NE Drought Conditions CARC Update: April 2010

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University of Nebraska-Lincoln

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School of Natural Resources
University of Nebraska-Lincoln

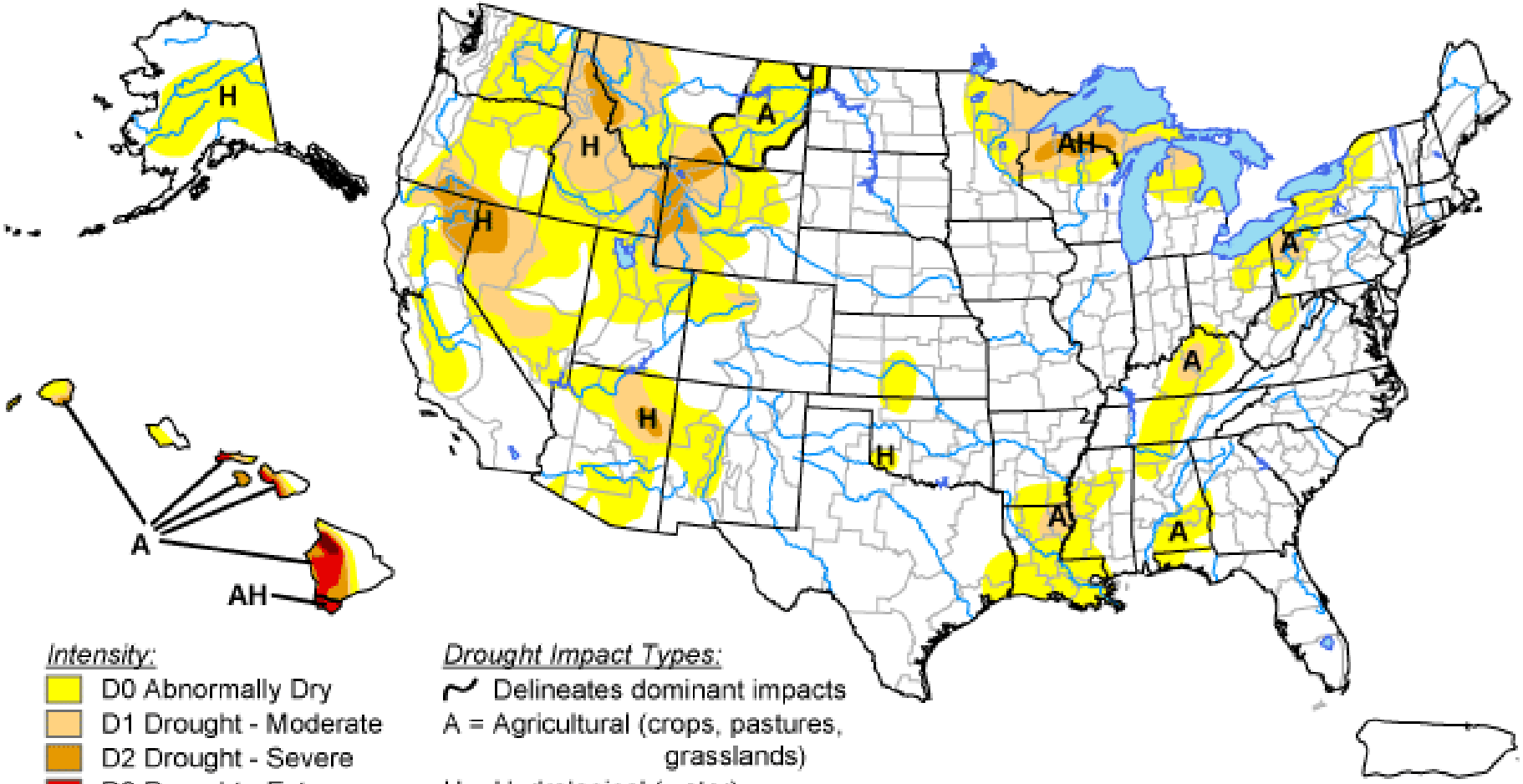
Current Conditions around Nebraska and the region…

University of Nebraska Lincoln

National Drought Mitigation Center

U.S. Drought Monitor

April 20, 2010
Valid 8 a.m. EDT



Intensity:

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

Drought Impact Types:

Delineates dominant impacts
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)

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

http://drought.unl.edu/dm

Released Thursday, April 22, 2010

Author: Anthony Artusa, NOAA/NWS/NCEP/CPC

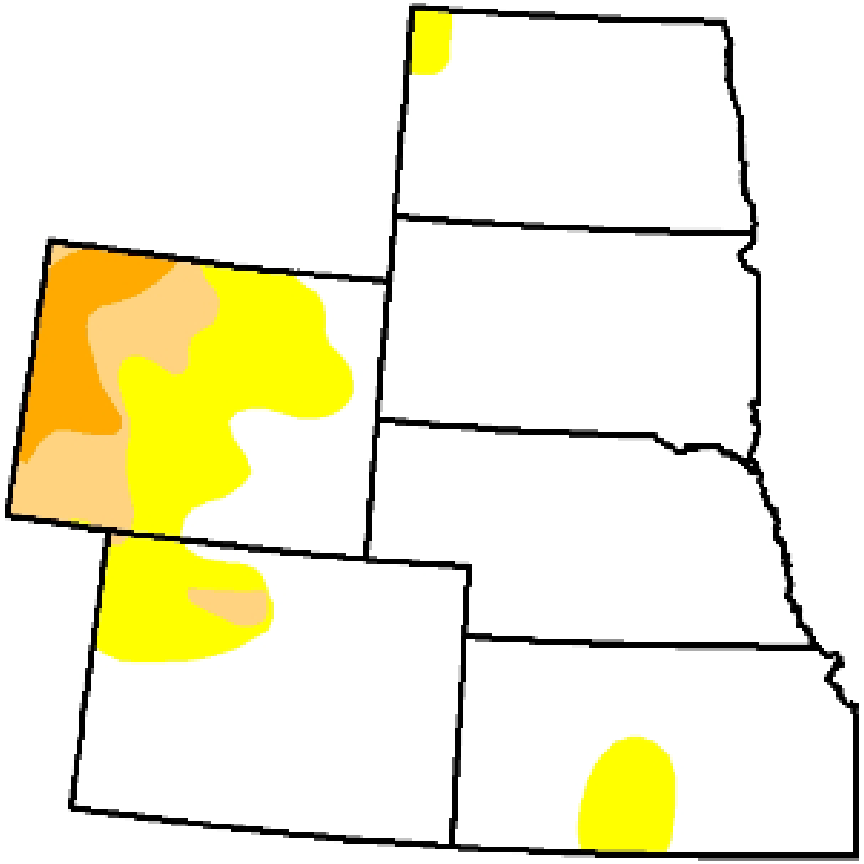
U.S. Drought Monitor

High Plains

April 20, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	80.3	19.7	7.5	3.0	0.0	0.0
Last Week (04/13/2010 map)	80.3	19.7	7.4	2.7	0.0	0.0
3 Months Ago (01/26/2010 map)	86.4	13.6	2.0	0.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	89.7	10.3	1.7	0.0	0.0	0.0
Start of Water Year (10/06/2009 map)	88.3	11.7	0.7	0.0	0.0	0.0
One Year Ago (04/21/2009 map)	79.2	20.8	2.0	0.0	0.0	0.0



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http://drought.unl.edu/dm

Released Thursday, April 22, 2010

Author: A. Artusa, CPC/NOAA

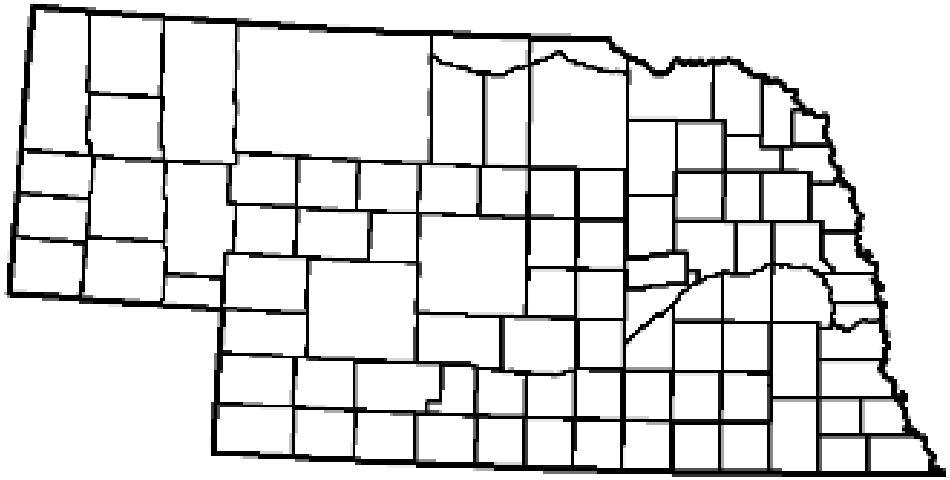
U.S. Drought Monitor

Nebraska

April 20, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.0	0.0	0.0	0.0	0.0	0.0
Last Week (04/13/2010 map)	100.0	0.0	0.0	0.0	0.0	0.0
3 Months Ago (01/26/2010 map)	100.0	0.0	0.0	0.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	100.0	0.0	0.0	0.0	0.0	0.0
Start of Water Year (10/06/2009 map)	81.6	18.4	0.0	0.0	0.0	0.0
One Year Ago (04/21/2009 map)	98.4	1.6	0.0	0.0	0.0	0.0



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http://drought.unl.edu/dm

Released Thursday, April 22, 2010

Author: A. Artusa, CPC/NOAA

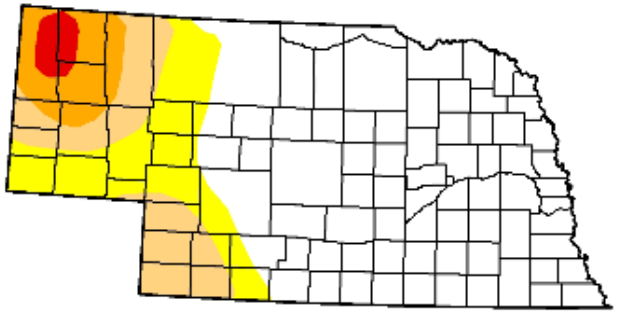
U.S. Drought Monitor

Nebraska

April 29, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	66.7	33.3	19.1	7.8	1.7	0.0
Last Week (04/22/2008 map)	66.7	33.3	19.1	7.8	1.7	0.0
3 Months Ago (02/05/2008 map)	66.7	33.3	15.7	7.8	1.7	0.0
Start of Calendar Year (01/01/2008 map)	66.7	33.3	15.9	7.8	1.7	0.0
Start of Water Year (10/02/2007 map)	70.9	29.1	13.6	7.0	1.7	0.0
One Year Ago (05/01/2007 map)	72.3	27.7	17.2	11.8	6.7	0.0



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

http://drought.unl.edu/dm

USD

Re

Author: R. Heim/

University of Nebraska Lincoln

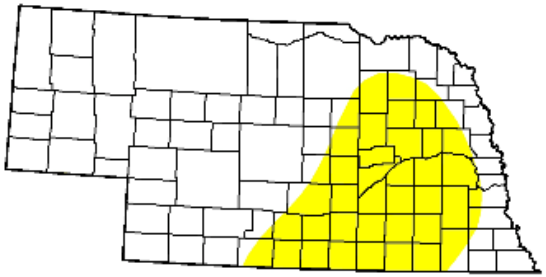
U.S. Drought Monitor

Nebraska

April 28, 2009
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	71.8	28.2	0.0	0.0	0.0	0.0
Last Week (04/21/2009 map)	98.4	1.6	0.0	0.0	0.0	0.0
3 Months Ago (02/03/2009 map)	89.5	10.5	0.0	0.0	0.0	0.0
Start of Calendar Year (01/06/2009 map)	89.8	10.2	0.0	0.0	0.0	0.0
Start of Water Year (10/07/2008 map)	83.0	17.0	0.0	0.0	0.0	0.0
One Year Ago (04/29/2008 map)	66.7	33.3	19.1	7.8	1.7	0.0



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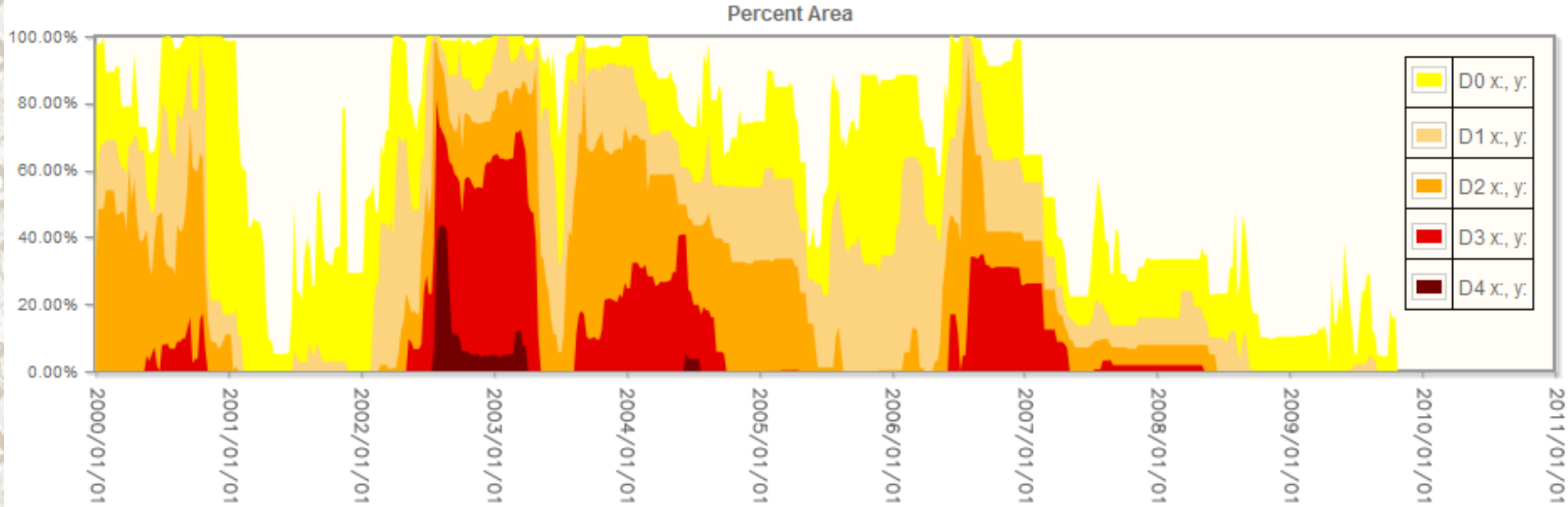
http://drought.unl.edu/dm

USDA National Drought Mitigation Center

Released Thursday, April 30, 2009

Author: Brad Rippey, U.S. Department of Agriculture

2000-2010 U.S. Drought Monitor Time Series for Nebraska



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National Drought Mitigation Center

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Drought Monitor Archives

Maps | Tables | Animations | 1999 Archive | GIS Data

Nebraska

Drought Severity

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

Contiguous U.S.

Regions

High Plains
Midwest
Northeast
South
Southeast
West

States

Alabama	Illinois	Montana	Puerto Rico
Alaska	Indiana	Nebraska	Rhode Island
Arizona	Iowa	Nevada	South Carolina
Arkansas	Kansas	New Hampshire	South Dakota
California	Kentucky	New Jersey	Tennessee
Colorado	Louisiana	New Mexico	Texas
Connecticut	Maine	New York	Utah
Delaware	Maryland	North Carolina	Vermont
District of Columbia	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Hawaii	Mississippi	Oregon	Wisconsin
Idaho	Missouri	Pennsylvania	Wyoming

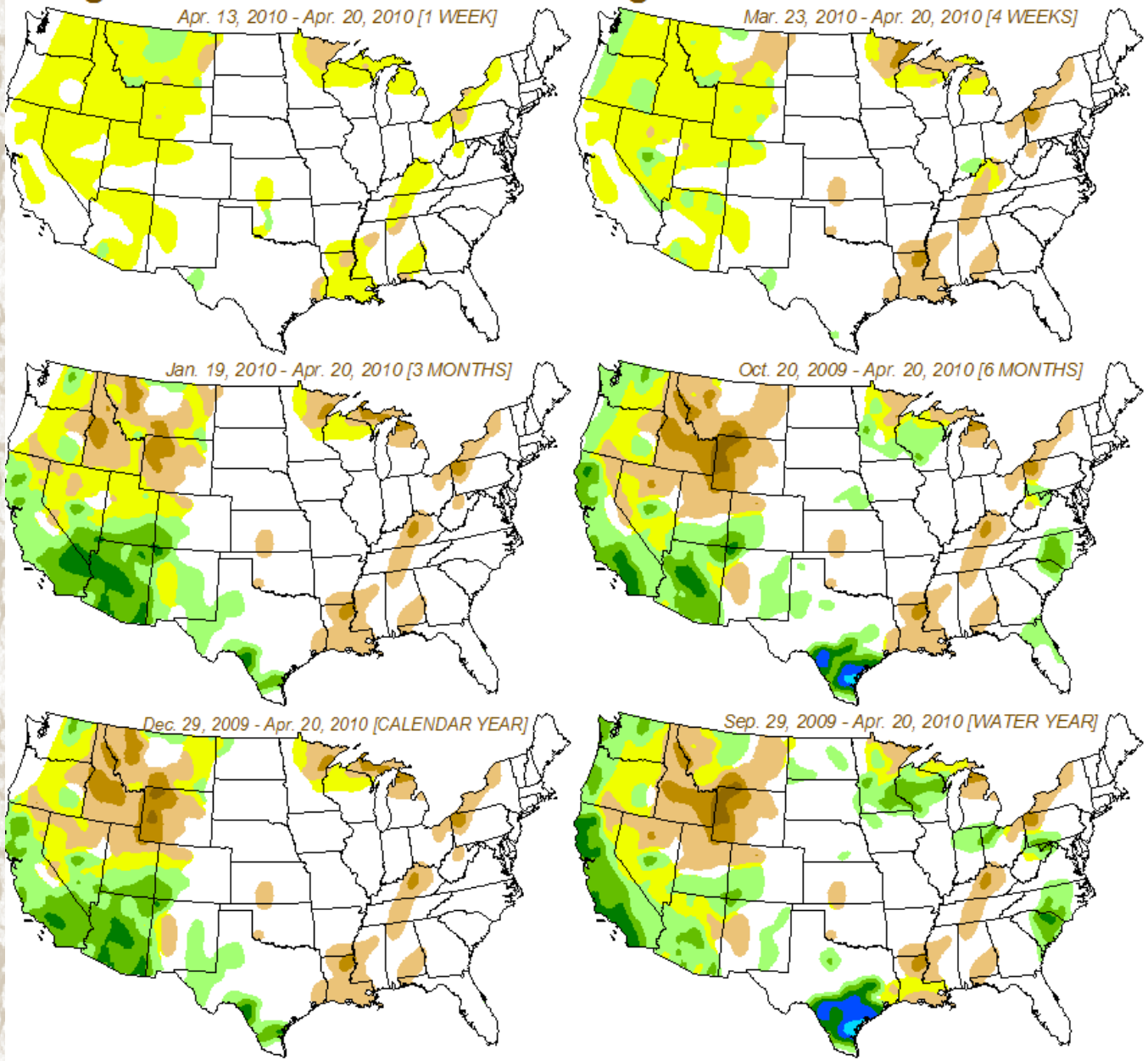
April 29, 2008

April 28, 2009

Over 10 years of data and 500+ maps in the archive !

Week	Nothing	D0-D4	D1-D4	D2-D4	D3-D4	D4
April 29, 2008	66.67	33.33	19.12	7.75	1.72	0.00
April 28, 2009	71.81	28.19	0.00	0.00	0.00	0.00

Drought Monitor Classification Changes for Selected Time Periods



- 5 class improvement
- 4 class improvement
- 3 class improvement
- 2 class improvement
- 1 class improvement
- unchanged
- 1 class deterioration
- 2 class deterioration
- 3 class deterioration
- 4 class deterioration
- 5 class deterioration

These maps depict approximate changes in drought intensity from selected initial times to the current week, with no consideration given to intervening weeks. The difference calculations are based on interpolated 4 km grids of Drought Monitor classifications, and as a result, will be smoother than would similar products based directly on the published versions of the Drought Monitor.

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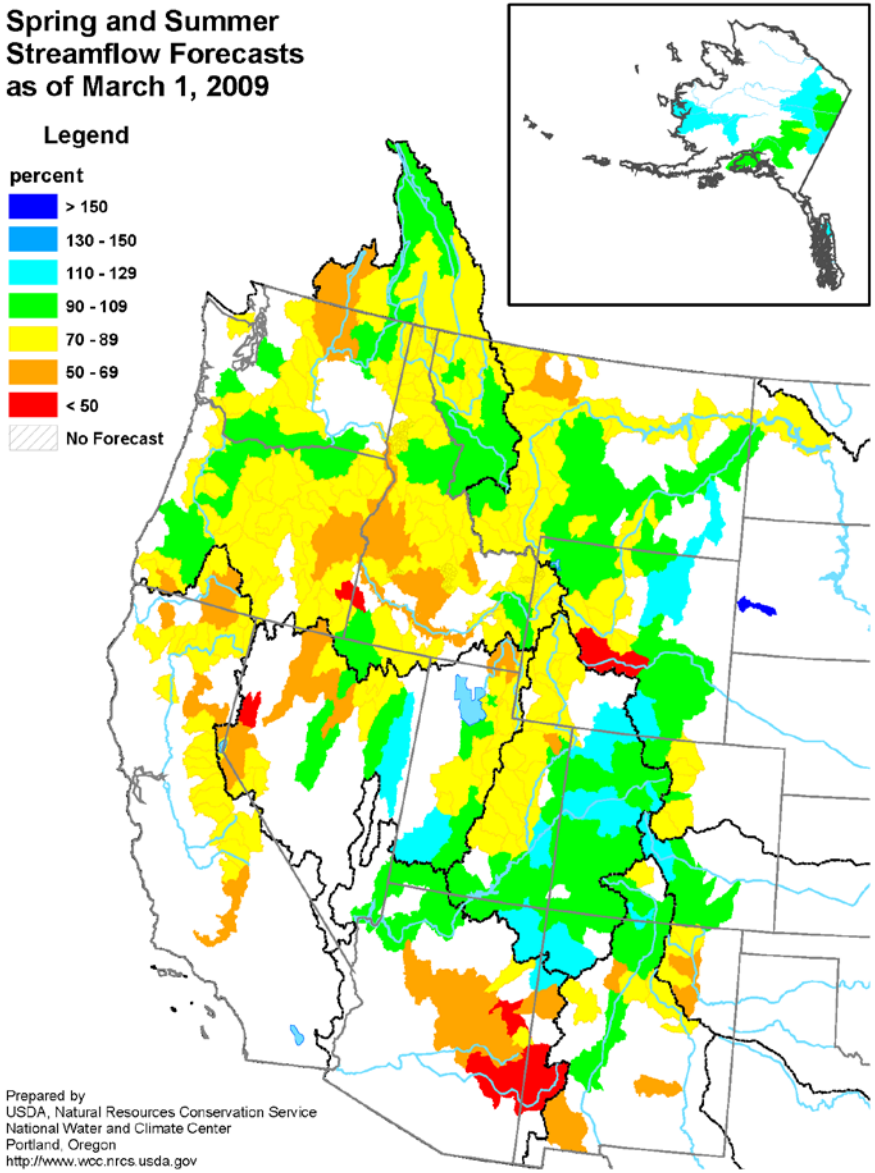

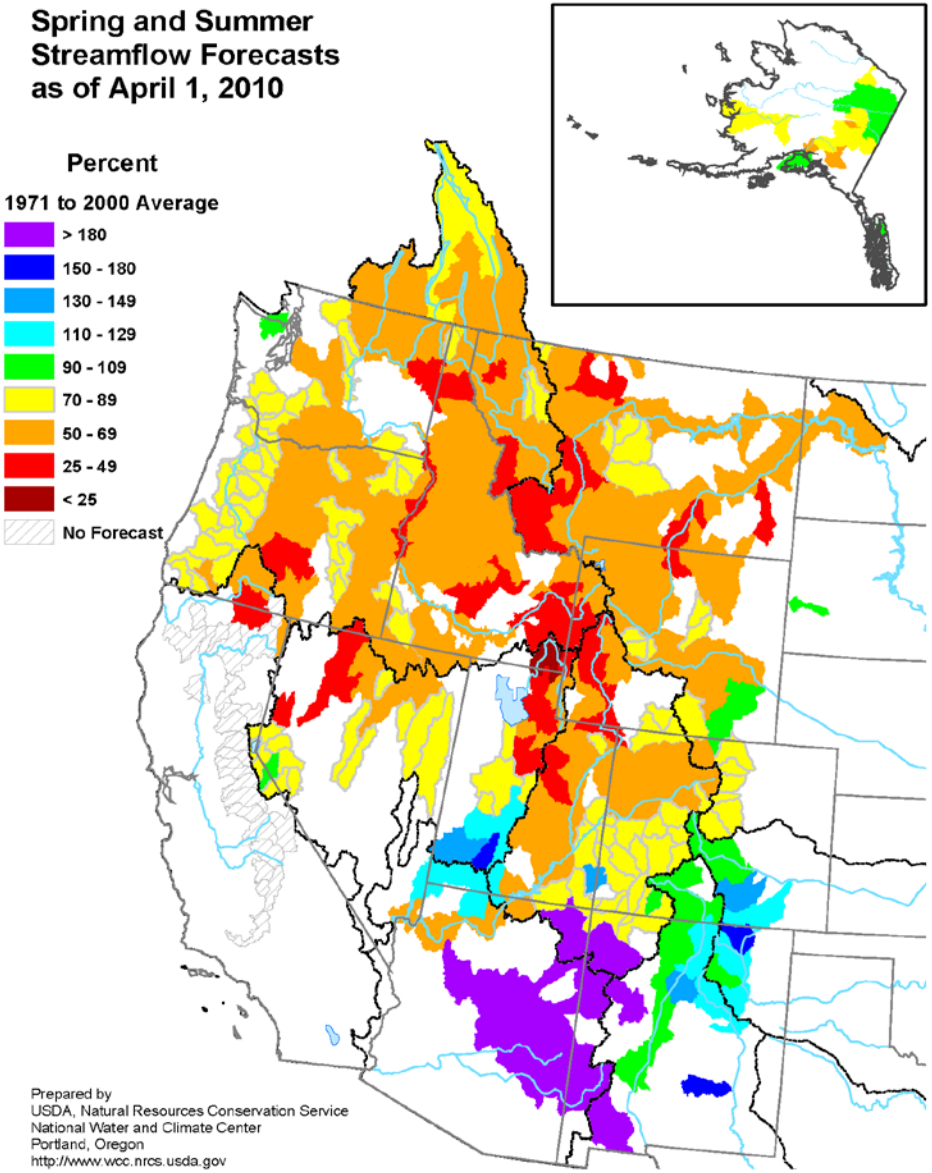

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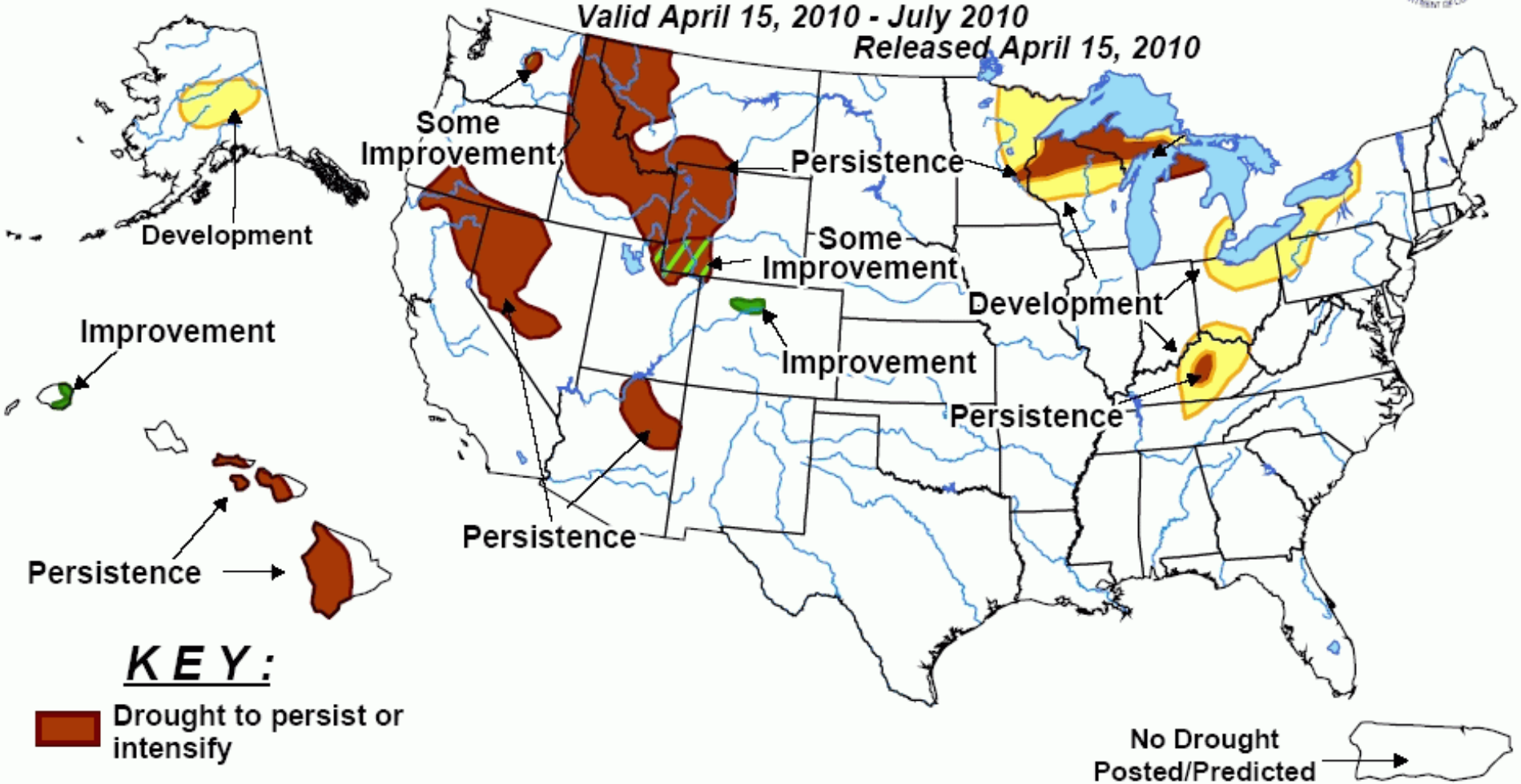
U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid April 15, 2010 - July 2010

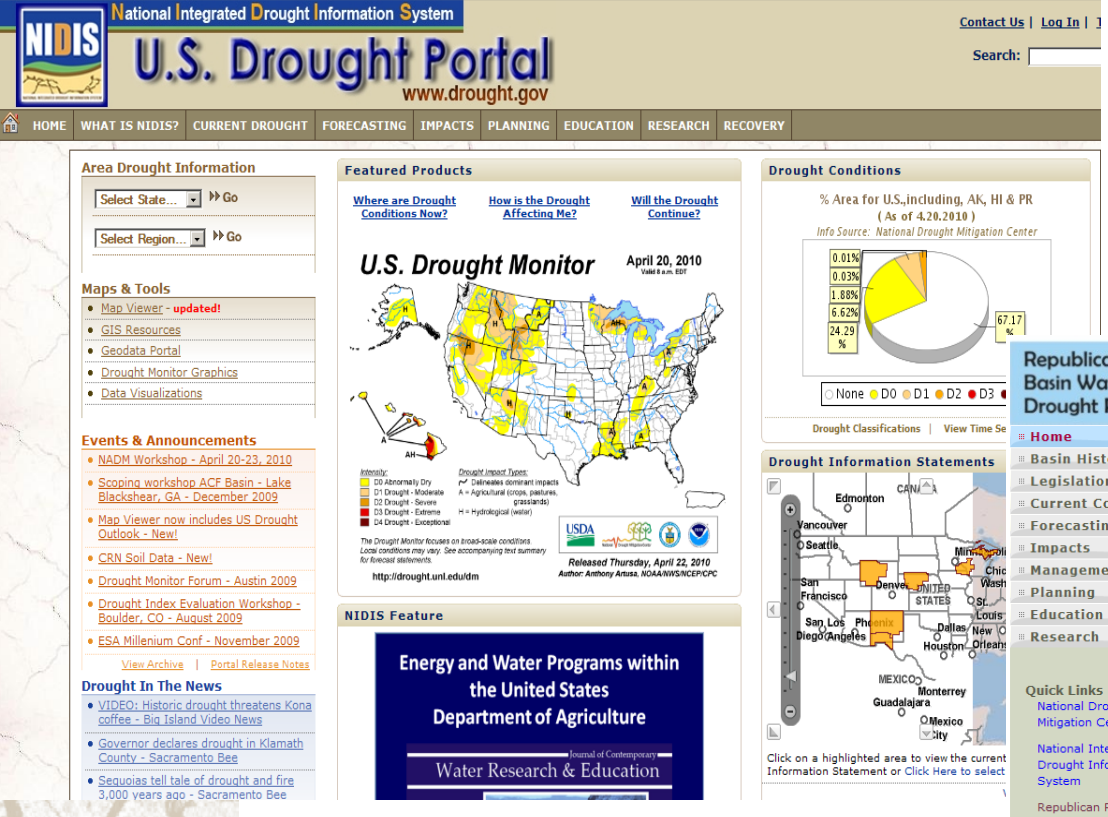
Released April 15, 2010

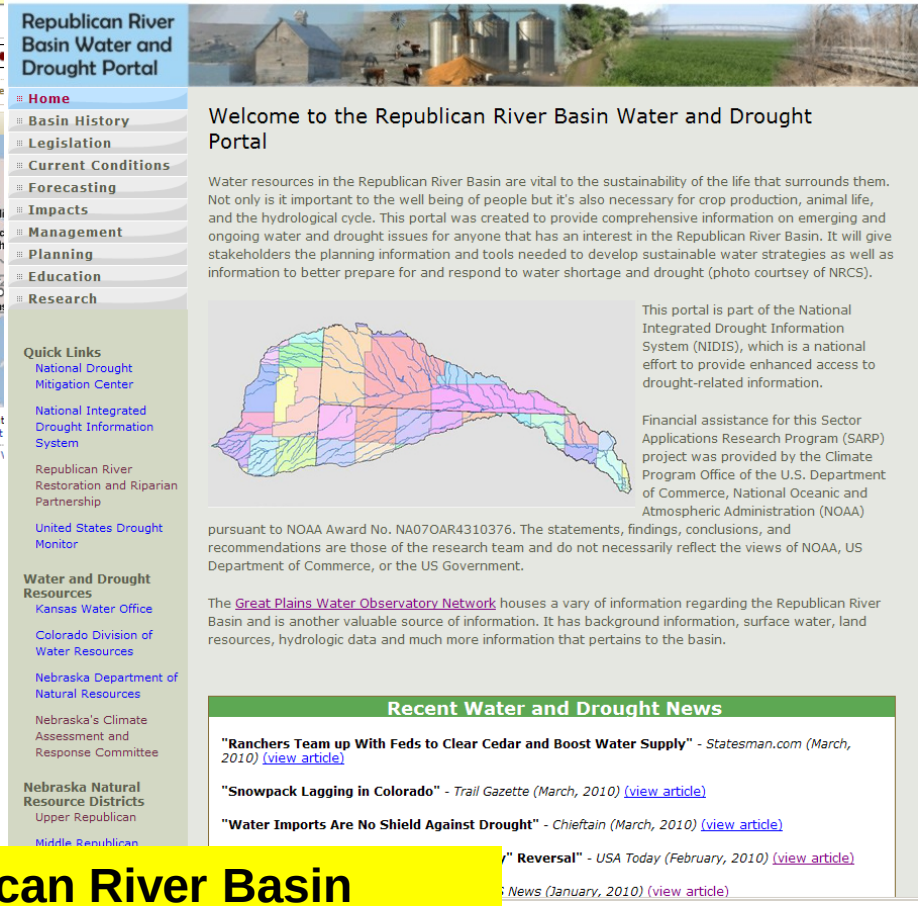


KEY:

- Drought to persist or intensify
- Drought ongoing, some improvement
- Drought likely to improve, impacts ease
- Drought development likely

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 improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.





NIDIS Drought Portal

http://drought.gov

Republican River Basin Water and Drought Portal

Going LIVE this Spring!

http://www.urnrd.org/

Nebraska Water Supply Update…

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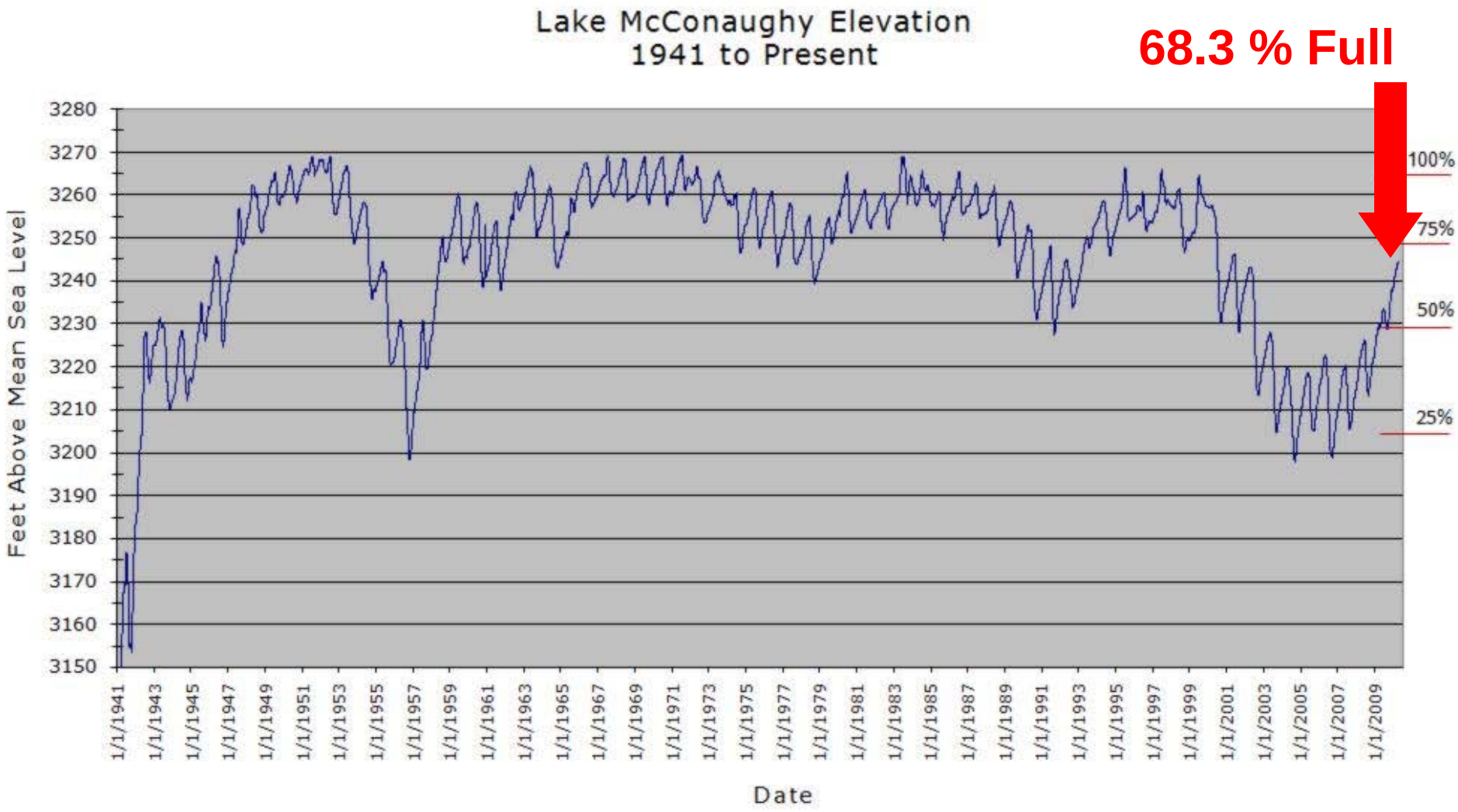

SOURCE: CNPPID www.cnppid.com

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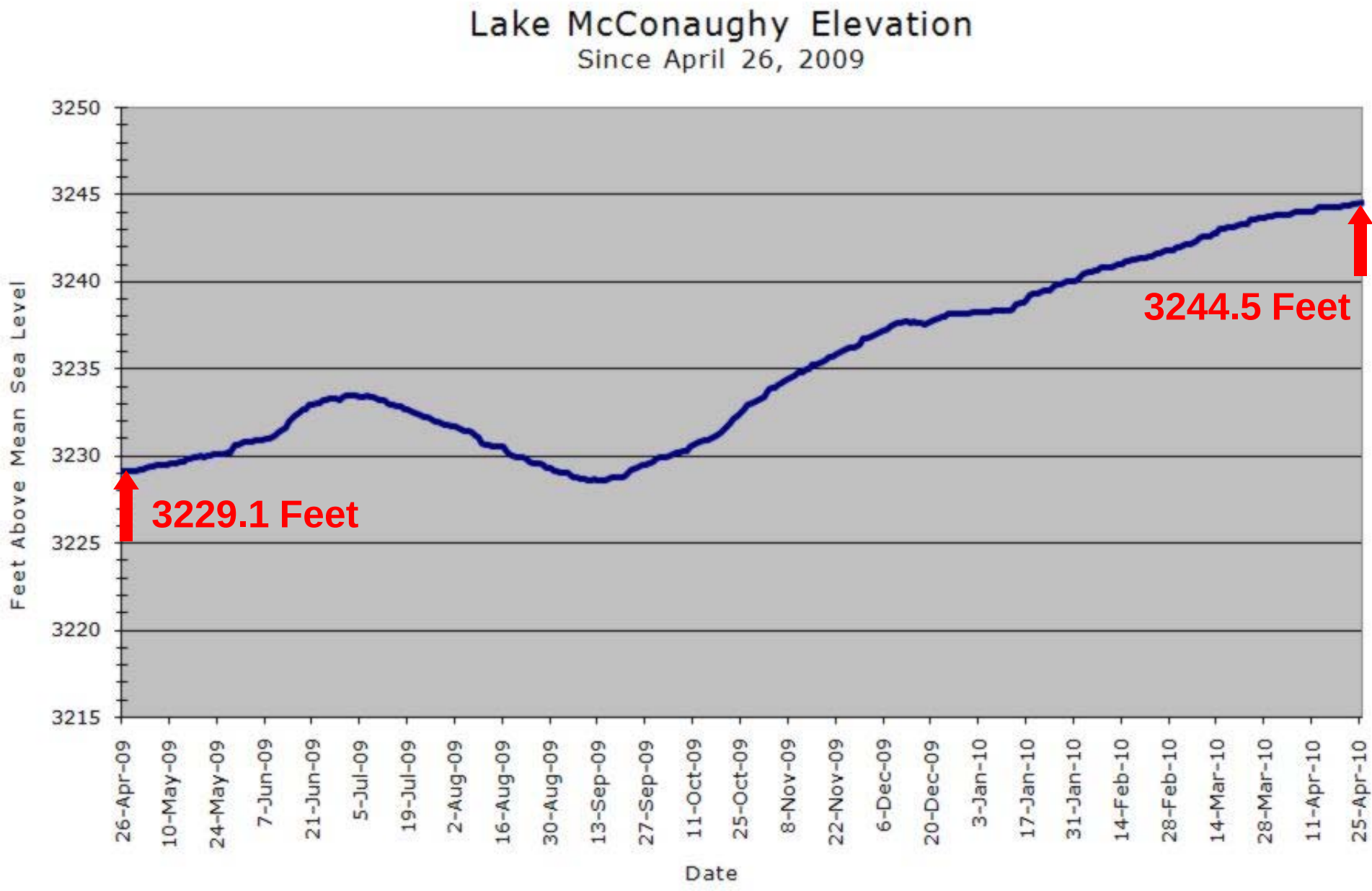

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SOURCE: CNPPID www.cnppid.com

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Lake McConaughy

“Civil Engineer Cory Steinke said Lake McConaughy was at elevation 3243.9 feet above sea level on Monday April 5, 14 feet higher than a year ago; and contained 1,175,800 acre-feet of water, 301,800 acre-feet more than one year ago. For the month of March, daily inflows were about 80 percent of normal.

With about one month left in the snowpack accumulation season, mountain snowpack is measured at 87 percent of normal in the South Platte River Basin, 92 percent in the upper North Platte River Basin, and 94 percent in the lower North Platte Basin.”

SOURCE: CNPPID News Release, April 5, 2010

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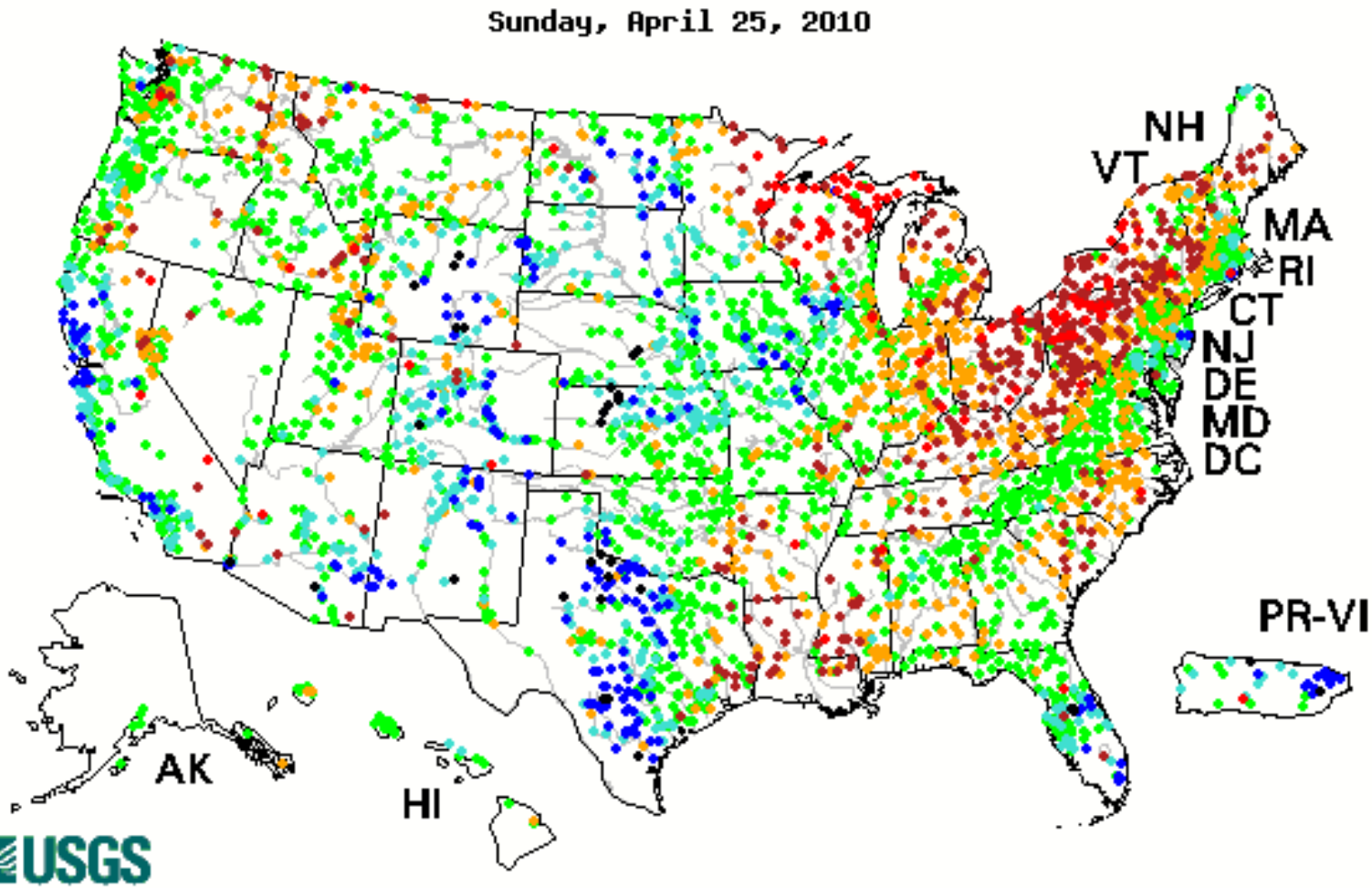
Map of 14-day average streamflow compared To historical streamflow for the day of year



USGS

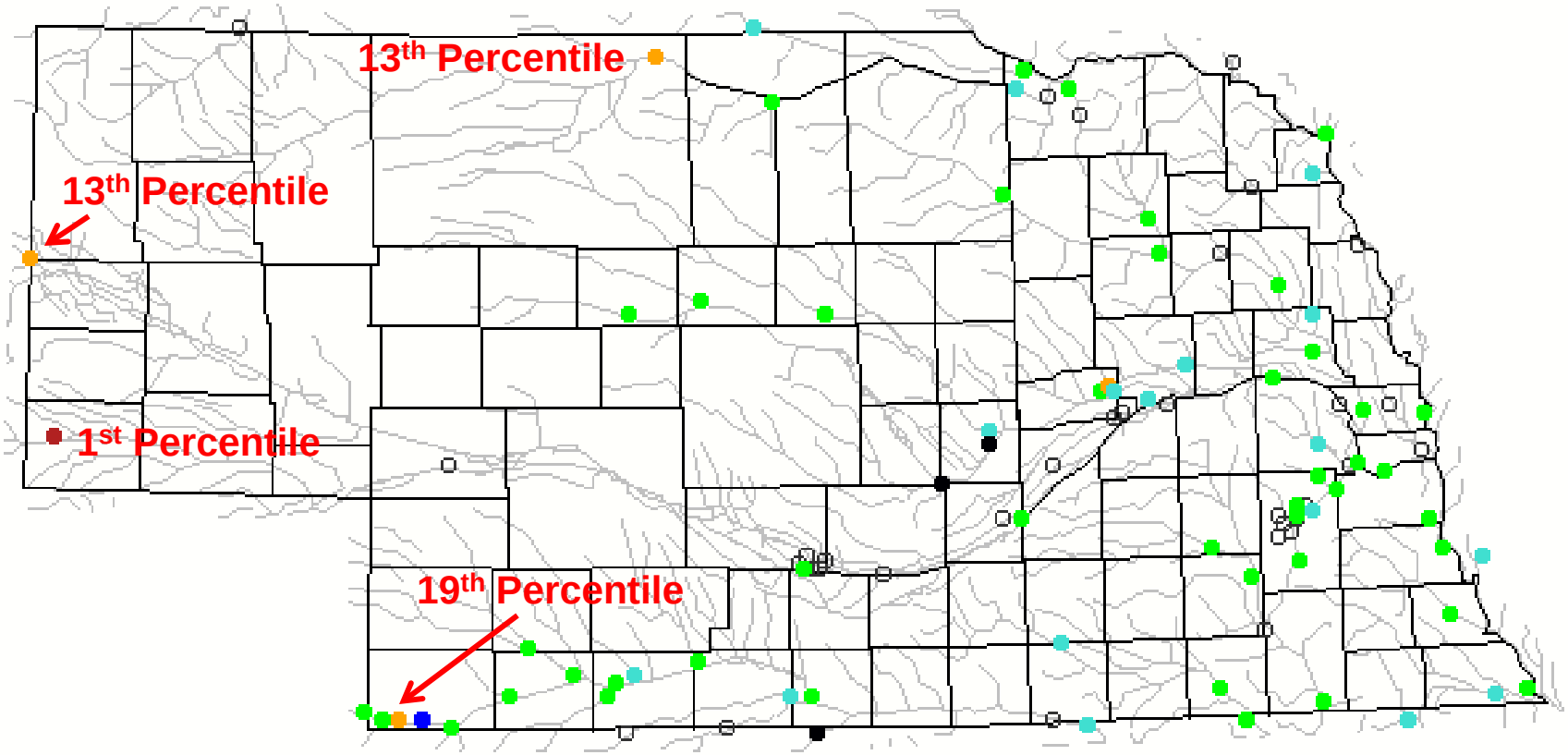
University of Nebraska Lincoln

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

National Drought Mitigation Center

Map of 14-day average streamflow compared To historical streamflow for the day of year

Sunday, April 25, 2010



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University of Nebraska Lincoln

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

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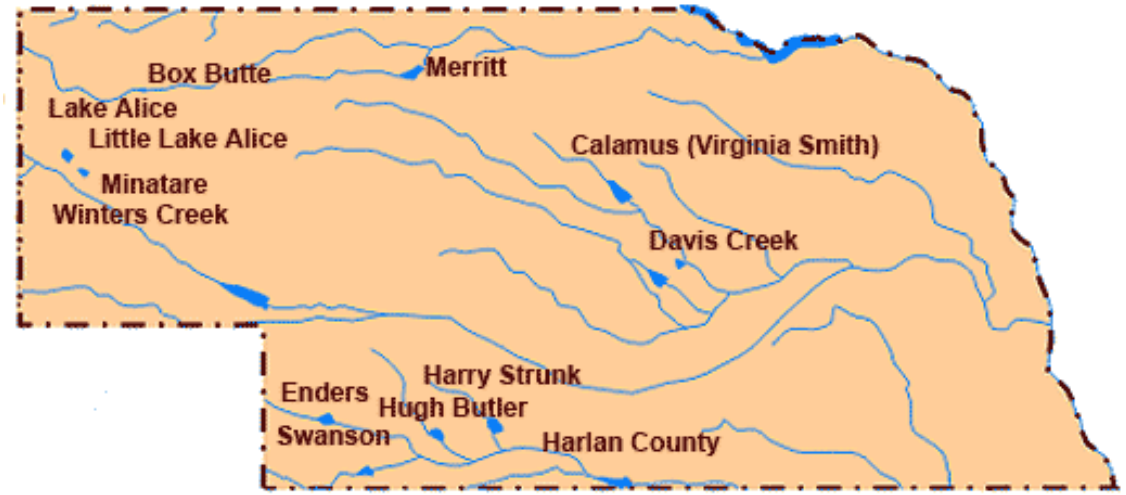
Republican River Basin

- **Hugh Butler:** 17% of conservation pool
- **Enders:** 39% of conservation pool
- **Harry Strunk:** 100% of conservation pool
- **Swanson:** 68% of conservation pool



Source: BOR http://www.usbr.gov/gp/lakes_reservoirs/

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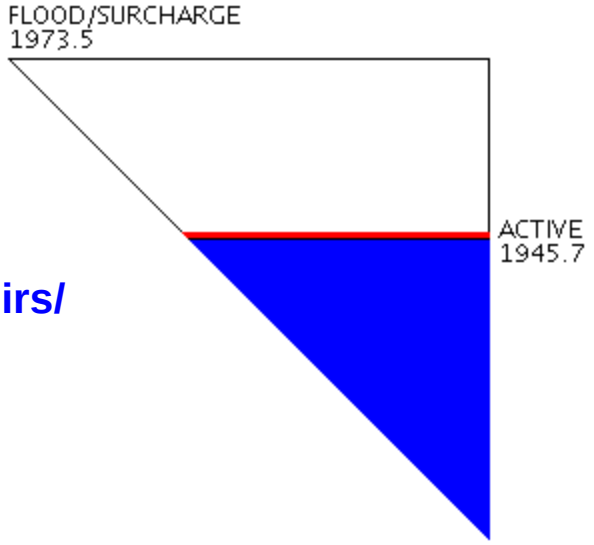
Republican River Basin

Harlan County Current Conditions

- ✓ Conservation Pool is 100% Full
- ✓ 339,235 Acre-Feet of water in storage



Source: BOR http://www.usbr.gov/gp/lakes_reservoirs/

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Summary

- No drought (D0-D4) in NE at this time
- Better lake levels in general again over the past year (Big Mac UP 15 ft. from this time last year (68.3% full) and Harlan County is 100%)
- Hydro recovery has been aided by better precipitation in western NE the past two years now

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Questions?

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National Drought Mitigation Center

School of Natural Resources

Water Availability Outlook Committee Report April 27, 2010

Allen Dutcher
State Climatologist
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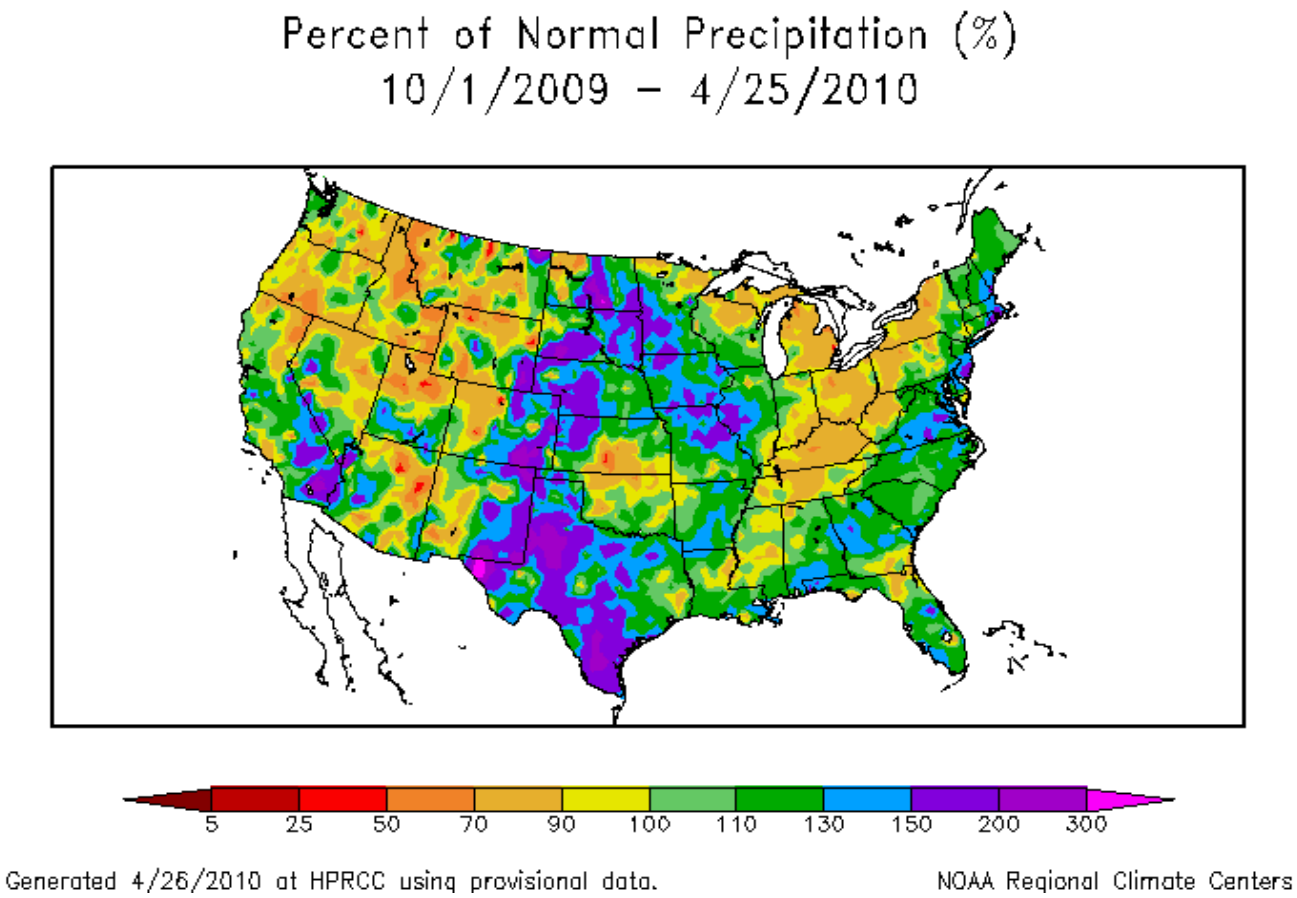
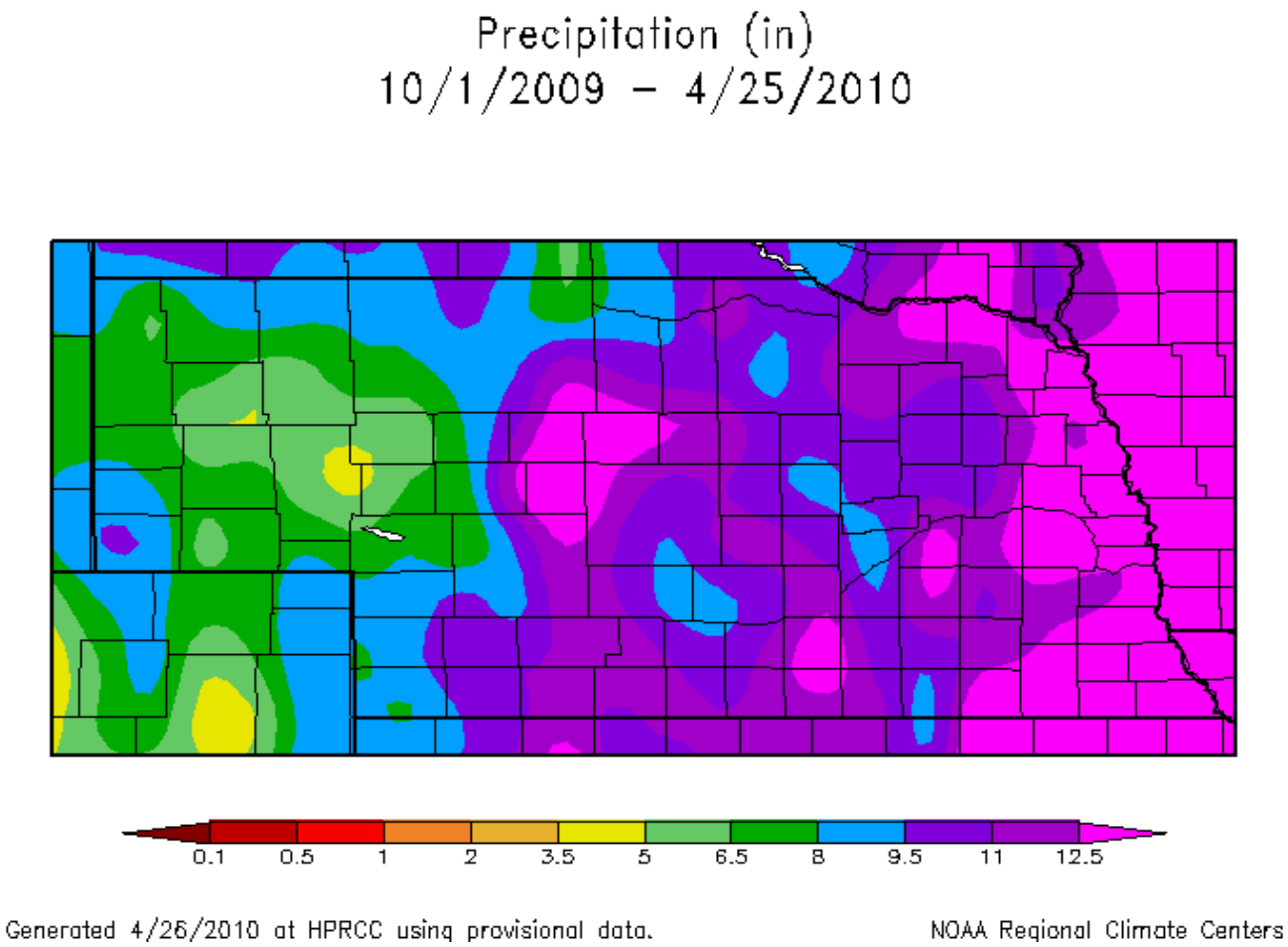
(402)-472-5206

University of Nebraska–Lincoln

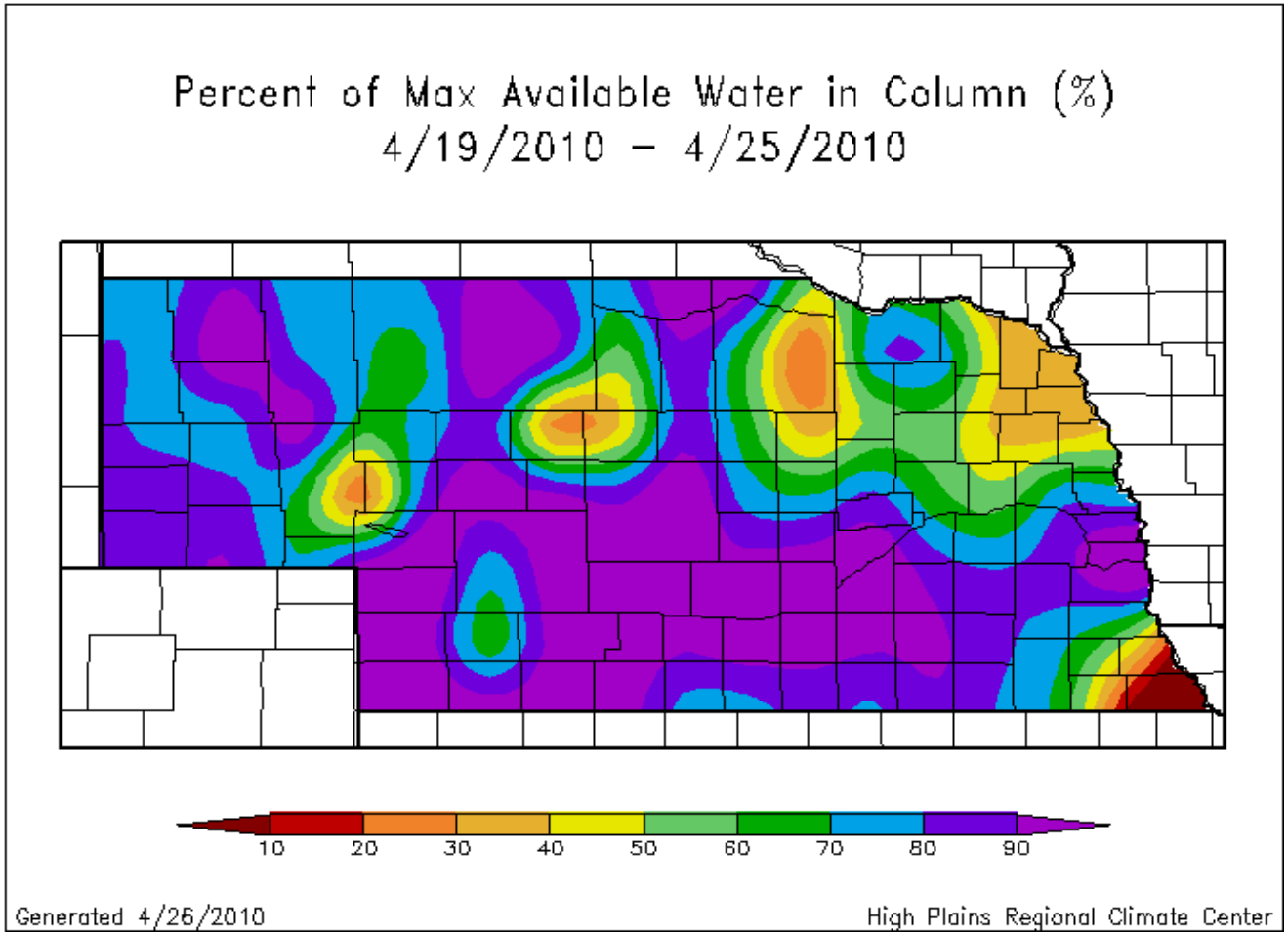
October – Data Precipitation National



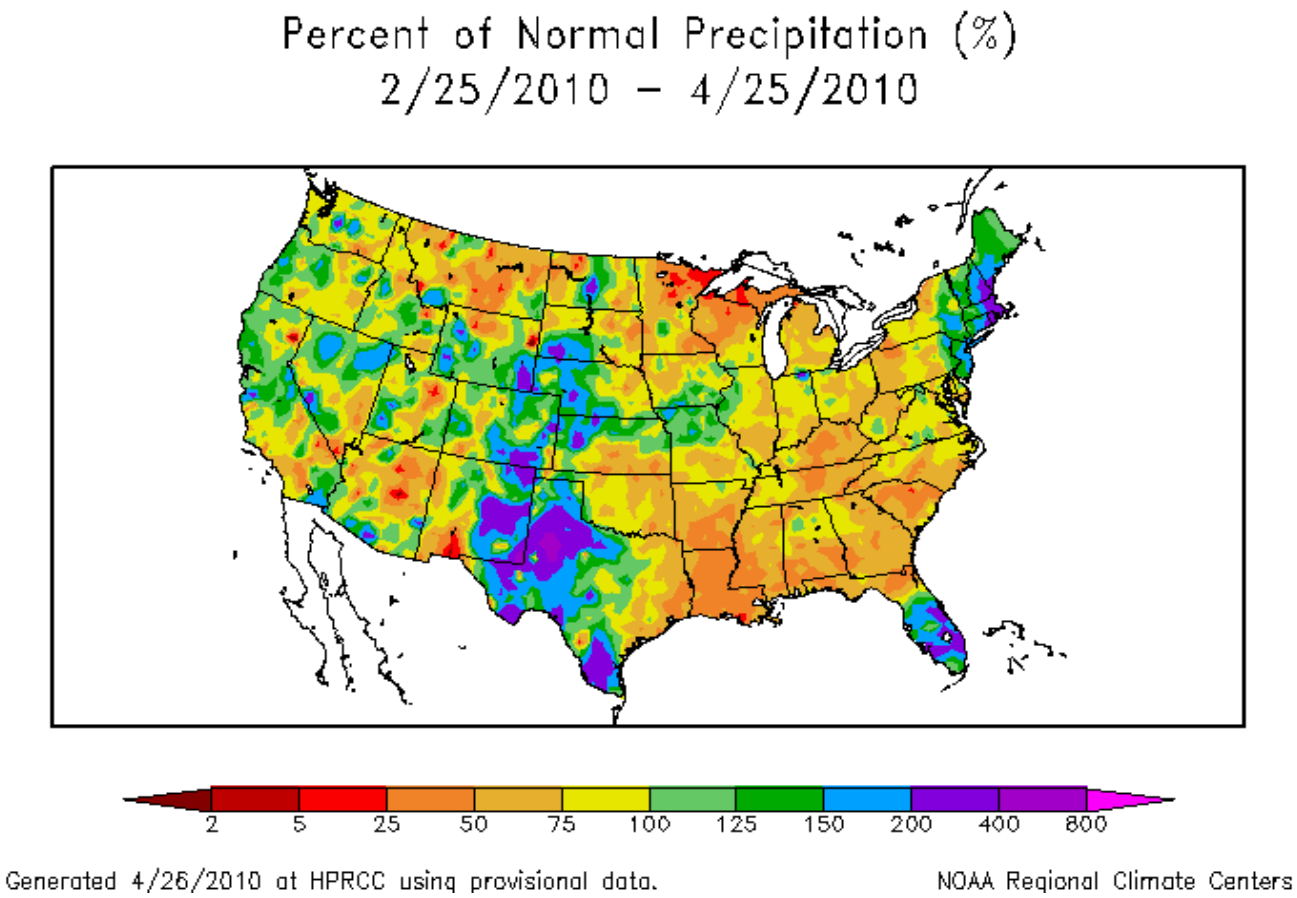
October to Date Precipitation Nebraska



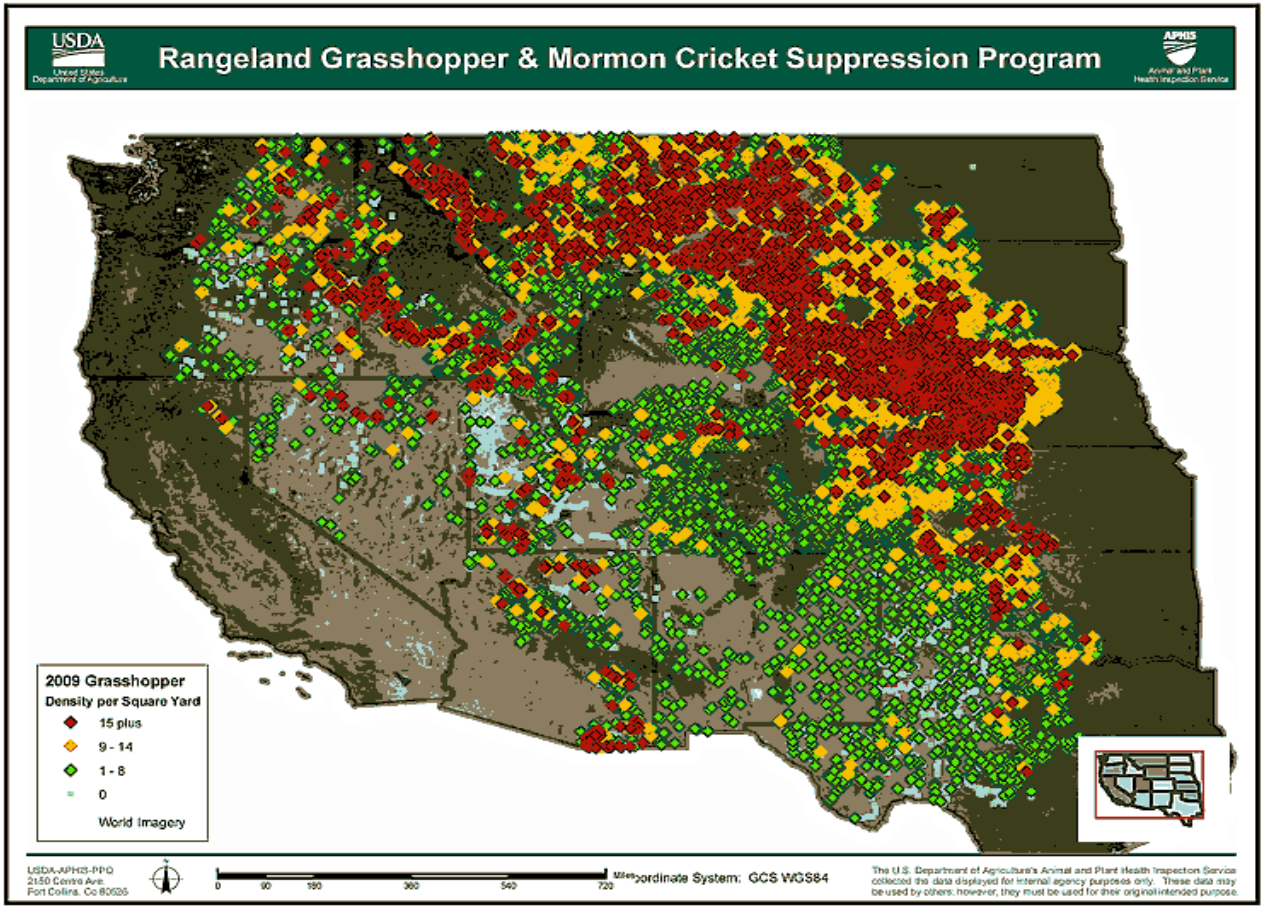
Current Soil Moisture
4 Foot Profile – Under Grass



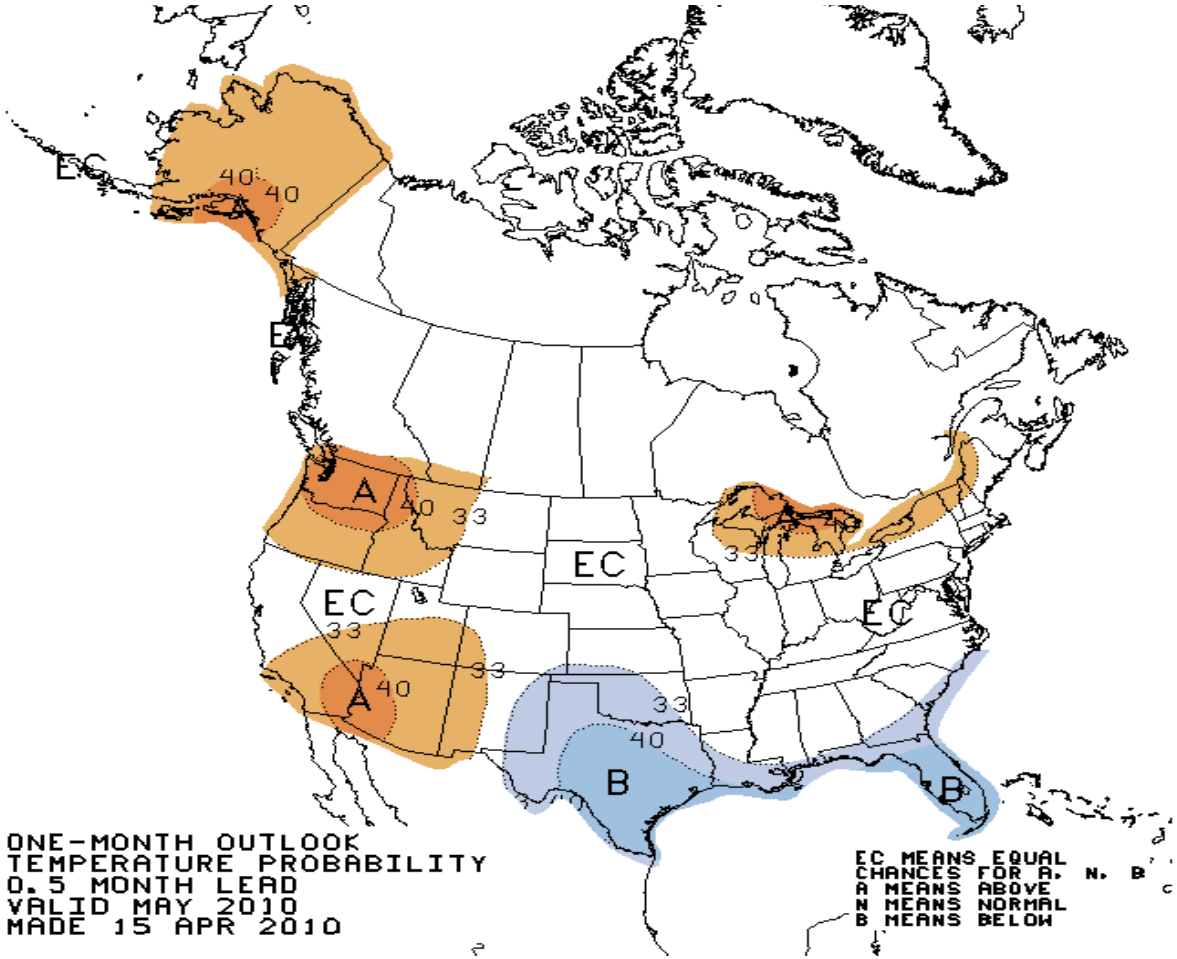
National Precipitation Trend Past 60 Days



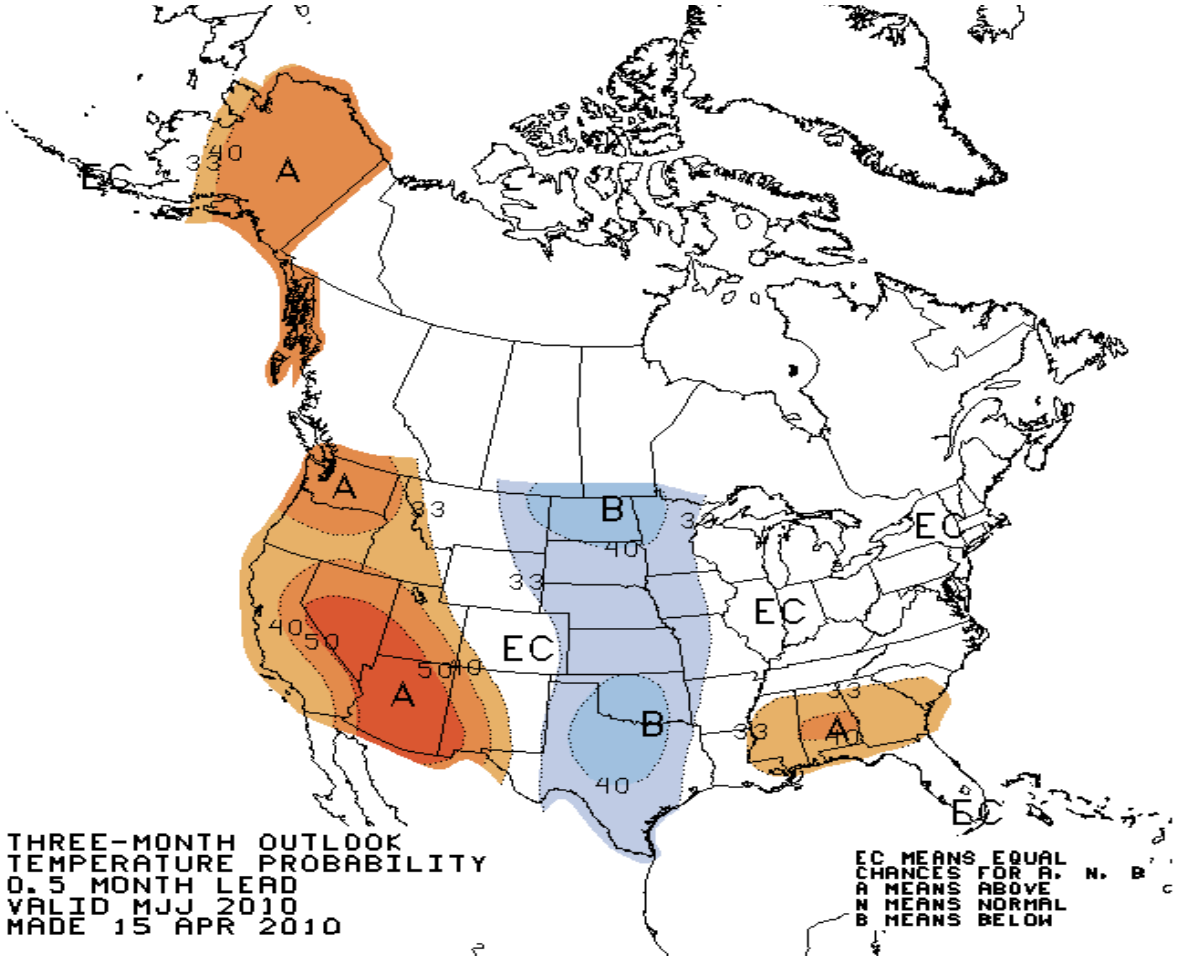
November 2009 Grasshopper and Mormon Cricket Survey



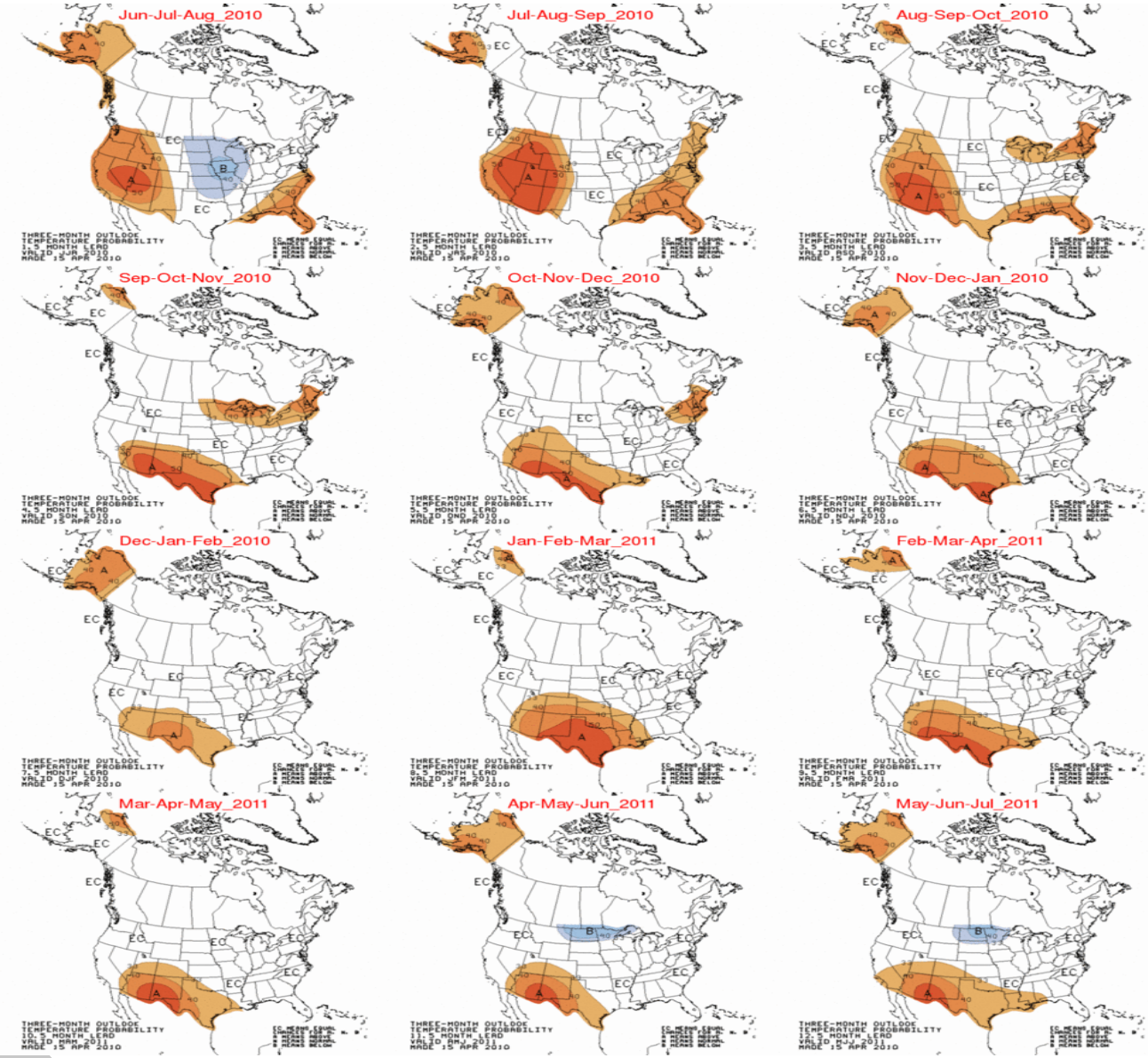
Temperature Outlook
May



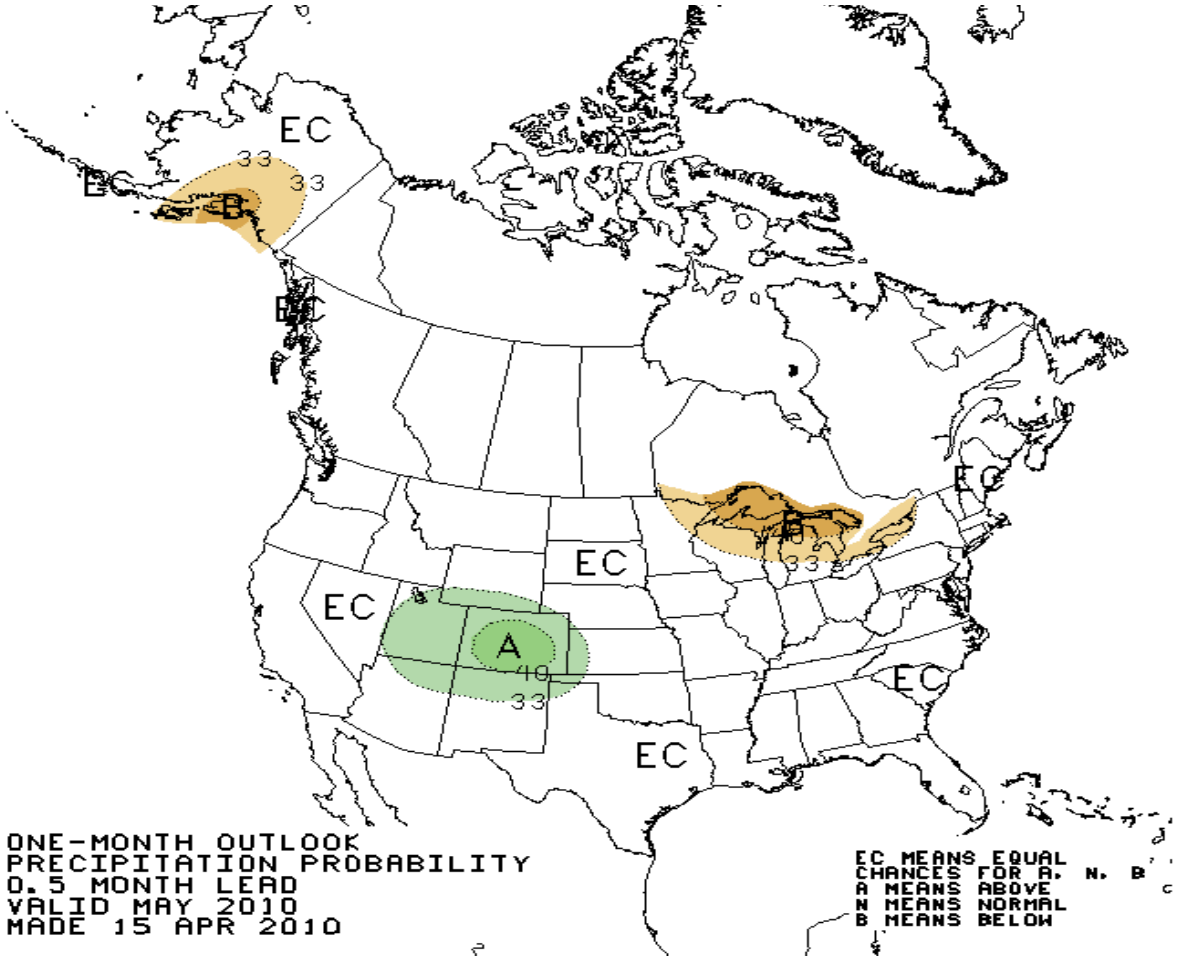
Temperature Outlook
May - July



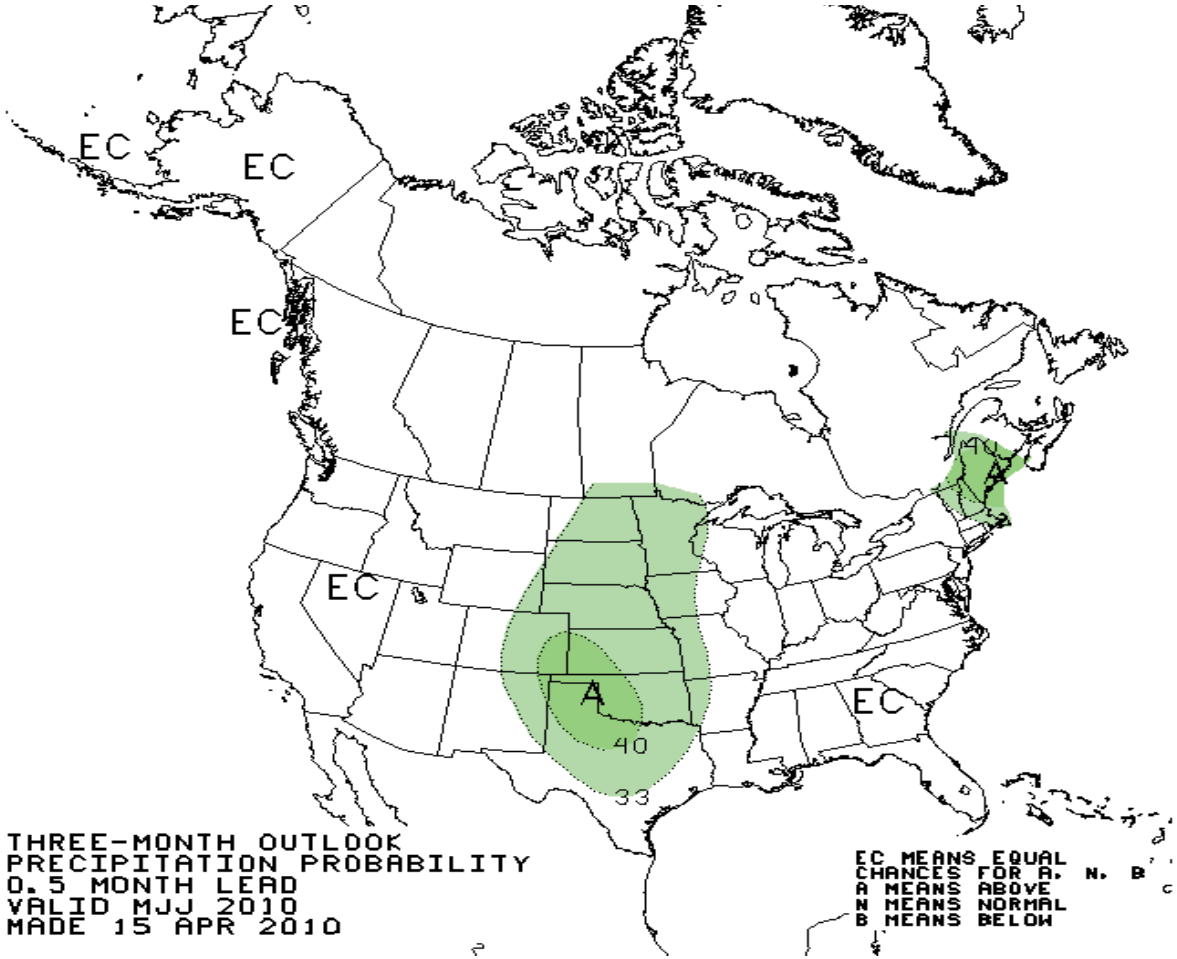
Long Lead Outlooks Temperature



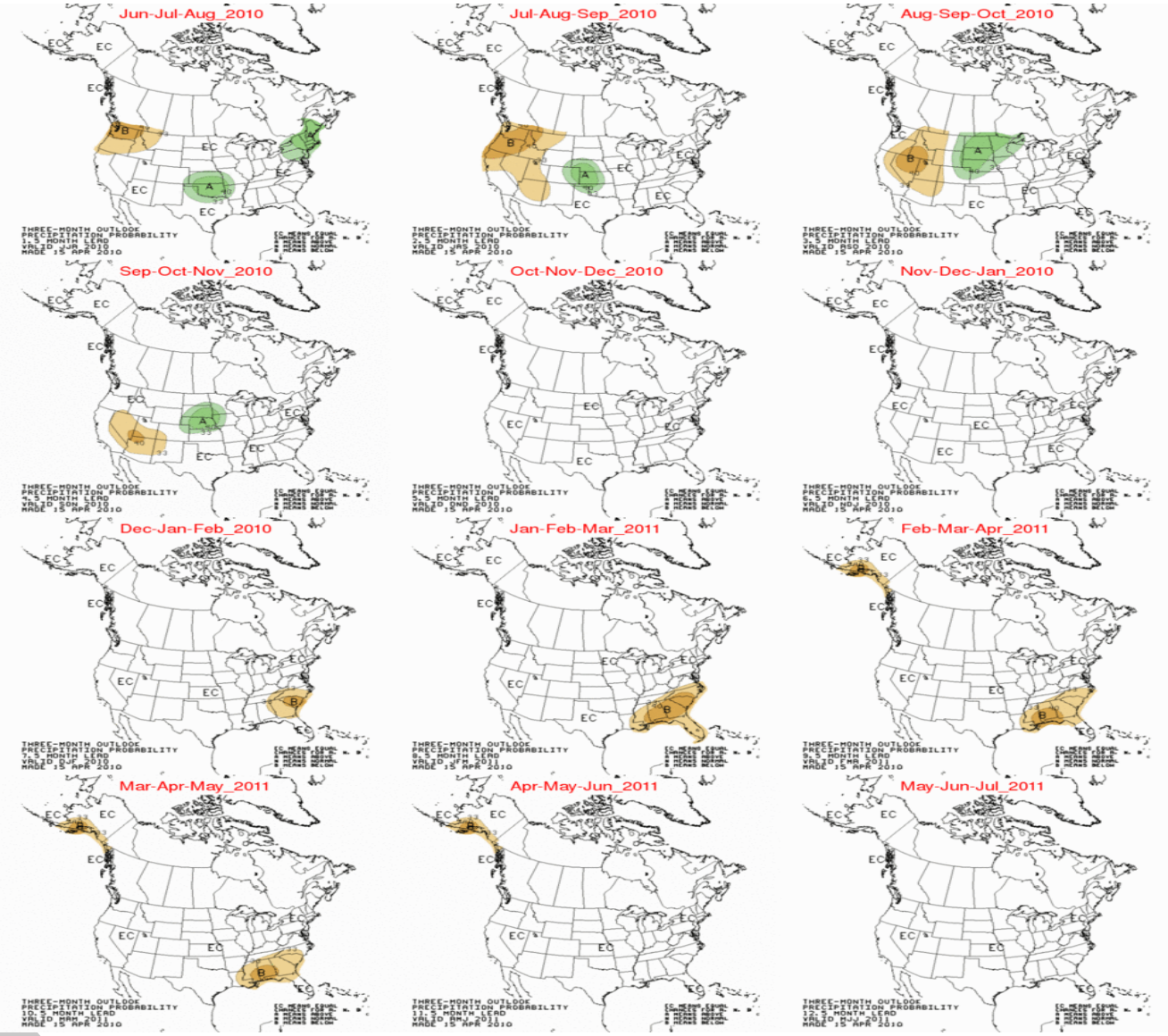
Precipitation Outlook
May



Precipitation Outlook
May - July



Long Lead Outlooks Precipitation



El Nino Statistical Precipitation Forecast

	Omaha		Kearney		Scottsbluff	
	Above	Below	Above	Below	Above	Below
May	11	4 (1)	6	9 (3)	5	10 (4)
Jun	3	12 (6)	6	9 (4)	6	9 (2)
Jul	9	6 (3)	7	8 (3)	6	9 (6)
Aug	8	7 (4)	6	9 (3)	9	6 (5)
Sep	5	10 (5)	6	9 (5)	4	11 (7)

El Nino Statistical Temperature Forecast

	Omaha		Kearney		Scottsbluff	
	Above	Below	Above	Below	Above	Below
May	7	8	11	4	9	6
Jun	8	7	7	8	7	8
Jul	11	4	13	2	11	4
Aug	11	4	11	4	9	6
Sep	9	6	11	4	9	6

GDD Accumulated in Growing Seasons following El Nino

	Omaha	Kearney	Scottsbluff
5/1	2859-3706 3089-3706	2512-3369 2512-3369	2205-3055 2419-3055
5/15	2647-3495 2970-3495	2448-3167 2456-3167	2141-2895 2313-2895
5/30	2439-3227 2710-3227	2249-2961 2336-2961	2041-2678 2096-2678
Standard	2500-2700	2350-2500	2050-2250

Conclusions

- Significant grasshopper outbreak potential http://www.sidney.ars.usda.gov/grasshopper/index.htm
- Still haven't reached average 28 F or 32 F freeze date across northern/western Nebraska.
- Flood concerns will remain elevated across eastern Nebraska through spring planting due to abnormally high sub-soil moisture levels.
- Mountain snow pack has gained considerable ground last 30 days easing concerns for sub-par runoff.
- Past El Nino events suggest above normal Jun-Aug temperatures statewide. There is a strong tendency for above normal Jul-Aug temperatures across the eastern 2/3 of the state.

Conclusions

- There is a strong tendency for below normal moisture during June for eastern Nebraska, September for eastern and western Nebraska.
- Below normal severe weather?
- Analysis indicates that all 3 locations accumulated enough GDD's to meet the criteria for the recommended variety using the 5/1 and 5/15 emergence dates. One year failed for Omaha, 2 years failed for Kearney, and 4 years failed for Scottsbluff using the 5/30 emergence.
- Average first hard freeze data mirrored historical trends at Omaha and Scottsbluff. There was a slight shift toward an earlier freeze for Kearney.