NE Drought Conditions
CARC Update: March 2009

Mark Svoboda and Brian Fuchs
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University of Nebraska-Lincoln

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National Drought Mitigation Center

Current Conditions around Nebraska and the region…

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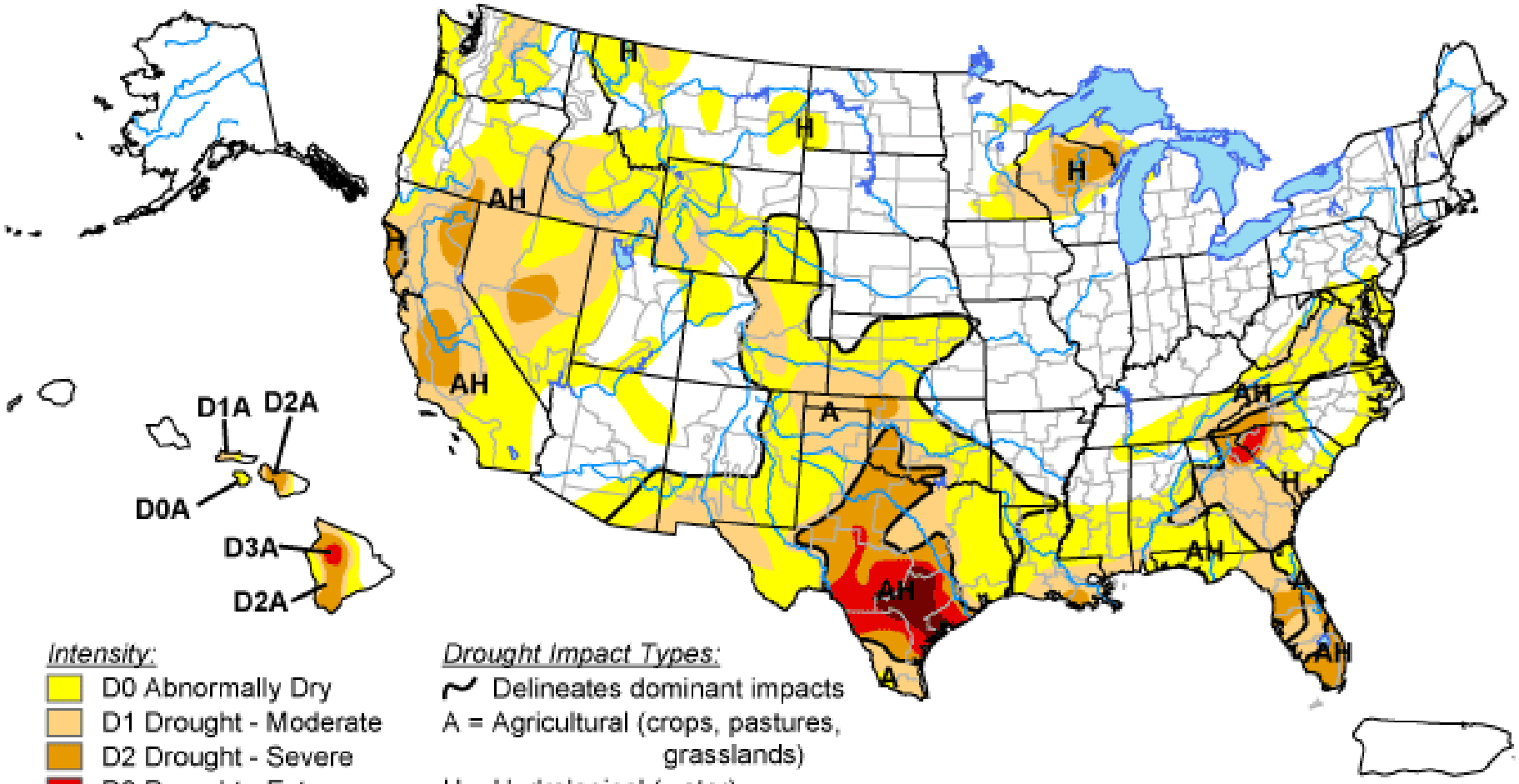
U.S. Drought Monitor

March 17, 2009
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.

USDA | National Drought Mitigation Center

Released Thursday, March 19, 2009

Author: Laura Edwards, Western Regional Climate Center

http://drought.unl.edu/dm

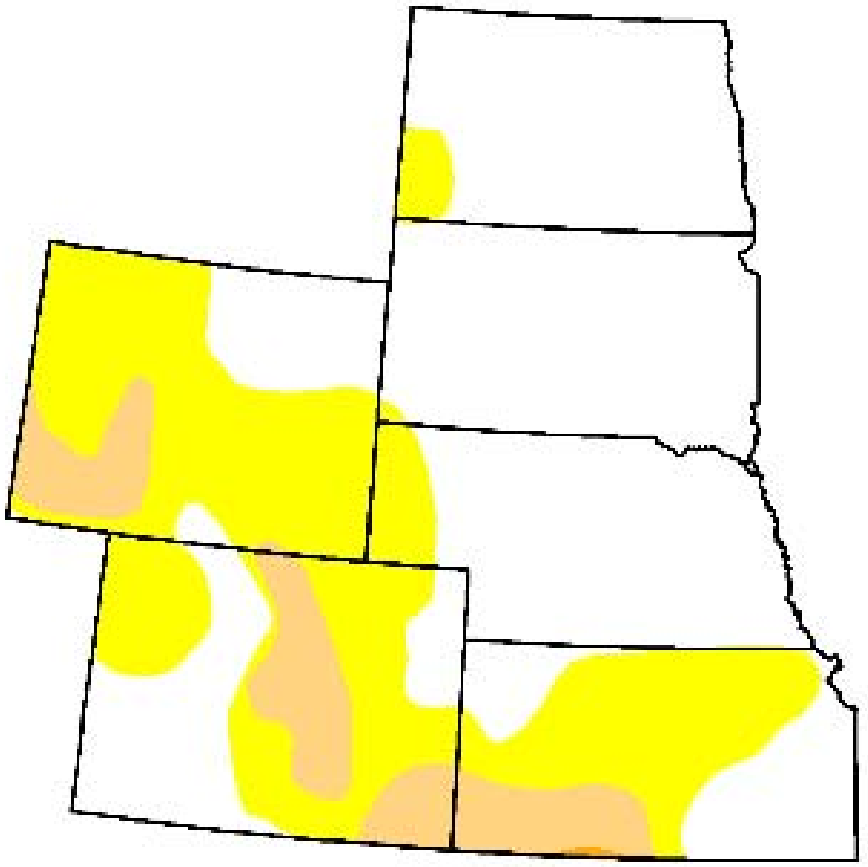
U.S. Drought Monitor

High Plains

March 17, 2009
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	59.0	41.0	9.5	0.1	0.0	0.0
Last Week (03/10/2009 map)	59.0	41.0	8.3	0.0	0.0	0.0
3 Months Ago (12/23/2008 map)	61.1	38.9	7.8	0.0	0.0	0.0
Start of Calendar Year (01/06/2009 map)	65.1	34.9	7.0	0.0	0.0	0.0
Start of Water Year (10/07/2008 map)	60.8	39.2	11.6	3.5	1.6	0.0
One Year Ago (03/18/2008 map)	40.4	59.6	31.8	14.1	1.1	0.0



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Released Thursday, March 19, 2009

Author: Laura Edwards, Western Regional Climate Center

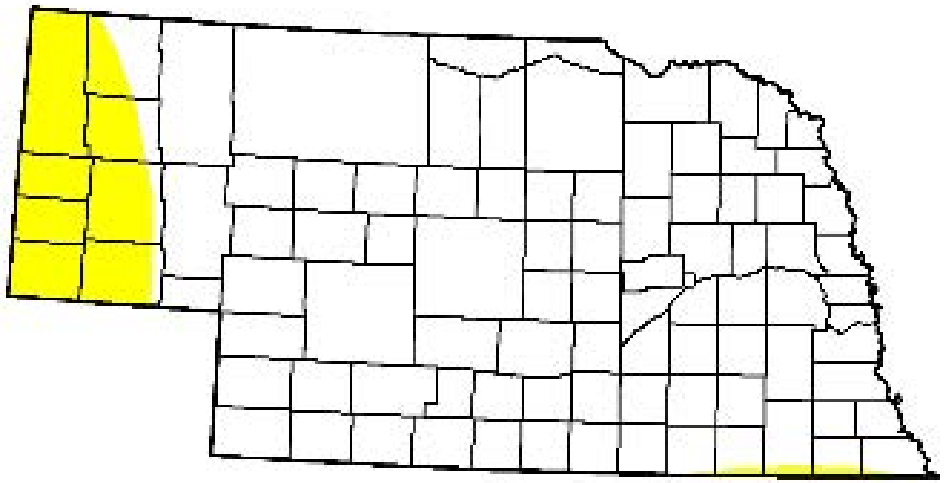
U.S. Drought Monitor

Nebraska

March 17, 2009
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	89.0	11.0	0.0	0.0	0.0	0.0
Last Week (03/10/2009 map)	89.0	11.0	0.0	0.0	0.0	0.0
3 Months Ago (12/23/2008 map)	89.8	10.2	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 (03/18/2008 map)	66.7	33.3	23.8	7.8	1.7	0.0



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Released Thursday, March 19, 2009

Author: Laura Edwards, Western Regional Climate Center

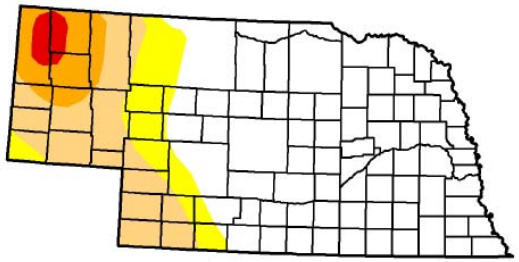
U.S. Drought Monitor

March 18, 2008
Valid 7 a.m. EST

Nebraska

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	66.7	33.3	23.8	7.8	1.7	0.0
Last Week (03/11/2008 map)	66.7	33.3	23.8	7.8	1.7	0.0
3 Months Ago (12/25/2007 map)	66.7	33.3	15.9	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 (03/20/2007 map)	48.1	51.9	34.1	24.2	12.3	0.0



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http://drought.unl.edu/dm

USDA National Drought Mitiga

Released Thursda

Author: Mark Svoboda, National Dro

U.S. Drought Monitor

March 17, 2009
Valid 7 a.m. EST

Nebraska

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	89.0	11.0	0.0	0.0	0.0	0.0
Last Week (03/10/2009 map)	89.0	11.0	0.0	0.0	0.0	0.0
3 Months Ago (12/23/2008 map)	89.8	10.2	0.0	0.0	0.0	0.0
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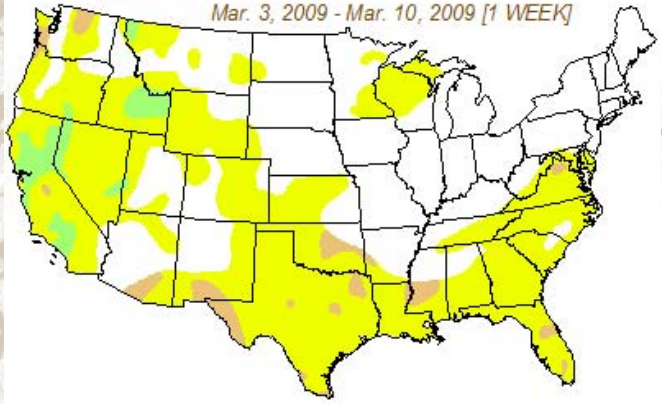
http://drought.unl.edu/dm

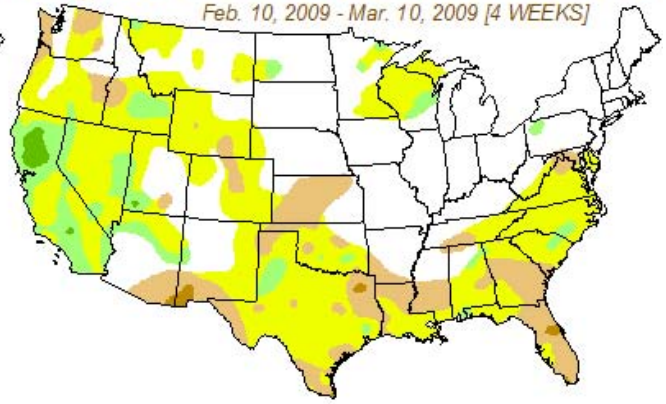
USDA National Drought Mitigation Center

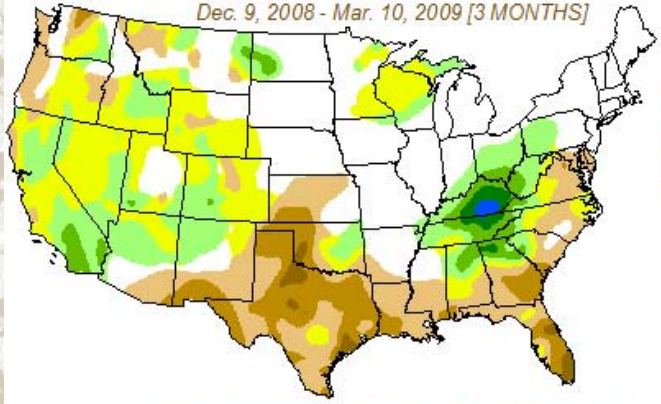
Released Thursday, March 19, 2009

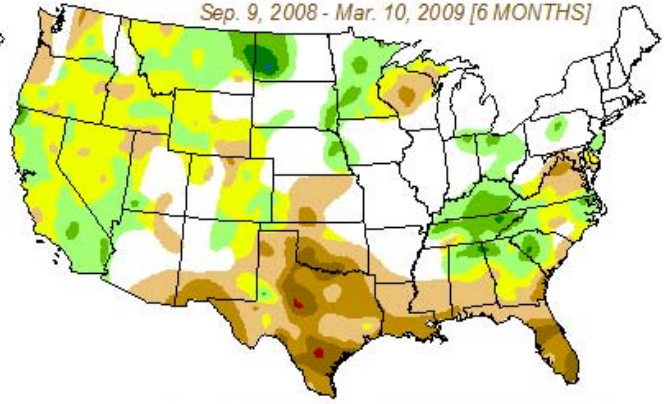
Author: Laura Edwards, Western Regional Climate Center

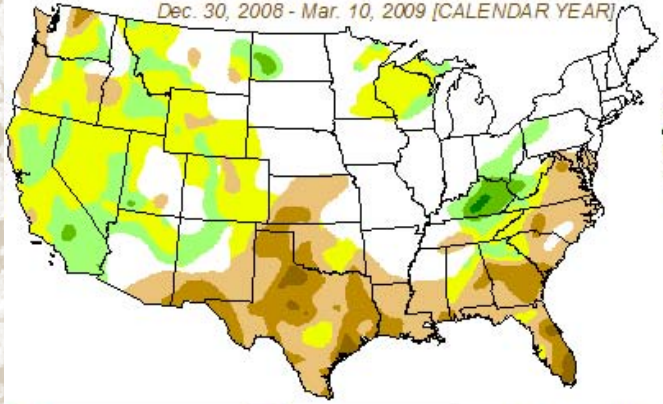
Drought Monitor Classification Changes for Selected Time Periods

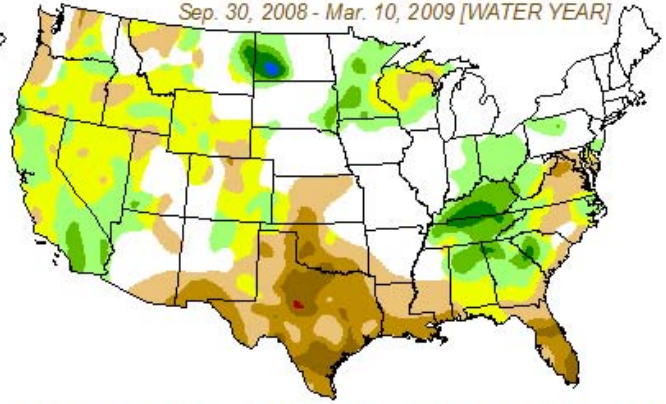










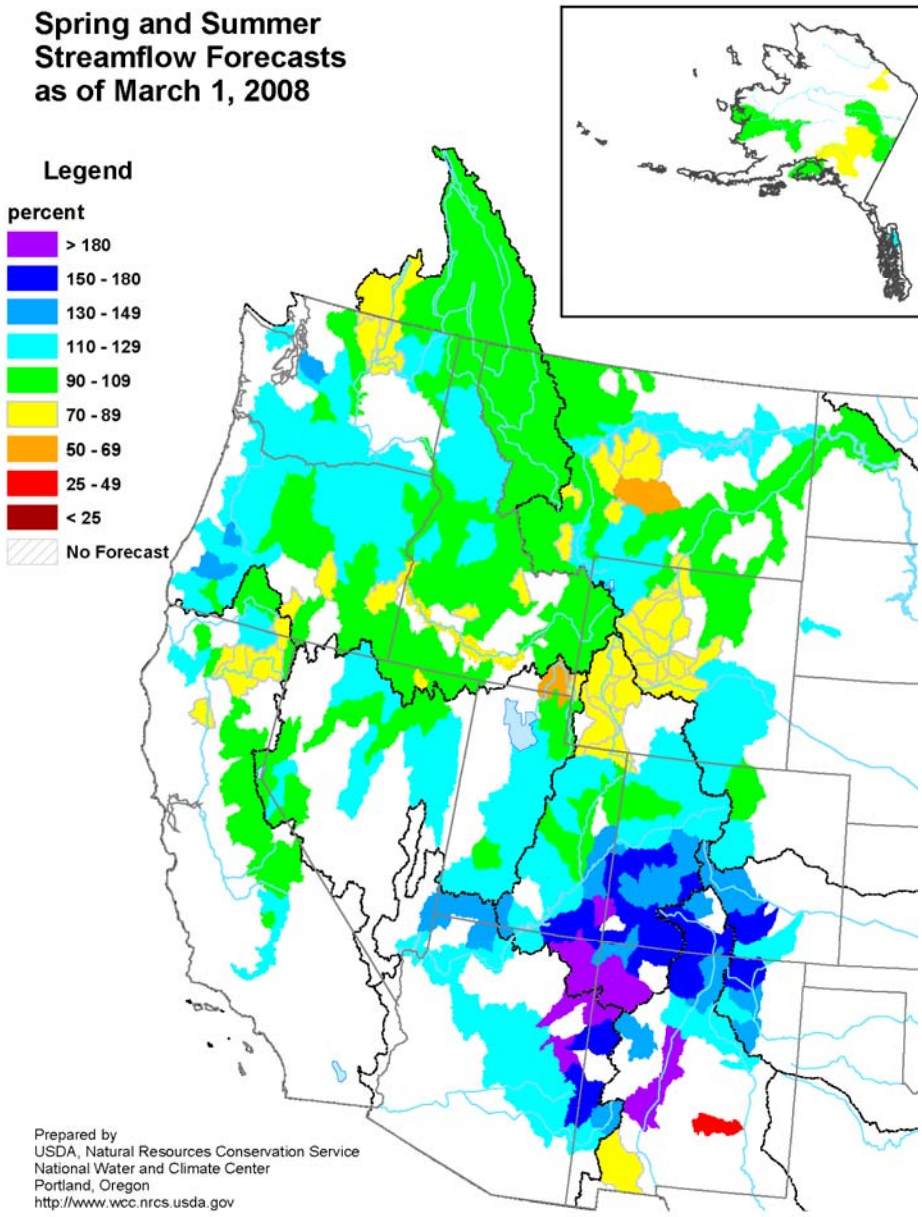


- 5 class improvement
- 4 class improvement
- 3 class improvement
- 2 class improvement
- 1 class improvement
- unchanged
- 1 class deterioration
- 2 class deterioration
- 3 class deterioration
- 4 class deterioration
- 5 class deterioration

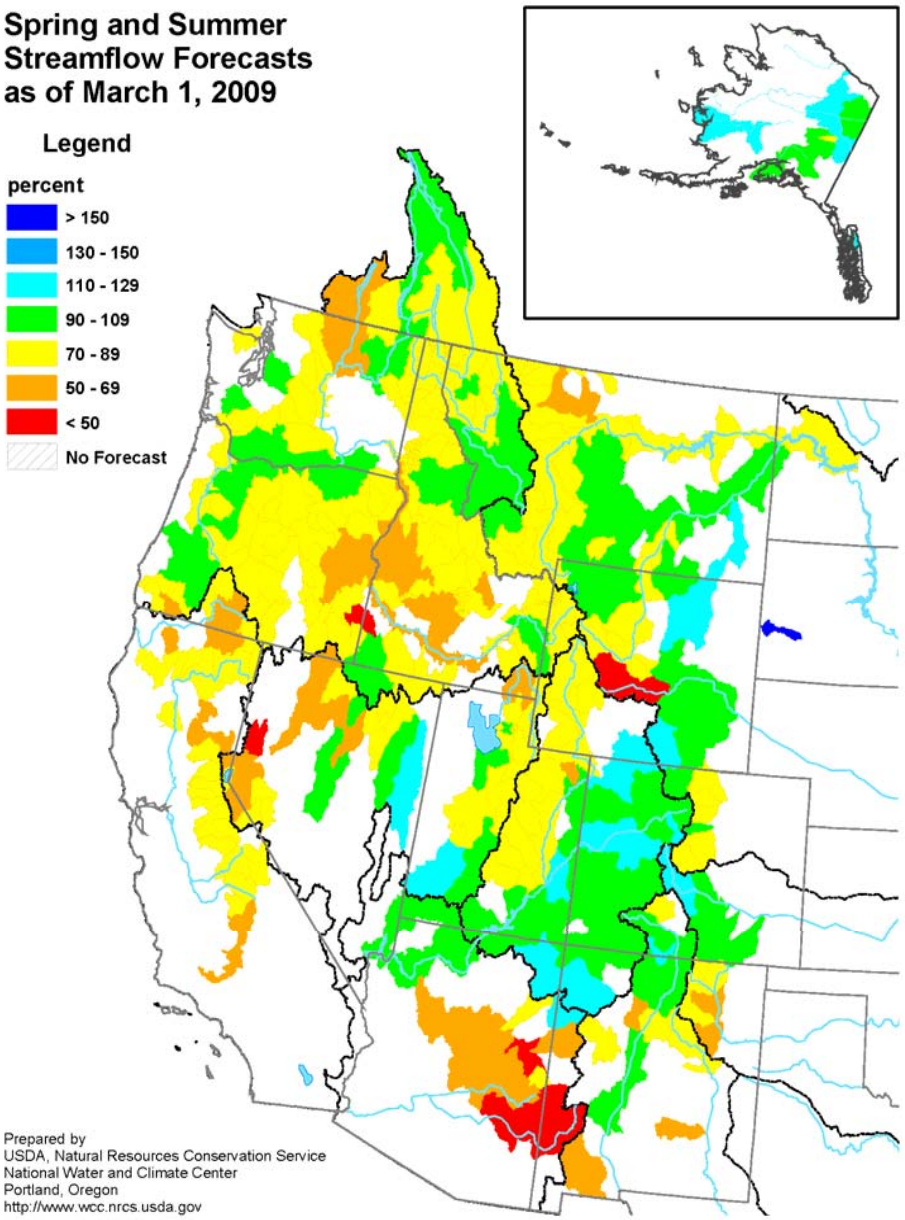
These maps depict approximate changes in drought intensity from selected initial times to the current week, with no consideration given to intervening weeks. The difference calculations are based on interpolated 4 km grids of Drought Monitor classifications, and as a result, will be smoother than would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

National Drought Mitigation Center

Spring and Summer Streamflow Forecasts as of March 1, 2008



Spring and Summer Streamflow Forecasts as of March 1, 2009

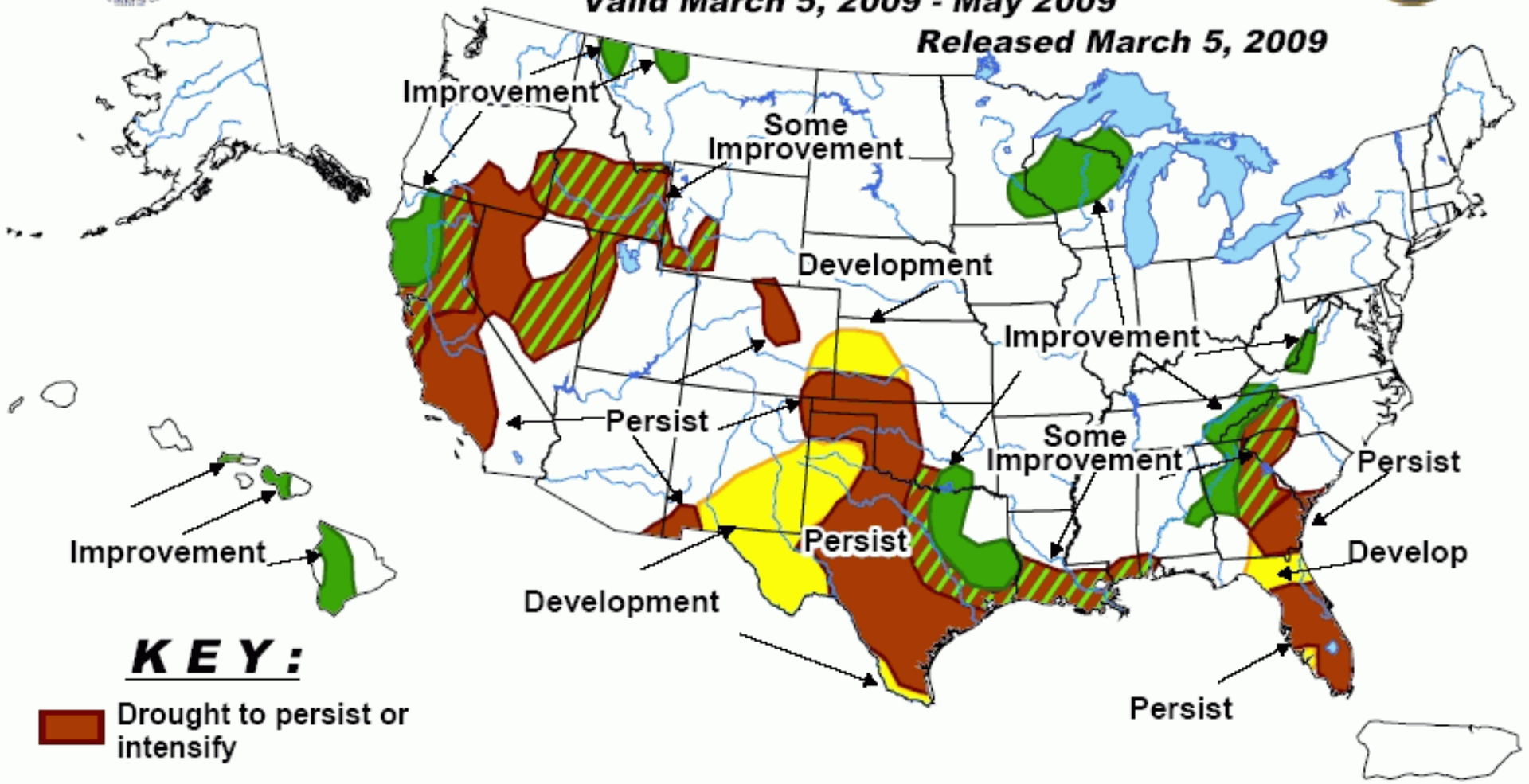


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid March 5, 2009 - May 2009

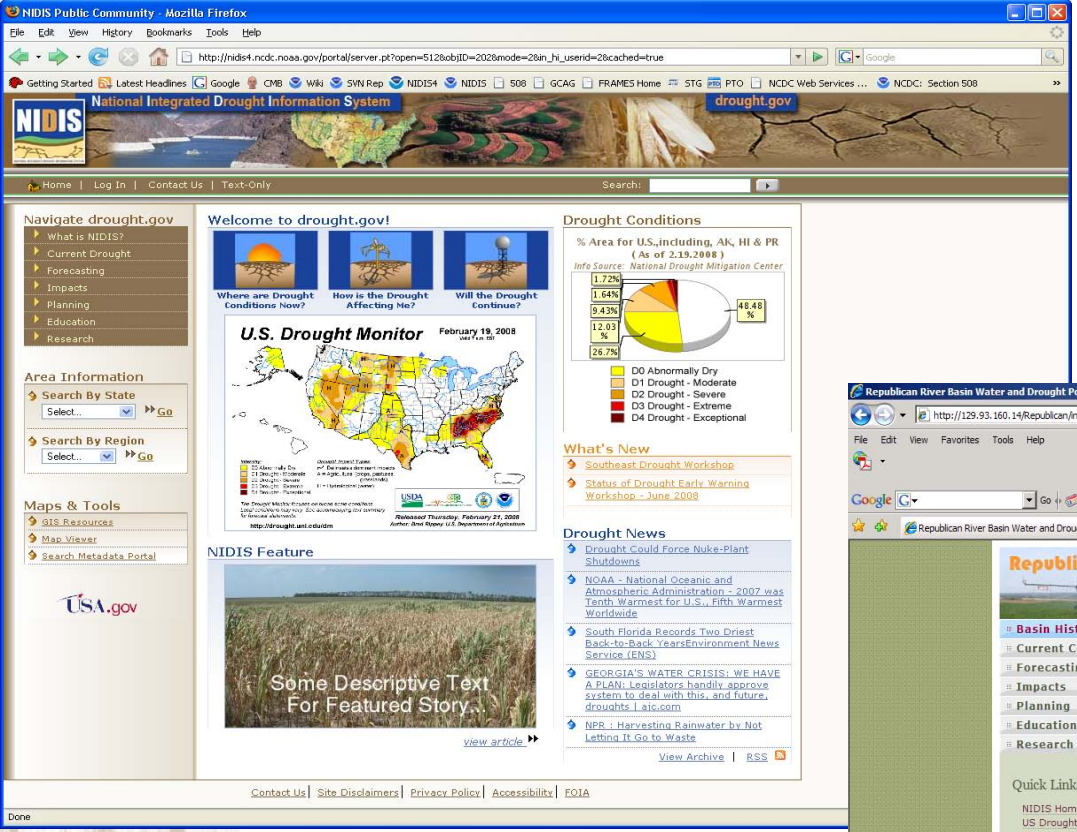
Released March 5, 2009



KEY:

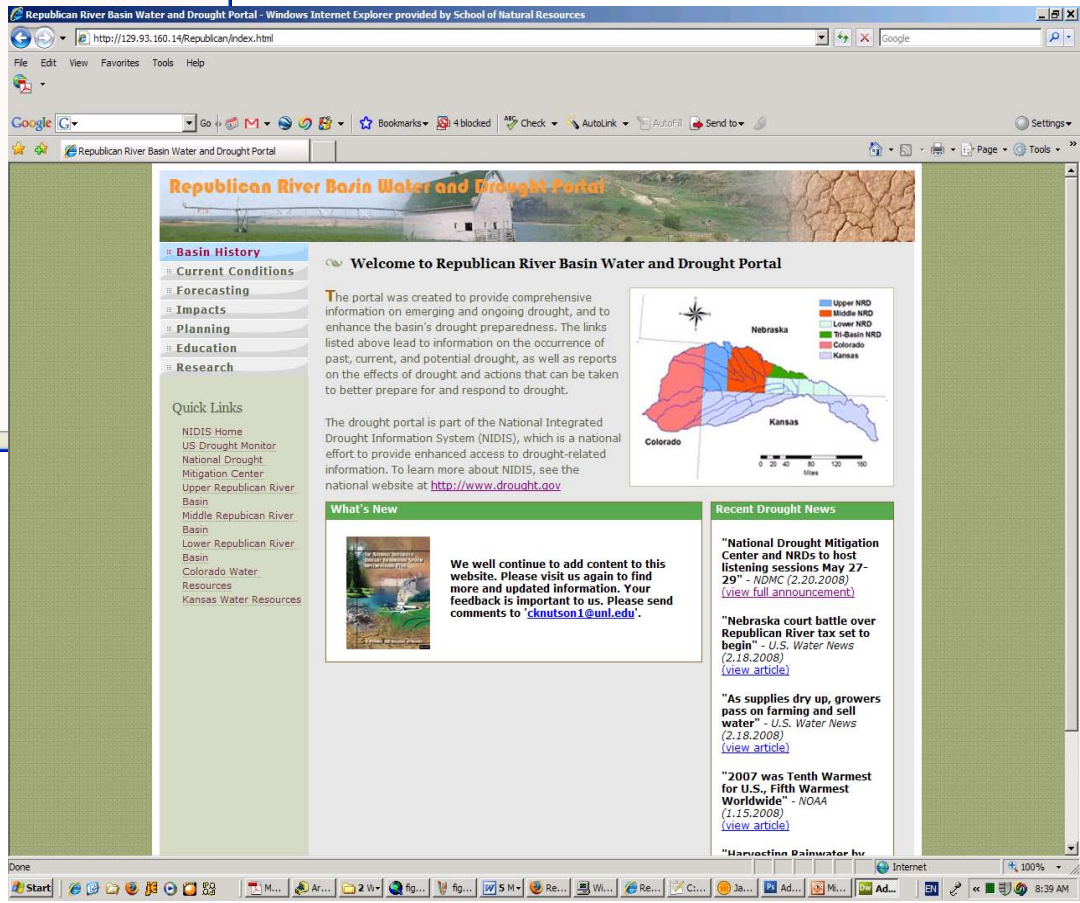
- Drought to persist or intensify
- Drought ongoing, some improvement
- Drought likely to improve, impacts ease
- Drought development likely

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

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM



NIDIS Drought Portal

Showcase Portlets and Key Themes

http://drought.gov

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Nebraska Water Supply Update…

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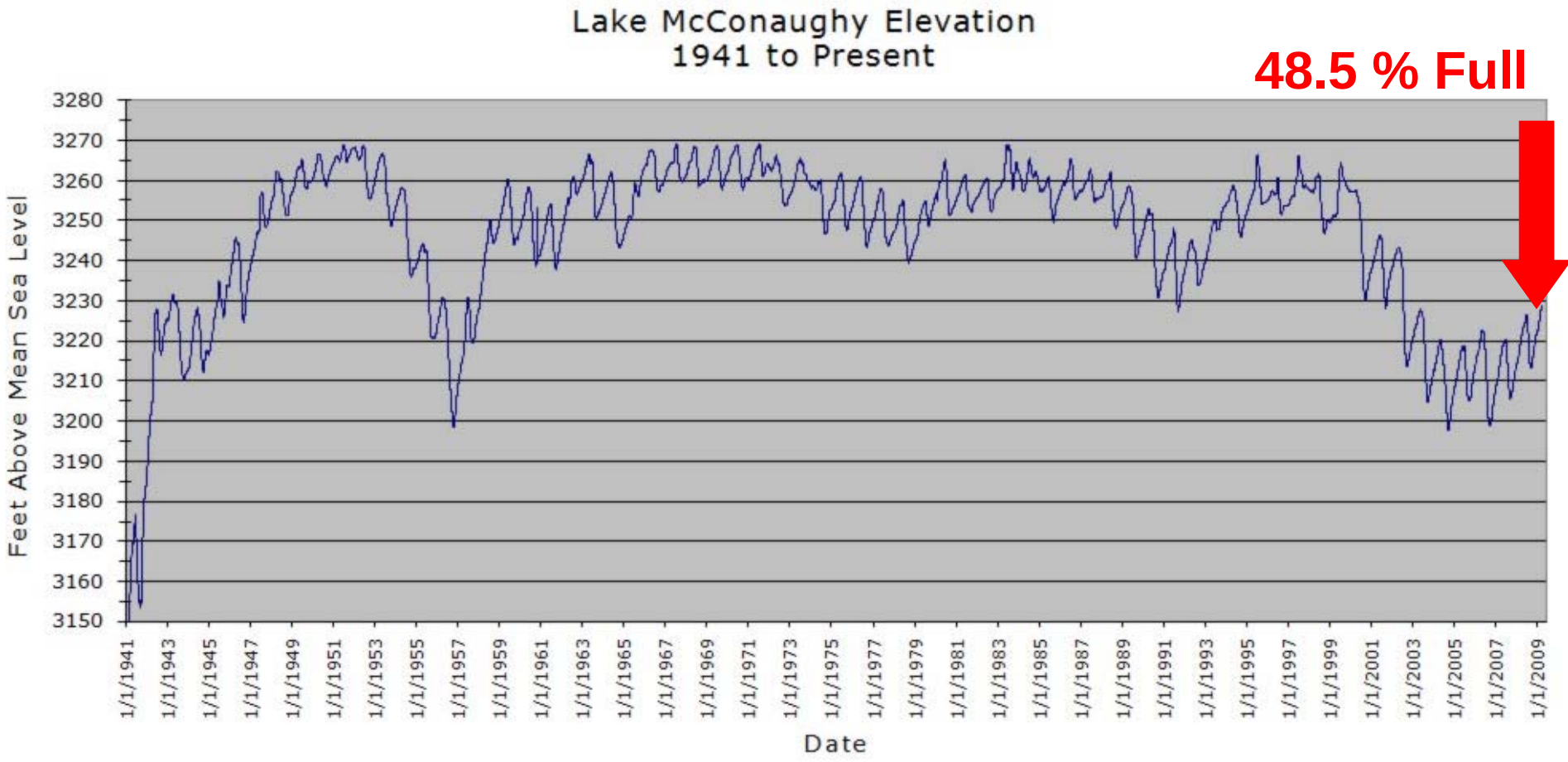
National Drought Mitigation Center



SOURCE: CNPPID www.cnppid.com

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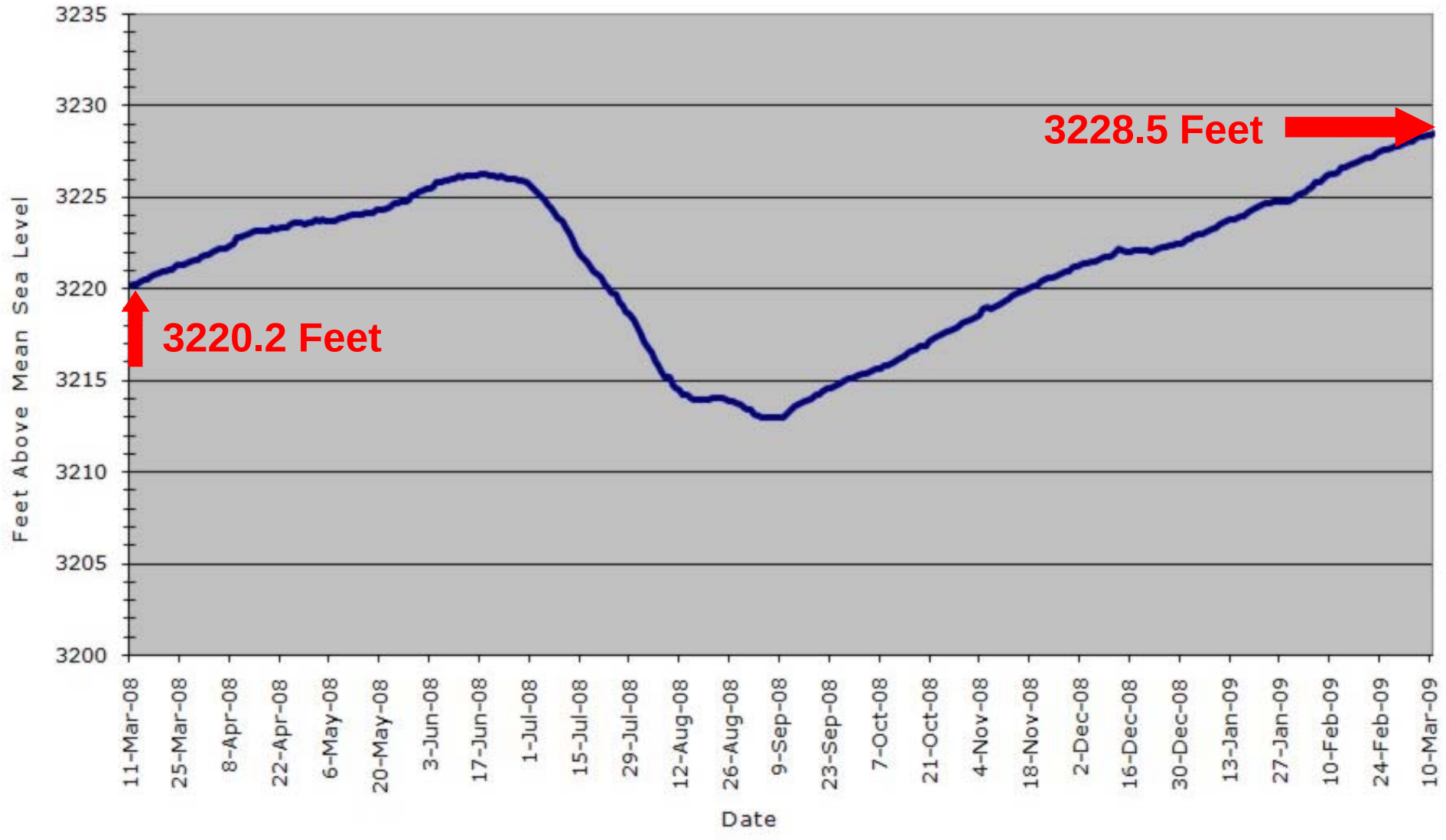
National Drought Mitigation Center

Lake McConaughy Elevation

Since March 11, 2008



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SOURCE: CNPPID www.cnppid.com

National Drought Mitigation Center

Lake McConaughy

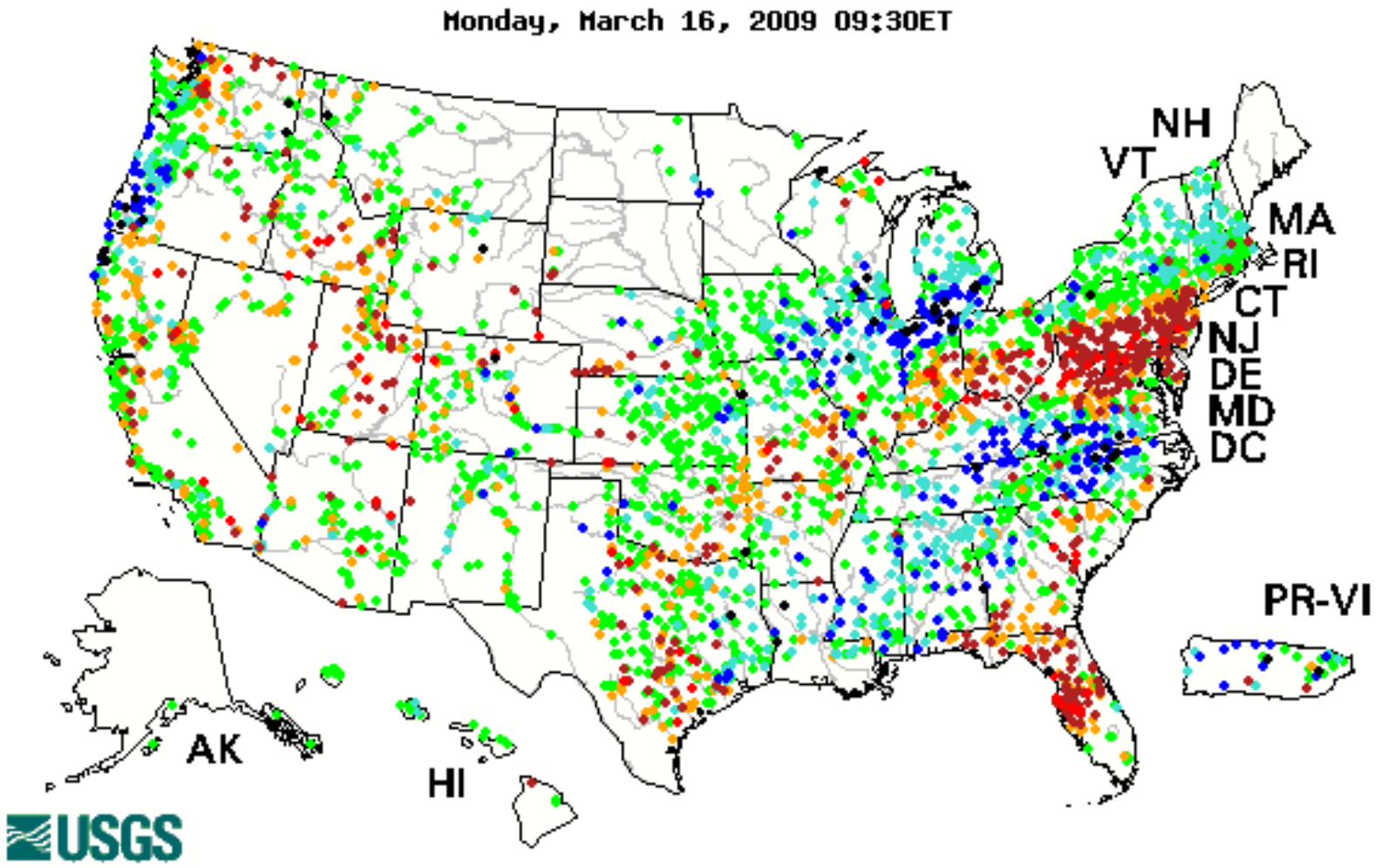
“Civil Engineer Cory Steinke reported that Lake McConaughy *is 8.4 feet higher and contains 157,200 acre-feet more than at this time last year.* Inflows are running about 69 percent of normal for this time of year. The lake is expected to peak near elevation 3231.0 feet above mean sea level, with about 900,000 acre-feet in storage (52 percent of capacity).

Steinke reported that snowpack accumulation in the upper North Platte River basin is 110 percent of normal, and 86 percent in the lower North Platte Basin. Snowpack in the South Platte River Basin is currently 96 percent of normal.

He also reported that the U.S. Fish and Wildlife Service is contemplating releases of water from the Environmental Account (EA) in Lake McConaughy this spring. The April releases would create pulse flows to test for potential "choke points" during periods of high flows along the Platte River.”

SOURCE: CNPPID News Release, March 2, 2009

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



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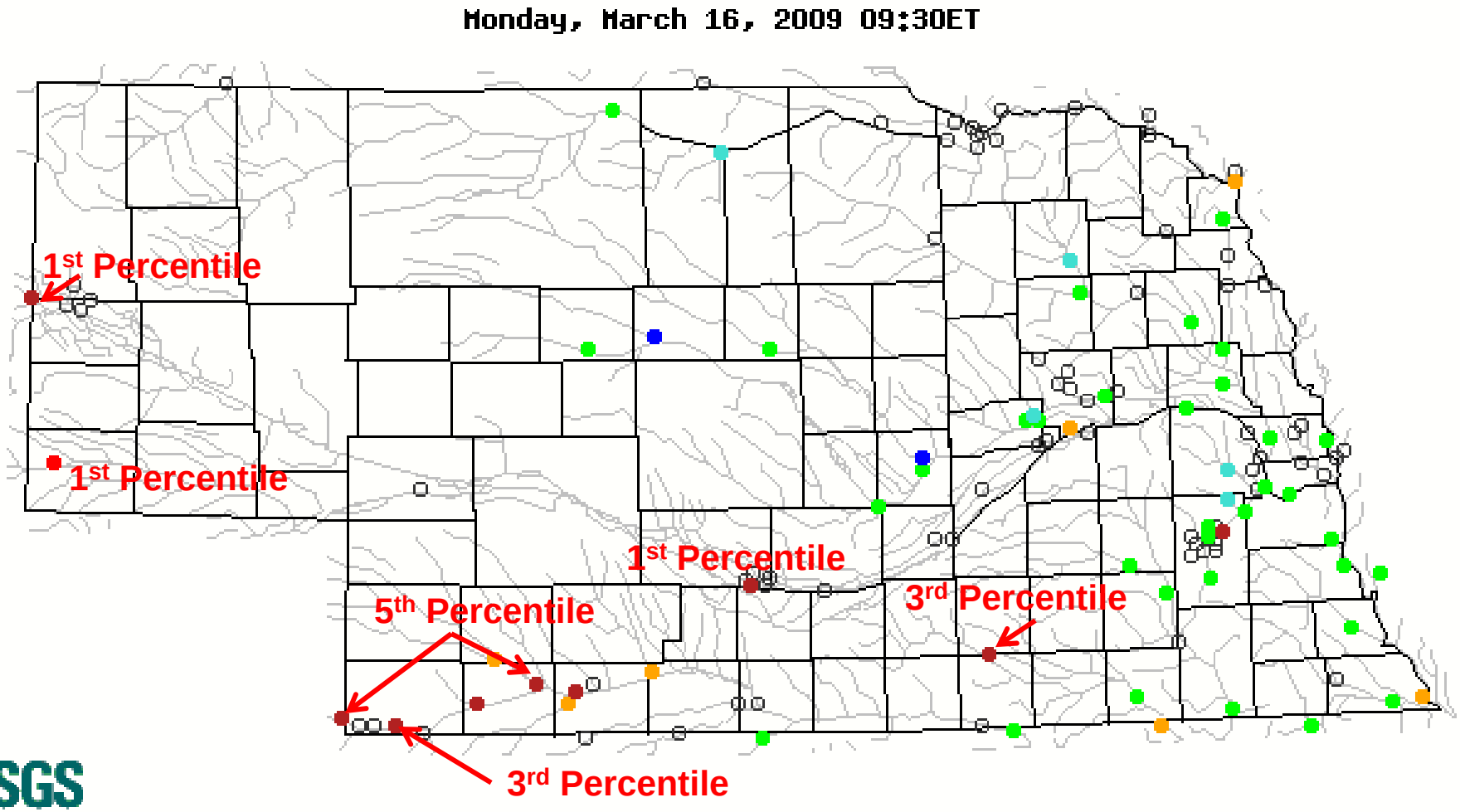


USGS

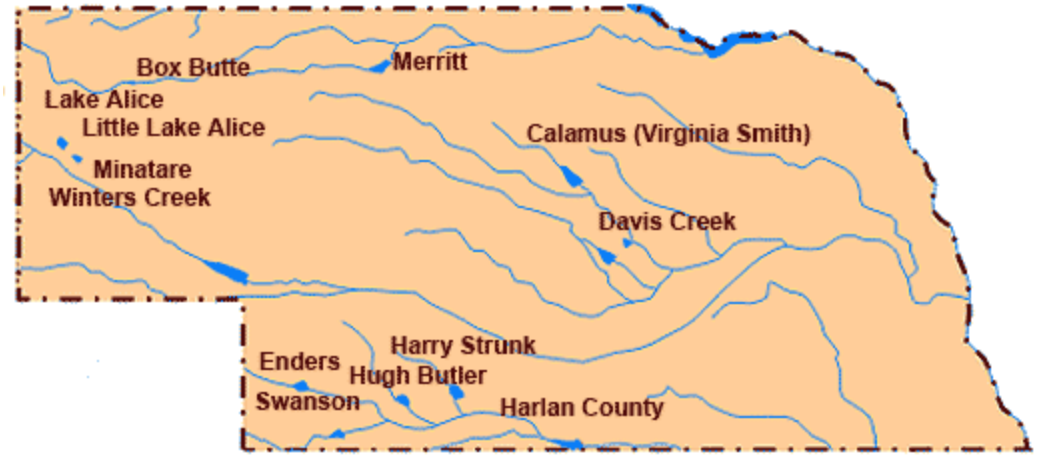
University of Nebraska Lincoln

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

Republican River Basin

- **Hugh Butler:** 76% of conservation pool
- **Enders:** 36% of conservation pool
- **Harry Strunk:** 95% of conservation pool
- **Swanson:** 51% of conservation pool

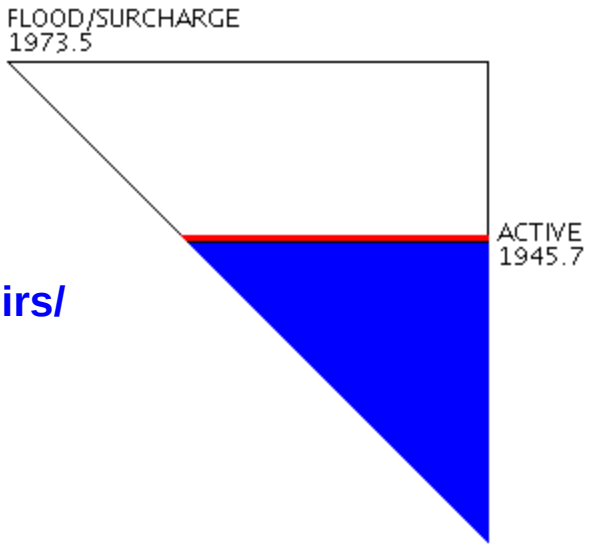


Source: BOR http://www.usbr.gov/gp/lakes_reservoirs/

Republican River Basin

Harlan County Current Conditions

- ✓ Conservation Pool is 100% Full
- ✓ 324,046 Acre-Feet of water in storage



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

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Summary

- Drought-free heading into Spring for the first time since 2001!
  - 11% of NE Abnormally Dry (D0)
- Average snows in the Rockies…a little worse off than last year
- Better lake levels in general (Big Mac UP 8 ft. from this time last year (48.5% full) and Harlan County is 100%)
- Hydro has a ways to go though…..as we are still seeing very low stream flows in the western part of the state

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Questions?

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National Drought Mitigation Center

Analysis of Moisture Conditions and Risk Assessment for the 2009 Production Season

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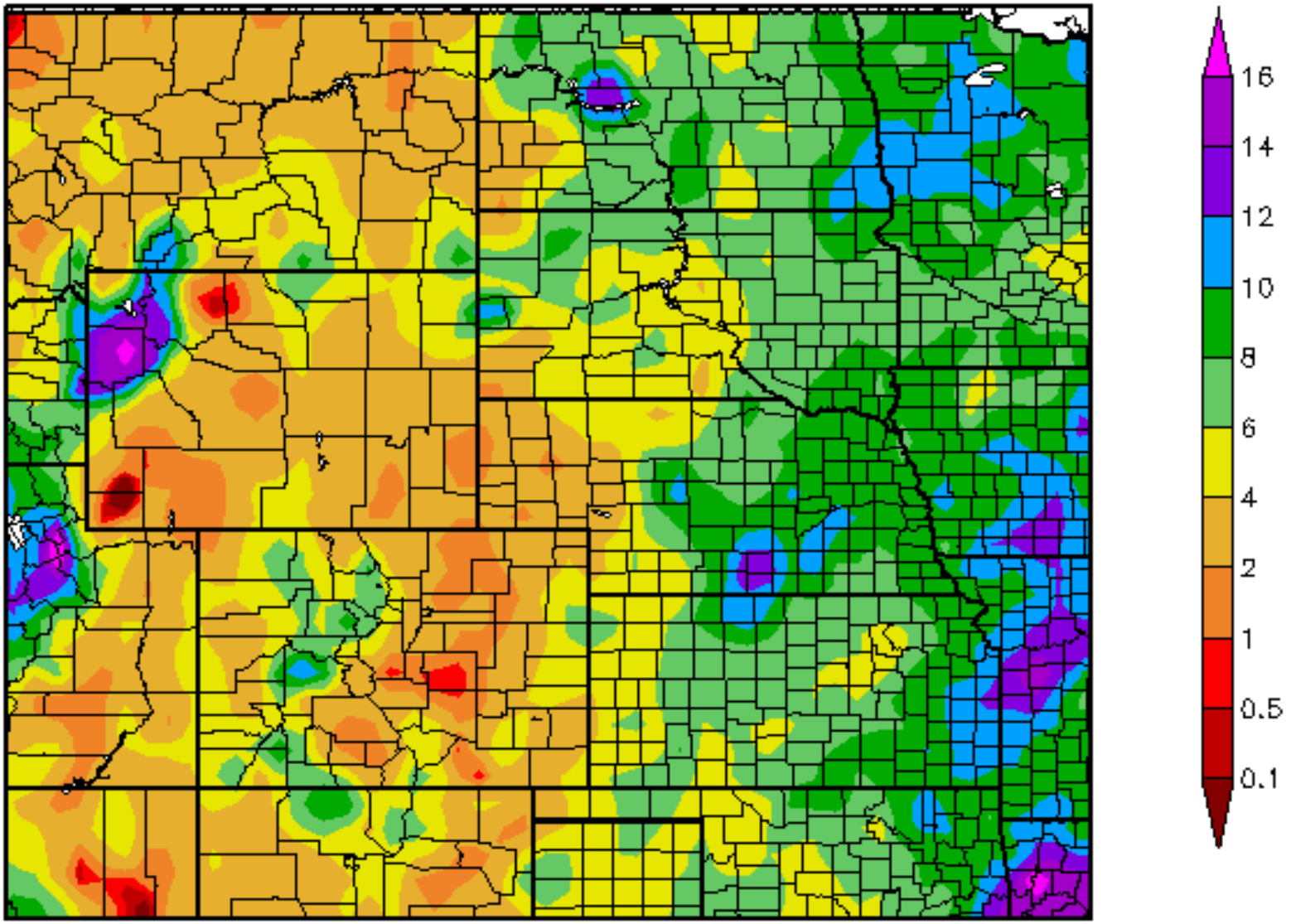
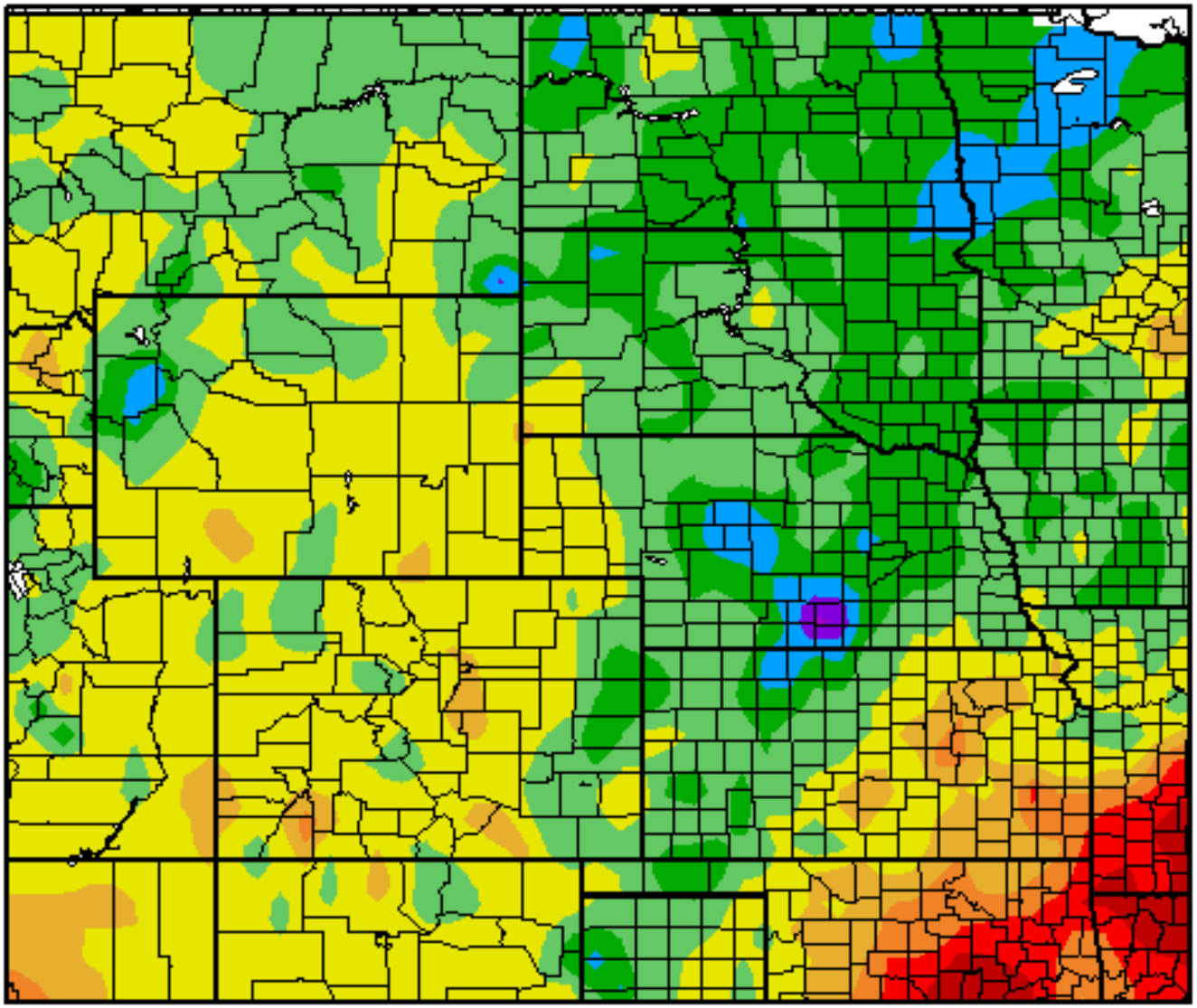
Precipitation (in)
10/1/2008 – 3/18/2009



Generated 3/19/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)
10/1/2008 – 3/18/2009



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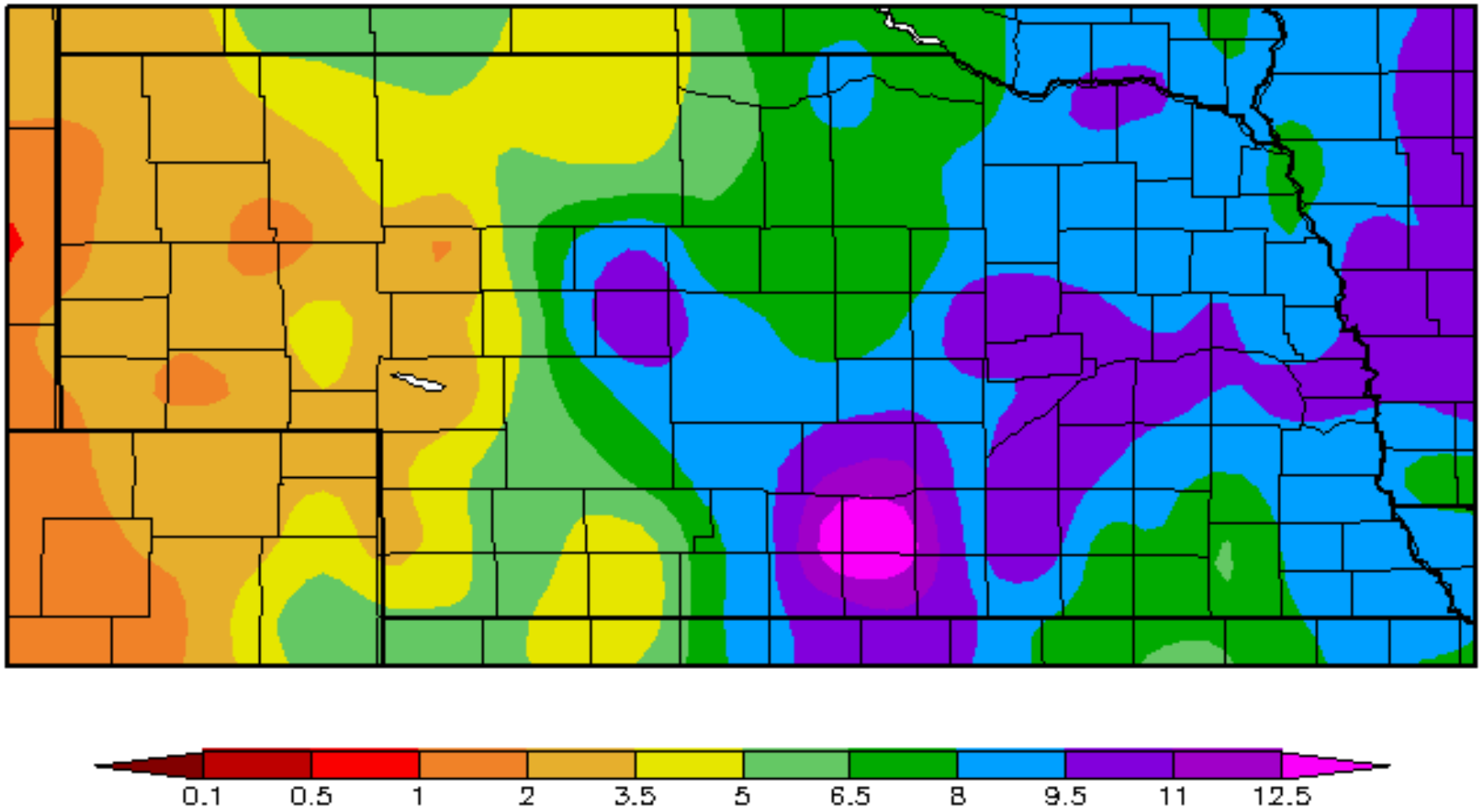

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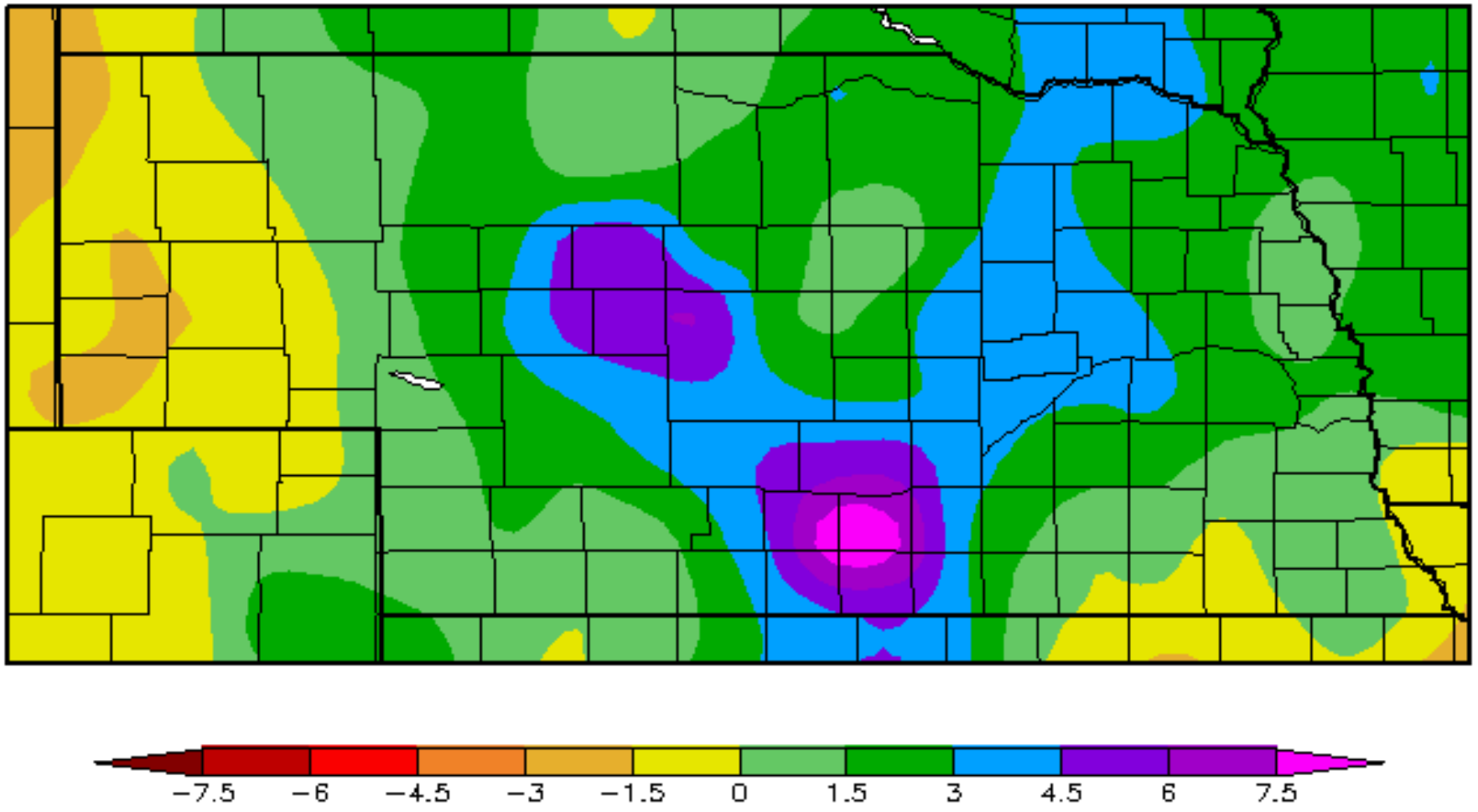
10/1/2008 – 3/18/2009

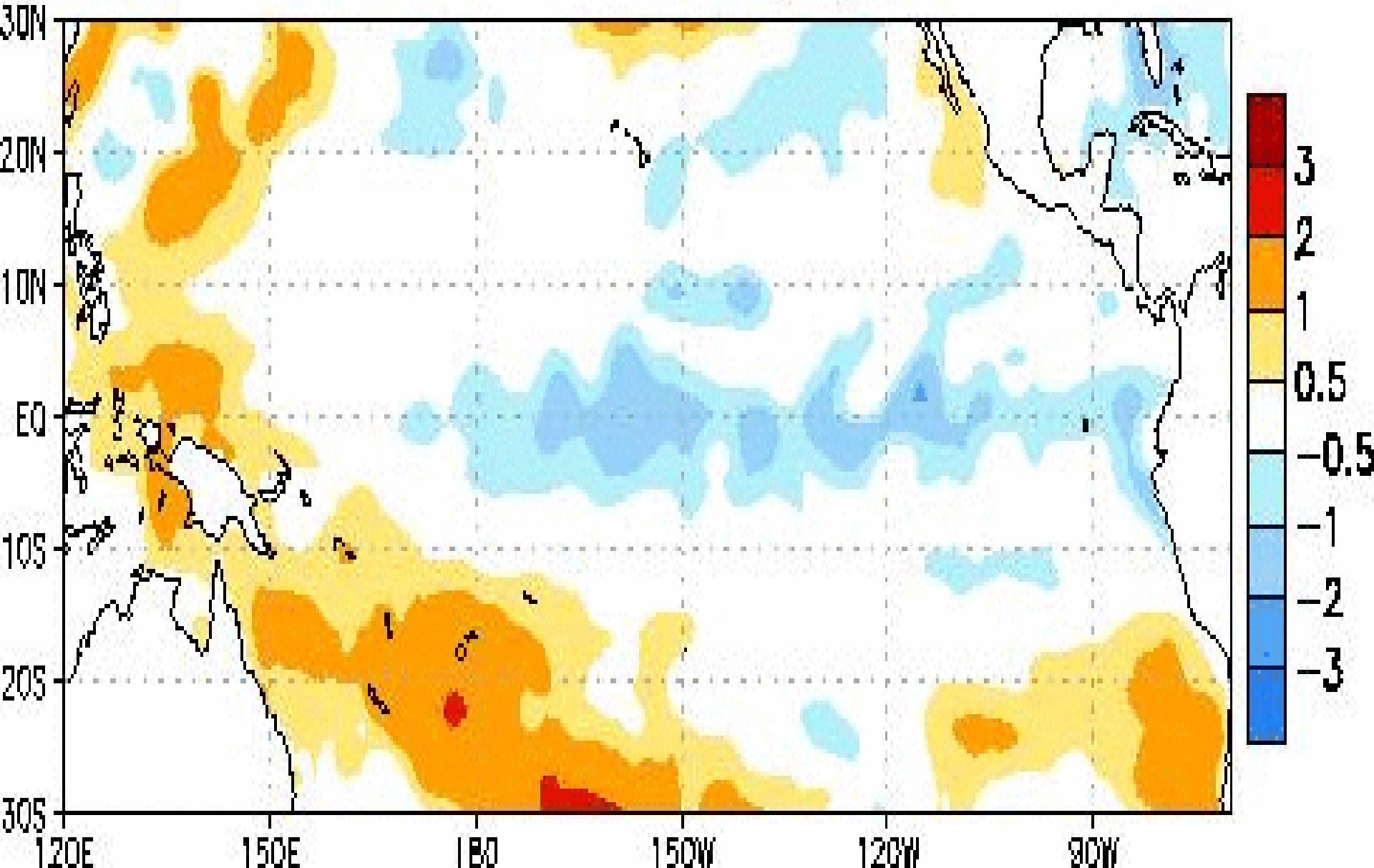


Generated 3/19/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Week centered on 24 DEC 2008

SST Anomalies (°C)

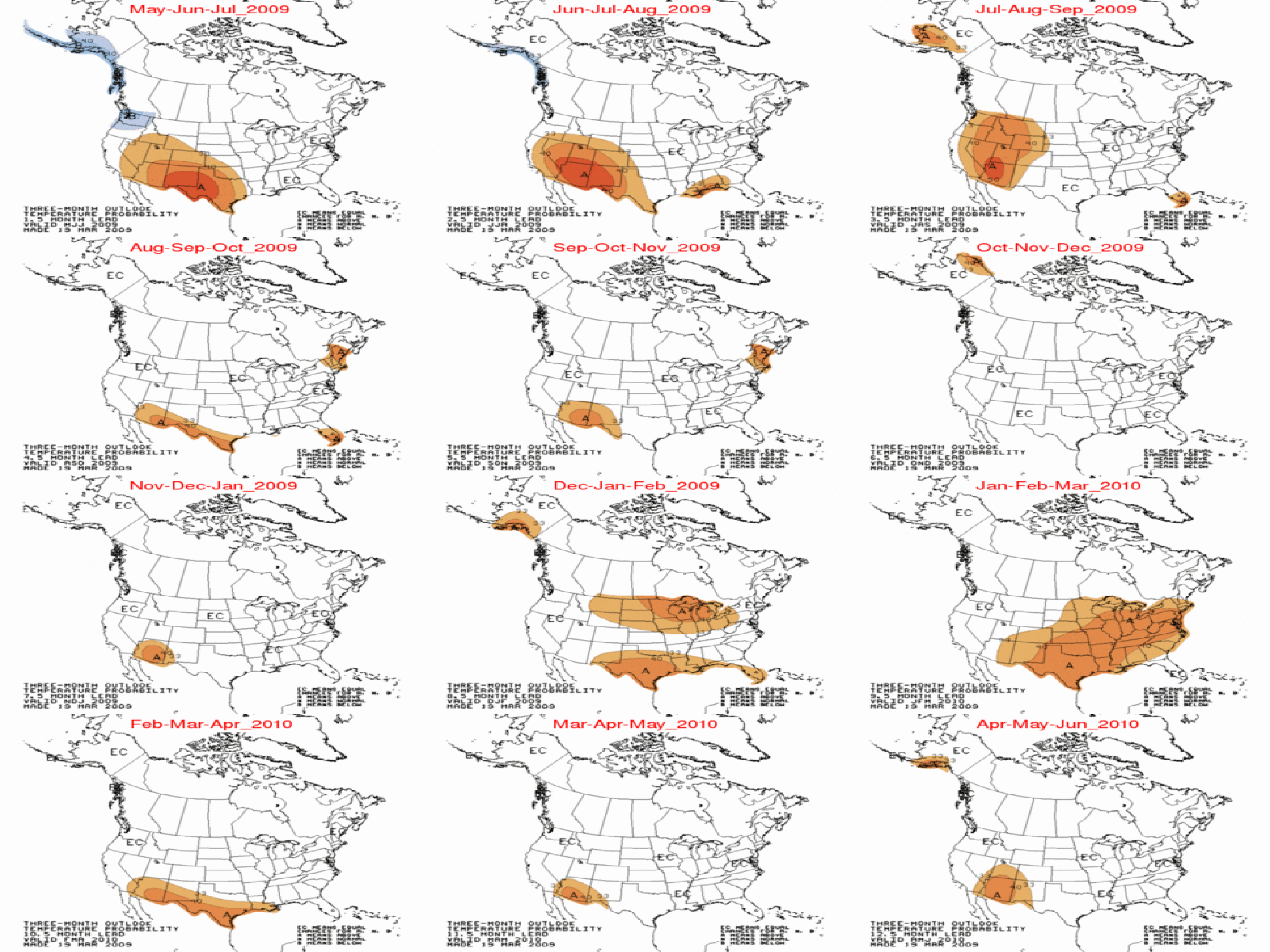


Omaha Trends for La Nina Events Entering Second/Third Production Year

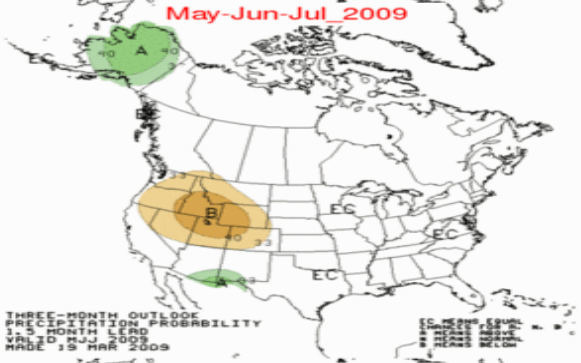
	Precipitation			Temperature	
	Norm	Range	Trend	Norm	Trend
Feb	0.80	0.17 – 1.35	A-W	28.0	B-W
March	2.13	0.23 – 2.17	B-M	39.3	B-W
Apr	2.94	1.60 - 4.07	B-W	51.4	B-W
May	4.44	1.50 – 5.91	B-W	62.2	A-W
Jun	3.95	0.70 – 6.86	B-W	72.2	A-M
Jul	3.86	0.94 – 5.25	B-W	76.7	A-W
Aug	3.21	0.77 – 4.08	B-M	74.5	A-S

Holdrege Trends for La Nina Events Entering Second/Third Production Year

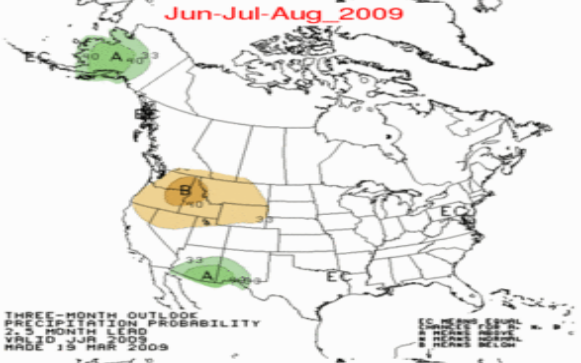
	Precipitation			Temperature	
	Norm	Range	> Norm	Norm	>Norm
Feb	0.51	0.18 – 1.02	B-W	28.8	A-W
March	2.08	0.28 – 3.74	B-S	37.6	A-M
Apr	2.28	0.99 - 4.65	B-W	48.8	A-M
May	4.40	0.74 – 7.28	B-M	59.7	A-M
Jun	3.65	1.10 – 9.14	B-W	70.1	A-W
Jul	4.12	0.89 – 7.04	B-S	75.0	A-M
Aug	3.23	0.75 – 5.31	B-W	72.9	A-S


May-Jun-Jul_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
1.5 MONTH LEAD
VALID MJJ 2009
MADE 19 MAR 2009
Jun-Jul-Aug_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
2.5 MONTH LEAD
VALID JJA 2009
MADE 19 MAR 2009
Jul-Aug-Sep_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
3.5 MONTH LEAD
VALID JAS 2009
MADE 19 MAR 2009
Aug-Sep-Oct_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
4.5 MONTH LEAD
VALID ASO 2009
MADE 19 MAR 2009
Sep-Oct-Nov_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
5.5 MONTH LEAD
VALID SON 2009
MADE 19 MAR 2009
Oct-Nov-Dec_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
6.5 MONTH LEAD
VALID OND 2009
MADE 19 MAR 2009
Nov-Dec-Jan_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
7.5 MONTH LEAD
VALID NDJ 2009
MADE 19 MAR 2009
Dec-Jan-Feb_2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
8.5 MONTH LEAD
VALID DJF 2009
MADE 19 MAR 2009
Jan-Feb-Mar_2010
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
9.5 MONTH LEAD
VALID JFM 2010
MADE 19 MAR 2009
Feb-Mar-Apr_2010
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
10.5 MONTH LEAD
VALID FMA 2010
MADE 19 MAR 2009
Mar-Apr-May_2010
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
11.5 MONTH LEAD
VALID MAM 2010
MADE 19 MAR 2009
Apr-May-Jun_2010
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
12.5 MONTH LEAD
VALID AMJ 2010
MADE 19 MAR 2009

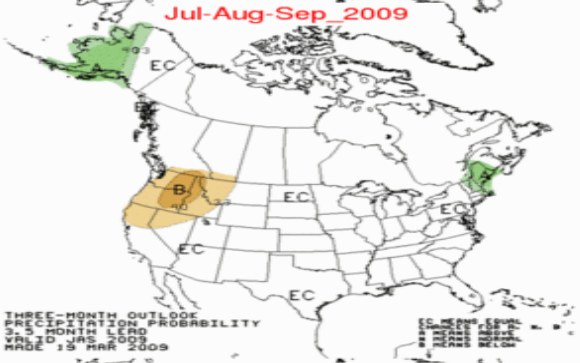
May-Jun-Jul_2009



Jun-Jul-Aug_2009



Jul-Aug-Sep_2009



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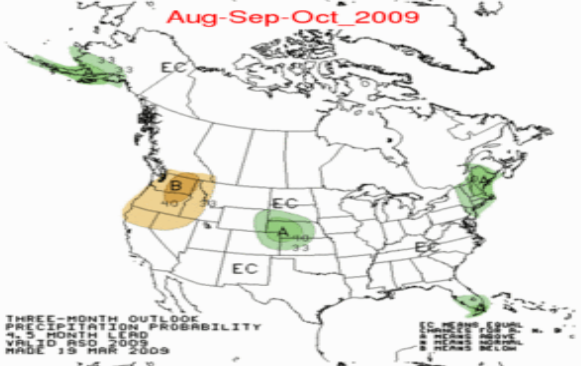

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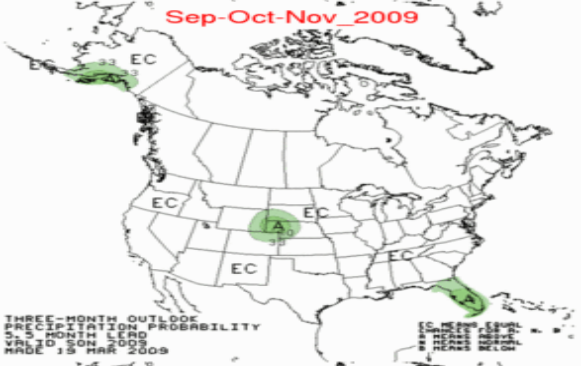

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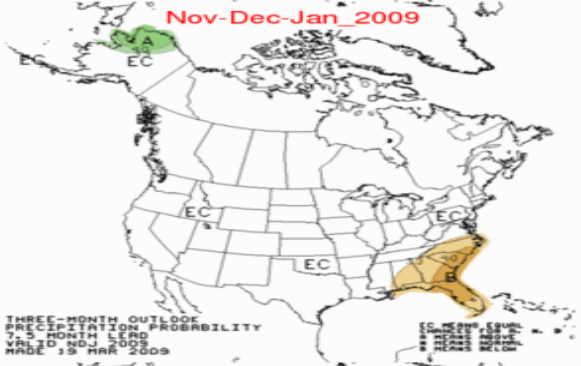

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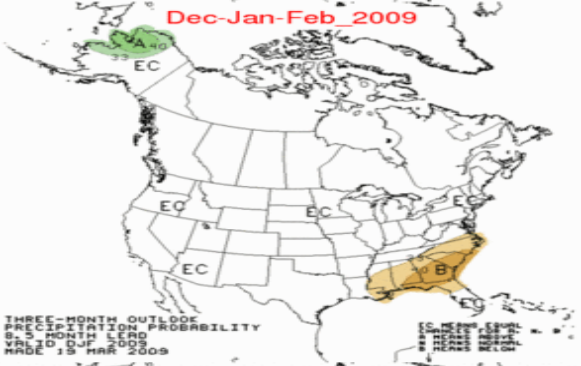

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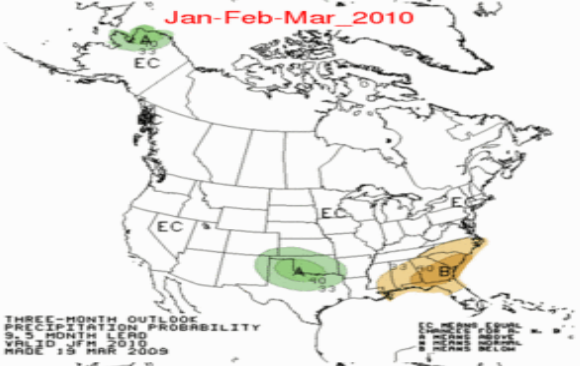

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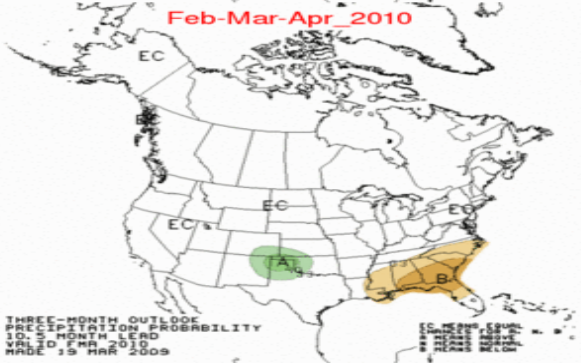

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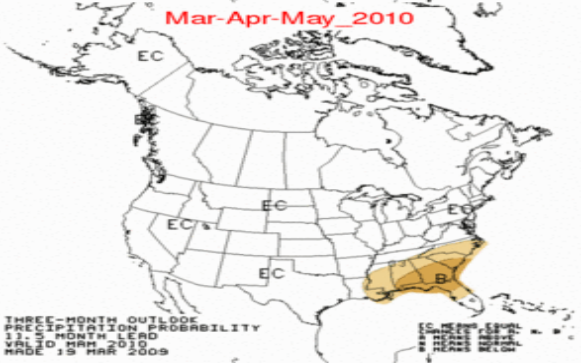

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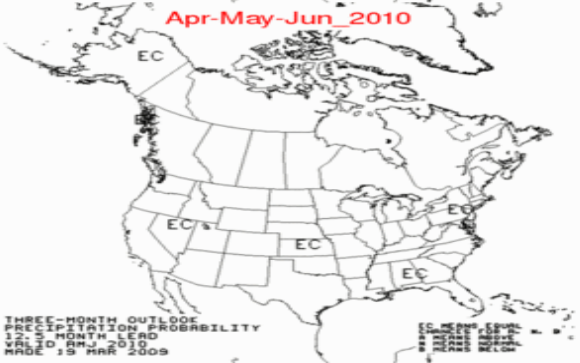

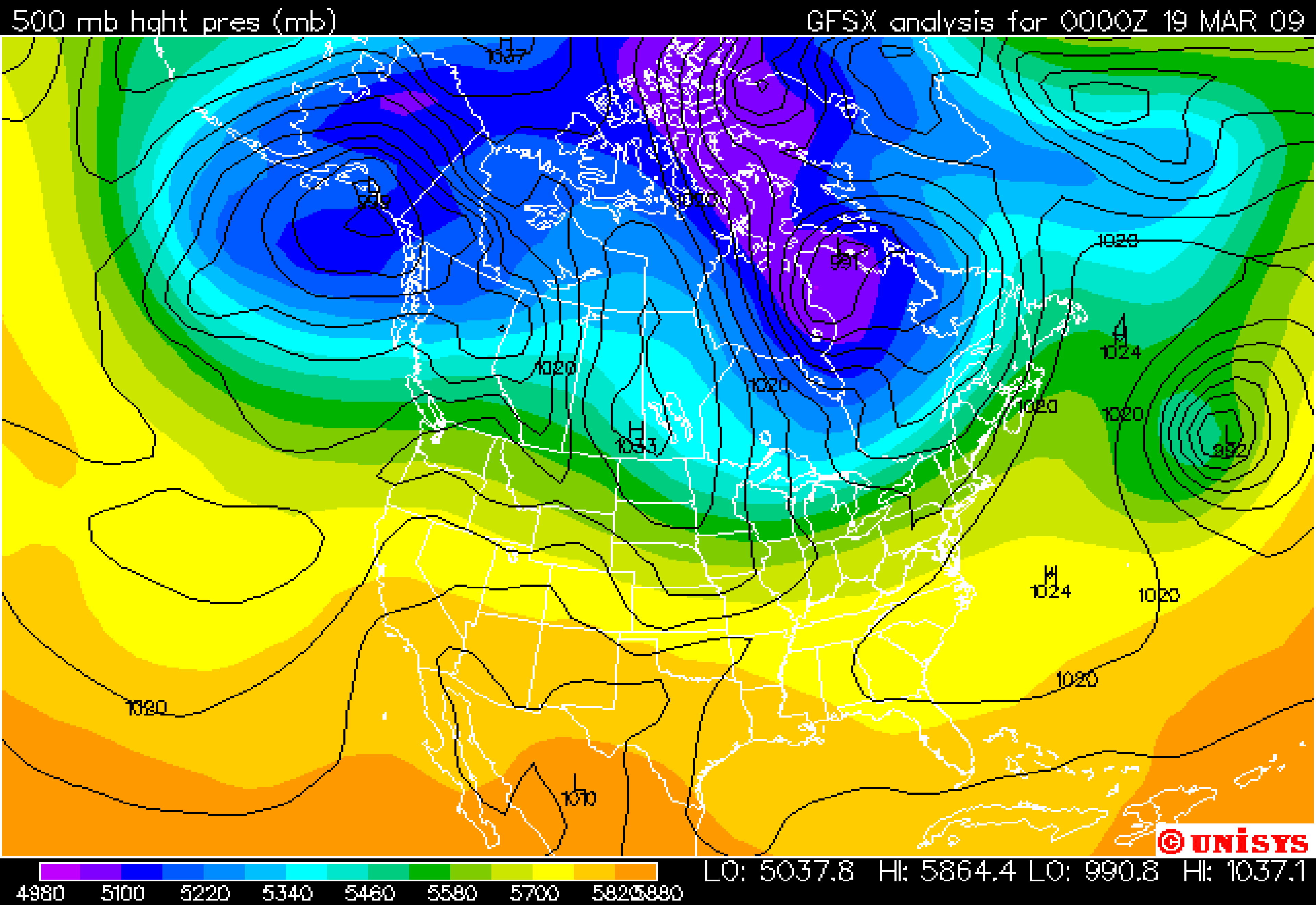
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5340
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5700
5820
5880
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Risk Assessment

- Elevated Spring flood risk 2/3 of Nebraska – highest Blue river basin.
- Elevated risk for deterioration Panhandle and Southwest.
- High fire danger next few weeks until sufficient moisture and temperatures to promote pasture growth
- McConaughy will reach 920,000 ac/ft by 6/1 based on curent inflow rates, one million possible. Seminoe and Pathfinder could reach 80% and 50% respectively.

Risk Assessment

- Central Rockies snowpack and southern U.S. dryness must be monitored closely.
- Statistics on second year La Nina's indicate weak tendency toward above normal temperatures and below normal precipitation west. Highest probability: T-Aug, P-Mar, Jul
- Eastern Nebraska, weak tendency for below normal temperatures March and April, above normal May – August. Below normal precipitation tendency Mar – Aug. Highest probability: T-Aug, P-Mar, Aug