

Great Plains and Midwest Climate Outlook

May 21, 2015

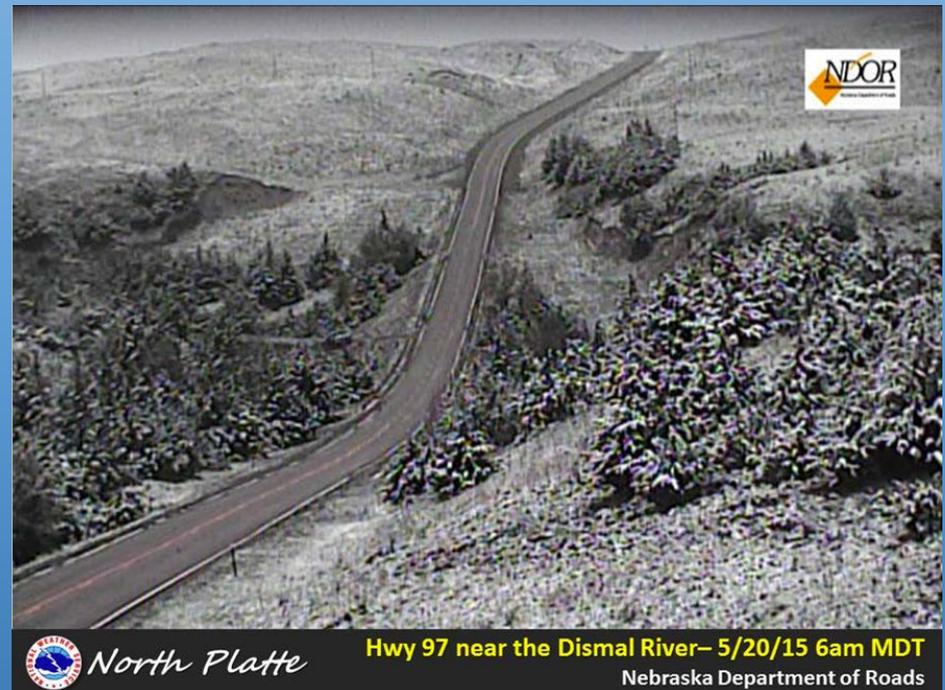
Dr. Jim Angel

Illinois State Climatologist

Illinois State Water Survey

University of Illinois

jimangel@illinois.edu



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**
 - 18 June 2015, Pat Guinan, Missouri State Climatologist
- **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

- **April 2015**
- **Current conditions**
- **Impacts**
- **Outlooks**

17th Warmest April on Record for US

Statewide Average Temperature Ranks

April 2015

Period: 1895-2015



National Climatic Data Center
Mon May 4 2015

Record Coldest
(1)

Much Below Average

Below Average

Near Average

Above Average

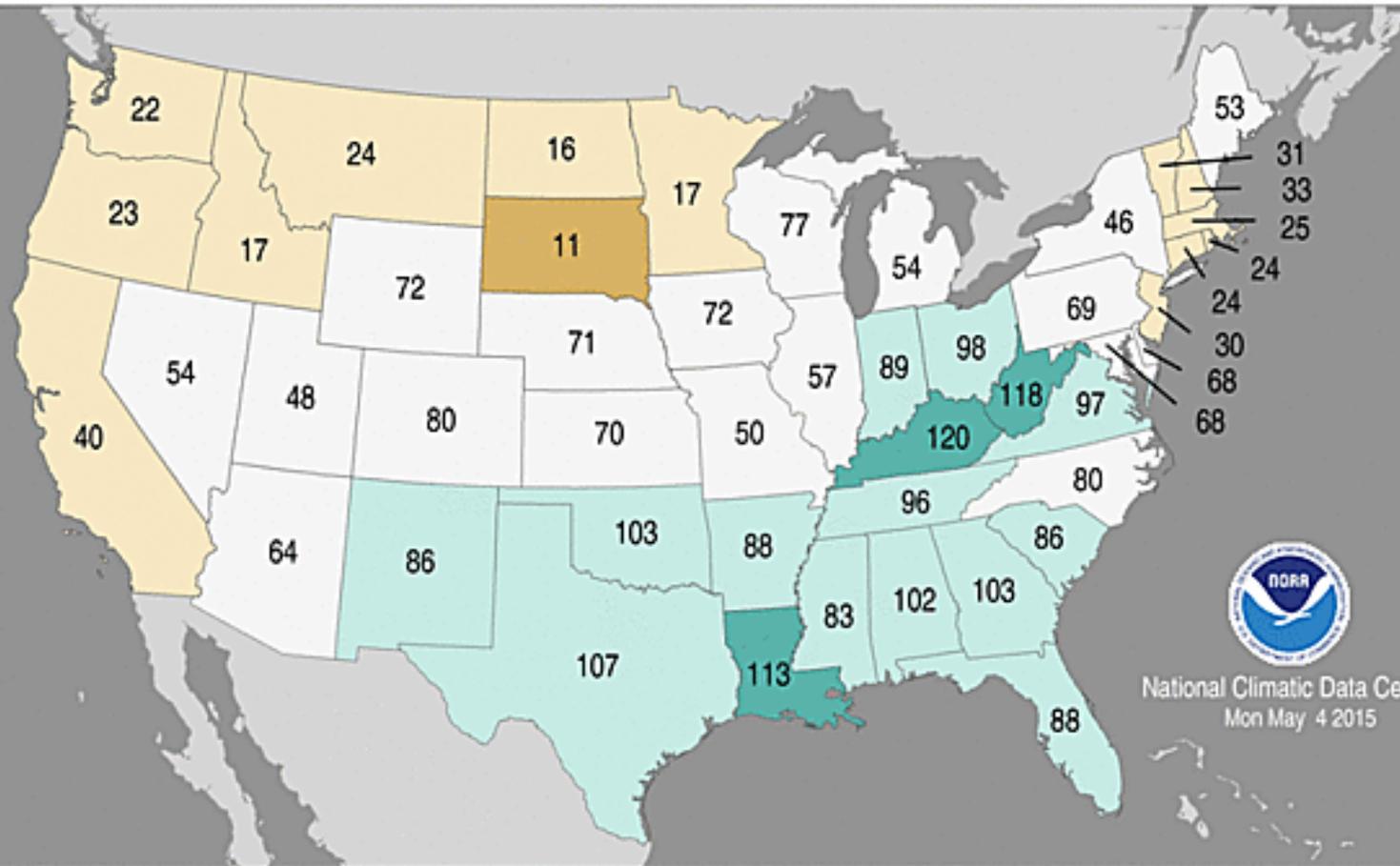
Much Above Average

Record Warmest
(121)

Statewide Precipitation Ranks

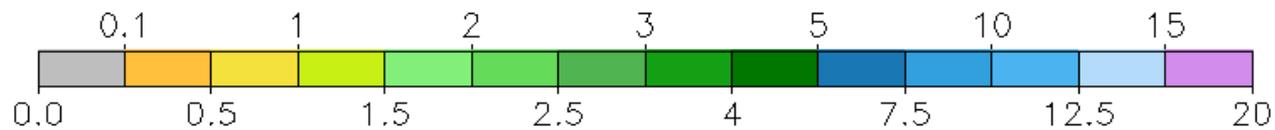
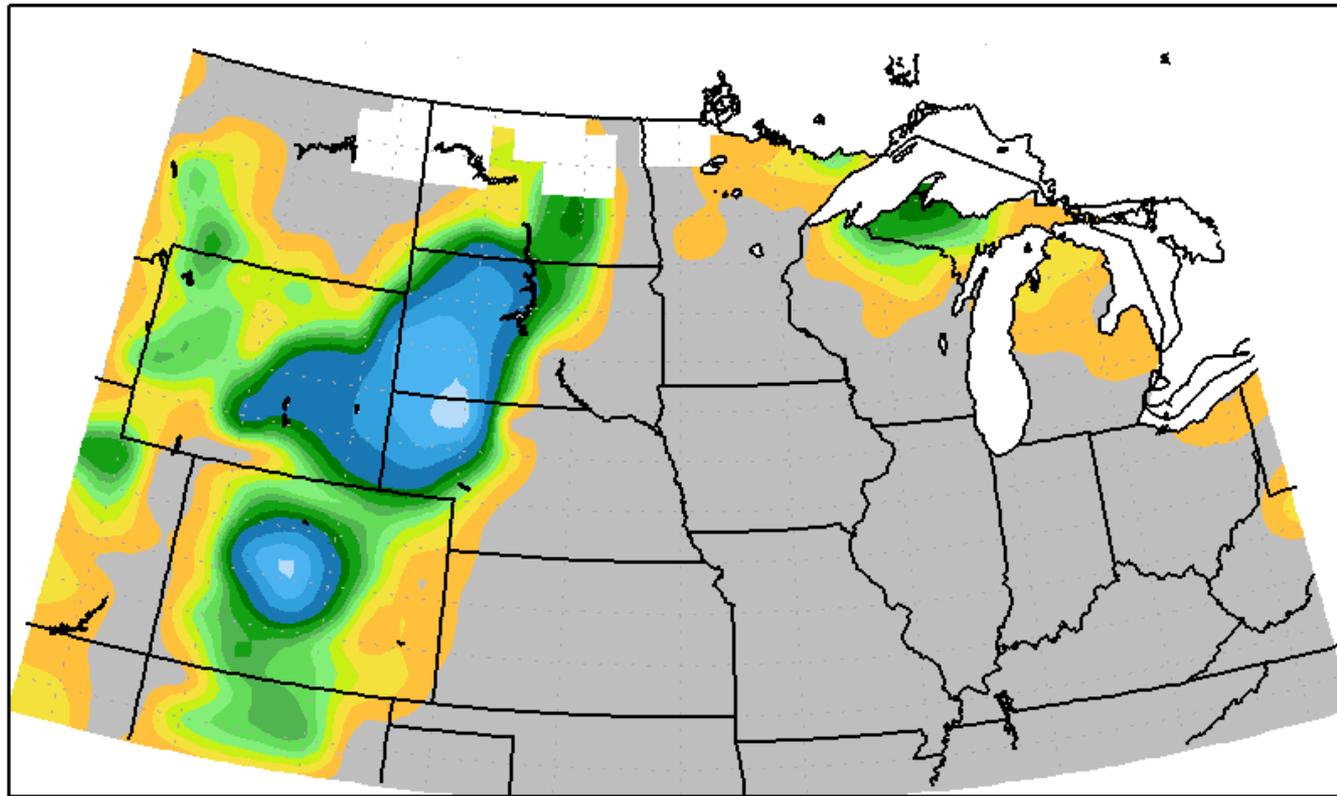
April 2015

Period: 1895-2015



National Climatic Data Center
Mon May 4 2015

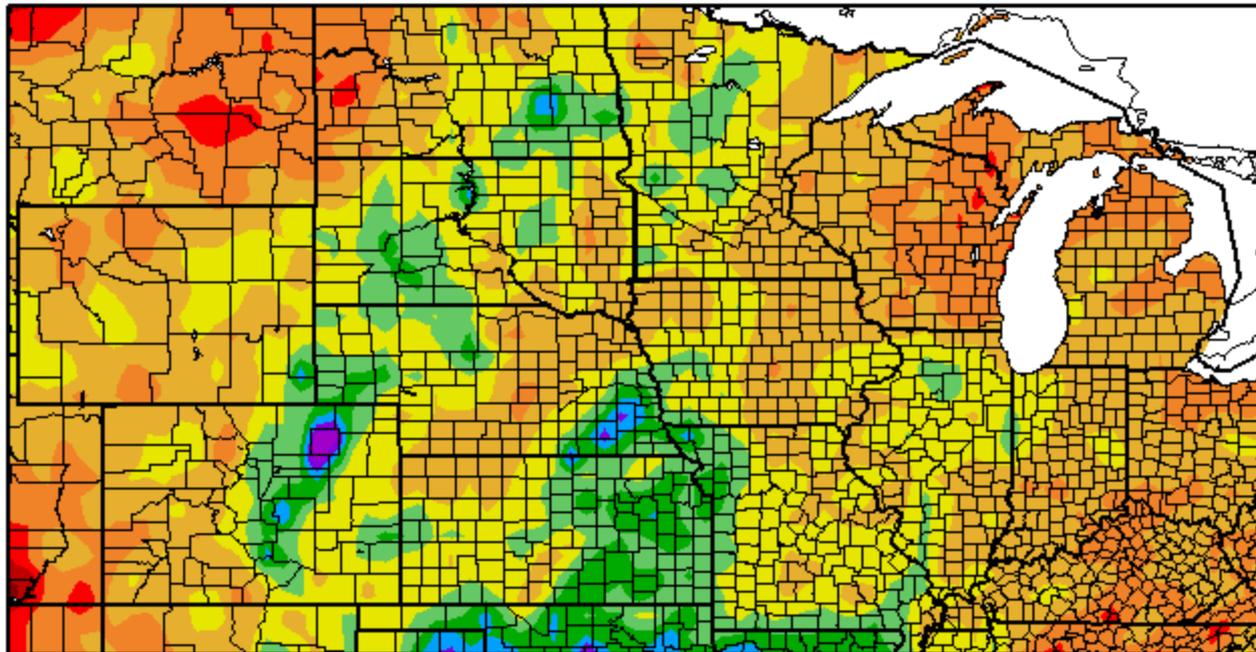
Accumulated Snowfall (in) April 22, 2015 to May 21, 2015



Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 5/21/2015 9:36:51 AM CDT

30 Day Precipitation

Precipitation (in)
4/21/2015 - 5/20/2015

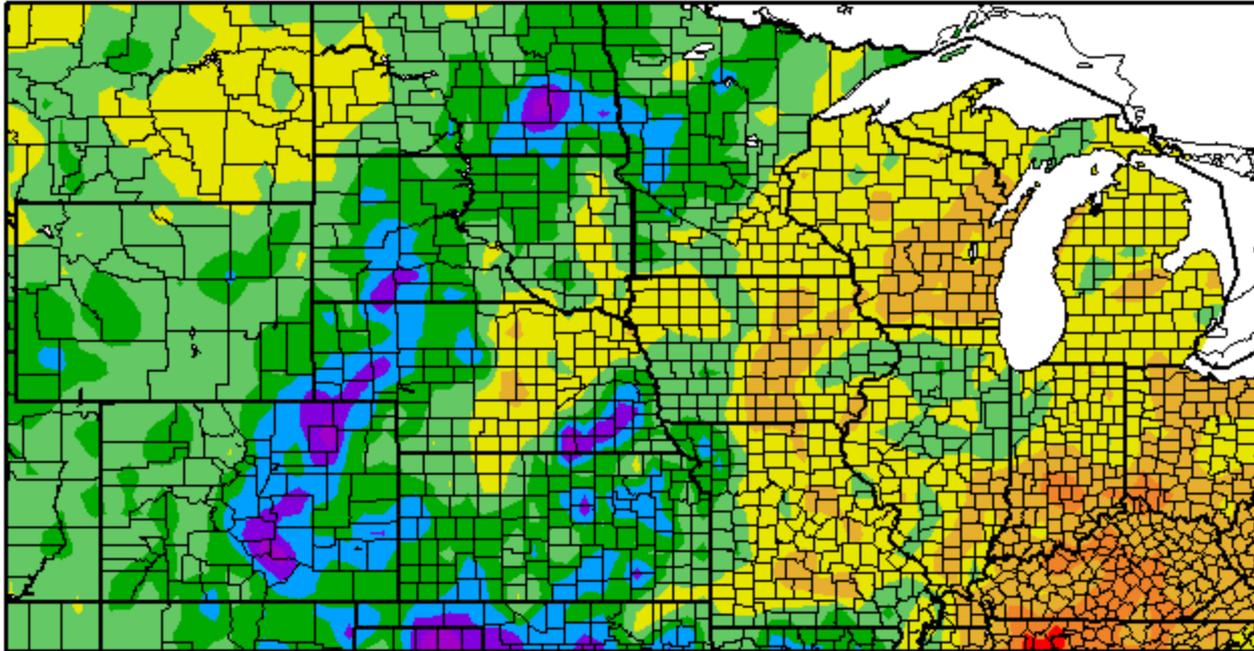


Generated 5/21/2015 at HPRCC using provisional data.

Regional Climate Centers

30-Day Precipitation Departure

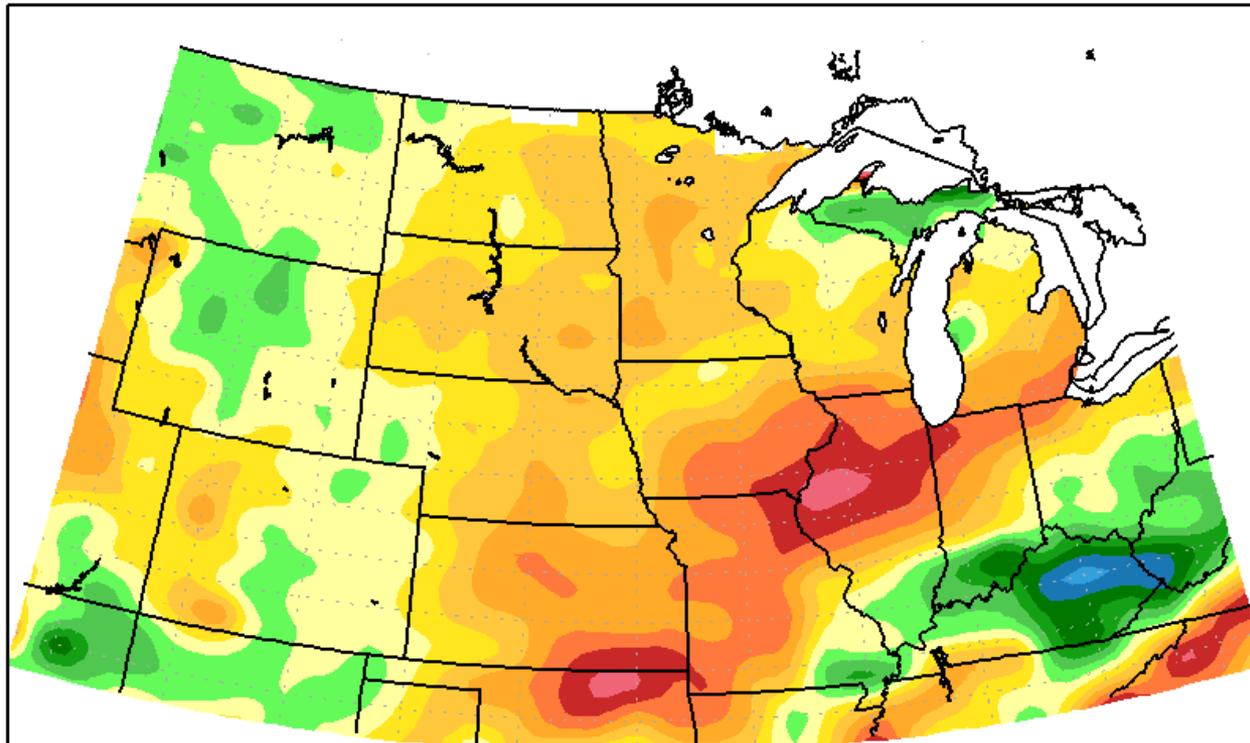
Departure from Normal Precipitation (in)
4/21/2015 – 5/20/2015



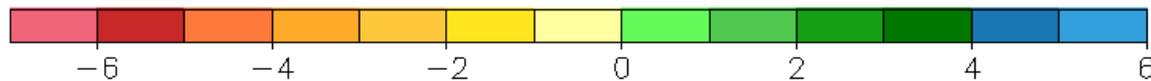
Generated 5/21/2015 at HPRCC using provisional data.

Regional Climate Centers

Accumulated Precipitation (in): Departure from Mean November 1, 2014 to April 15, 2015



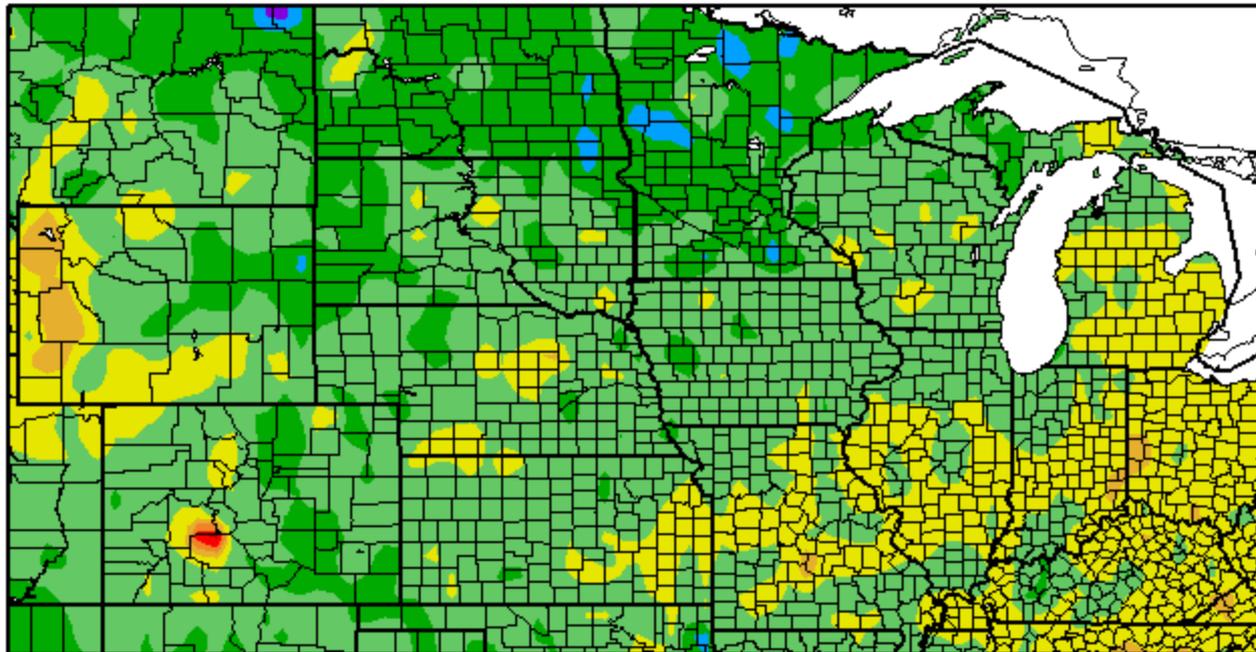
Mean period is 1981–2010.



Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 5/21/2015 12:34:12 PM CDT

30 Day Temperature Departure

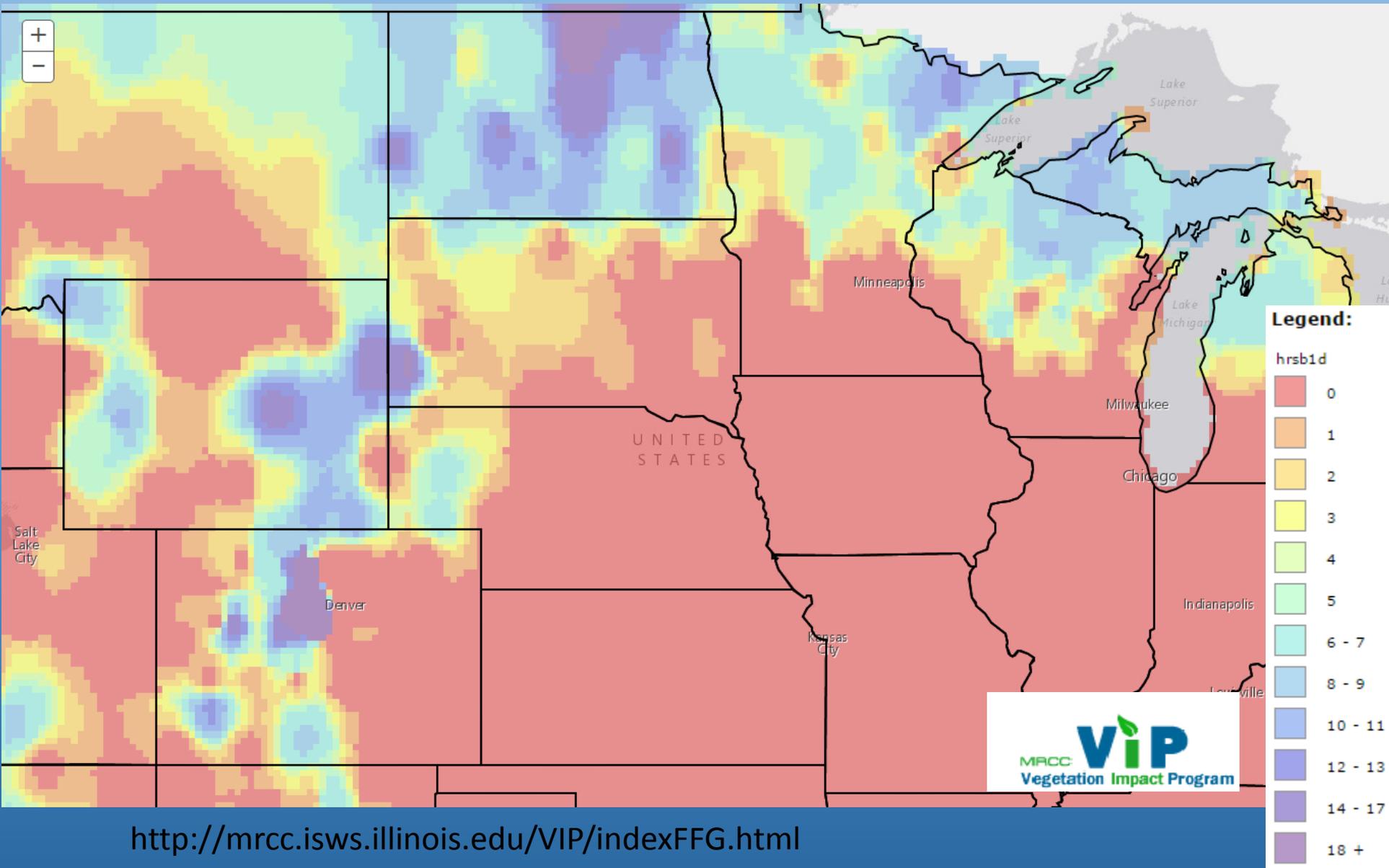
Departure from Normal Temperature (F)
4/21/2015 - 5/20/2015



Generated 5/21/2015 at HPRCC using provisional data.

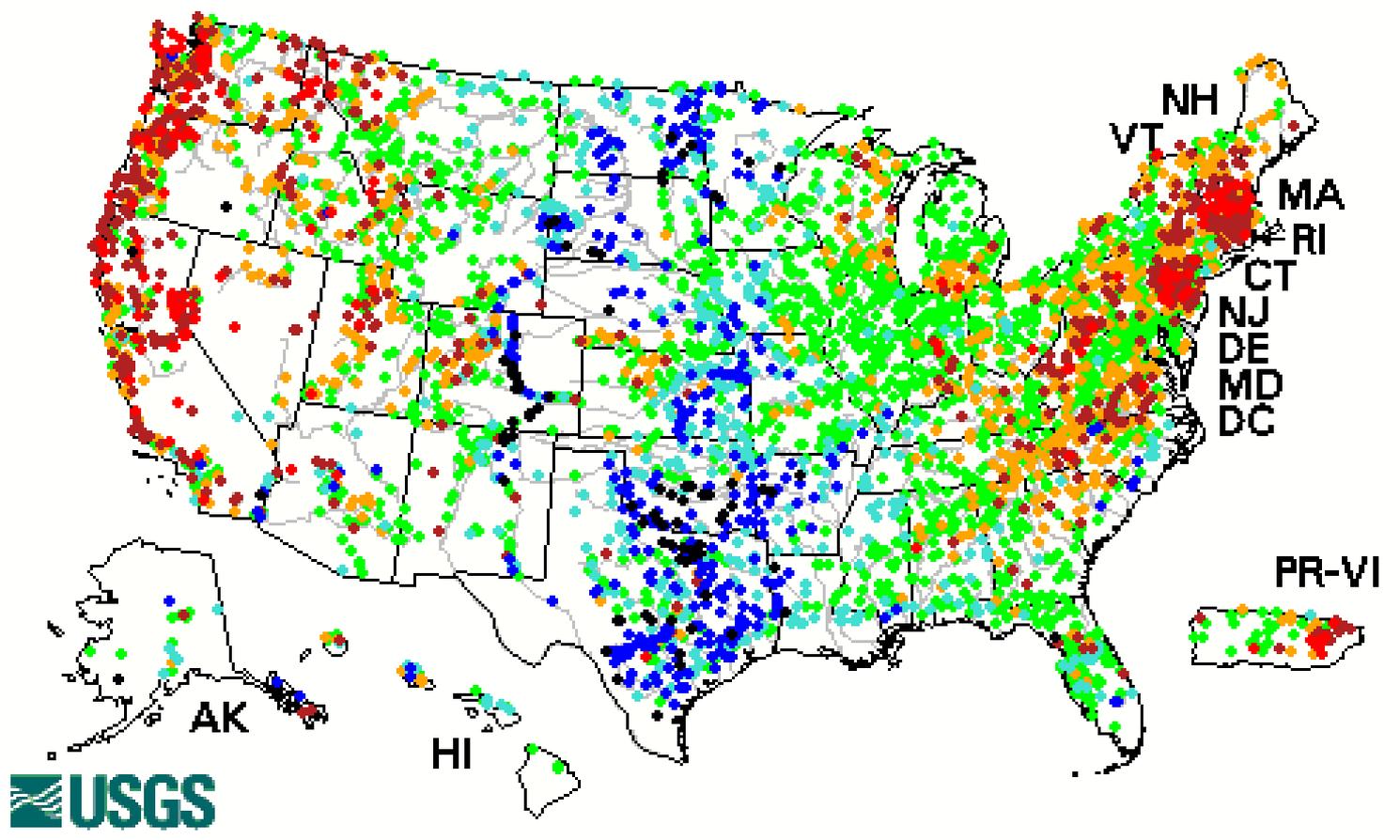
Regional Climate Centers

of Consecutive Hours Below 32F in Last 7 Days



Stream Flow - USGS

Thursday, May 21, 2015 10:00ET



Explanation

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

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

Great Lakes Water Levels

Lake	Departure from long-term average for May
Lake Superior	+7 inches
Lakes Michigan and Huron	+5 inches
Lake St. Clair	+4 inches
Lake Erie	0 inches
Lake Ontario	-8 inches

GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)



Analysis Date: JD 140 05/20/2015

Percent Pixels with Data within +/-10 Days: 99.1%

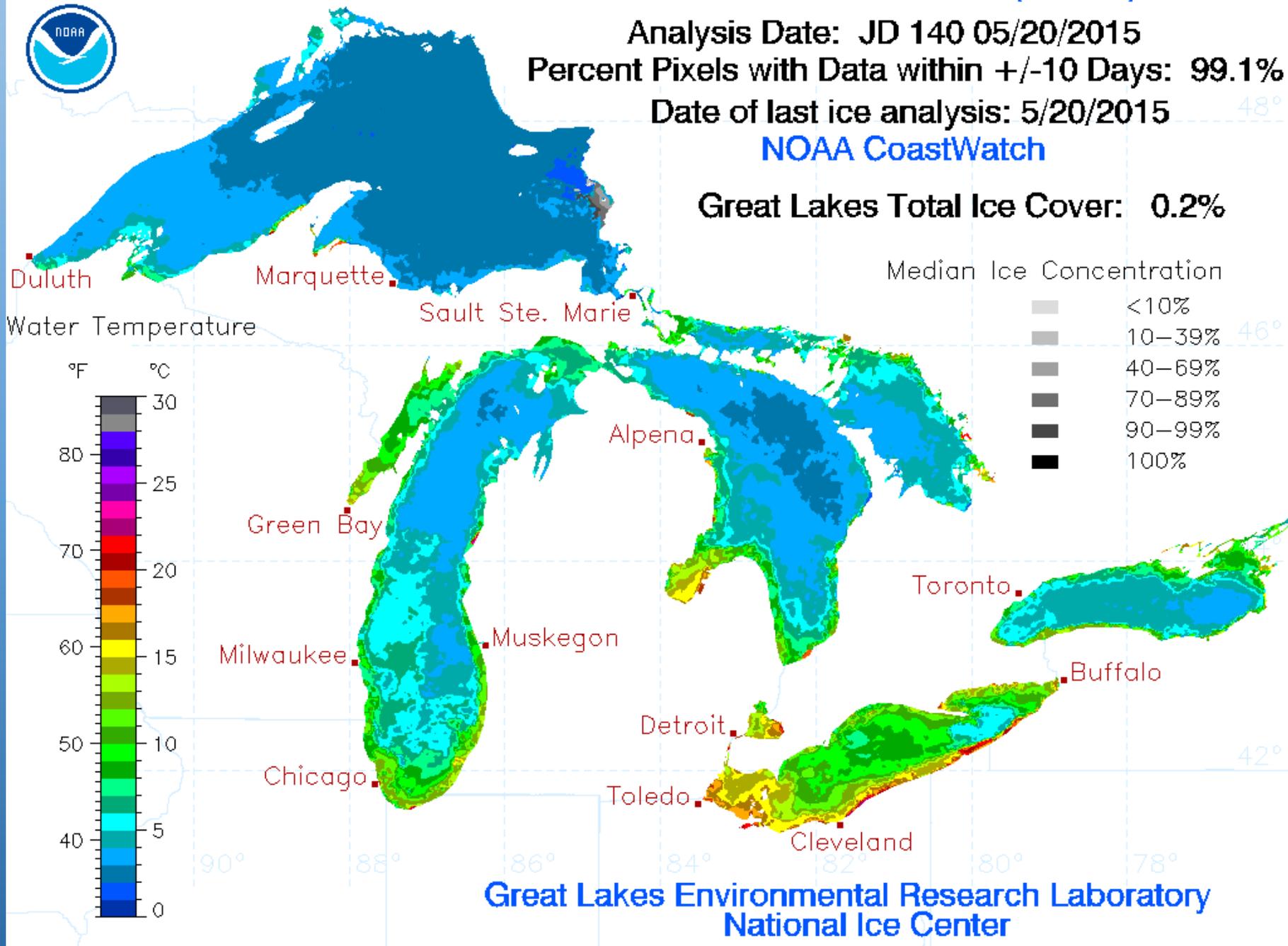
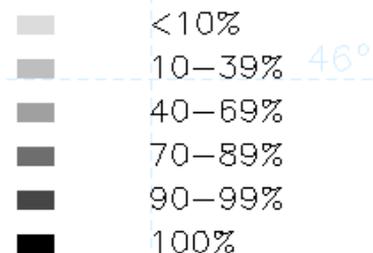
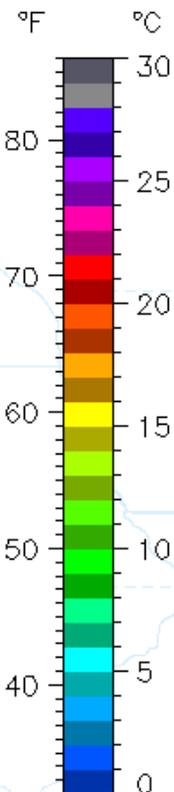
Date of last ice analysis: 5/20/2015

NOAA CoastWatch

Great Lakes Total Ice Cover: 0.2%

Water Temperature

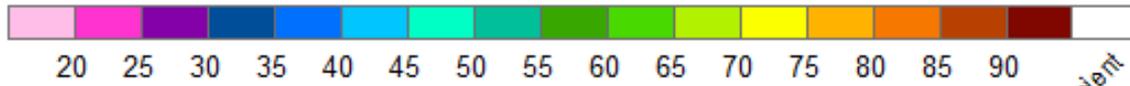
Median Ice Concentration



Great Lakes Environmental Research Laboratory
National Ice Center

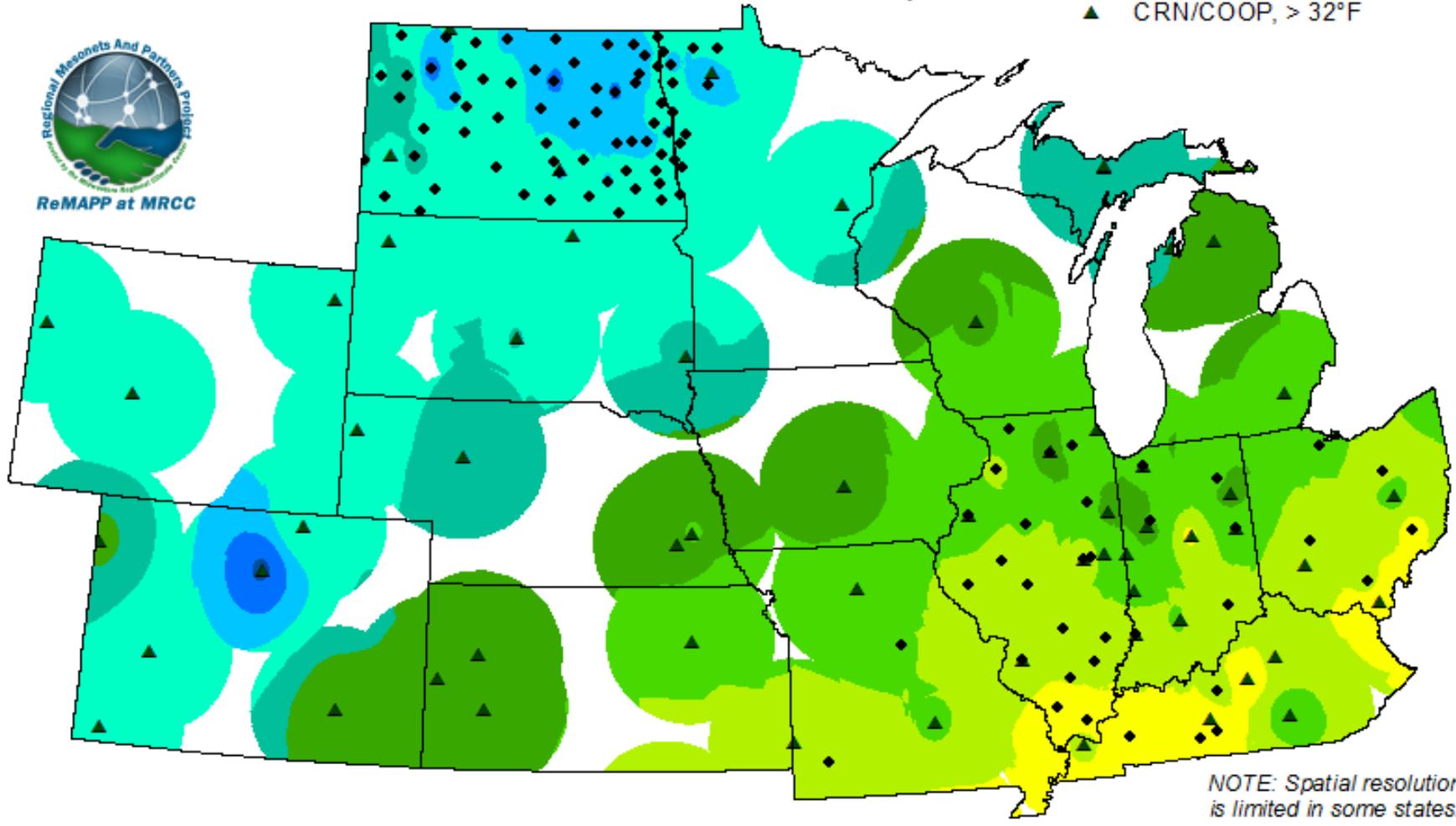
4" Soil Temperature (°F) (Sod)

24-Hour Period Through 5/19/2015



Insufficient Data

- ◊ Mesonets, $\leq 32^\circ\text{F}$
- ◆ Mesonets, $> 32^\circ\text{F}$
- △ CRN/COOP, $\leq 32^\circ\text{F}$
- ▲ CRN/COOP, $> 32^\circ\text{F}$

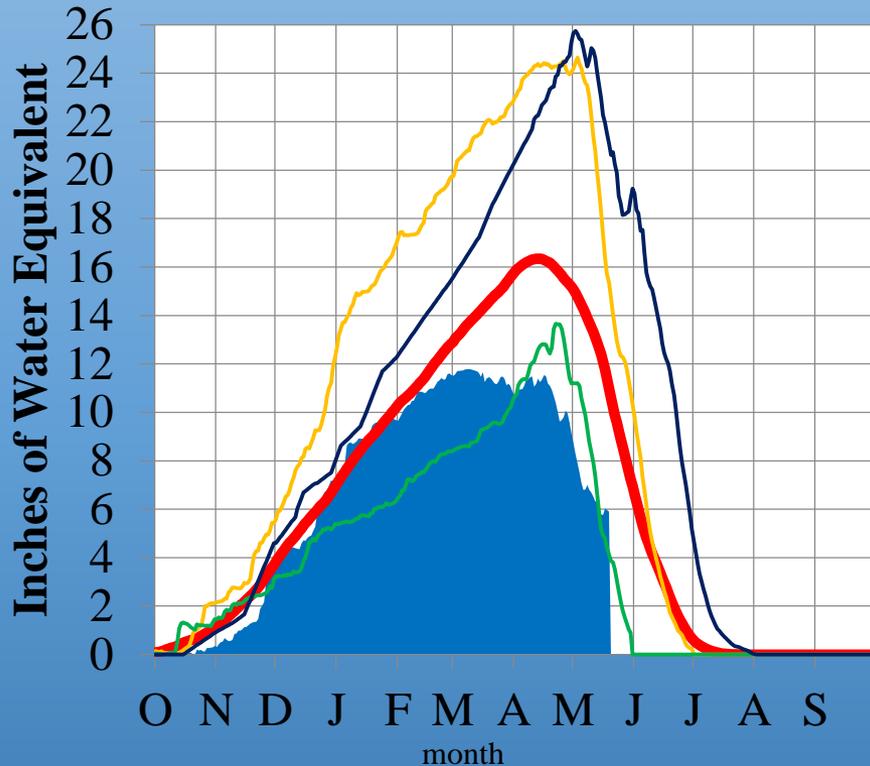


NOTE: Spatial resolution is limited in some states.

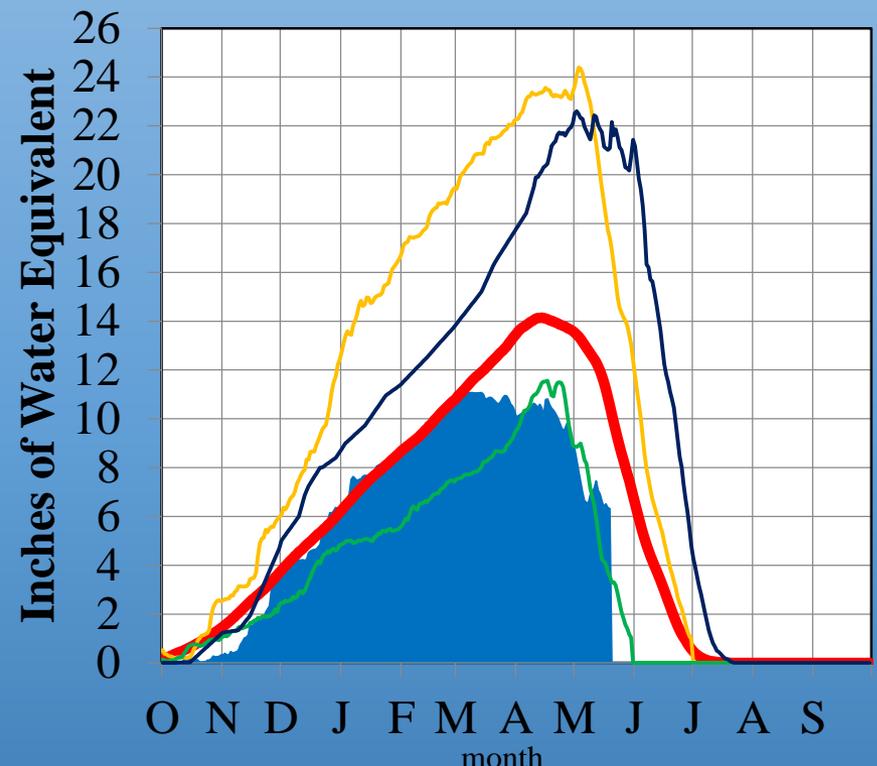
Missouri River Basin – Mountain Snowpack Water Content 2014-2015 with comparison plots from 1997*, 2001*, and 2011

May 19, 2015

Total above Fort Peck



Total Fort Peck to Garrison

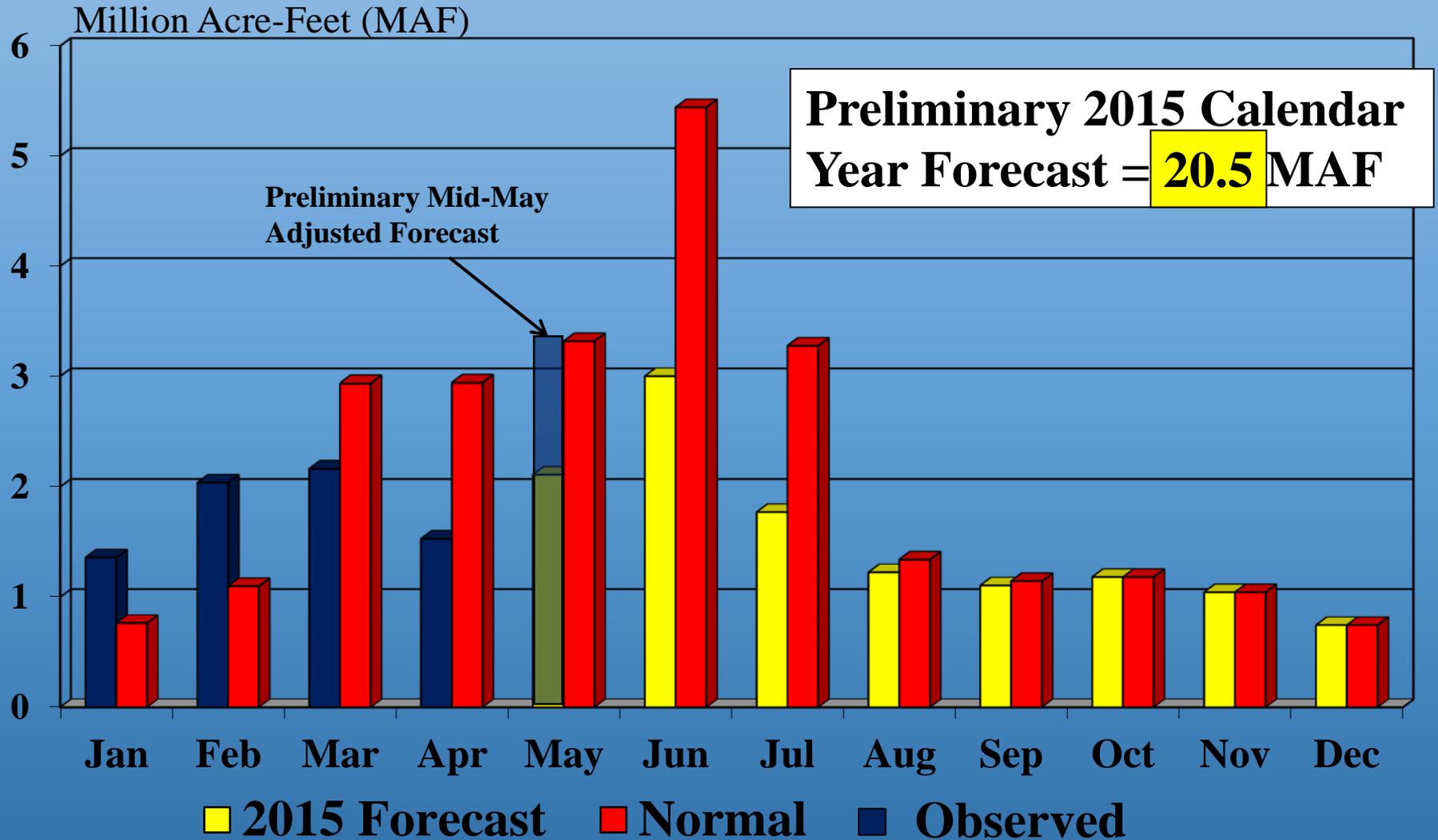


The Missouri River Basin mountain snowpack normally peaks near April 15. On May 19 the mountain snow water equivalent (SWE) in the “Total above Fort Peck” reach is currently 5.9”, 36% of the normal peak. The mountain SWE in the “Total Fort Peck to Garrison” reach is currently 6.3”, 44% of the normal peak. The snowpack in both reaches has peaked. The “Total above Fort Peck” reach peaked on March 9 at 11.8”, 72% of the normal peak and the “Total Fort Peck to Garrison” reach peaked on March 9 and March 14 at 11.1”, 78% of the normal peak.

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

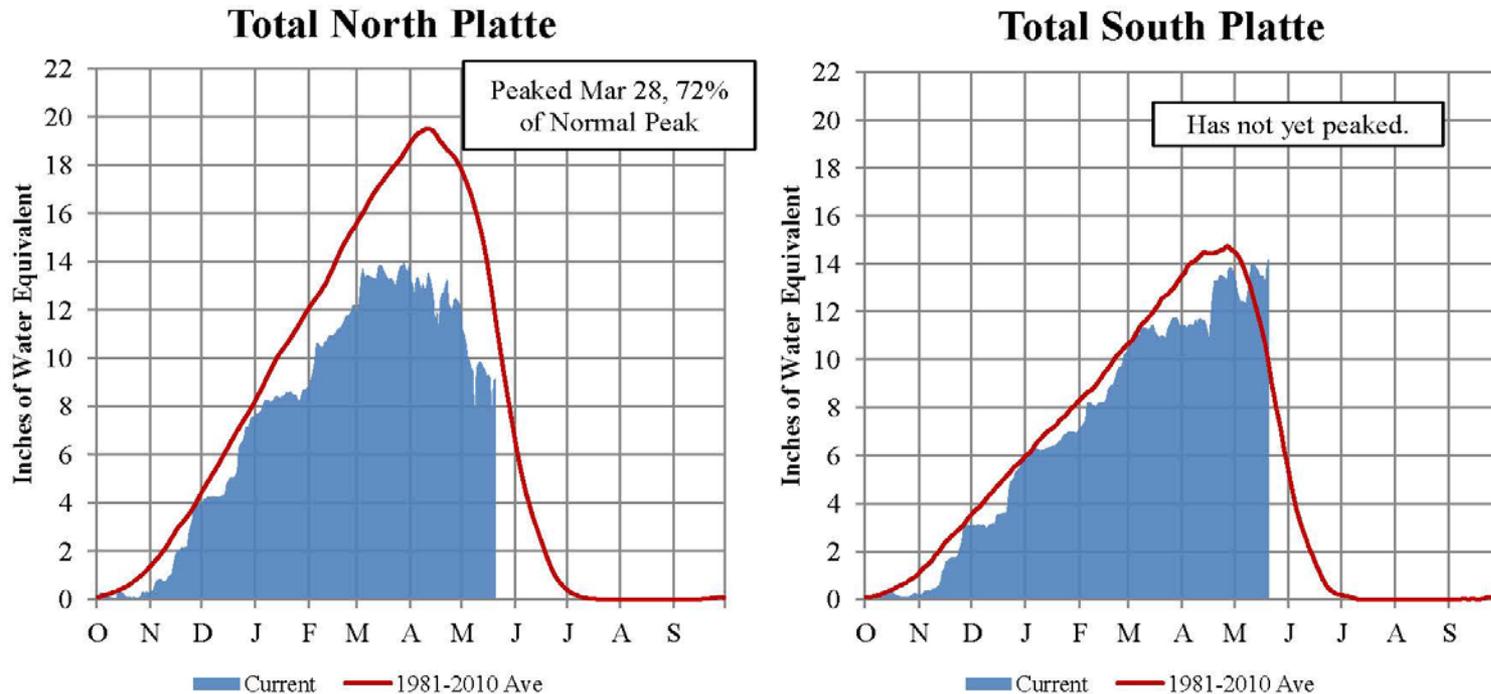
Provisional data. Subject to revision.

Missouri River Runoff above Sioux City, Iowa 2015 Calendar Year Forecast as of May 20, 2015



Platte River Basin - Mountain Snowpack Water Content Water Year 2014-2015

5/21/2015

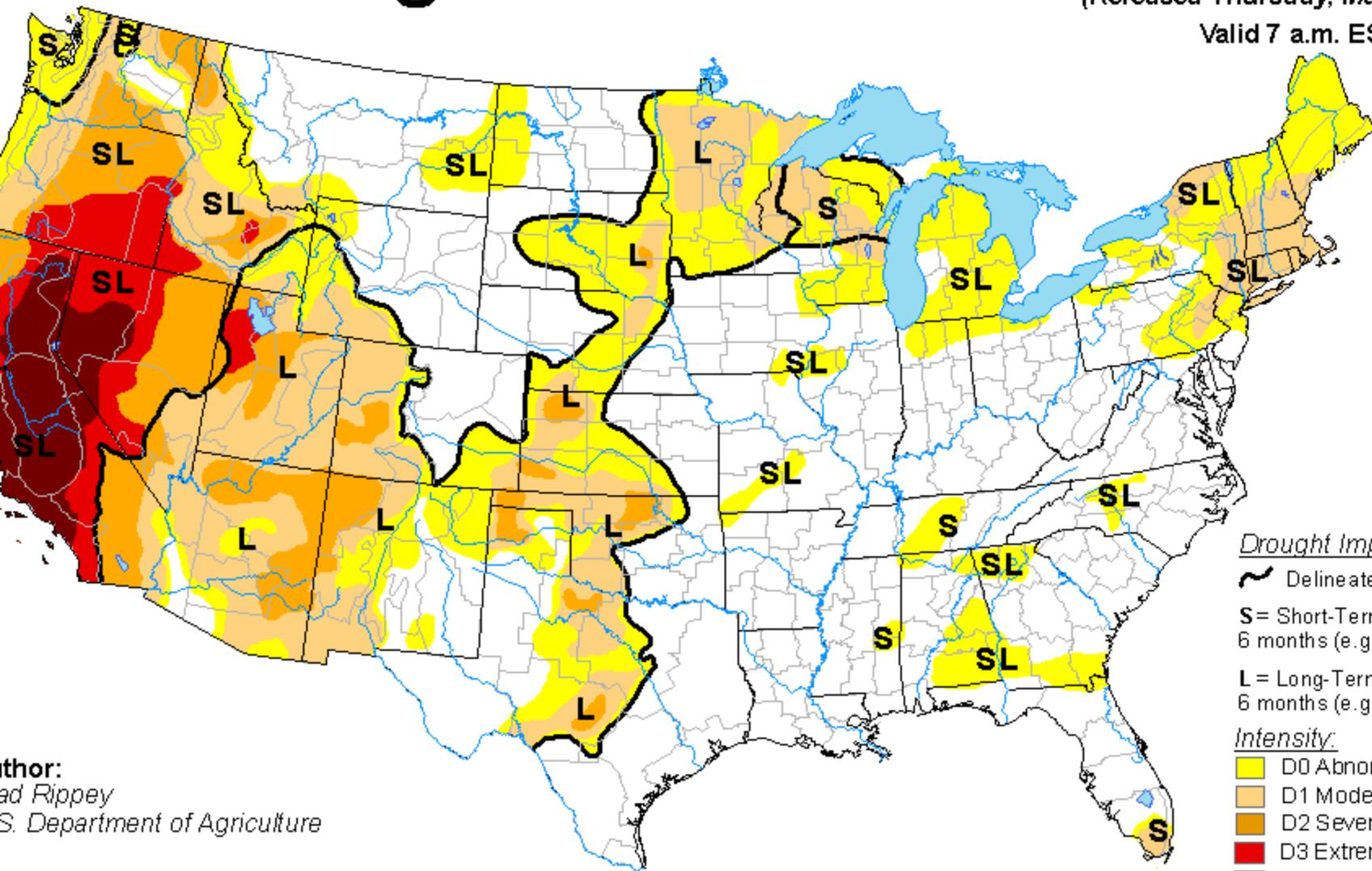


The North and South Platte River Basin mountain snowpacks normally peak near April 15. As of May 20, 2015, the mountain snowpack SWE in the "Total North Platte" reach is currently 9.1", 78% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 14.2", 144% of average.

U.S. Drought Monitor

May 19, 2015
(Released Thursday, May 21, 2015)

Valid 7 a.m. EST



Author:
Brad Rippey
U.S. Department of Agriculture

Drought Impact Types:

~ Delineates dominant impacts

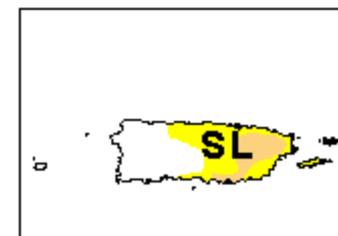
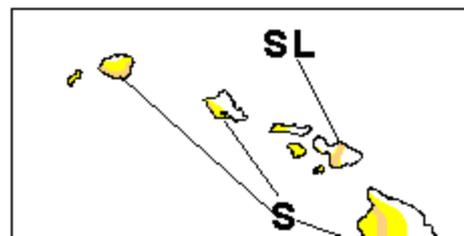
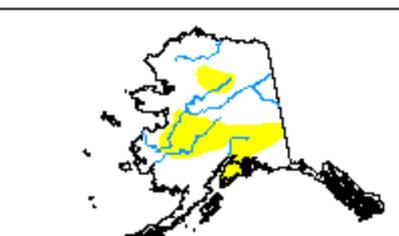
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

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

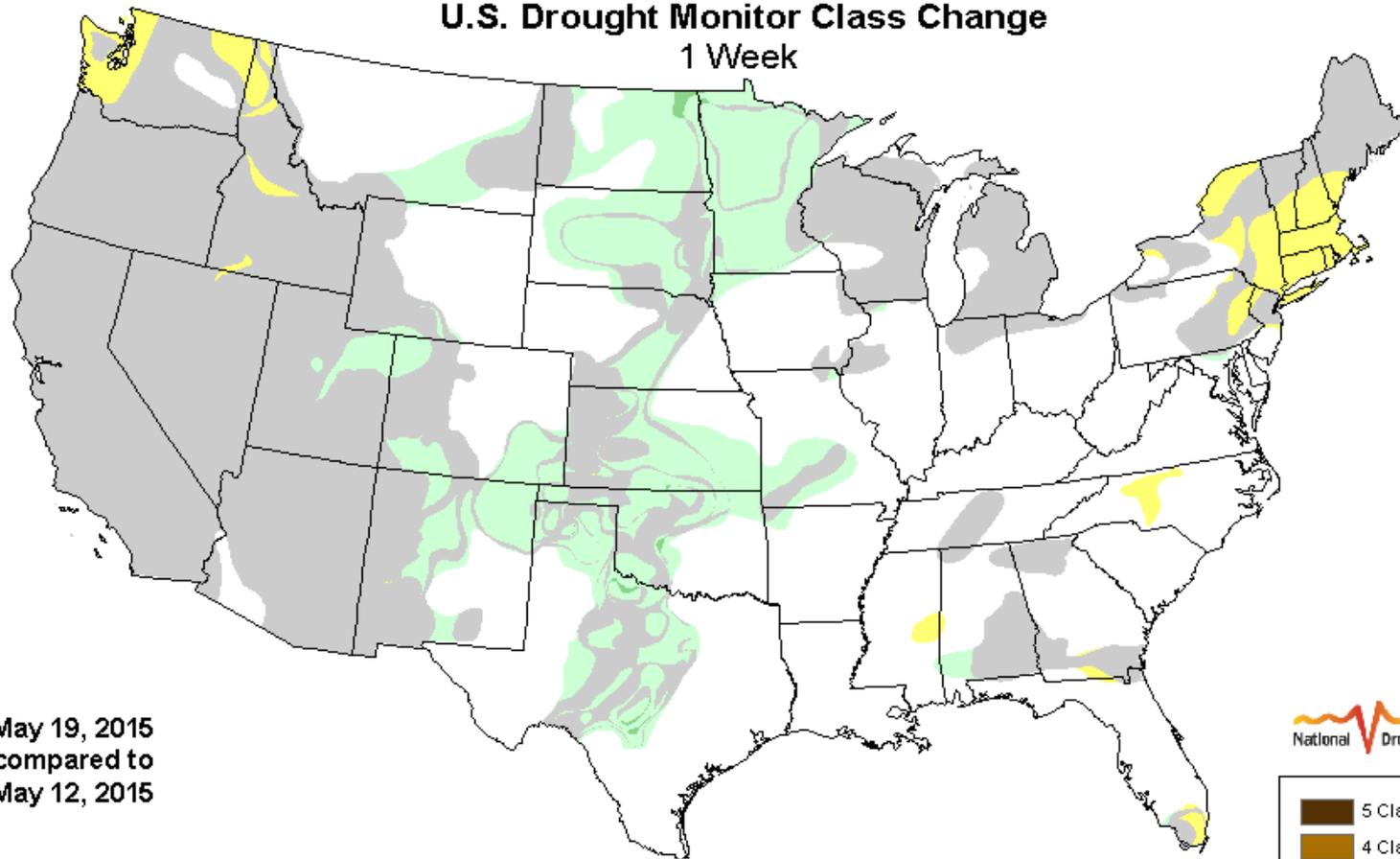
Intensity:

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

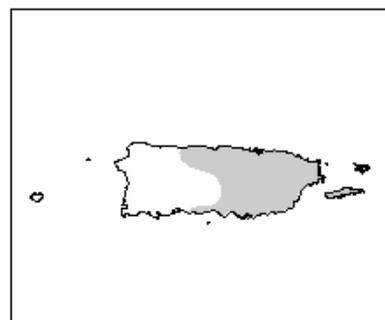
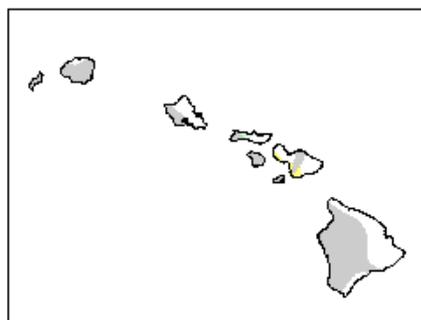
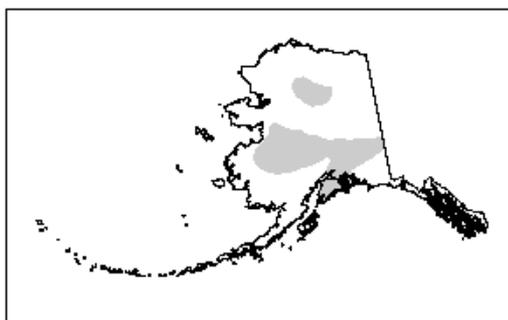
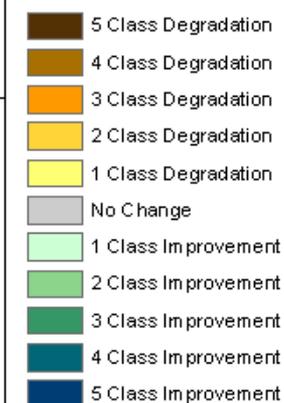
The Drought Monitor focuses on broad scale conditions. Local conditions may vary. See accompanying text summary and forecast statements.



U.S. Drought Monitor Class Change 1 Week



May 19, 2015
compared to
May 12, 2015



Impacts - Colorado

- “Wet and Wetter”
- Good timing for wheat crop
- High water on the South Platte and Arkansas River
- Some issues with delayed planting

Impacts – South Dakota

- Dramatic shift from dry to wetter conditions
- Too late for some winter wheat
- Some losses already for rangeland before rains
- Planting progress has been ahead of average

Impacts - Minnesota

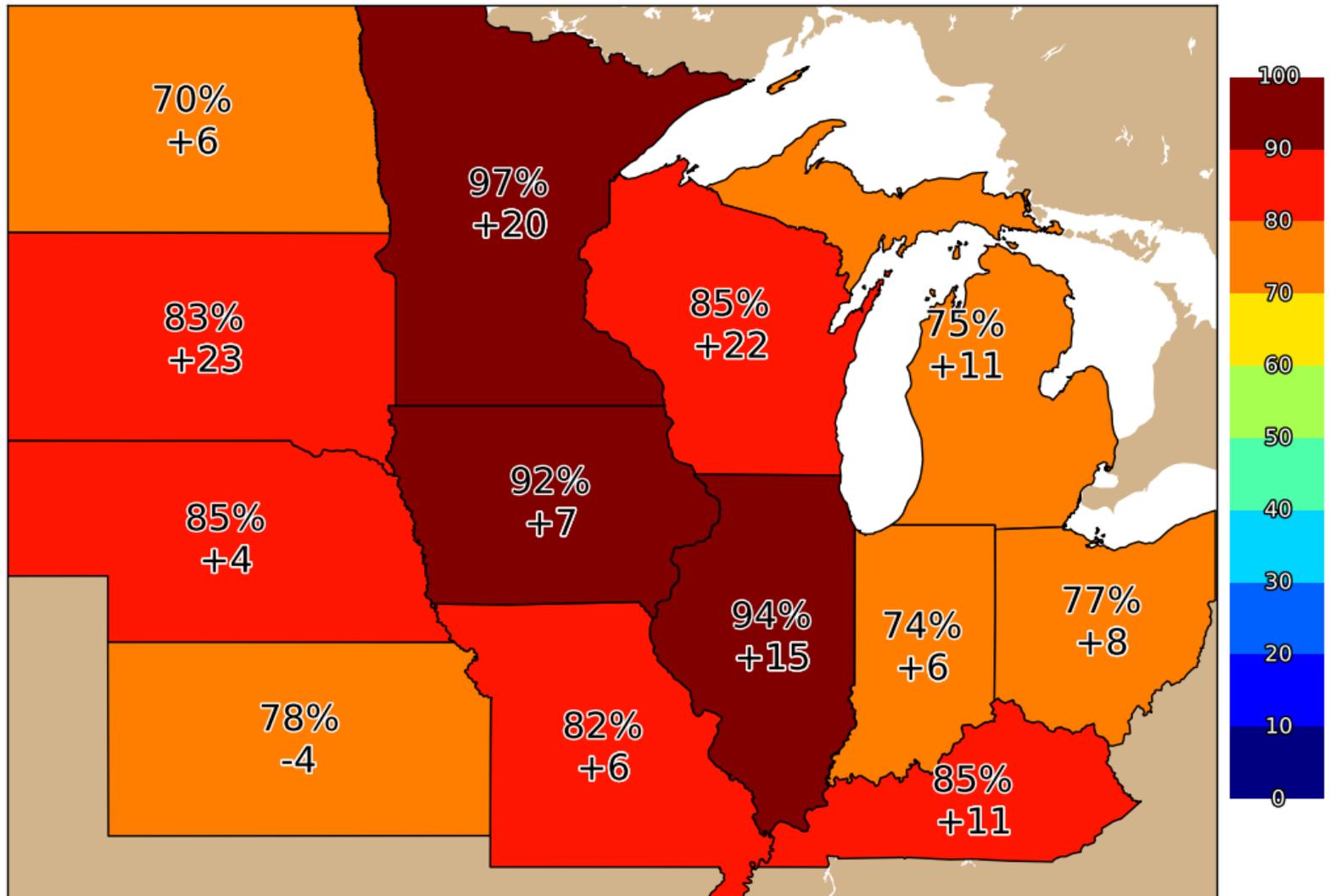
- Significant improvements in drought status after an extended dry period going back to last year.
- Dry spring led to some of the earliest corn planting dates on record for Minnesota.
- Roughly three-quarters of planted corn has emerged, just before the cold weather this week.
- Producers are assessing damage to corn, soybeans, and sugar beets.

Impacts in other states

- No significant weather/climate impacts have been reported in other states at this time.



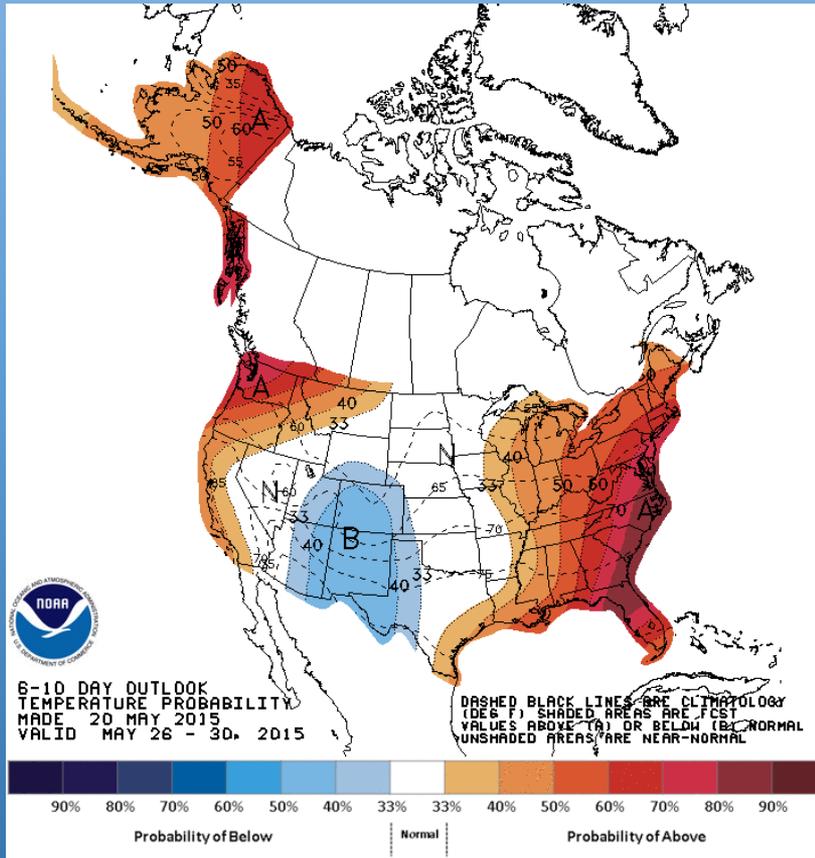
17 May 2015 USDA Percentage of Corn Acres Planted
Percentage Points Departure from 1980-2014 Average for 14-21 May



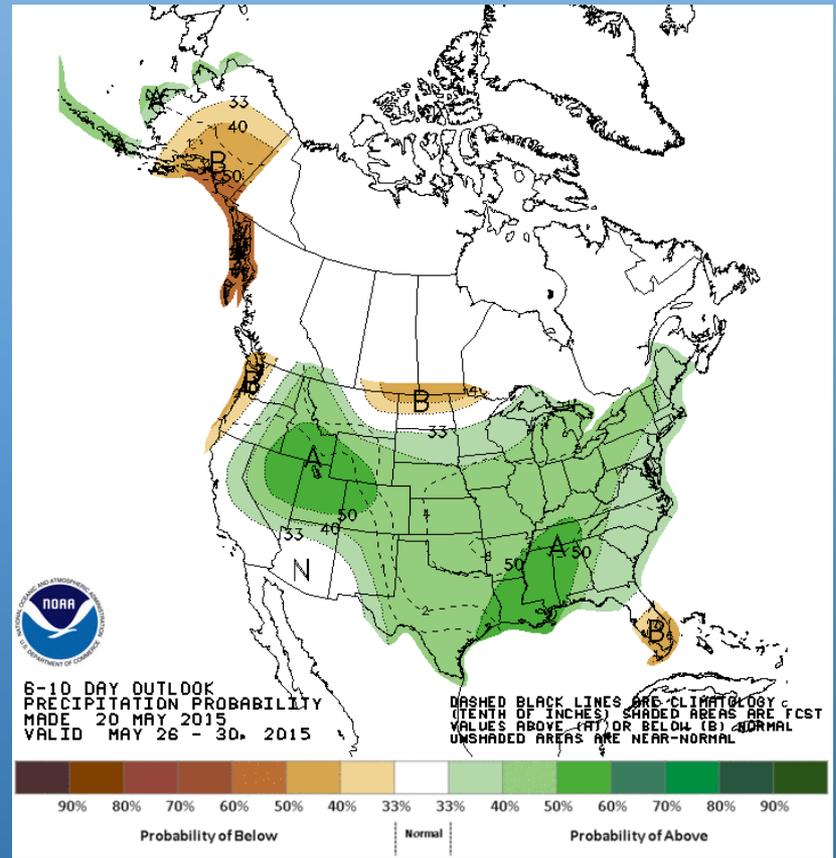
Climate Outlooks

- **7-day precipitation forecast**
- **6-10, 8-14 day outlook**
- **June**
- **Summer, Fall, and Winter**
- **Drought Outlooks**

6-10 Day Forecast for May 26-30, 2015

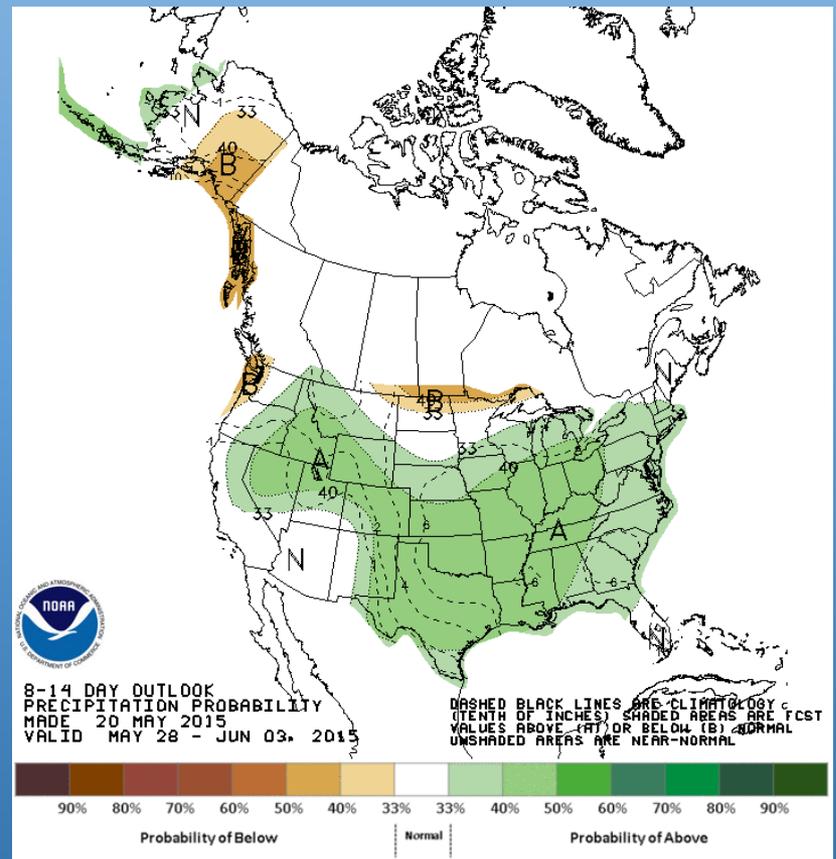
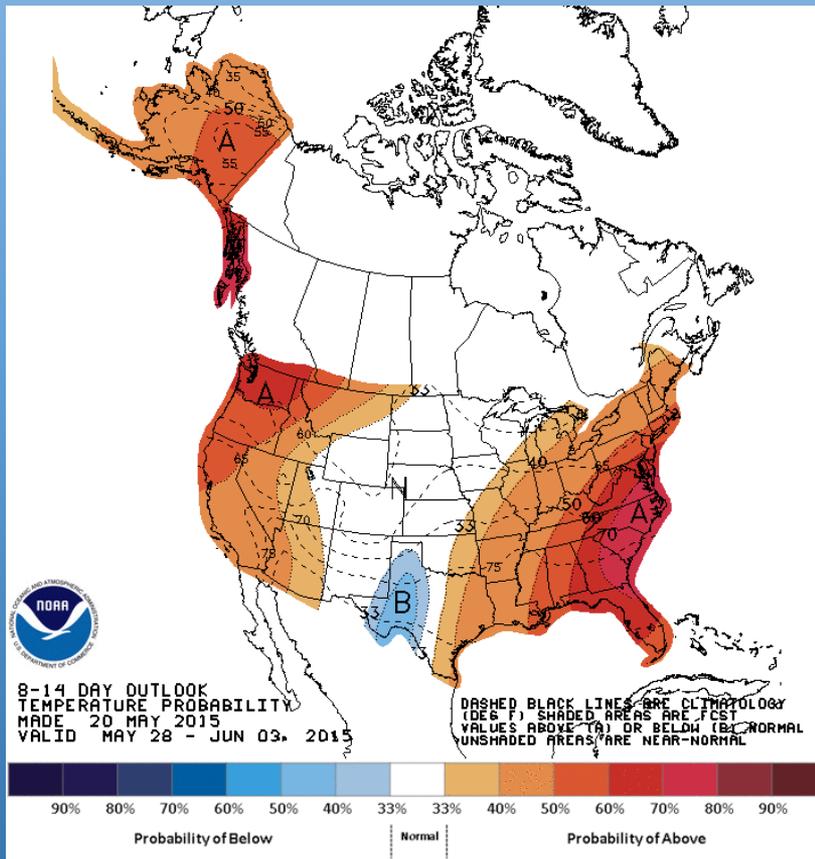


Temperature



Precipitation

8-14 Day Forecast for May 28 - June 3, 2015



El Niño Has Arrived

- Finally arrived in early May.
- A 90% chance of El Niño continuing during summer.
- An 80% chance that it will continue through 2015.

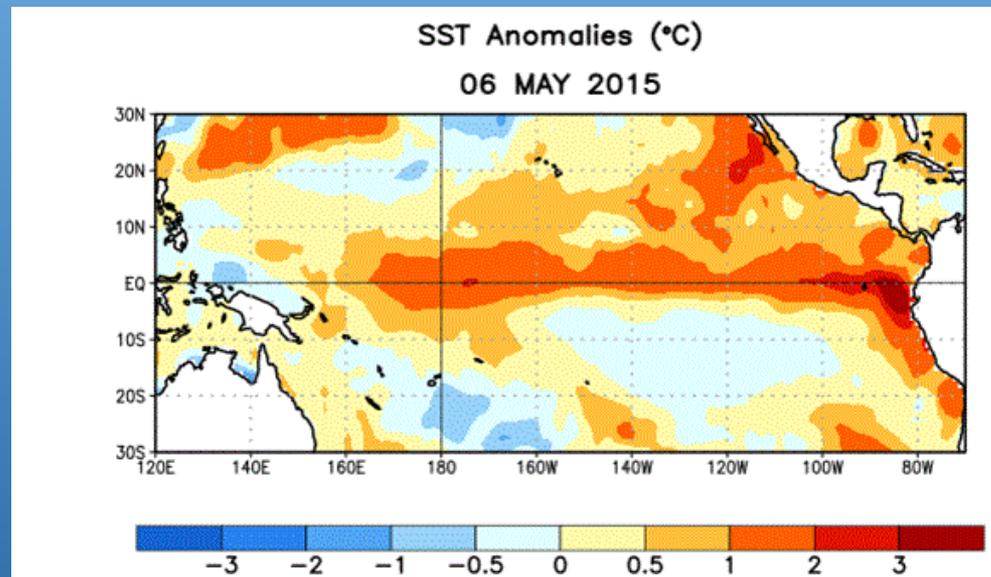


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 6 May 2015. Anomalies are computed with respect to the 1981-2010 base period weekly means.

Forecast Plume for Mid-April

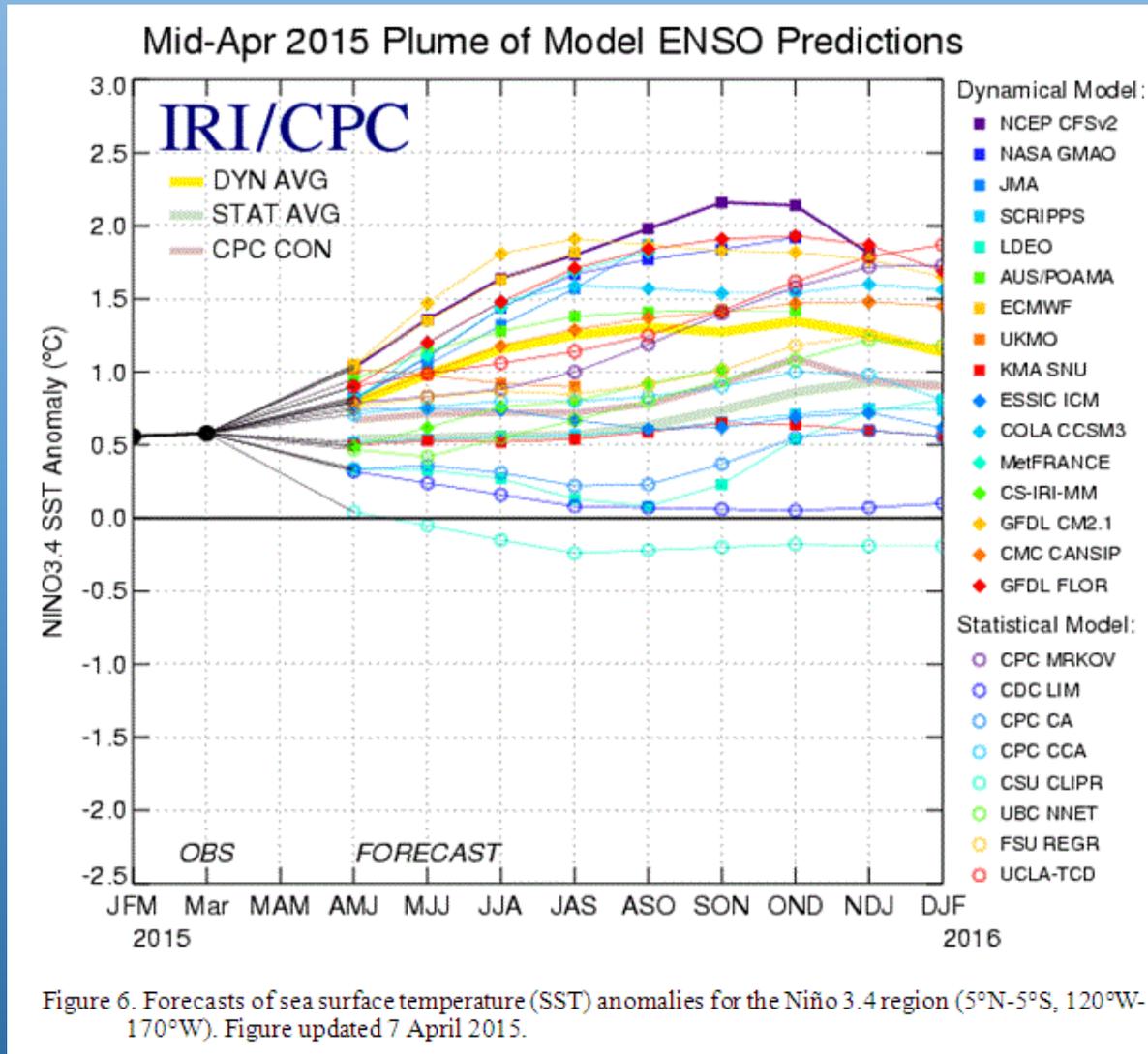
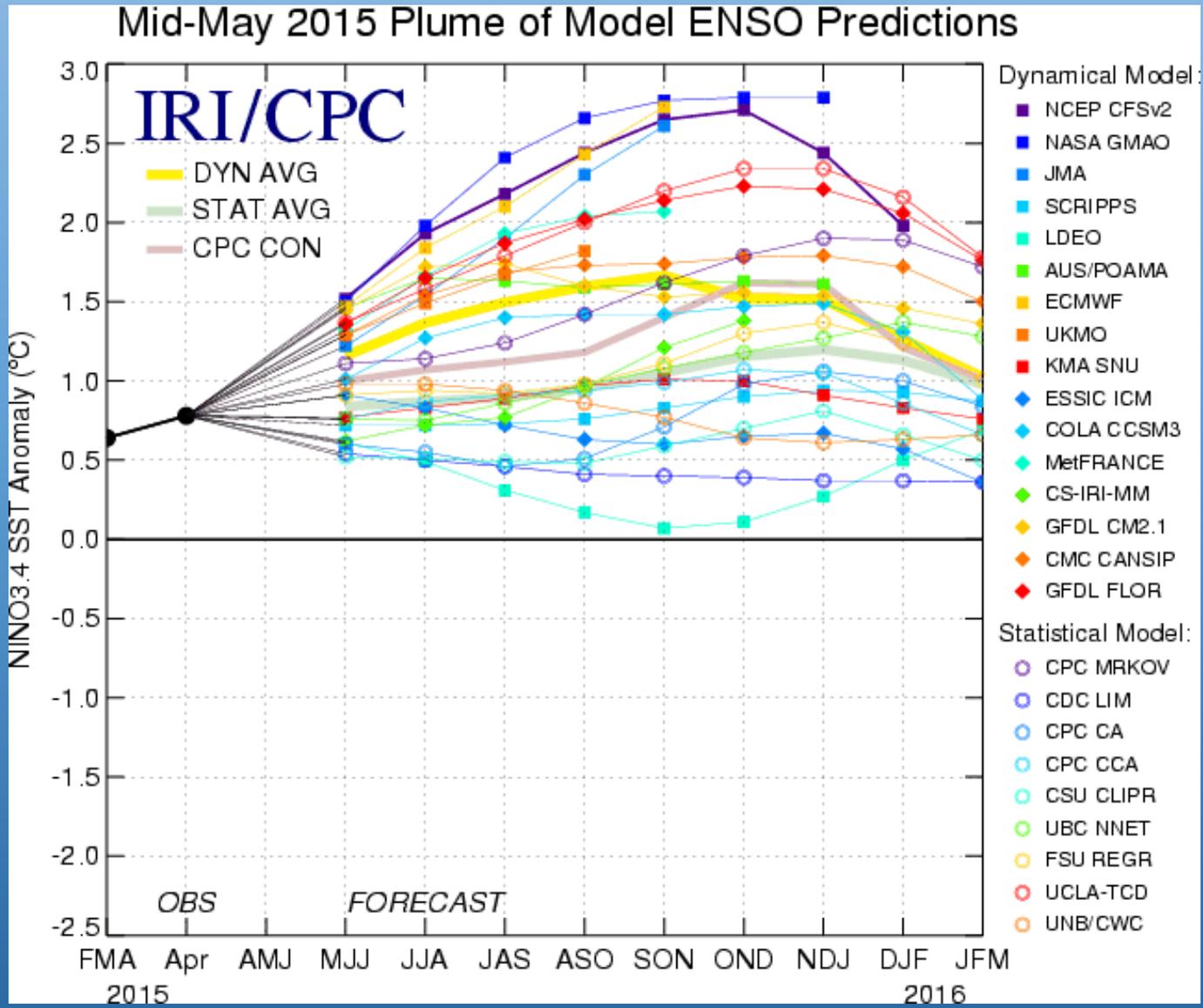
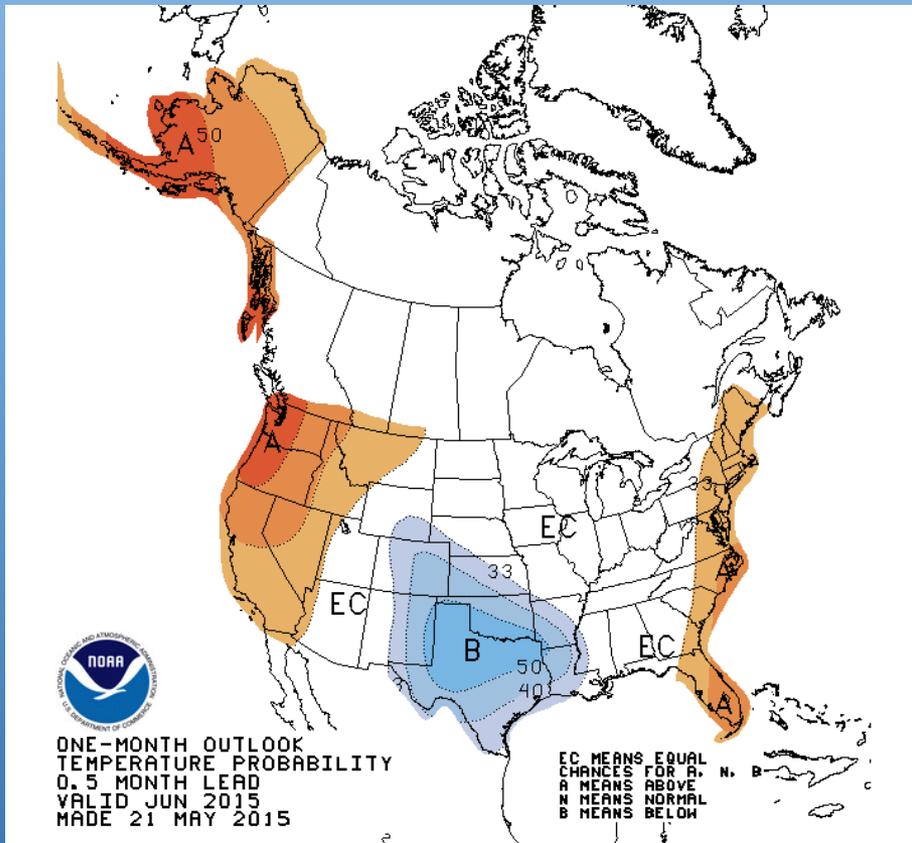


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 7 April 2015.

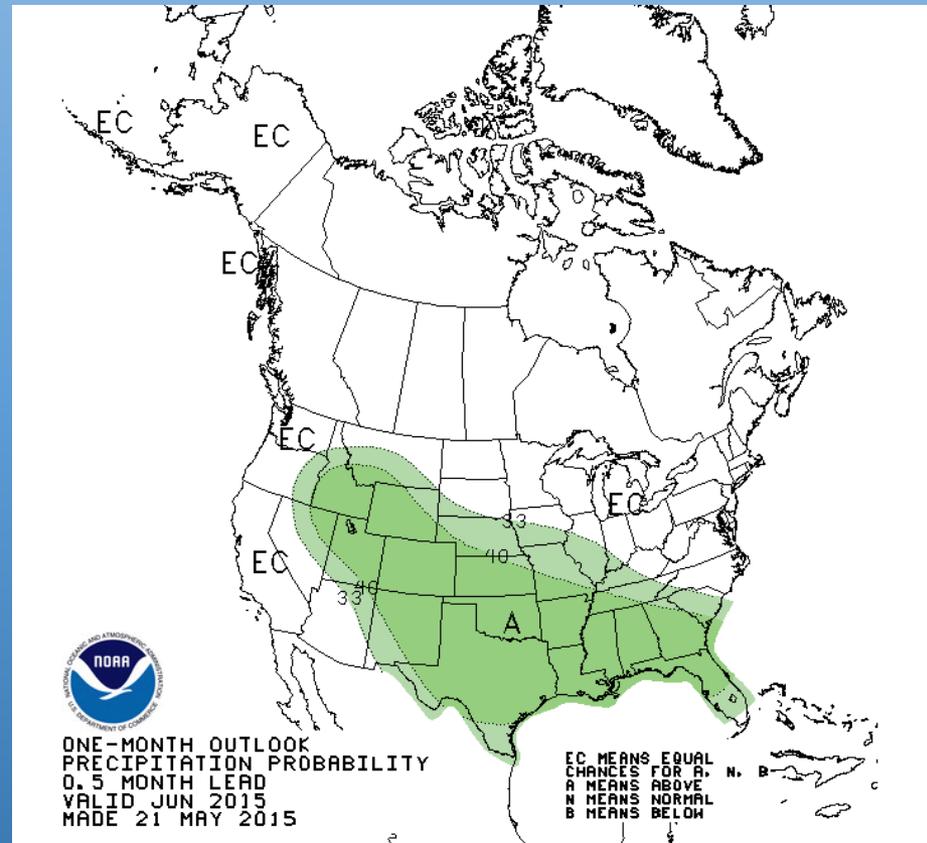
Forecast Plume for Mid-May



June Temperature & Precipitation Outlook

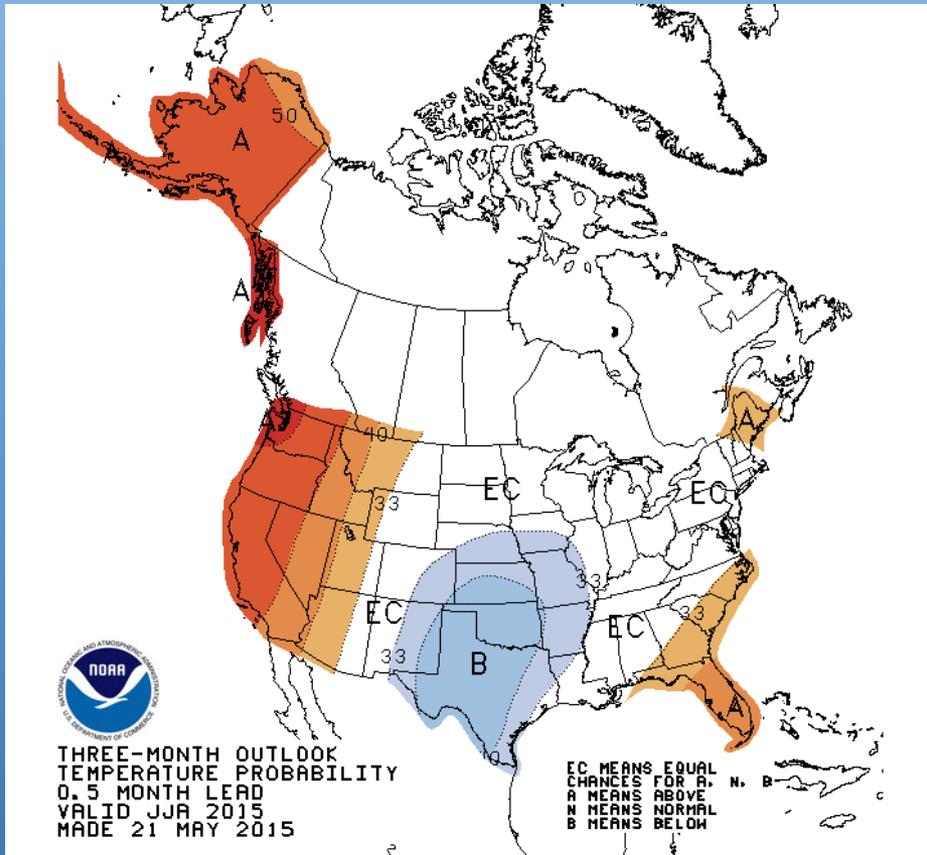


Temperature

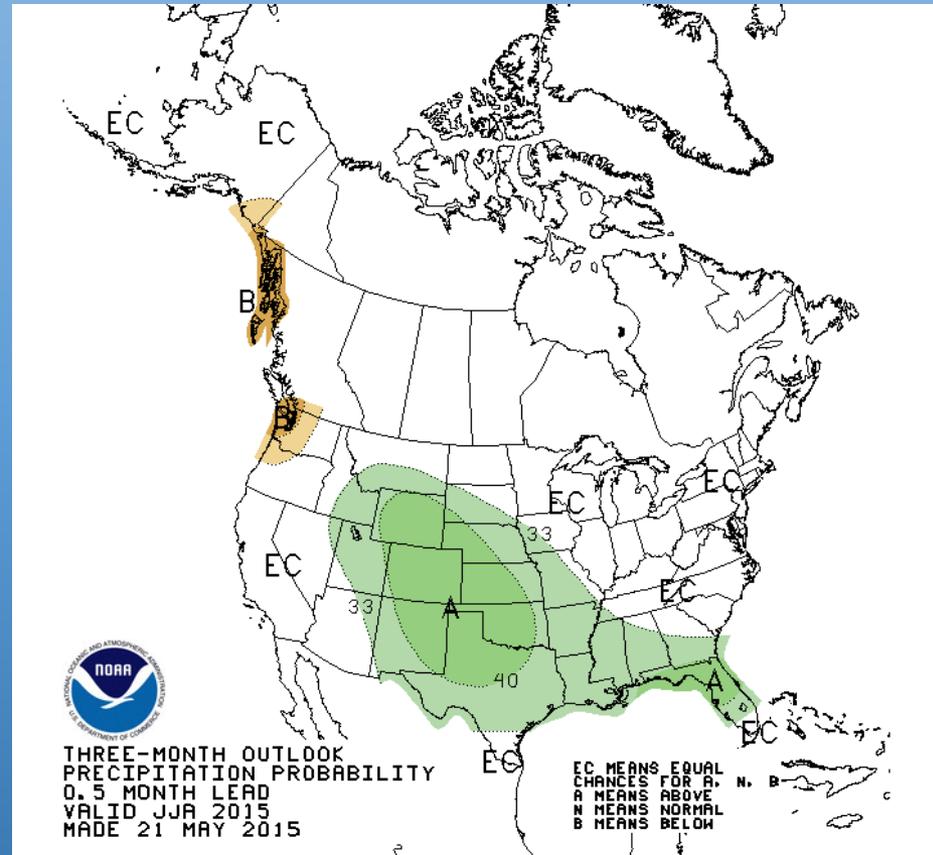


Precipitation

June - August Outlook

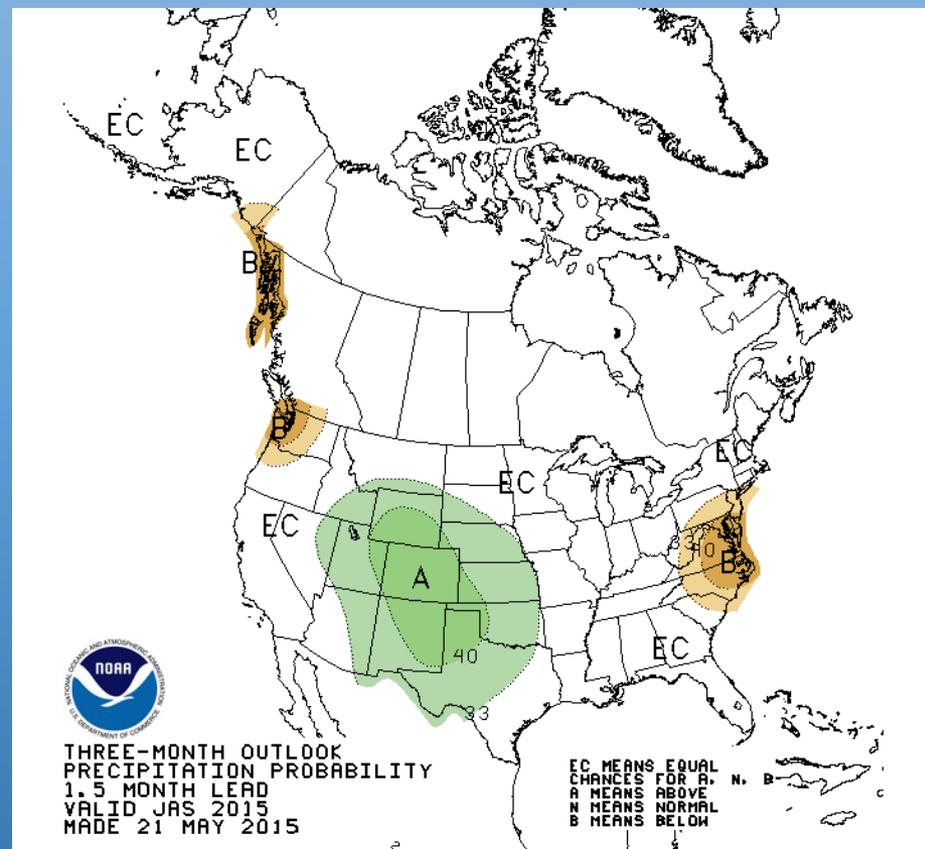
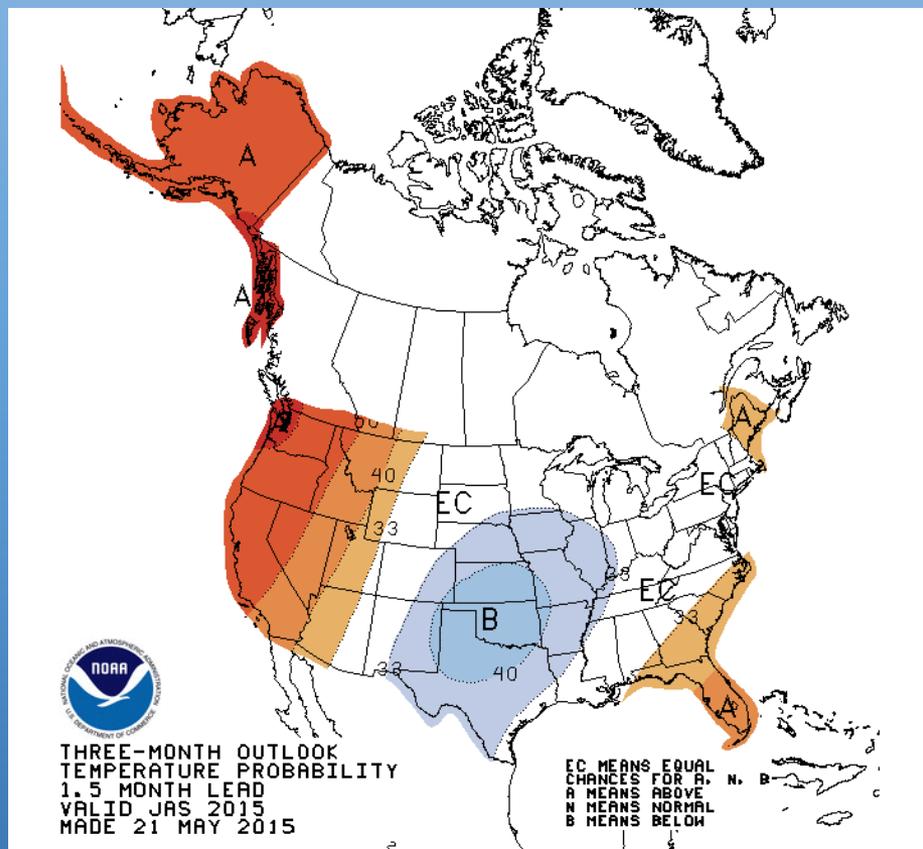


Temperature

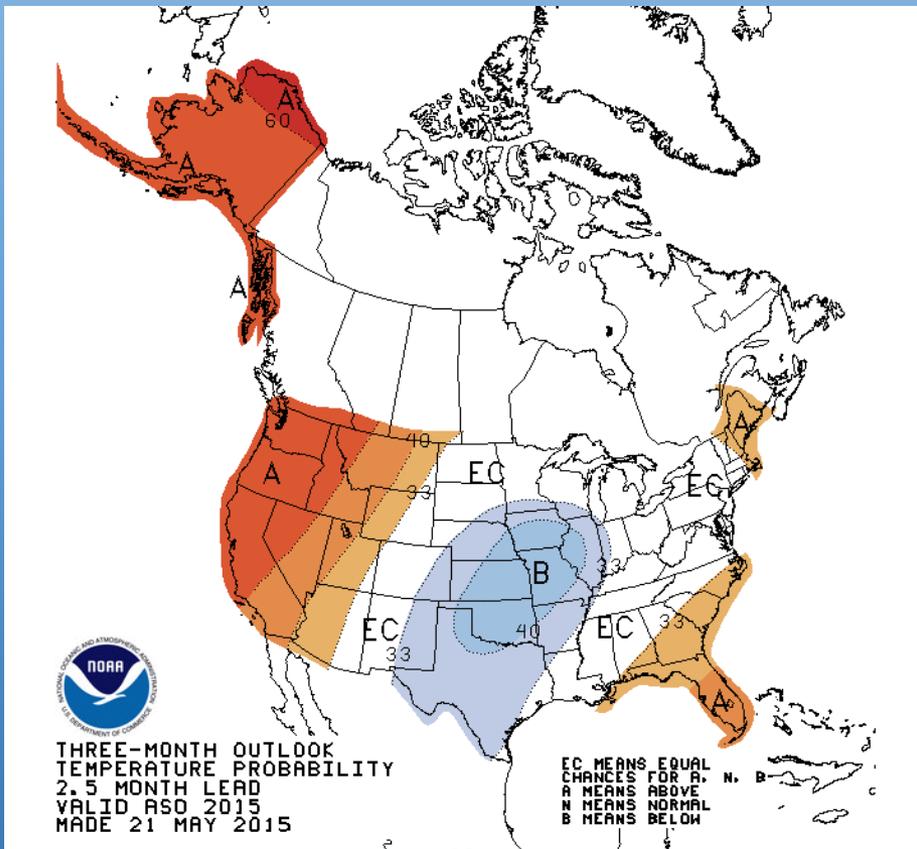


Precipitation

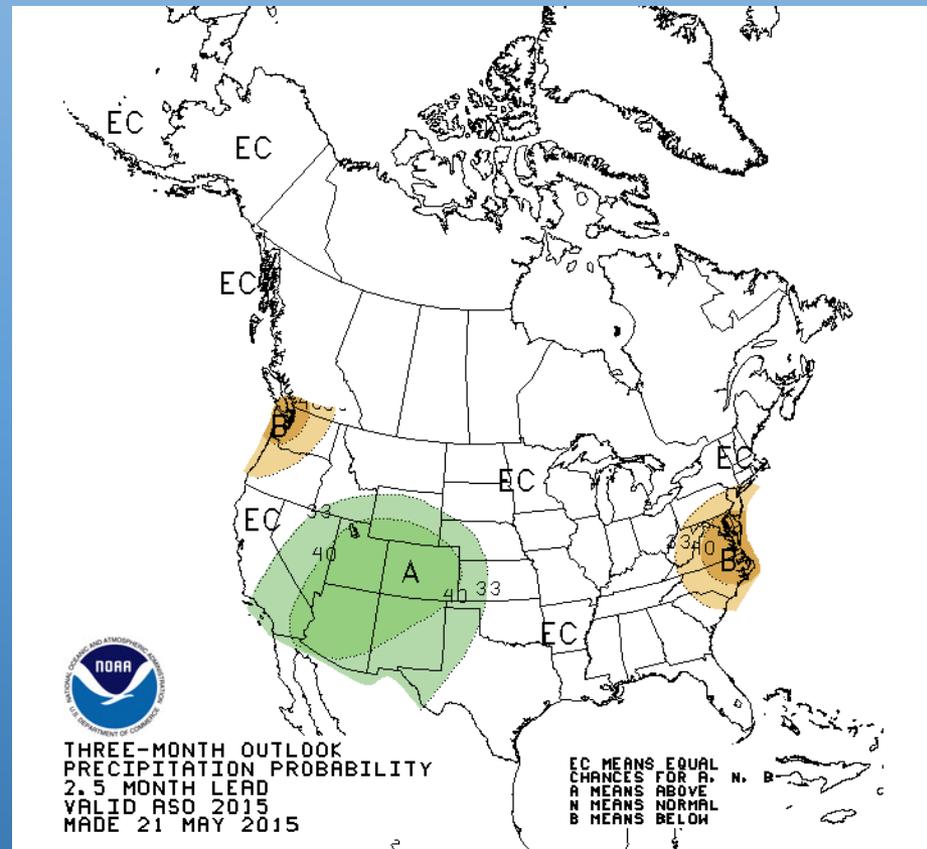
July – September Outlook



August – October Outlook

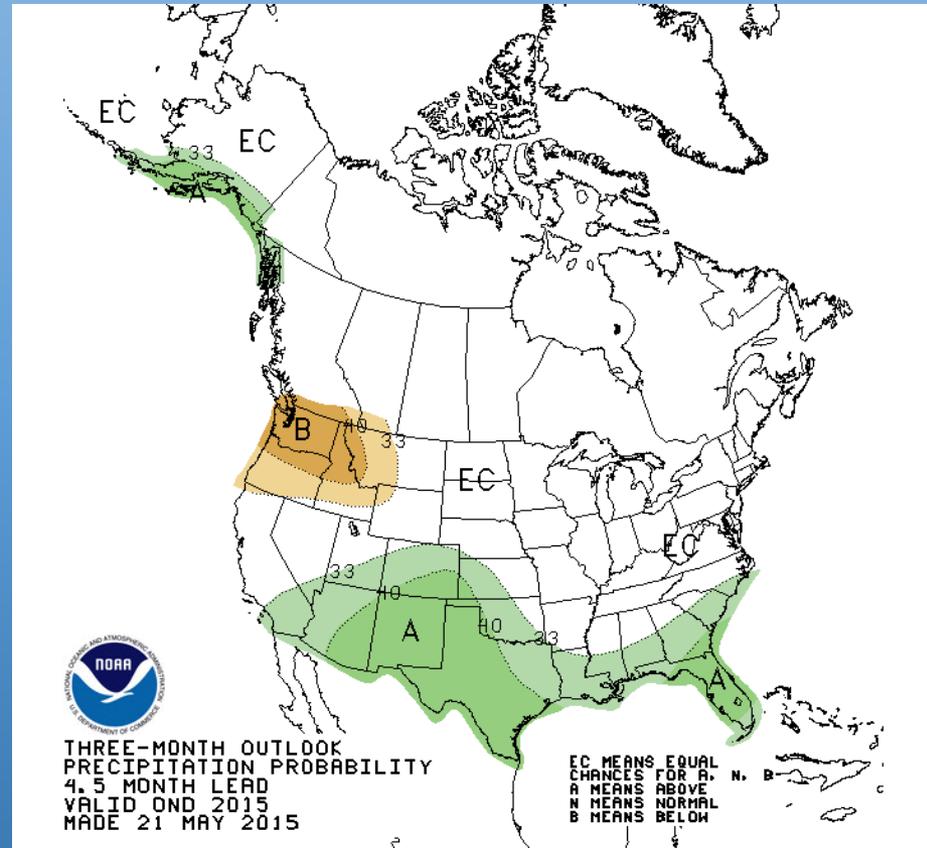
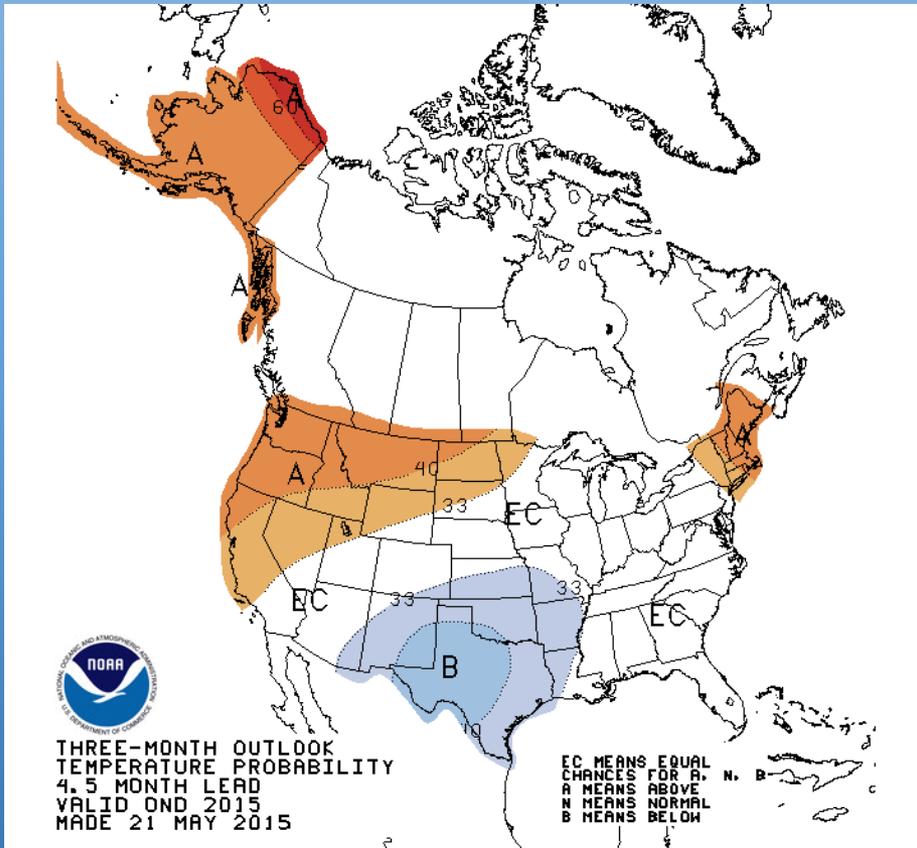


Temperature

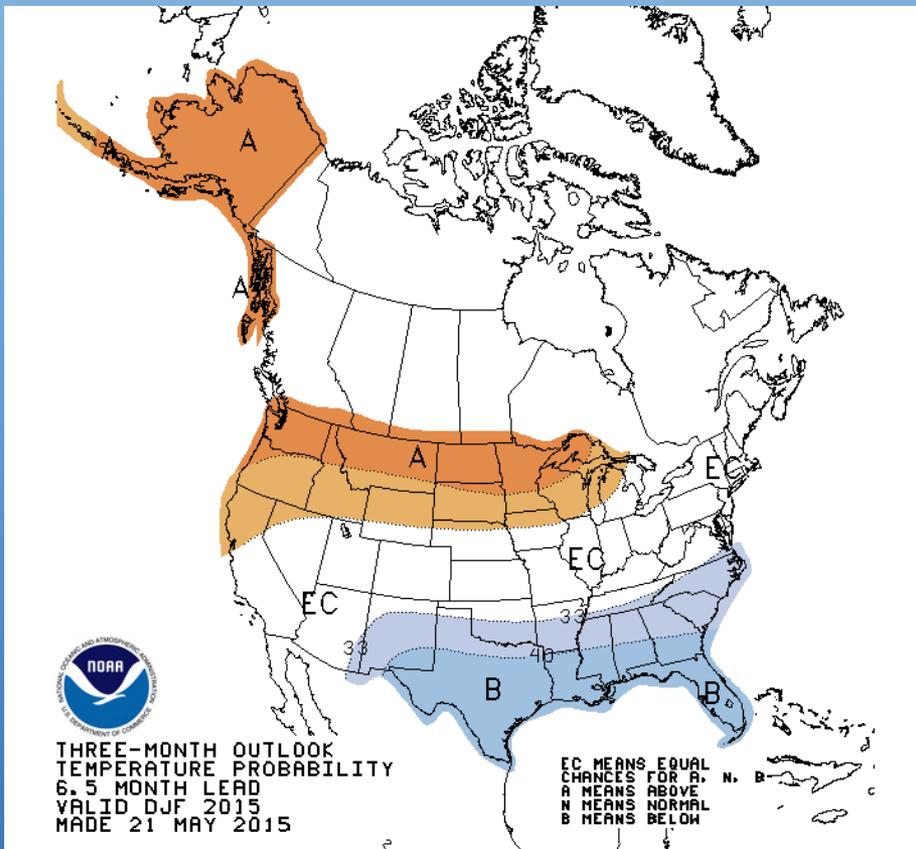


Precipitation

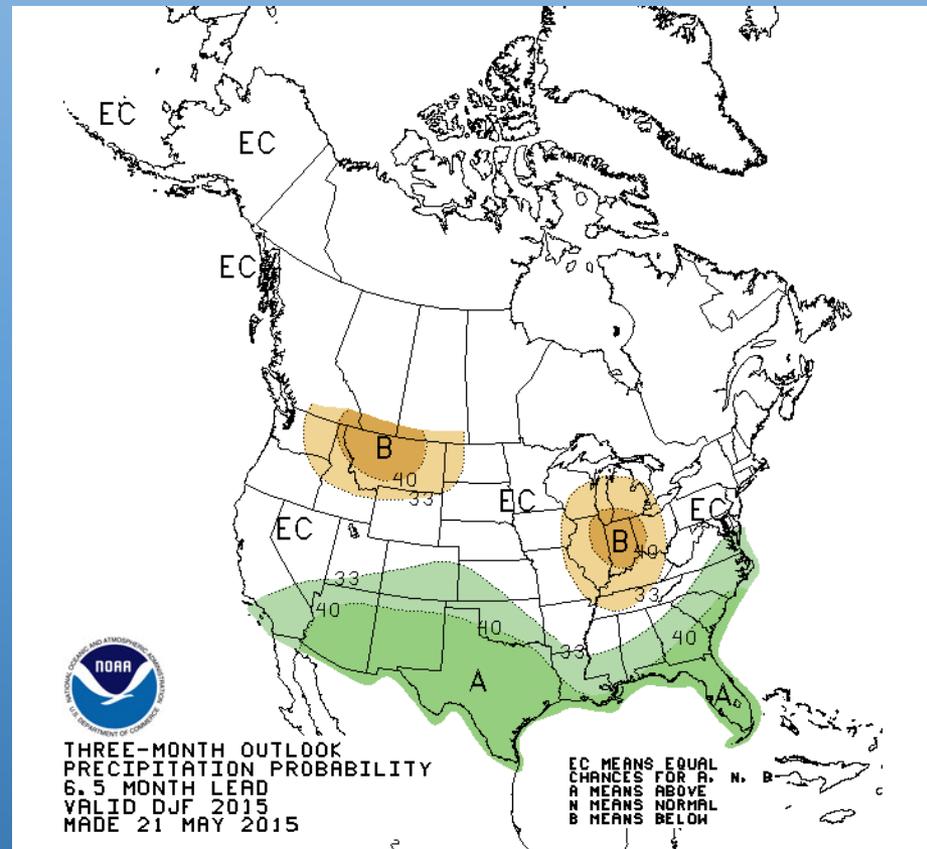
October – December Outlook



December – February Outlook



Temperature

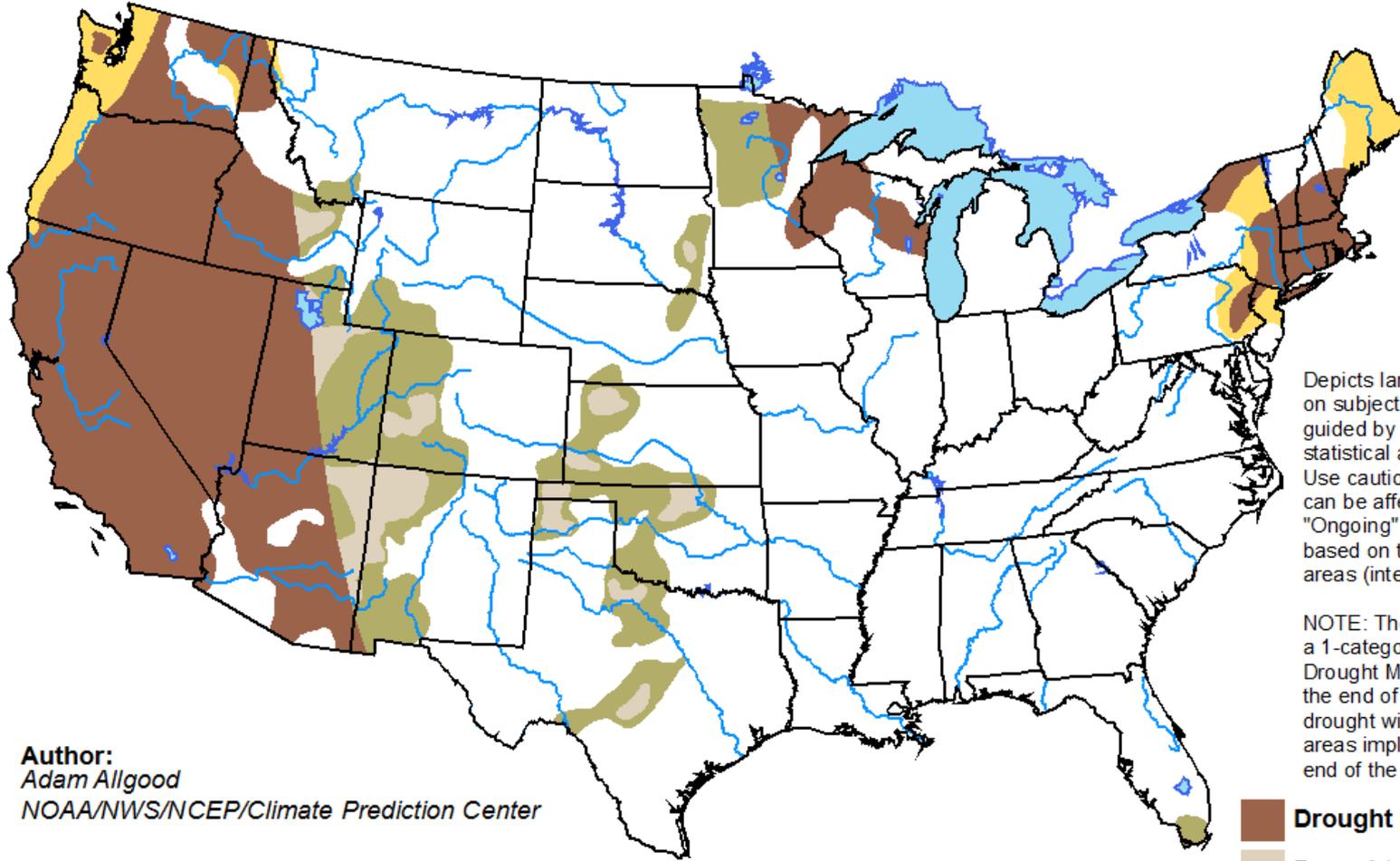


Precipitation

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for May 21 - August 31, 2015
Released May 21, 2015

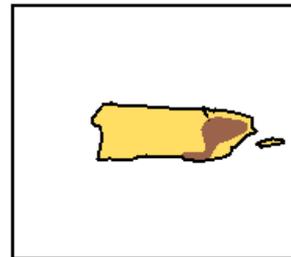
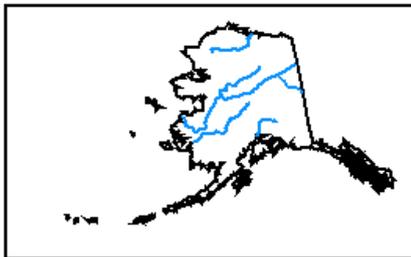


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

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



<http://go.usa.gov/hHTe>

Summary – Current Conditions

- Key Point – rapid turnaround from very dry to very wet conditions, especially in the western half of the Central region
- Late frost/freeze may have caused damage

Summary - Forecast

- El Niño
- Increased chance of above-average precipitation expected over the Central Region over the next several months
- Increased chance of above-average temperature in late fall and winter over many of the northern states

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:**

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 - Natalie Umphlett: numphlett2@unl.edu ; 402 472-6764
 - Brian Fuchs: bfuchs2@unl.edu 402 472-6775

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