

Great Plains and Midwest Climate Outlook

18 December 2014

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30 Nov 2014 – Looking down at the Yampa Valley near Steamboat Springs, CO



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**
 - Jim Angel – IL State Climatologist
 - January 15, 2015
- **Access to Future Climate Webinars and Information**
 - <http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars>
 - *For 2015, single URL sign up will be used. If you sign up in January, you will be registered for all 12 months!*
- **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**

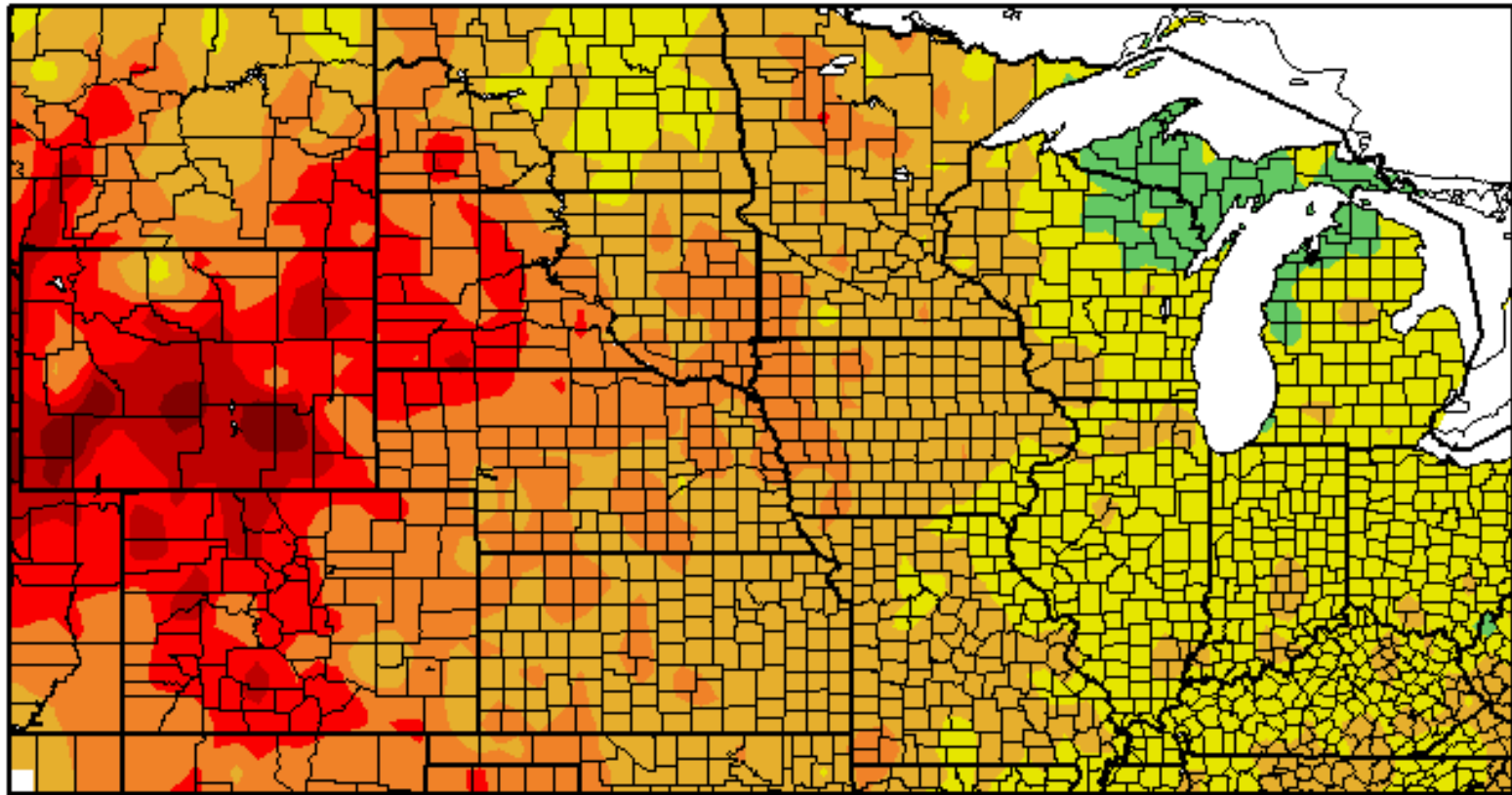
Agenda

- Current Conditions around the Region
 - Temperature
 - Precipitation
 - Snowpack
 - Soil Moisture
- Impacts in the Region
- Outlook

Month to Date Temperature Departure

Departure from Normal Temperature (F)

12/1/2014 – 12/15/2014



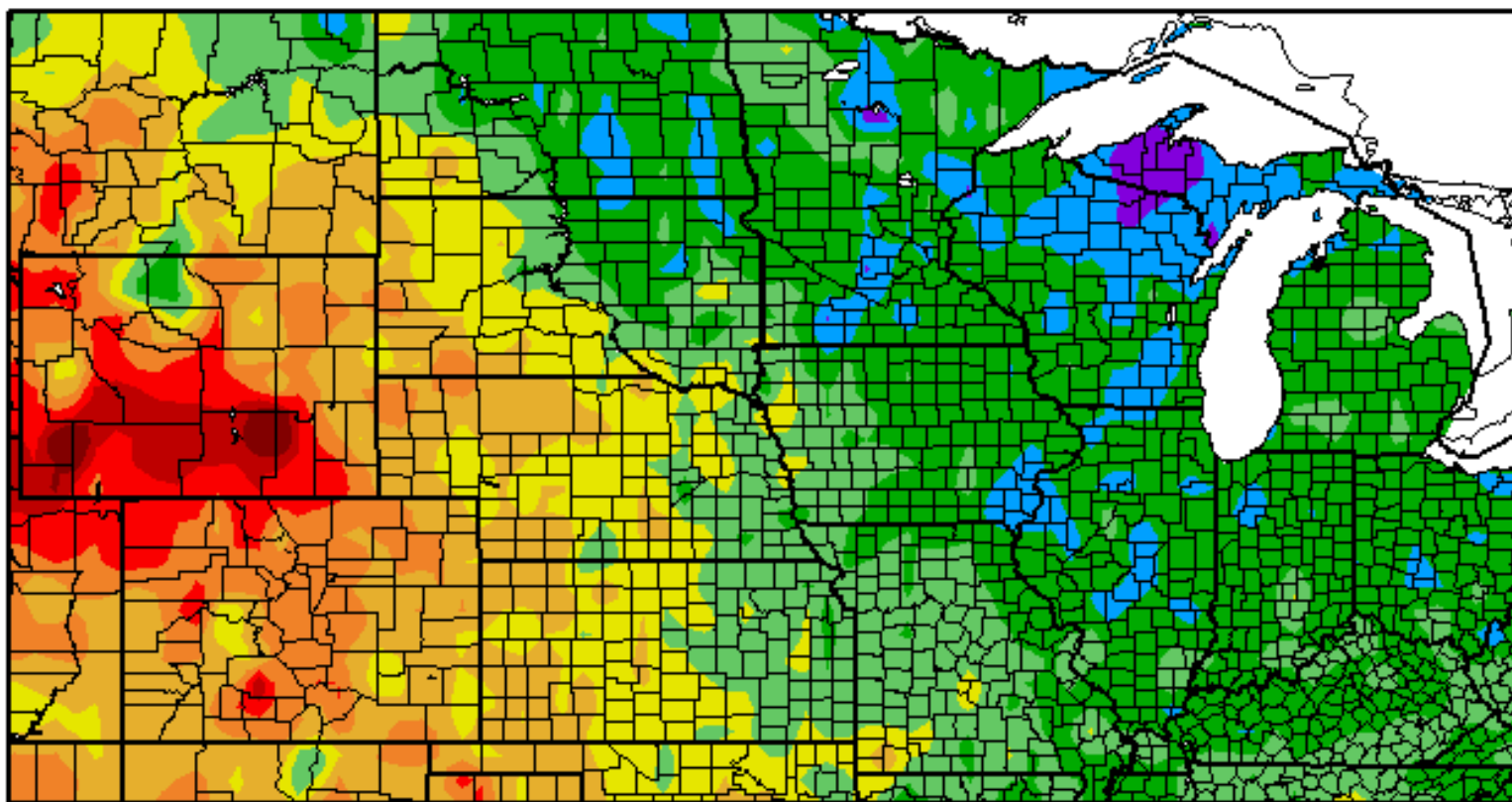
<http://www.hprcc.unl.edu/>



30 Day Temperature Departure

Departure from Normal Temperature (F)

11/16/2014 - 12/15/2014



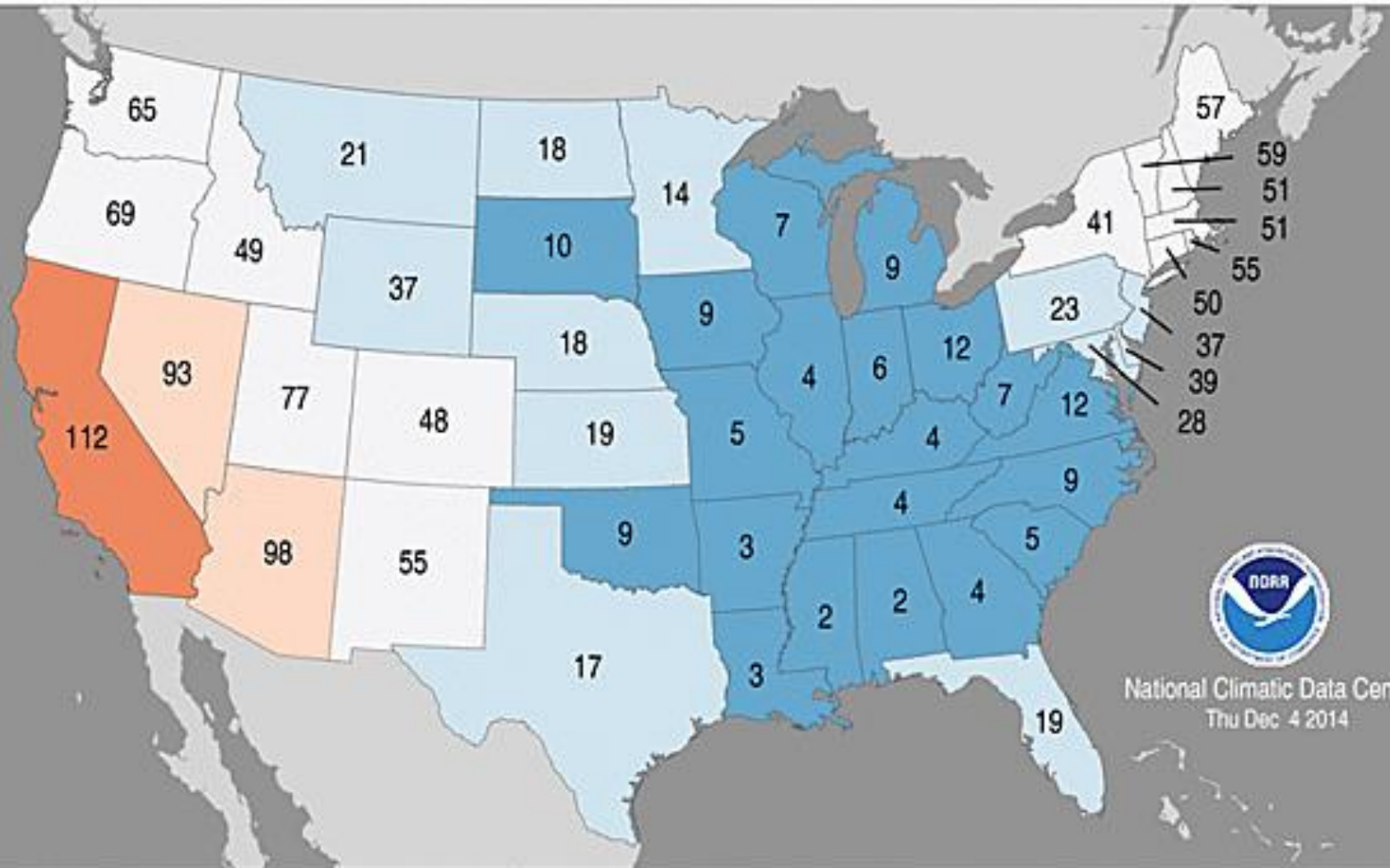
<http://www.hprcc.unl.edu/>



Statewide Average Temperature Ranks

November 2014

Period: 1895-2014



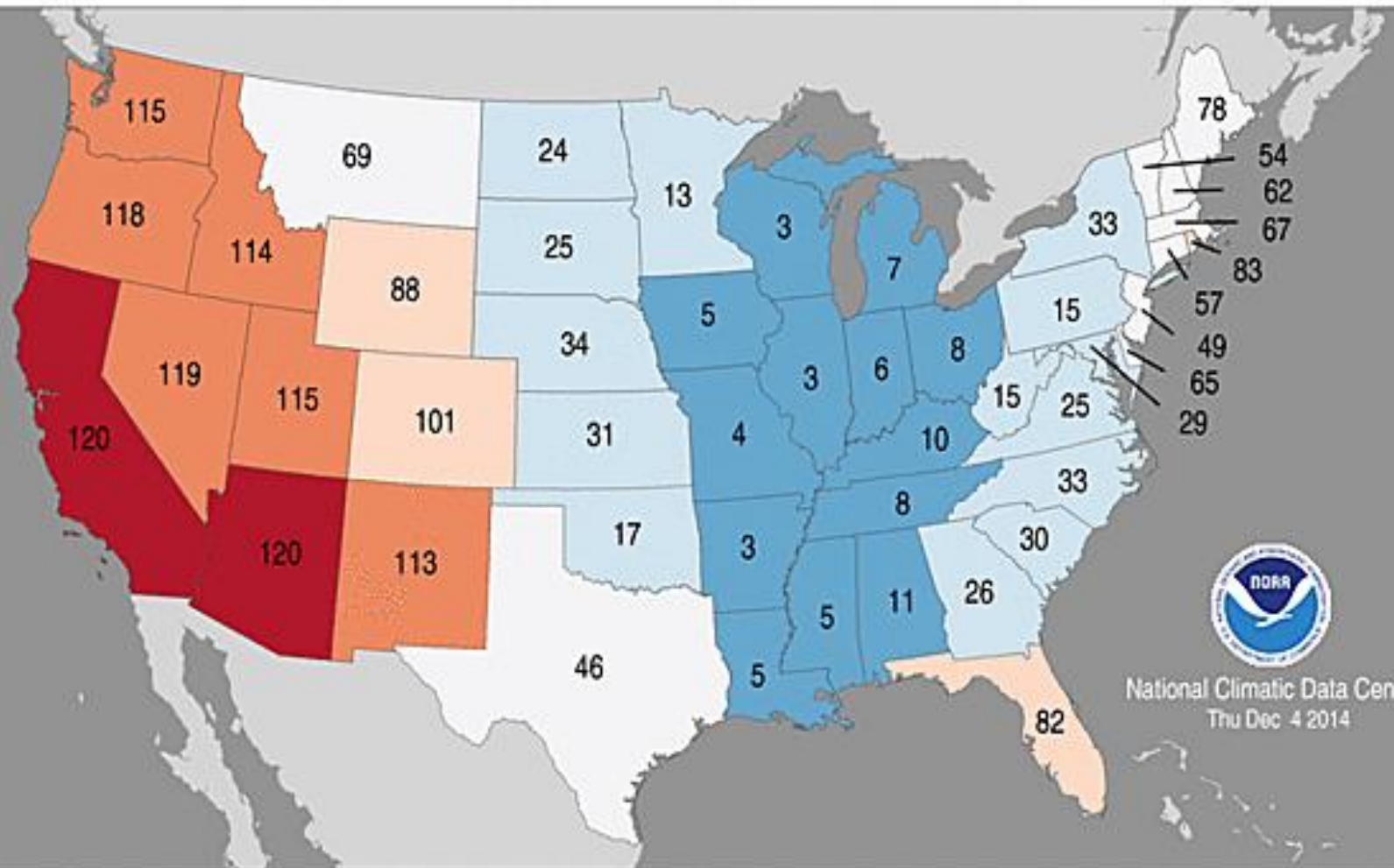
National Climatic Data Center
Thu Dec 4 2014



Statewide Average Temperature Ranks

January–November 2014

Period: 1895–2014

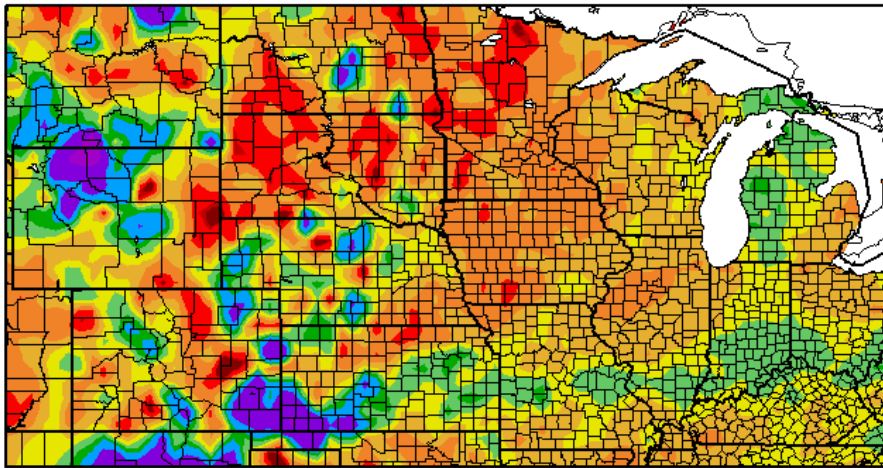


National Climatic Data Center
Thu Dec 4 2014



30-Day Precipitation

Percent of Normal Precipitation (%)
11/16/2014 - 12/15/2014

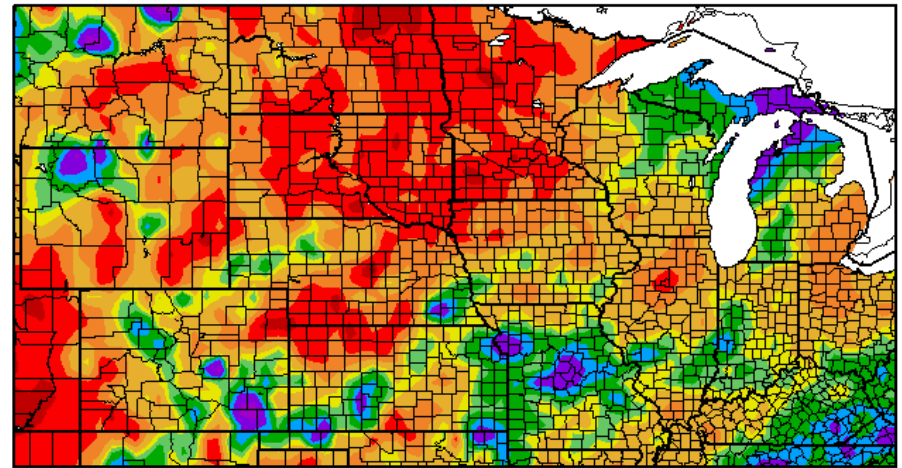


Generated 12/16/2014 at HPRCC using provisional data.

Regional Climate Cent

Water Year Precipitation

Percent of Normal Precipitation (%)
10/1/2014 - 12/15/2014



Generated 12/16/2014 at HPRCC using provisional data.

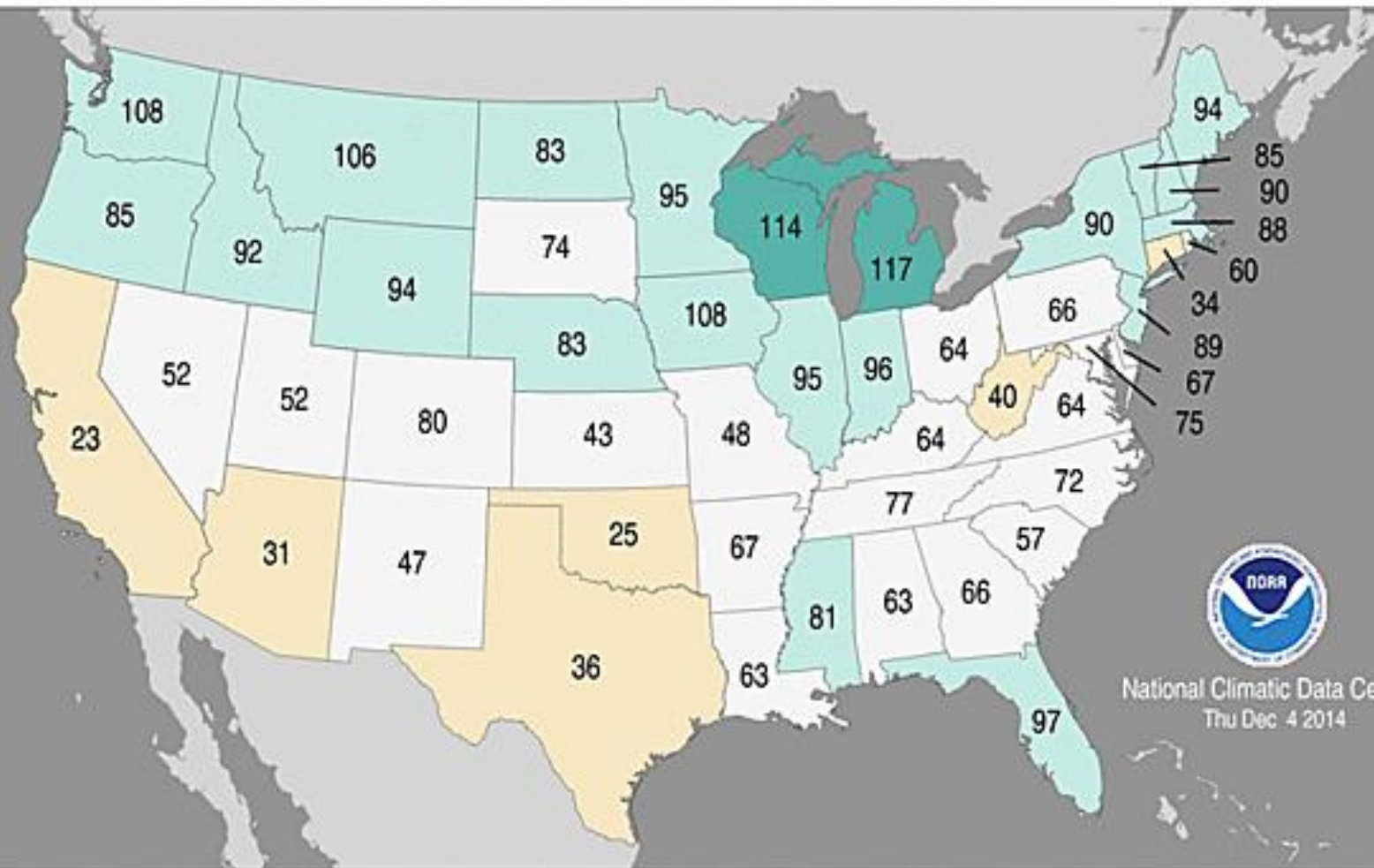
Regional Climate Centers

<http://www.hprcc.unl.edu/>

Statewide Precipitation Ranks

January–November 2014

Period: 1895–2014

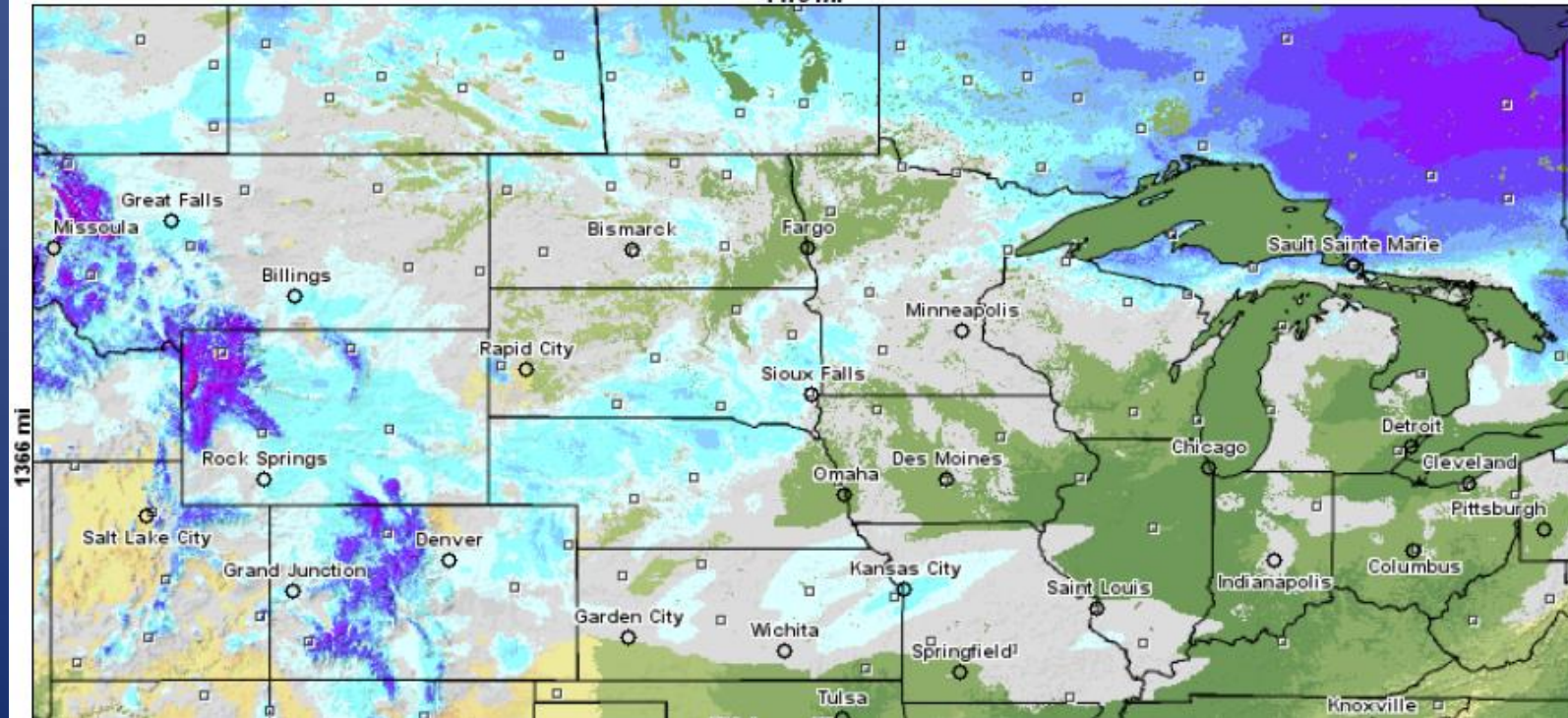
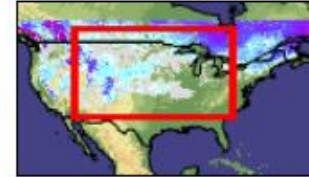


National Climatic Data Center
Thu Dec 4 2014

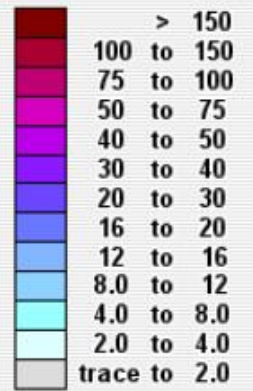


Modeled Snow Depth

Modeled Snow Depth forecasted for 2014 December 18, 14:00 UTC
1473 mi



Inches of depth



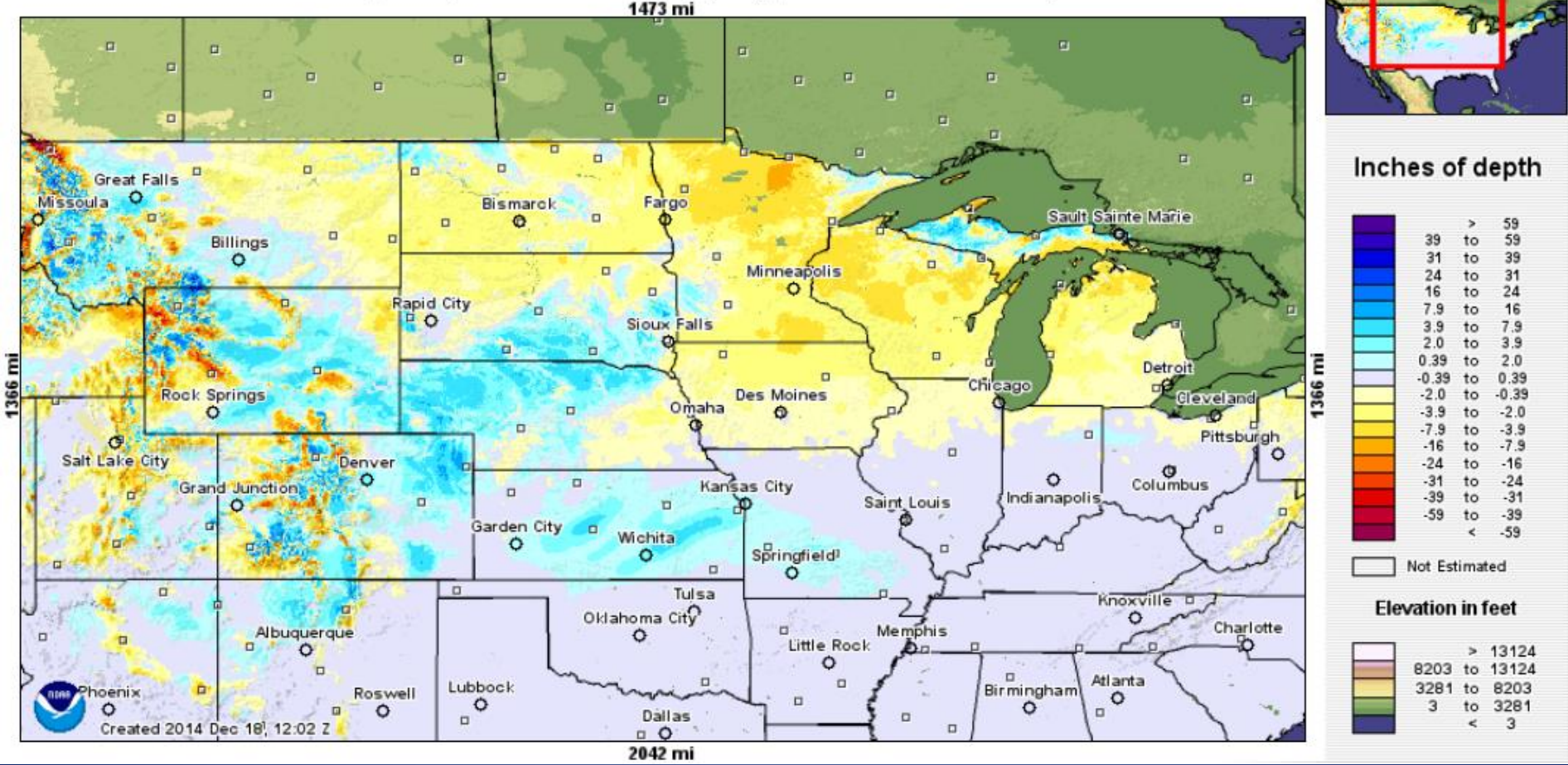
Not Estimated

Elevation in feet

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

Modeled Snow Depth Anomaly

Modeled Snow Depth Departure from Normal (Daily) for 2014 December 18, 6:00 UTC

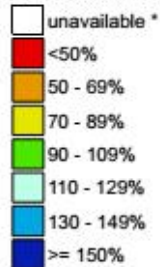


<http://http://www.nohrsc.noaa.gov/interactive/html/map.html?>

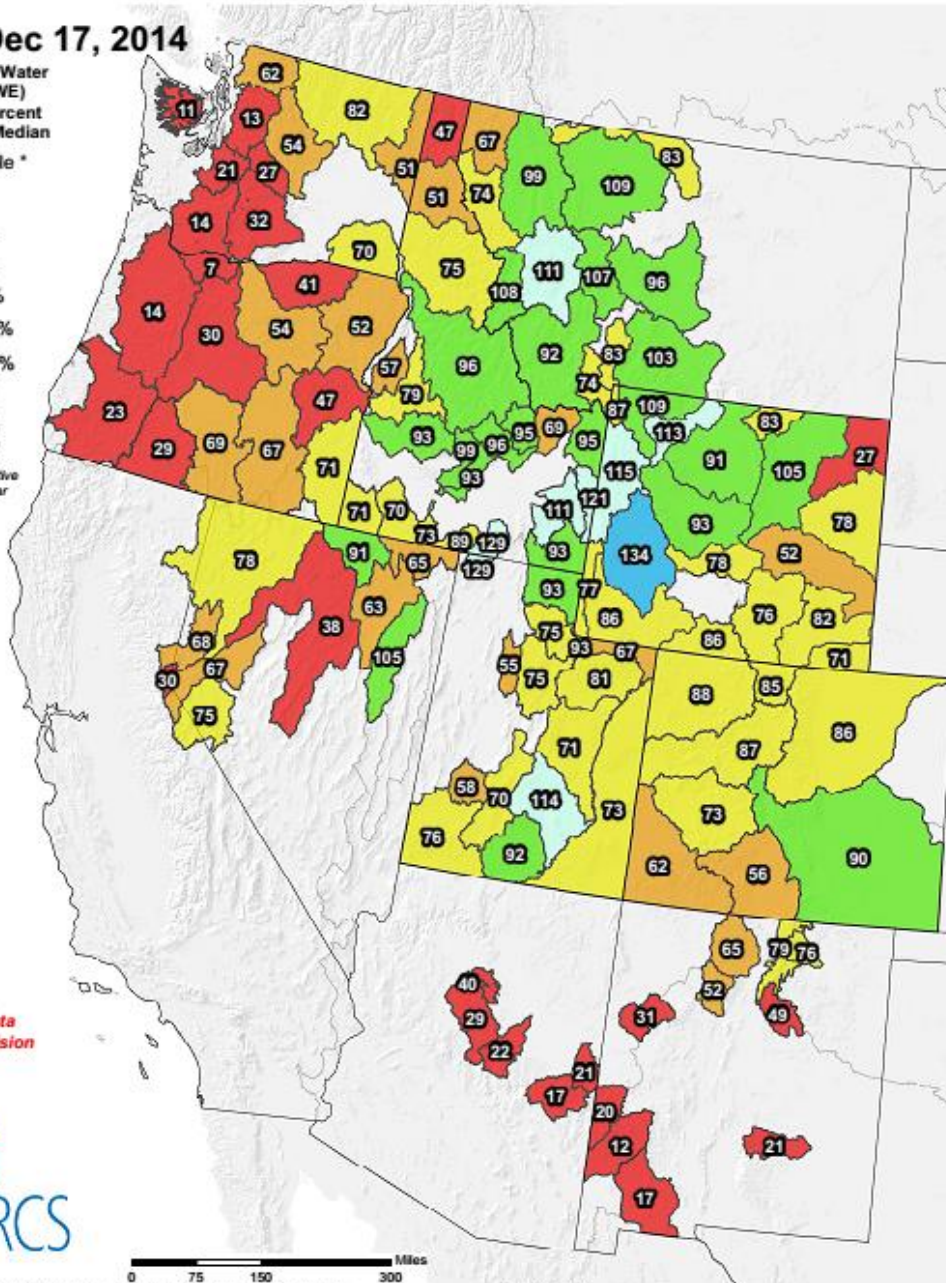
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Dec 17, 2014

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).

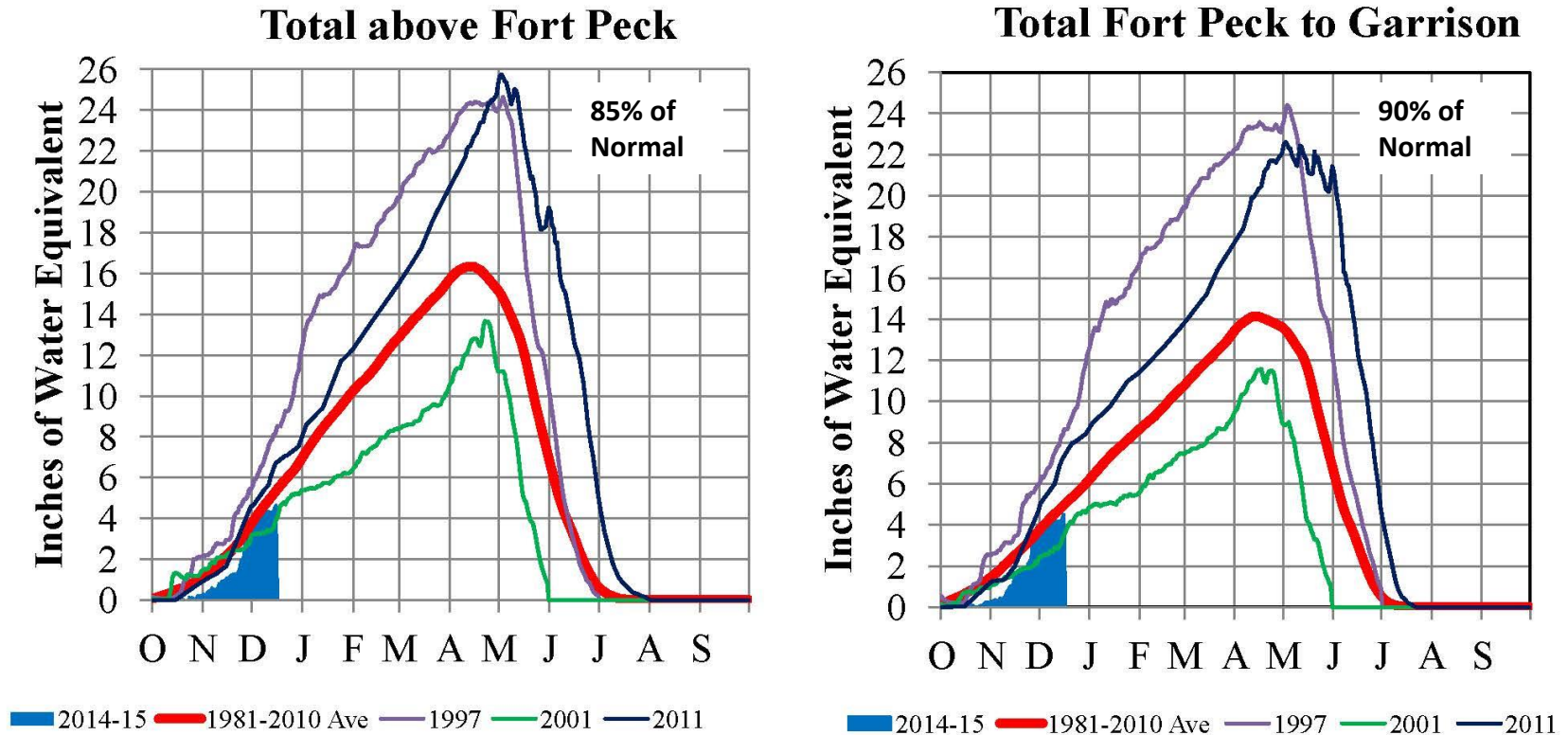
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

- Current western U.S. snowpack conditions

ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_swepctnormal_update.pdf

Missouri River Basin – Mountain Snowpack Water Content 2014-2015 with comparison plots from 1997*, 2001*, and 2011

December 16, 2014



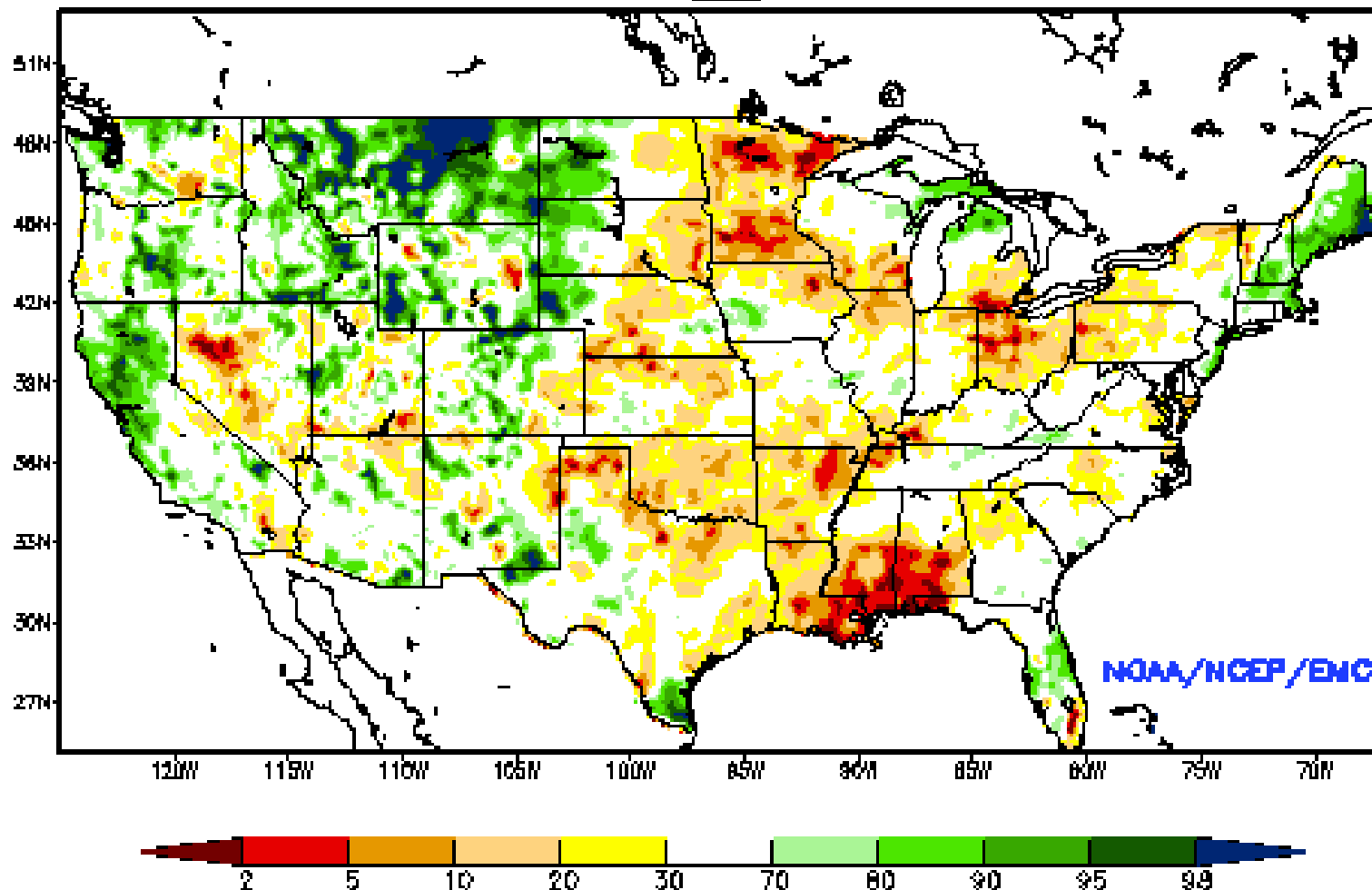
The Missouri River basin mountain snowpack normally peaks near April 15. By December 15, normally 34% of the peak has accumulated. On December 16, 2014 the mountain snowpack SWE in the “Total above Fort Peck” reach is currently 4.7”, 85% of average. The mountain snowpack SWE in the “Total Fort Peck to Garrison” reach is currently 4.5”, 90% of average.

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

Provisional data. Subject to revision.

Soil Moisture

Ensemble-Mean - Current Total Column Soil Moisture Percentile
NCEP NLDAS Products Valid: DEC 13, 2014



GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)



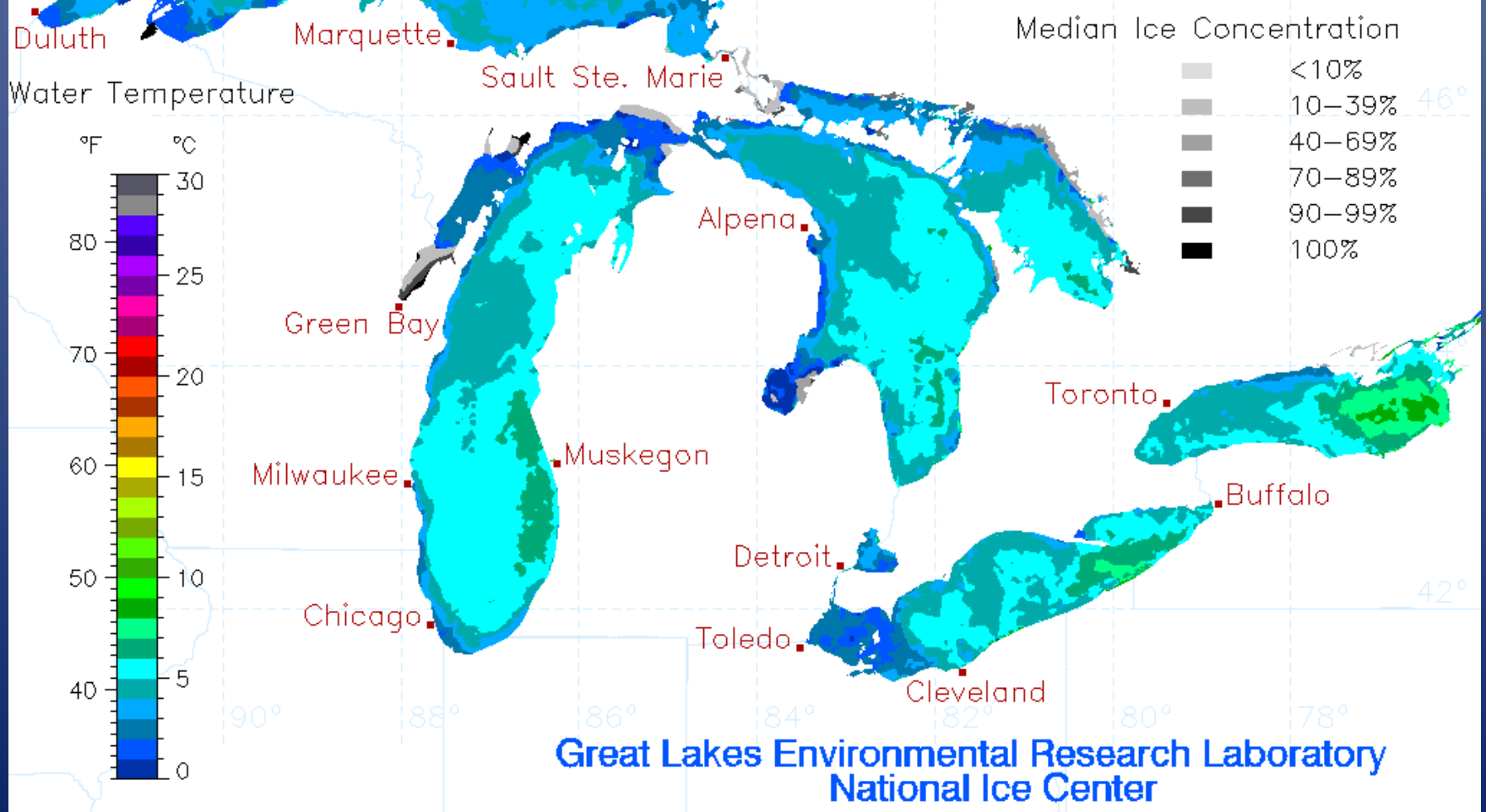
Analysis Date: JD 351 12/17/2014

Percent Pixels with Data within +/-10 Days: 85.6%

Date of last ice analysis: 12/17/2014 48°

NOAA CoastWatch

Great Lakes Total Ice Cover: 1.2%



Issues

- After a cold November, ice jam issues have subsided with warm and dry conditions to start December.
 - Allowed for harvest to almost finish up.
- Lack of snow
 - Lack of snow and dry soil moisture tends to lead to warmer than normal winters.
 - Potential winter wheat damage/loss is a major concern without snow cover to protect it from wind/extreme temperatures.
 - Winter recreation impacts - snowmobiling, cross country skiing in Black Hills area.
- Rare December tornado for Kansas this week
 - 1 of 6 since 1950 for KS.

Agricultural Impacts

- Corn harvest – 94%
 - Some corn left un-harvested in the north due to:
 - Late planting (cold)
 - Cooler/wetter growing season delaying growth
 - November snow
 - WI was only 91% harvested by Dec 14, MI 80% as of Dec 1.
- Soybean harvest – 97%
- Sorghum harvest – 91%
- Sunflowers harvest – 86%

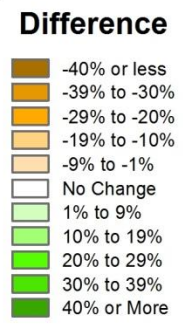
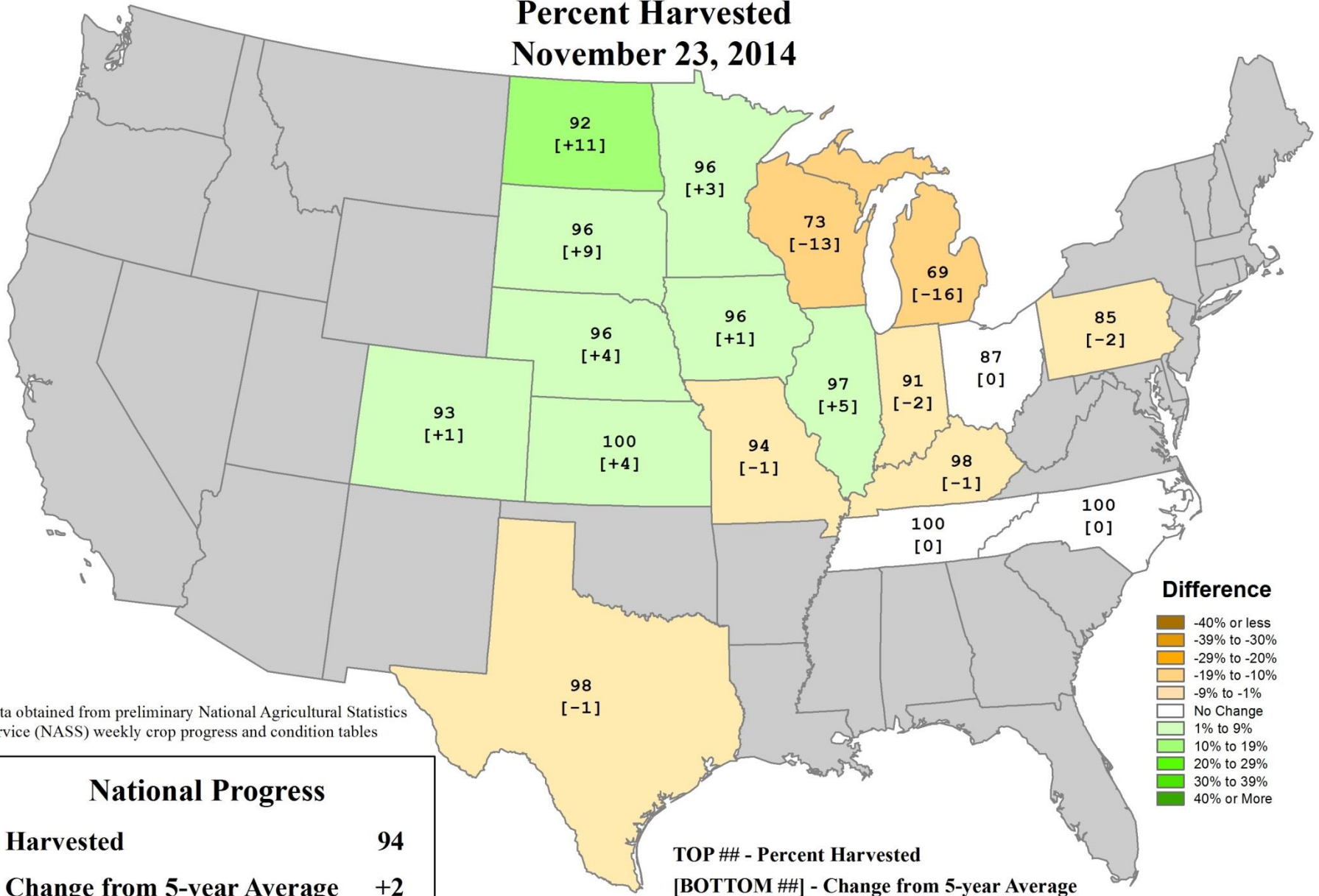
- Winter Wheat – 92% emerged
 - 37% of winter wheat growing areas are experiencing drought – mainly in KS and CO.
 - Late planting and cold November impacts to be assessed in Spring.



Harvesting corn in the snow in Northern Iowa:
<http://www.farmlandforecast.com/2014/11/picture-week-winter-claims-unharvested-acres/>

U.S. Corn Progress

Percent Harvested
November 23, 2014



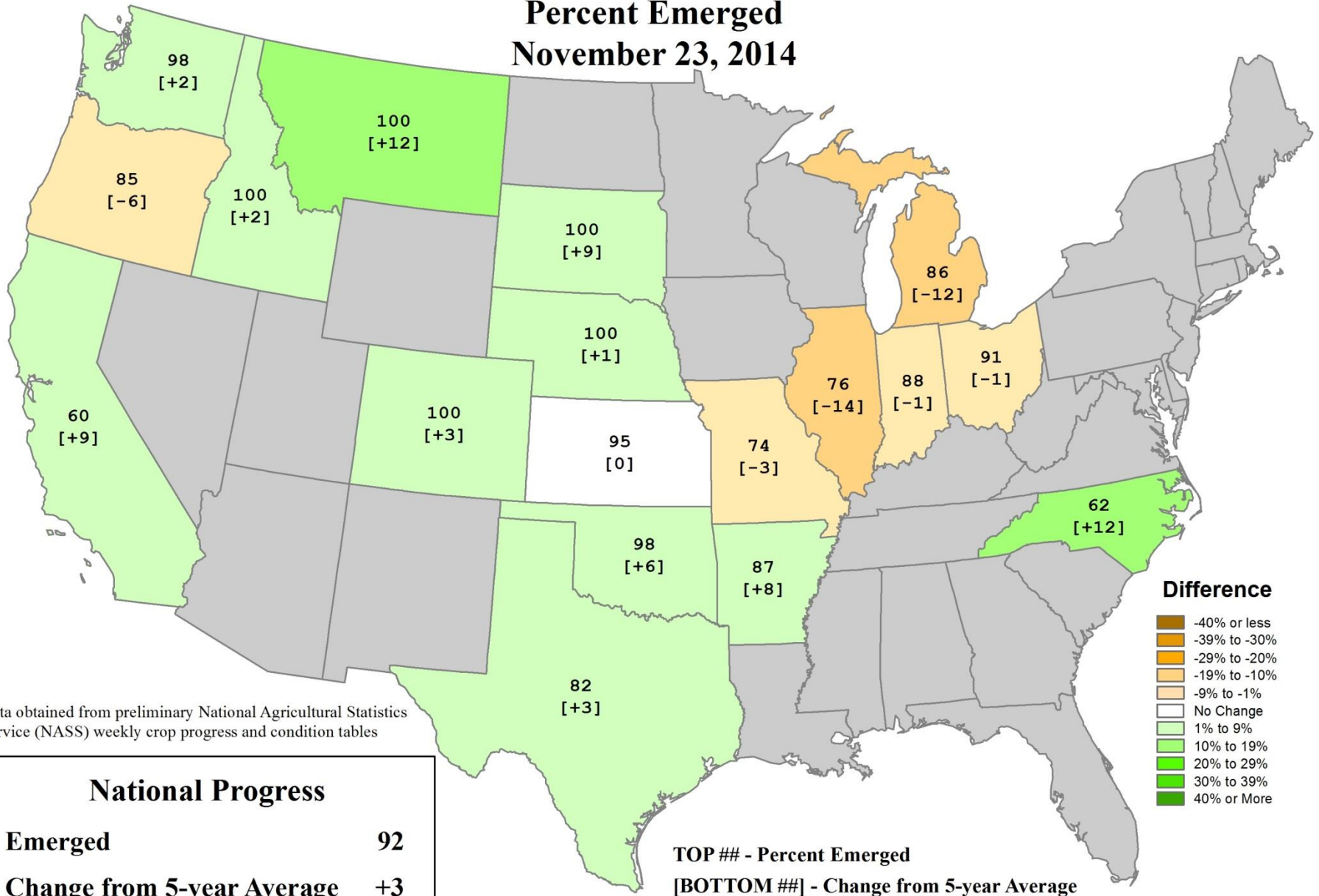
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Progress	
Harvested	94
Change from 5-year Average	+2

TOP ## - Percent Harvested
[BOTTOM ##] - Change from 5-year Average

U.S. Winter Wheat Progress

Percent Emerged
November 23, 2014



Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

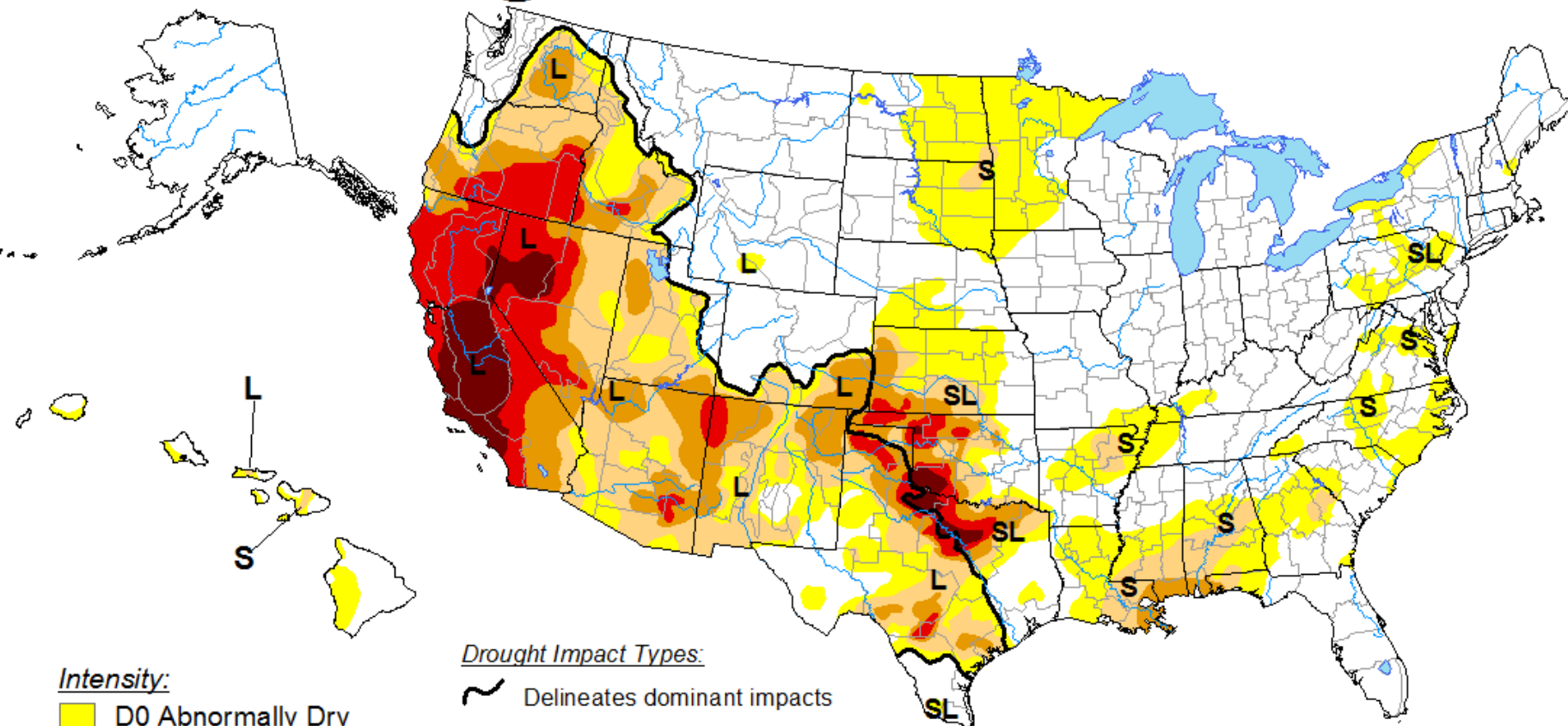
National Progress	
Emerged	92
Change from 5-year Average	+3

TOP ## - Percent Emerged
[BOTTOM ##] - Change from 5-year Average






U.S. Drought Monitor

December 16, 2014


Valid 7 a.m. EST



Intensity:

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

Drought Impact Types:

-  Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

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

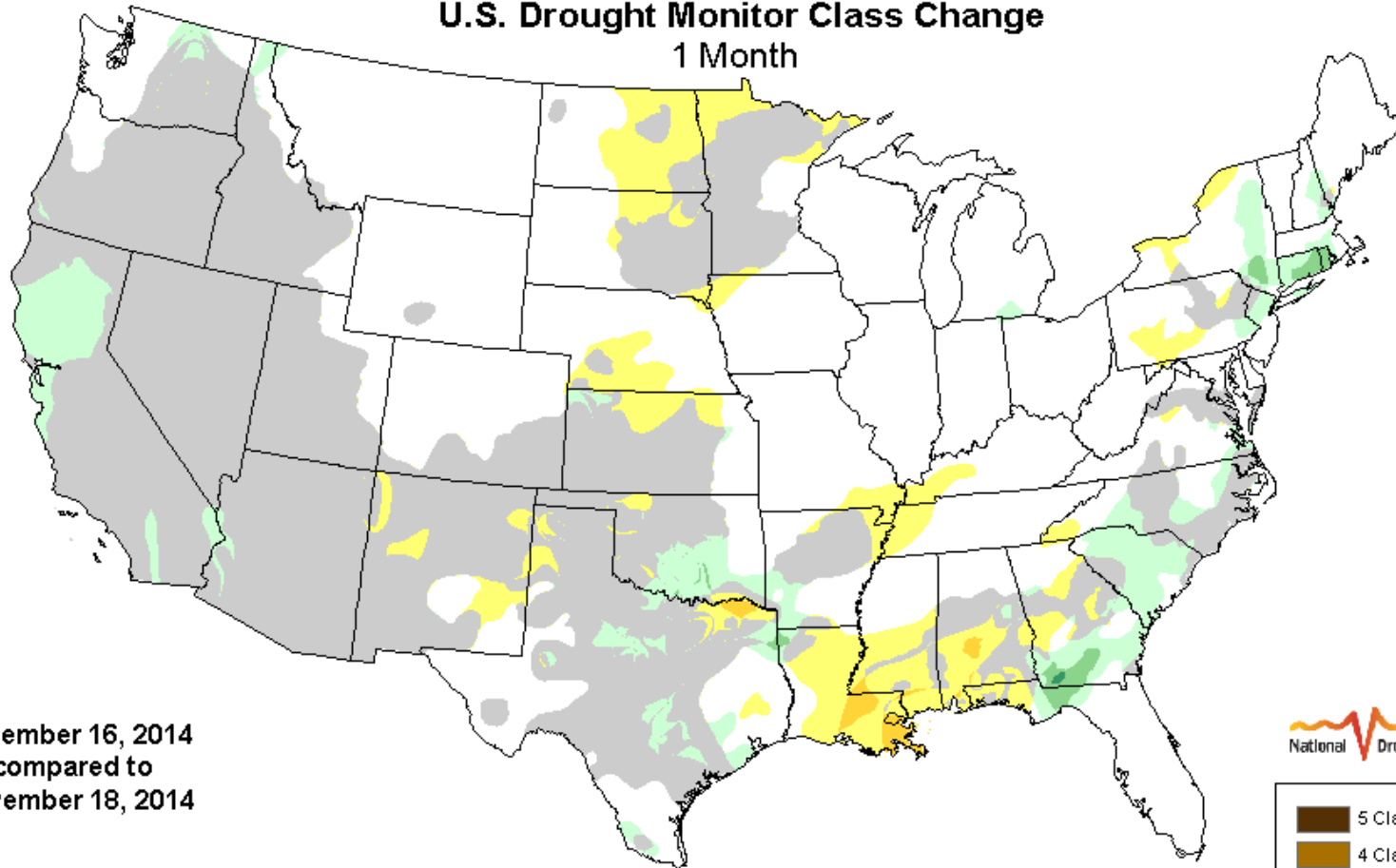
<http://droughtmonitor.unl.edu/>



Released Thursday, December 18, 2014

Author: David Miskus, NOAA/NWS/NCEP/CPC

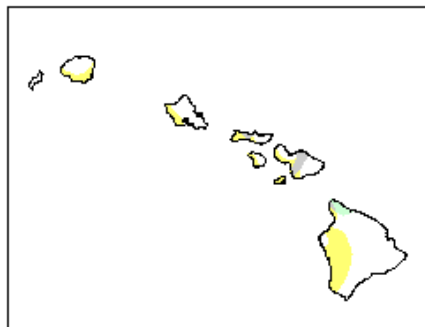
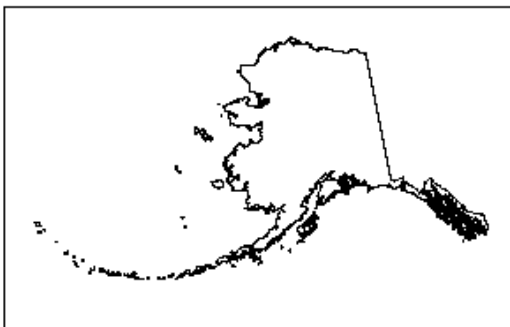
U.S. Drought Monitor Class Change 1 Month



December 16, 2014
compared to
November 18, 2014



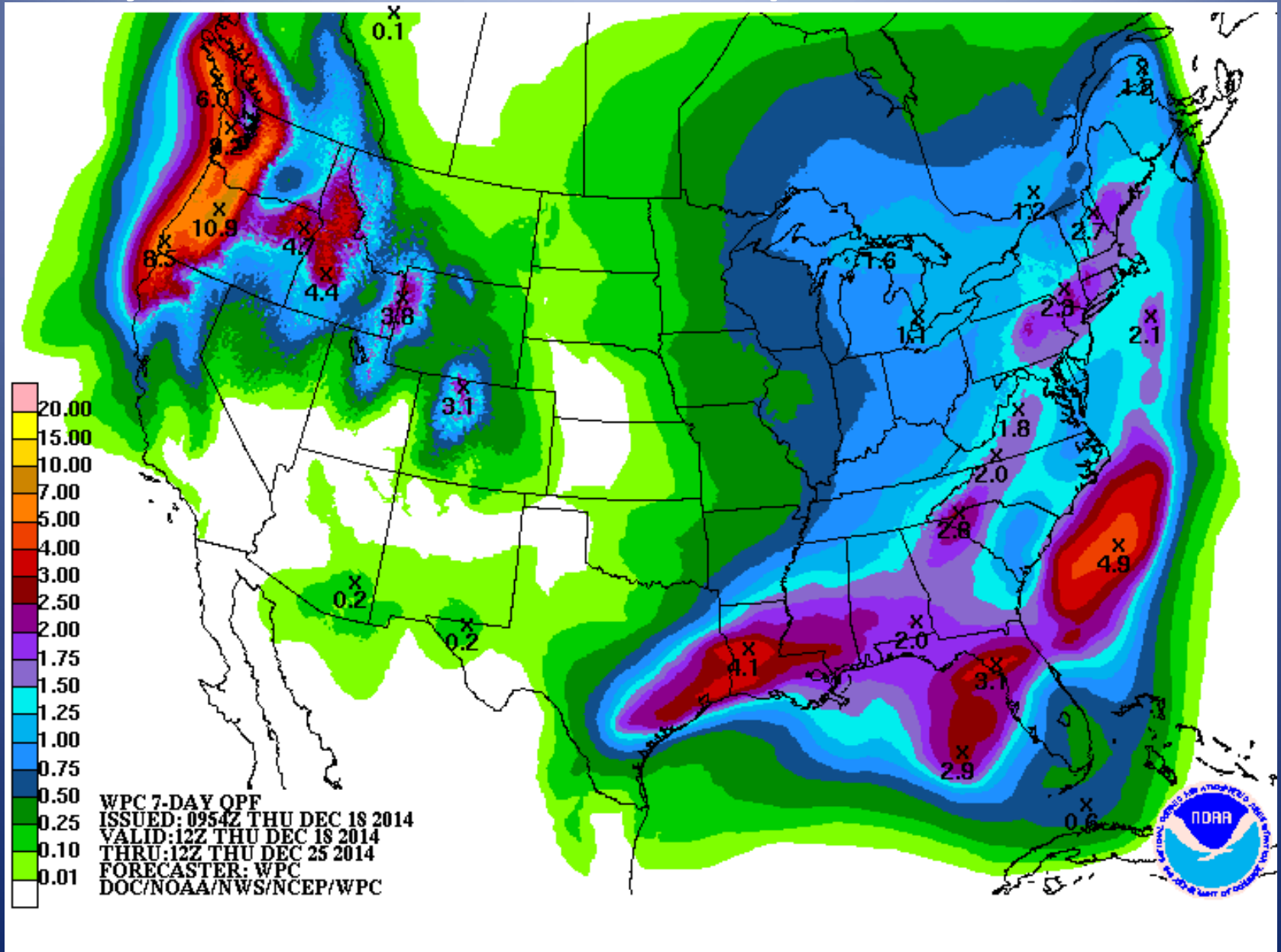
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement



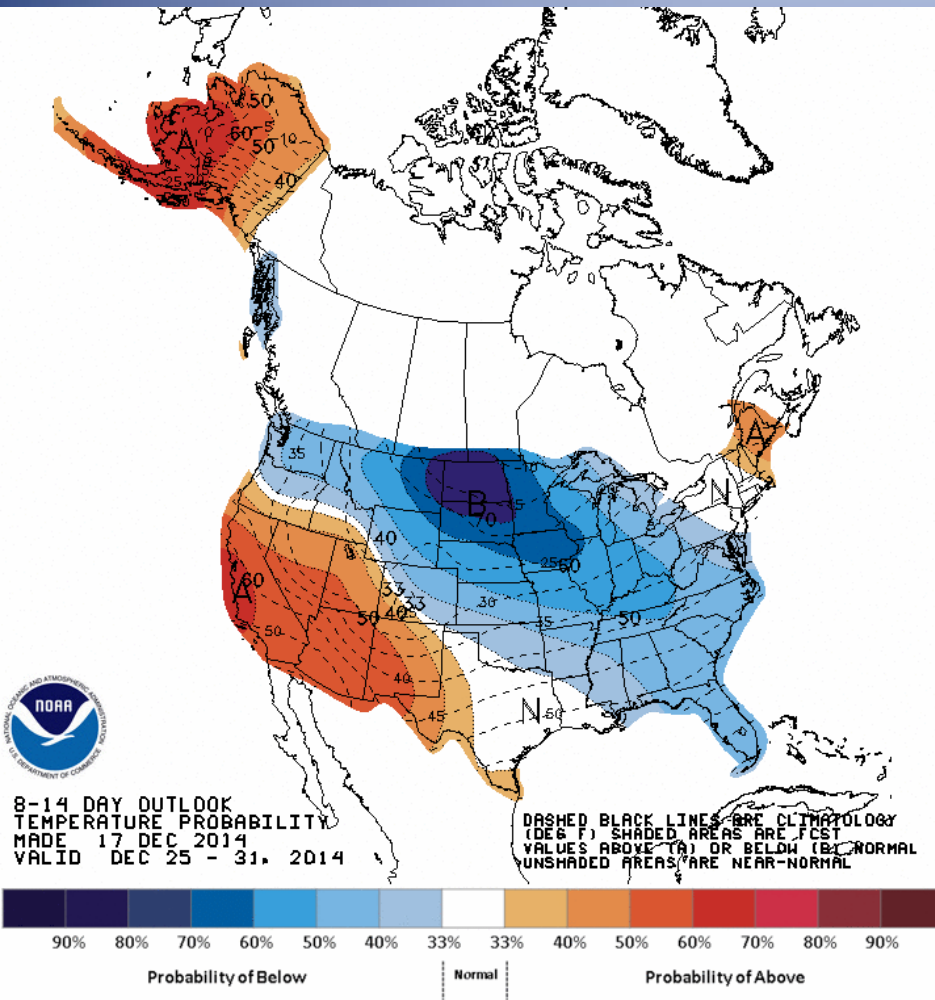
Climate Outlooks

- **7-day precipitation forecast**
- **8-14 day outlook**
- **December**
- **Winter (and Spring)**
- **Seasonal Drought Outlooks**

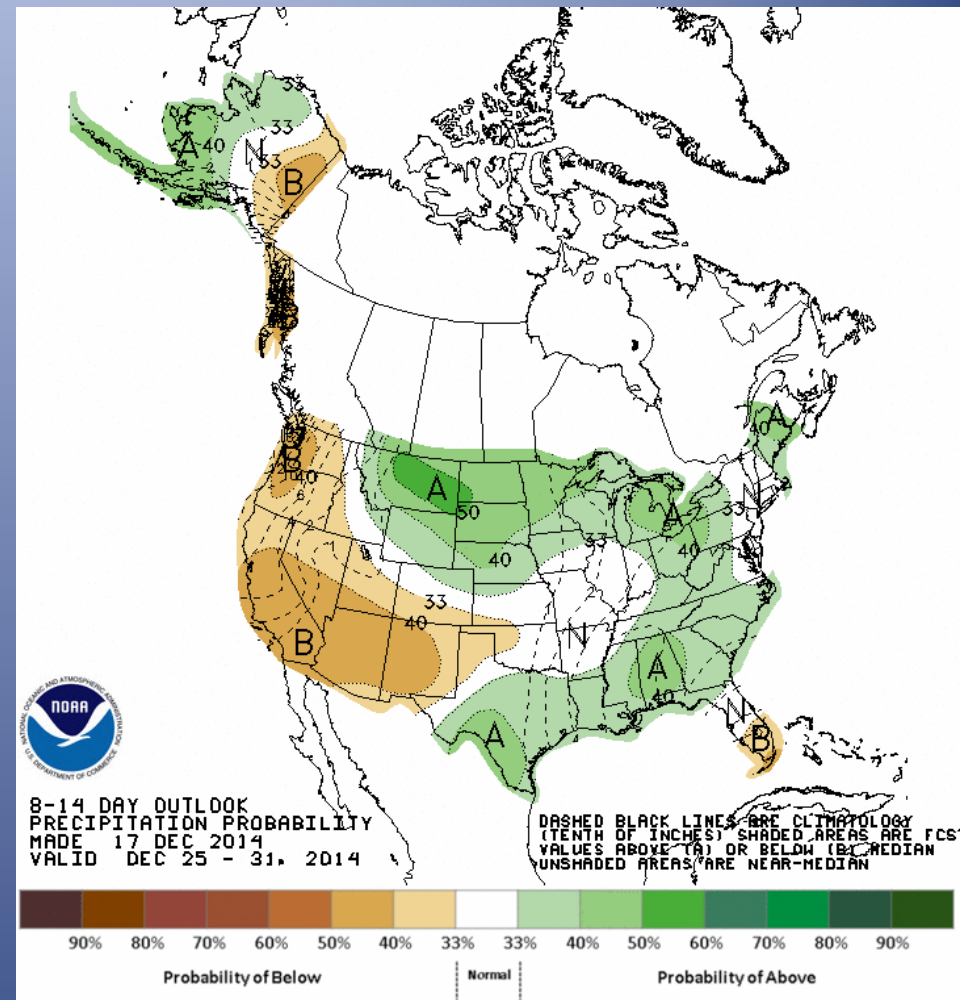
7-Day Quantitative Precipitation Forecast



8-14 Day Outlook: 25-31 December 2014



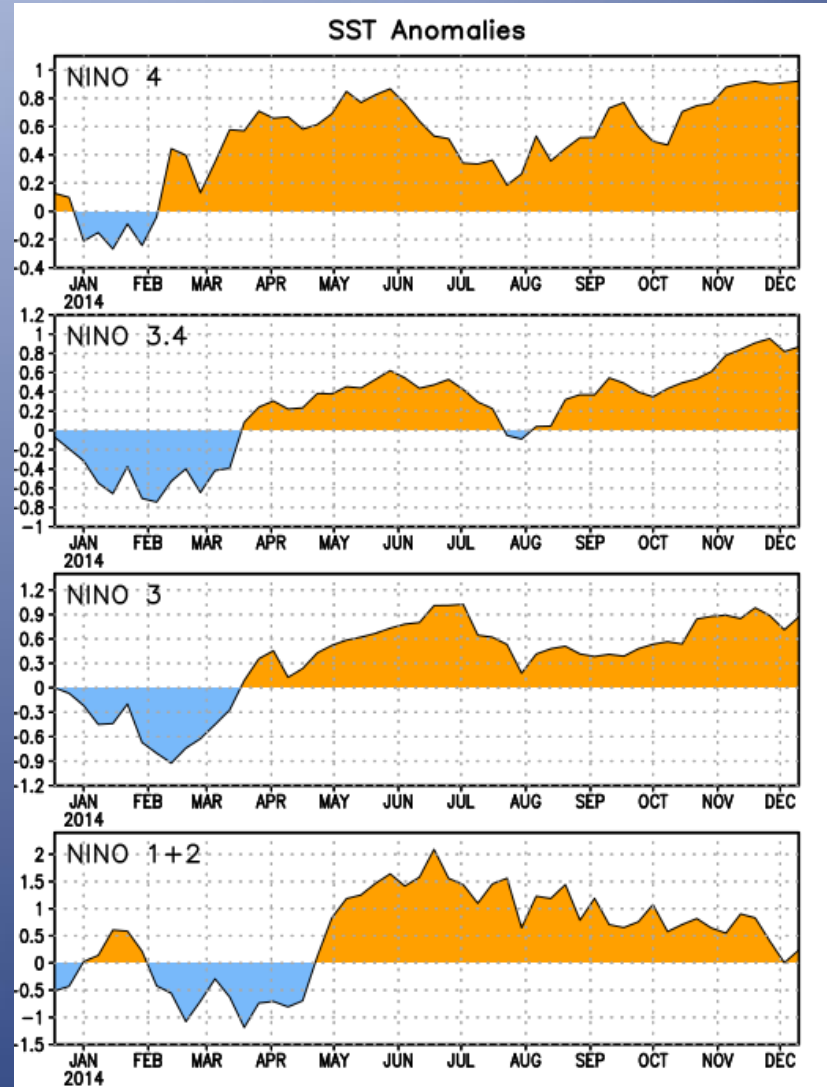
Temperature



Precipitation

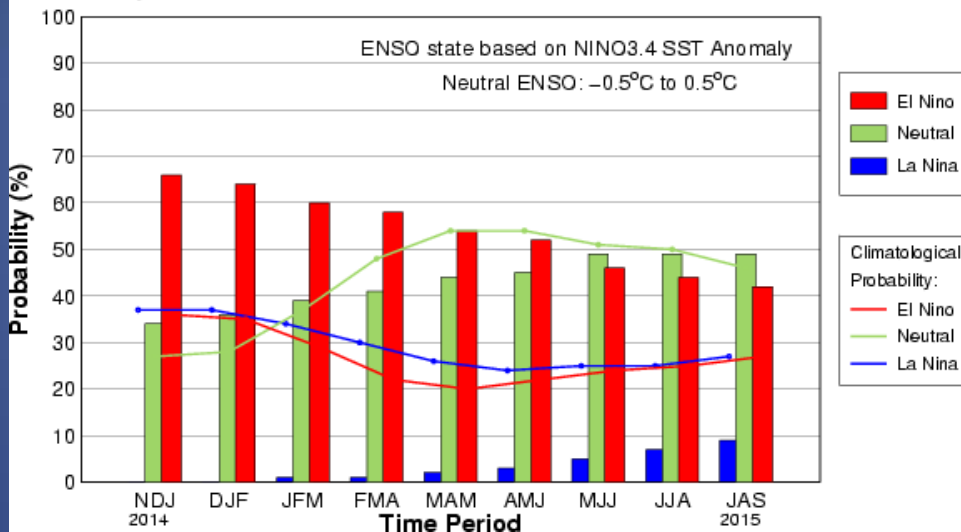
El Nino Update

- ENSO-neutral conditions continue.
- Positive equatorial sea surface temperature (SST) anomalies continue across the Pacific Ocean.
- Current Nino 3.4 Anomaly is 0.9C



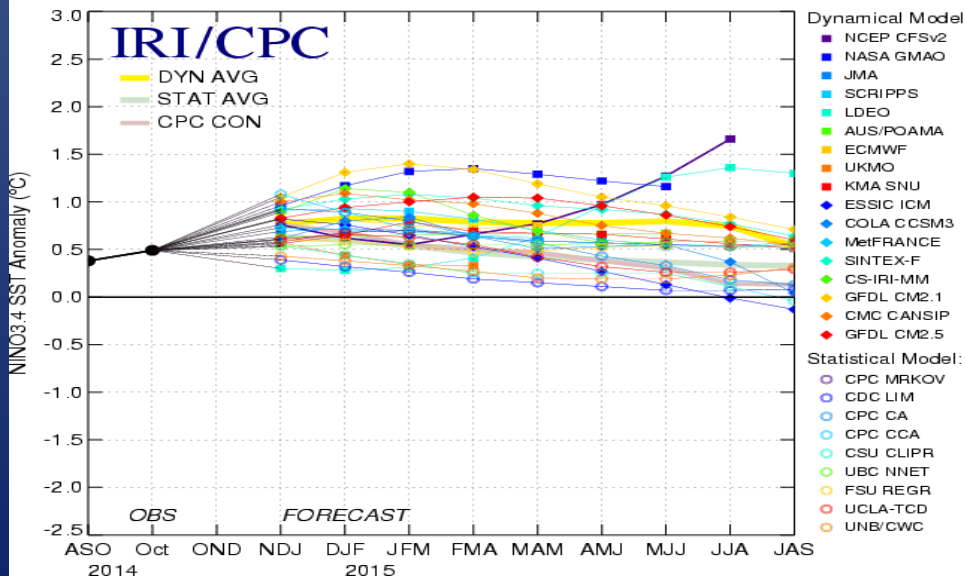
El Nino Update

Early-Dec CPC/IRI Consensus Probabilistic ENSO Forecast

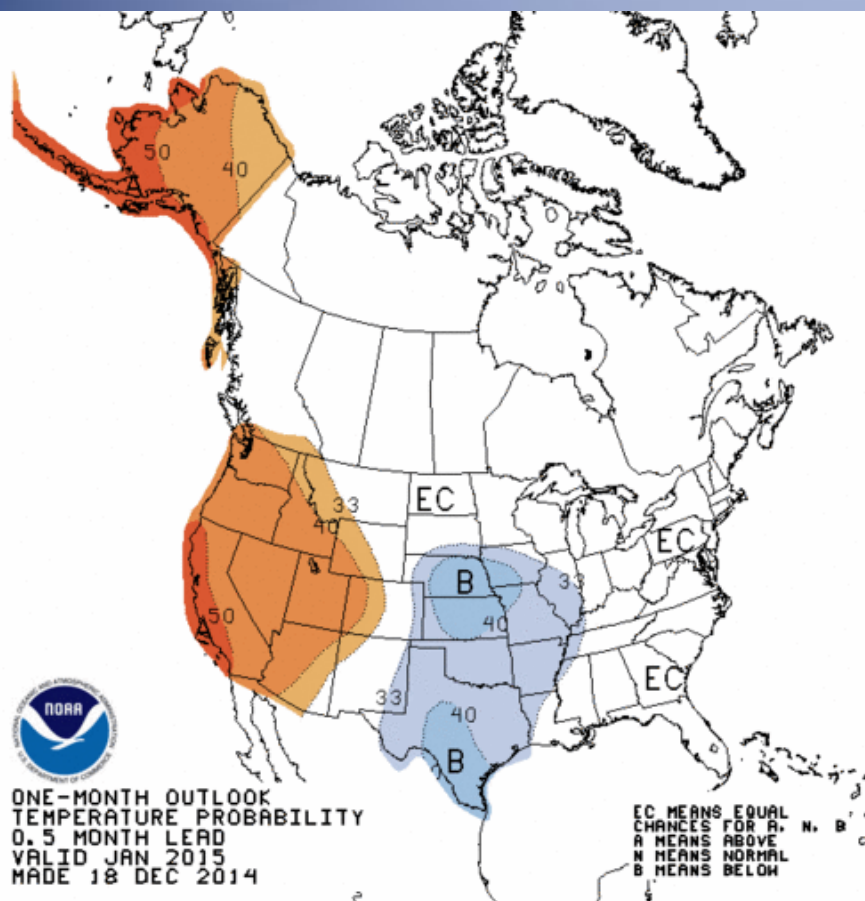


- There is an approximately 65% chance that El Niño conditions will be present during the Northern Hemisphere winter and last into the Northern Hemisphere spring 2015.

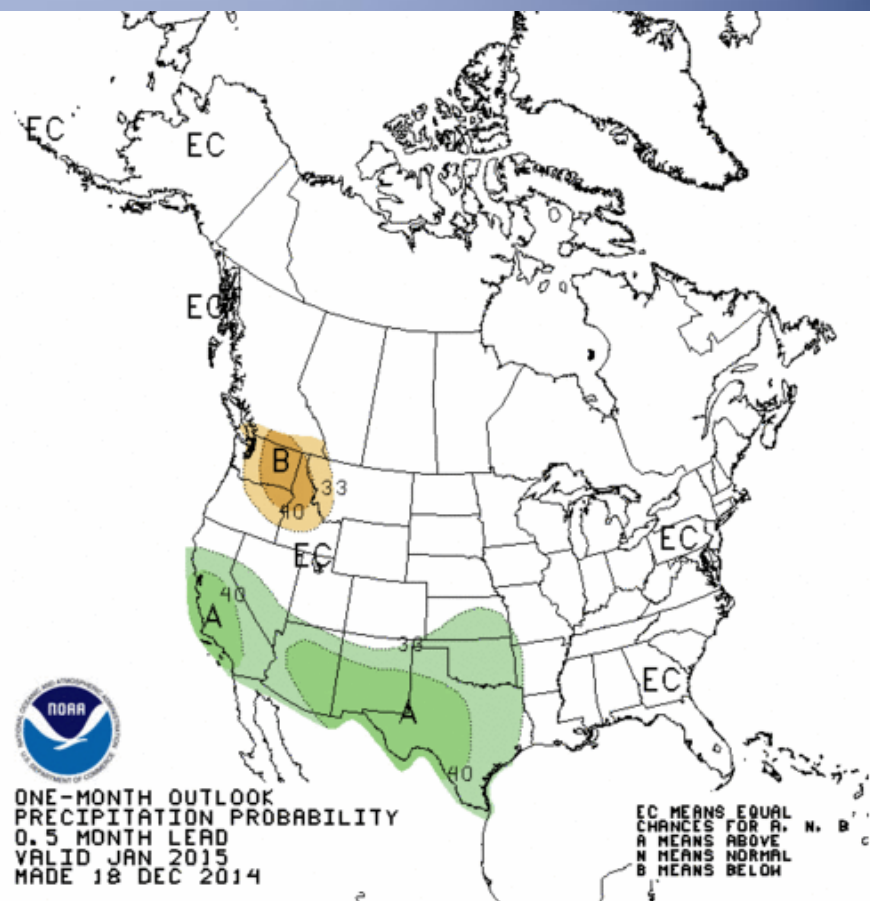
Mid-Nov 2014 Plume of Model ENSO Predictions



1 Month Outlook: January 2015

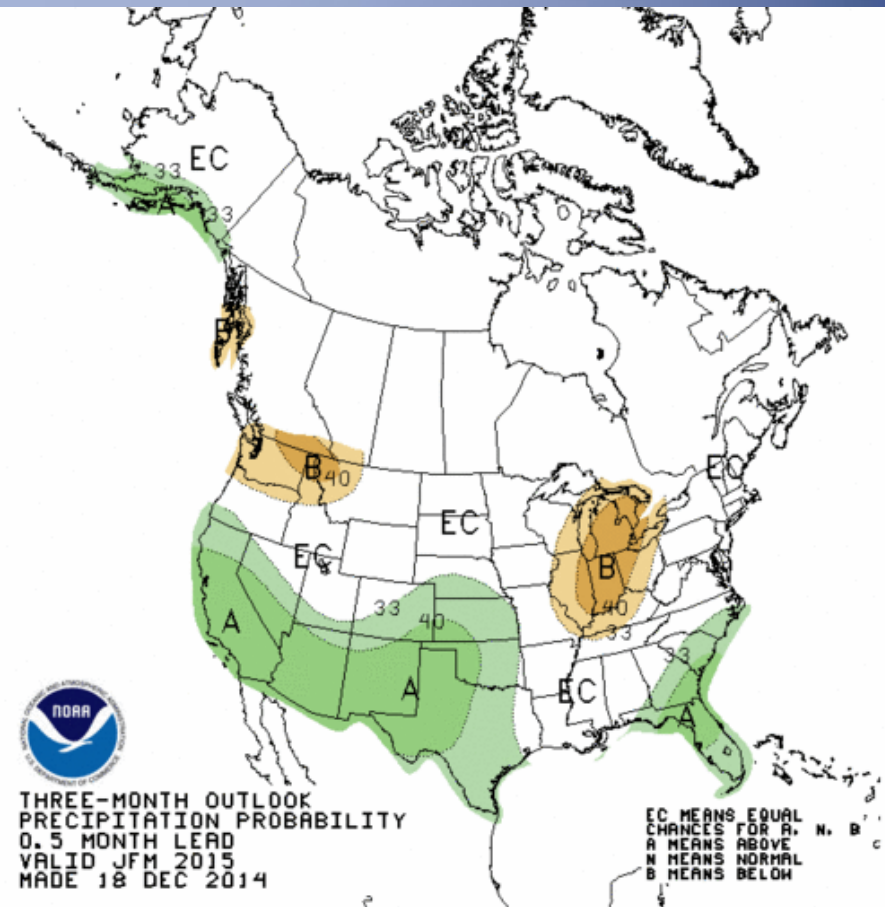
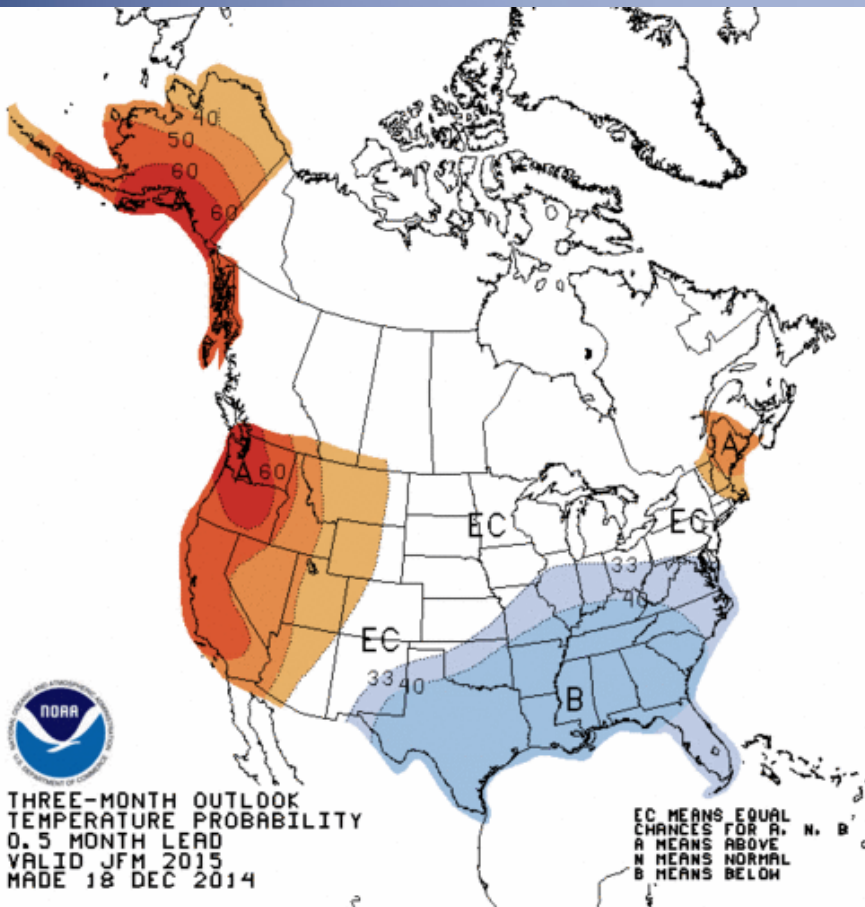


Temperature



Precipitation

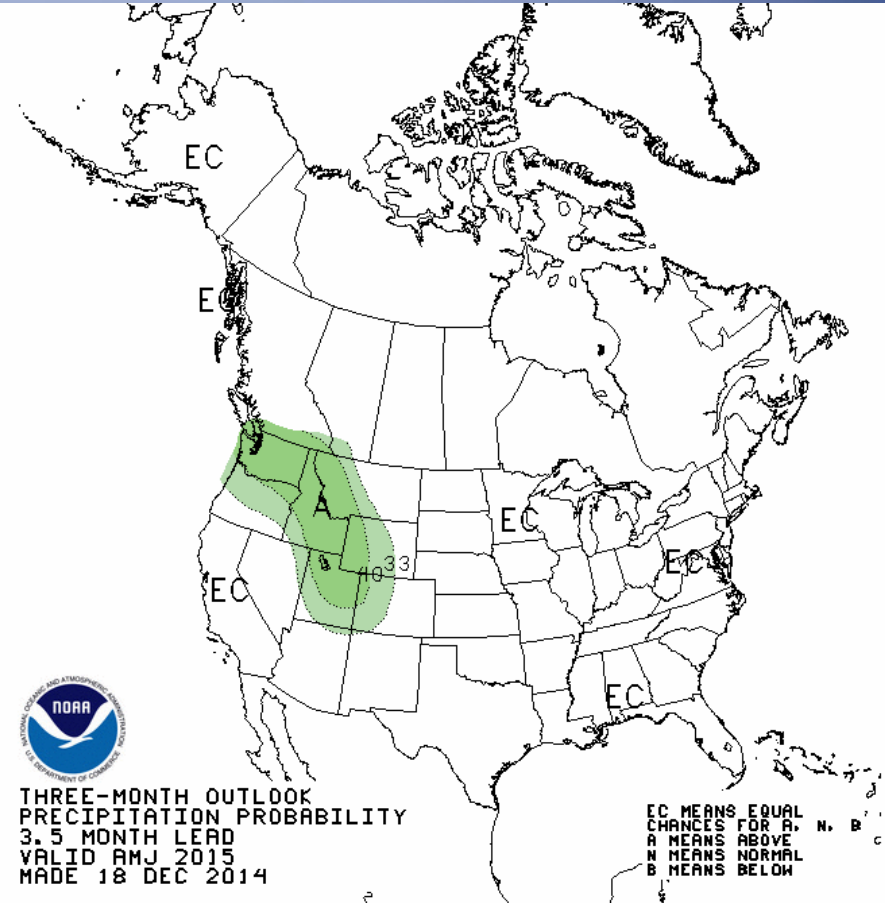
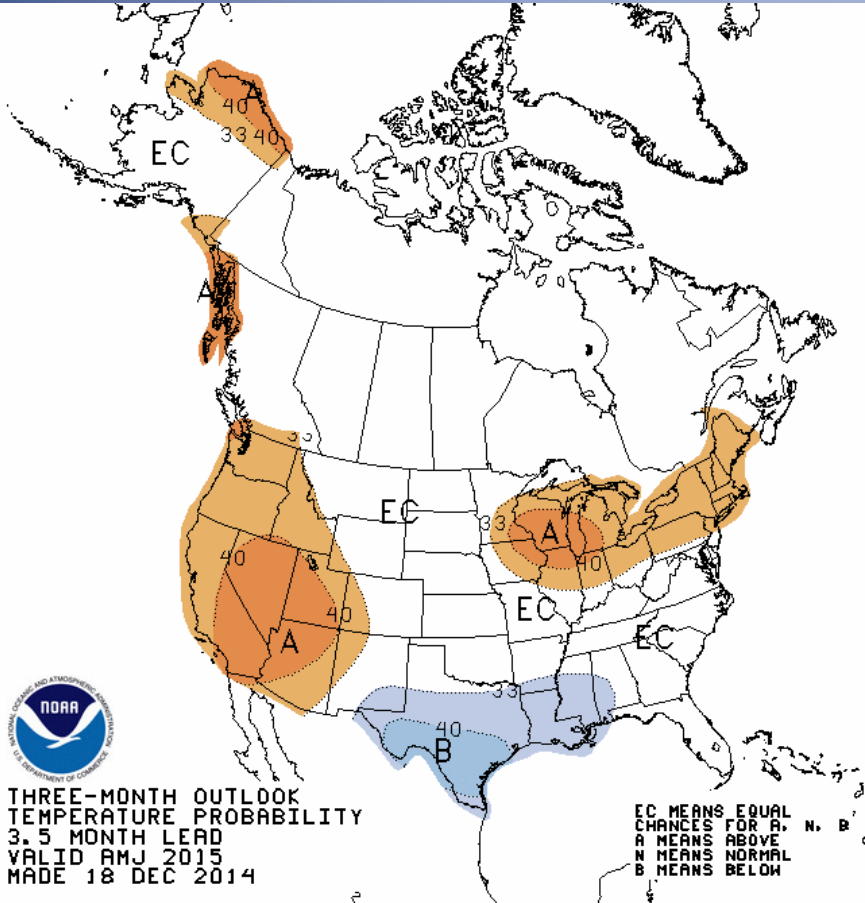
3 Month Outlook: JFM 2015



Temperature

Precipitation

Apr-Jun 2015 Outlook



Temperature

Precipitation

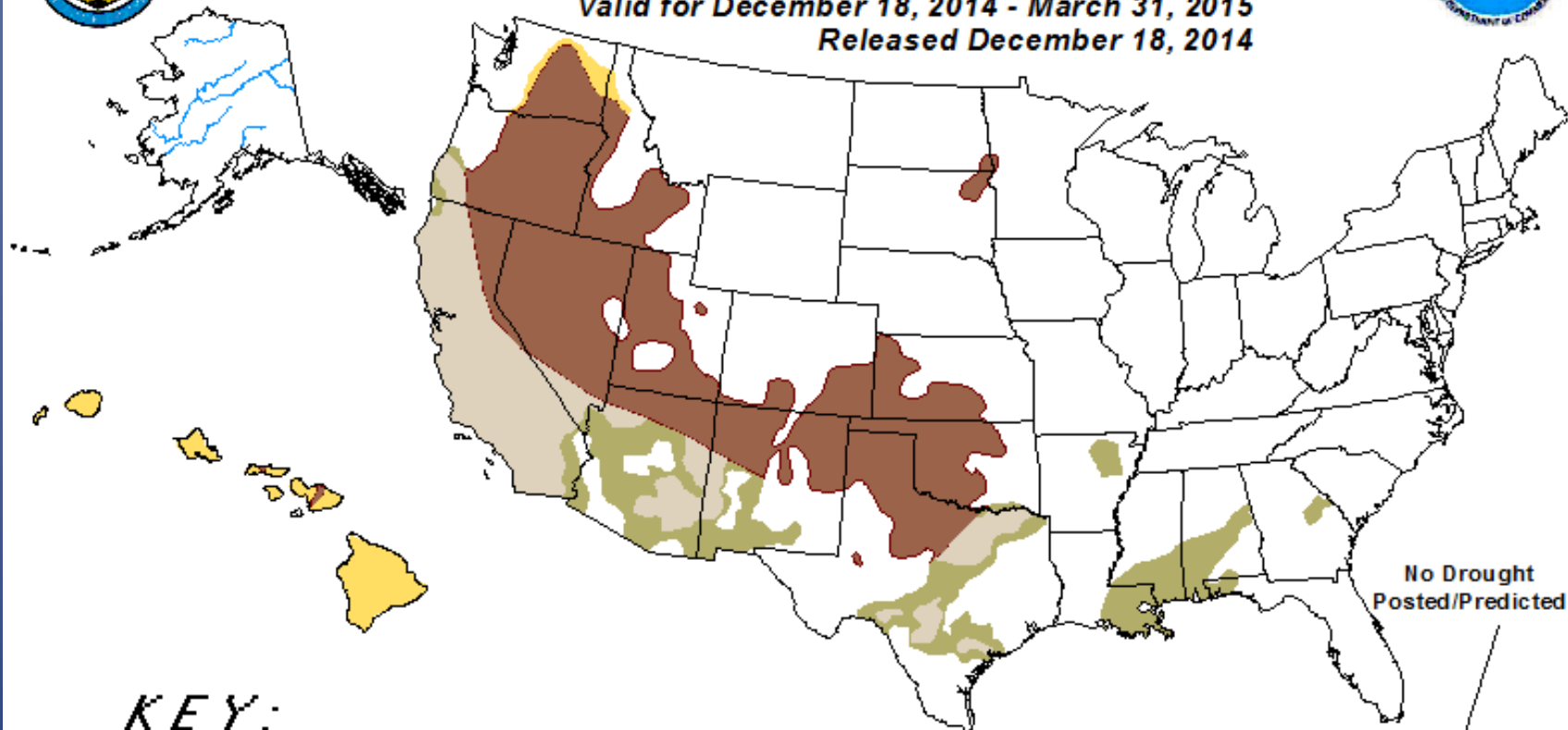


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period





Valid for December 18, 2014 - March 31, 2015

Released December 18, 2014



No Drought
Posted/Predicted

KEY:

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

Author: Brad Pugh, 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 area 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 of Recent Conditions

- After a cold November, warmer conditions have returned in December. Conditions have remained dry.
- Warm and dry weather has allowed harvest to finish up, except some of the corn crop.
- Winter wheat conditions are looking OK, but the lack of protective snow cover and damage from cold in November is a concern.
- Impacts to winter recreation in the northern tier of the region.

Summary - Outlooks

- 65% chance of El Nino conditions for the winter and persist into the Spring.
- Cooler weather forecast for the end of the month into January based on forecast models.
- El Nino signature supported in 3 month outlooks – cool in the south, wet southwest U.S., dry 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?

- 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