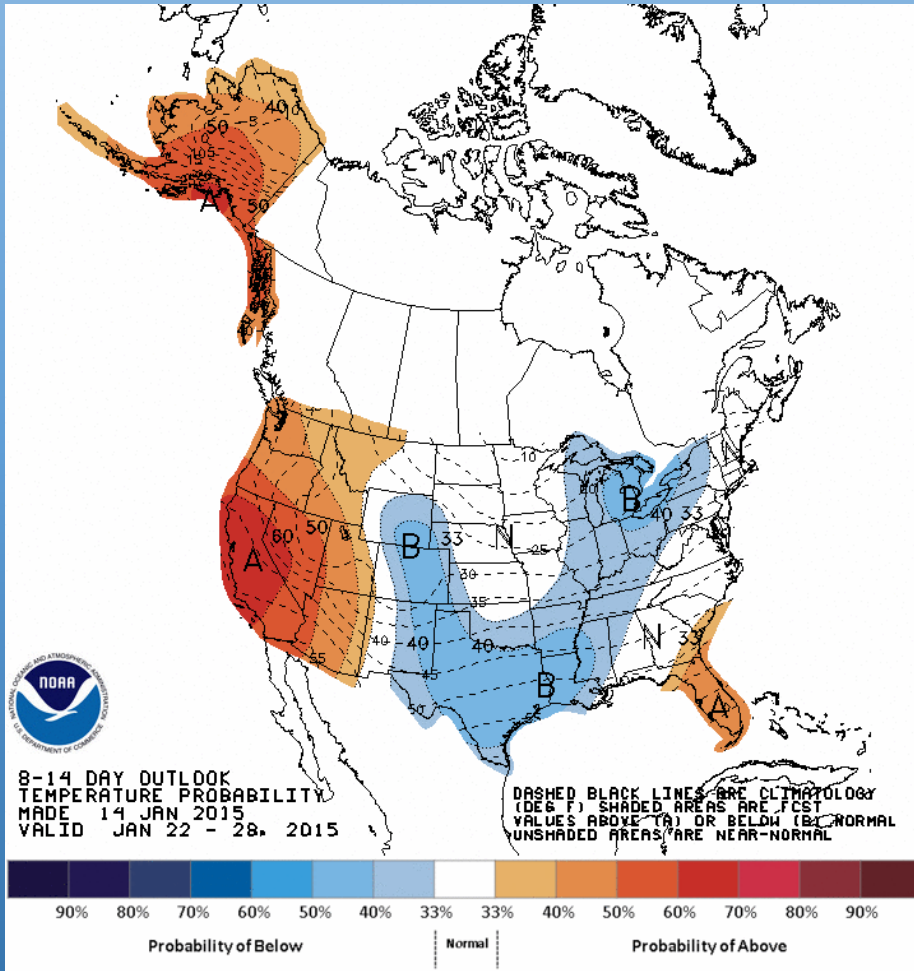


Temperature



Precipitation

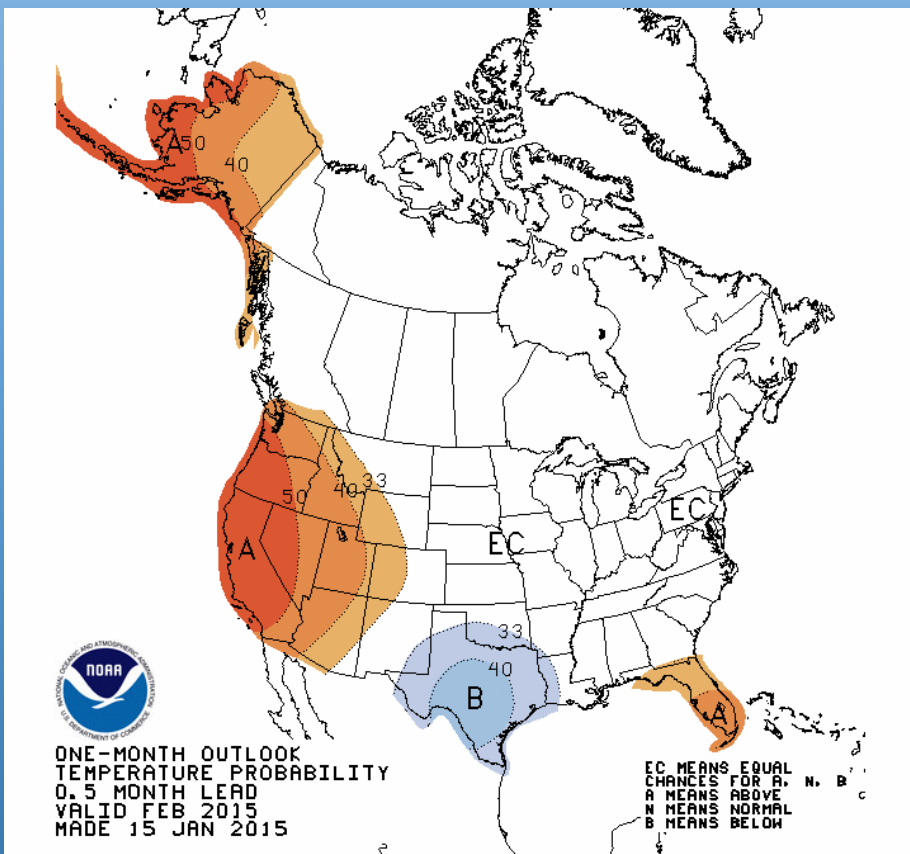
8-14 Day Forecast for January 22 – 28, 2015



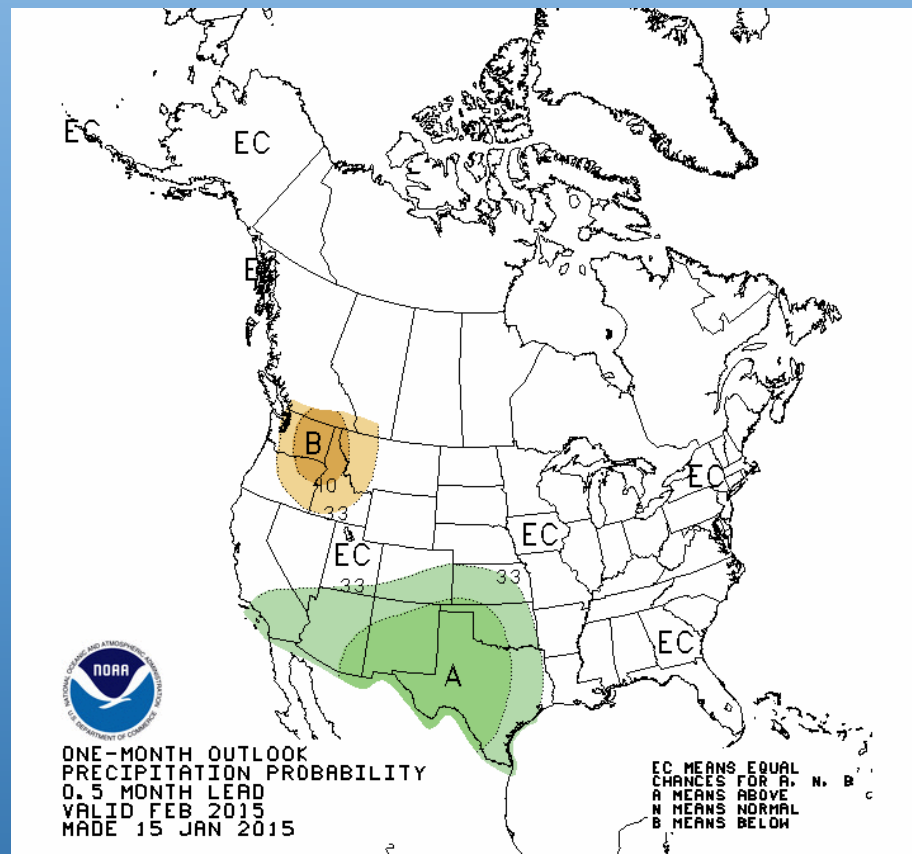
El Niño? El No!

- Right now, we are still in ENSO neutral phase.
- Chance of El Niño at 50 to 60% during the next two months.
- ENSO neutral phase is expected after that.
- Not a factor in the winter outlooks.

February Temperature and Precipitation Outlook

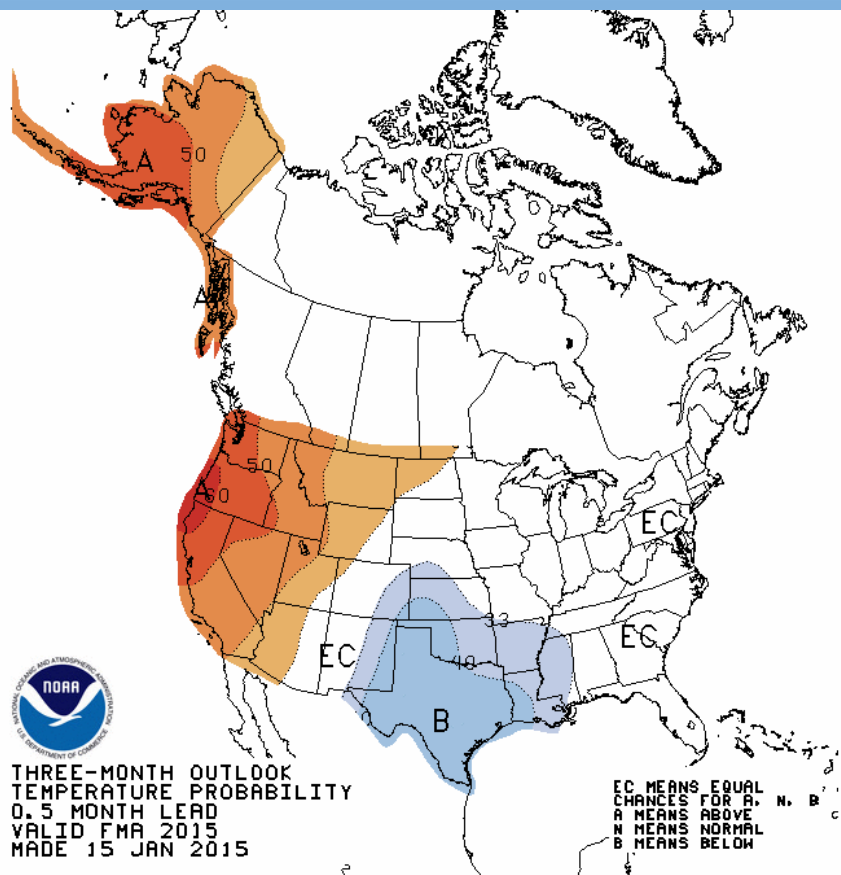


Temperature

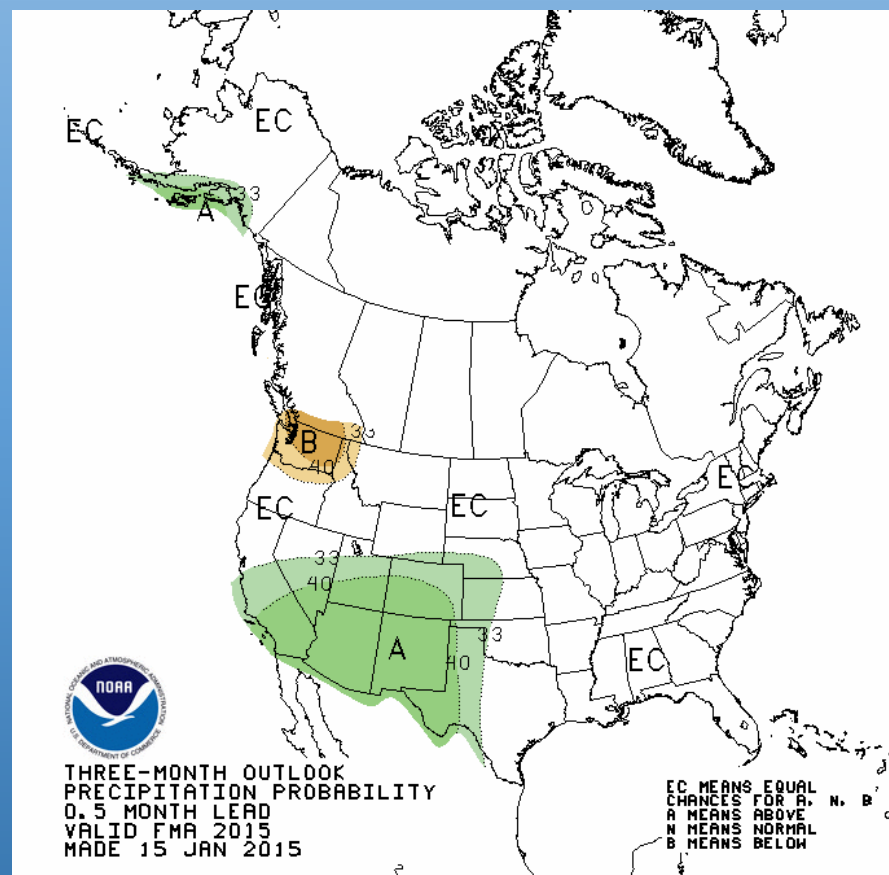


Precipitation

February – April Temperature and Precipitation Outlook

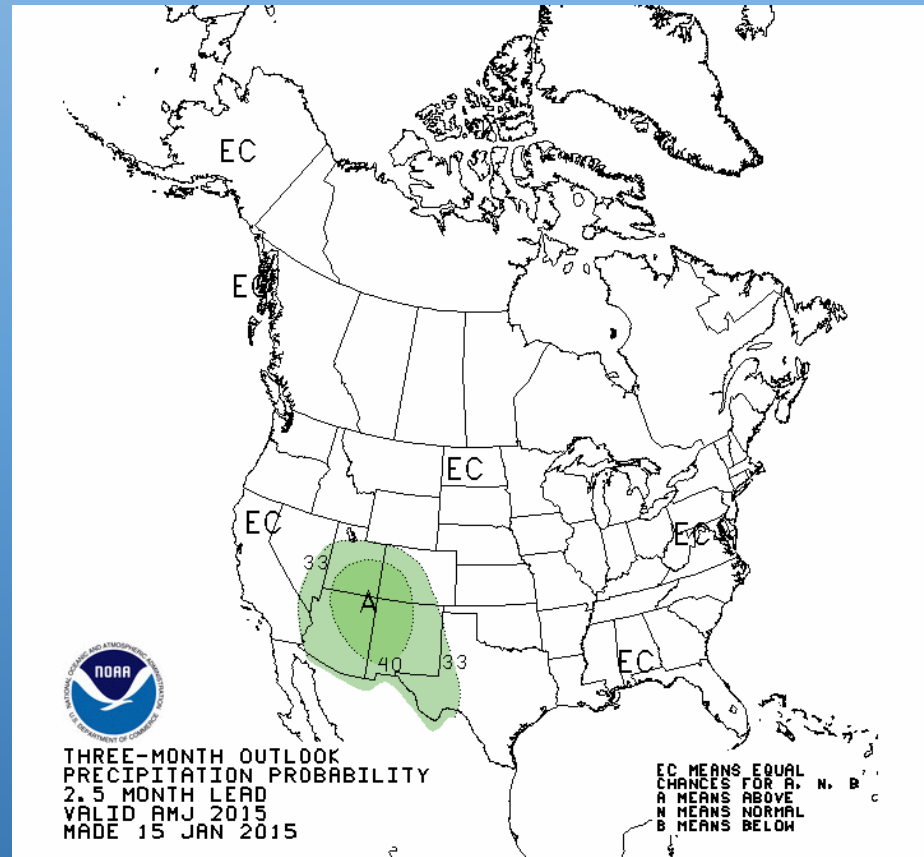
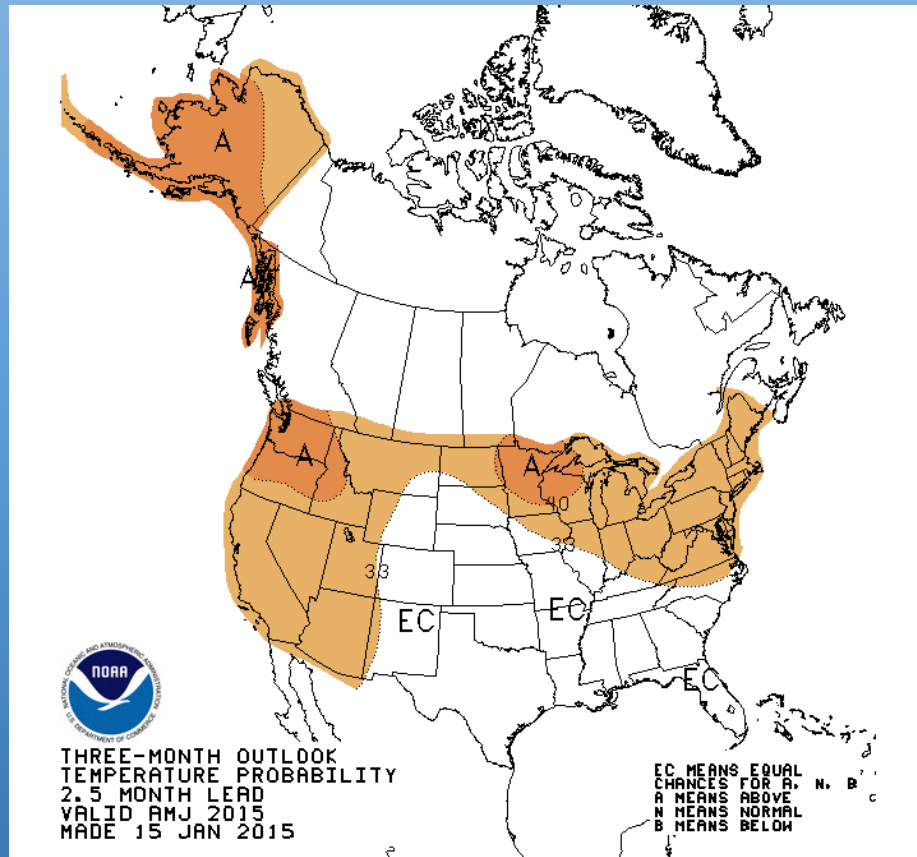


Temperature

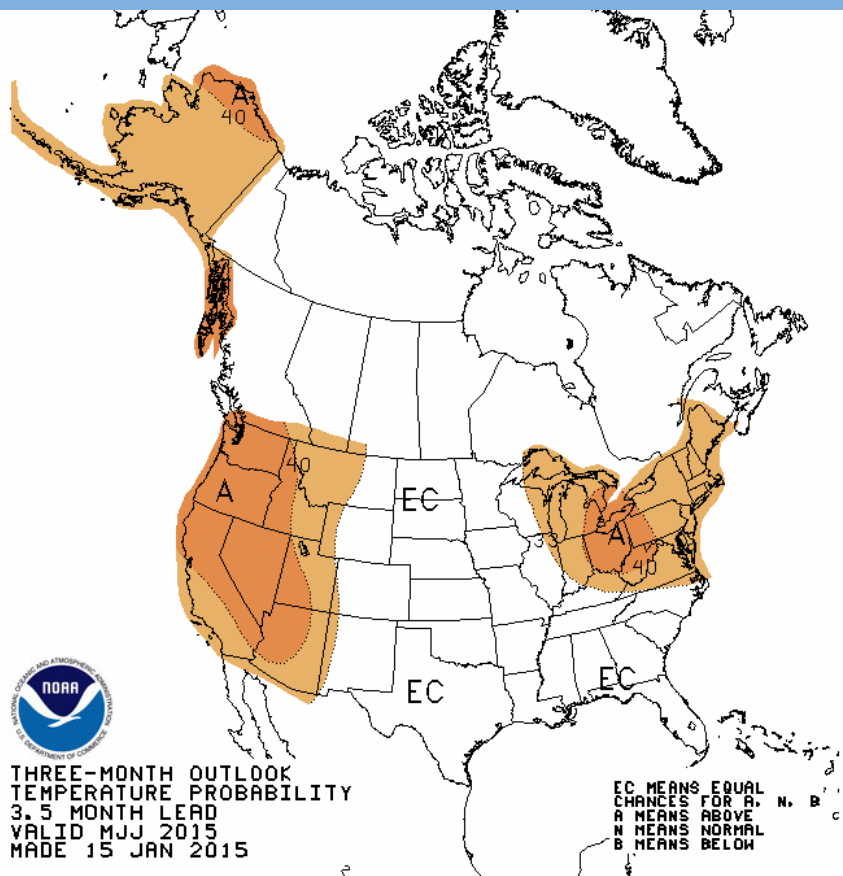


Precipitation

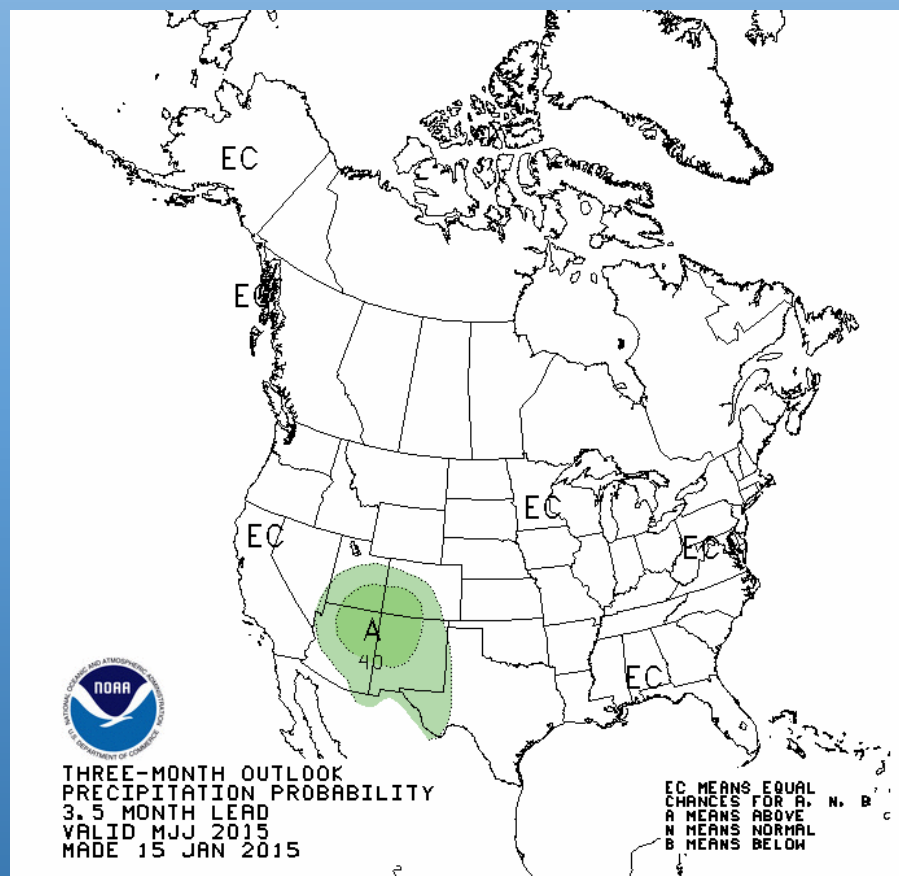
April – June Temperature and Precipitation Outlook



May – July Temperature and Precipitation Outlook

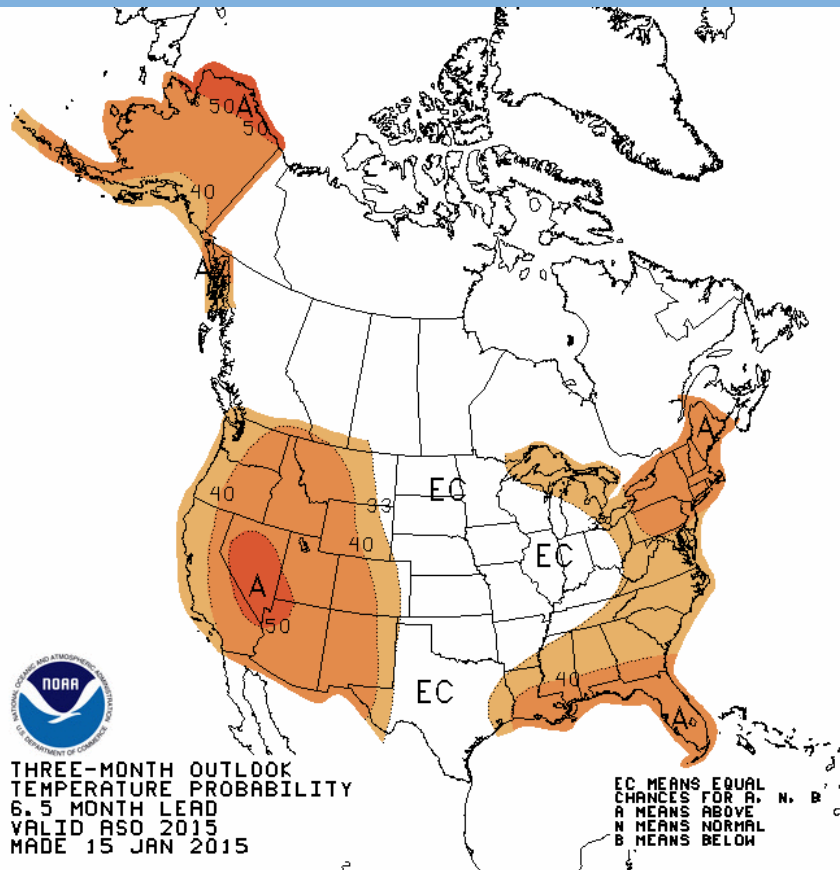


Temperature

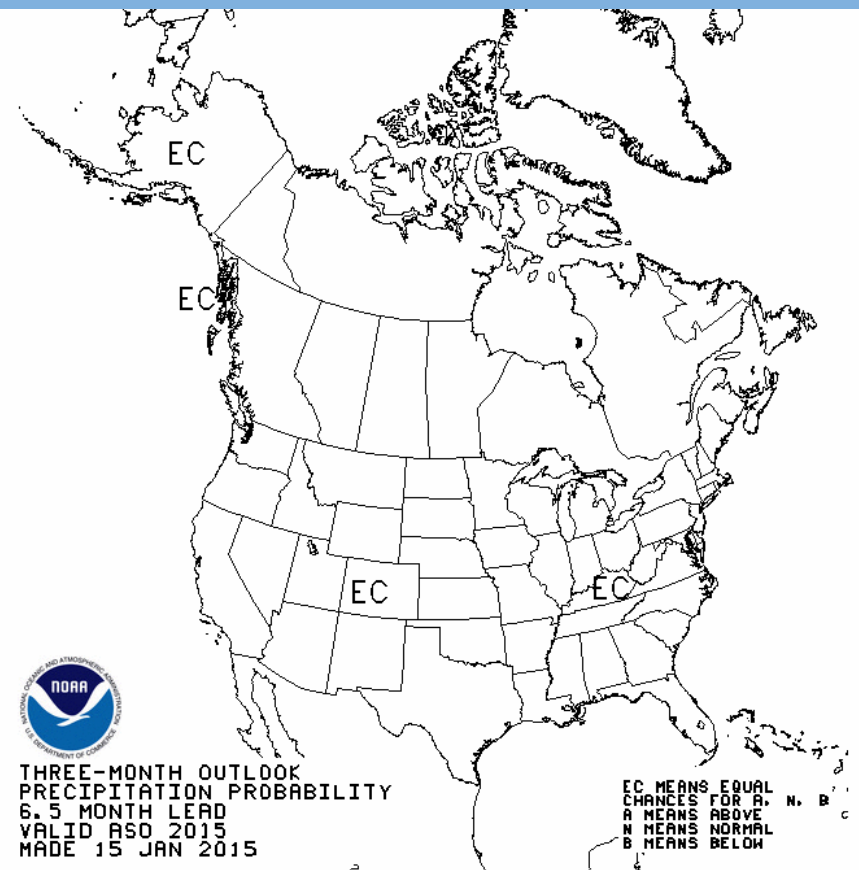


Precipitation

August – October Temperature and Precipitation Outlook



Temperature



Precipitation

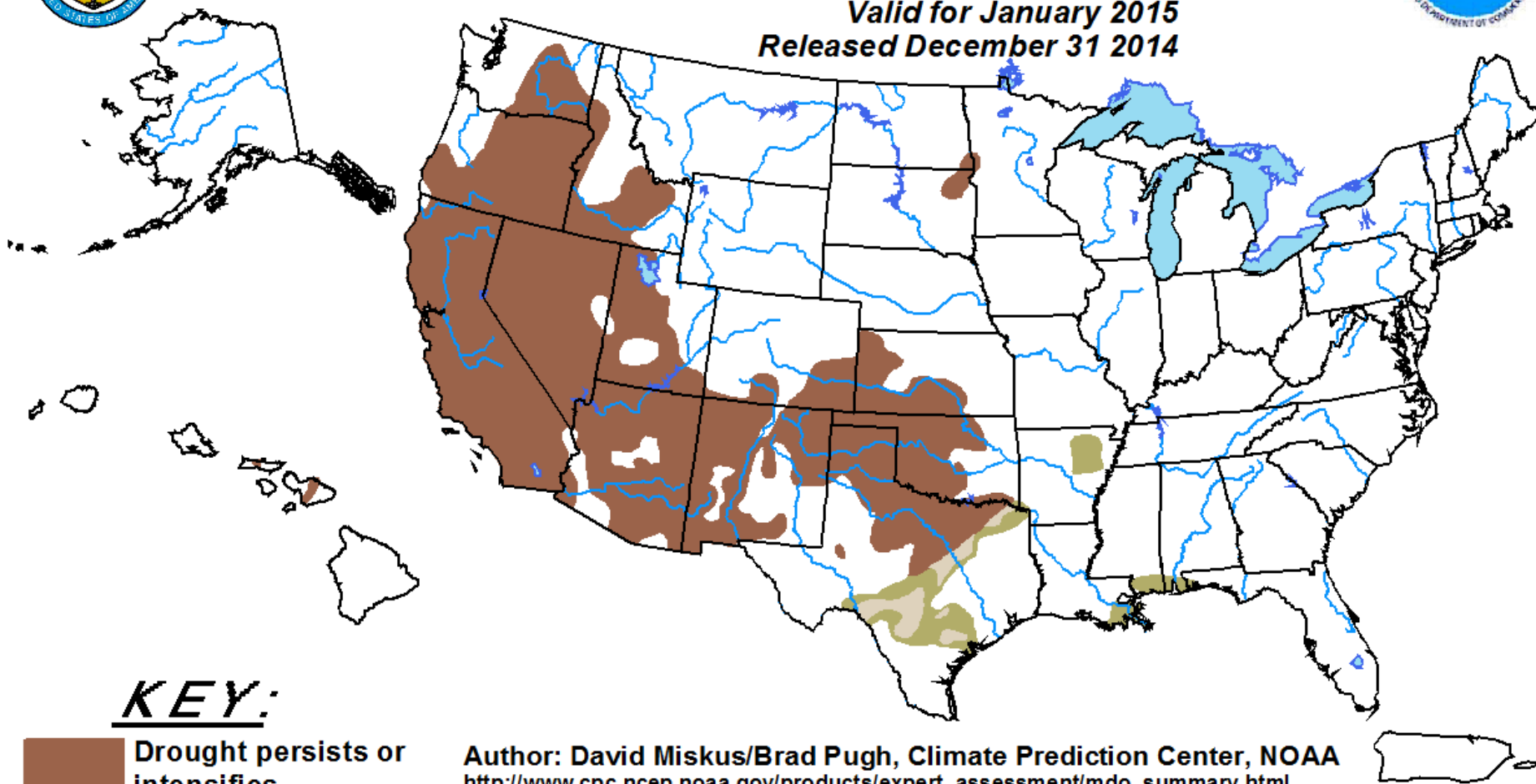


U.S. Monthly Drought Outlook





Drought Tendency During the Valid Period



Valid for January 2015
Released December 31 2014



KEY:

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

Author: David Miskus/Brad Pugh, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

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)



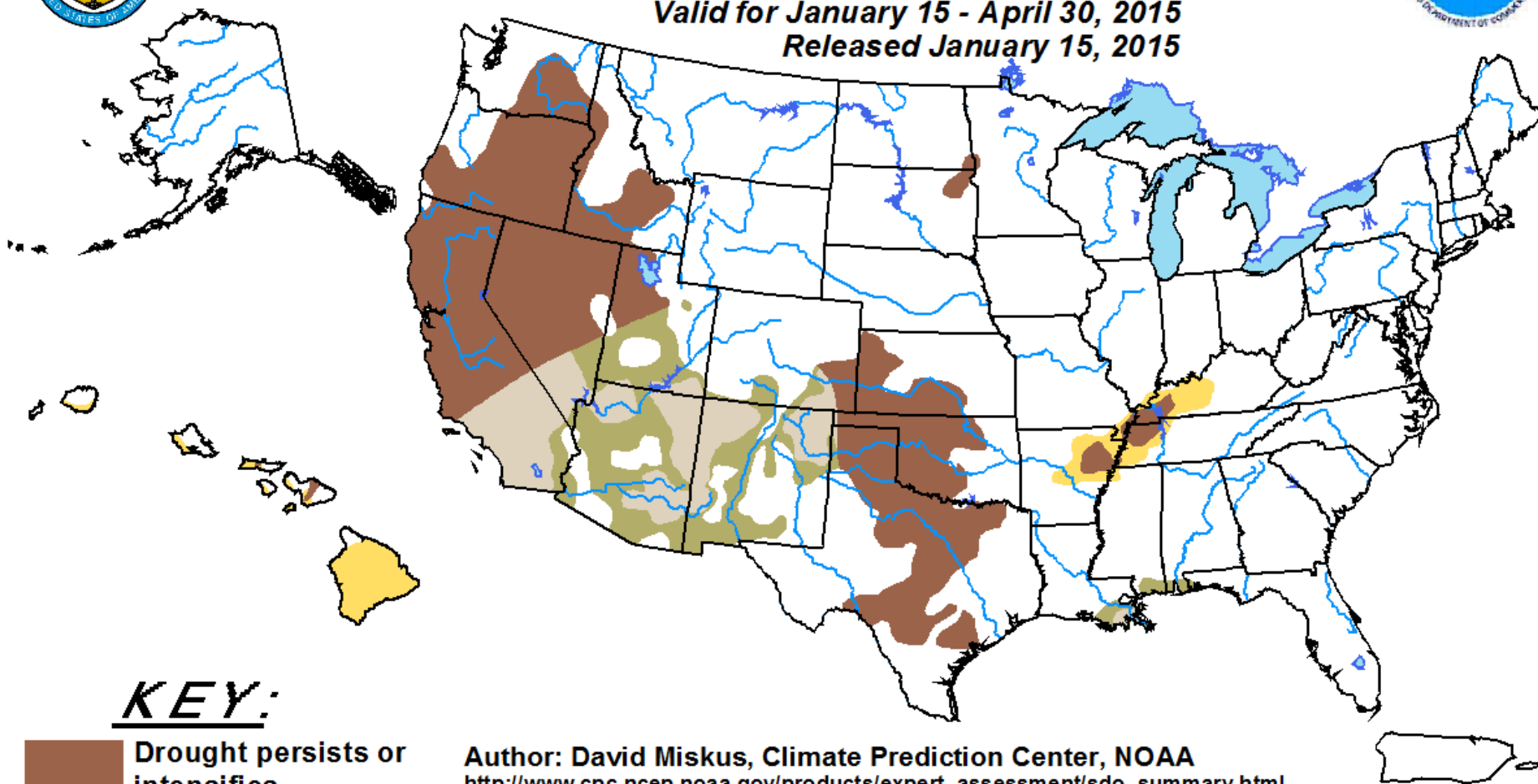
U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period







Valid for January 15 - April 30, 2015

Released January 15, 2015



KEY:

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

Author: David Miskus, Climate Prediction Center, NOAA

http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

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)

Summary

* **Recent Conditions**

- * Quiet winter compared to last year.
- * Warm December, followed by cold start to January.
- * Dry conditions in CO, KS, as well as the northern plains.
- * Snowfall near to slightly below average.
- * Great Lakes – higher water levels and beginning to ice up.

Summary

* **Outlooks**

- * February – April: EC, except for increased chance of cooler and wetter conditions in the Kansas/Colorado region.
- * May – July: EC, except for increased chance of warmer conditions in the eastern half of the Midwest.
- * August – October: EC, except for increased chance of warmer conditions on the East/West Coasts.

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?

- Questions:

- **Climate:**

- Jim Angel: jimangel@illinois.edu, 217-333-0729
 - Dennis Todey: dennis.todey@sdstate.edu , 605-688-5141
 - Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
 - John Eise: john.eise@noaa.gov, 816-268-3144
 - Mike Timlin: mtimlin@illinois.edu; 217-333-8506
 - Natalie Umphlett: numphlett2@unl.edu ; 402 472-6764
 - Brian Fuchs: bfuchs2@unl.edu 402 472-6775

- **Weather:**

- crhroc@noaa.gov