Central Region Climate Outlook March20, 2014

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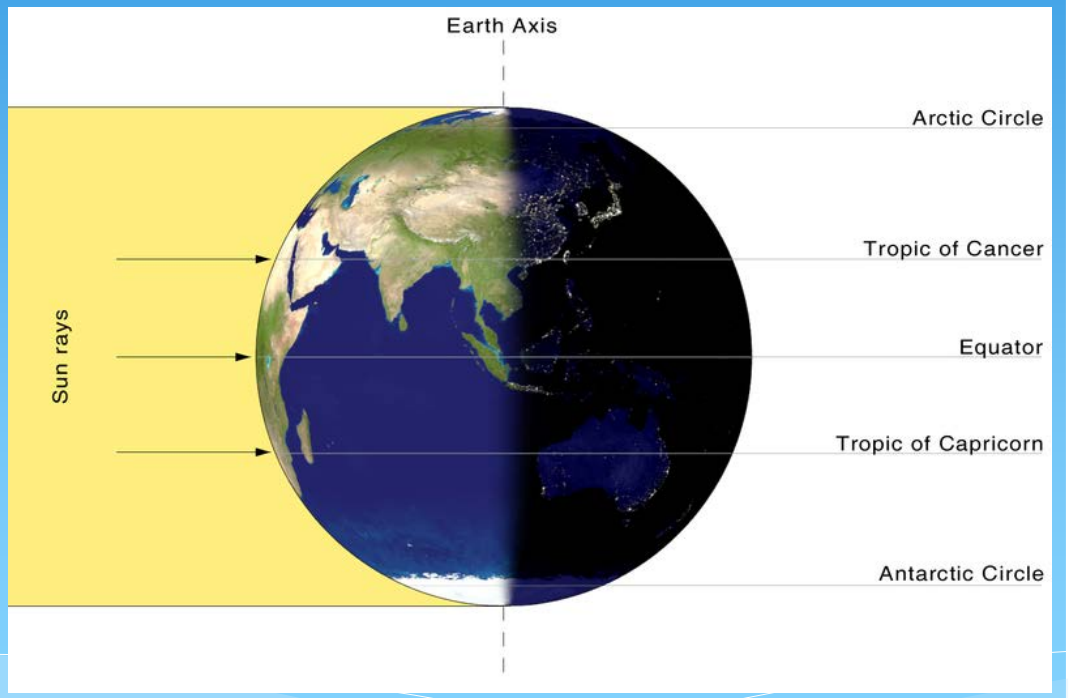


National Drought Mitigation Center

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

Regional Climate Centers

AASC American Association of State Climatologists

Happy Spring Equinox!

General Information

* **Providing climate services to the Central Region**
  * Collaboration Activity Between:
  * 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**
  * April 17, 2014
  * April 4, 2014 special call for the Missouri Basin

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

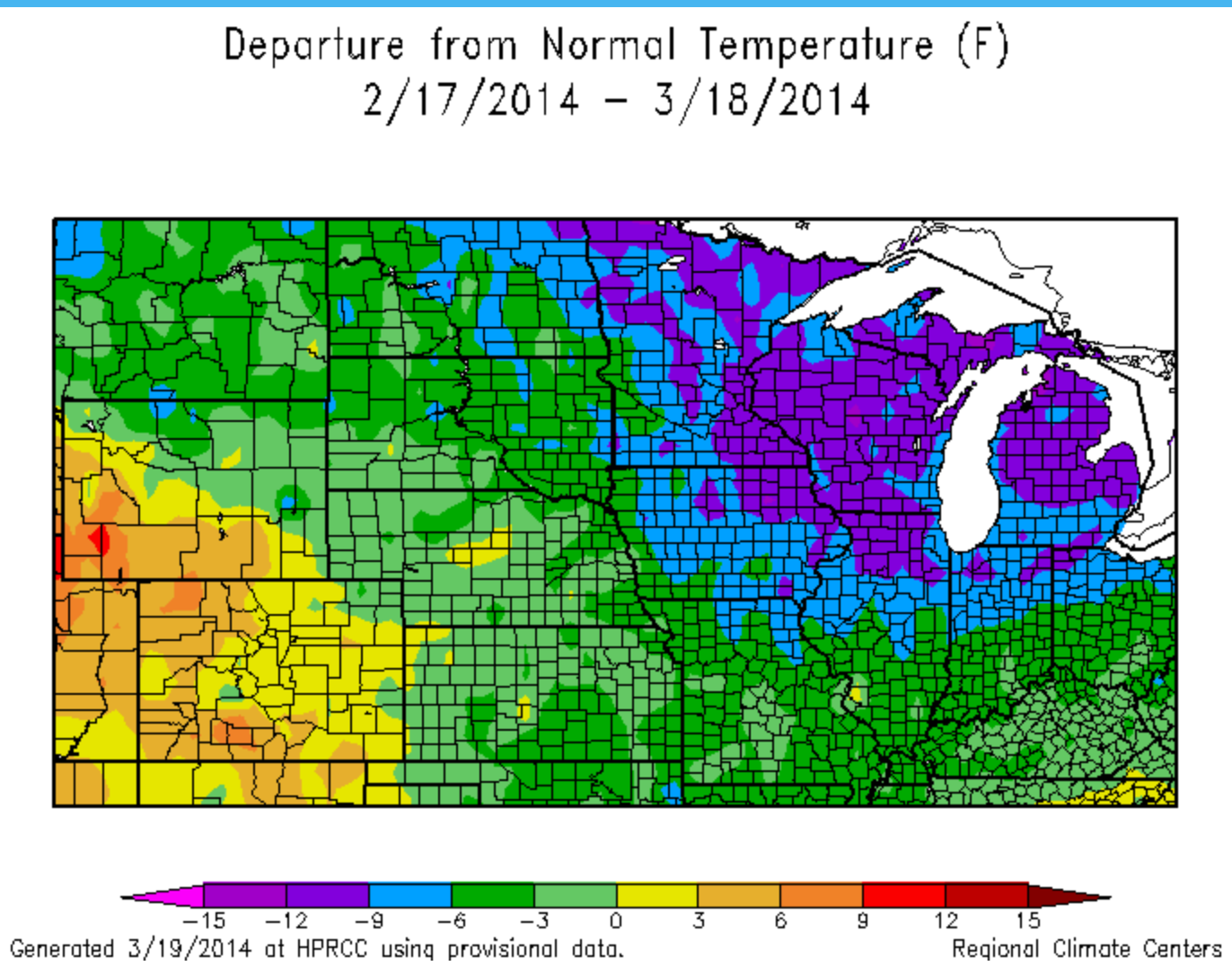
* *http://mrcc.isws.illinois.edu/webinars.htm*
* *http://www.hprcc.unl.edu/webinars.php*

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

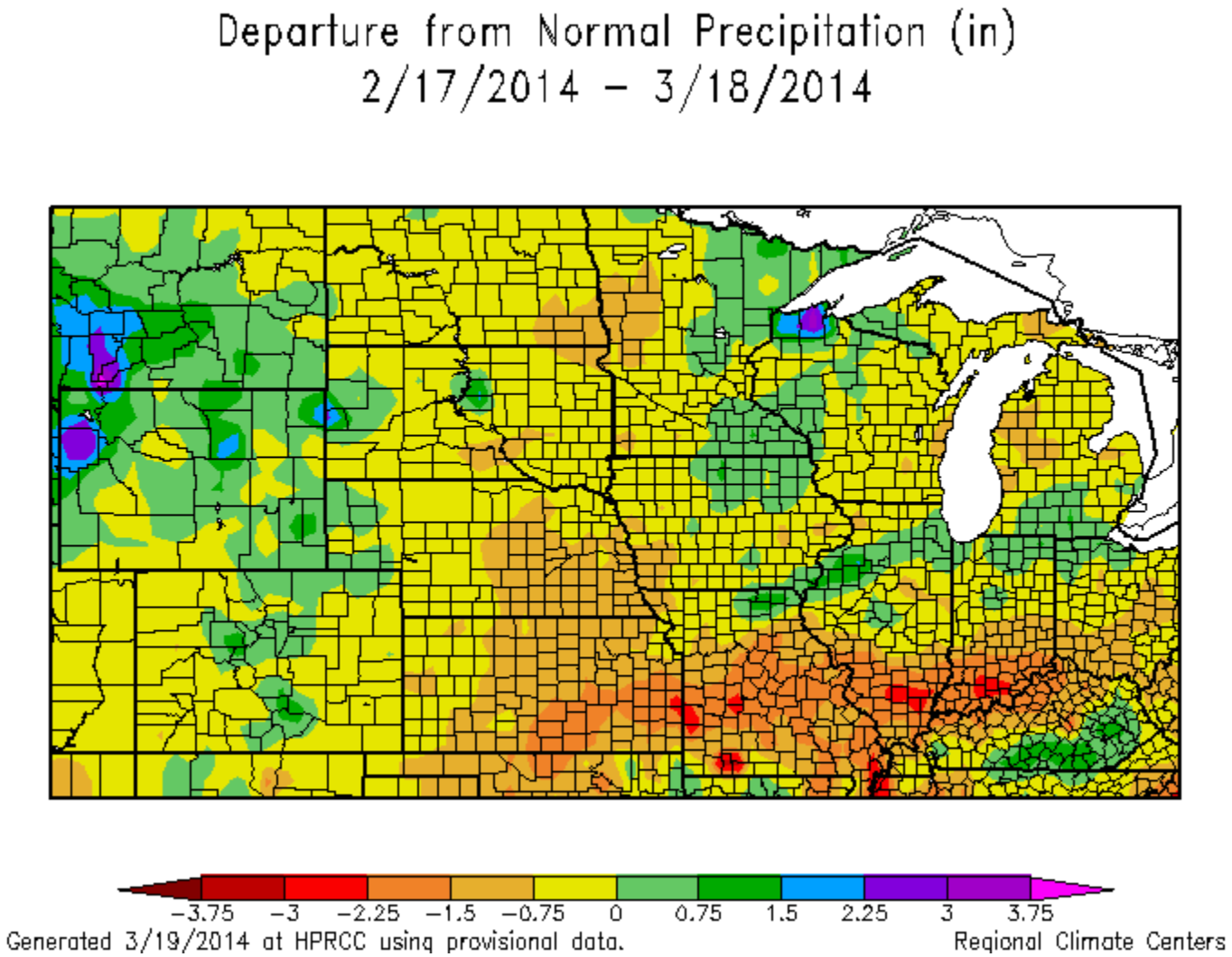
Agenda

* Historical context
* Current conditions
* Impacts
* Outlooks

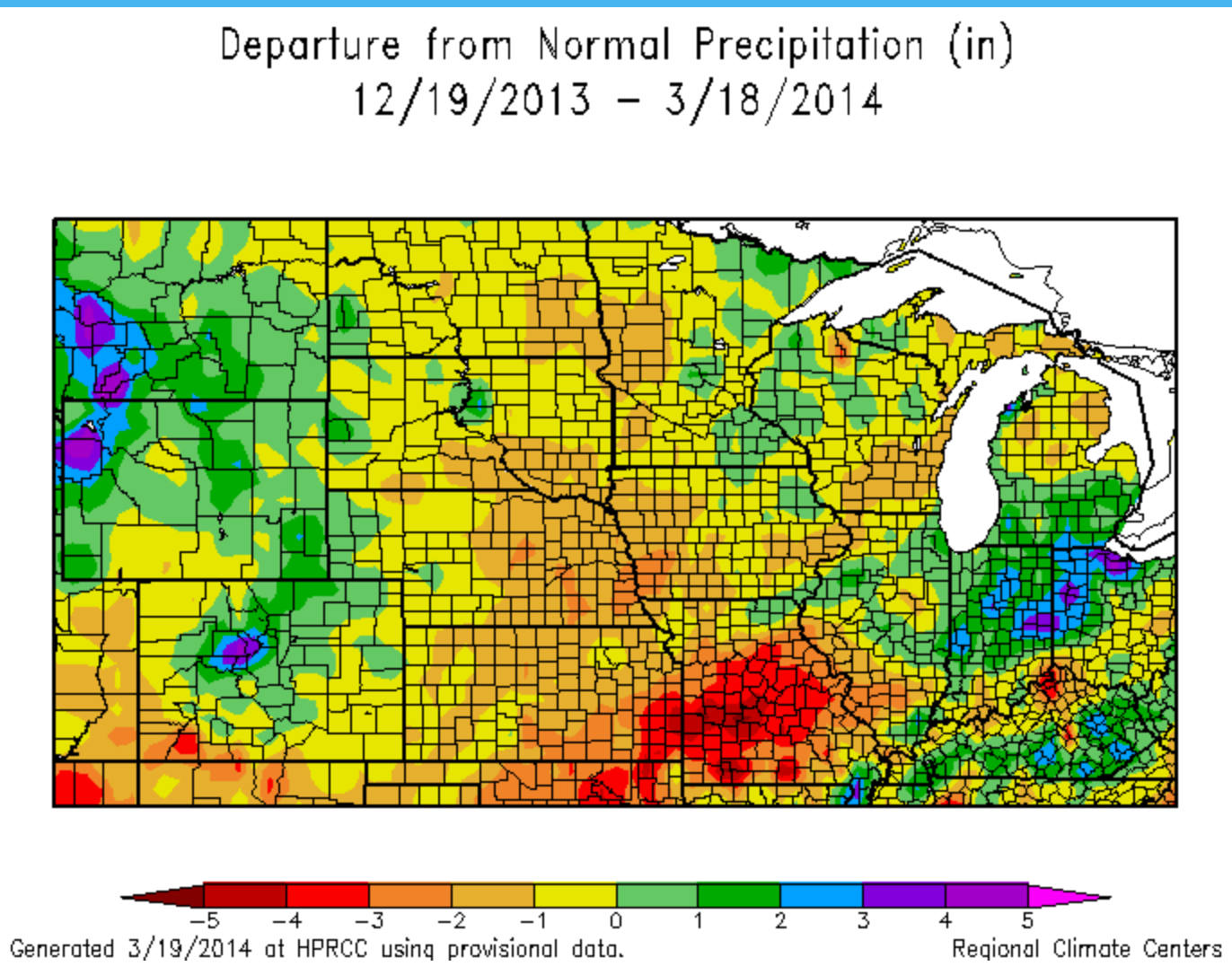
30-Day Temperature



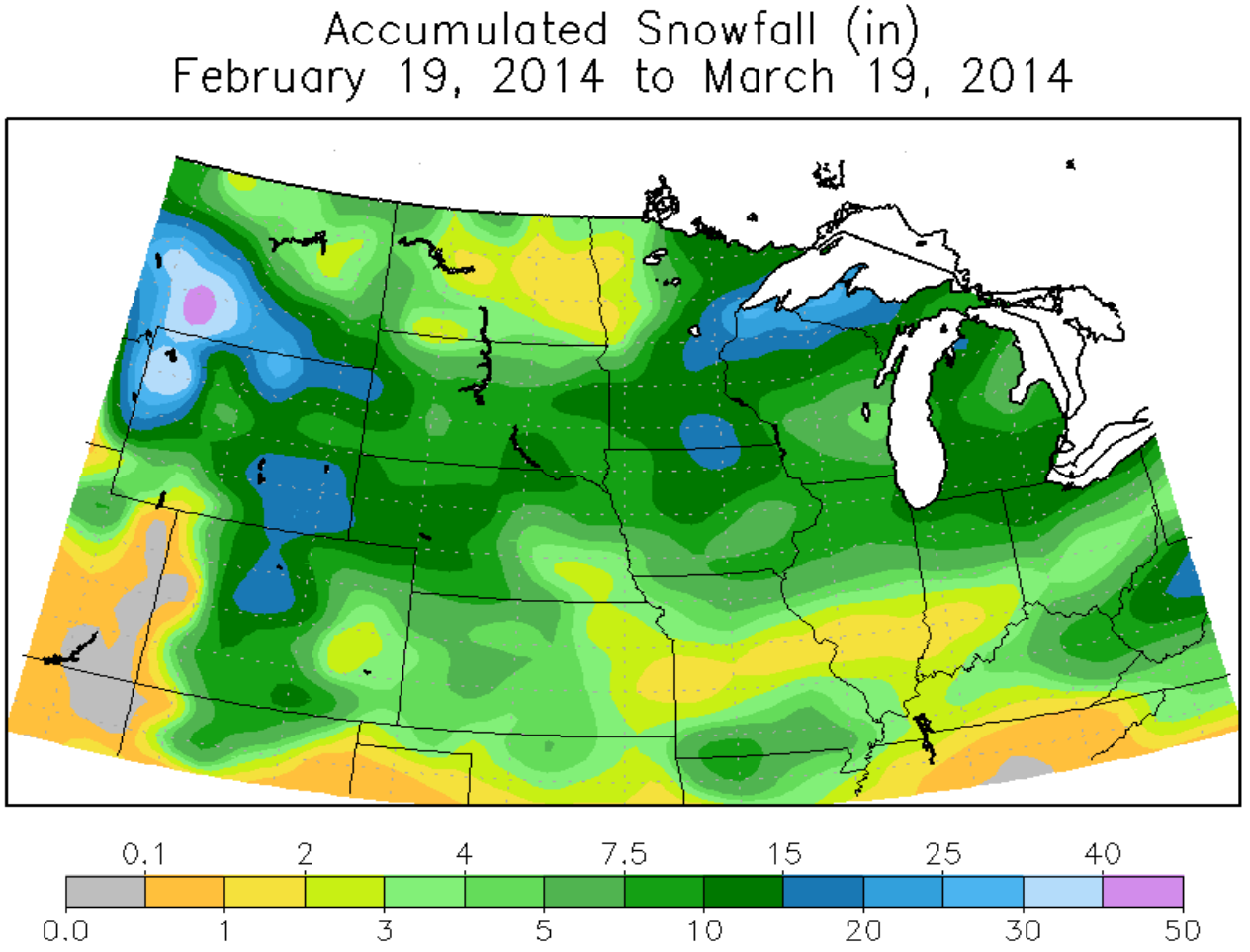
30-Day Precipitation



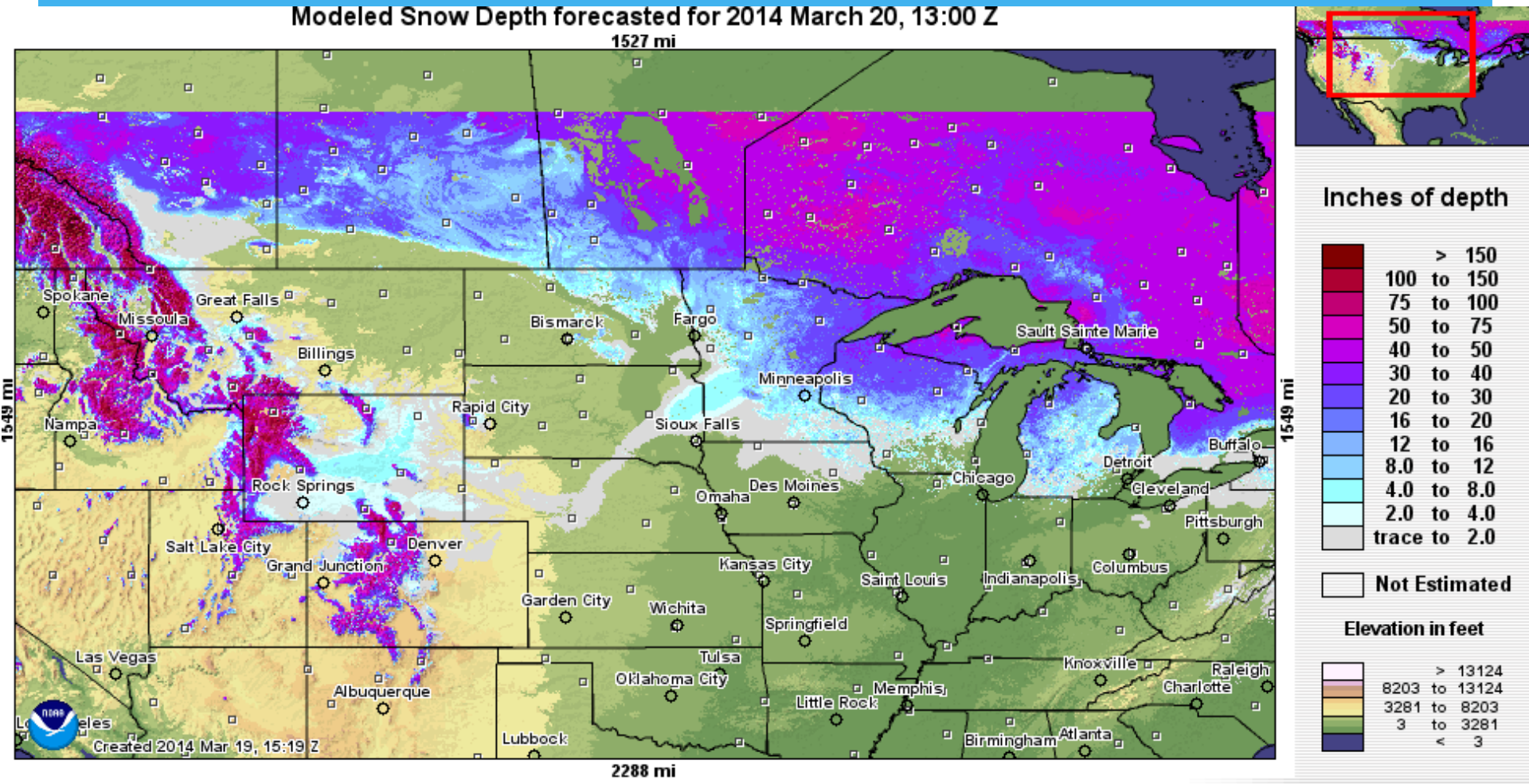
90-Day Precipitation



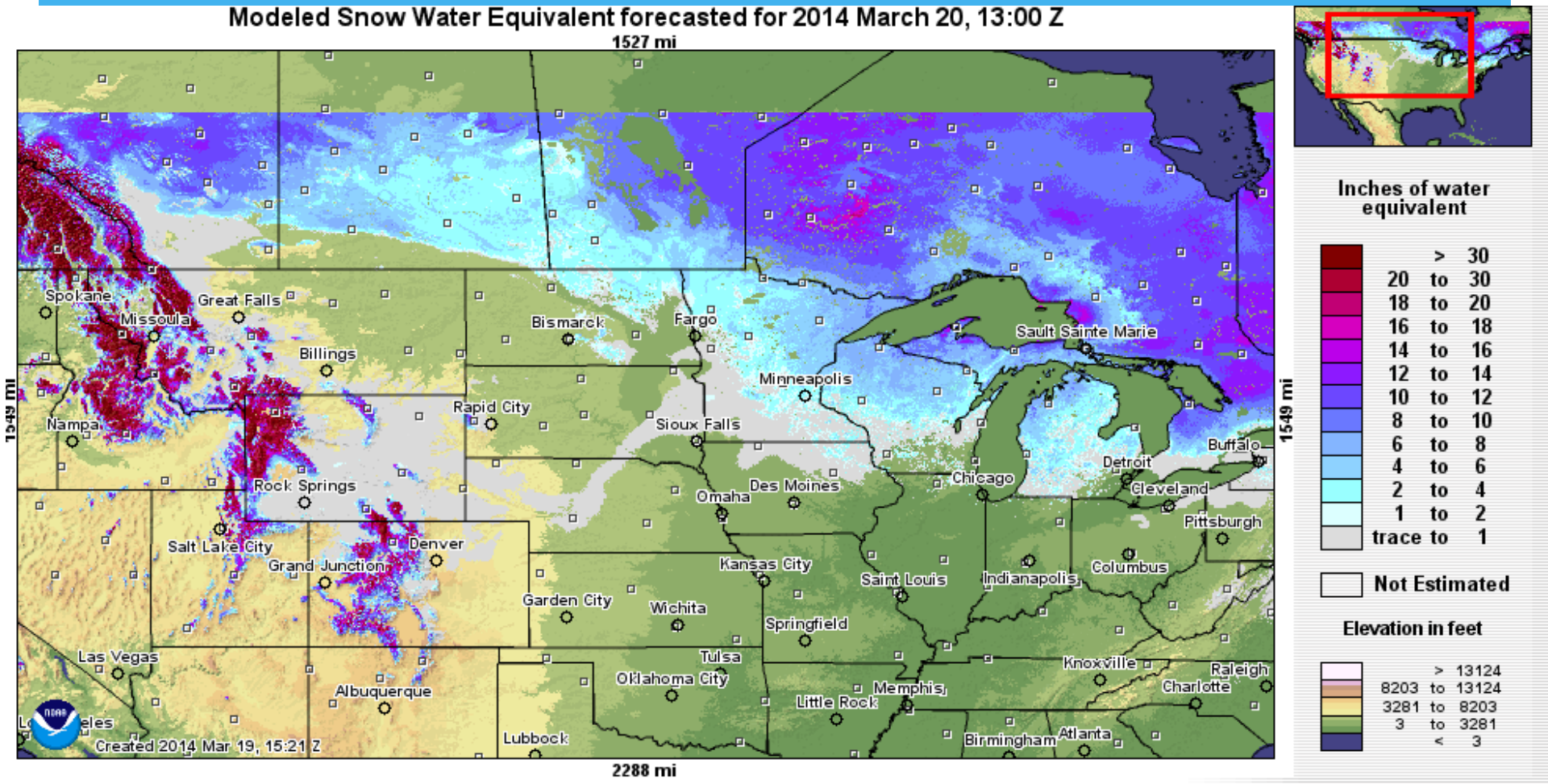
30-Day Snowfall



Snow Depth

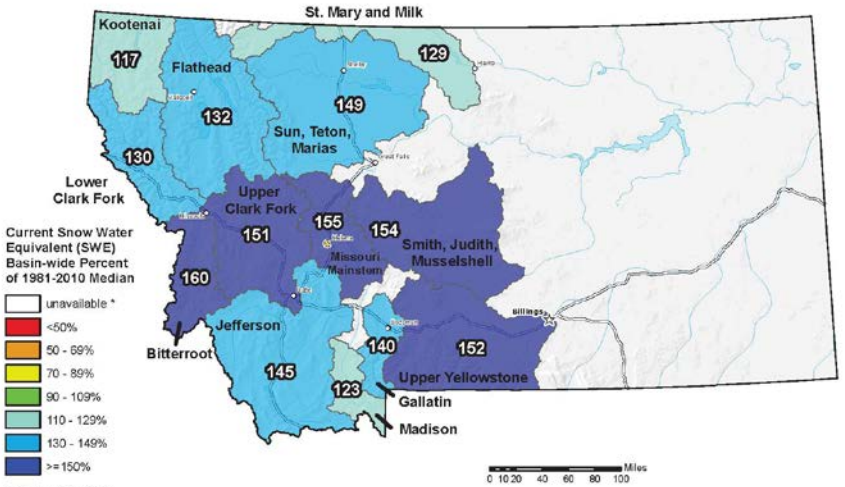

Modeled Snow Depth forecasted for 2014 March 20, 13:00 Z
1527 mi
1549 mi
1549 mi
2288 mi
Spokane
Great Falls
Missoula
Billings
Bismarck
Fargo
Sault Sainte Marie
Minneapolis
Rapid City
Sioux Falls
Nampa
Rock Springs
Omaha
Des Moines
Chicago
Buffalo
Detroit
Cleveland
Pittsburgh
Salt Lake City
Denver
Grand Junction
Kansas City
Saint Louis
Indianapolis
Columbus
Garden City
Wichita
Springfield
Las Vegas
Tulsa
Oklahoma City
Albuquerque
Memphis
Little Rock
Knoxville
Raleigh
Charlotte
Lubbock
Birmingham
Atlanta
Created 2014 Mar 19, 15:19 Z
Inches of depth
> 150
100 to 150
75 to 100
50 to 75
40 to 50
30 to 40
20 to 30
16 to 20
12 to 16
8.0 to 12
4.0 to 8.0
2.0 to 4.0
trace to 2.0
Not Estimated
Elevation in feet
> 13124
8203 to 13124
3281 to 8203
3 to 3281
< 3

Snow Water Equivalent



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

Mar 18, 2014



Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

* Data unavailable at time of posting or measurement is not representative of this time of year.

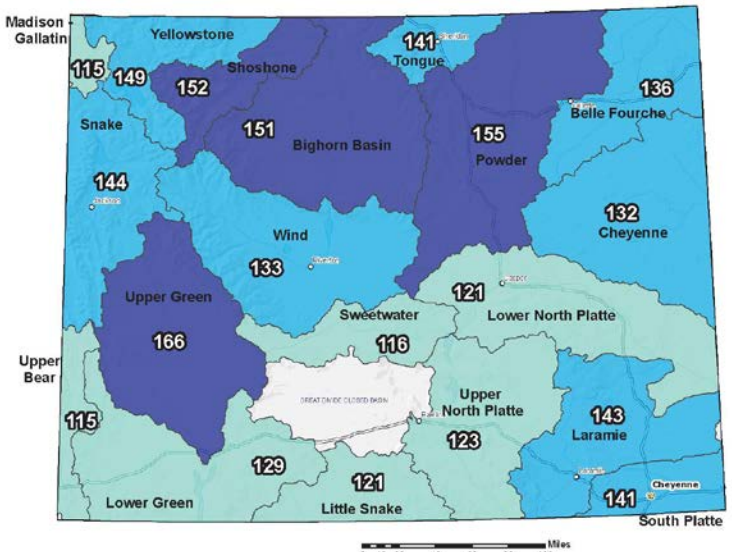
Provisional Data Subject to Revision

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 the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

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

Mar 18, 2014



Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

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- <50%
- 50 - 69%
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- 90 - 109%
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- 130 - 149%
- >=150%

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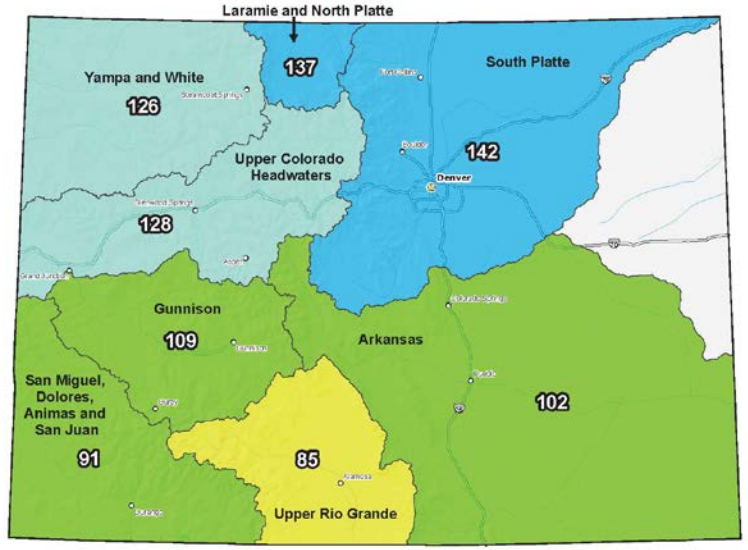
Colorado SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 18, 2014



Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
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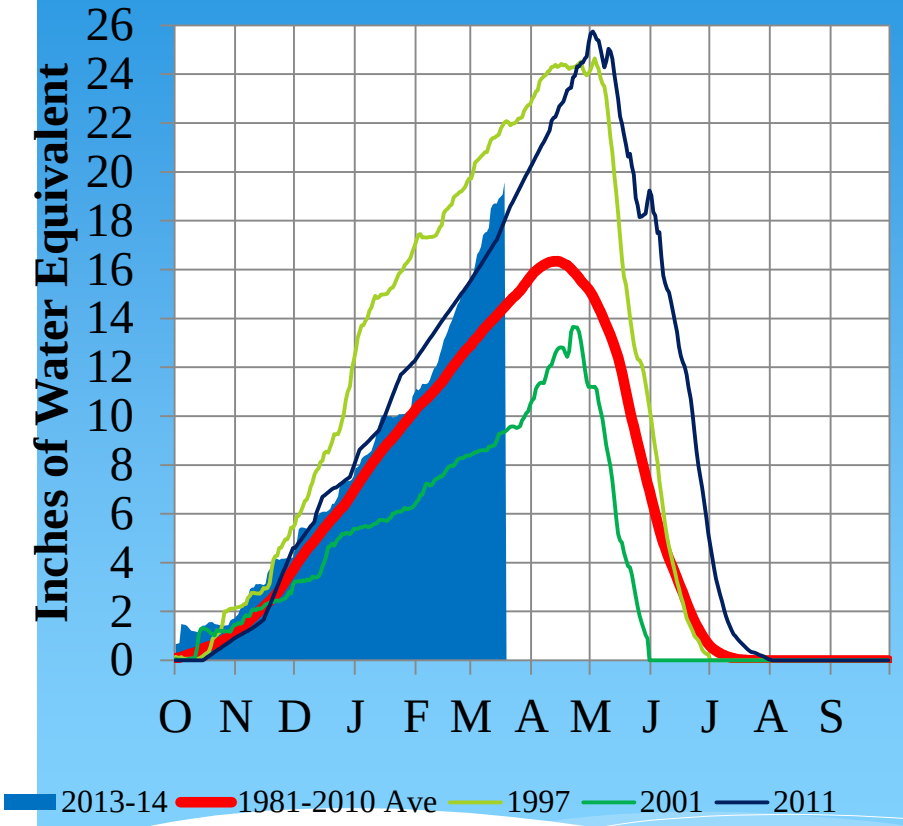
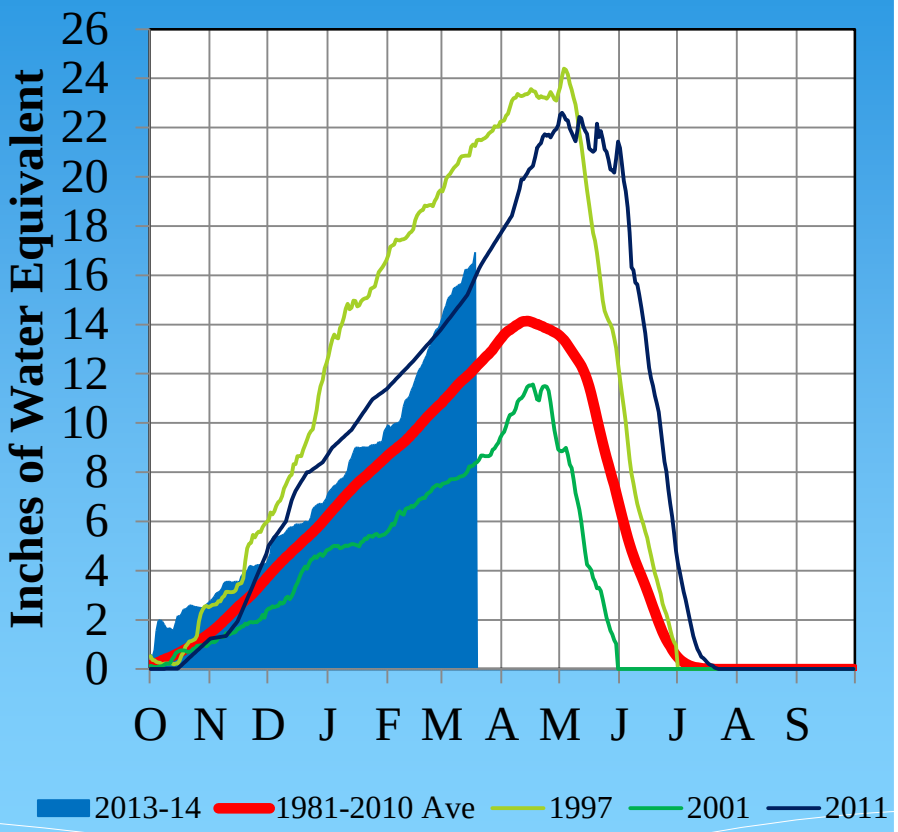
Missouri River Basin – Mountain Snowpack Water Content
2013-2014 with comparison plots from 1997*, 2001*, and 2011
March 18, 2014

Total above Fort Peck



Total Fort Peck to Garrison

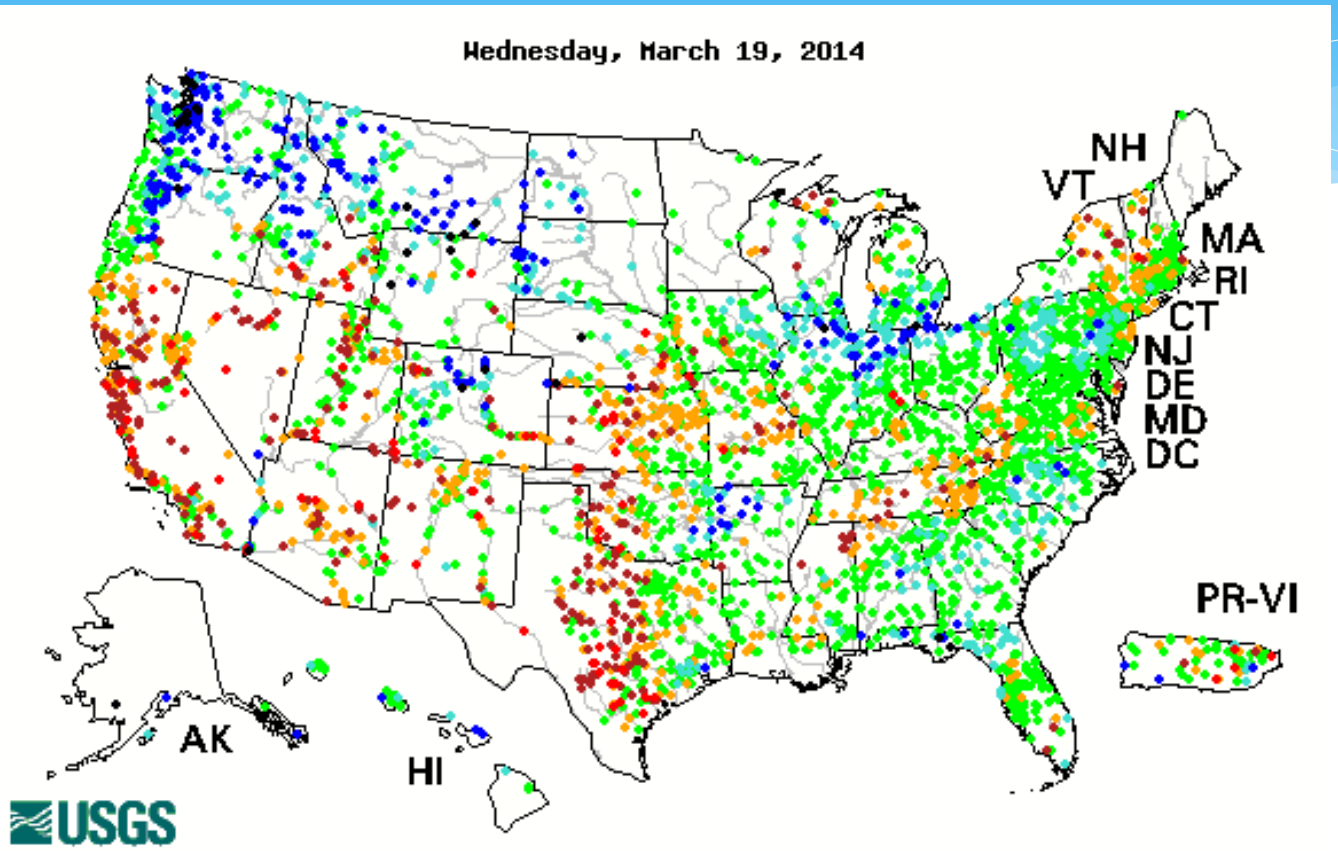


On March 18, 2014 the mountain snowpack in the "Total above Fort Peck" reach was 19.5", 133% of the 1981-2010 30-year average. The mountain snowpack in the "Total Fort Peck to Garrison" reach was 16.9", 137% of the 1981-2010 30-year average. By March 15 normally 87% of the peak has accumulated. The Missouri River basin mountain snowpack normally peaks near April 15.

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

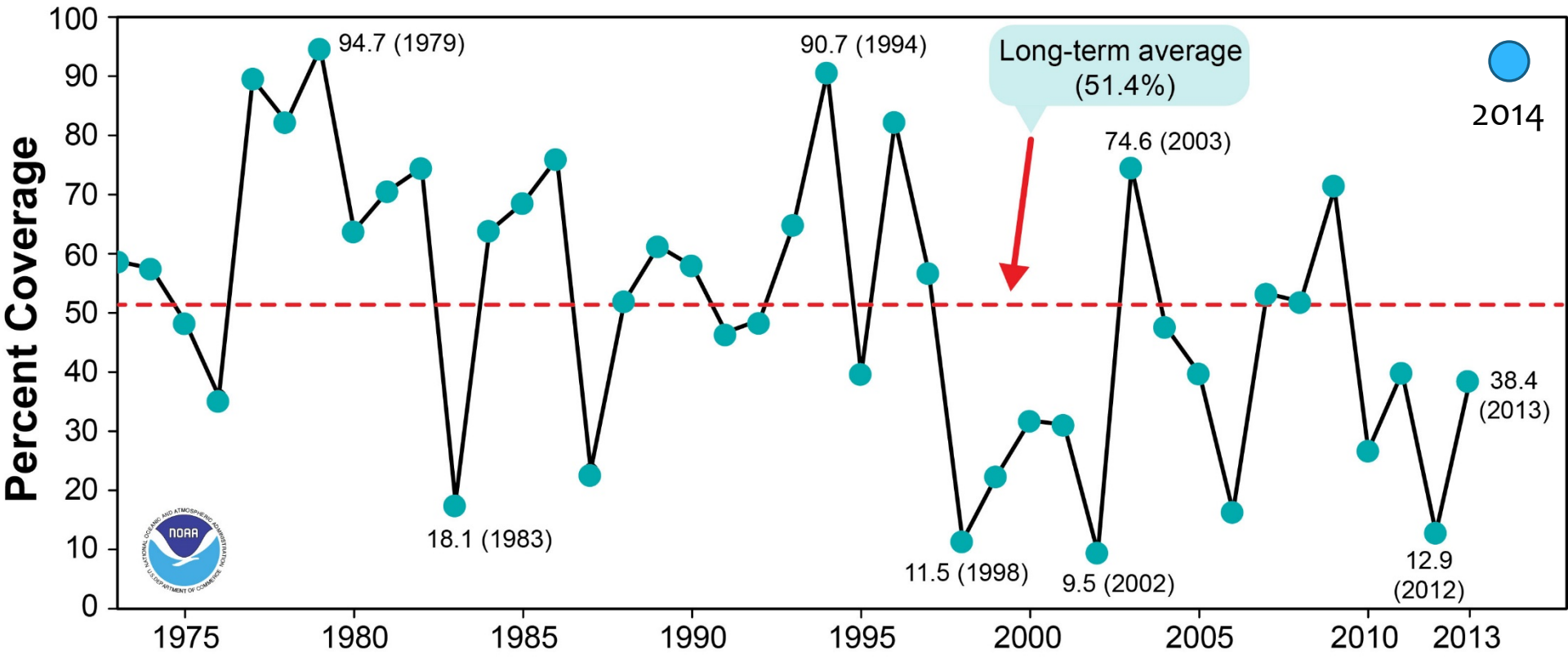
Provisional data. Subject to revision.

7-Day Average Streamflow

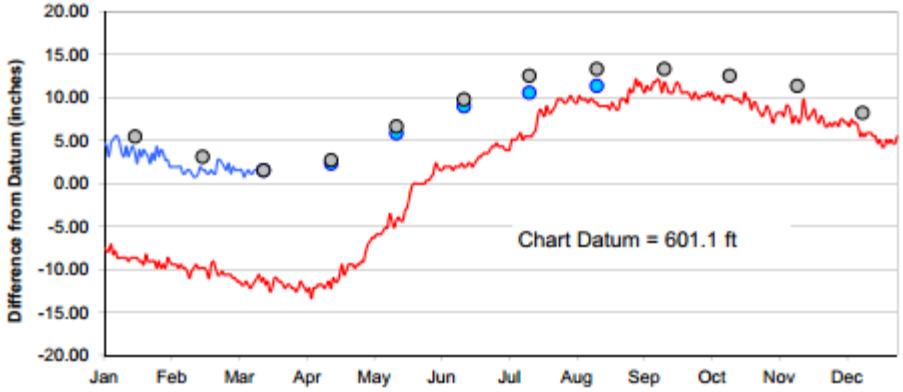


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

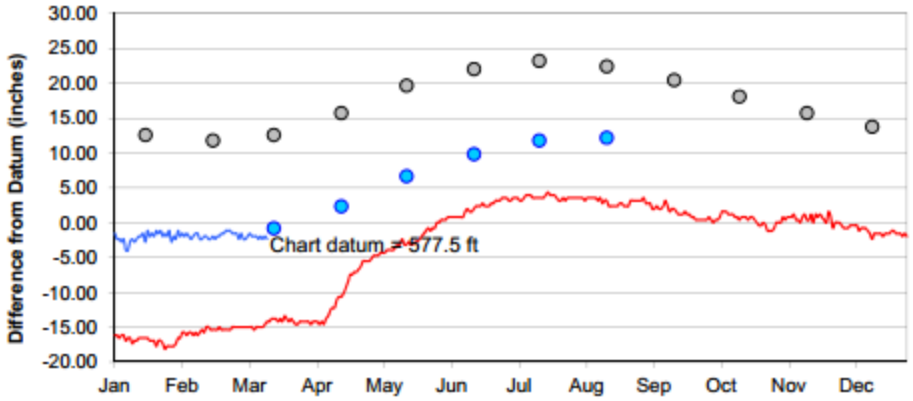
http://waterwatch.usgs.gov/?id=ww_current


Great Lakes Annual Maximum Ice Coverage 1973-2013
Percent Coverage
100
90
80
70
60
50
40
30
20
10
0
1975
1980
1985
1990
1995
2000
2005
2010
2013
94.7 (1979)
18.1 (1983)
90.7 (1994)
11.5 (1998)
9.5 (2002)
74.6 (2003)
12.9 (2012)
38.4 (2013)
Long-term average (51.4%)
2014
NOAA

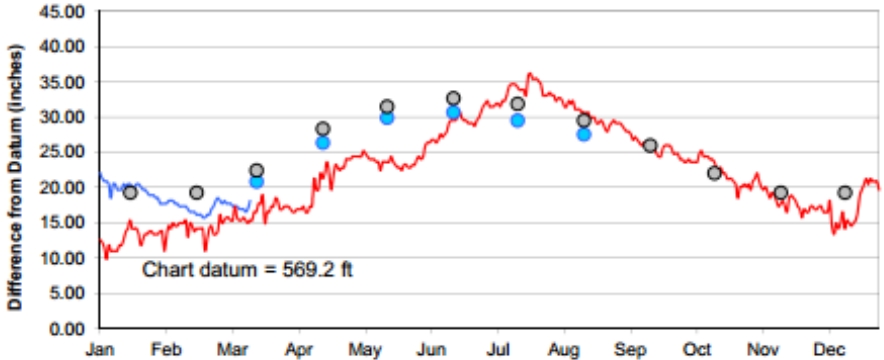
Lake Superior

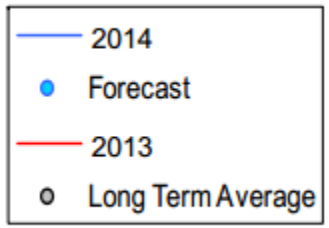


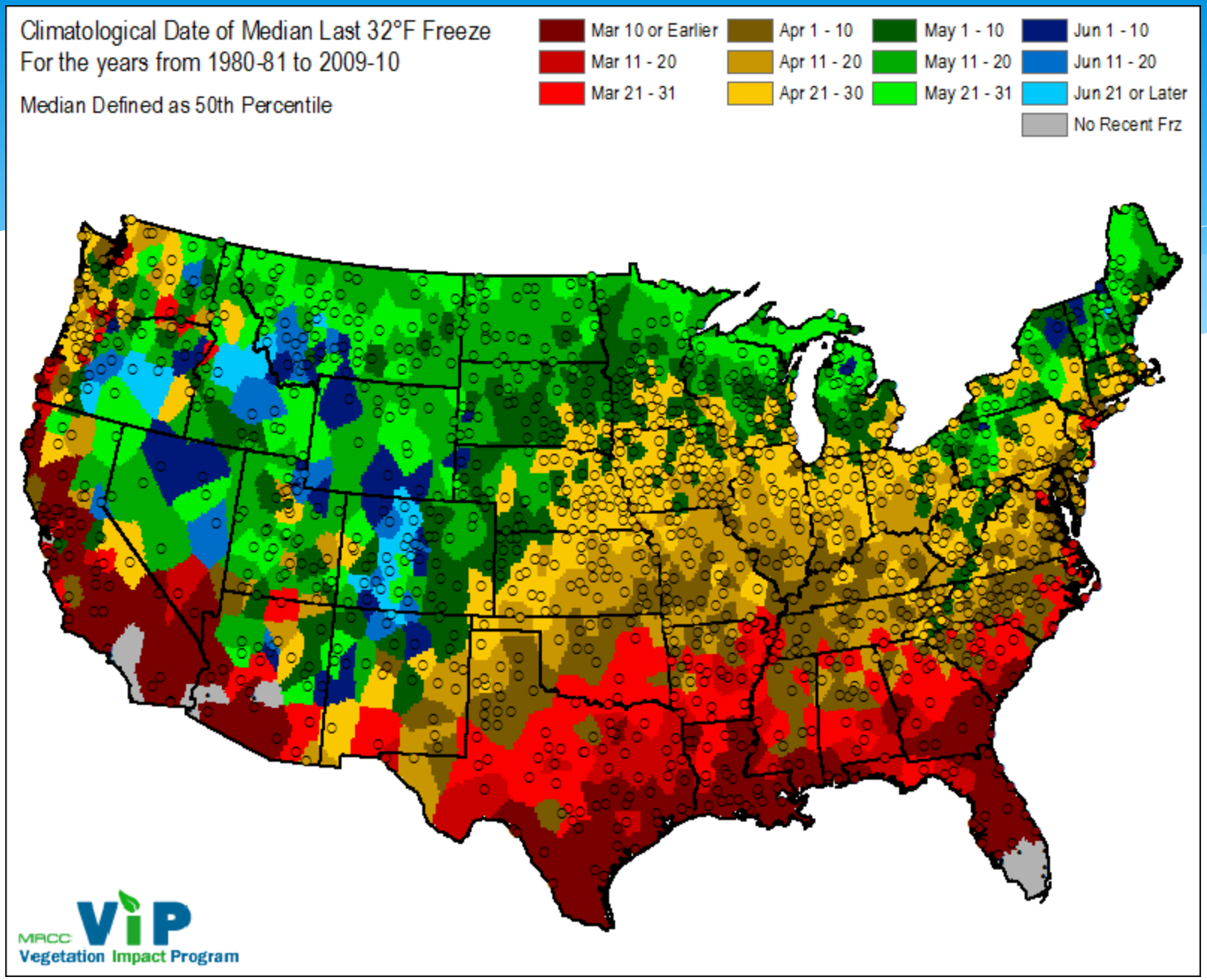
Lake Michigan-Huron



Lake Erie

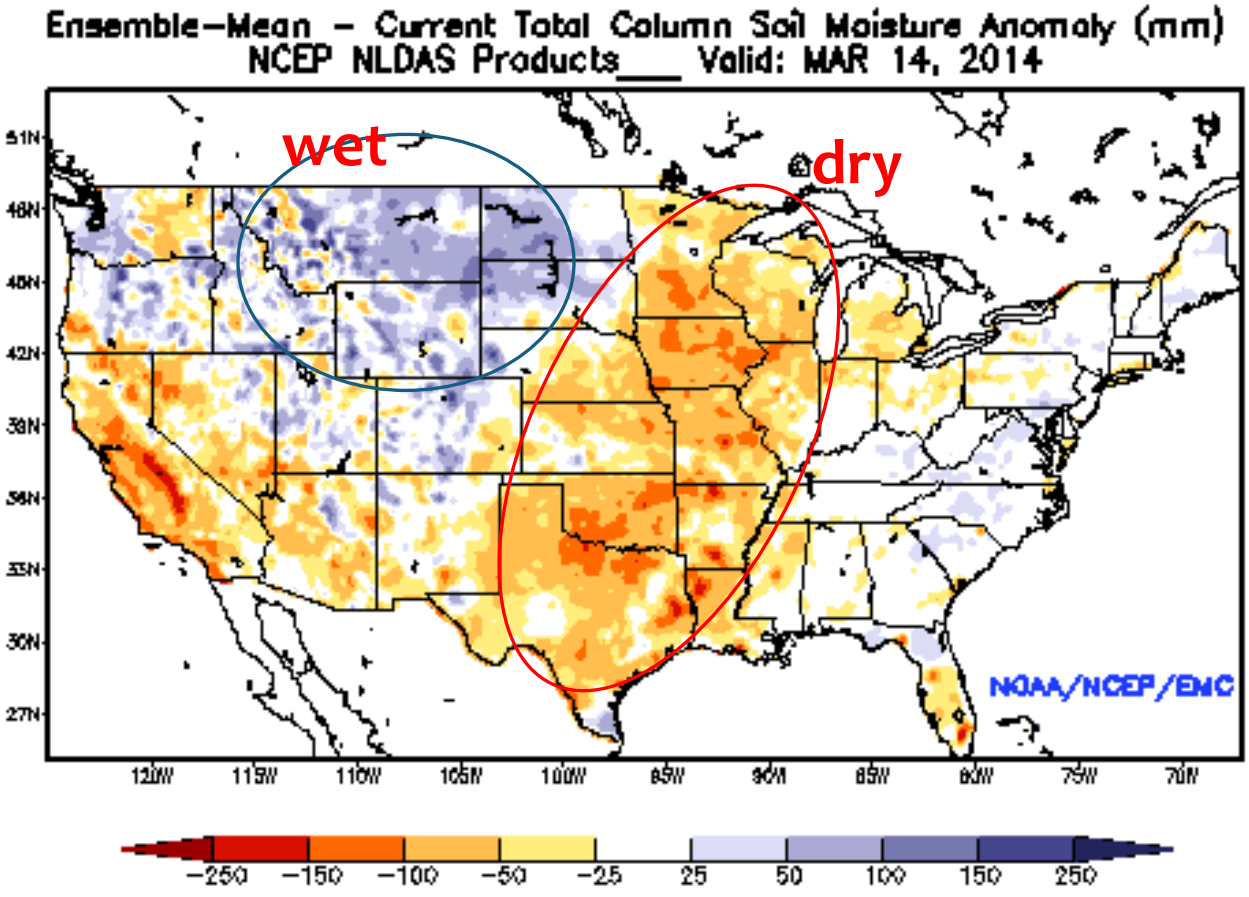






mrcc.isws.Illinois.edu/VIP/

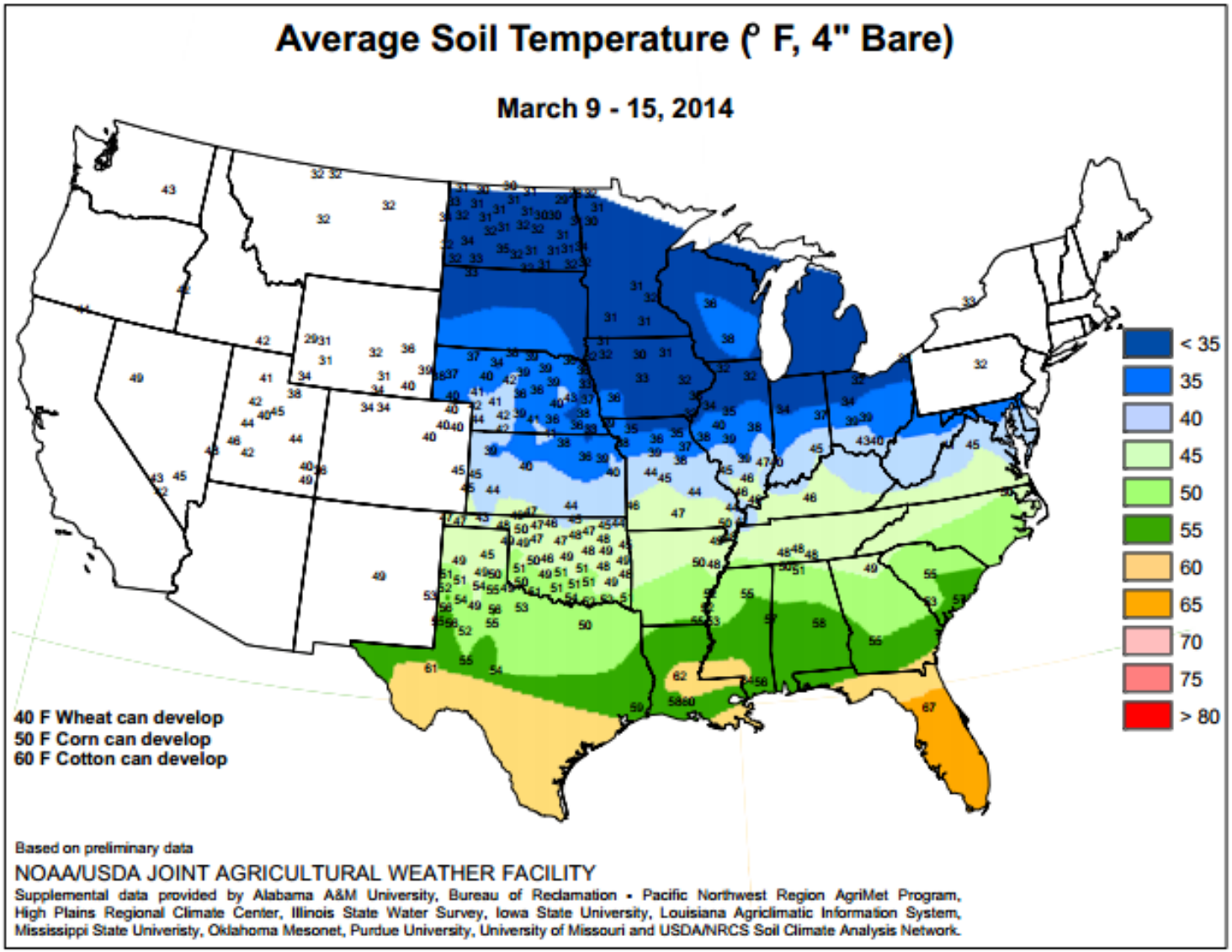
Soil Moisture Anomaly



Soil Moisture Anomaly in millimeters

http://www.emc.ncep.noaa.gov/mmb/nldas/drought/

4-Inch Soil Temperatures

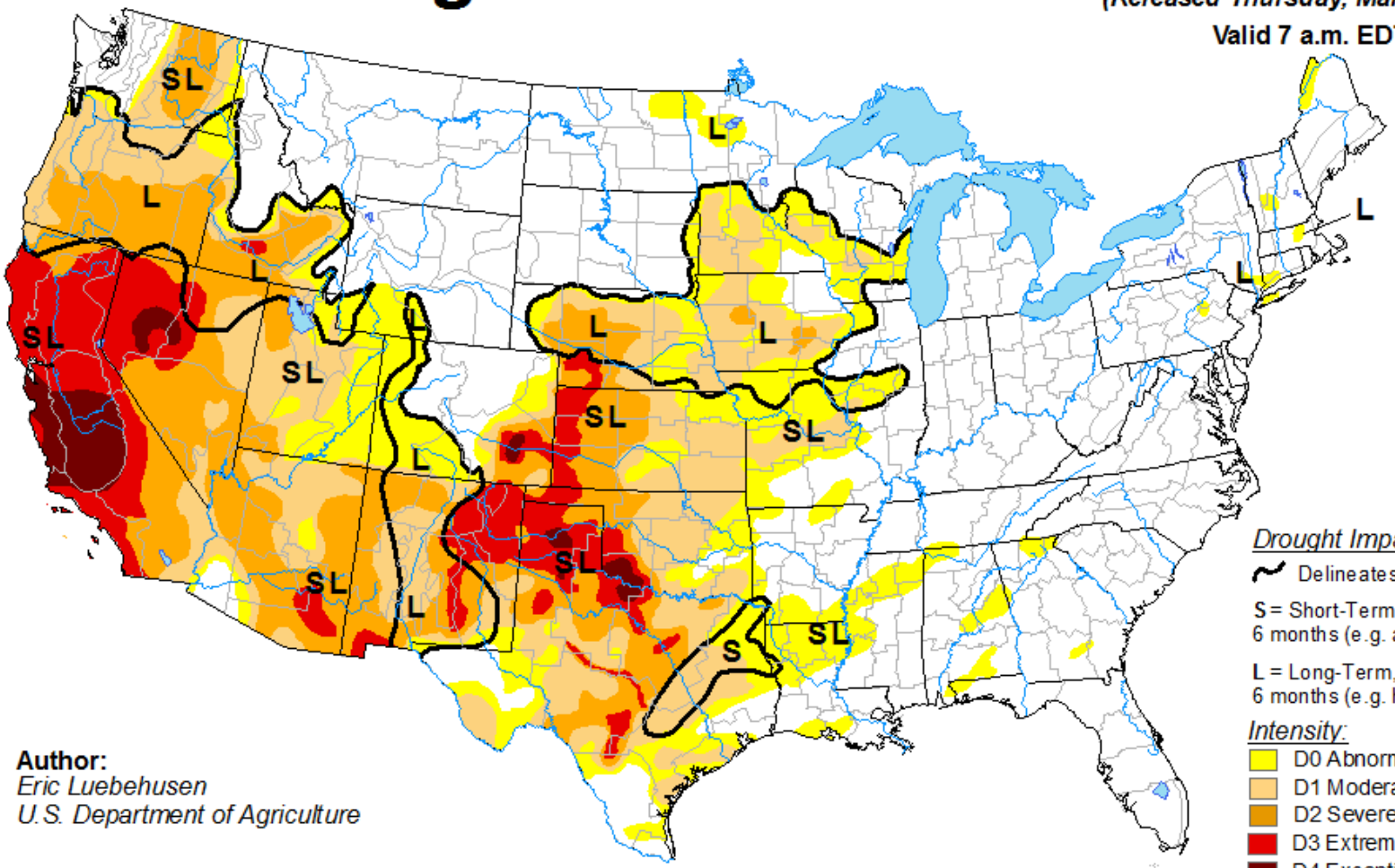


U.S. Drought Monitor

March 18, 2014

(Released Thursday, Mar. 20, 2014)

Valid 7 a.m. EDT



Author:
Eric Luebehusen
U.S. Department of Agriculture

Drought Impact Types:

~ Delineates dominant impacts

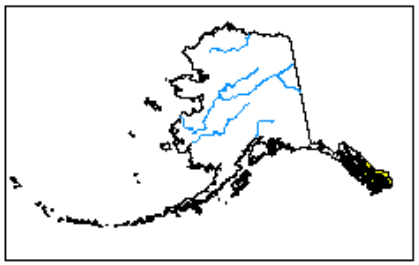
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

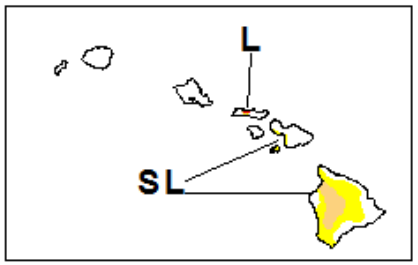
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

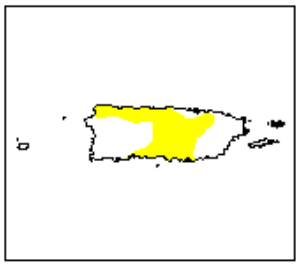
Intensity:

- 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.



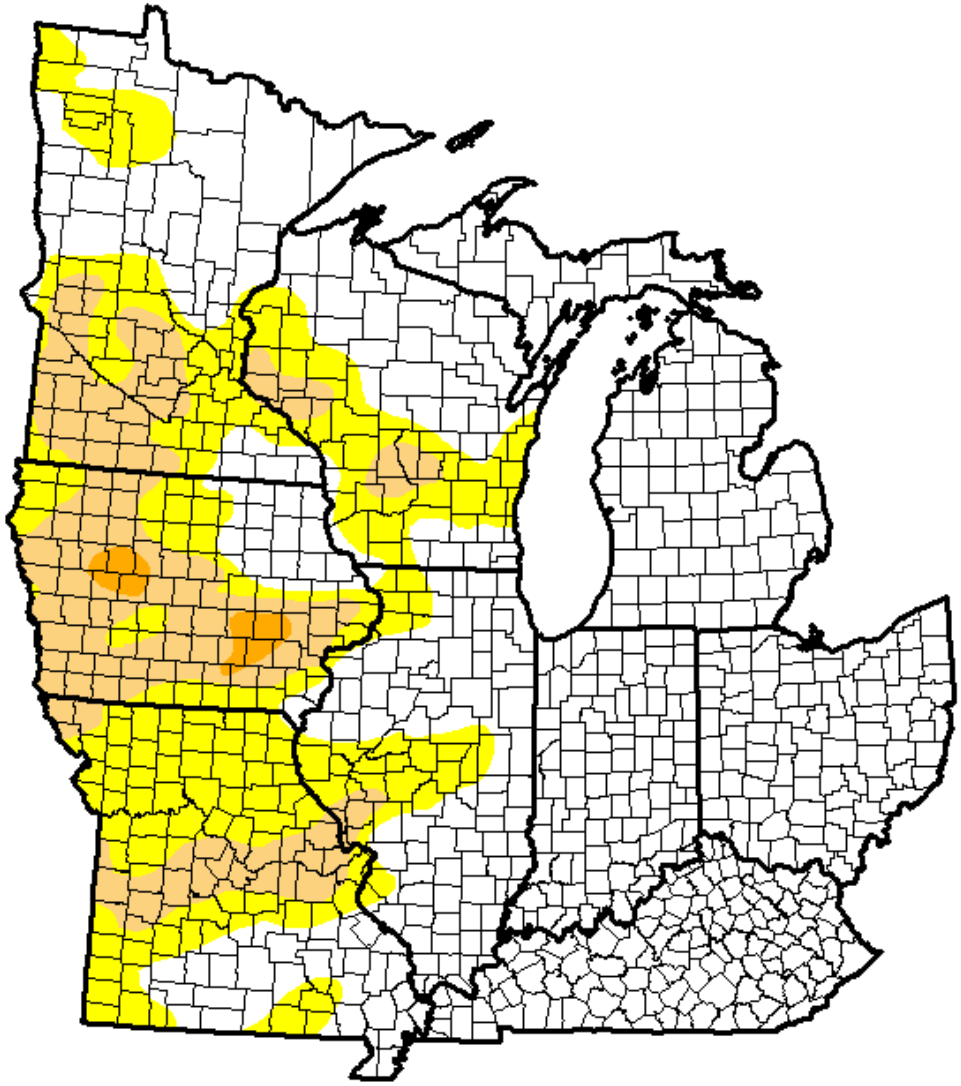




USDA National Drought Mitigation Center

http://droughtmonitor.unl.edu/

U.S. Drought Monitor
Midwest



March 18, 2014
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Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	64.85	35.15	13.41	0.77	0.00	0.00
Last Week *3/11/2014*	65.31	34.69	12.08	0.77	0.00	0.00
3 Months Ago *12/17/2013*	60.25	39.75	18.13	3.08	0.00	0.00
Start of Calendar Year *12/31/2013*	66.90	33.10	17.70	2.93	0.00	0.00
Start of Water Year *10/1/2013*	43.94	56.06	30.56	11.64	0.20	0.00
One Year Ago *3/19/2013*	50.11	49.89	33.30	20.11	5.76	0.01

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:
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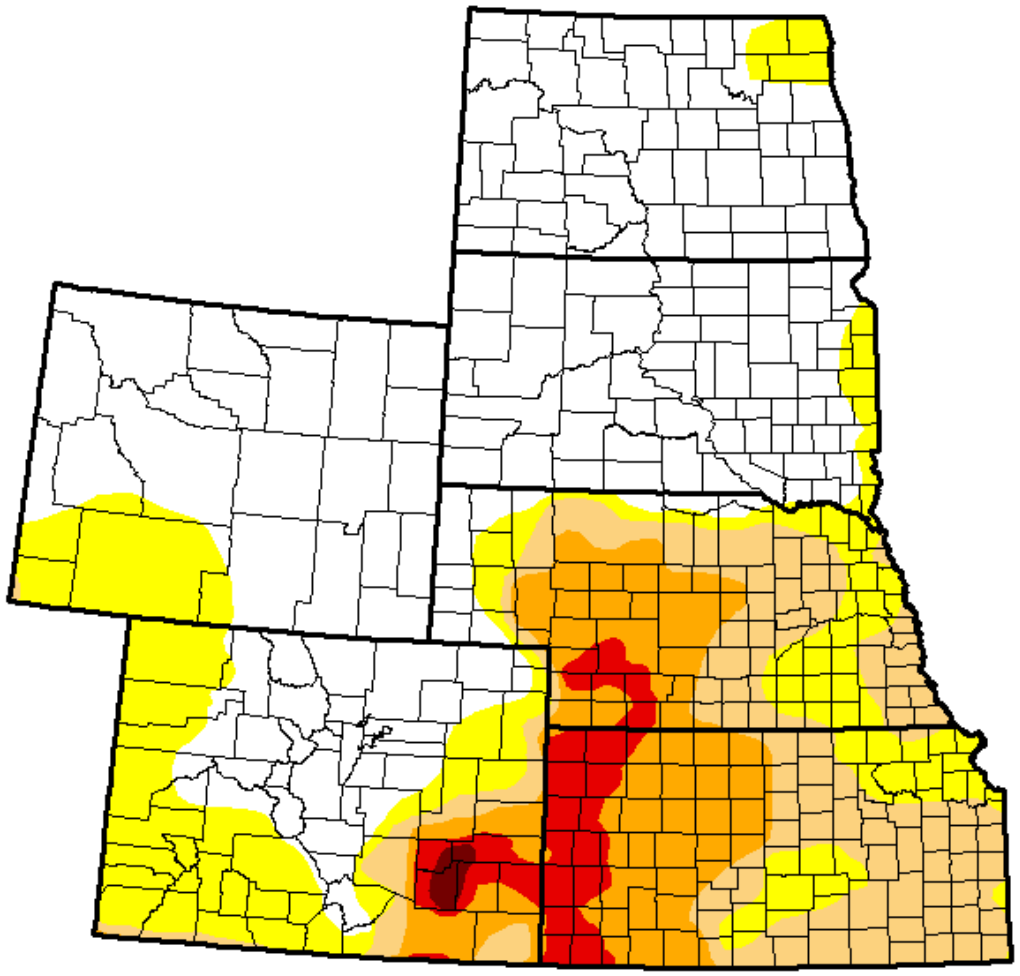
U.S. Department of Agriculture

http://droughtmonitor.unl.edu/

U.S. Drought Monitor

High Plains



March 18, 2014

(Released Thursday, Mar. 20, 2014)

Valid 7 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	53.06	46.94	27.87	14.42	4.09	0.30
Last Week *3/11/2014*	51.58	48.42	23.28	14.39	2.78	0.30
3 Months Ago *12/17/2013*	44.81	55.19	20.96	12.01	2.05	0.30
Start of Calendar Year *12/31/2013*	45.79	54.21	20.60	12.28	2.44	0.30
Start of Water Year *10/1/2013*	29.87	70.13	43.21	19.50	3.01	0.30
One Year Ago *3/19/2013*	4.65	95.35	91.29	81.46	55.52	24.37

Intensity:

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

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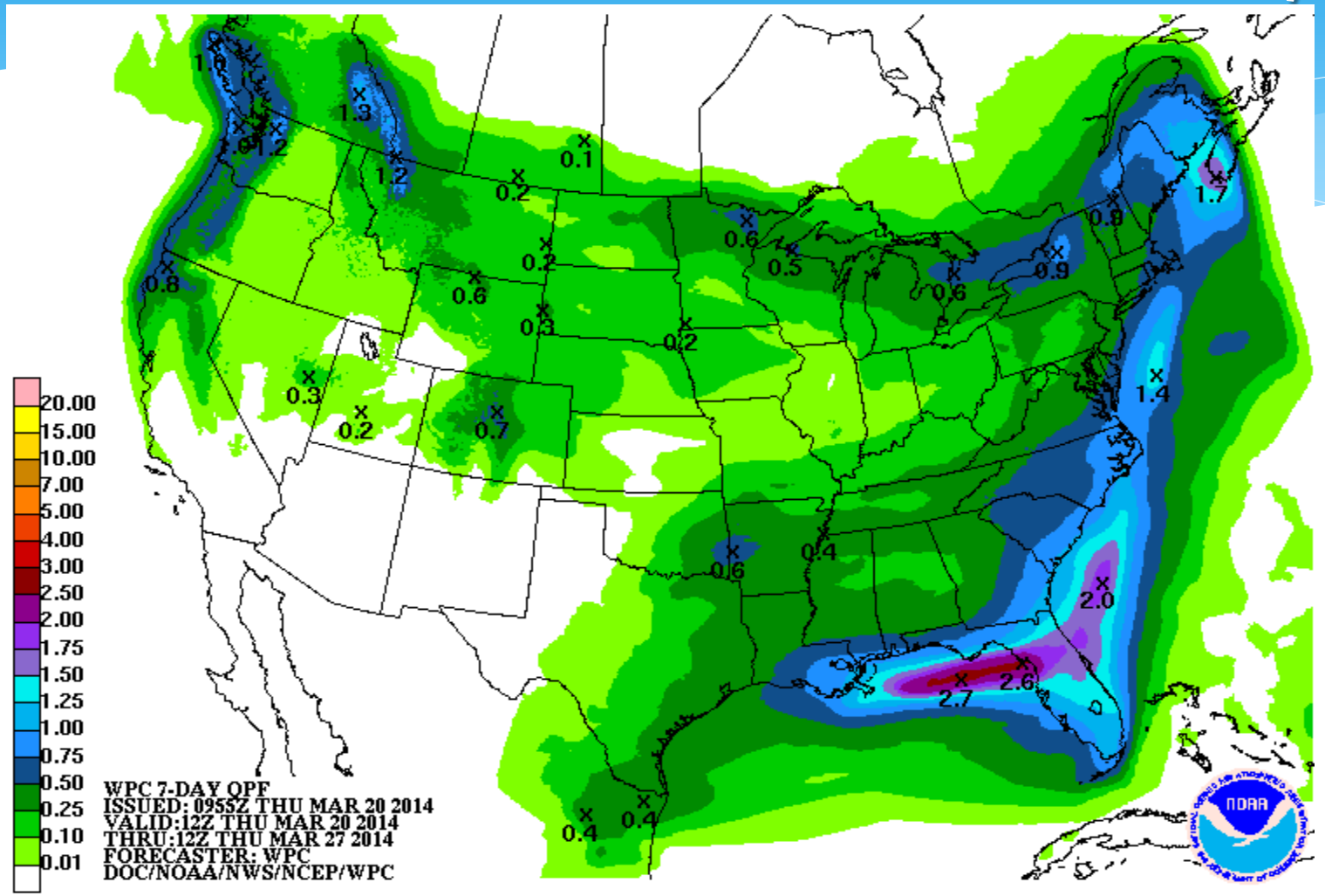
Climate Outlooks

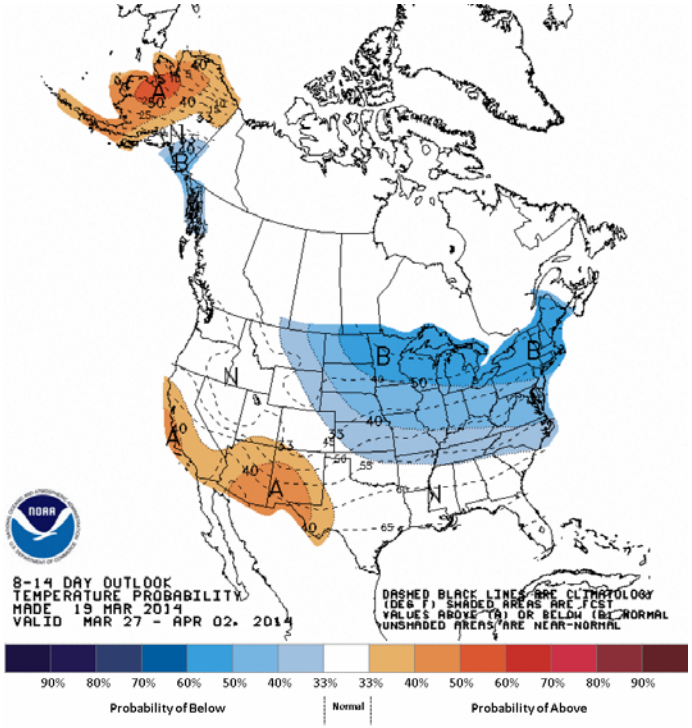
* 7-day precipitation forecast
* 8-14 day outlook
* April
* 6 Months (April - September)
* Seasonal Drought Outlooks
* Spring Flooding Outlook

7-day Quantitative Precipitation Forecast Valid: 12z Thu Mar 20 – 12z Thu Mar 27

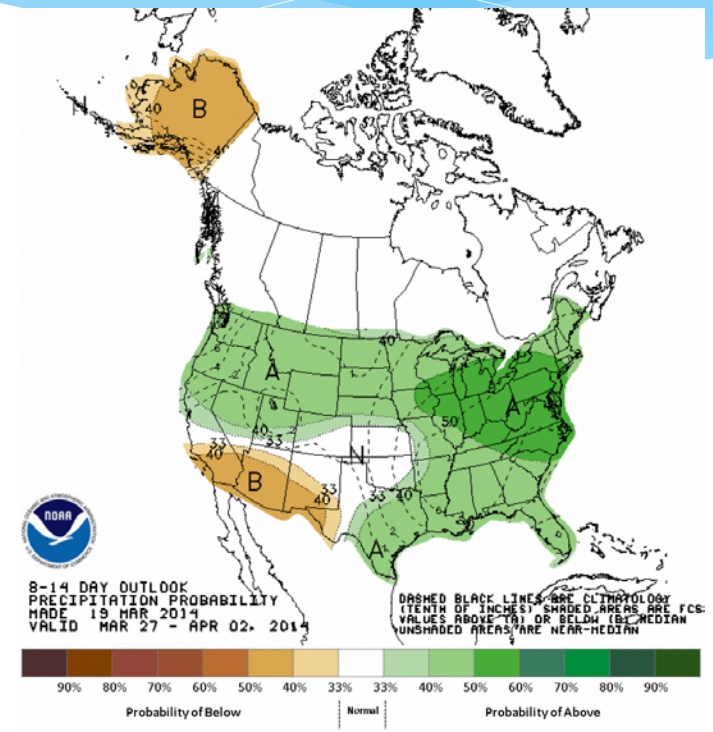


http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

Temperature and Precipitation Probabilities for Mar 27– Apr 2, 2014

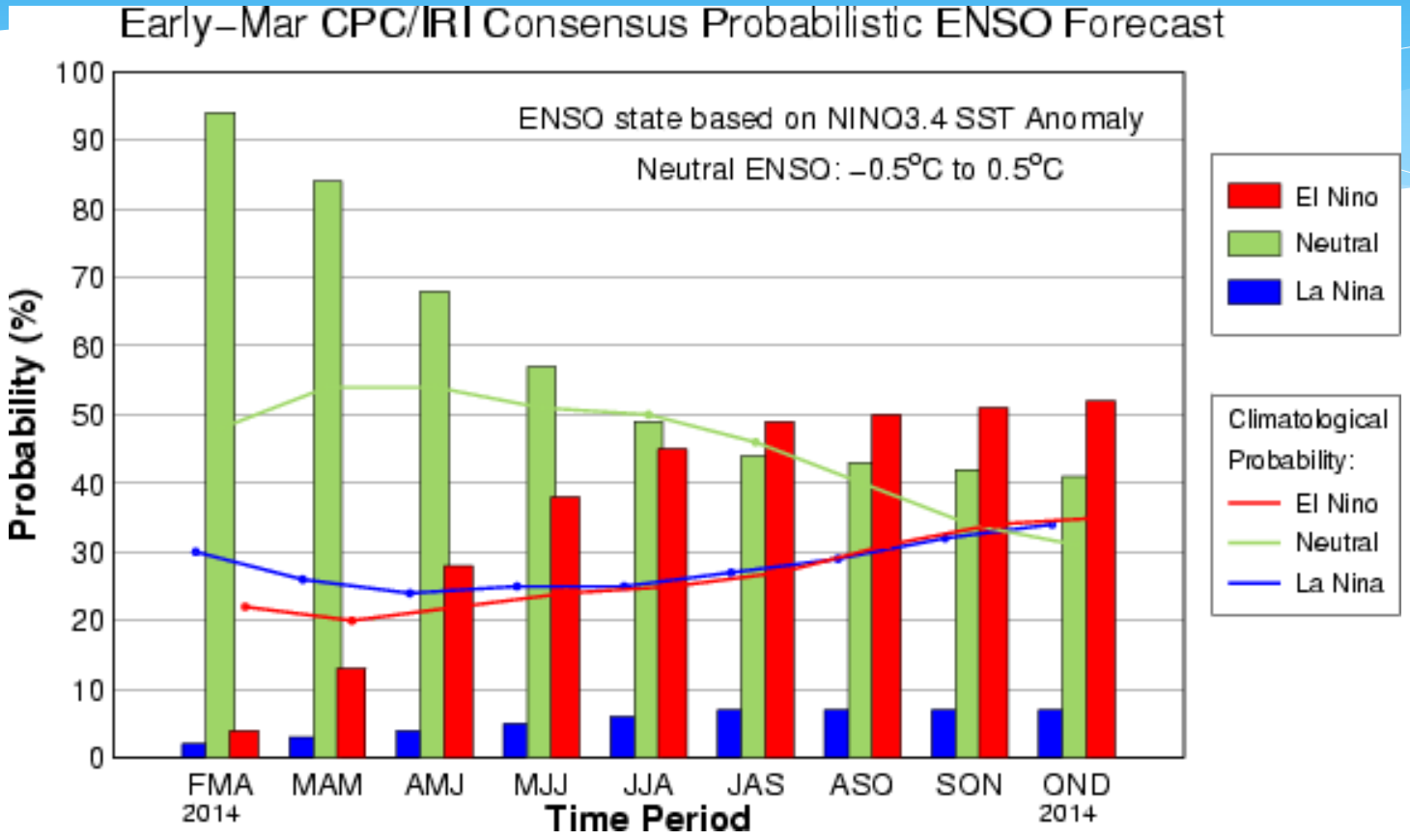


Temperature



Precipitation

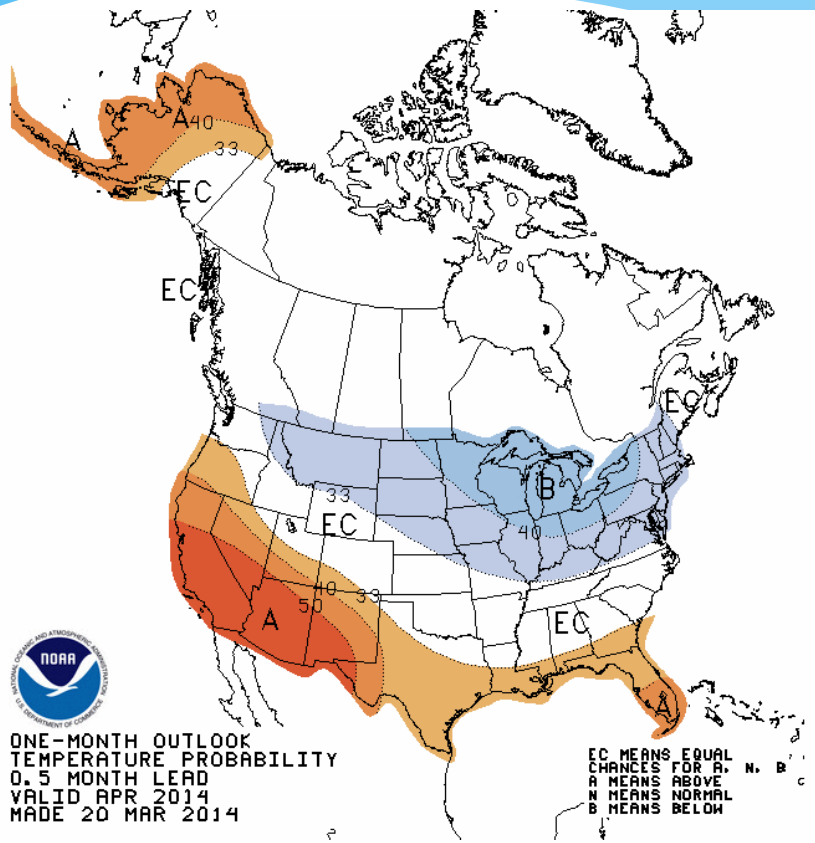
El Nino/La Nina Forecast



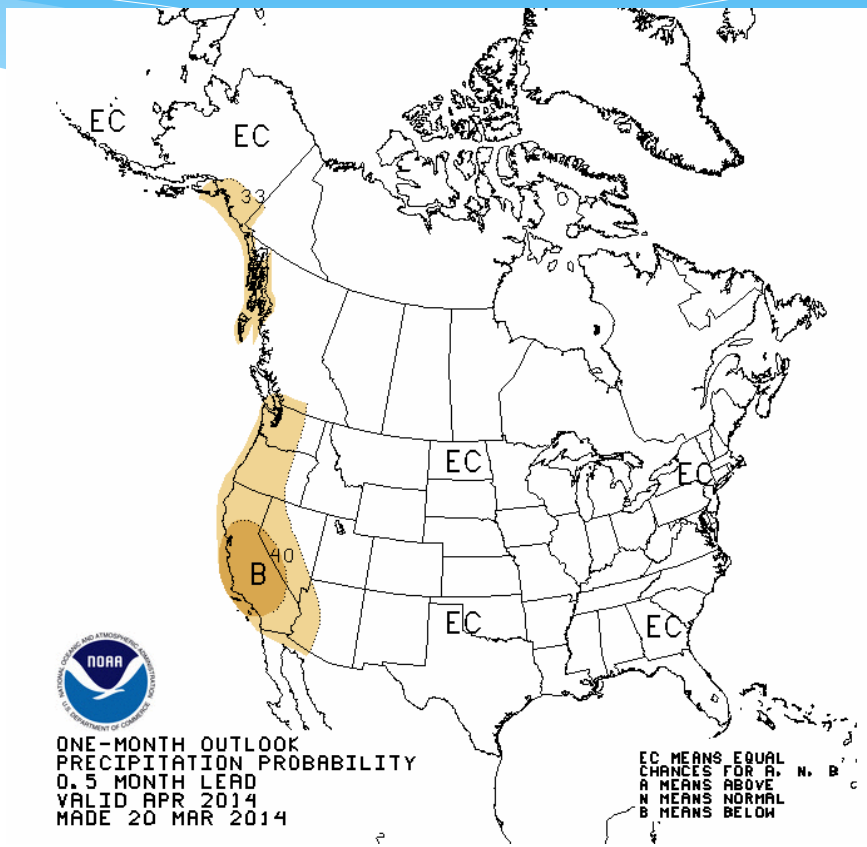
Key Points About El Niño

* El Niño probabilities slightly edge out the neutral phase July-September time frame and remain at ~50 percent for the rest of 2014.
* It's impact on the 2014 growing season will be limited due to the timing and strength.
* In general, the impact of El Niño is mildest in summer months with some evidence towards a tendency of cooler temperatures.

April Temperature and Precipitation Probabilities



Temperature

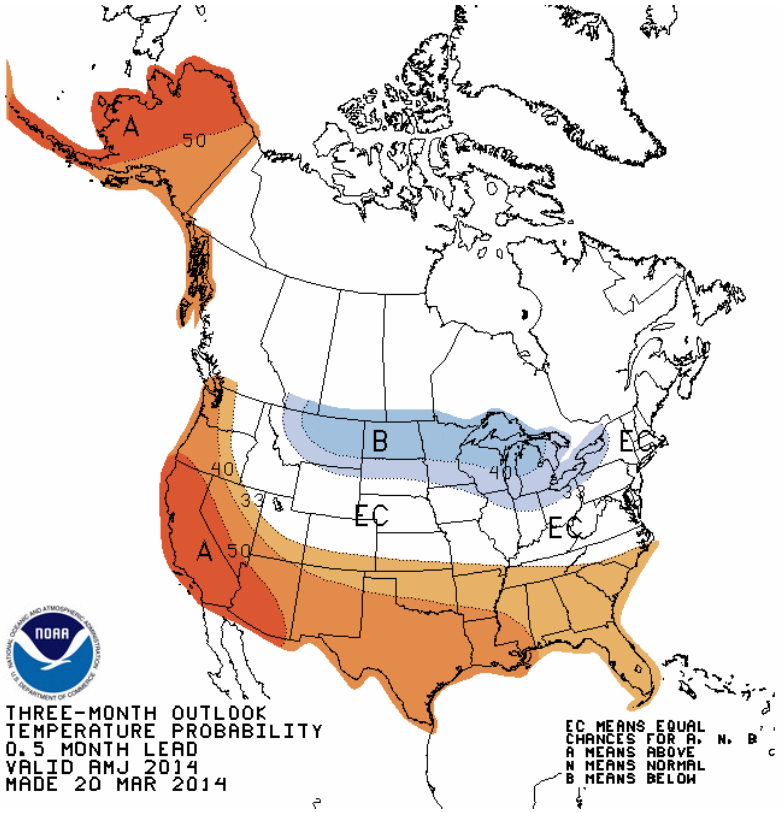


Precipitation

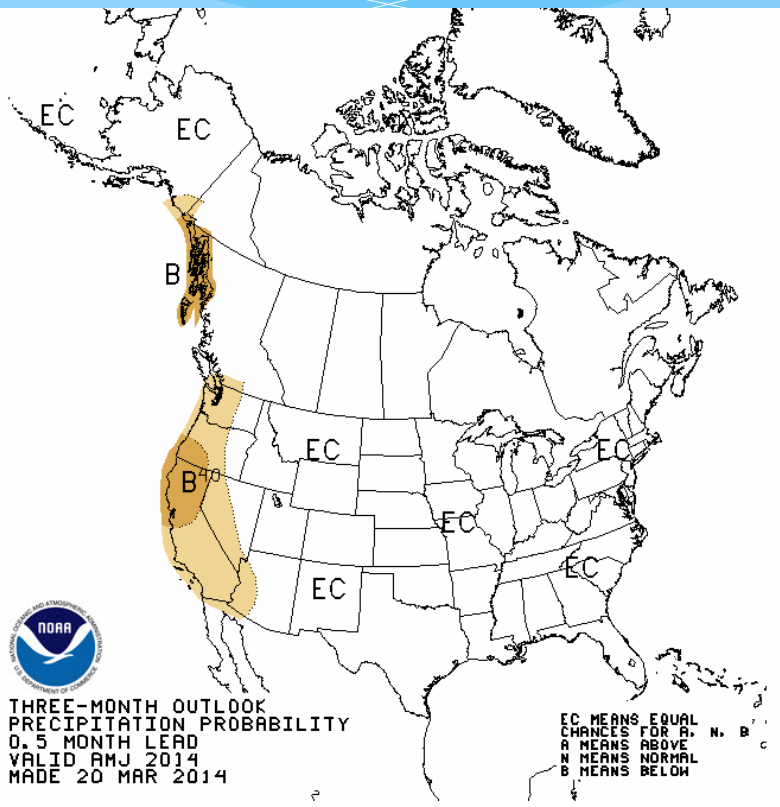
http://www.cpc.ncep.noaa.gov/

3 Month Temperature and Precipitation Probabilities

(April-June)



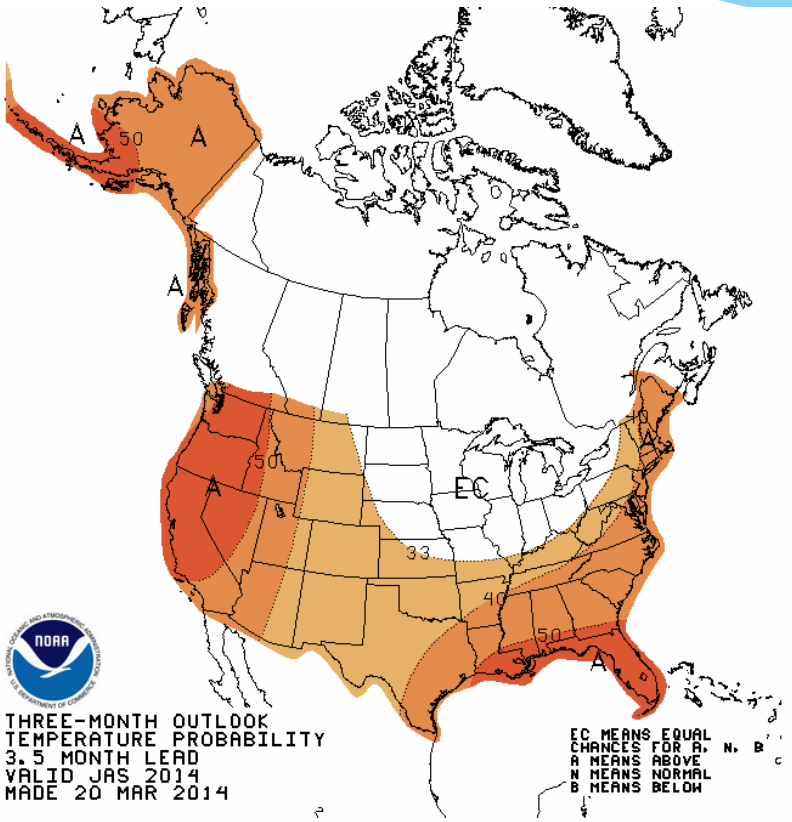
Temperature



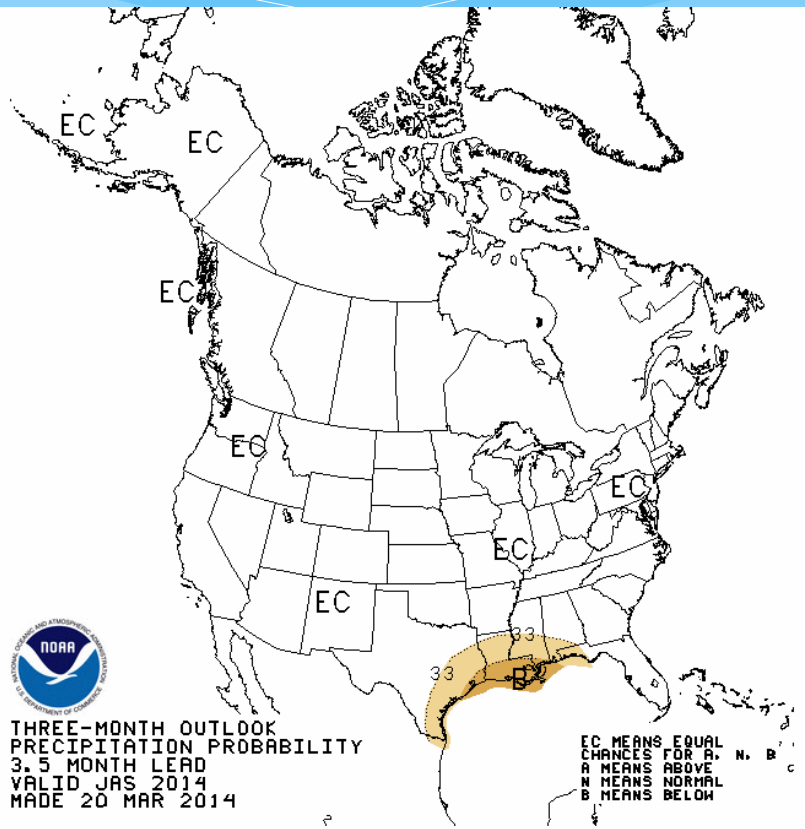
Precipitation

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

3 Month Temperature and Precipitation Probabilities (July-September)



Temperature



Precipitation

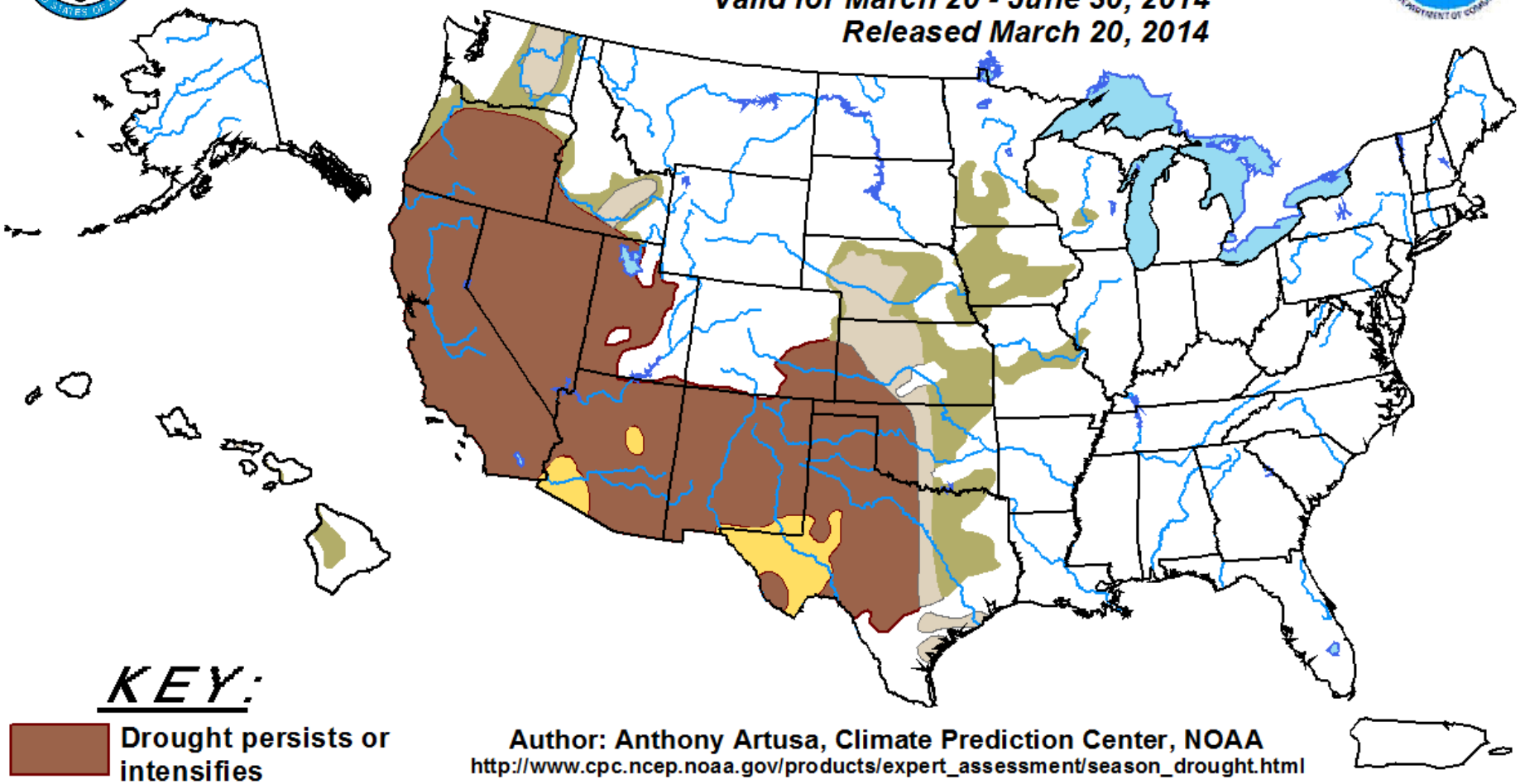
http://www.cpc.ncep.noaa.gov

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for March 20 - June 30, 2014

Released March 20, 2014



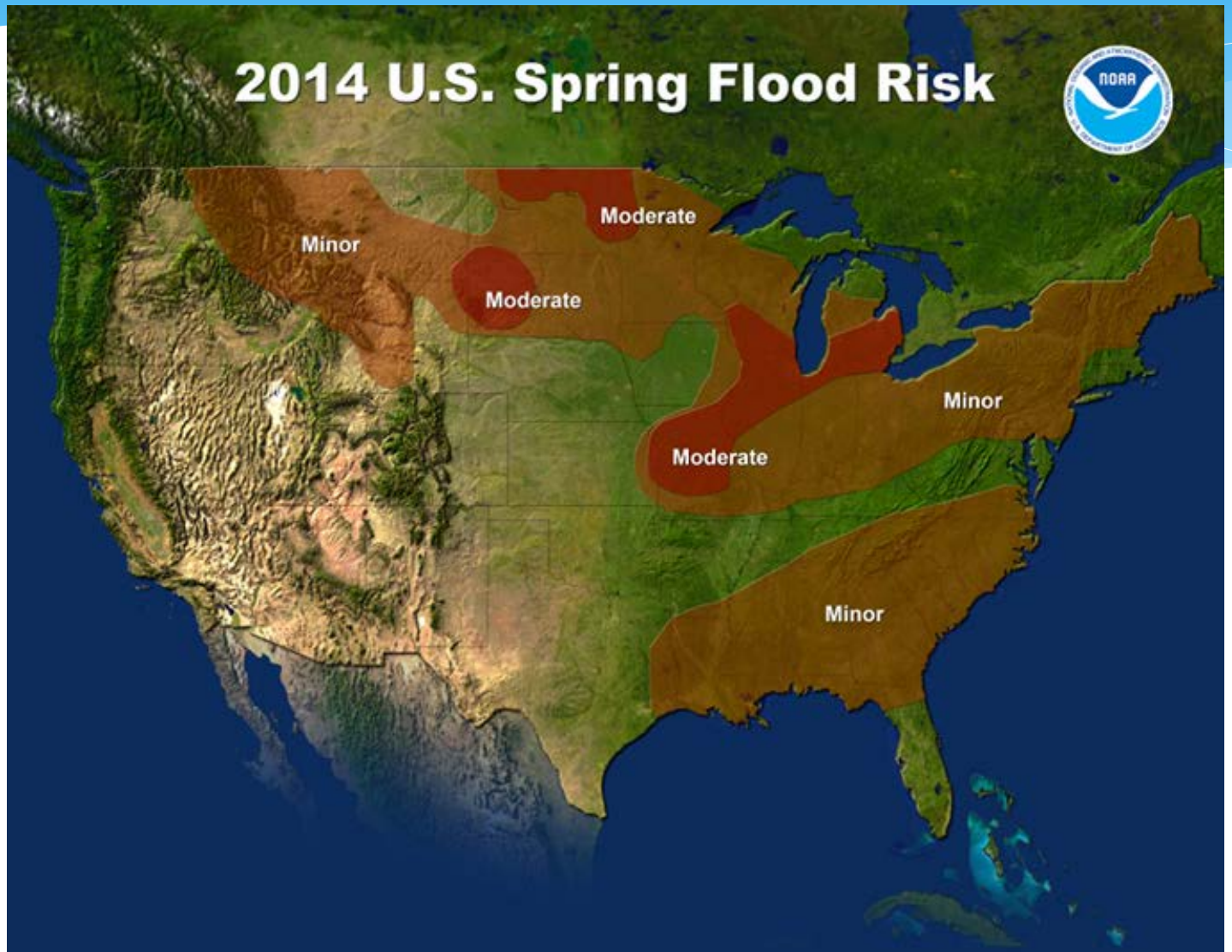
KEY:

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

Author: Anthony Artusa, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.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)

NOAA 2014 Flood Outlook – March 20



Summary

* **Recent Conditions**
  * Cold, dry conditions prevailed in last 30 days for most the central region.
  * Drought conditions slowly worsening in parts of Kansas, Nebraska, Missouri, and Iowa. Drought free in the eastern Corn Belt.
  * Cold temperatures, cold soils will likely delay spring planting in many areas – no worries yet.
  * Moderate risk of flooding on parts of the Missouri, upper Mississippi, and Illinois Rivers.

Summary

* **Outlooks**
  * ENSO neutral conditions through Spring and early Summer 2014
  * A ~50 percent chance of El Niño by late Summer.
  * Next 2 weeks cooler and wetter.
  * Spring colder than average more likely in upper portion of the 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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