

Great Plains and Corn Belt Climate Outlook 15 August 2013

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Winter wheat field Sheridan Lake, CO - Photo: Coloradoan.com

General Information

- * **Providing climate services to the Great Plains and Corn Belt**

- * Collaboration Activity Among:

- * 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**

- * Sept. 19, 2013 (1 PM CDT)

- * Jim Angel Illinois State Climatologist
 - * Brad Rippey USDA

- * **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>

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

Agenda

- * **Historical context**
- * **Current conditions**
- * **Impacts**
- * **Outlooks**



Roaring River State Park - MO



IMPASSABLE
DURING
HIGH WATER

40

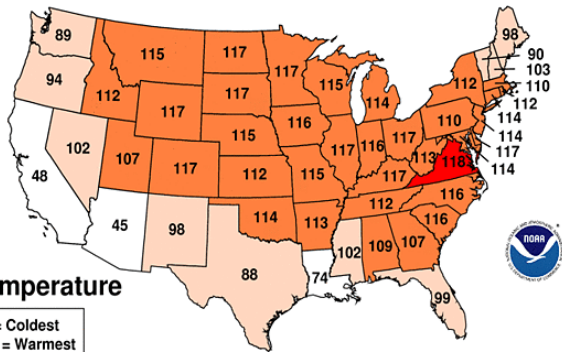
40

July Temperature Recap

The pattern shows a clear ridge – trough pattern across the country.

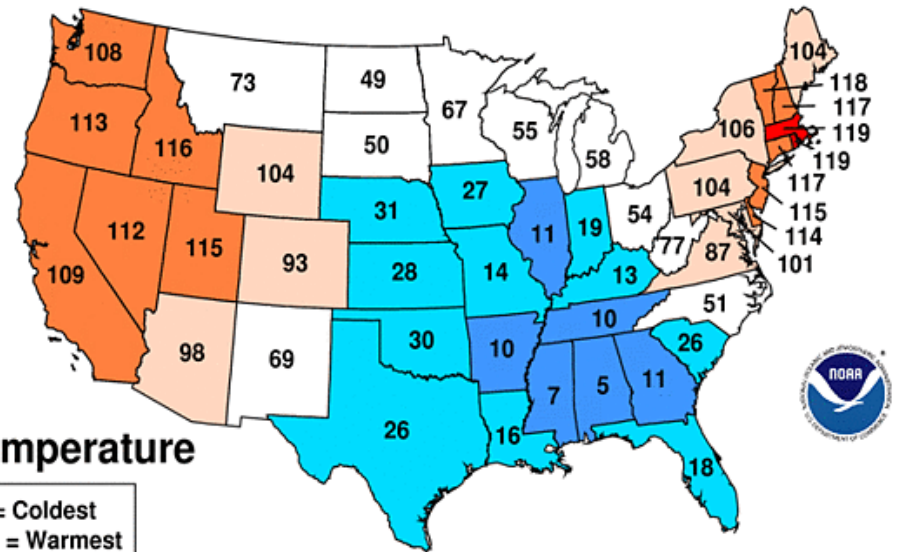
July 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



July 2013 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

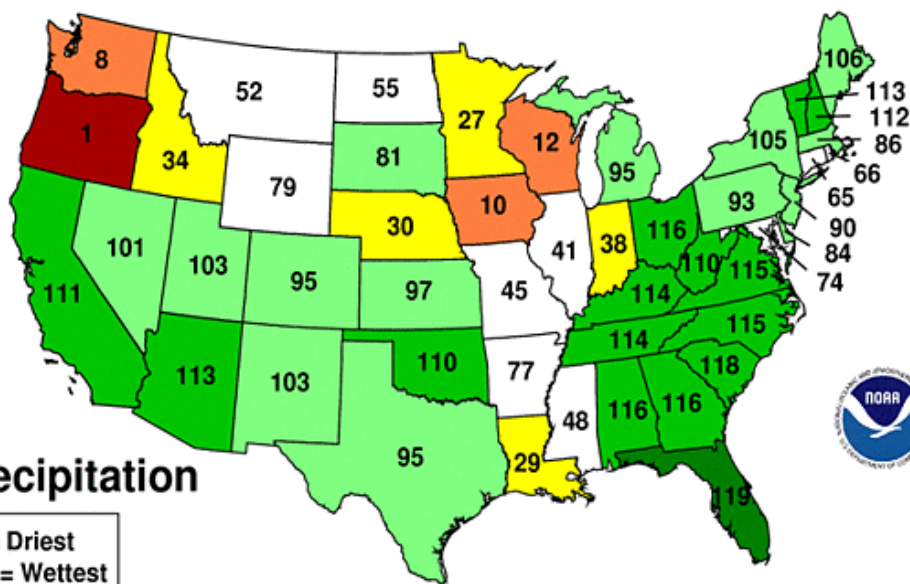


July Precipitation Recap

Contrasting
wet and dry
issues – temps.

July 2013 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



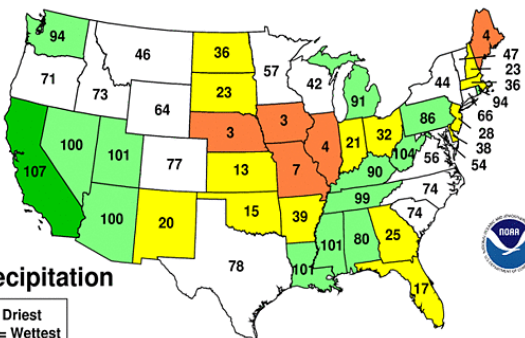
Precipitation

1 = Driest
119 = Wettest



July 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



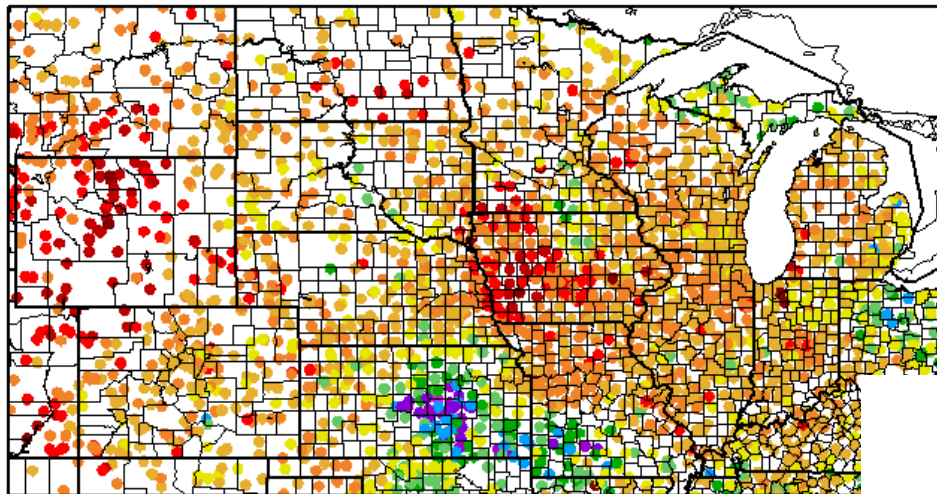
Precipitation

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118 = Wettest

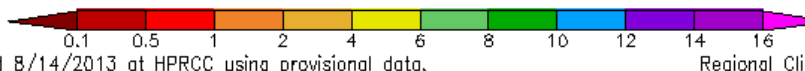
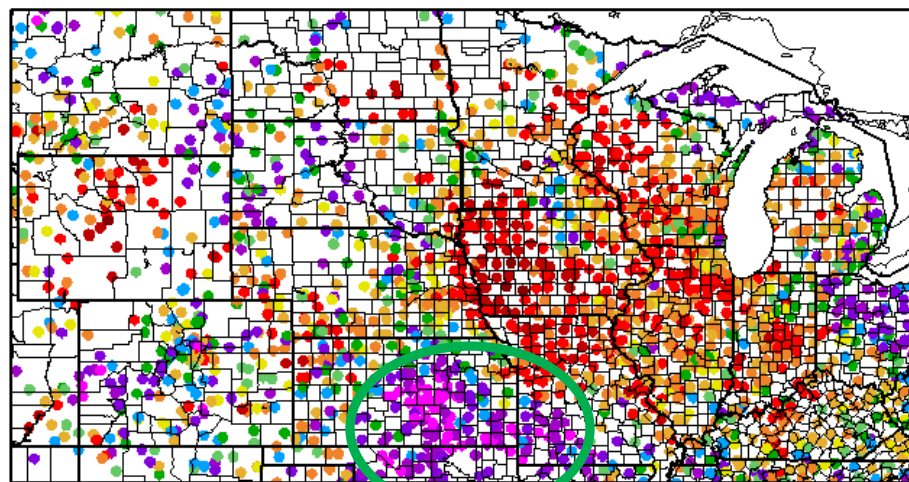


Most recent 30-day precipitation

Precipitation (in)
7/15/2013 – 8/13/2013



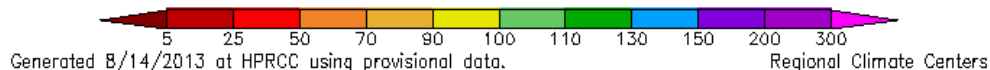
Percent of Normal Precipitation (%)
7/15/2013 – 8/13/2013



Very wet KS-MO
Stark contrast in the state

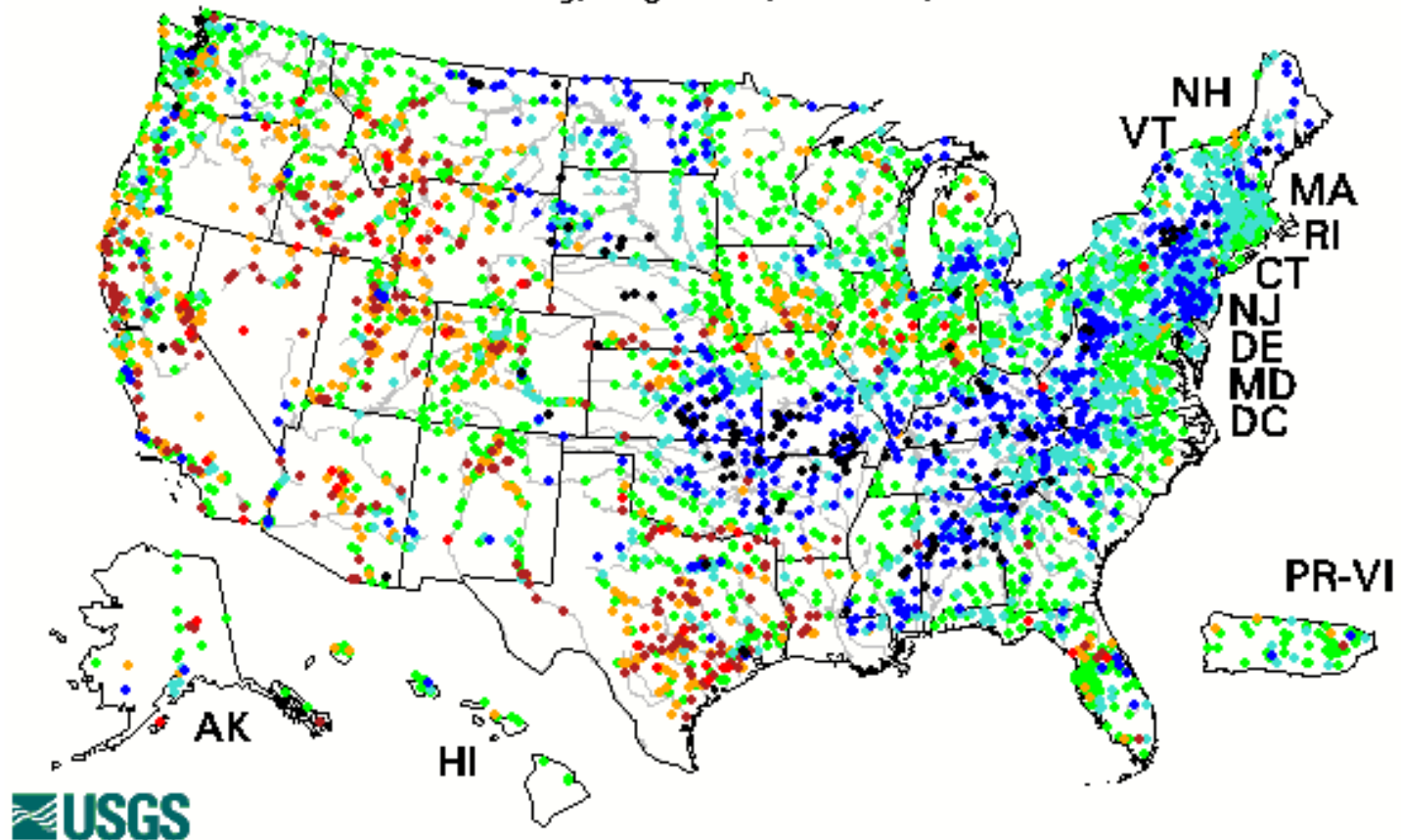
<http://www.hprcc.unl.edu/maps/current/>

HPRCC – Regional Climate Centers



7-Day Average Streamflow

Wednesday, August 14, 2013 21:30ET

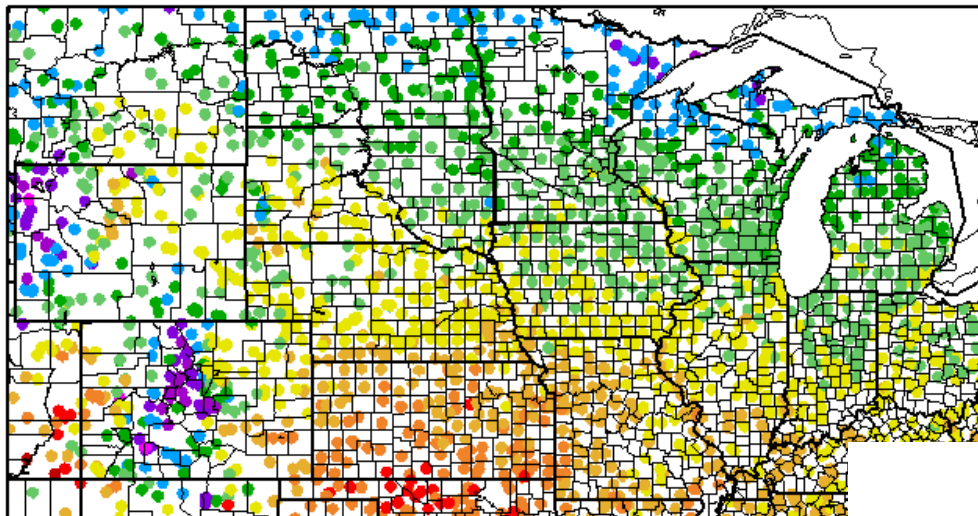


Explanation - Percentile classes						
	●	●	●	●	●	●
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

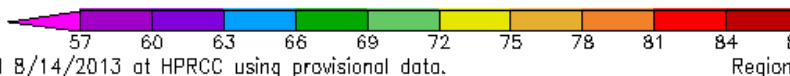
http://waterwatch.usgs.gov/?id=ww_current

Temperature (F)
7/15/2013 - 8/13/2013

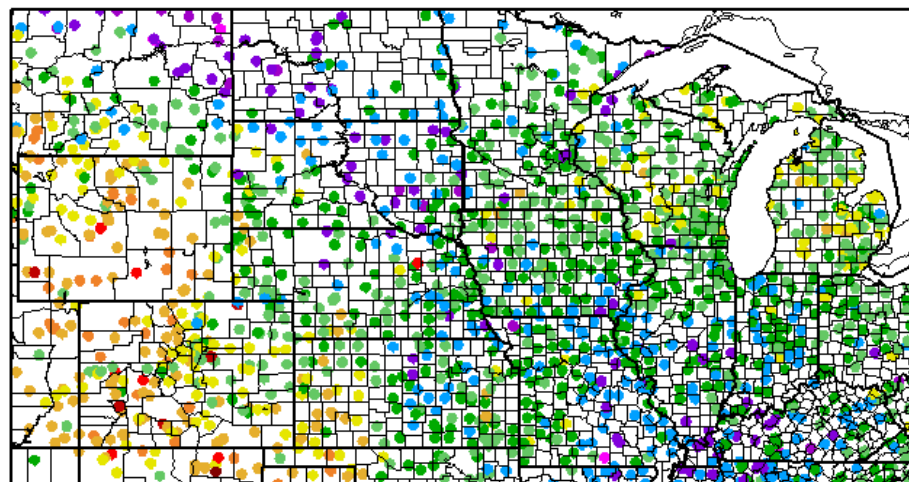
Most recent 30-day temperatures



Departure from Normal Temperature (F)
7/15/2013 - 8/13/2013

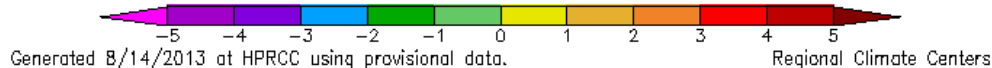


Generally cooler than average in the plains and corn belt



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

HPRCC - Regional Climate Centers



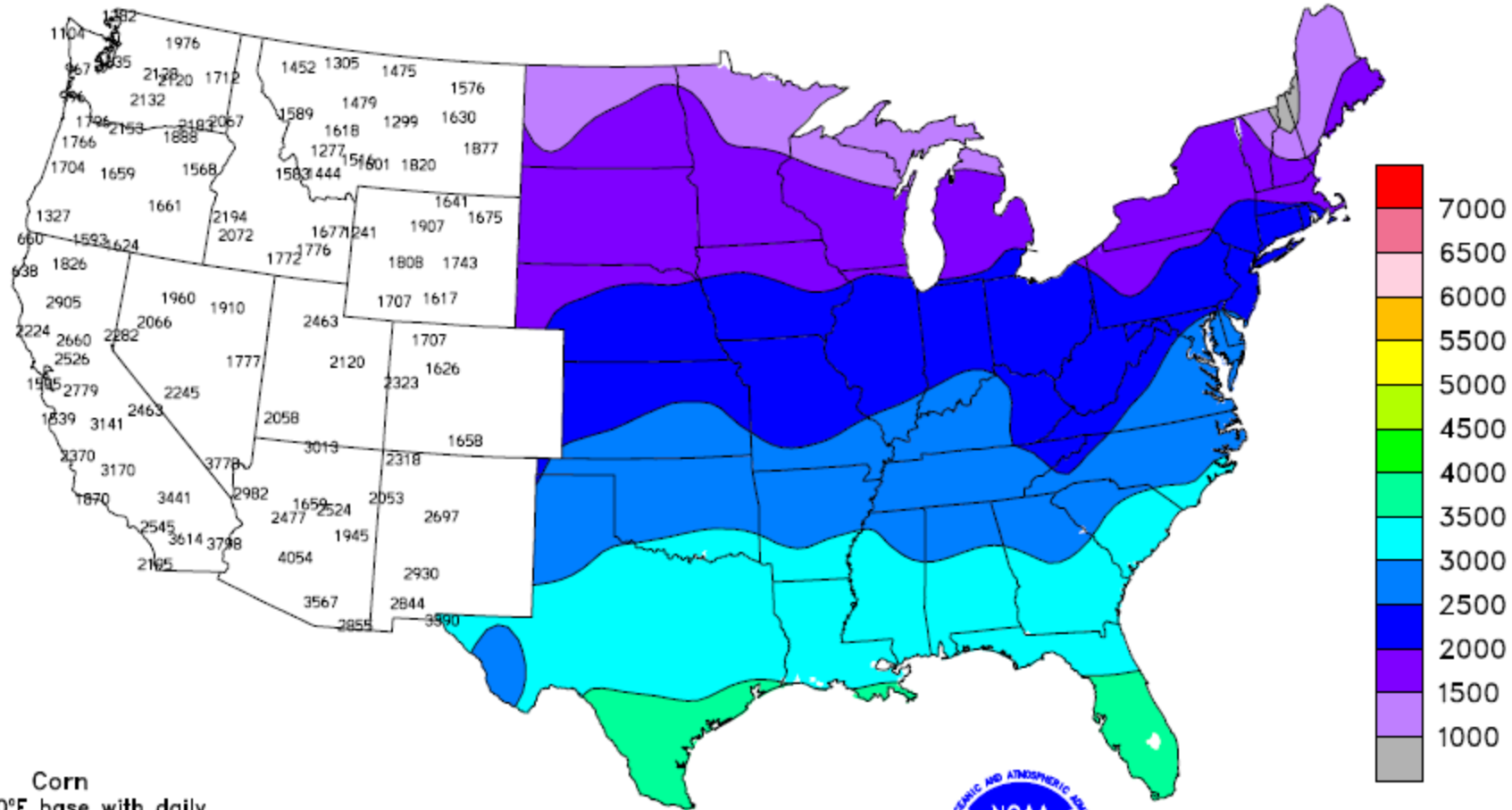
Precipitation-Temperature issues

- * Cooler temperatures
 - * Good for corn tasseling – reduced stress
 - * Reduced crop water use
 - * Balanced dry areas – reduced stress
- * GDD accumulation
 - * Crops delayed in development
 - * After late planting – problematic
- * Some reduced disease issues

GDDs are an index using temperature data to calculate an amount of heat accumulated by a crop.

Essentially daily average
 $T - 50 \text{ F.}$

Total Growing Degree Days APR 1 - AUG 10, 2013

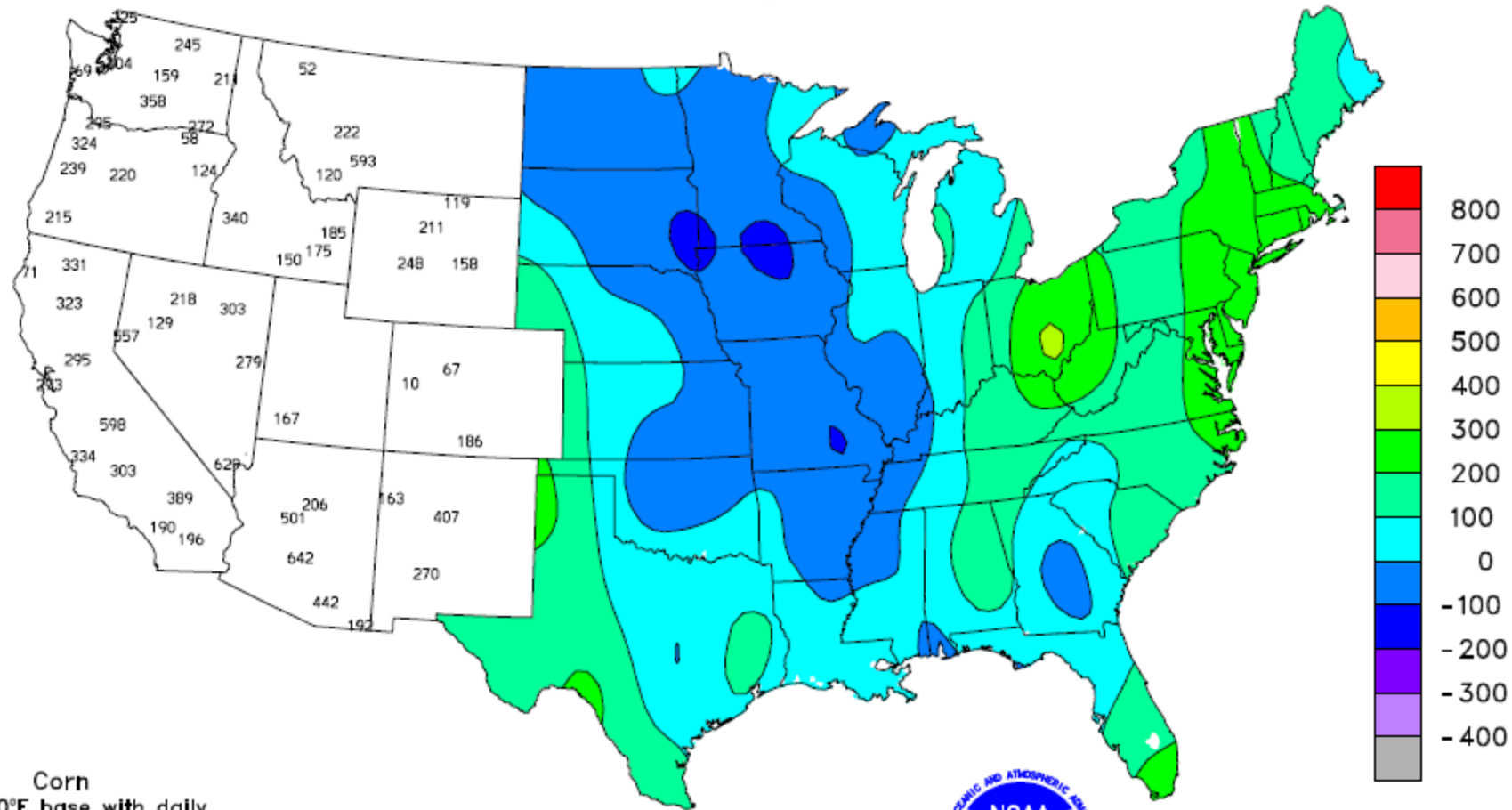


Corn

Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.



Departure From Normal Growing Degree Days APR 1 - AUG 10, 2013



Corn

Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.



GDD Accumulation Issues

- * GDD accumulation indicates slowed growth
- * Varies from 1-2 weeks behind development (May 1)
- * Later planted crops have larger issues
- * Areas from northern states-IA-MO most concern

Corn Crop Progress

Corn Percent Silking				
	Prev Year	Prev Week	Aug 11 2013	5-Yr Avg
CO	95	77	91	94
IL	100	95	98	98
IN	100	93	97	96
IA	100	72	85	95
KS	100	87	97	98
KY	99	84	92	96
MI	100	89	95	93
MN	100	84	96	98
MO	100	89	95	97
NE	100	93	99	99
NC	100	100	100	100
ND	100	81	92	89
OH	100	93	98	96
PA	97	92	97	92
SD	100	87	96	84
TN	100	96	100	100
TX	98	94	95	98
WI	96	67	78	90
18 Sts	100	86	94	95
These 18 States planted 92% of last year's corn acreage.				

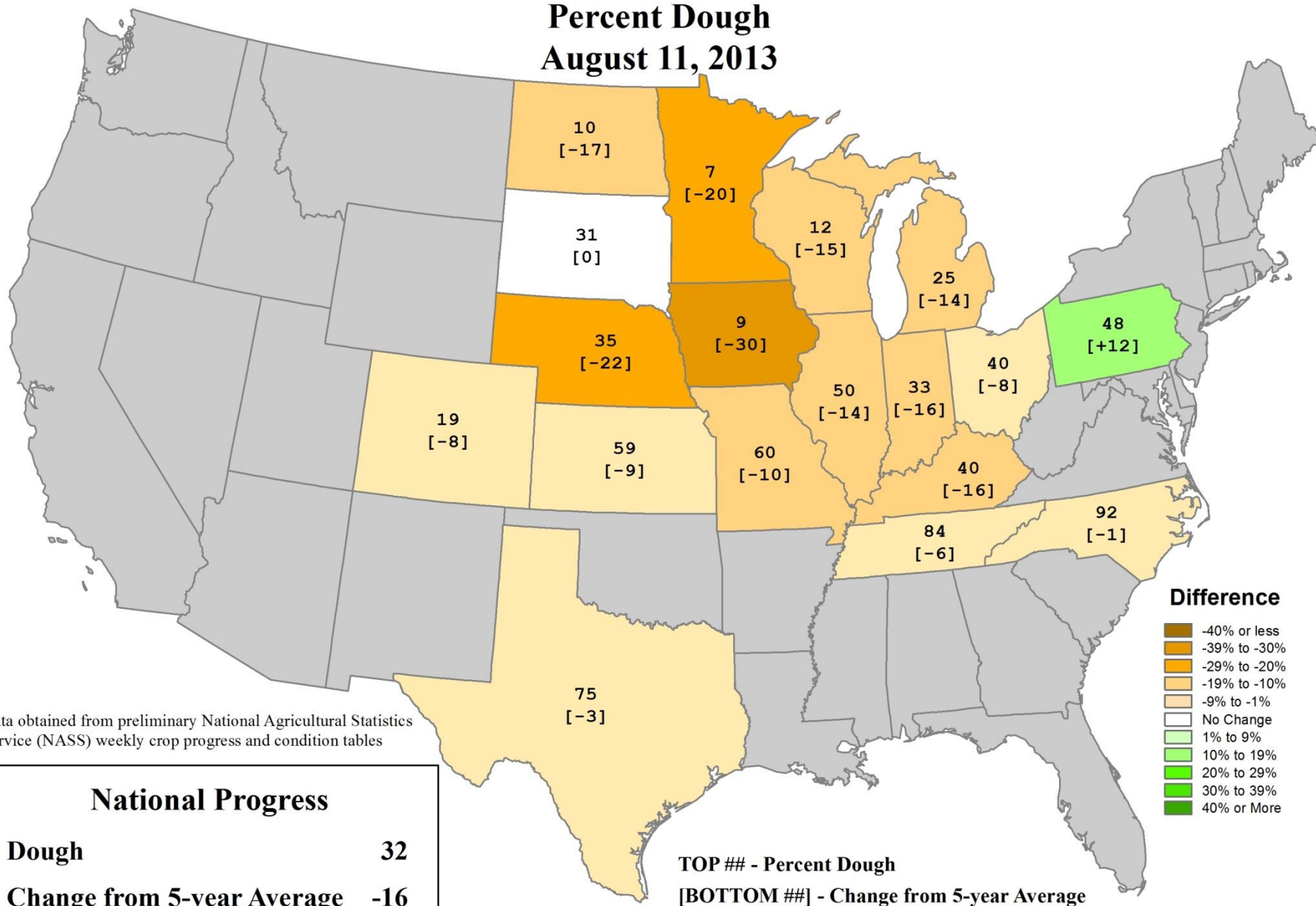
Very delayed
development

Still
15% not tassel – IA
22% not tassel - WI



U.S. Corn Progress

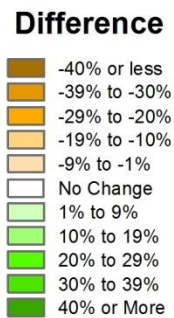
Percent Dough
August 11, 2013



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

National Progress	
Dough	32
Change from 5-year Average	-16

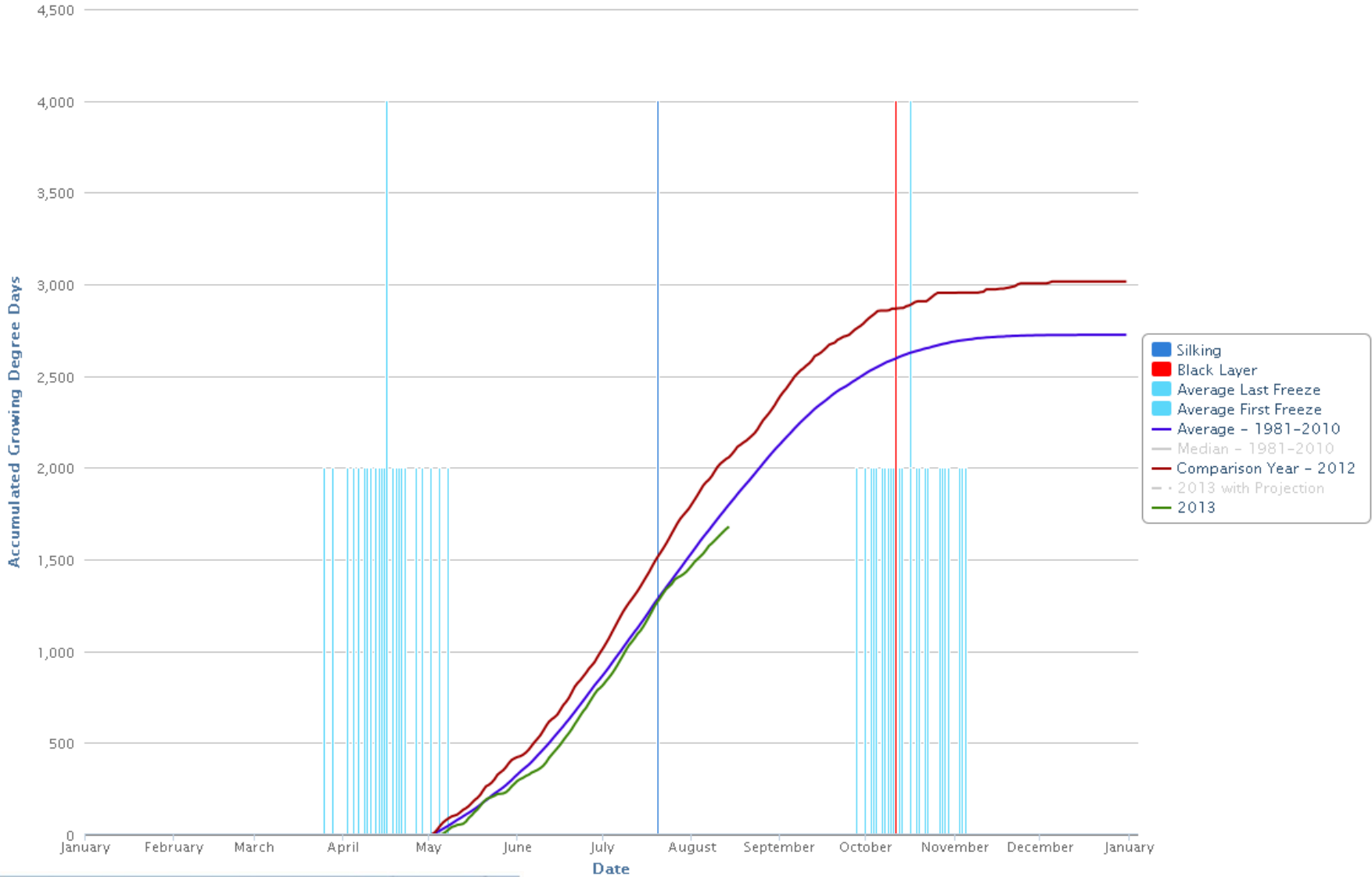
TOP ## - Percent Dough
[BOTTOM ##] - Change from 5-year Average



GDD Start Date: Comparison Year: Crop Maturity Days: Freeze Temperature: Percentile Variation:

Growing Degree Day Tool

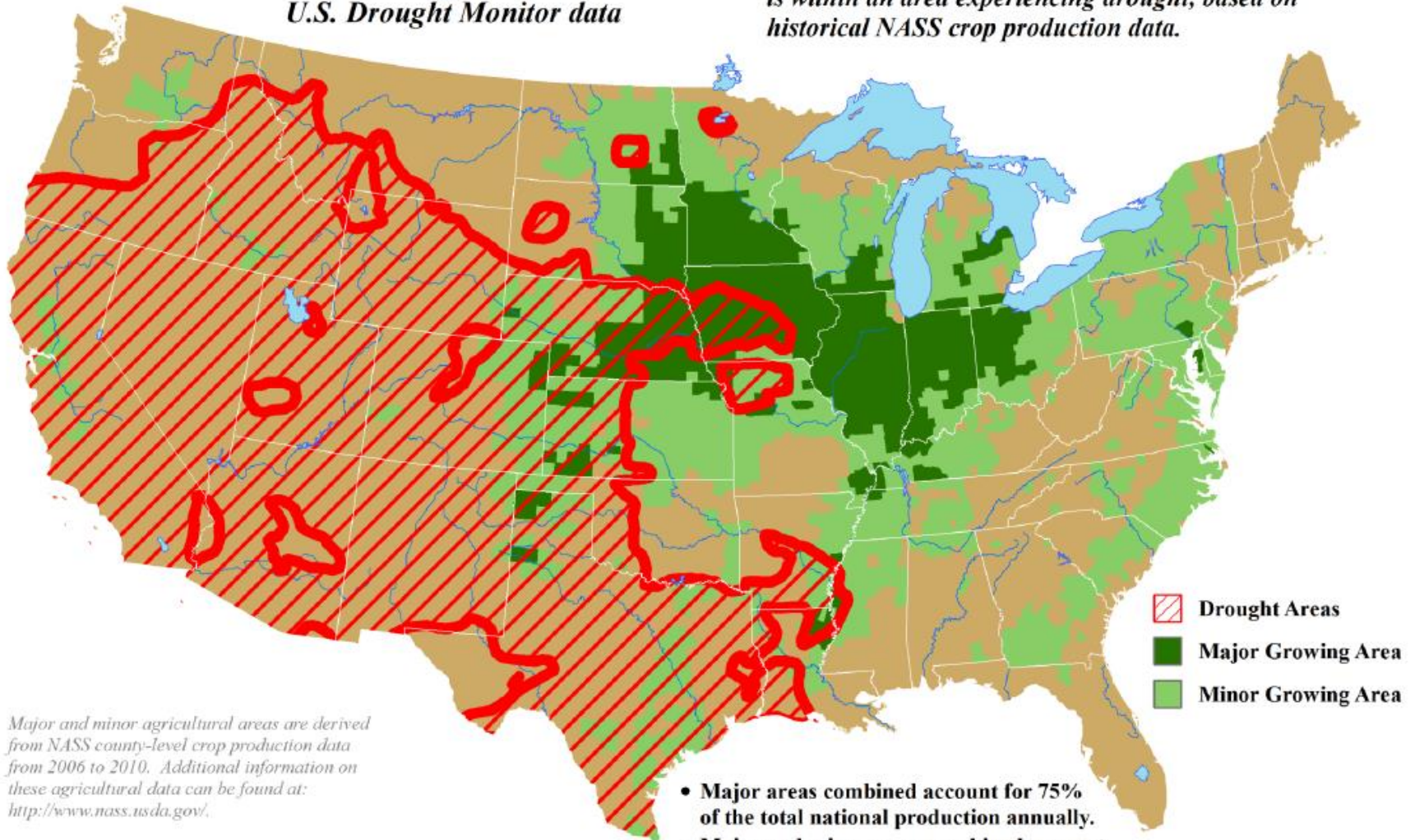
For Location: 43.12, -93.35 in Cerro Gordo County, IA, With Starting Date: May 1, Maturity Days: 103, Freeze Temperature: 28, Percentile Variation: 0%-100%



U.S. Corn Areas Experiencing Drought

Reflects August 13, 2013
U.S. Drought Monitor data

Approximately 24% of the corn grown in the U.S.
is within an area experiencing drought, based on
historical NASS crop production data.



Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major areas combined account for 75% of the total national production annually.
- Major and minor areas combined account for 99% of the total national production annually.

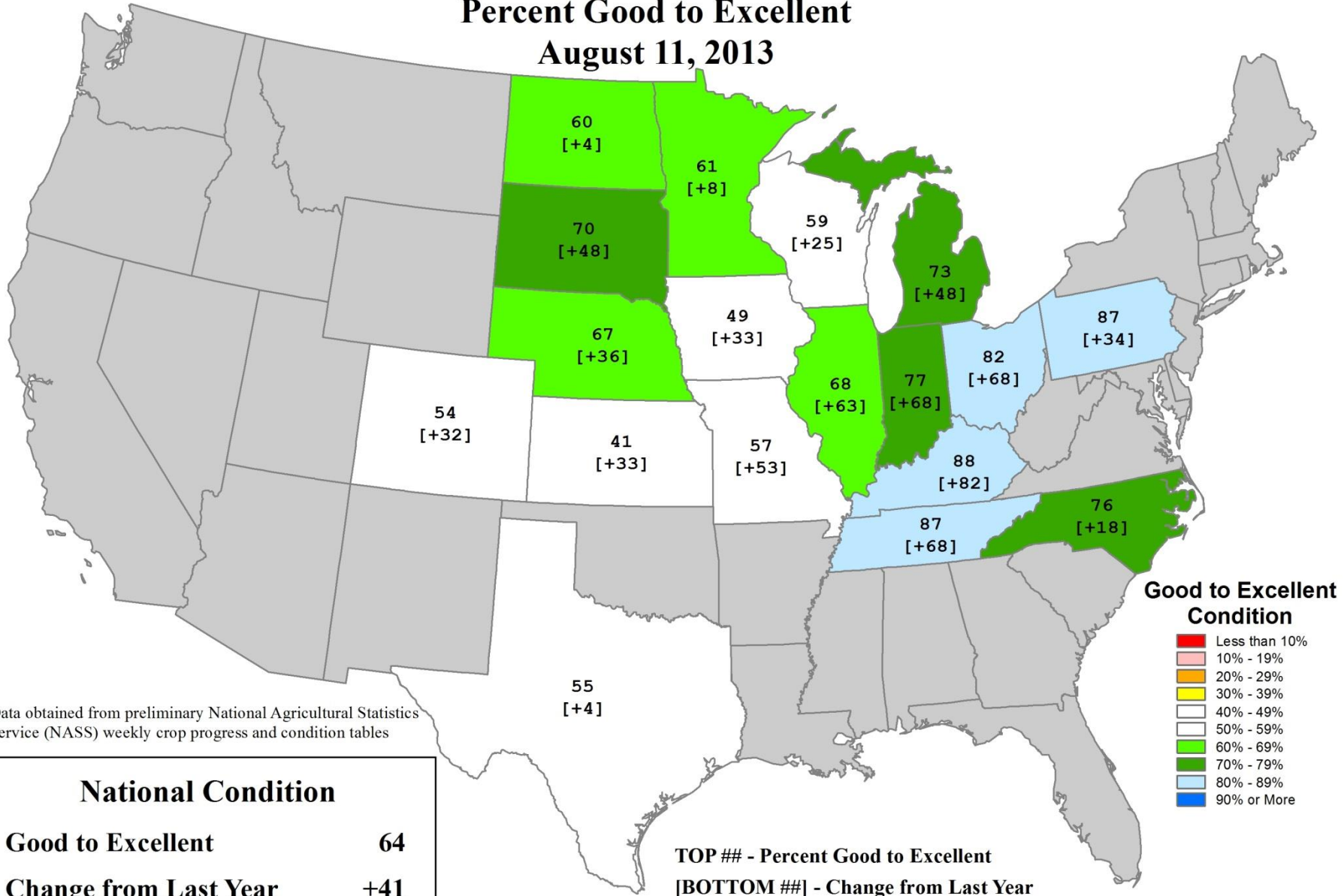
Corn-Soybean Condition

Corn Condition by Percent					
	VP	P	F	G	EX
CO	10	12	24	47	7
IL	2	5	25	48	20
IN	1	4	18	48	29
IA	5	12	34	39	10
KS	10	16	33	35	6
KY	1	2	9	43	45
MI	1	4	22	54	19
MN	3	7	29	49	12
MO	4	11	28	47	10
NE	6	7	20	47	20
NC	1	4	19	54	22
ND	3	9	28	51	9
OH	1	3	14	45	37
PA	1	2	10	41	46
SD	1	4	25	50	20
TN	0	2	11	54	33
TX	1	7	37	39	16
WI	3	10	28	44	15
18 Sts	3	8	25	46	18
Prev Wk	3	8	25	46	18
Prev Yr	26	25	26	20	3

Soybean Condition by Percent					
	VP	P	F	G	EX
AR	4	12	30	37	17
IL	2	5	23	54	16
IN	1	4	19	51	25
IA	4	11	37	39	9
KS	2	7	29	54	8
KY	0	2	11	56	31
LA	0	5	29	50	16
MI	1	6	21	60	12
MN	2	6	29	53	10
MS	1	7	25	54	13
MO	4	10	32	46	8
NE	2	5	22	56	15
NC	2	8	39	46	5
ND	2	9	31	51	7
OH	1	6	20	51	22
SD	1	4	26	55	14
TN	0	5	12	56	27
WI	2	8	30	44	16
18 Sts	2	7	27	50	14
Prev Wk	2	7	27	51	13
Prev Yr	16	22	32	26	4

U.S. Corn Conditions

Percent Good to Excellent
August 11, 2013



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

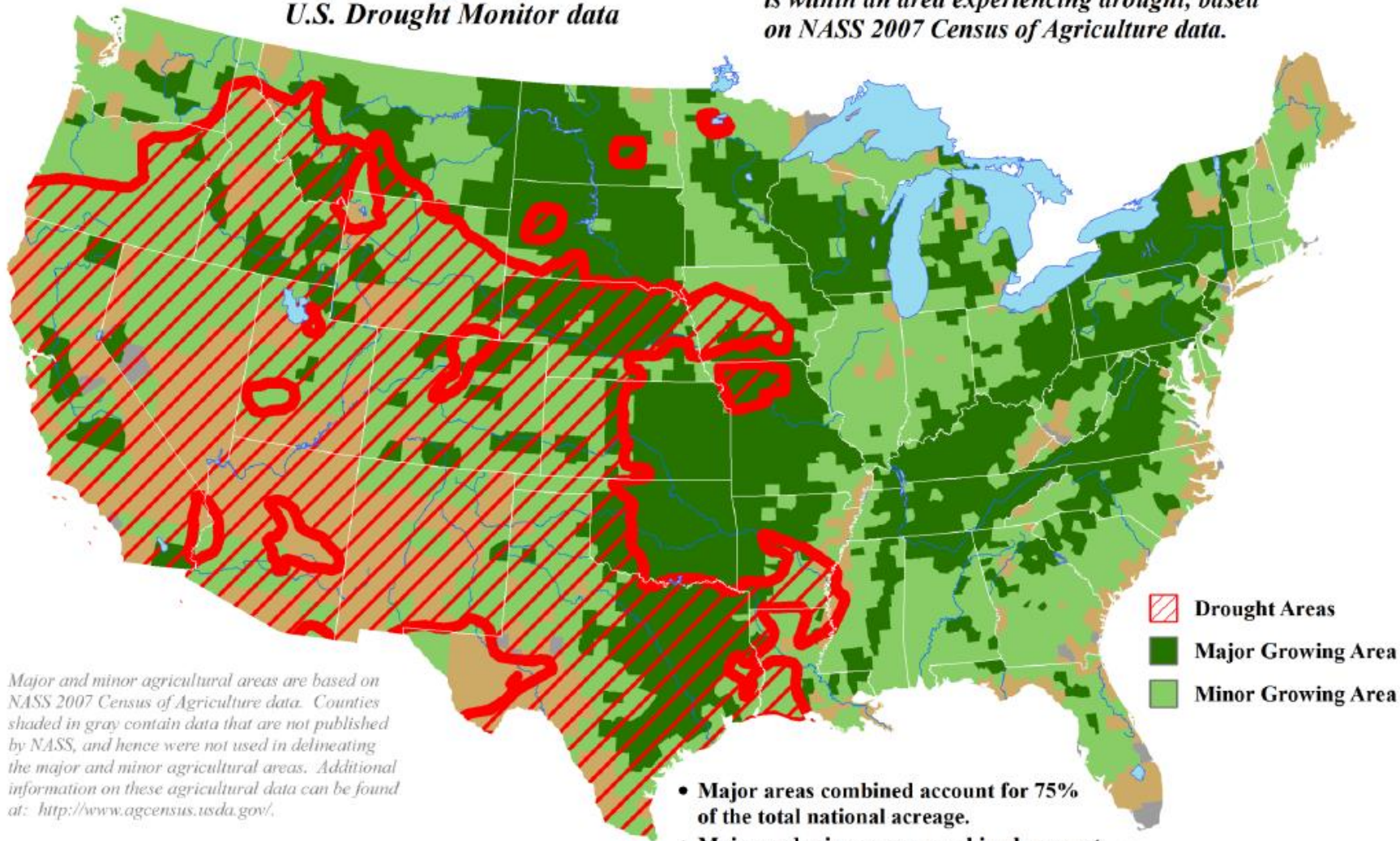
National Condition	
Good to Excellent	64
Change from Last Year	+41

TOP ## - Percent Good to Excellent
[BOTTOM ##] - Change from Last Year

U.S. Hay Areas Experiencing Drought

Reflects August 13, 2013
U.S. Drought Monitor data

Approximately 33% of the domestic hay acreage is within an area experiencing drought, based on NASS 2007 Census of Agriculture data.



Major and minor agricultural areas are based on NASS 2007 Census of Agriculture data. Counties shaded in gray contain data that are not published by NASS, and hence were not used in delineating the major and minor agricultural areas. Additional information on these agricultural data can be found at: <http://www.agcensus.usda.gov/>.

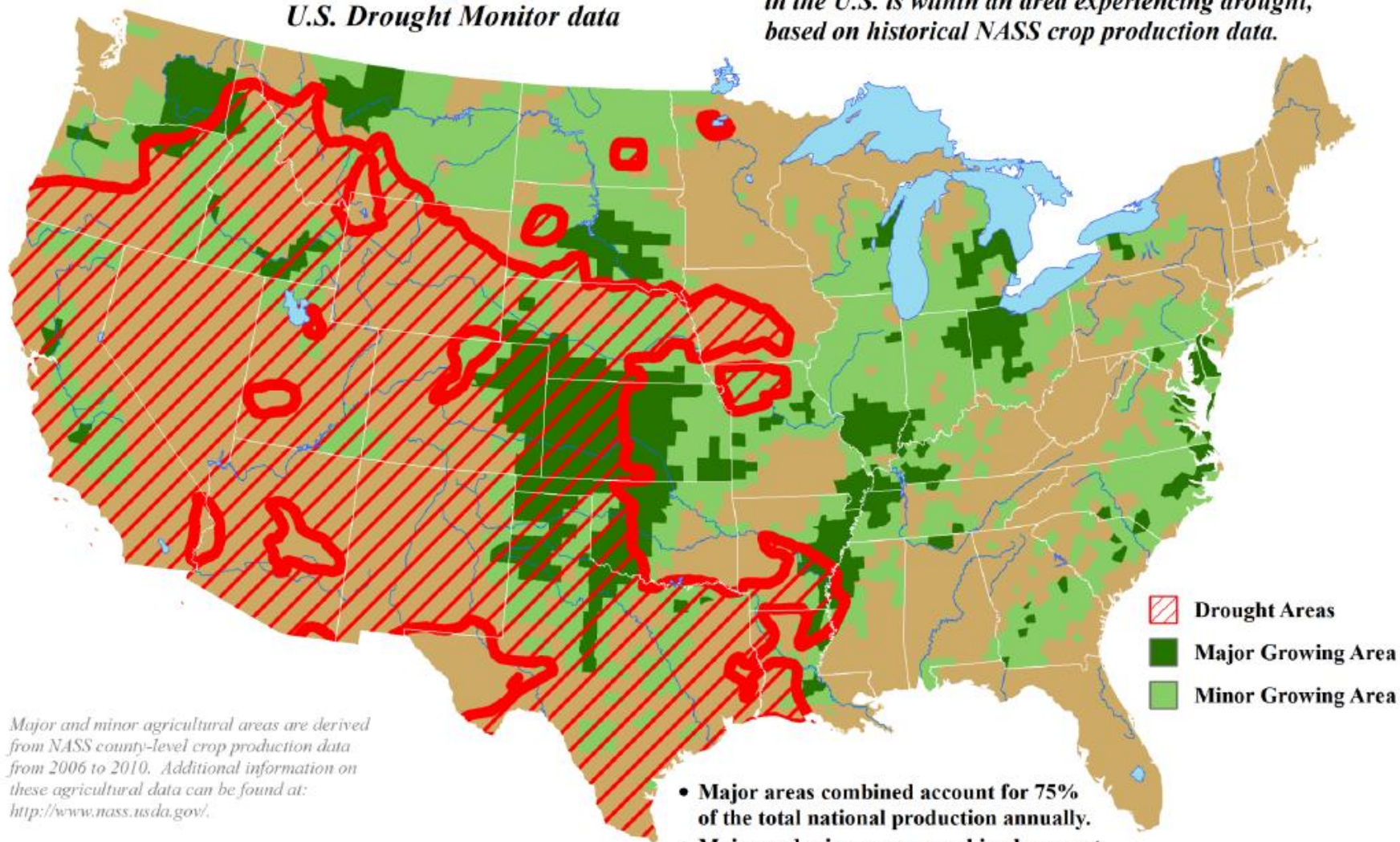
Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major areas combined account for 75% of the total national acreage.
- Major and minor areas combined account for 99% of the total national acreage.

U.S. Winter Wheat Areas Experiencing Drought

Reflects August 13, 2013
U.S. Drought Monitor data

Approximately 41% of the winter wheat grown
in the U.S. is within an area experiencing drought,
based on historical NASS crop production data.



Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major areas combined account for 75% of the total national production annually.
- Major and minor areas combined account for 99% of the total national production annually.

Pasture and Range Condition by Percent
Week Ending Aug 11, 2013

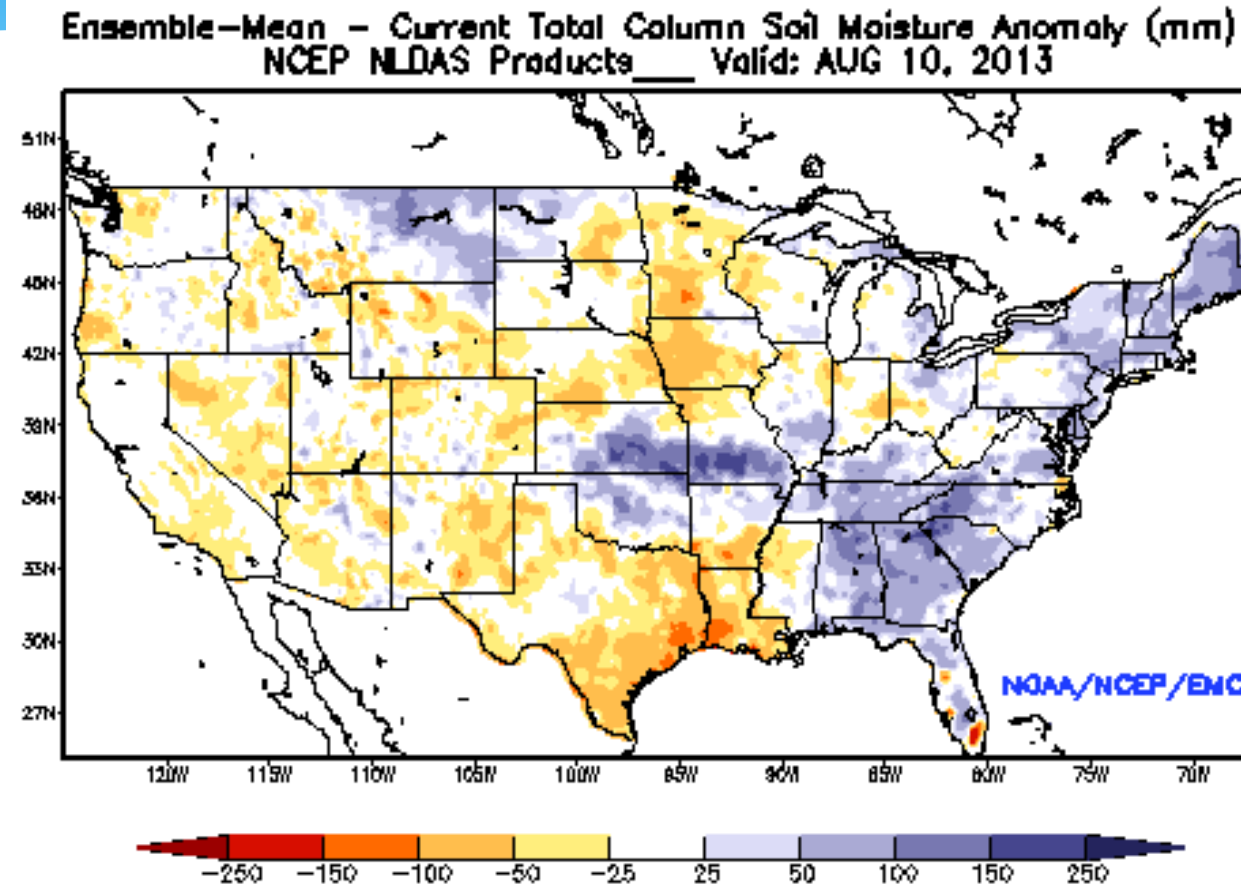
	VP	P	F	G	EX		VP	P	F	G	EX	
AL	0	2	12	61	25		NH	2	2	15	72	9
AZ	45	13	21	20	1		NJ	0	2	8	63	27
AR	0	3	25	56	16		NM	37	30	28	5	0
CA	55	40	5	0	0		NY	0	8	28	57	7
CO	26	26	35	13	0		NC	0	3	22	66	9
CT	0	0	14	84	2		ND	1	4	20	57	18
DE	2	7	40	47	4		OH	1	5	21	53	20
FL	0	5	10	65	20		OK	7	8	29	48	8
GA	0	2	24	50	24		OR	14	34	30	20	2
ID	10	34	27	29	0		PA	0	7	38	44	11
IL	1	9	31	47	12		RI	0	0	50	50	0
IN	2	6	24	54	14		SC	0	0	10	74	16
IA	8	20	41	27	4		SD	0	6	29	54	11
KS	19	20	27	30	4		TN	0	3	14	63	20
KY	0	3	15	56	26		TX	18	30	37	14	1
LA	1	11	46	40	2		UT	8	22	26	35	9
ME	0	2	4	47	47		VT	0	10	20	53	17
MD	1	2	9	66	22		VA	0	3	15	60	22
MA	0	0	44	55	1		WA	14	20	34	30	2
MI	4	12	24	48	12		WV	0	0	18	74	8
MN	4	9	28	52	7		WI	7	16	31	39	7
MS	0	2	29	57	12		WY	18	26	31	21	4
MO	2	7	31	48	12		48 Sts	12	16	27	37	8
MT	3	11	29	46	11							
NE	16	17	35	31	1		Prev Wk	11	15	29	37	8
NV	44	25	22	9	0		Prev Yr	32	27	24	15	2



Impacts

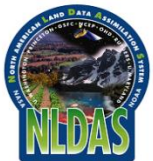
- * Wheat – poor yields/seed issues in Colorado
- * Corn – Much of current dry area was very wet in spring. Delayed development more an issue
- * Beans – Cooler-wetter more of a problem
- * Rangeland – improving – still poor in the plains

Soil Moisture Anomaly



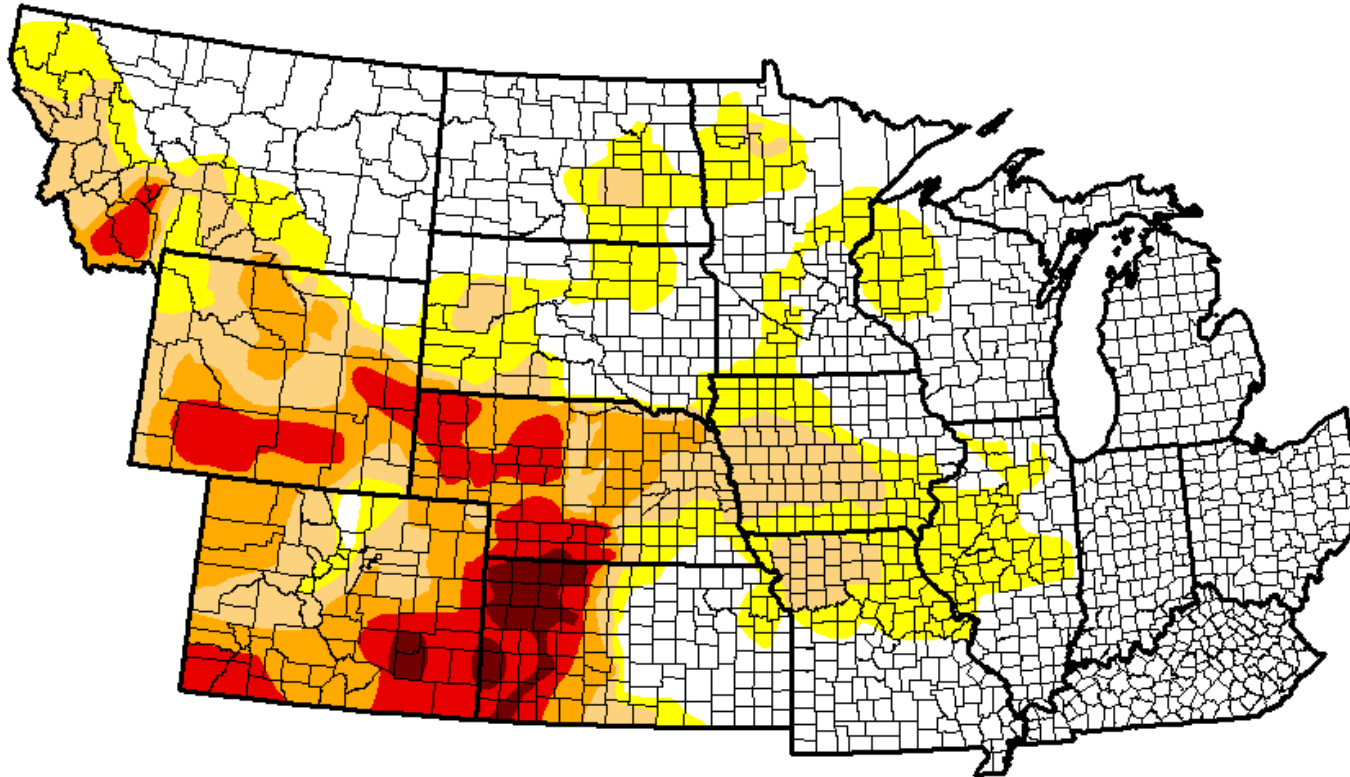
Soil Moisture Anomaly in millimeters

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




U.S. Drought Monitor NWS Central Region

August 13, 2013
(Released Thursday, Aug. 15, 2013)
Valid 7 a.m. EST



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:

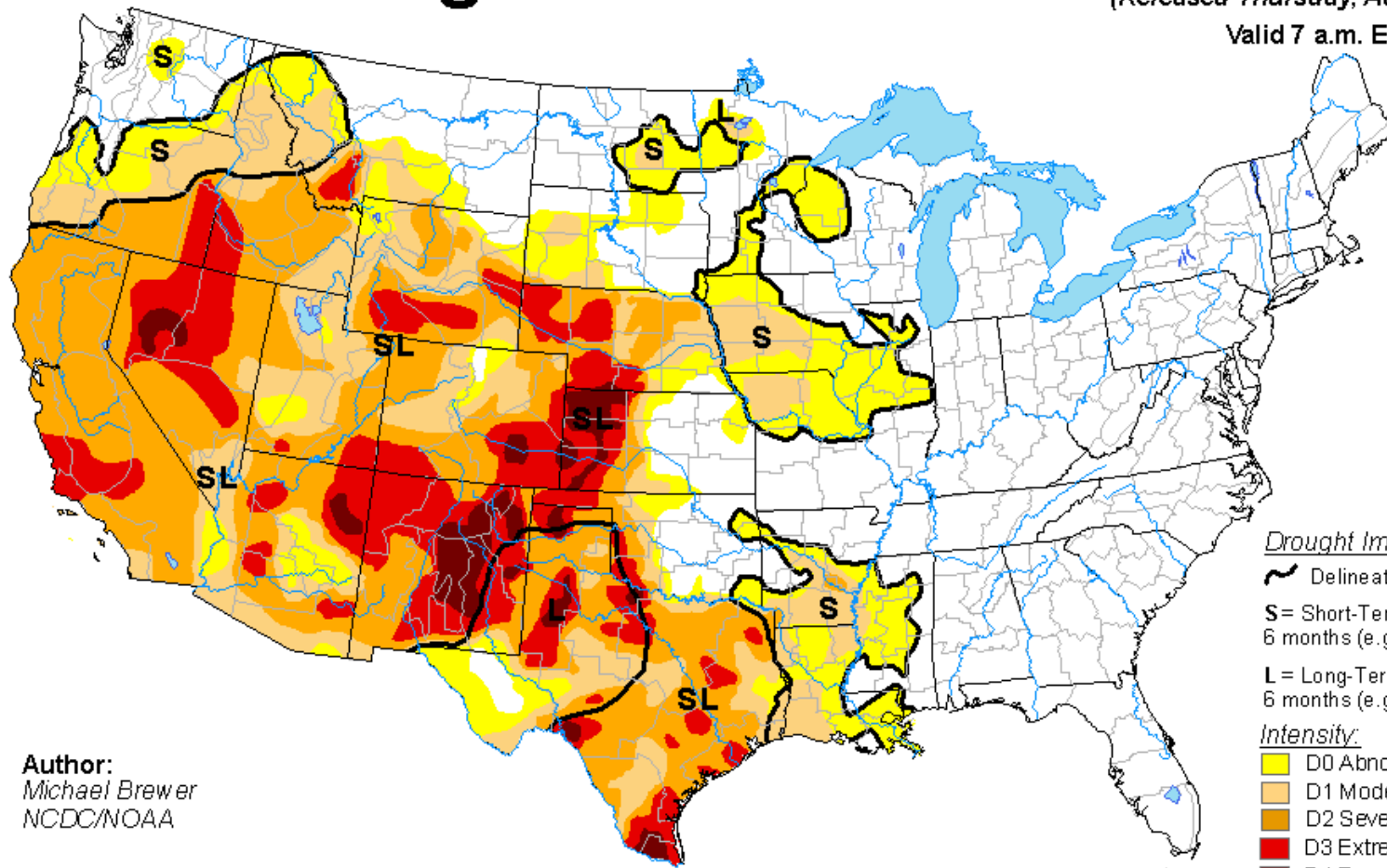
Michael Brewer
NCDC/NOAA



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

U.S. Drought Monitor

August 13, 2013
 (Released Thursday, Aug. 15, 2013)
 Valid 7 a.m. EST



Author:
 Michael Brewer
 NCDC/NOAA

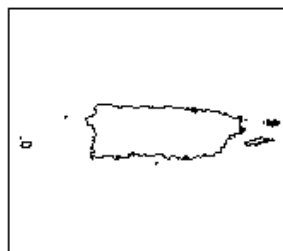
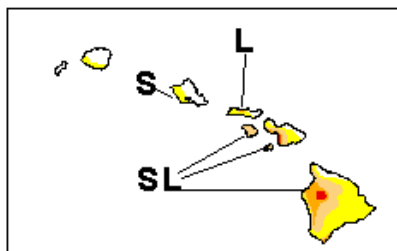
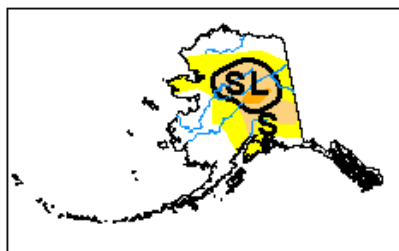
Drought Impact Types:

- ~ 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.



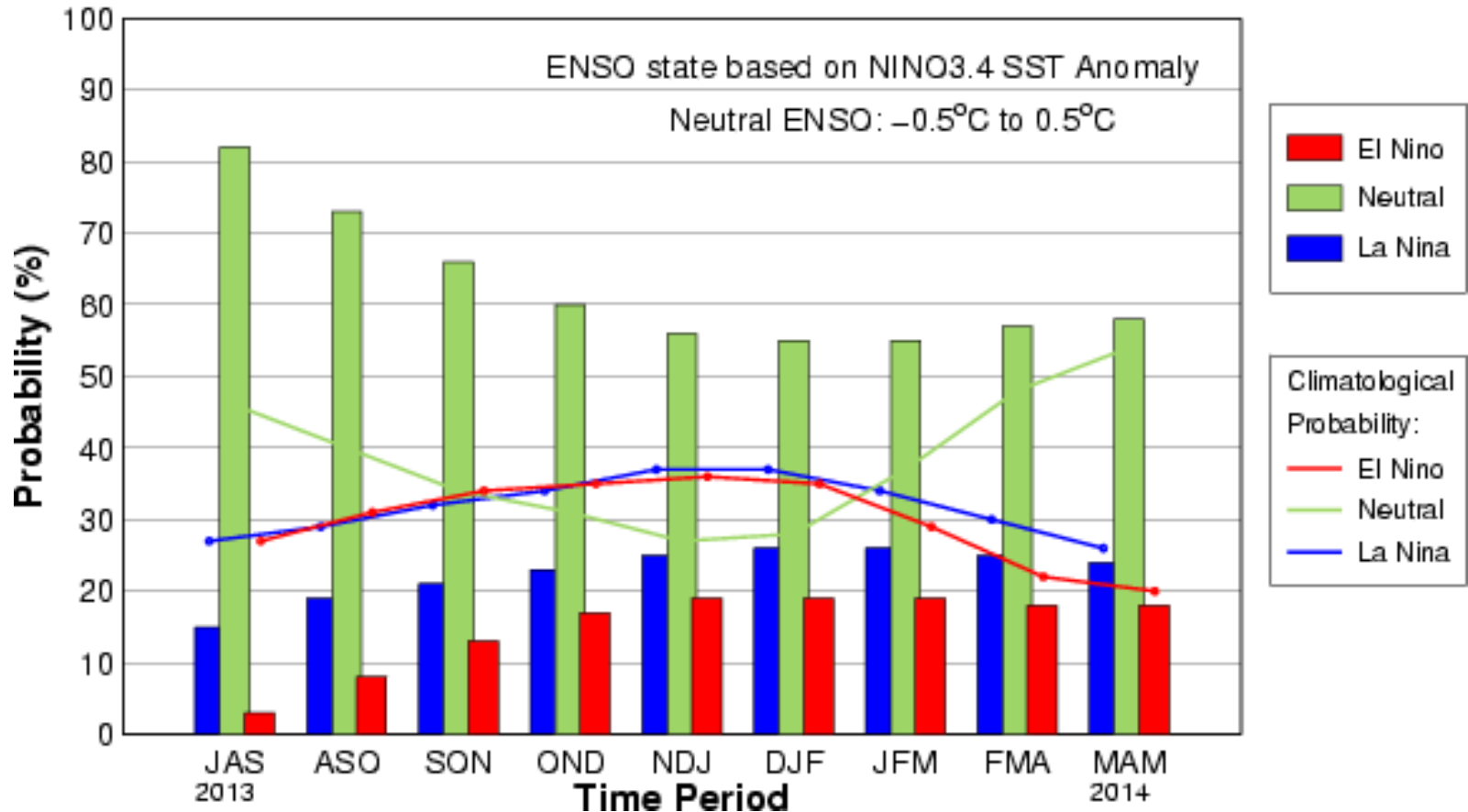
<http://droughtmonitor.unl.edu/>

Climate Outlooks

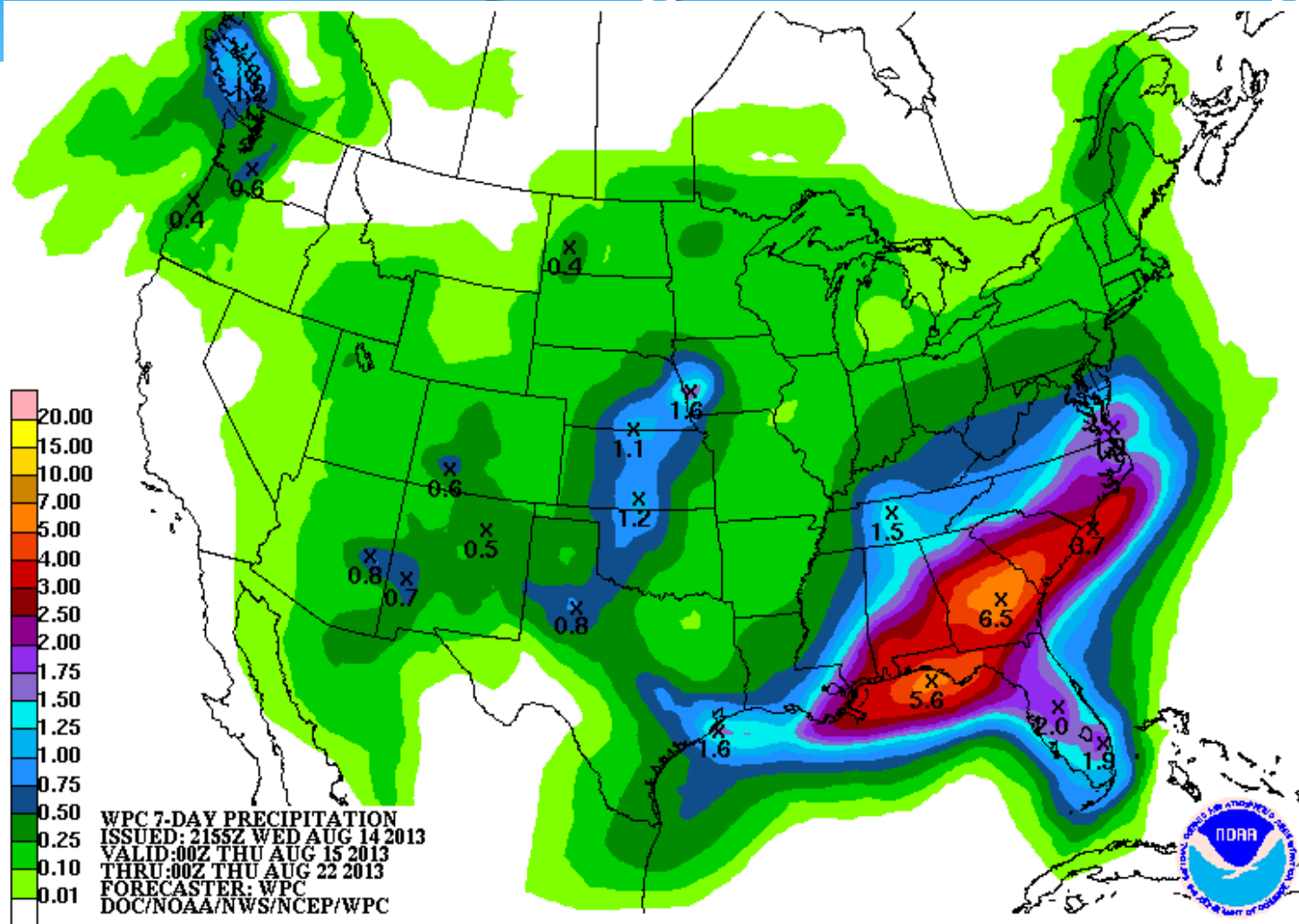
- * **7-day precipitation forecast**
- * **8-14 day outlook**
- * **September**
- * **3 Months (September - November)**
- * **Seasonal Drought Outlooks**

El Nino/La Nina Forecast

Early-Aug CPC/IRI Consensus Probabilistic ENSO Forecast

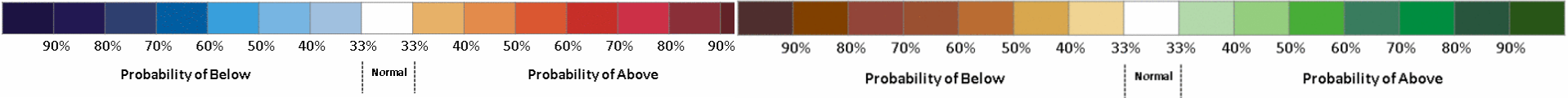
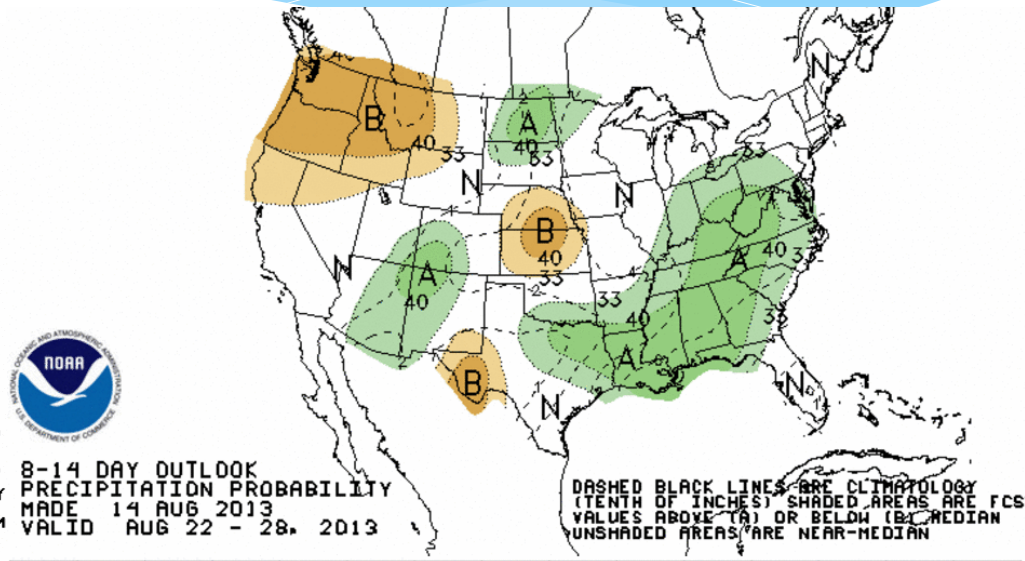
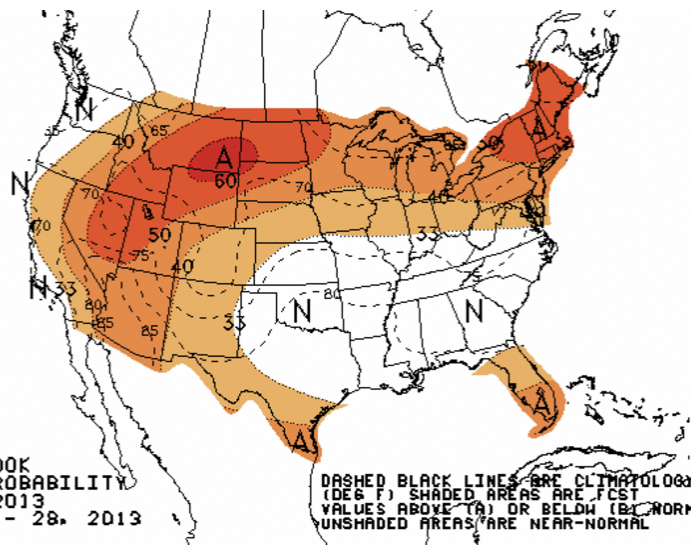


7-day Quantitative Precipitation Forecast Valid: 00z Thu 15 Aug – 00z Thu 22 Aug



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

Temperature and Precipitation Probabilities for 22 Aug. – 28 Aug.

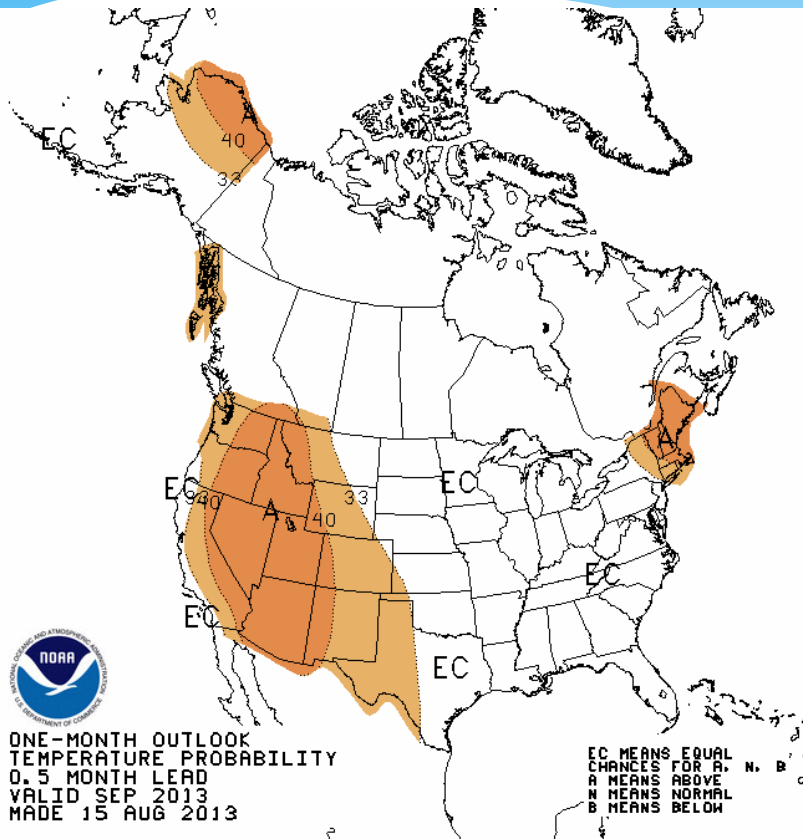


Temperature

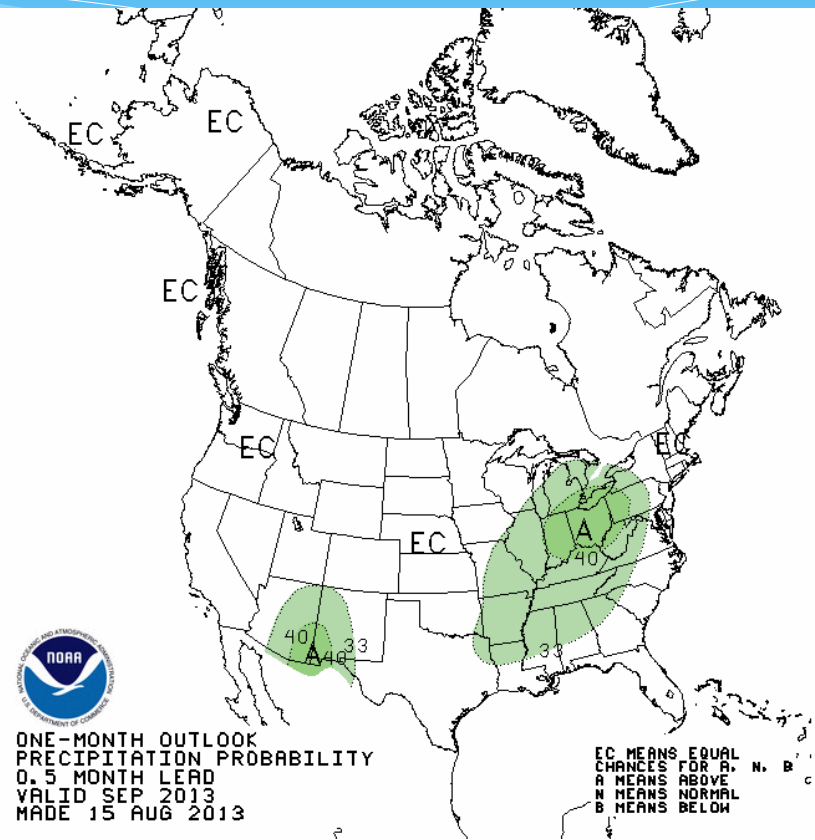
Precipitation

<http://www.cpc.ncep.noaa.gov/products/predictions/814day/index.php>

September Temperature and Precipitation Probabilities



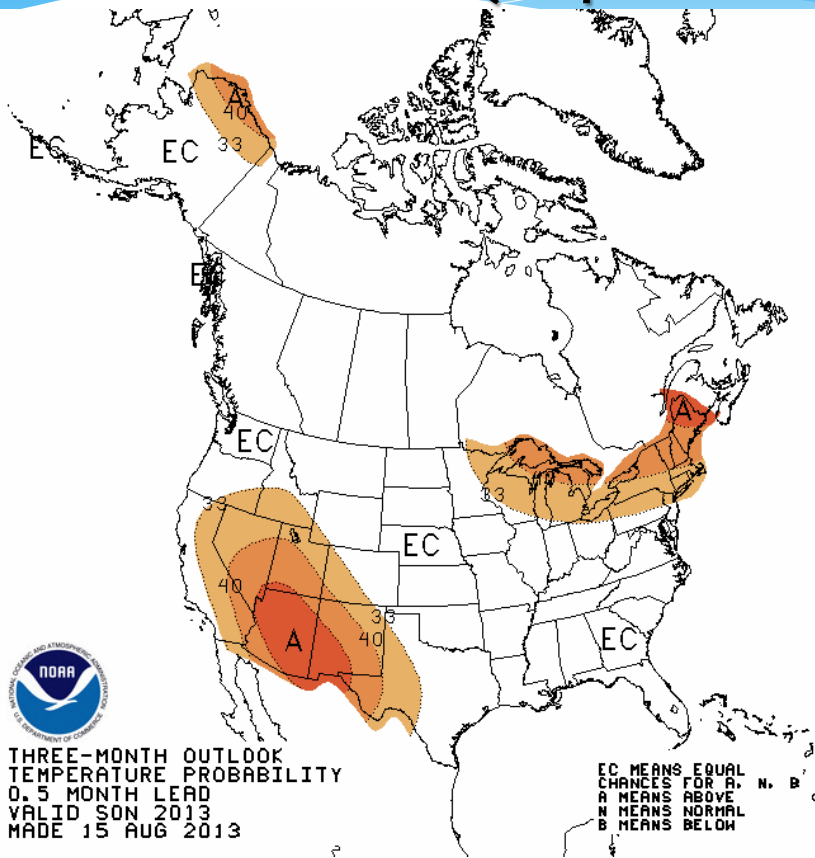
Temperature



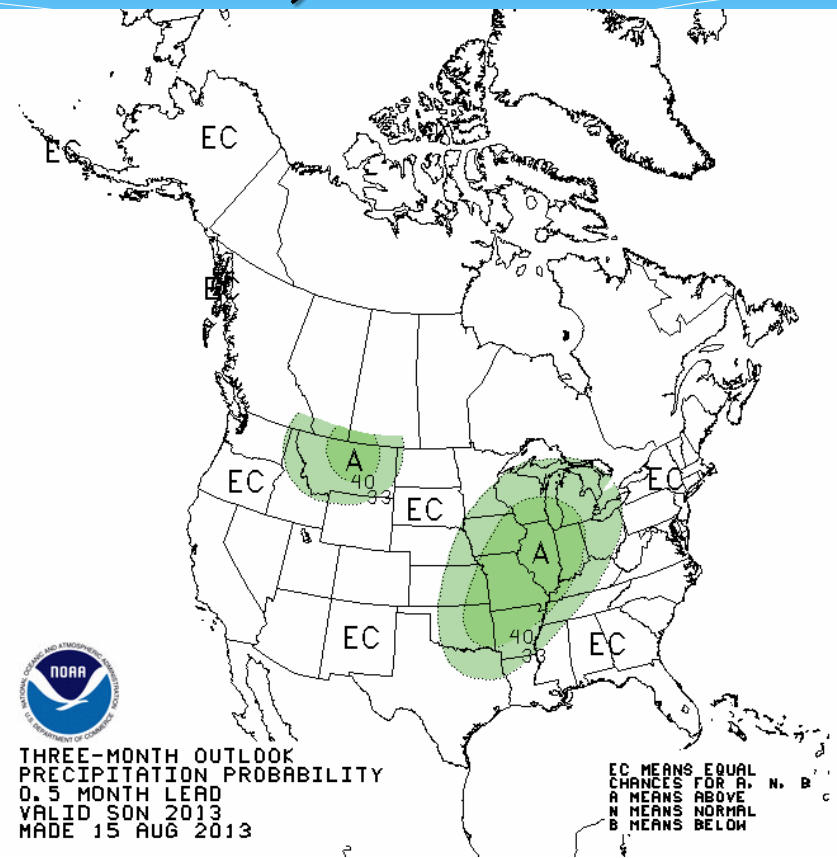
Precipitation

<http://www.cpc.ncep.noaa.gov/products/predictions/30day/>

3 Month Temperature and Precipitation Probabilities (September-November)



Temperature

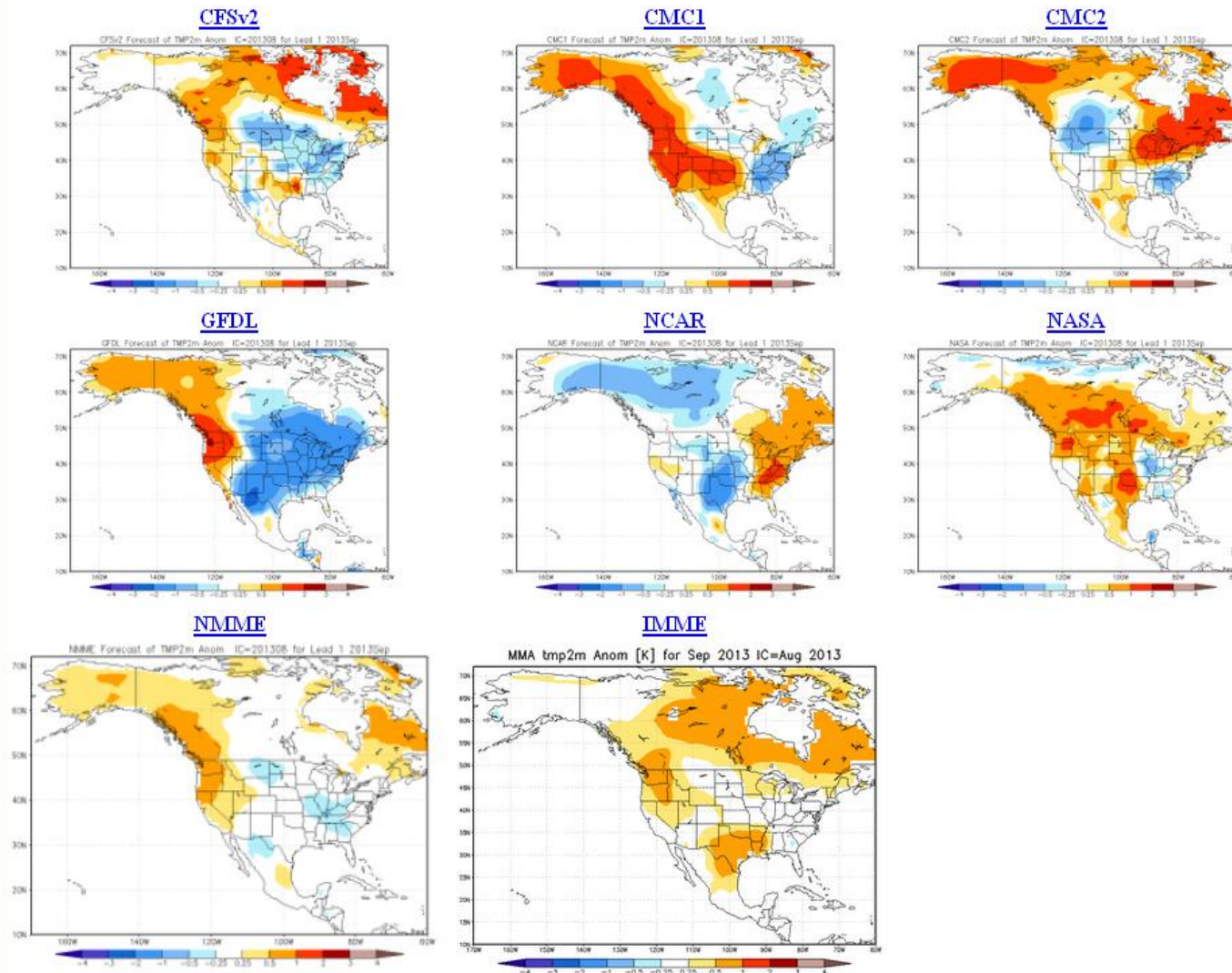


Precipitation



Lead 1 tmp2m forecast

Dynamic model outlook for Sep. Temperatures

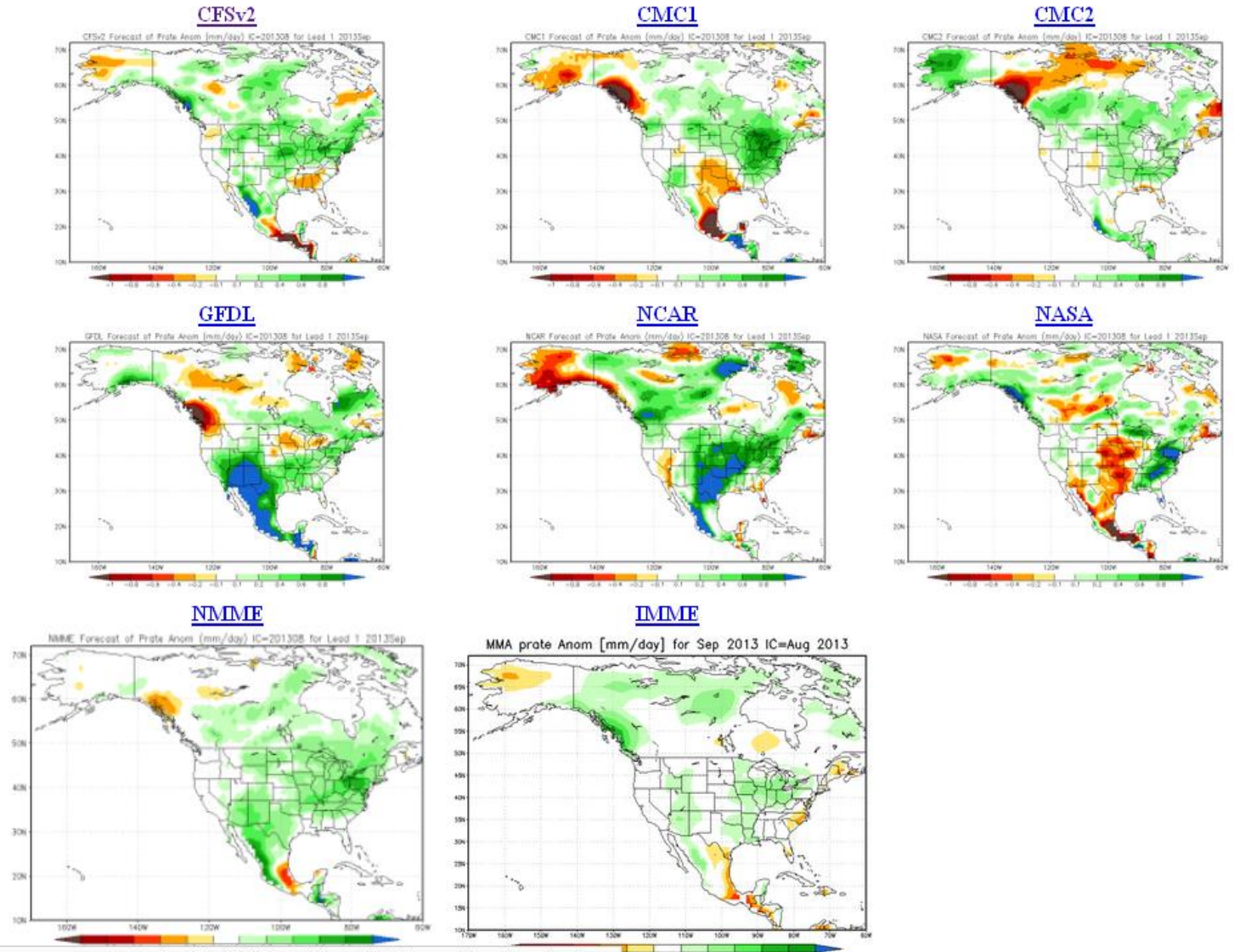




Lead 1 prate forecast

Dynamic model outlook for Sep. Precipitation

Interesting consistency across models

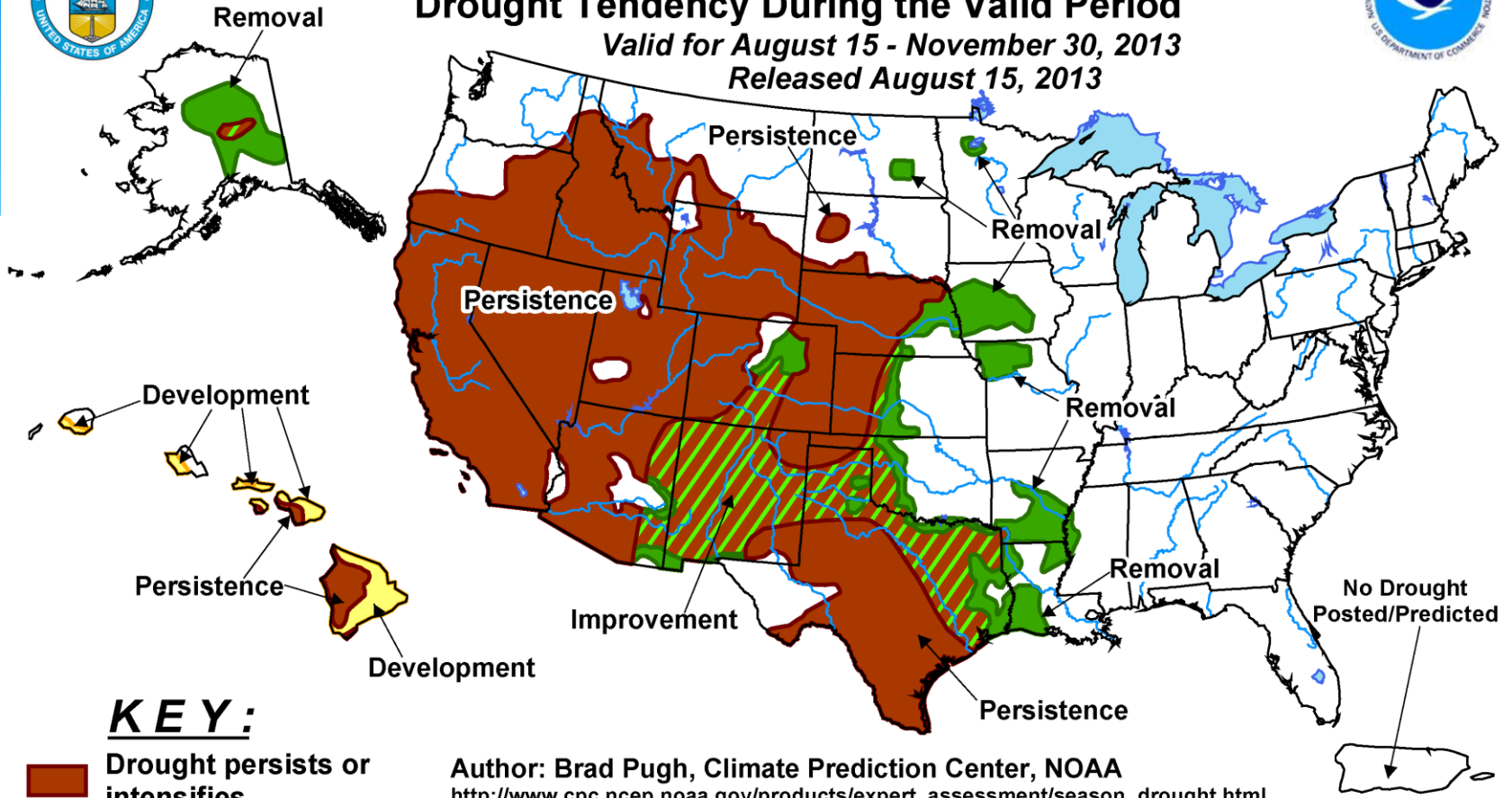








U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for August 15 - November 30, 2013
Released August 15, 2013



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/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 Green and Brown hatched 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**

- * Recent heavy precipitation KS-MO (flooding)
- * Cool summer delaying crops – already delayed
 - * Cool did ease some crop stress
- * Drought issues still in western plains
 - * Rangeland still poor condition

- * Wheat problems continue in western plains

Summary

* Outlooks

- * ENSO neutral conditions through Fall 2013
- * Drought conditions will continue in western areas
- * Northern and eastern areas likely wetter for fall
 - * Could present some harvest issues
- * Next 2 weeks warmer, Sept. mixed. Important/crops
- * Watching freeze potential – delayed development
 - * No indications on early freeze – too early
- * Winter wheat more likely to go back in – recent rains

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:

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