Great Plains & Midwest Climate Outlook
June 18, 2015

Pat Guinan
Extension/State Climatologist
University of Missouri
guinanp@missouri.edu
573-882-5908

Saturated Soybeans, Monroe County, MO

Yellow Corn, Marion County, MO
Photos: Linda Geist

National Drought Mitigation Center

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

Regional Climate Centers

AASC American Association of State Climatologists

General Information

- **Providing climate services to the Central Region**
  - Collaboration Activity Between:
    - Doug Kluck & John Eise (NOAA)
    - American Association of State Climatologists
    - Midwest and High Plains Regional Climate Centers
    - NOAA's Climate Prediction Center
    - National Drought Mitigation Center

- **Next Climate/Drought Outlook Webinar**
  - July 16th, 2015, Brian Fuchs, National Drought Mitigation Center

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

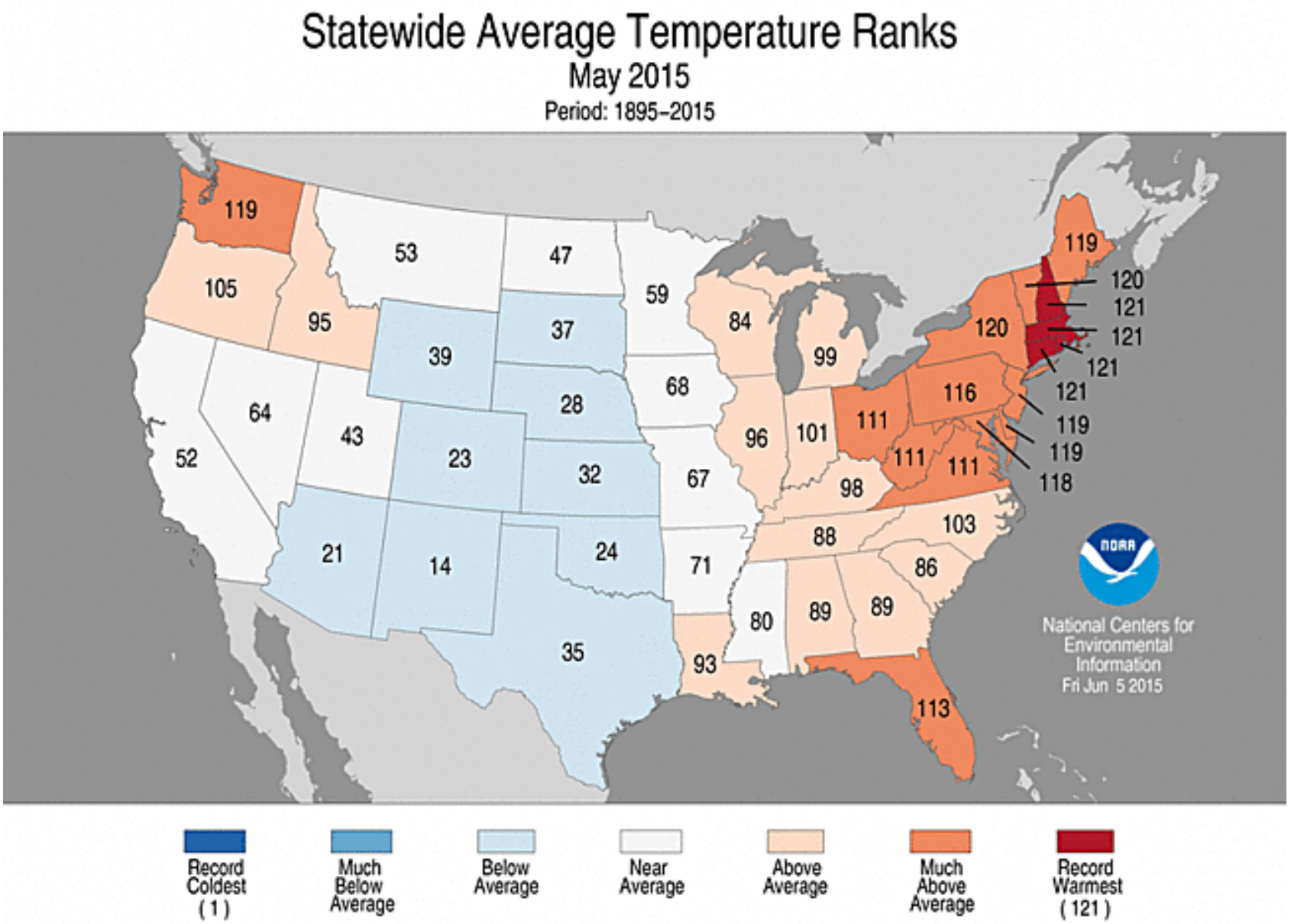
- **Past recorded presentations and slides can be found here:**
- *http://mrcc.isws.illinois.edu/webinars.htm*
- *http://www.hprcc.unl.edu/webinars.php*

- **Operator Assistance for questions at the end**

Agenda

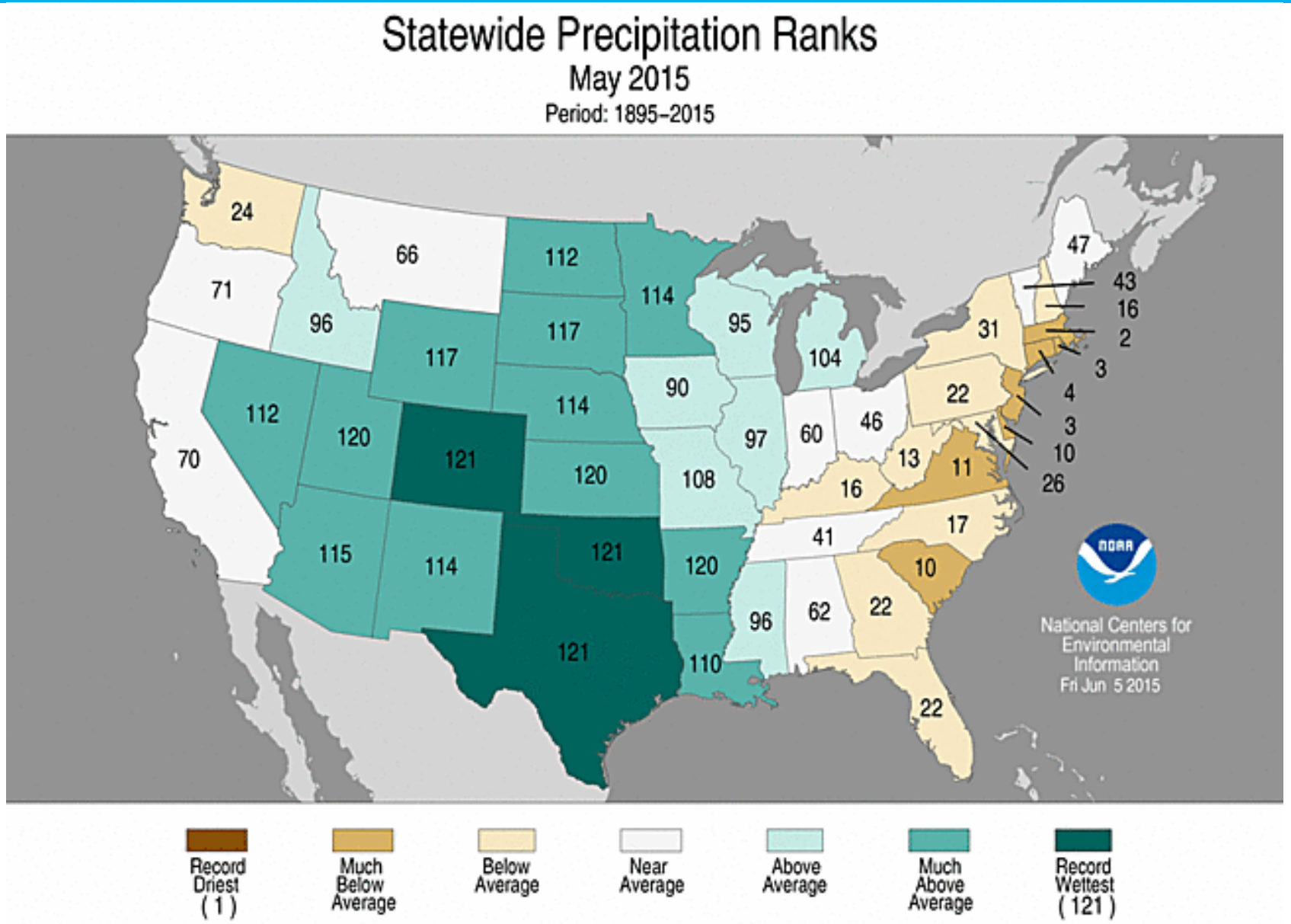
- **May Recap**
- **Current Conditions**
- **Impacts**
- **Climate Outlooks**
- **Questions/Comments**

The contiguous United States average May temperature was 0.60°F above the 20th century average, making it the 47th warmest May on record.



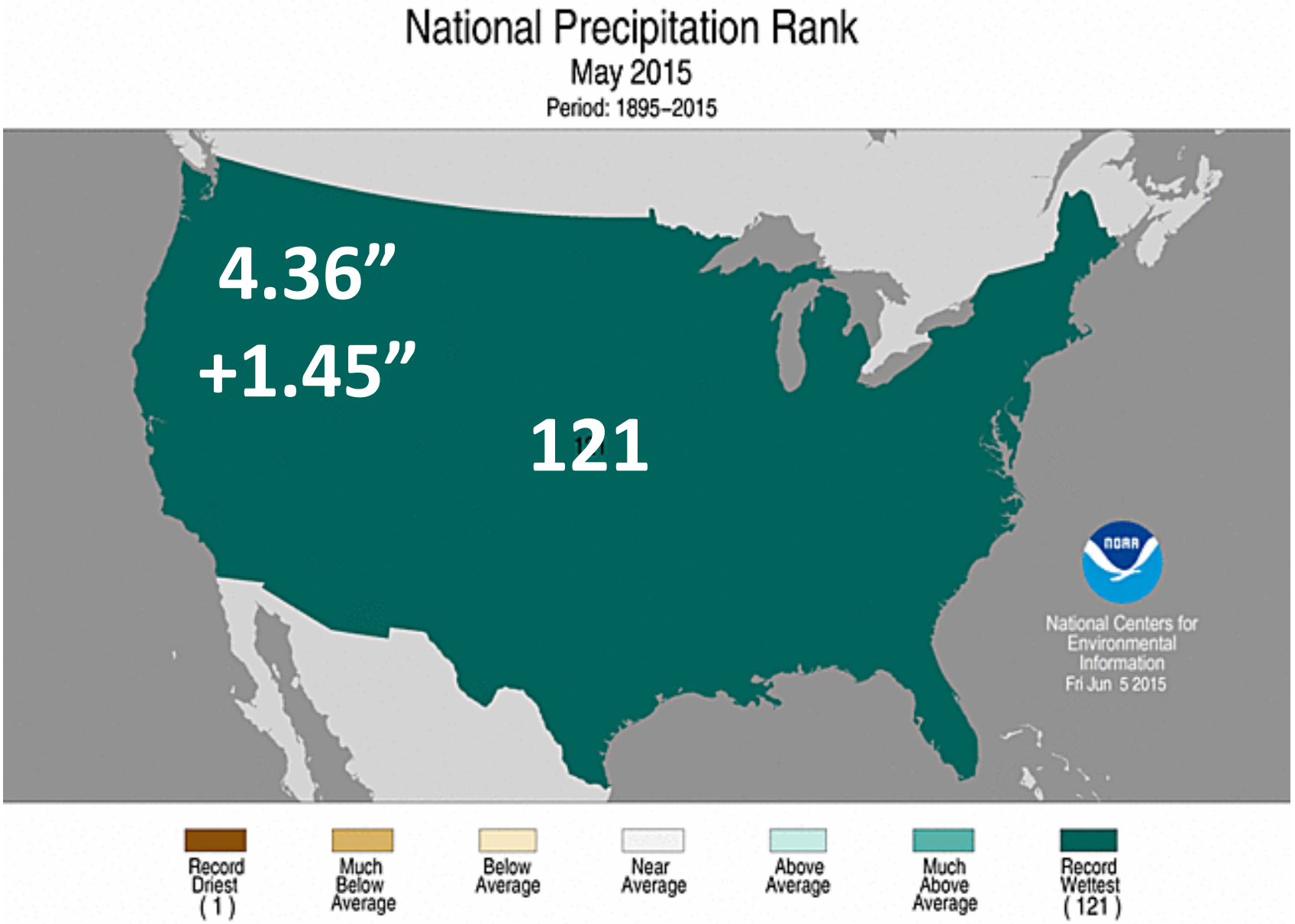
http://www.ncdc.noaa.gov/sotc/service/national/statewidetavgrank/201505.gif

The contiguous United States May precipitation average was 4.36 inches, which is 1.45 inches above the 20th century average.



http://www.ncdc.noaa.gov/sotc/service/national/statewidepcpnrank/201505.gif

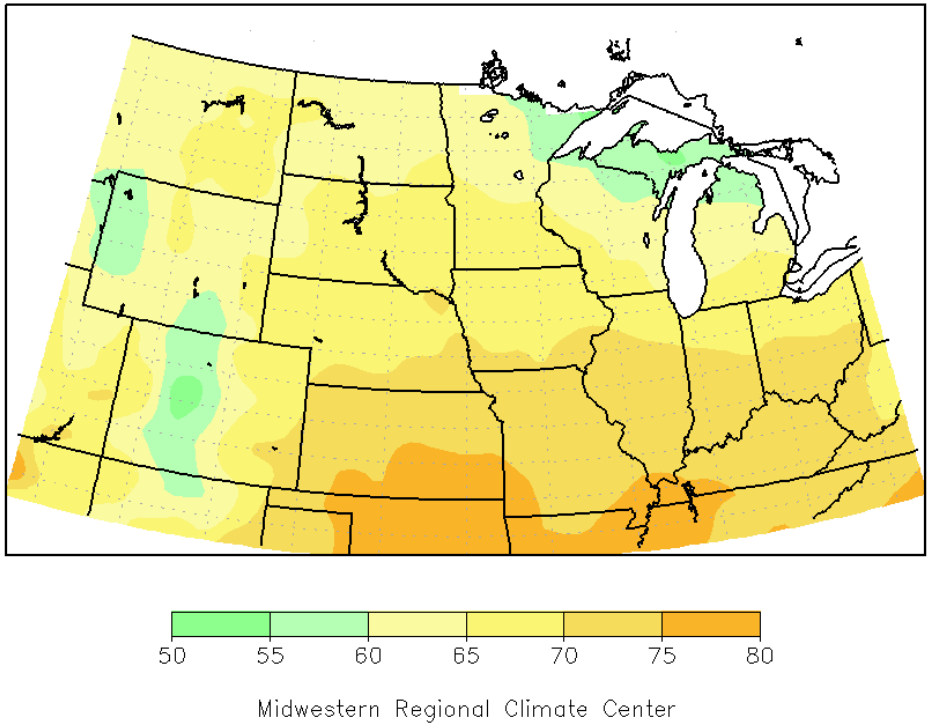
Not only was it the wettest May on record, it was the wettest month ever for the contiguous U.S. (1,445 months!)



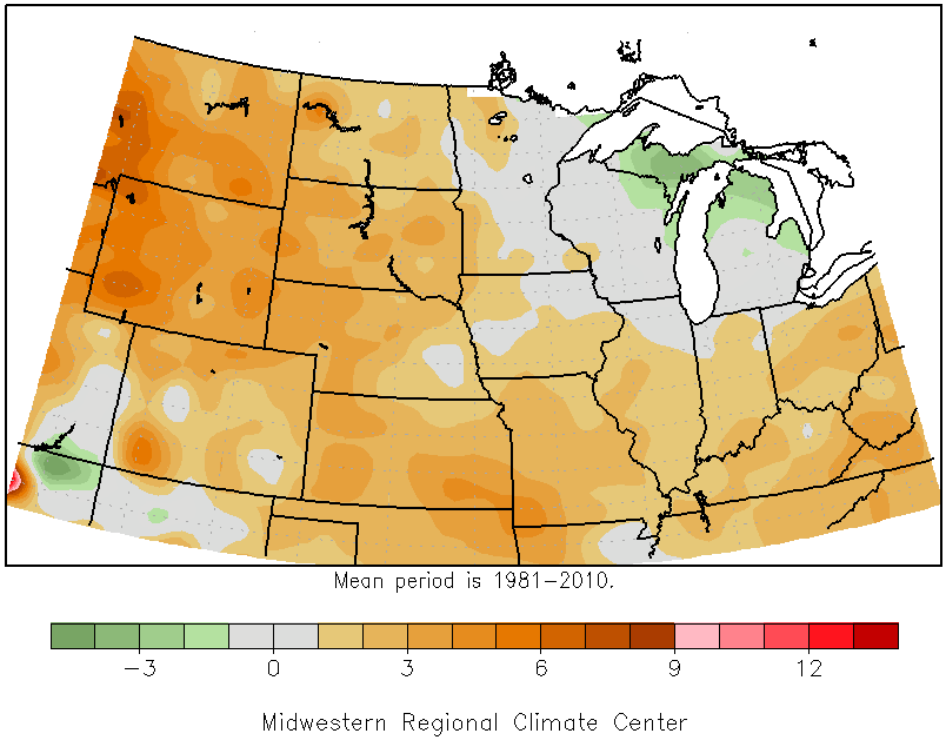
http://www.ncdc.noaa.gov/sotc/service/national/nationalpcpnrank/201505.gif

Average temperature and departure from mean for June 1-17, 2015

Average Temperature (°F)
June 1 to June 17, 2015

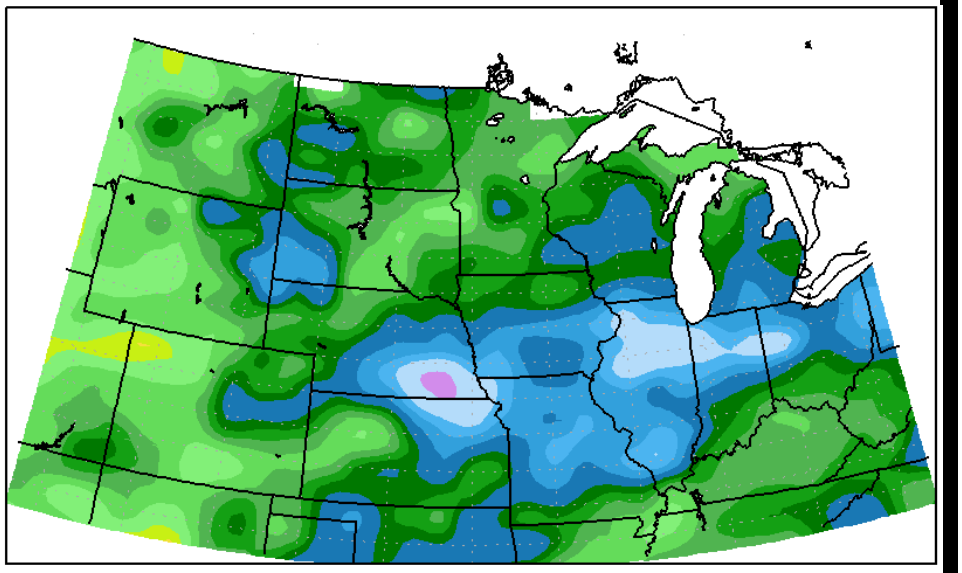


Average Temp (°F) Departure from Mean
June 1 to June 17, 2015

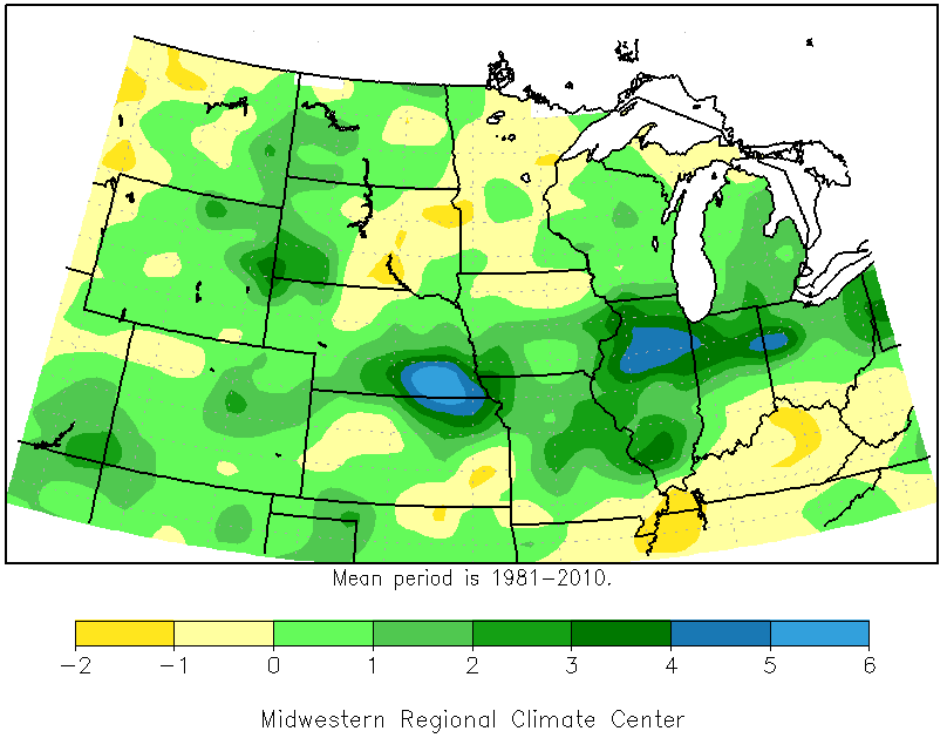


Accumulated precipitation and departure from mean for June 1-17, 2015

Accumulated Precipitation (in)
June 1, 2015 to June 17, 2015

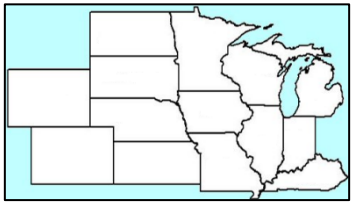


Accumulated Precipitation (in)
Departure from Mean
June 1, 2015 to June 17, 2015



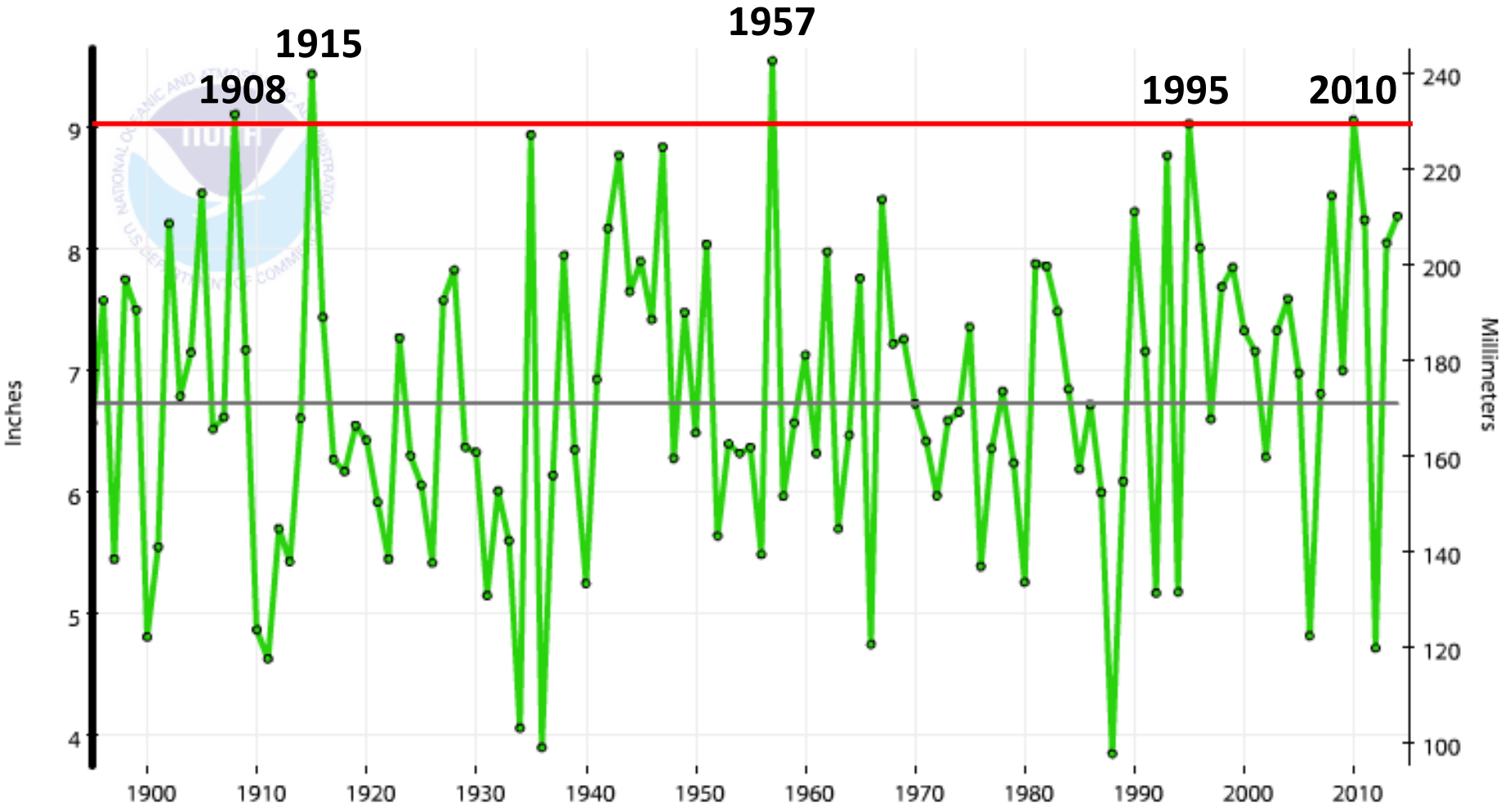
North Central Region, Precipitation, May-June (1895-2014)

The May 2015 average precip for North Central Region was 5.25" (2nd wettest), and a Jun 2015 average greater than 3.75" would rank May-Jun 2015 in the Top 5.



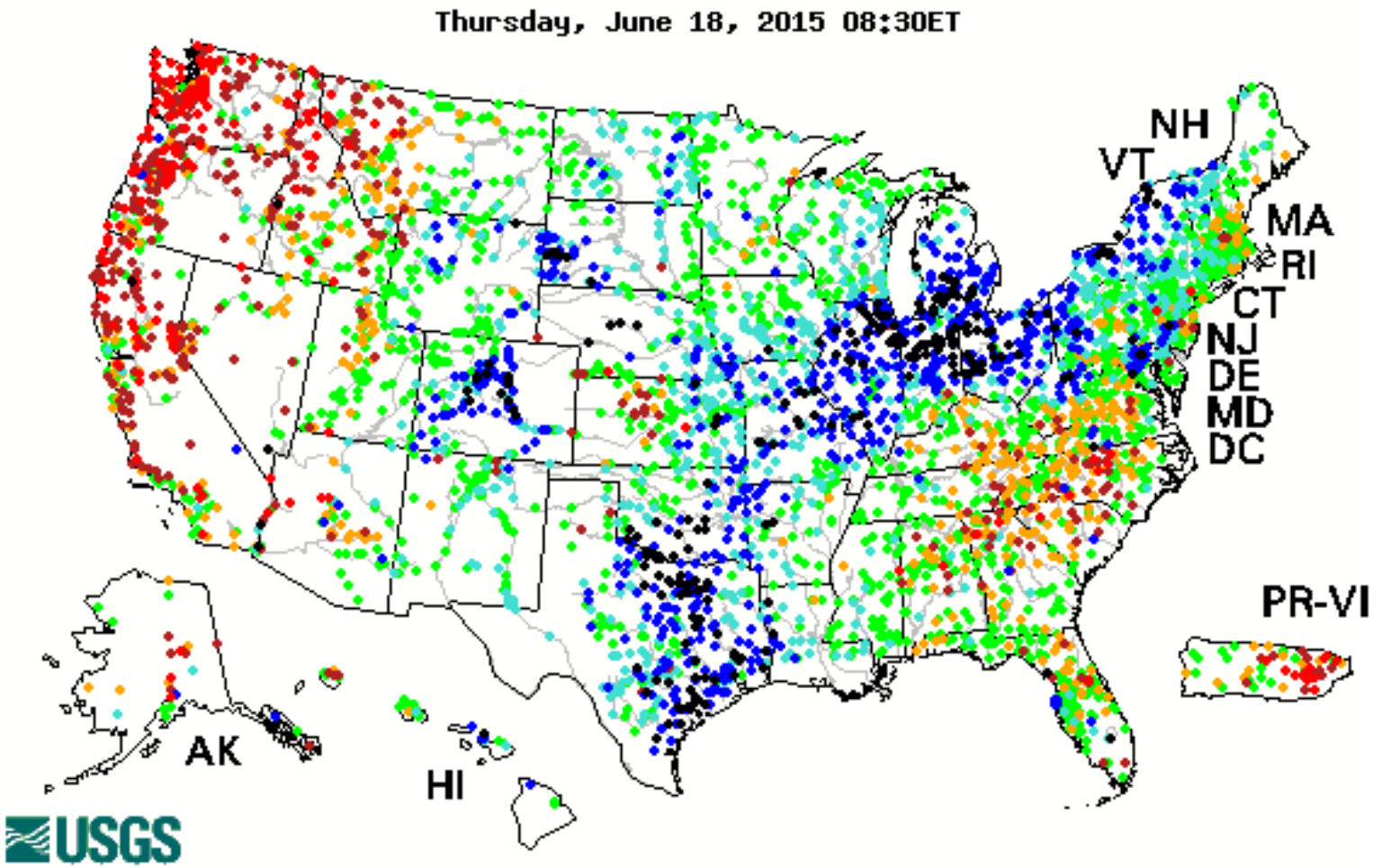
1901-2000 May-Jun Average: 6.74"

Precipitation



Climate at A Glance: http://www.ncdc.noaa.gov/cag/

Current Streamflow



● High = The estimated streamflow is the highest value ever measured for the day of the year.

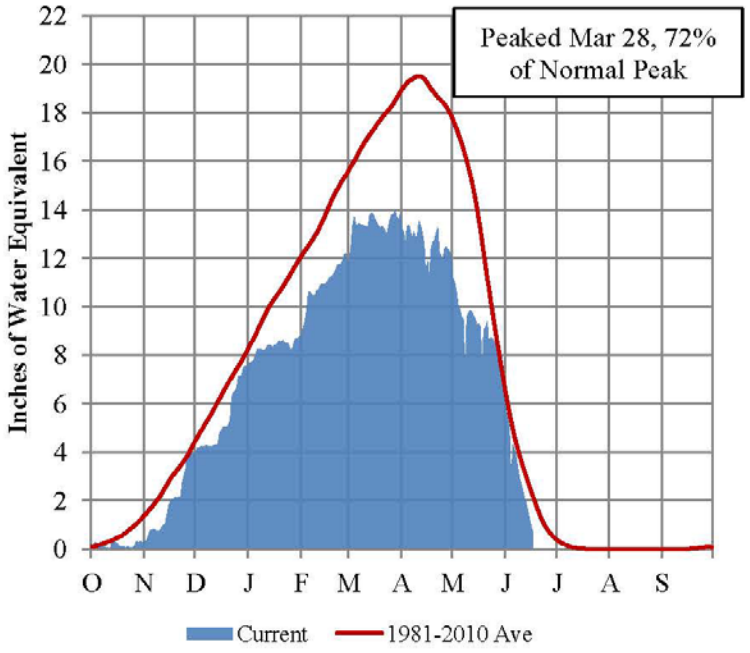
Explanation - Percentile classes						
●	●	●	●	●	●	●
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

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

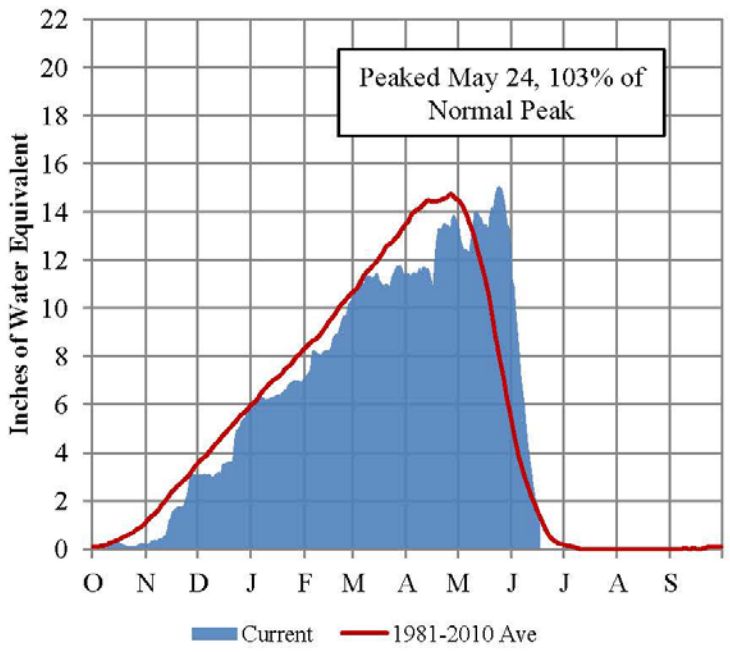
Platte River Basin - Mountain Snowpack Water Content
Water Year 2014-2015

6/18/2015

Total North Platte



Total South Platte



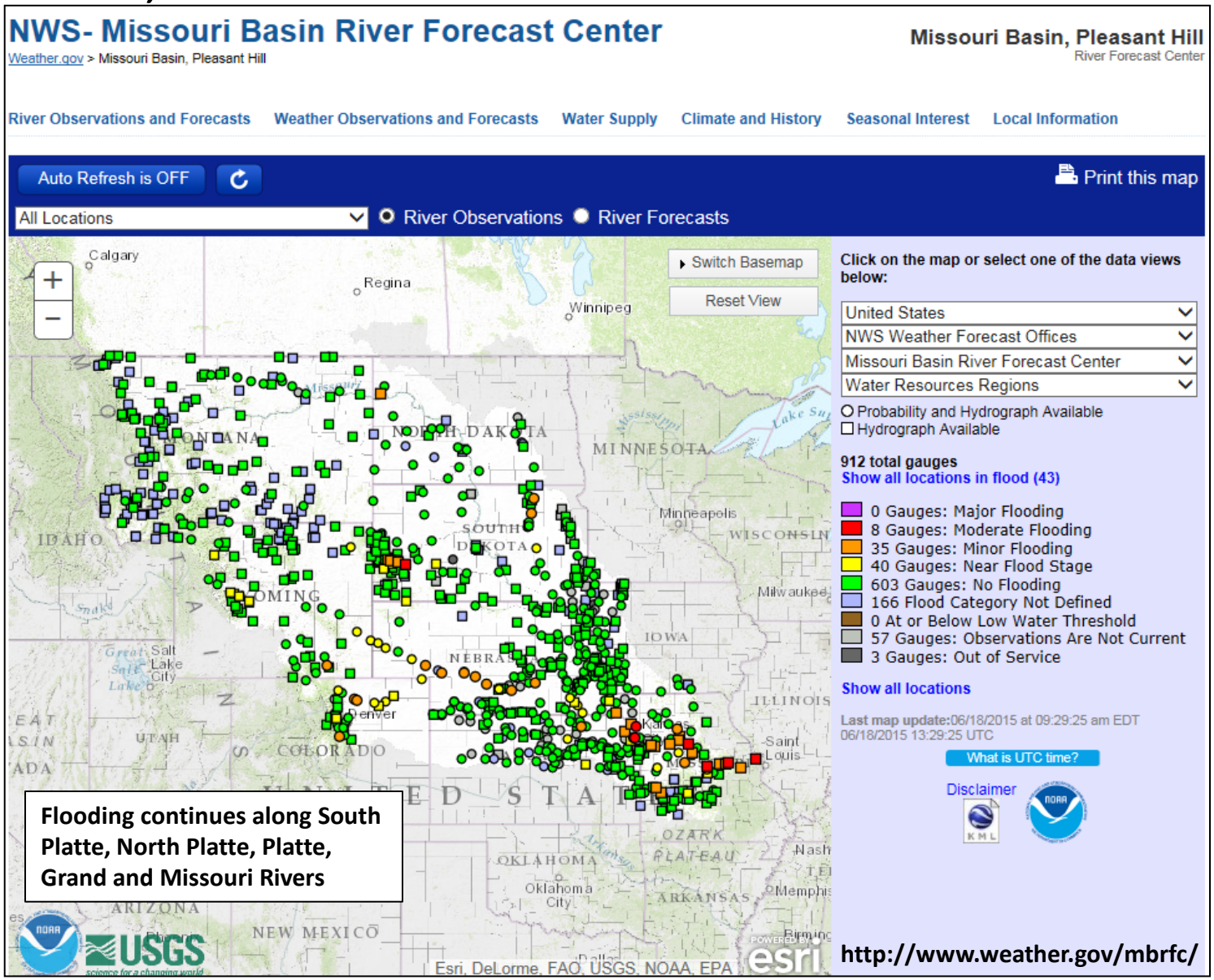
The North and South Platte River Basin mountain snowpacks normally peak near April 15. As of June 17, 2015, the mountain snowpack SWE in the "Total North Platte" reach is currently 0.6", 30% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 1.0", 76% of average.

Source: USDA, Natural Resource Conservation Service

Provisional Data. Subject to Revision

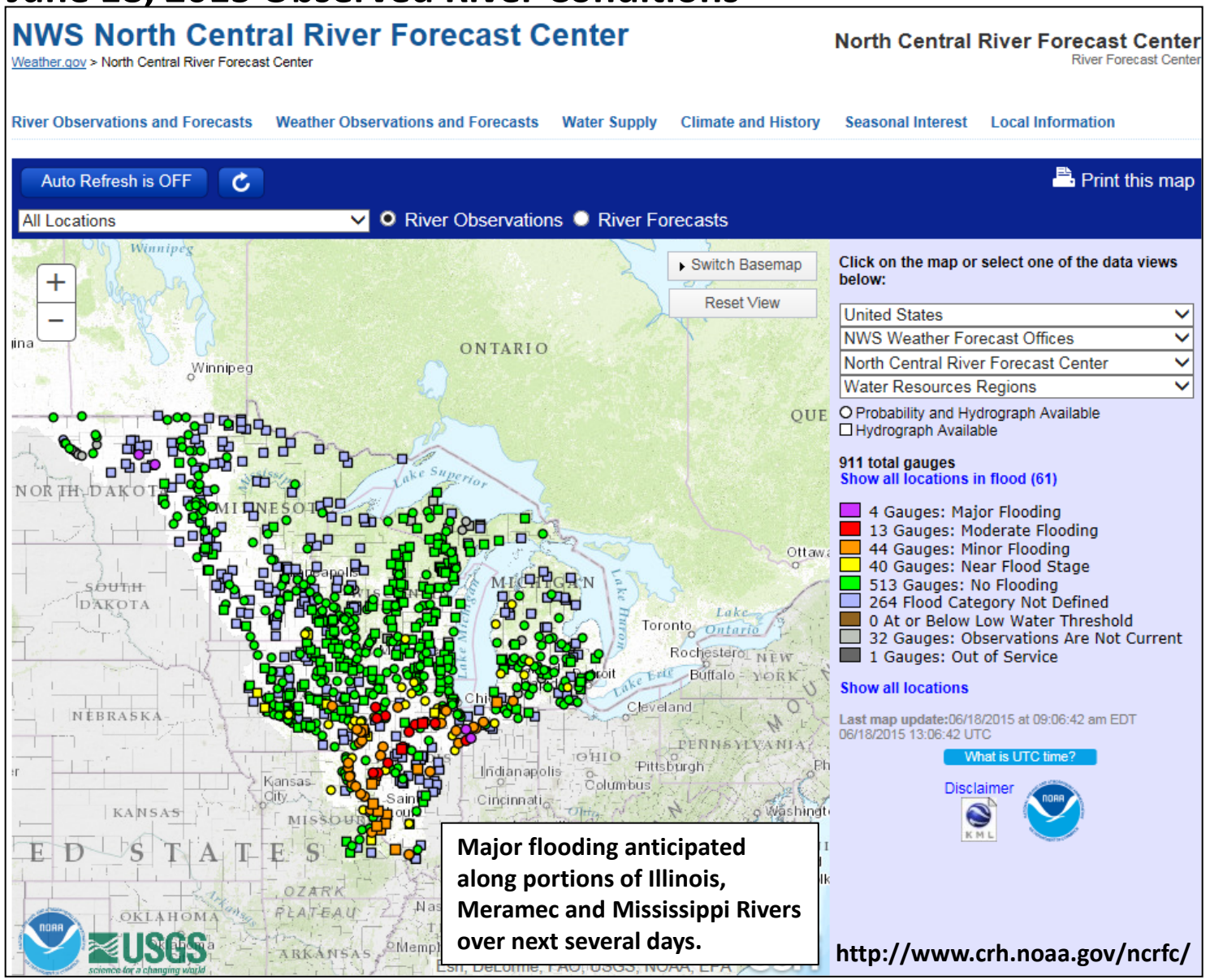
Missouri River Basin Conditions

June 18, 2015 Observed River Conditions



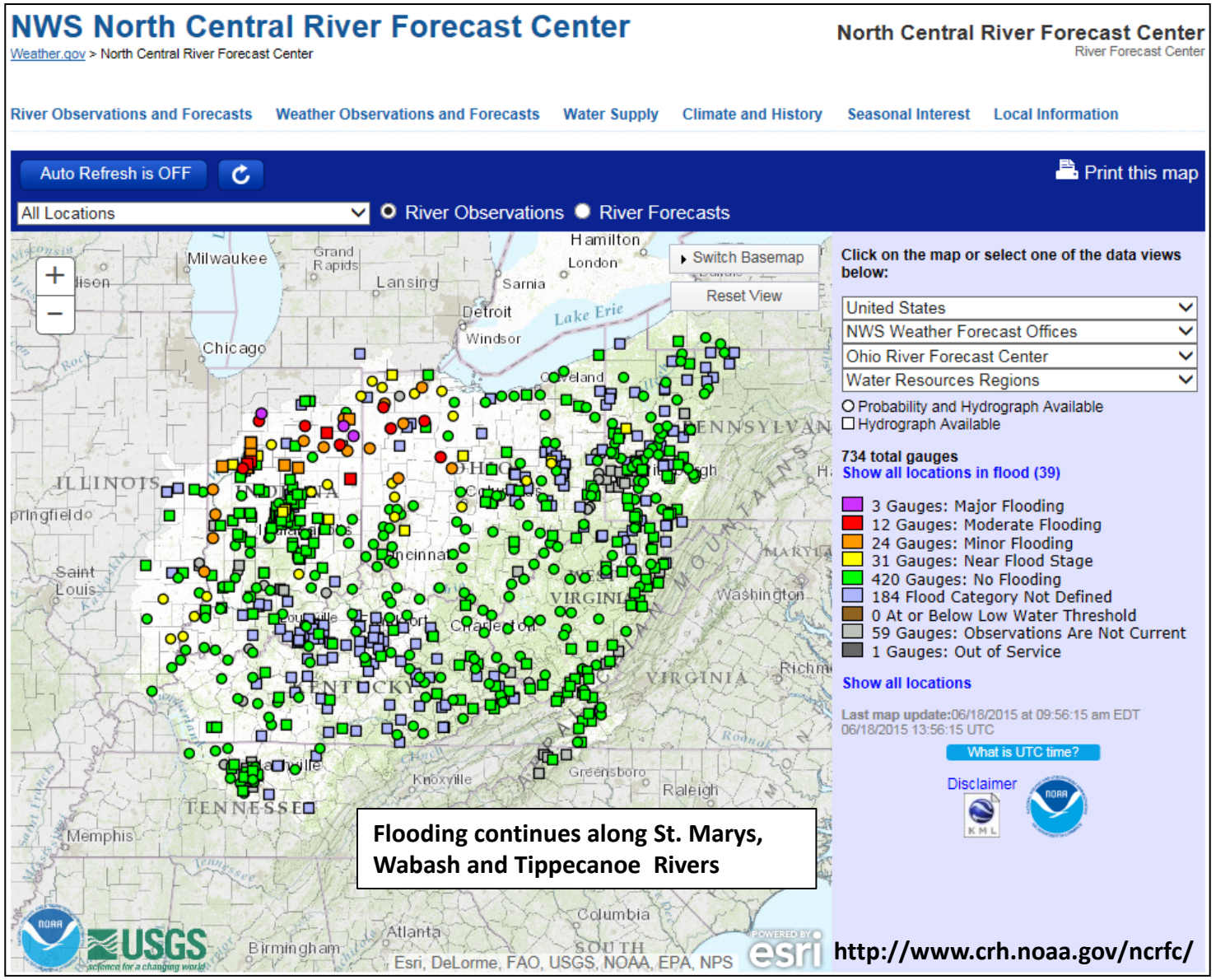
Mississippi River Basin Conditions

June 18, 2015 Observed River Conditions



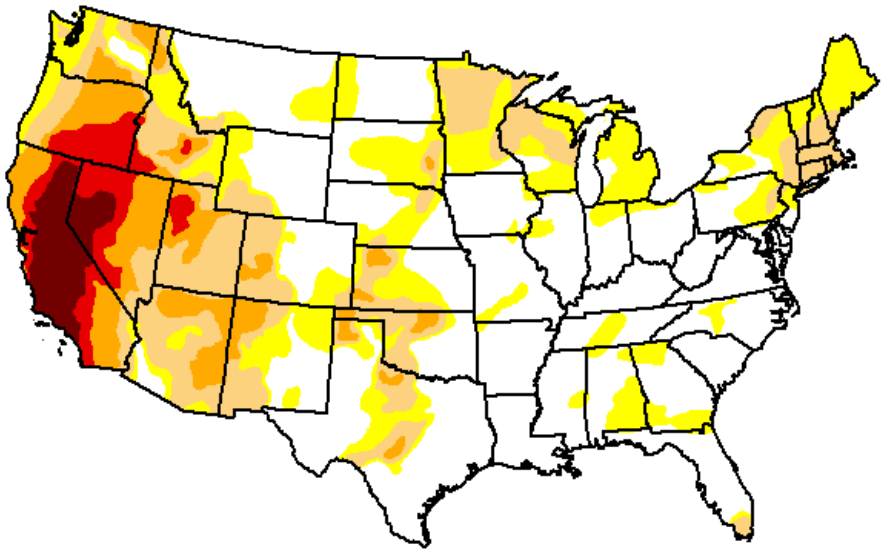
Ohio River Basin Conditions

June 18, 2015 Observed River Conditions

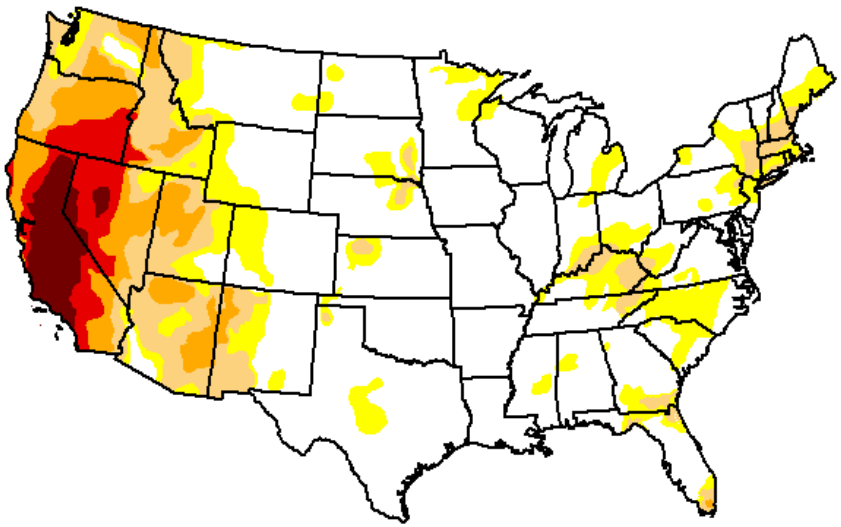


U.S. Drought Monitor

May 19, 2015



June 16, 2015



Intensity:

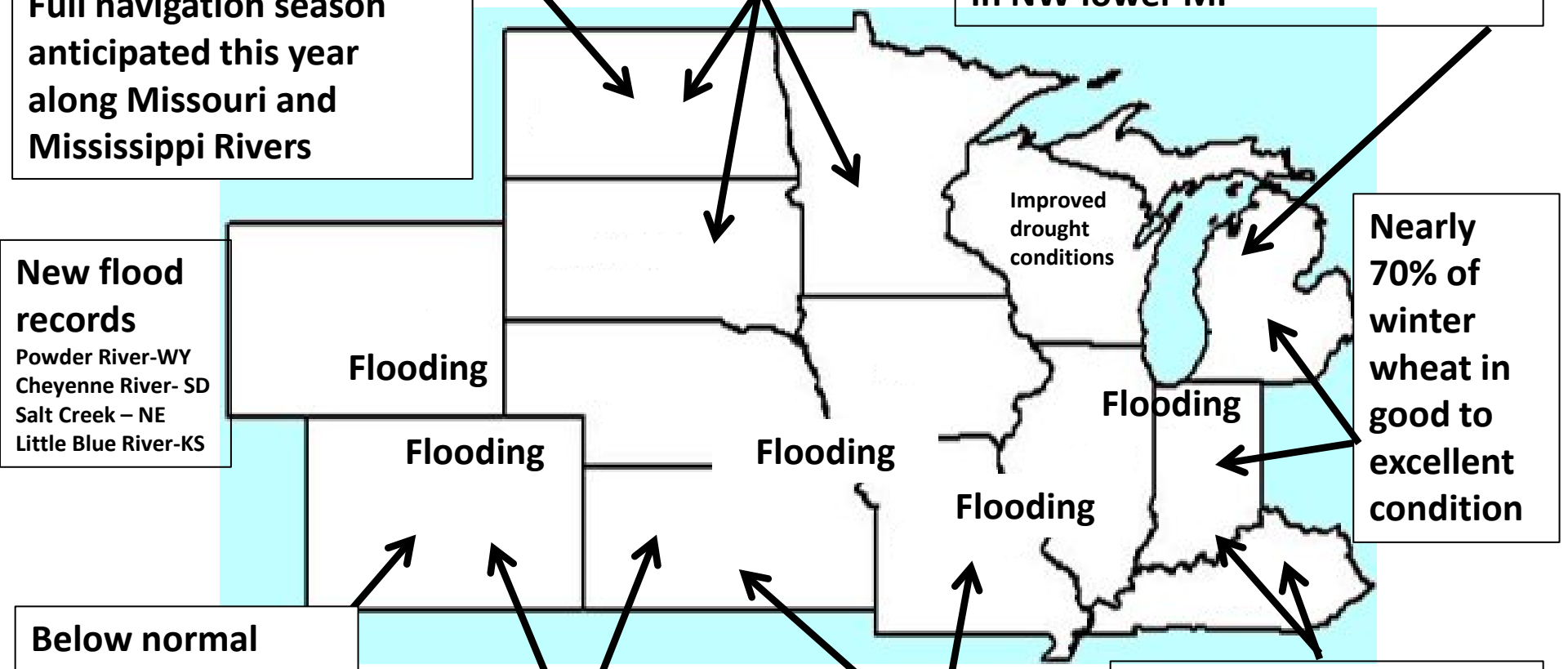
- D0 - Abnormally Dry
- D1 - Drought Moderate
- D2 - Drought Severe
- D3 - Drought Extreme
- D4 - Drought Exceptional

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

http://droughtmonitor.unl.edu

Released Thursday, March 3, 2013
Matthew Rosencrans, NOAA/NWS/NCEP/Climate Prediction Center

Impacts


Sugar beet and canola damage due to late May freeze
Dry Jan-Apr to wet May; major drought status reduction
Extreme Feb temps and May freeze led to grape, blueberry, cherry, peach and apple damage in NW lower MI
Full navigation season anticipated this year along Missouri and Mississippi Rivers
Improved drought conditions
New flood records
Powder River-WY
Cheyenne River- SD
Salt Creek – NE
Little Blue River-KS
Flooding
Flooding
Flooding
Flooding
Flooding
Nearly 70% of winter wheat in good to excellent condition
Below normal snow season overall, but rivers have rebounded w/ wet May-Jun
Significant drought status reduction in May
Delayed soybean planting; more than 3 million acres yet to be planted in MO
Emerging dryness

Crop Conditions in North Central Region

June 14, 2015 NASS Report

Winter Wheat Condition (%)

	VP	P	F	G	EX
CO	2	15	31	39	13
IL	2	8	35	48	7
IN	1	5	27	54	13
KS	10	19	41	28	2
MI	4	3	25	50	18
MO	1	8	50	38	3
NE	14	20	31	33	2
SD	12	25	36	25	2

Soybean Condition (%)

	VP	P	F	G	EX
IL	2	3	25	58	12
IN	1	4	24	58	13
IA	0	2	18	66	14
KS	2	10	45	40	3
KY	1	3	15	69	12
MI	1	2	26	58	13
MN	0	2	24	66	8
MO	2	13	51	32	2
NE	1	6	25	58	10
ND	1	2	14	75	8
SD	0	2	30	54	14
WI	0	1	13	63	23

Corn Condition (%)

	VP	P	F	G	EX
CO	0	2	33	61	4
IL	1	3	20	57	19
IN	1	4	22	57	16
IA	0	1	15	65	19
KS	3	11	36	43	7
KY	1	3	17	64	15
MI	1	2	22	59	16
MN	0	1	22	66	11
MO	3	12	33	47	5
NE	1	5	27	58	9
ND	1	4	20	70	5
SD	0	4	26	60	10
WI	0	2	14	62	22

2 states running well behind in soybean planting…

Soybean, % Planted

	2014	6/14/15	5-Yr Avg
KS	85	57	85 (-28%)
MO	85	42	79 (-37%)

Additional impacts due to wet weather across region…

Plant disease vulnerability

- **trees**
- **fruit crops**
- **row crop**
- **forages**
- **turf**

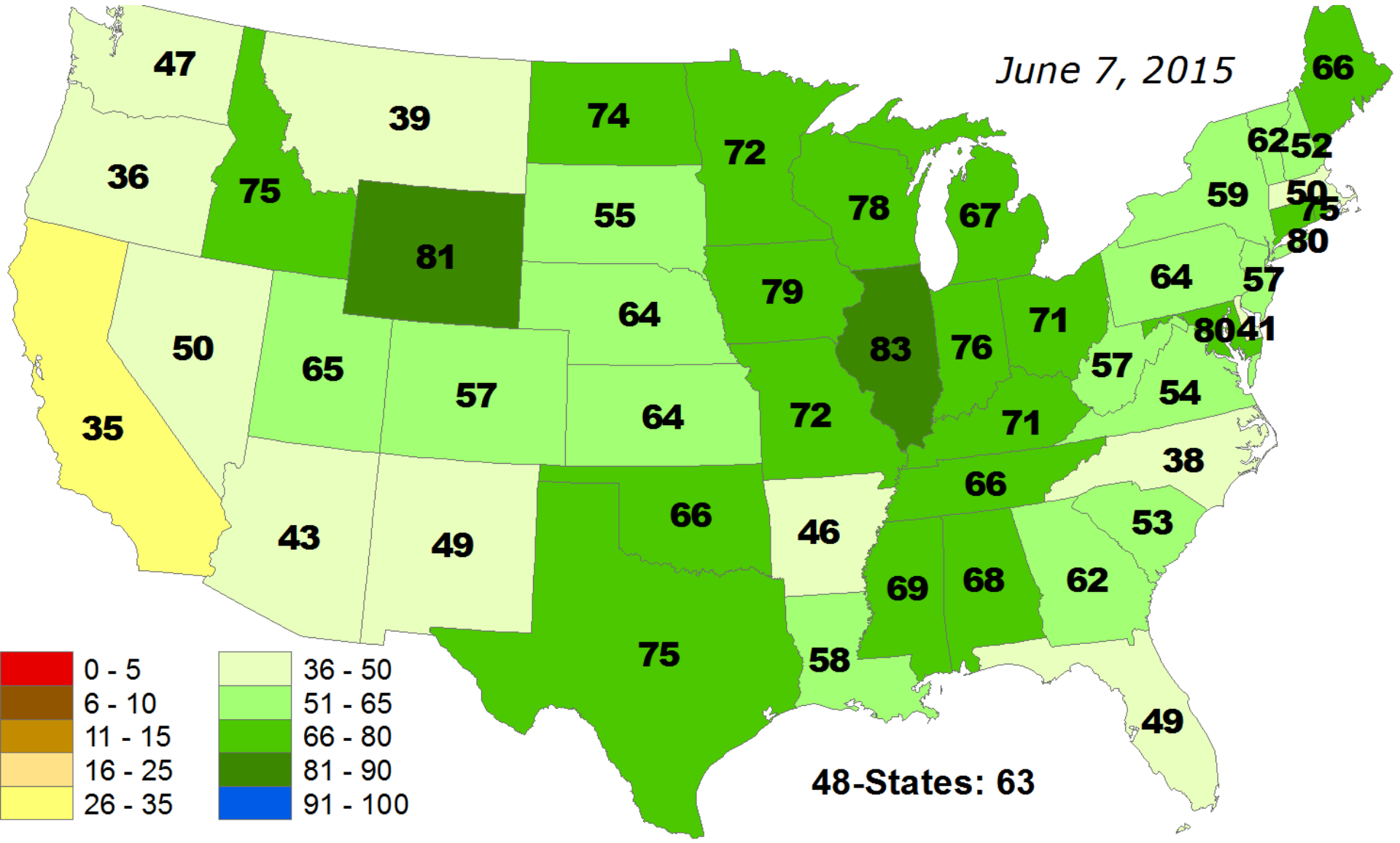
Nutrient deficiencies

- **nitrogen etc.**

- **Robust lawn care business**

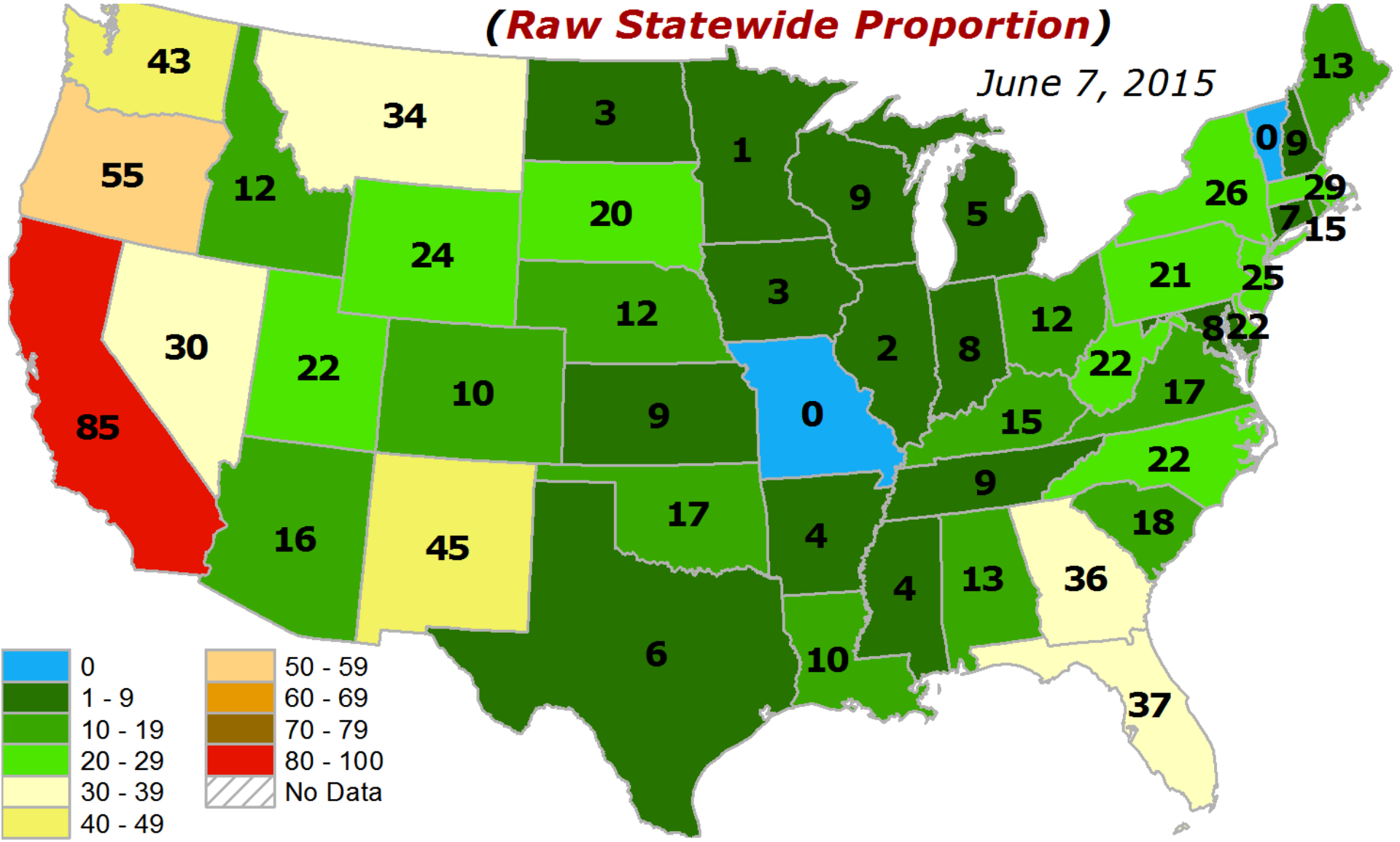
- **Outdoor recreation activities compromised**

Percent of Pasture and Range Land in Good or Very Good Condition



National Ag Statistics Service

Extent of Topsoil Moisture Short or Very Short of Moisture

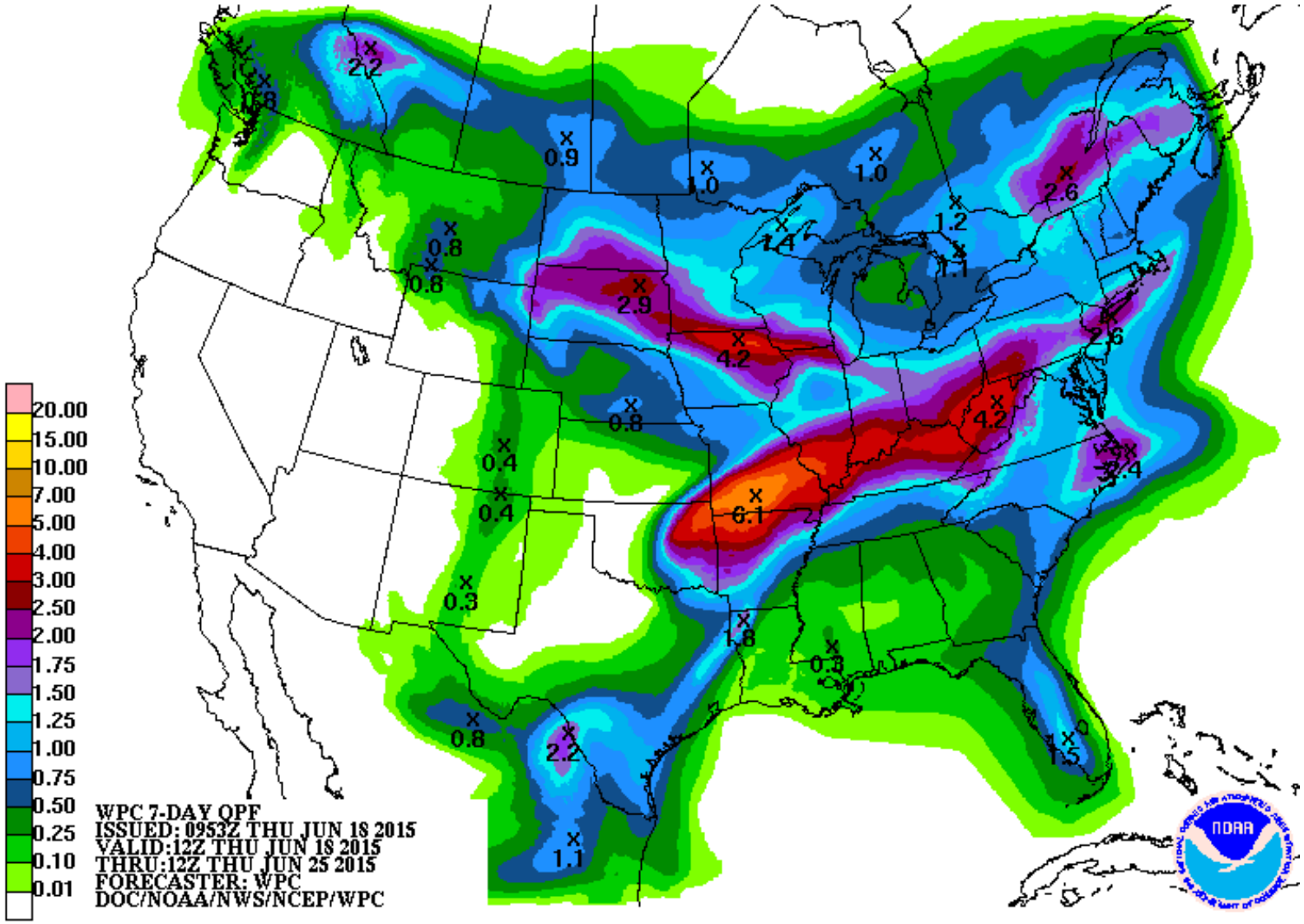


National Ag Statistics Service

Climate Outlooks

- **7-day precipitation forecast**
- **6-10 day outlook**
- **July**
- **3 Months (July, August, September)**
- **Winter Outlook**

Forecast Precipitation Amounts (7-day)

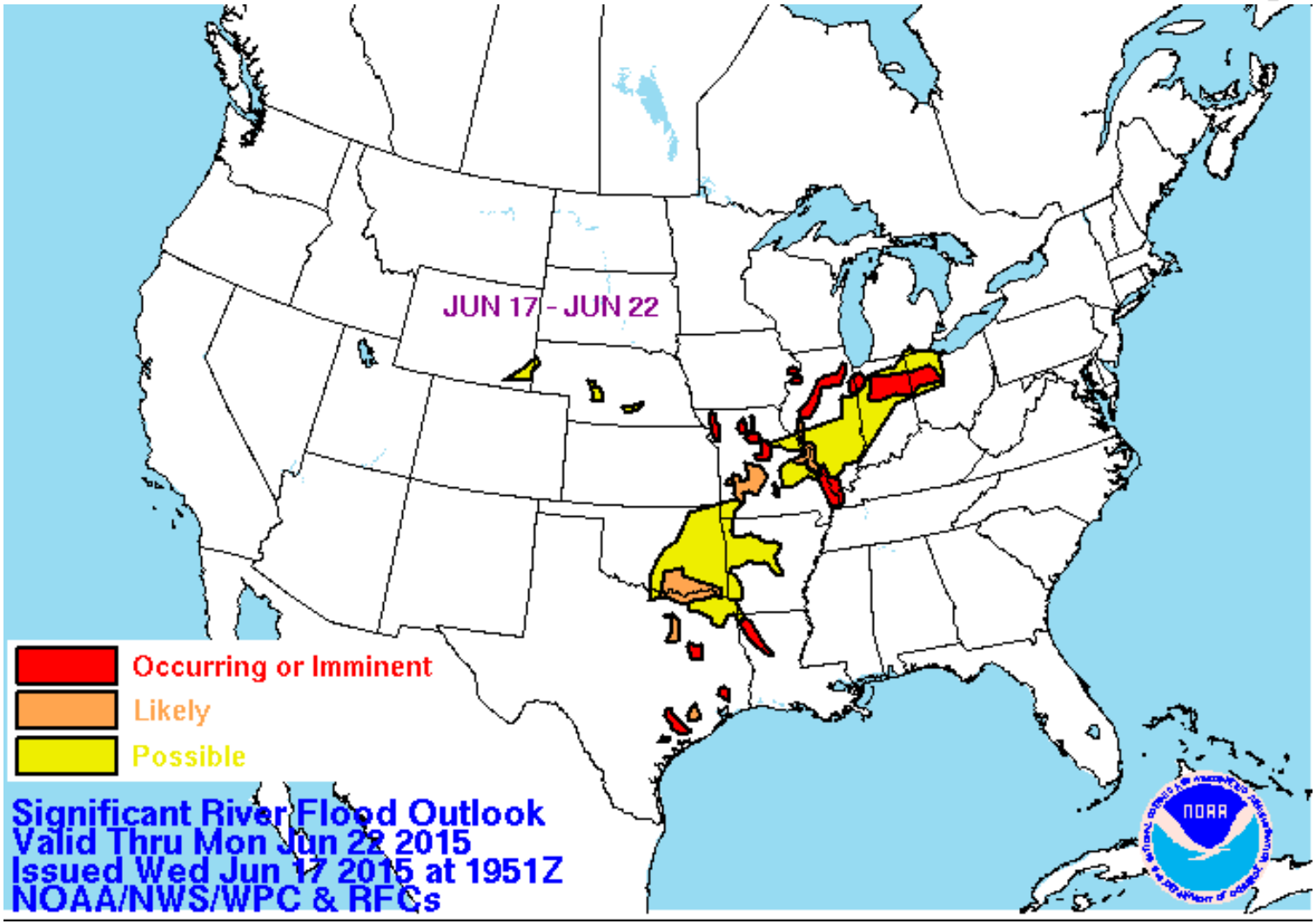


http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

NATIONAL WEATHER SERVICE

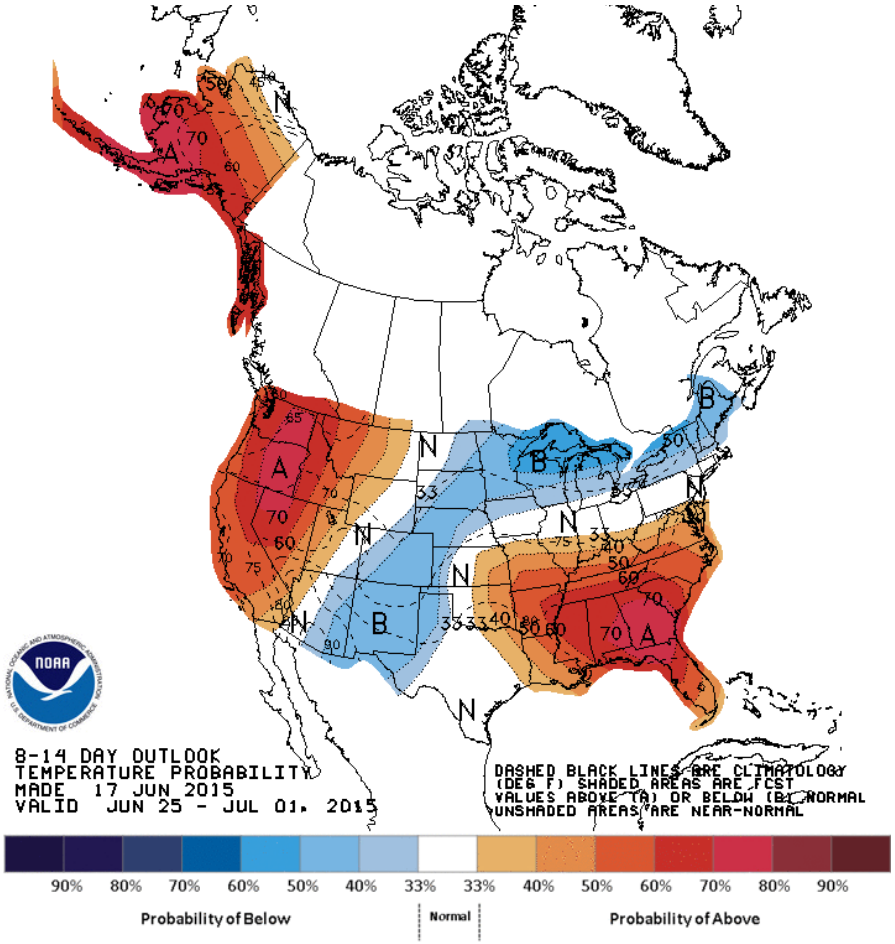
Significant River Flood Outlook

Click a region on the national map below to access more detailed RFC data.

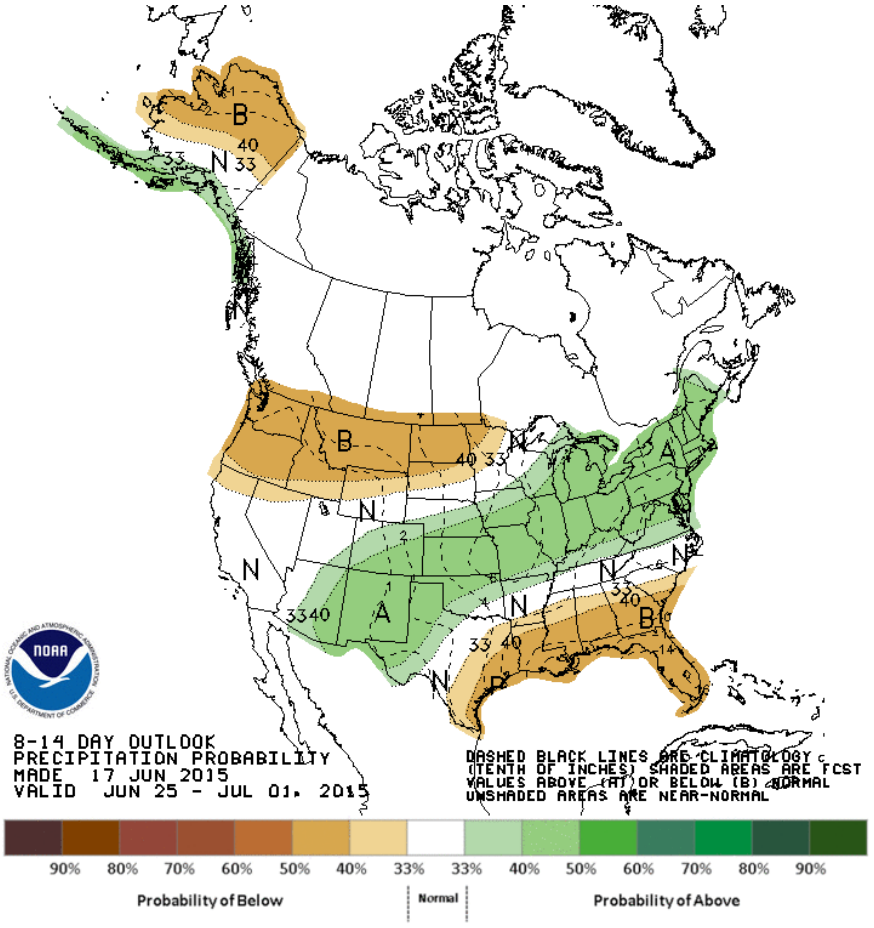


http://www.wpc.ncep.noaa.gov/nationalfloodoutlook/

8-14 Day Forecast for Jun 25-Jul 1, 2015



Temperature



Precipitation

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

El Niño Is Here to Stay…

- A 90% chance of El Niño continuing through end of 2015.
- An 85% chance that it will continue into early 2016.

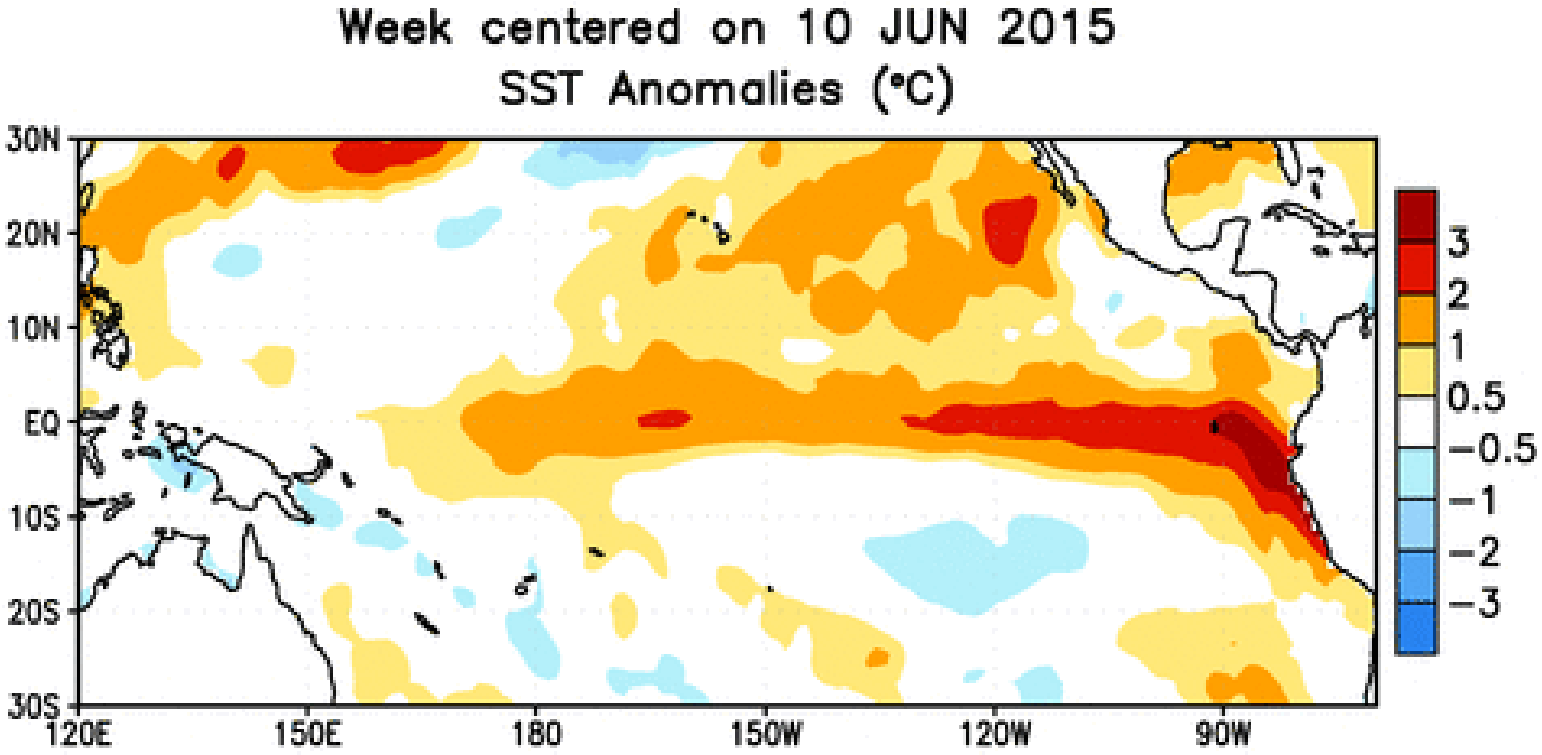
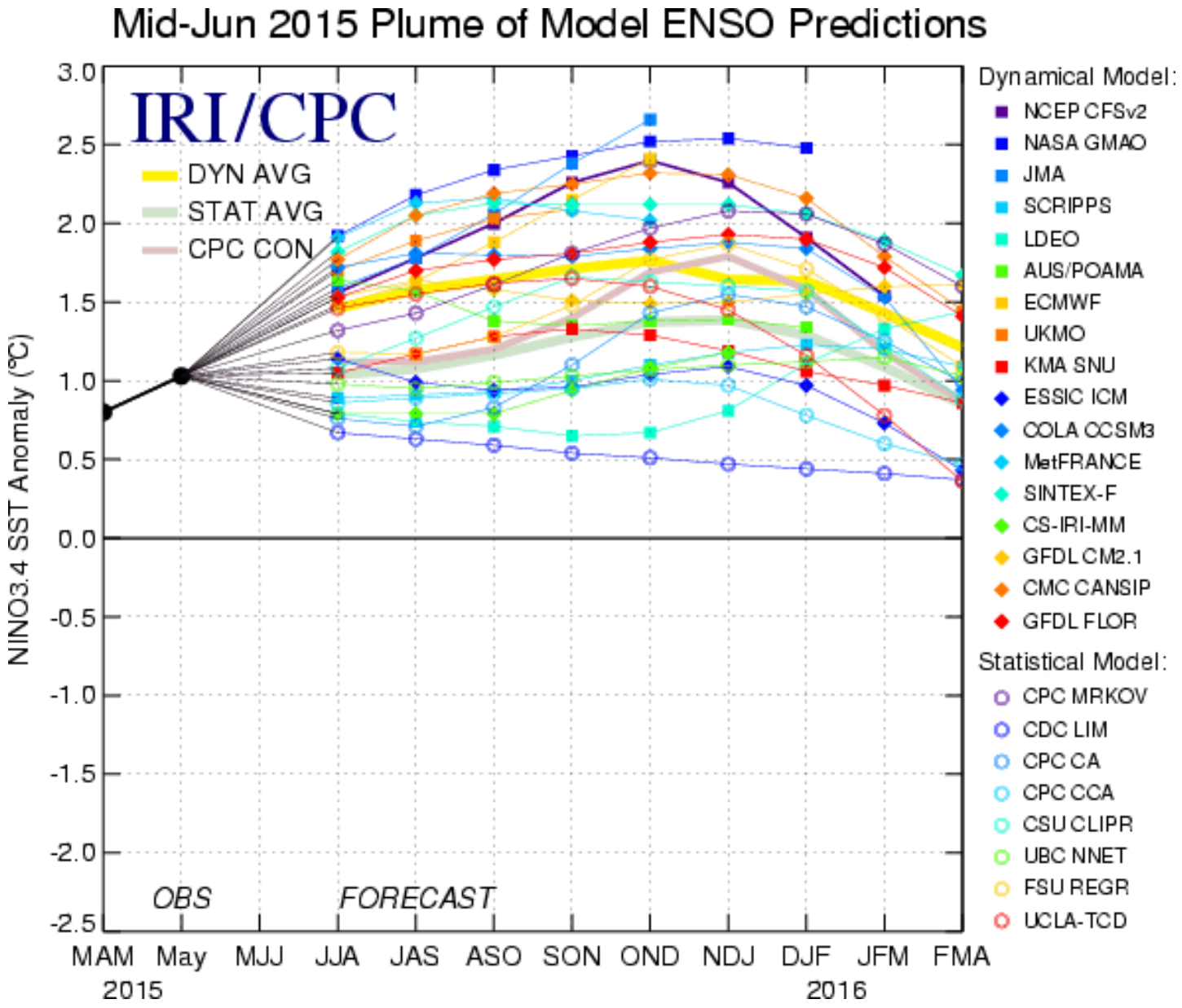
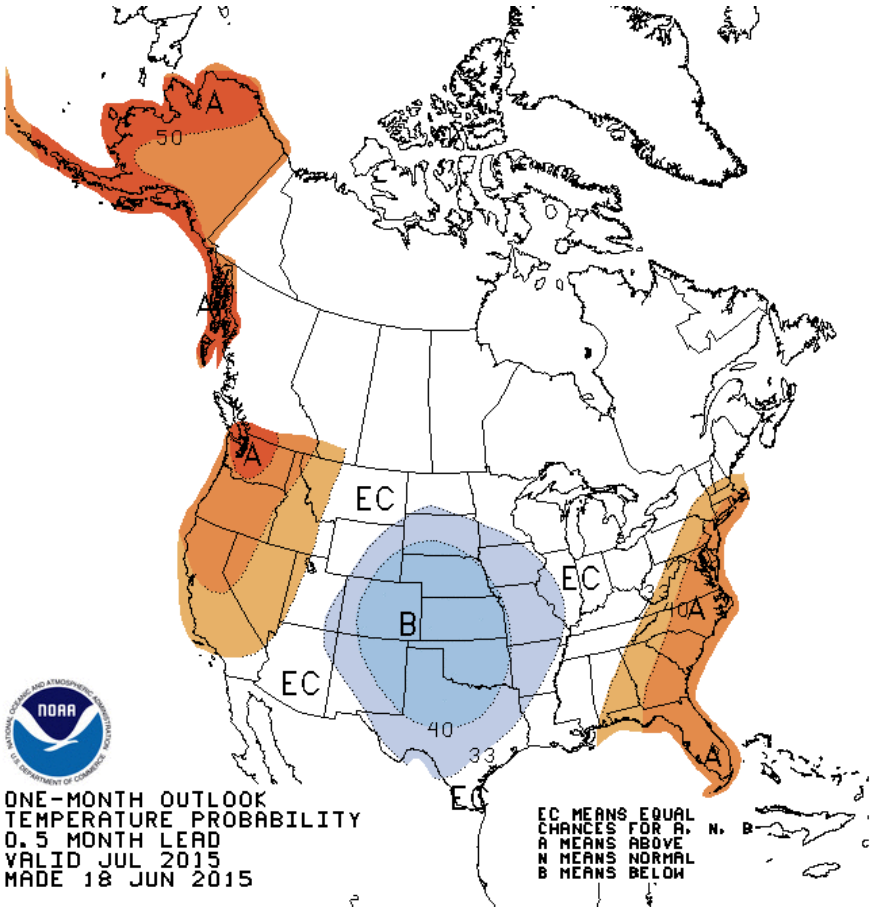


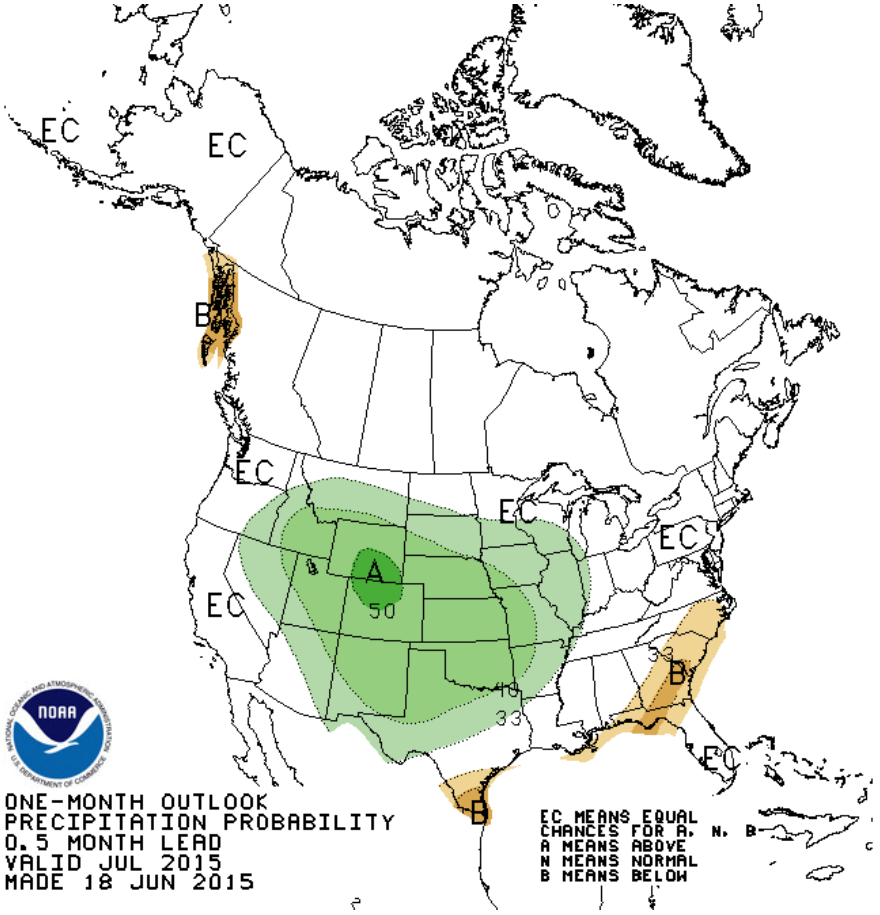
Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 10 Jun 2015. Anomalies are computed with respect to the 1981-2010 base period weekly means.


Mid-Jun 2015 Plume of Model ENSO Predictions
IRI/CPC
DYN AVG
STAT AVG
CPC CON
NINO3.4 SST Anomaly (°C)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
OBS
FORECAST
MAM
May
MJJ
JJA
JAS
ASO
SON
OND
NDJ
DJF
JFM
FMA
2015
2016
Dynamical Model:
NCEP CFSv2
NASA GMAO
JMA
SCRIPPS
LDEO
AUS/POAMA
ECMWF
UKMO
KMA SNU
ESSIC ICM
COLA CCSM3
MetFRANCE
SINTEX-F
CS-IRI-MM
GFDL CM2.1
CMC CANSIP
GFDL FLOR
Statistical Model:
CPC MRKOV
CDC LIM
CPC CA
CPC CCA
CSU CLIPR
UBC NNET
FSU REGR
UCLA-TCD

July Temperature & Precipitation Outlook



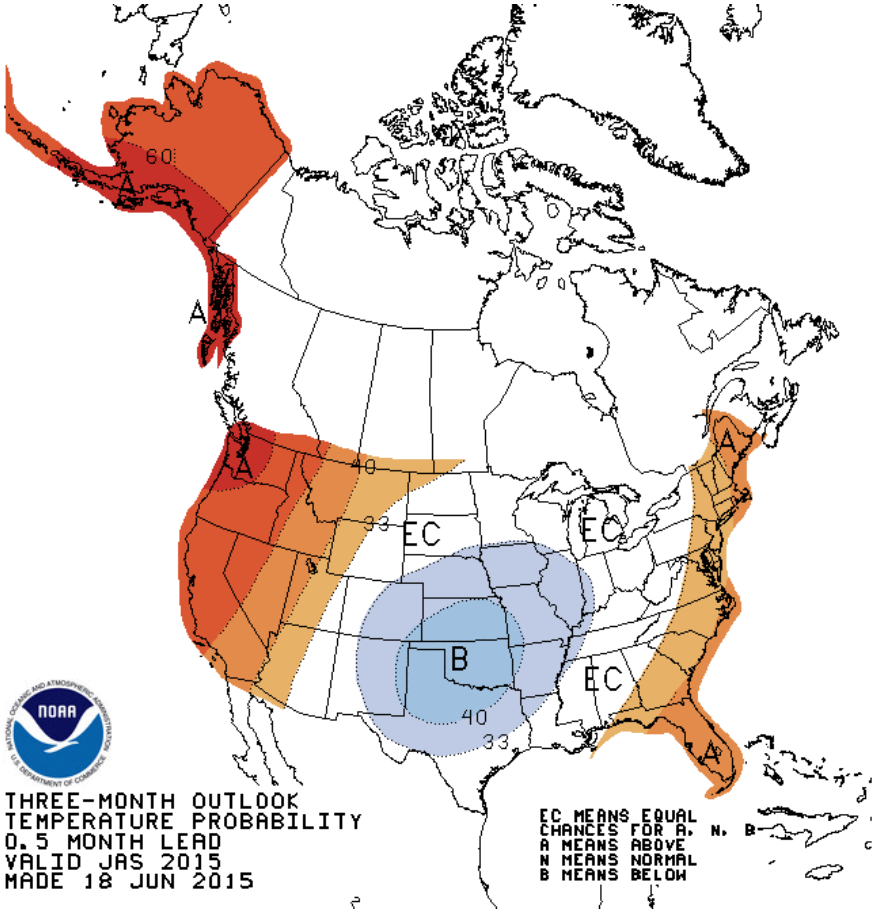
Temperature



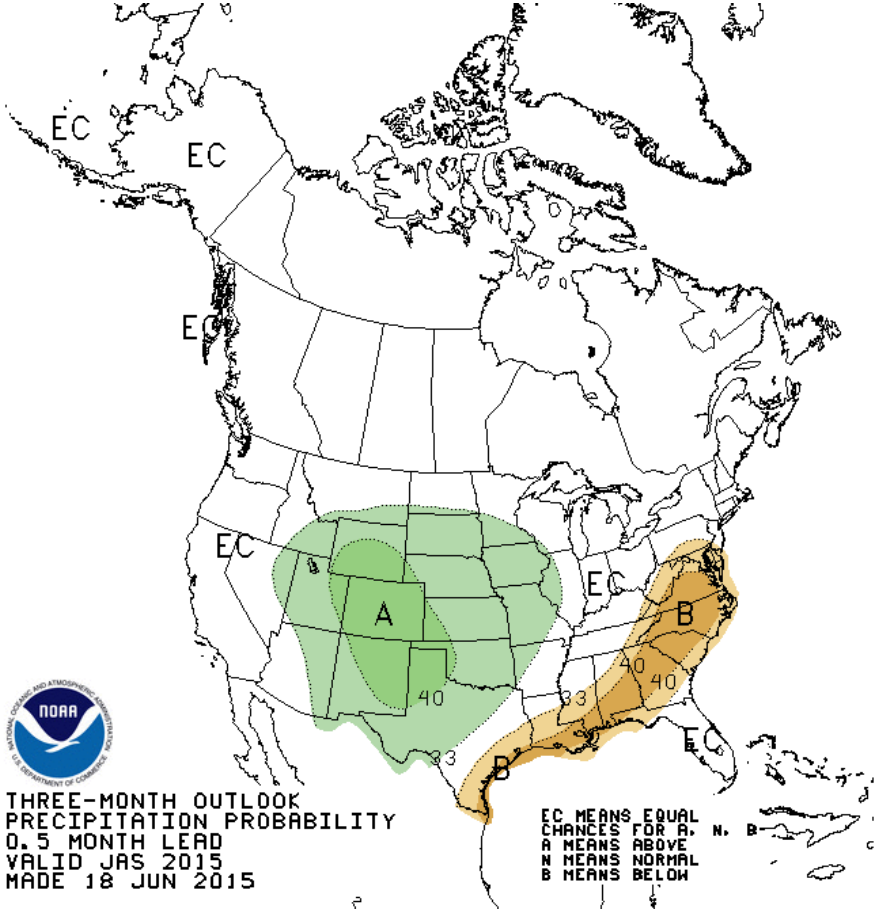
Precipitation

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

Jul-Aug-Sep Outlook



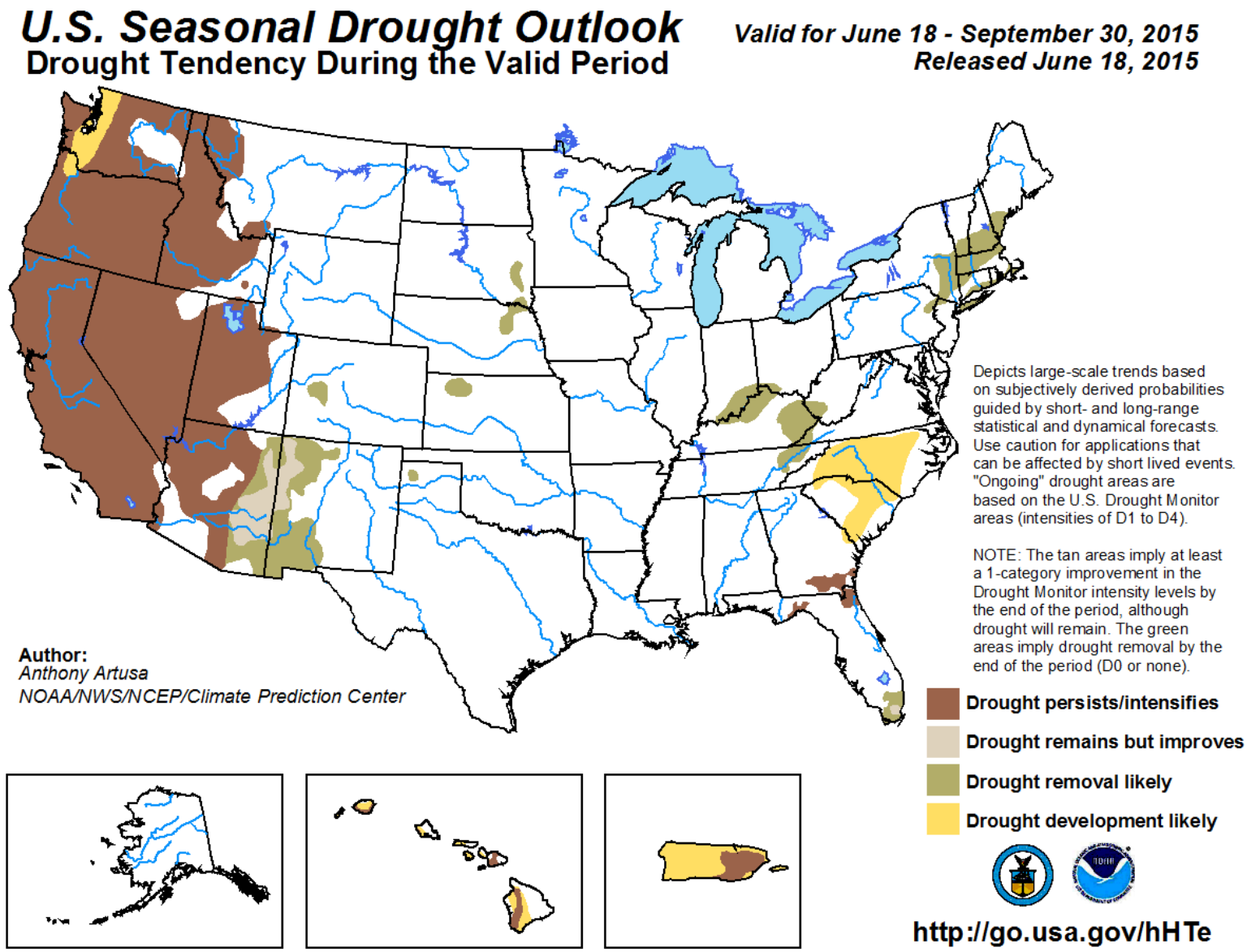
Temperature



Precipitation

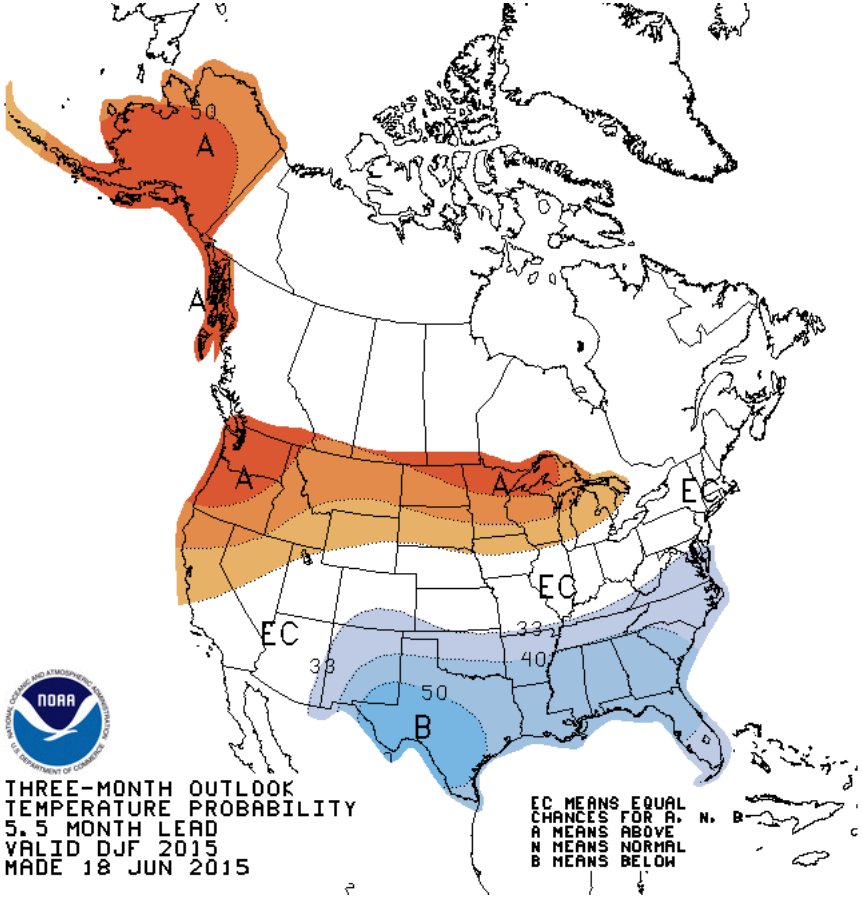
http://www.cpc.ncep.noaa.gov/

Drought Outlook through Sep 30, 2015

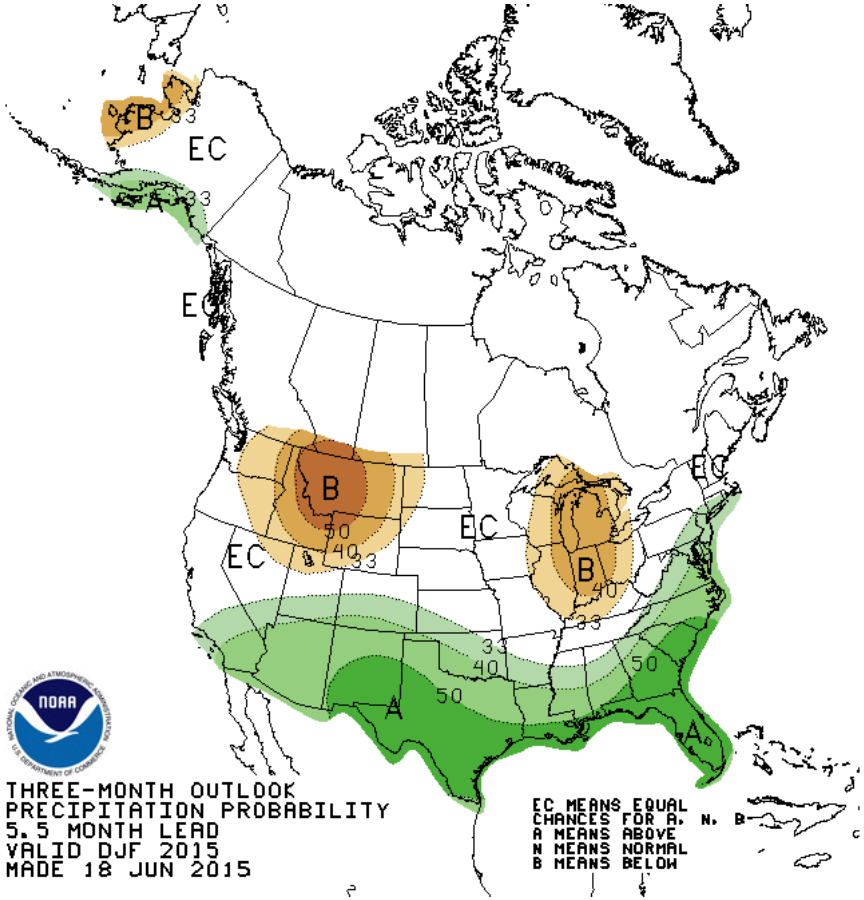


http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.gif/

Dec-Jan-Feb Outlook



Temperature



Precipitation

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

Summary

- **Recent Conditions**
  - Wet conditions continue to cover much of the North Central Region, with the exception of southern IN and northern and eastern KY where dry conditions have emerged. A few small pockets of long-term dryness remain in MN, ND, SD, NE, KS, WY and CO.
  - Drought conditions have improved extensively across Colorado, the northern and central Plains and the upper Midwest.
  - The Upper Missouri River Basin has gone from dry conditions in March and April to very wet in May and June, and even wetter in the Lower Missouri River Basin. This dramatic change translates from a “water conservation” mode ” to “flood control/evacuation” status in a 6-week period.
  - Flood potential has increased with continued June wetness from Wyoming to Indiana. More immediate flood concerns reside over parts of the central Mississippi River Basin and Ohio River Basin where T.S. Bill remnants are forecast to drop 2-6 inches of rain over the region in the next few days.

Summary

- **Outlooks**
  - There is a 90% chance of El Nino continuing through the end of 2015.
  - Small areas of dryness that currently exist in the North Central Region are expected to disappear as summer progresses.
  - For Jul-Aug-Sep, an enhanced likelihood of below normal temperatures are anticipated from Colorado to Illinois and Nebraska to Texas.
  - For Jul-Aug-Sep, an enhanced likelihood of above normal precipitation is anticipated from eastern Nevada to western Illinois and from South Dakota to north Texas.
  - Even though summer El Nino teleconnections are weak for the U.S., some researchers have found a higher likelihood of flooding exists for Colorado as well as increased odds for above normal precipitation in Wyoming and Montana.
  - The May-Jun period in the Central Region could very well rank in the Top 5 wettest on record, rivaling 1993, 1995 and 2010. It's notable the summers of 1993, 1995 and 2010 were uncomfortable summers with high dew points over much of the Central Region.
  - Late planting concerns associated with enough GDD accumulation for summer. Also, research from a University of Missouri agronomist shows at least a 25% yield reduction in soybeans planted during the 3rd week of June vs. planting during in early May in mid-Missouri.
  - Extended wet, humid cloudy periods leave vegetation ripe for disease and proper nutrient management challenging.
  - Current high water conditions in the major basins will need to be monitored very closely as we summer progresses, in other words…the stage is set.

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 Centers for Environmental Information: https://www.ncdc.noaa.gov/news/national-centers-environmental-information
- Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov
- Current Weather Forecasts: www.weather.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:**
  - Pat Guinan: GuinanP@missouri.edu, 573-882-5908
  - 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