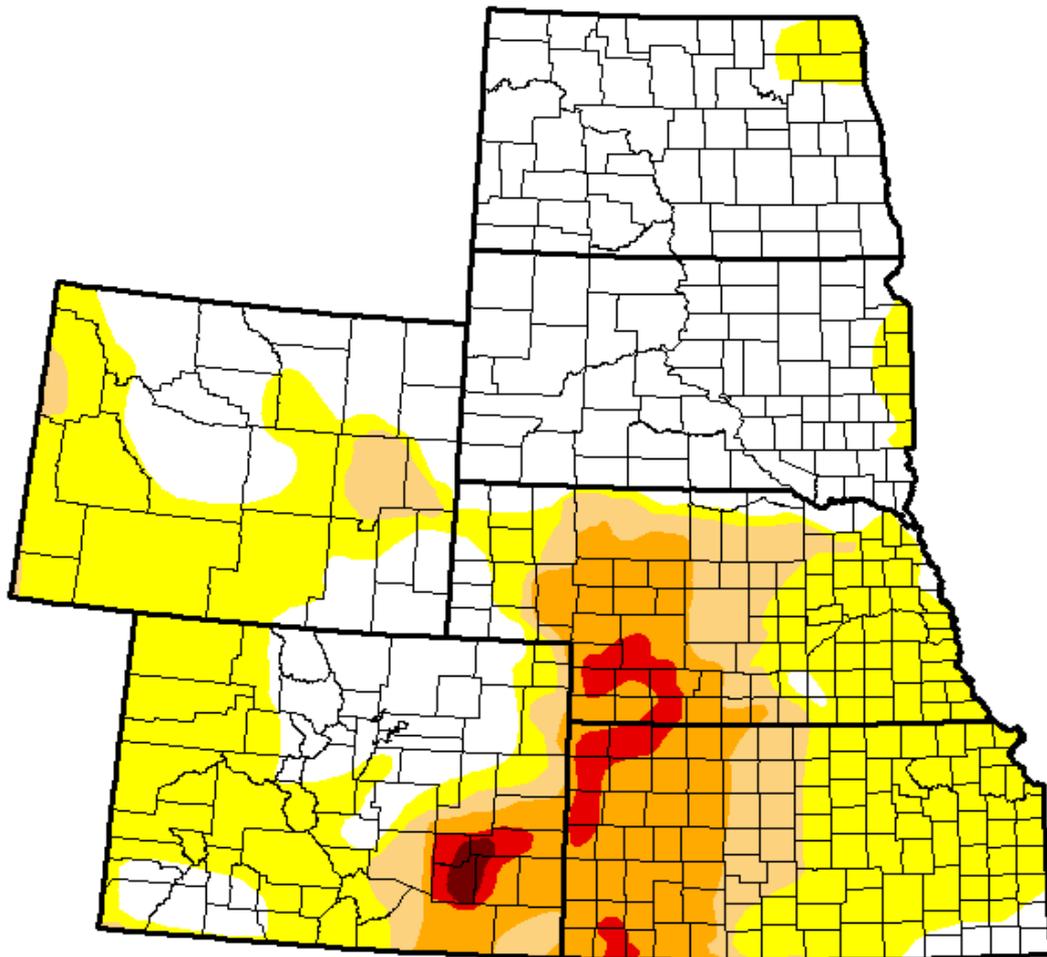


High Plains Drought Update

January 9, 2014

Gary McManus
State Climatologist
Oklahoma Climatological Survey

A question about drought in Nebraska and Kansas?



Current	45.79	54.21	20.60	12.28	2.44	0.30
Last Week <i>12/31/2013</i>	45.79	54.21	20.60	12.28	2.44	0.30
3 Months Ago <i>10/8/2013</i>	38.88	61.12	34.37	14.62	2.46	0.30
Start of Calendar Year <i>12/31/2013</i>	45.79	54.21	20.60	12.28	2.44	0.30
Start of Water Year <i>10/1/2013</i>	29.87	70.13	43.21	19.50	3.01	0.30
One Year Ago <i>1/8/2013</i>	4.78	95.22	92.08	86.20	60.25	26.99

Intensity:



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

Author:

Mark Svoboda

National Drought Mitigation Center



The background of the slide is a close-up photograph of parched, cracked earth. The cracks are irregular and deep, creating a network of polygonal shapes across the entire surface. The color is a range of browns, from light tan to dark chocolate, with a slight gradient from top to bottom.

Drought in Pictures

North of Guymon, OK: April 2011



Buffalo, OK:
May 2009



May 2011



October 2012



February 2013



January 2014





Canadian County
Aug. 2012



NW of Okarche
Nov. 2012



NW of Okarche
Nov. 2012



Baca County, CO
April 2013

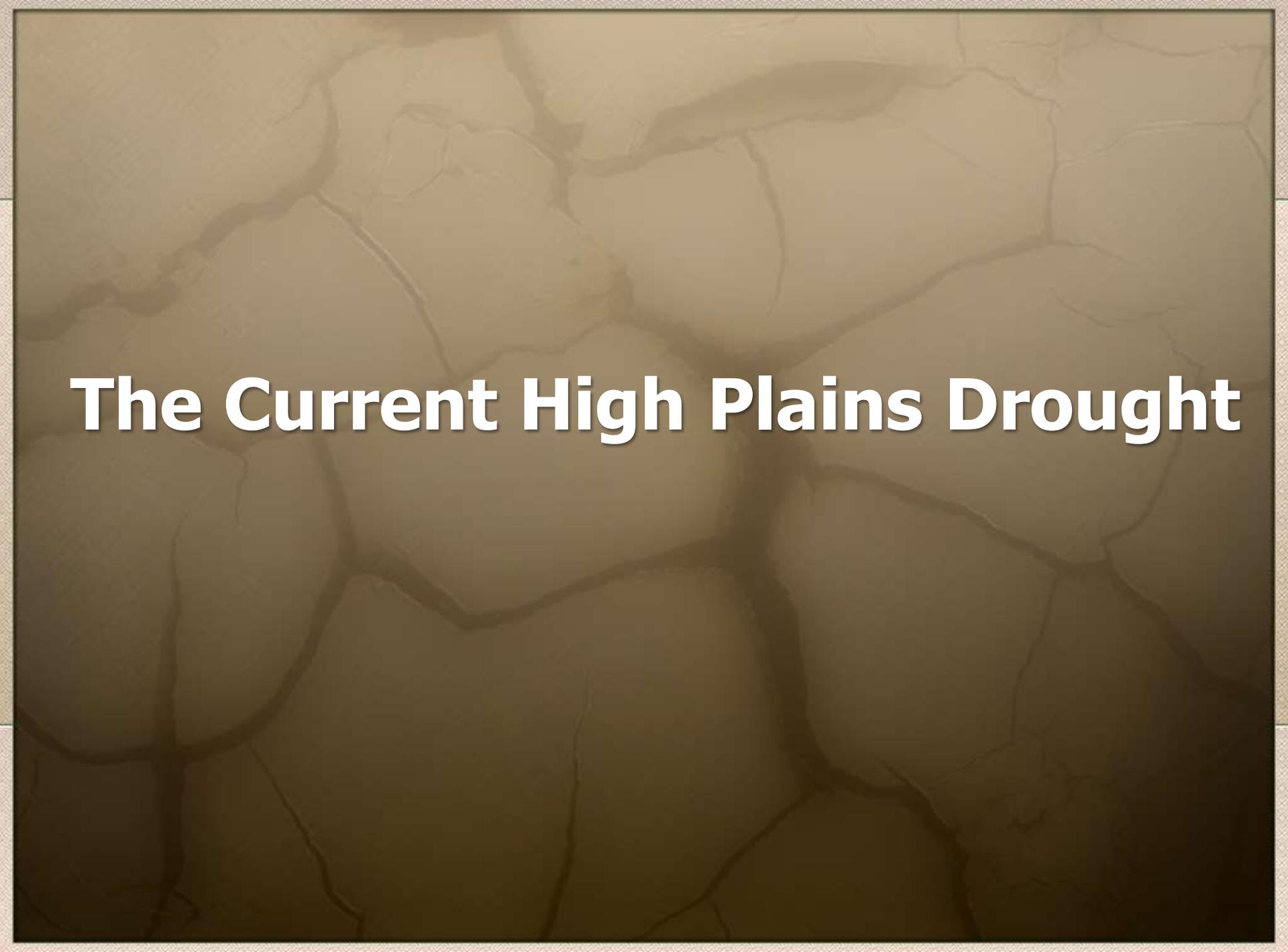


Cimarron County
June 3, 2013



Cimarron County
December 2013





The Current High Plains Drought

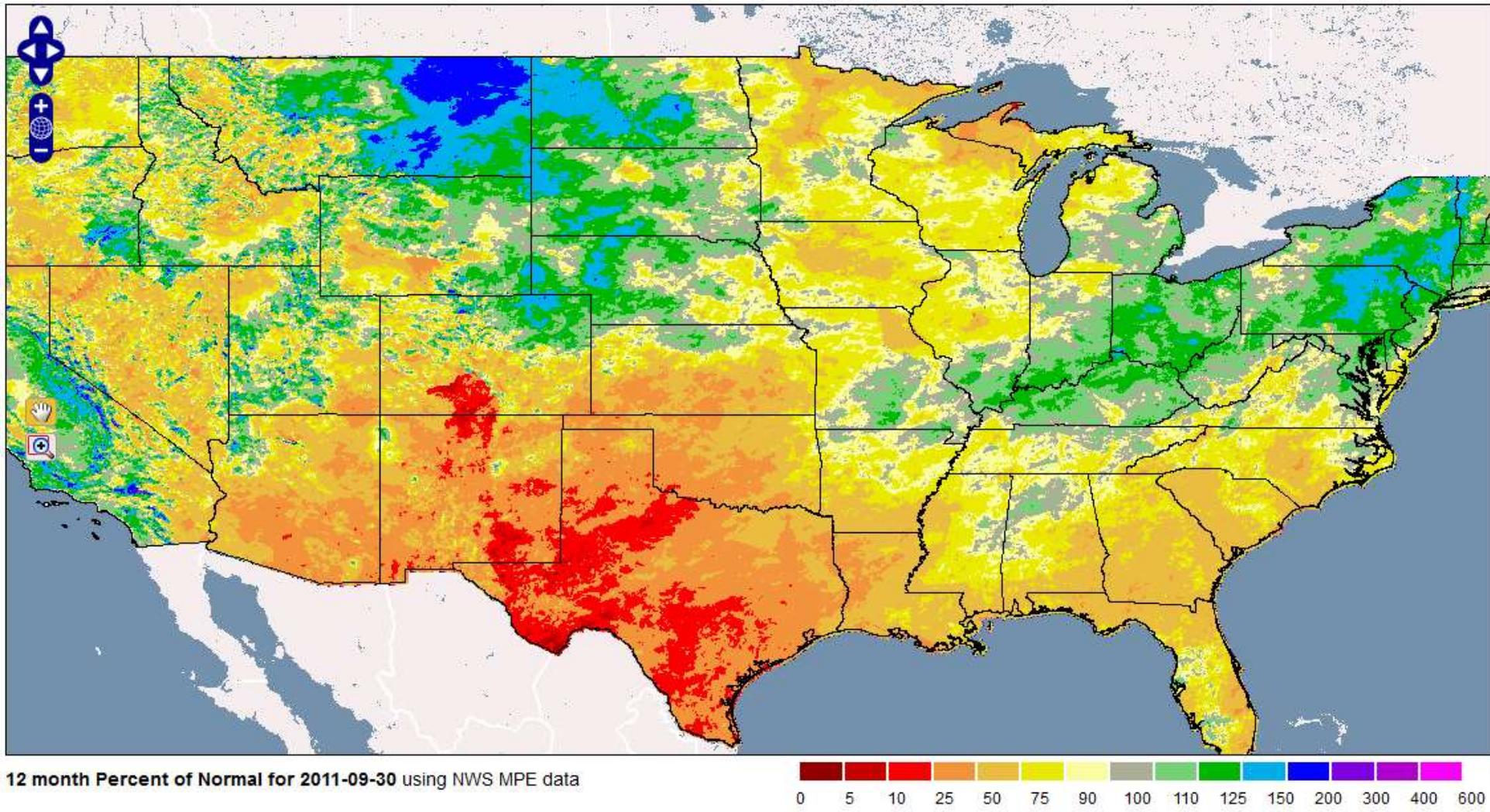
High Plains 3-Year Drought Cycle

- Drought “begins” October 2010
 - For some sooner, others much sooner
- Intensified through summer 2011
 - One of hottest summers on record
- Relief began for most October 2011
- Miraculous recovery through March 2012
- Rainfall deficits again in April and May 2012

3-Year+ Drought Cycle (cont.)

- Driest May-December on record (Oklahoma)
- 2012 - Warmest year on record
- Our climate pattern changed mid-February
- Active weather pattern for most part through summer into September
- Currently drying out again across High Plains

2010-11 Water Year Pct. of Normal



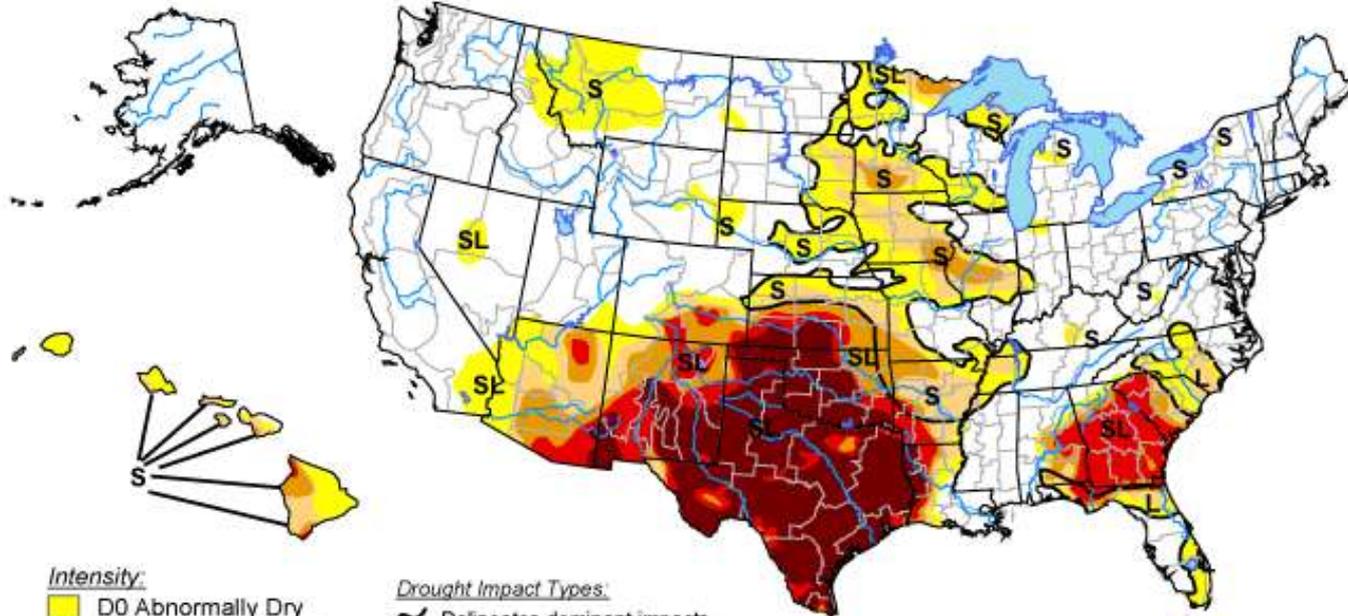
5-50% of normal in Southern Plains

The drought at its worst

U.S. Drought Monitor

October 4, 2011

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
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

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

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



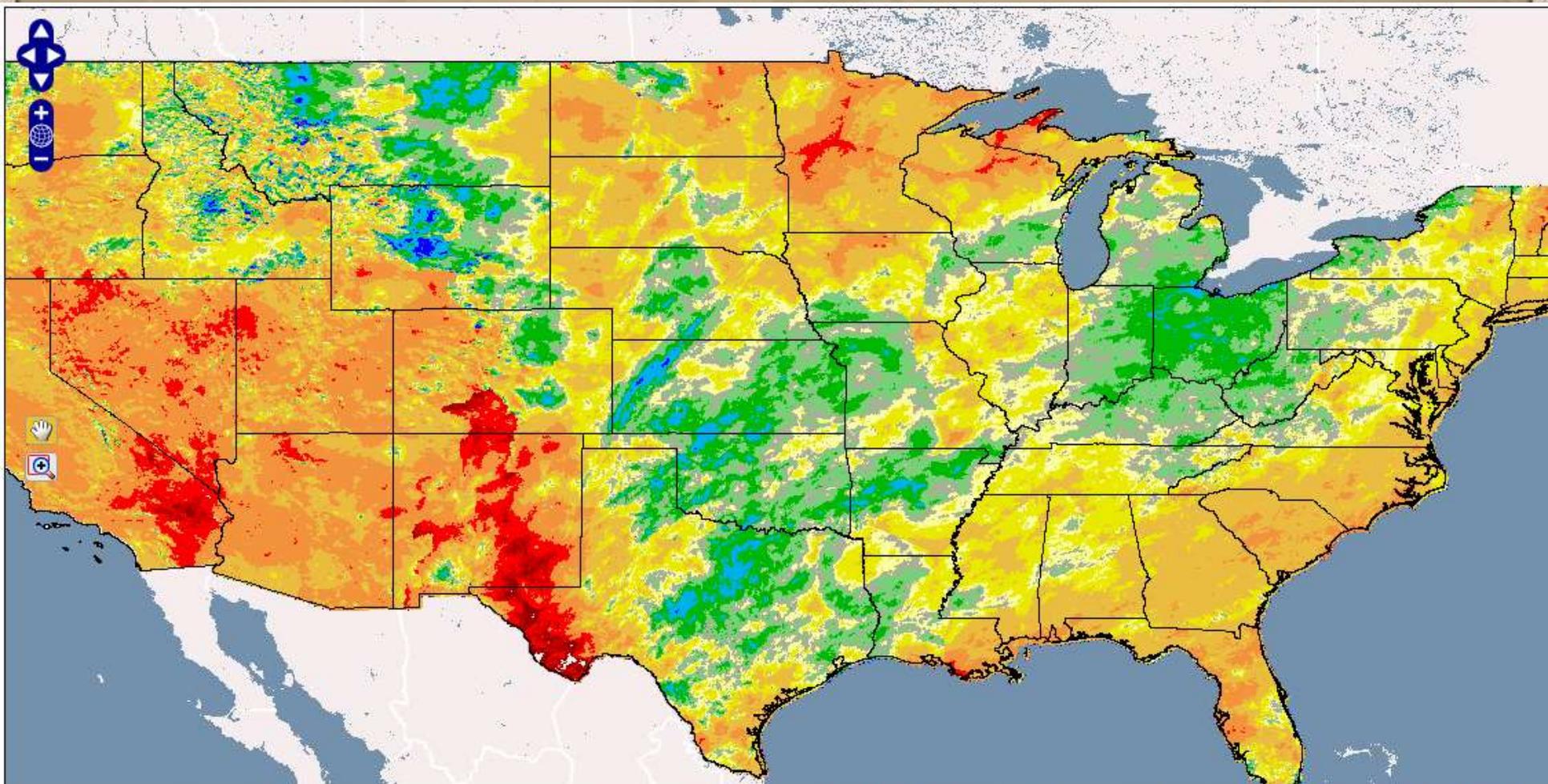
Released Thursday, October 6, 2011

Author: Rich Tinker, CPC/NCEP/NWS/NOAA

70% of OK and 88% of TX in D4 drought

**Oct. 2011-March 2012:
Relief!**

October 2011-March 2012

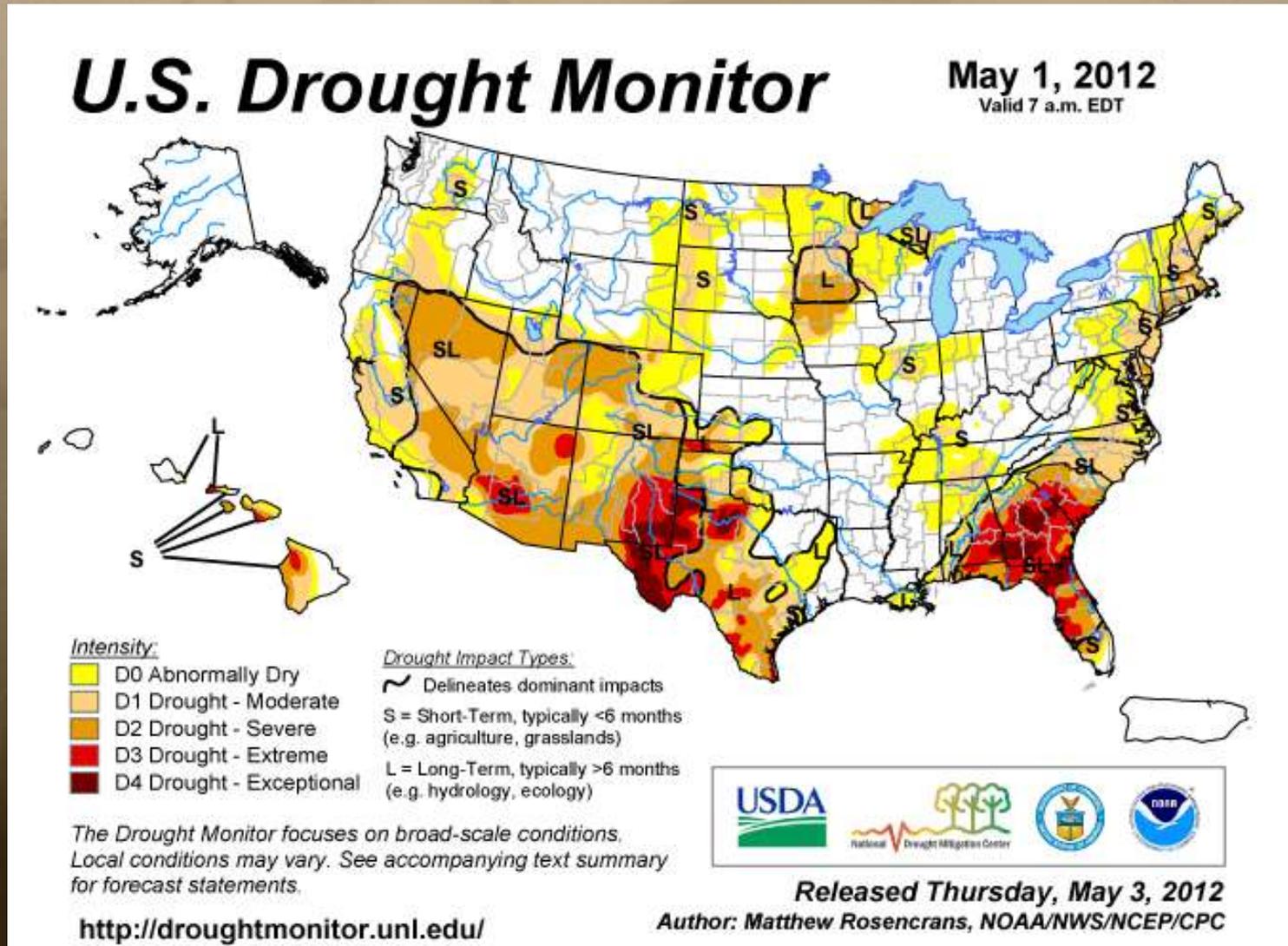


6 month Percent of Normal for 2012-03-31 using NWS MPE data

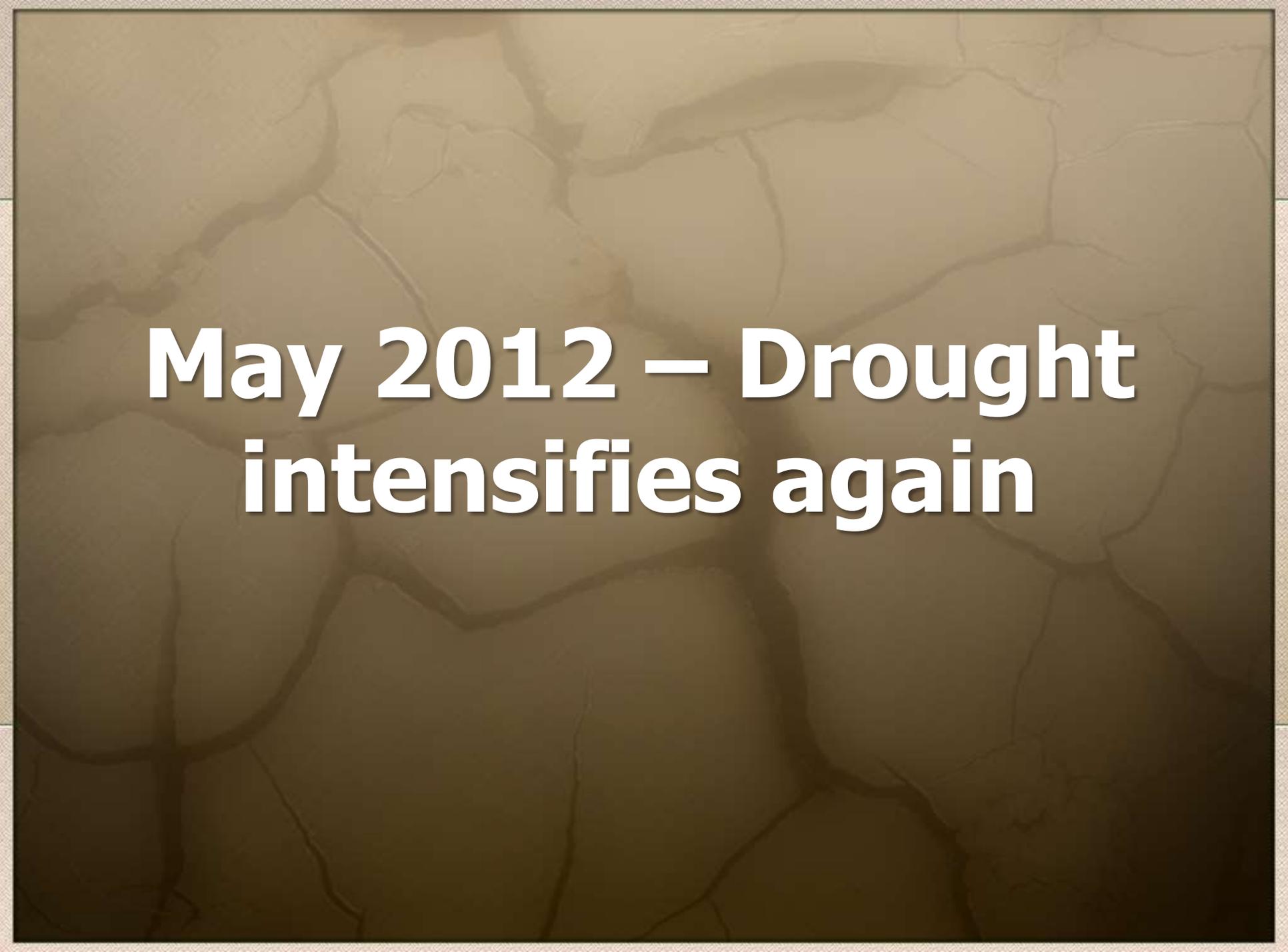


Above normal across much of SP

Early May, the drought's end?

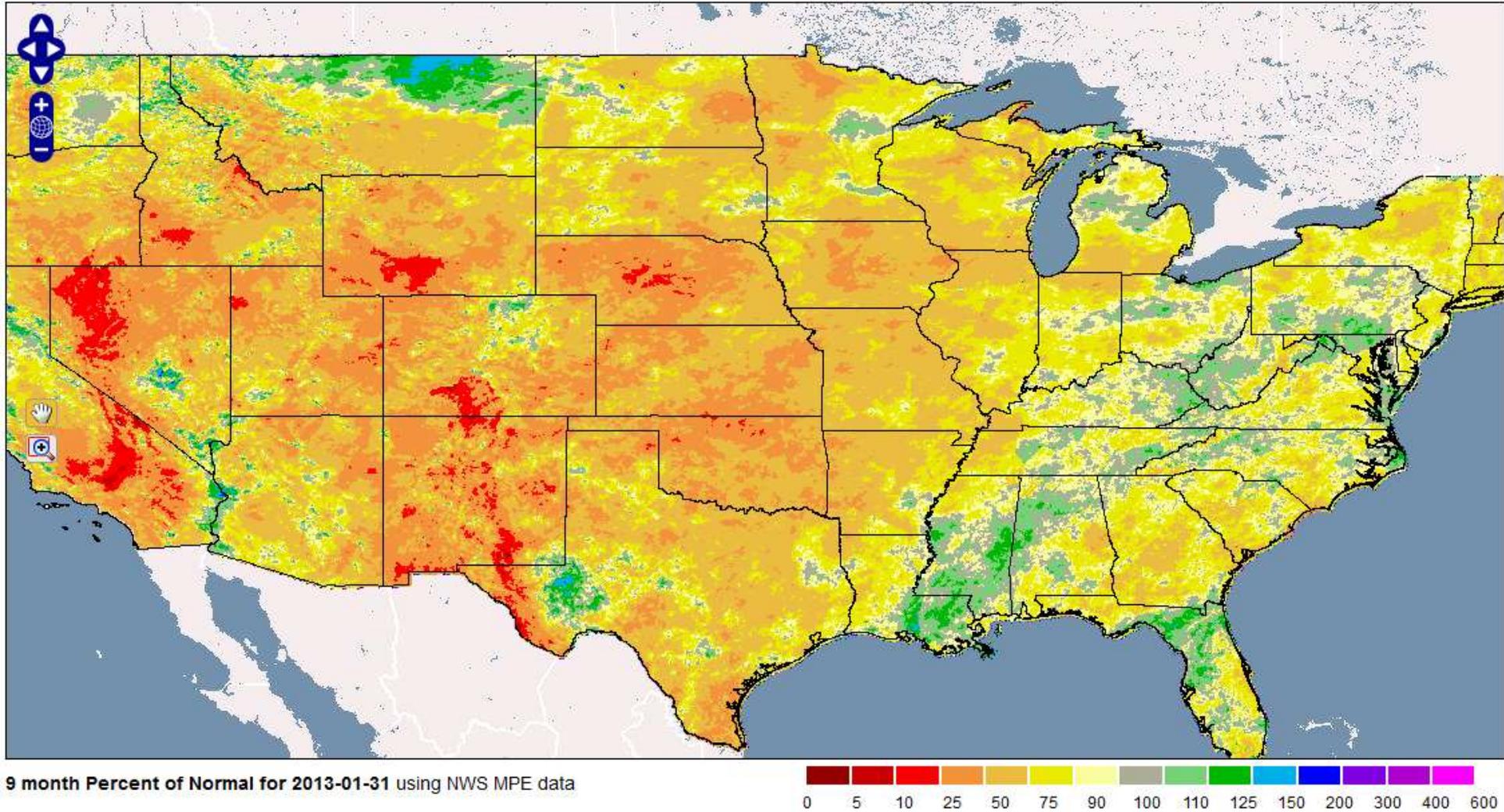


Drought to the west, drought free in the east



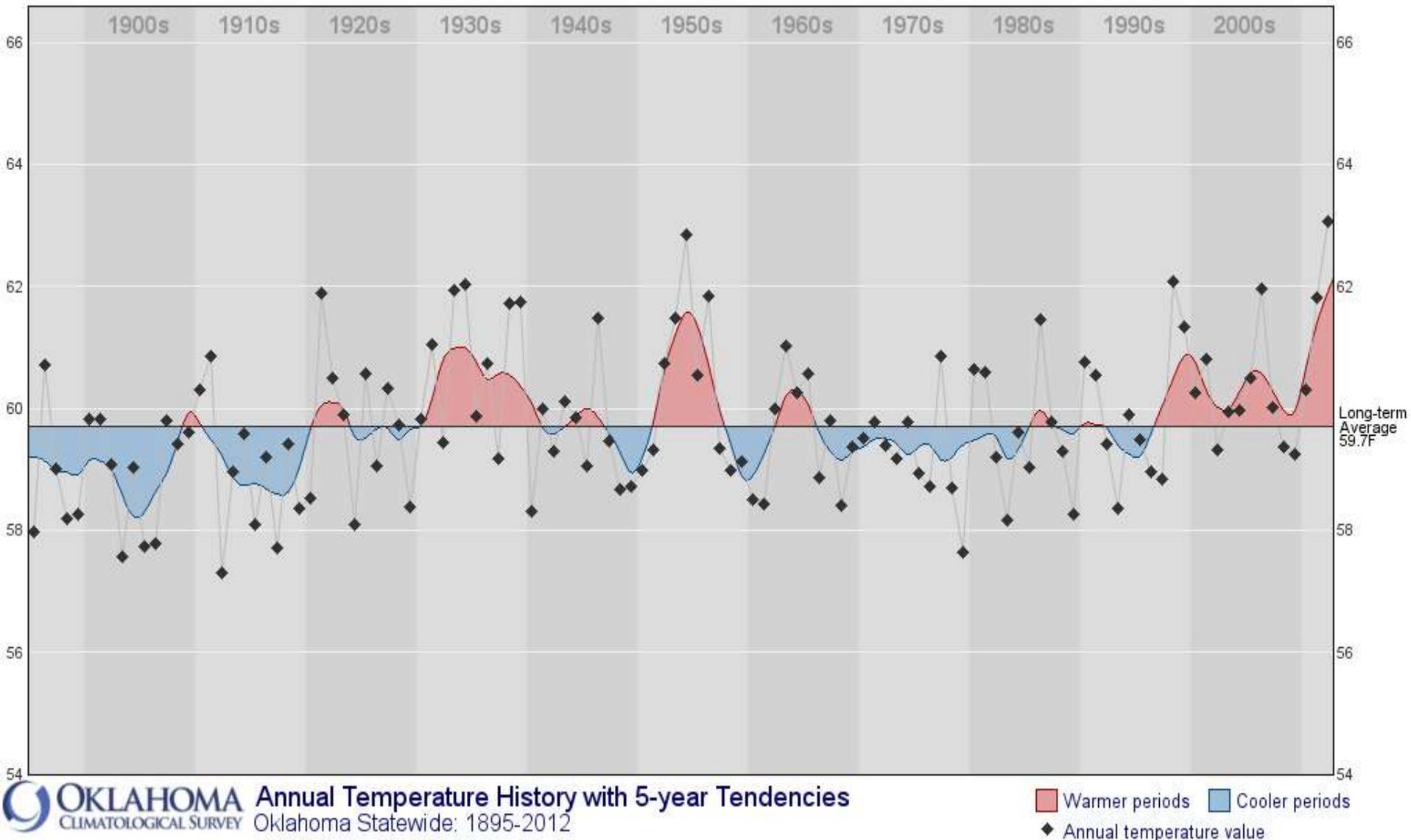
**May 2012 – Drought
intensifies again**

May 1- Jan. 31 rainfall totals

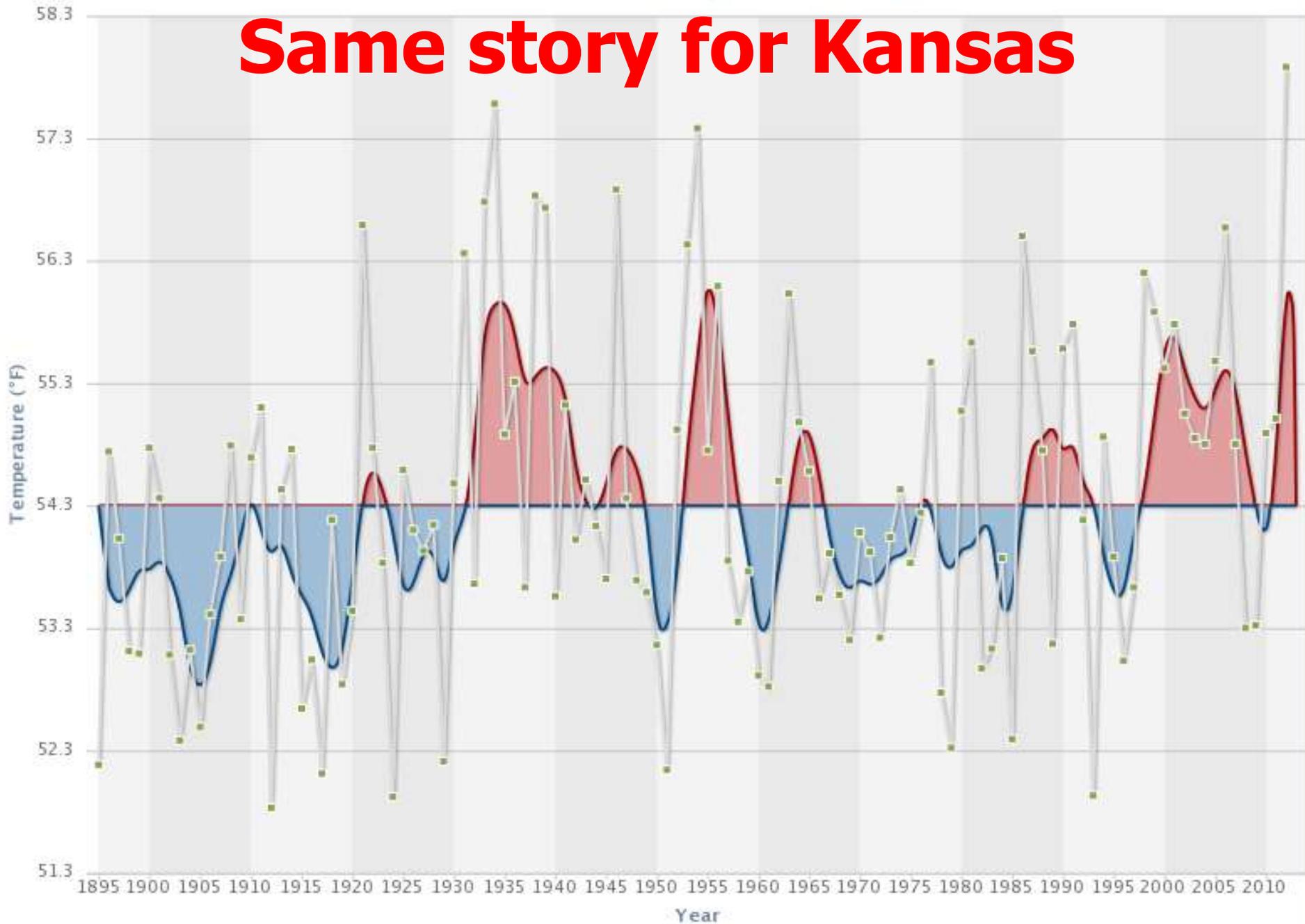


Most of country below normal!

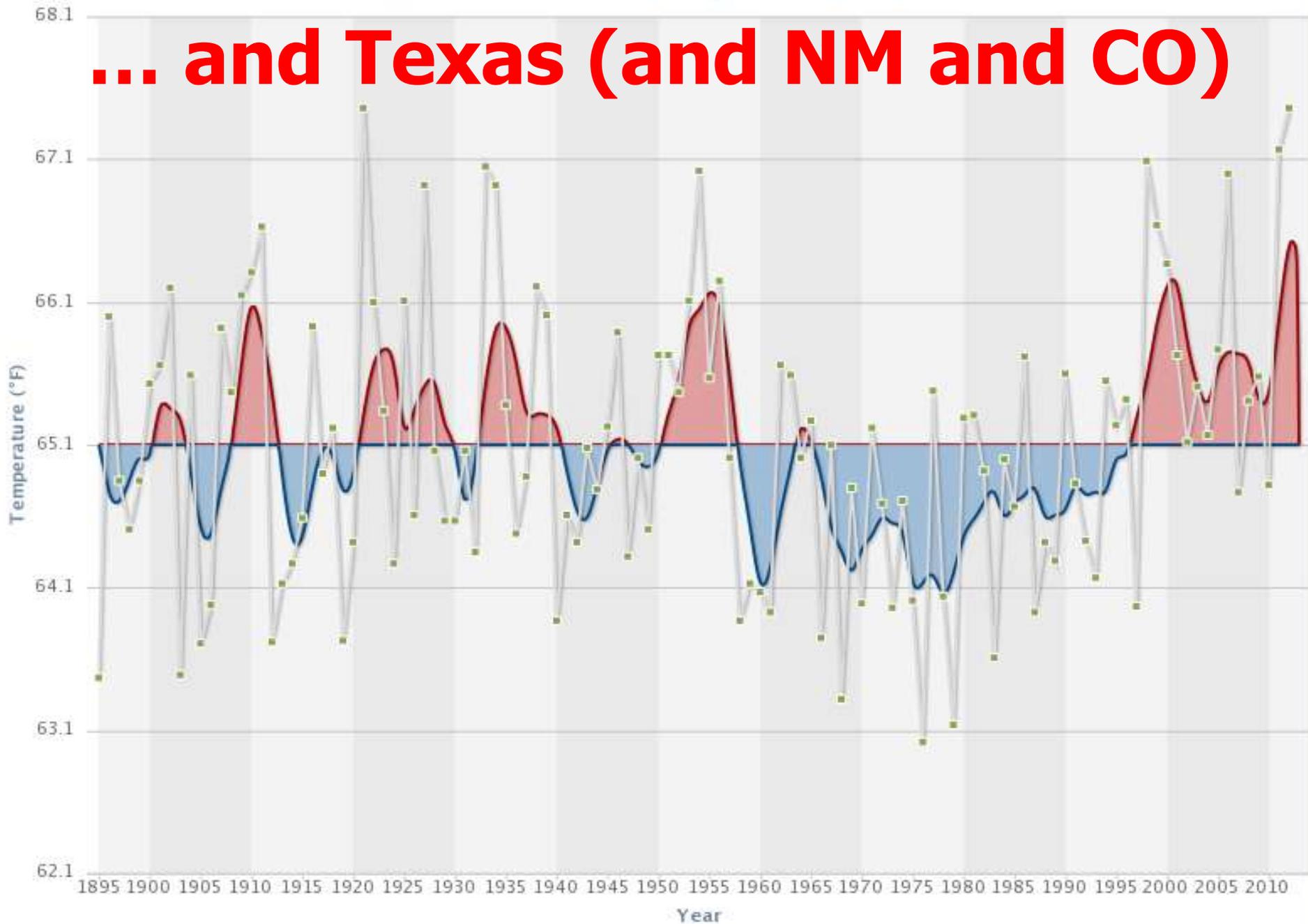
OK Annual Statewide Average Temperatures 2012 – Warmest year on record



Same story for Kansas



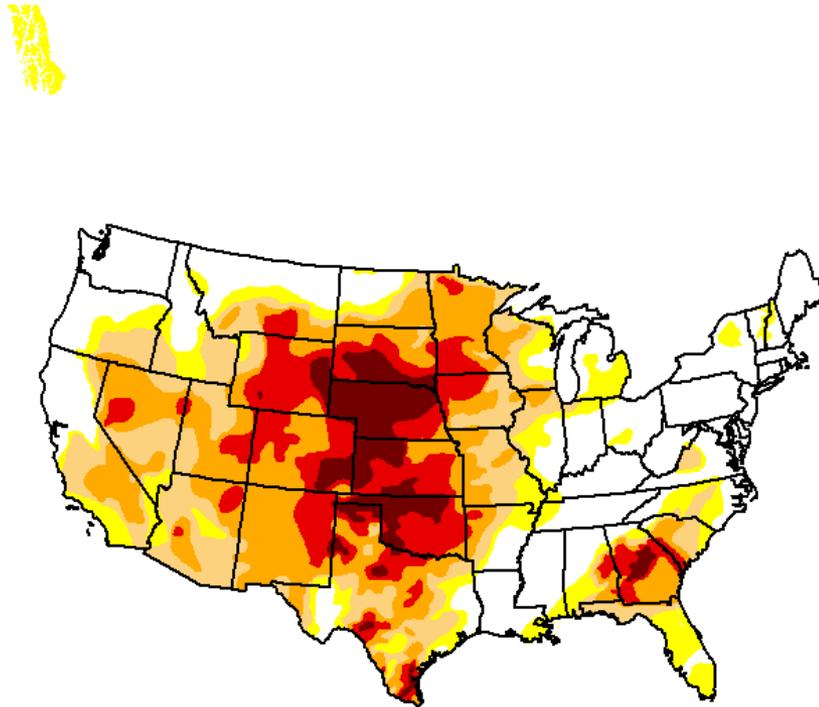
... and Texas (and NM and CO)



Drought at its worst, part II

U.S. Drought Monitor CONUS

January 29, 2013
(Released Thursday, Jan. 31, 2013)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	30.27	69.73	57.68	40.61	19.35	6.37
Last Week <i>1/22/2013</i>	30.22	69.78	57.64	40.07	19.31	6.36
3 Months Ago <i>10/30/2012</i>	27.12	72.88	60.16	38.27	19.04	5.88
Start of Calendar Year <i>1/1/2013</i>	27.22	72.78	61.09	42.05	21.31	6.75
Start of Water Year <i>9/25/2012</i>	23.41	76.59	65.45	42.12	21.48	6.12
One Year Ago <i>1/31/2012</i>	41.84	58.16	37.87	18.41	9.60	3.19

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(s):
Mark Svoboda
National Drought Mitigation Center

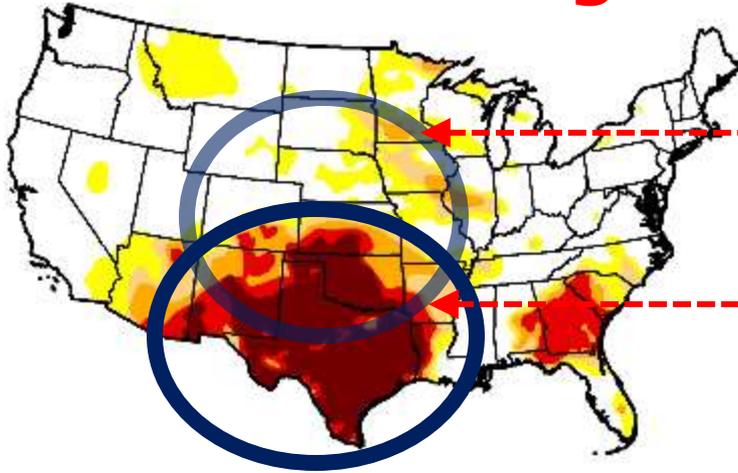


<http://droughtmonitor.unl.edu/>

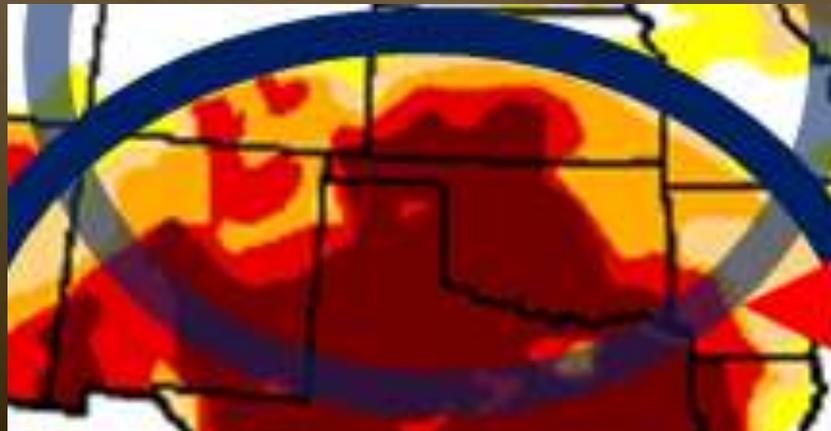
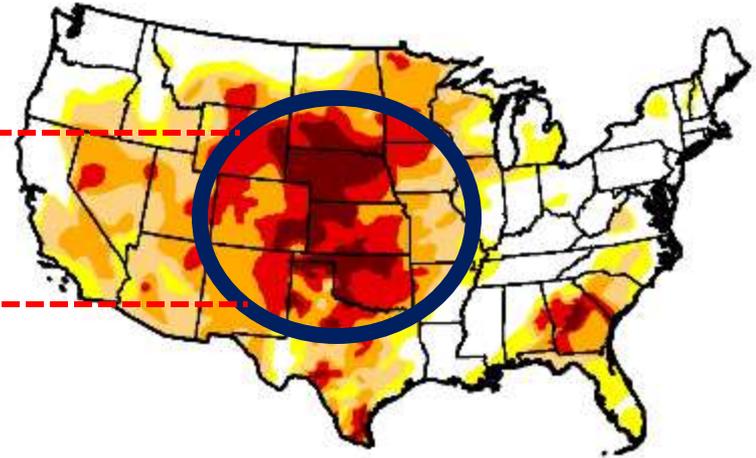
Northern Plains in on the act this time

Common area of both droughts?

2010-11 drought



2012-13 drought

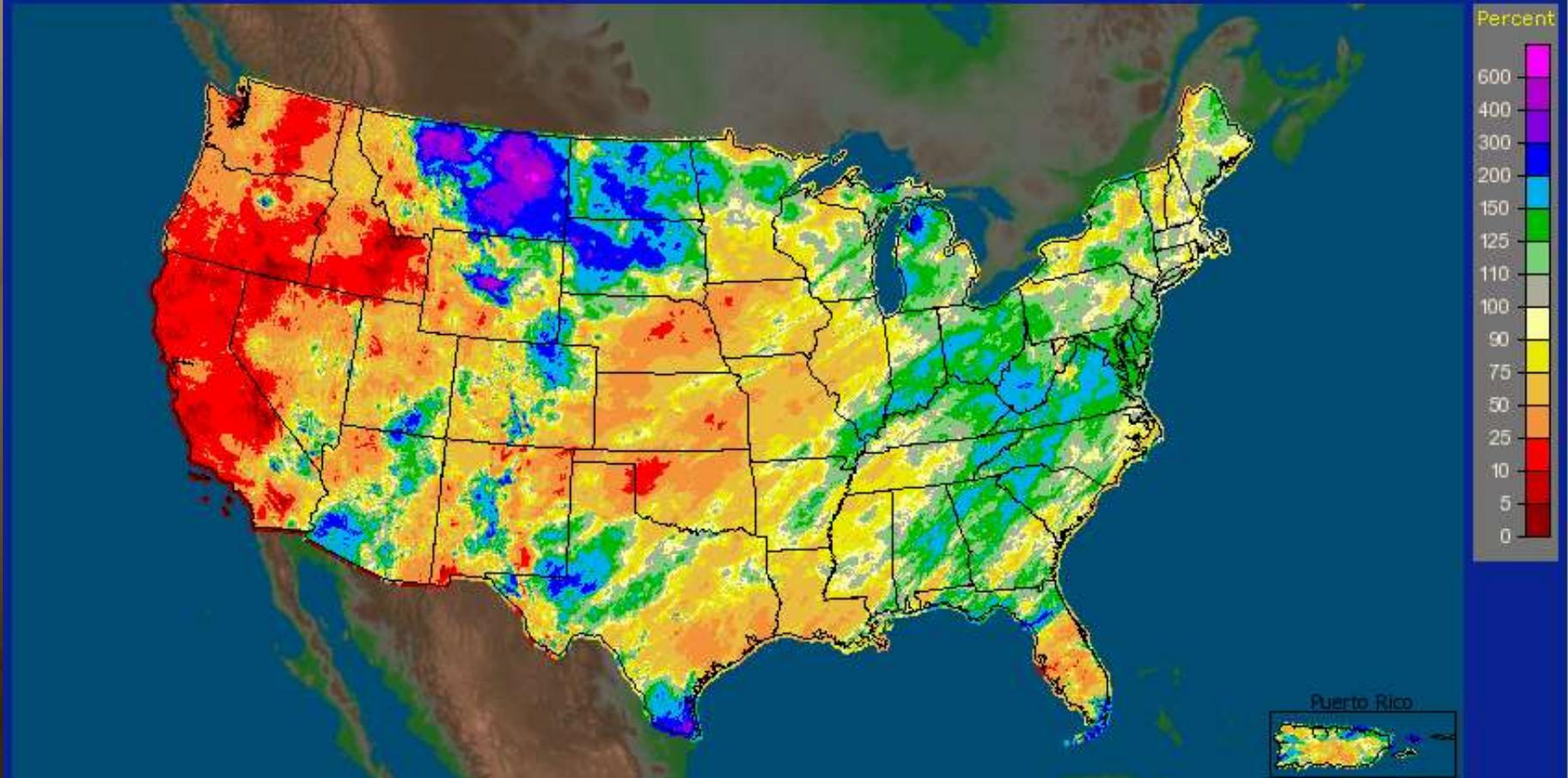




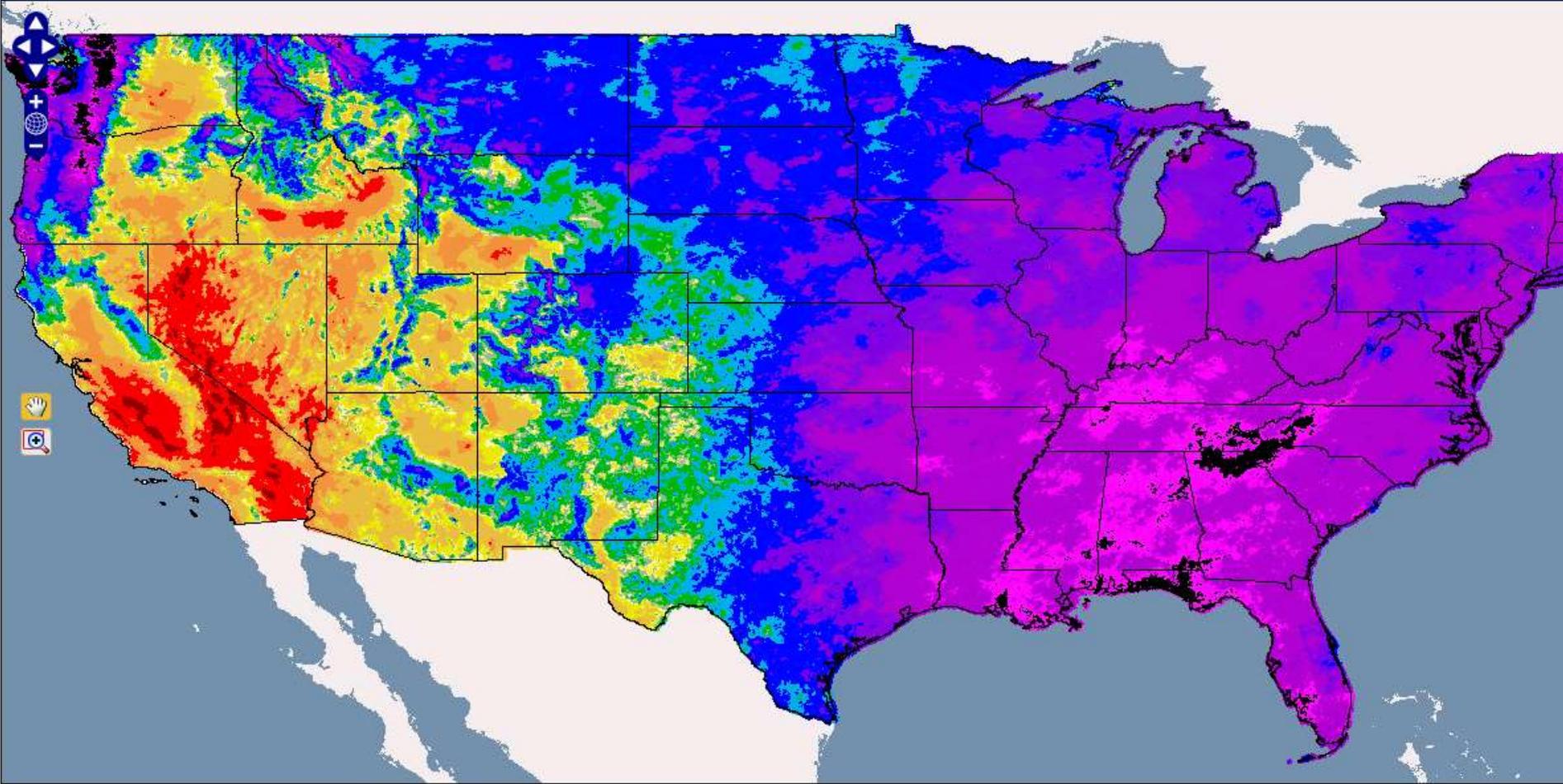
Where are we now?

Still woefully dry (last 60 days)

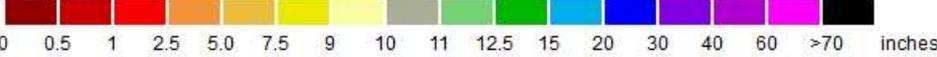
CONUS + Puerto Rico: Current 60-Day Percent of Normal Precipitation
Valid at 1/8/2014 1200 UTC - Created 1/8/14 23:39 UTC



2013 Rainfall

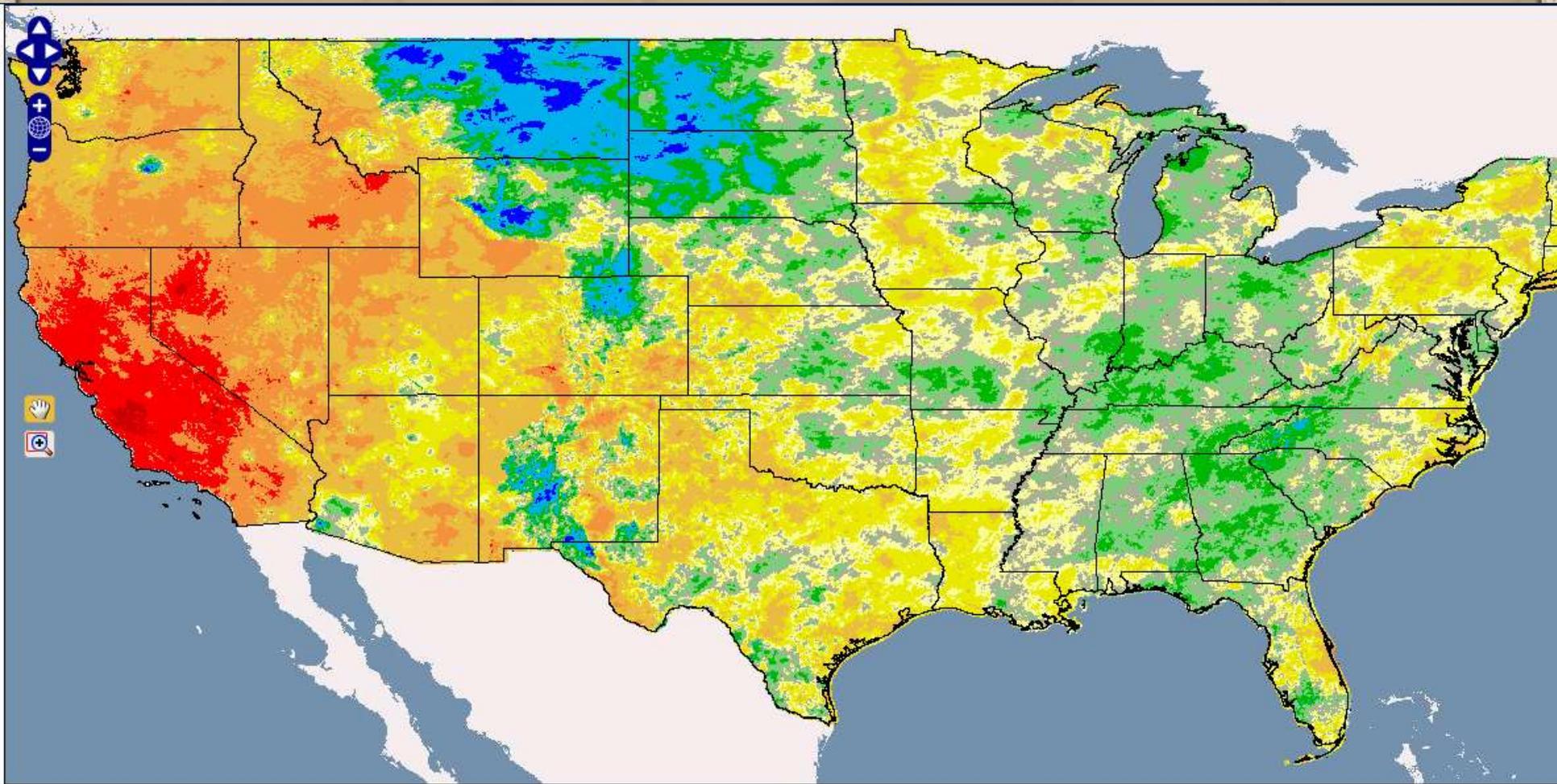


12 month Total Precipitation for January 05, 2014 using NWS MPE data

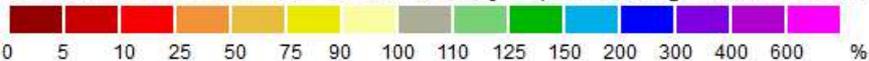


7-20 inches across High Plains

2013 Percent of Normal Rainfall



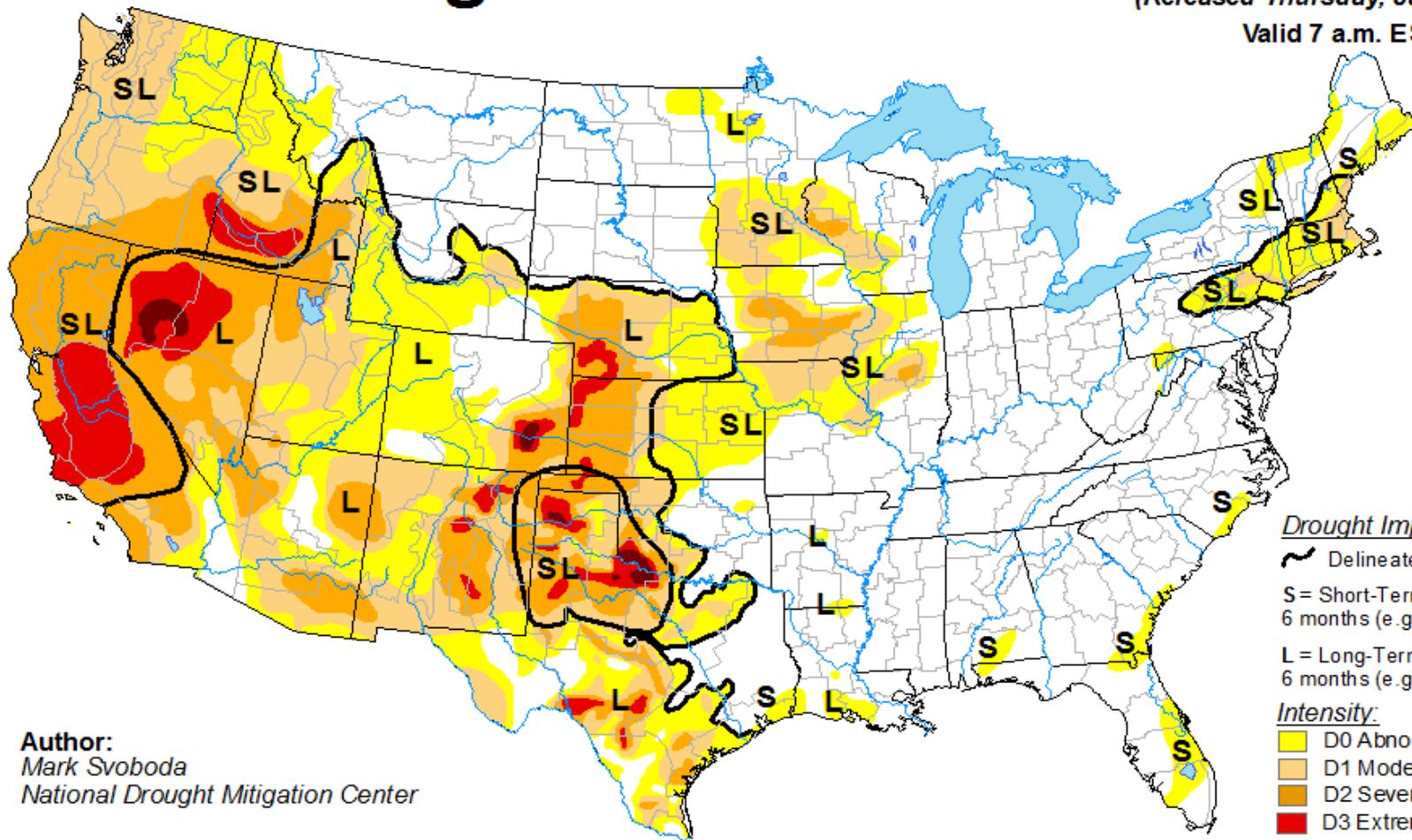
12 month Percent of Normal for January 05, 2014 using NWS MPE data



Not much help in the High Plains

U.S. Drought Monitor

January 7, 2014
(Released Thursday, Jan. 9, 2014)
Valid 7 a.m. EST



Author:
Mark Svoboda
National Drought Mitigation Center

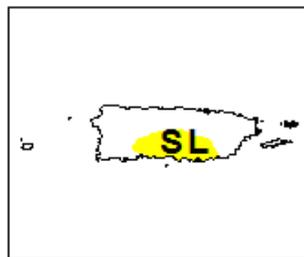
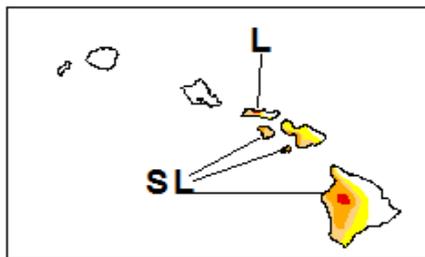
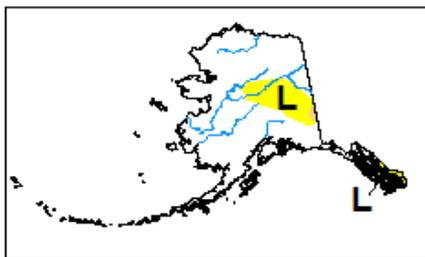
Drought Impact Types:

- ~ 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:

- Yellow: D0 Abnormally Dry
- Light Orange: D1 Moderate Drought
- Orange: D2 Severe Drought
- Red: D3 Extreme Drought
- Dark Red: D4 Exceptional Drought

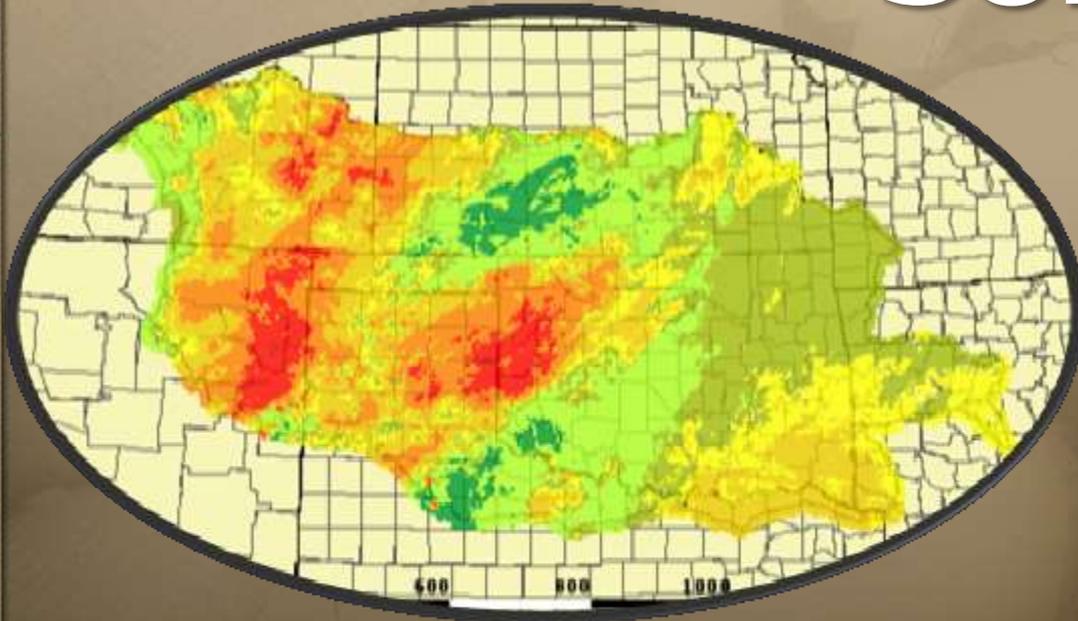
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



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

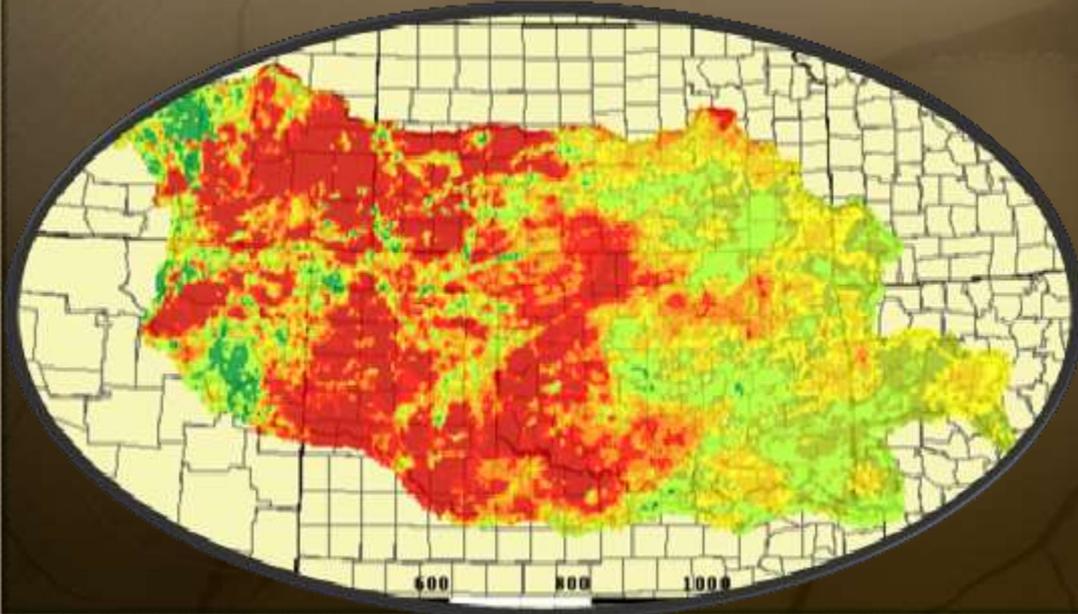
Soil Moisture

Upper Zone



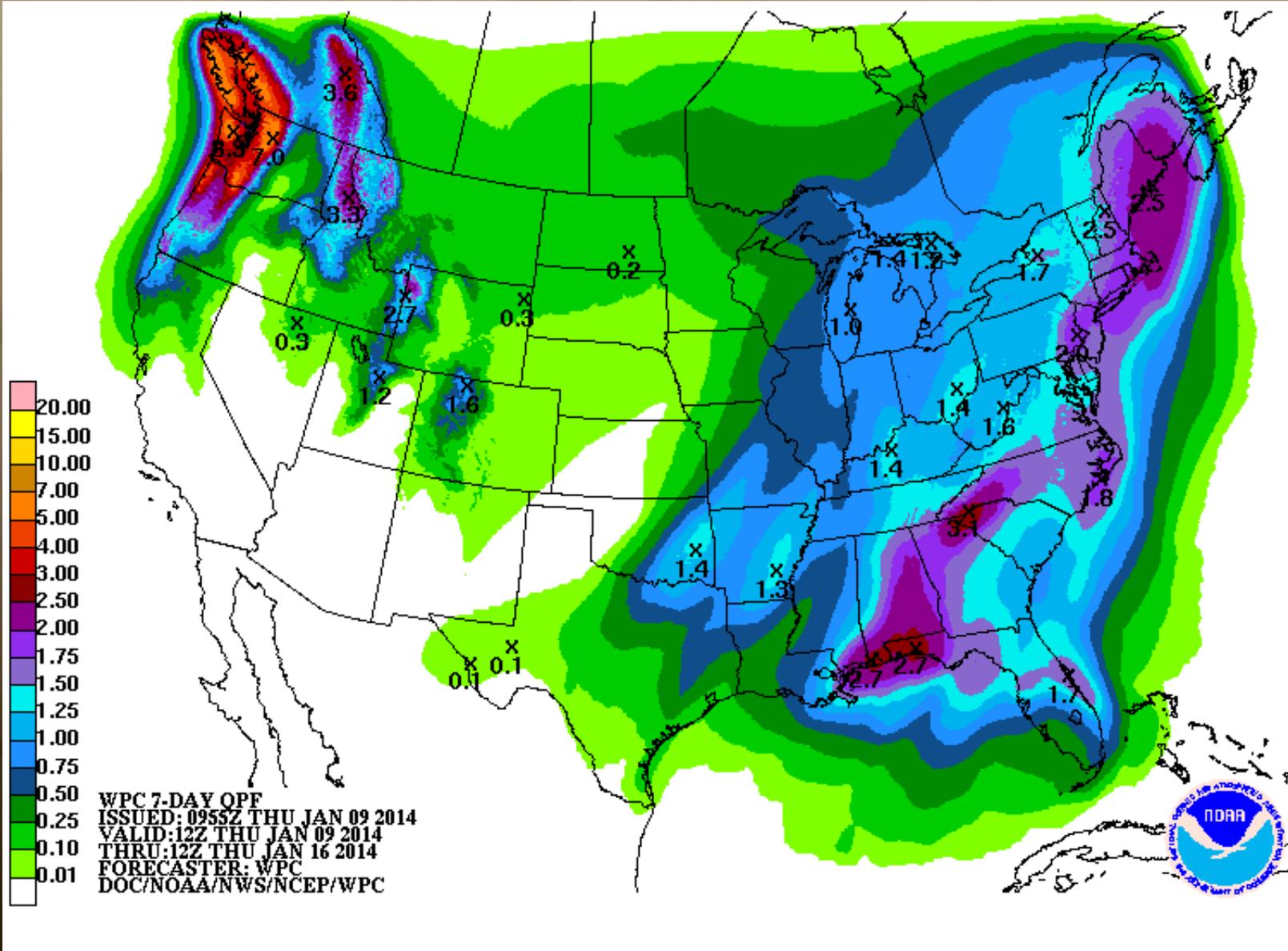
Red	Less than 30 Percent of Normal
Red-Orange	30 to 50 Percent of Normal
Orange	50 to 70 Percent of Normal
Yellow-Orange	70 to 90 Percent of Normal
Yellow	90 to 100 Percent of Normal
Light Green	100 to 110 Percent of Normal
Green	110 to 150 Percent of Normal
Dark Green	Greater than 150 Percent of Normal

Lower Zone



Forecasts and Outlooks

Next Seven Days (thru Jan. 16 a.m.)

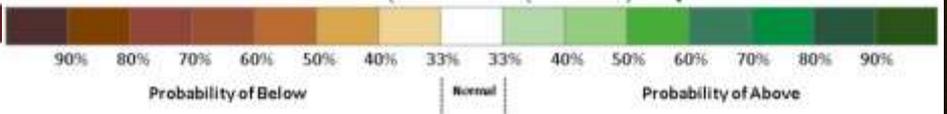
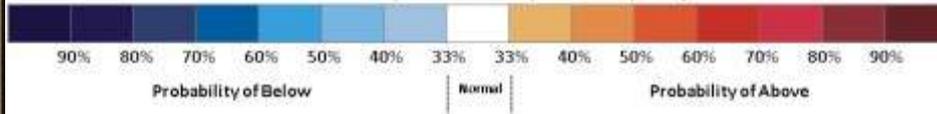
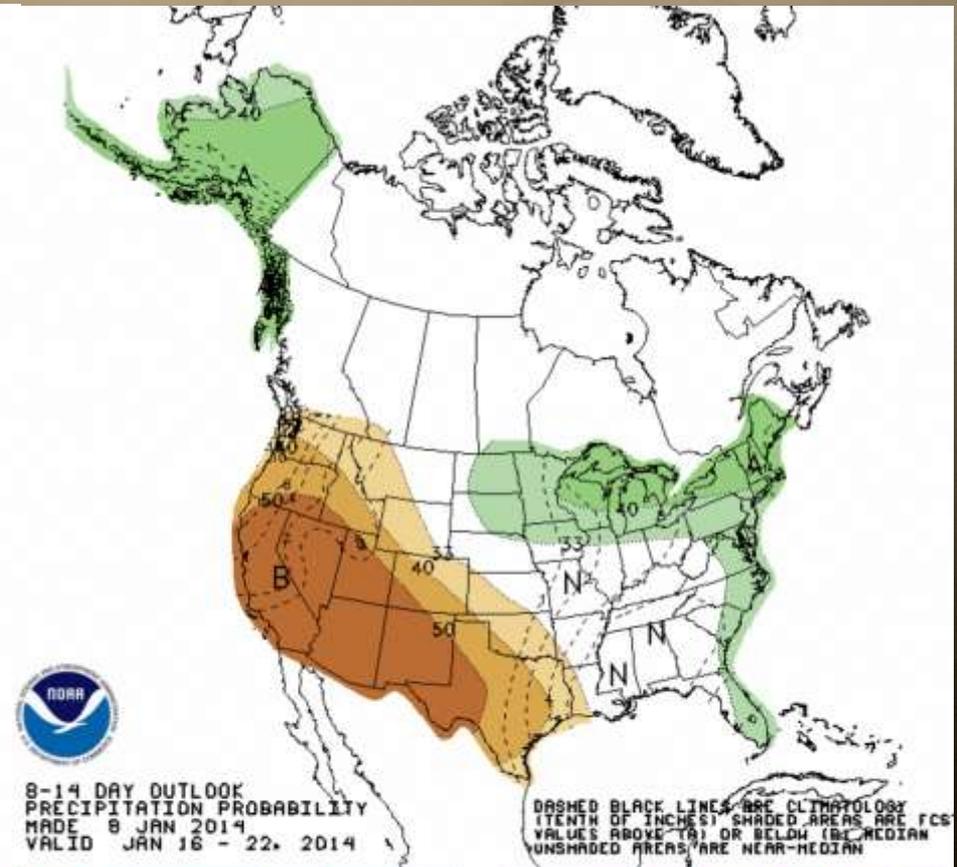
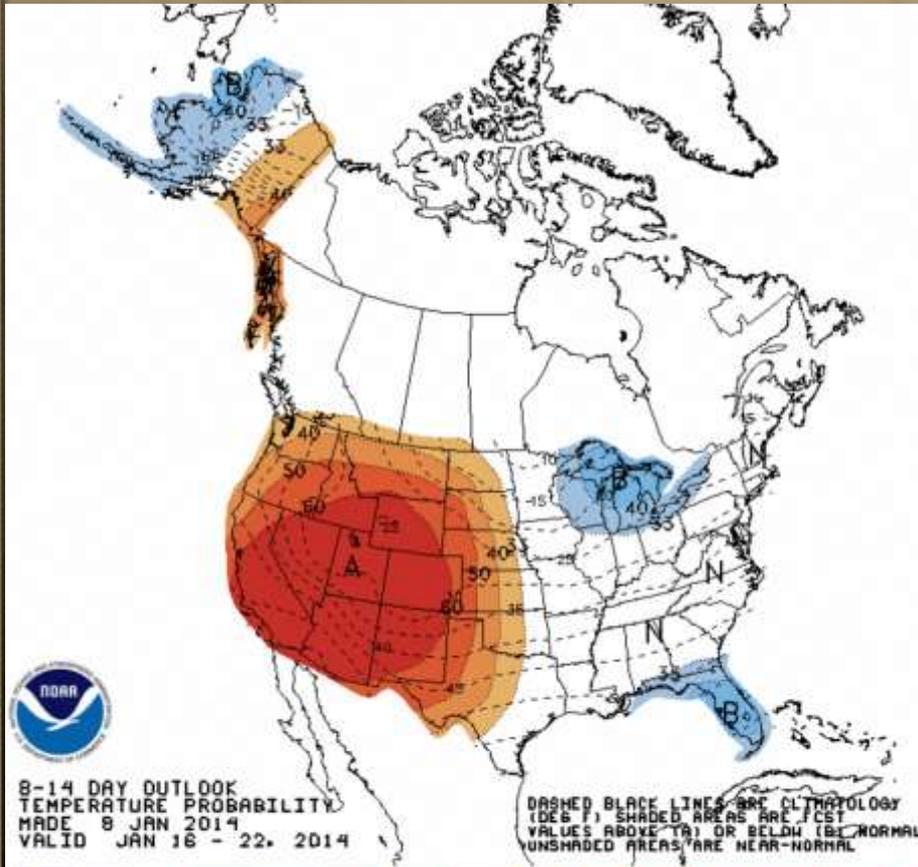


Medium-term Outlooks: January 16-22

Dry and warm

Temperature

Precipitation





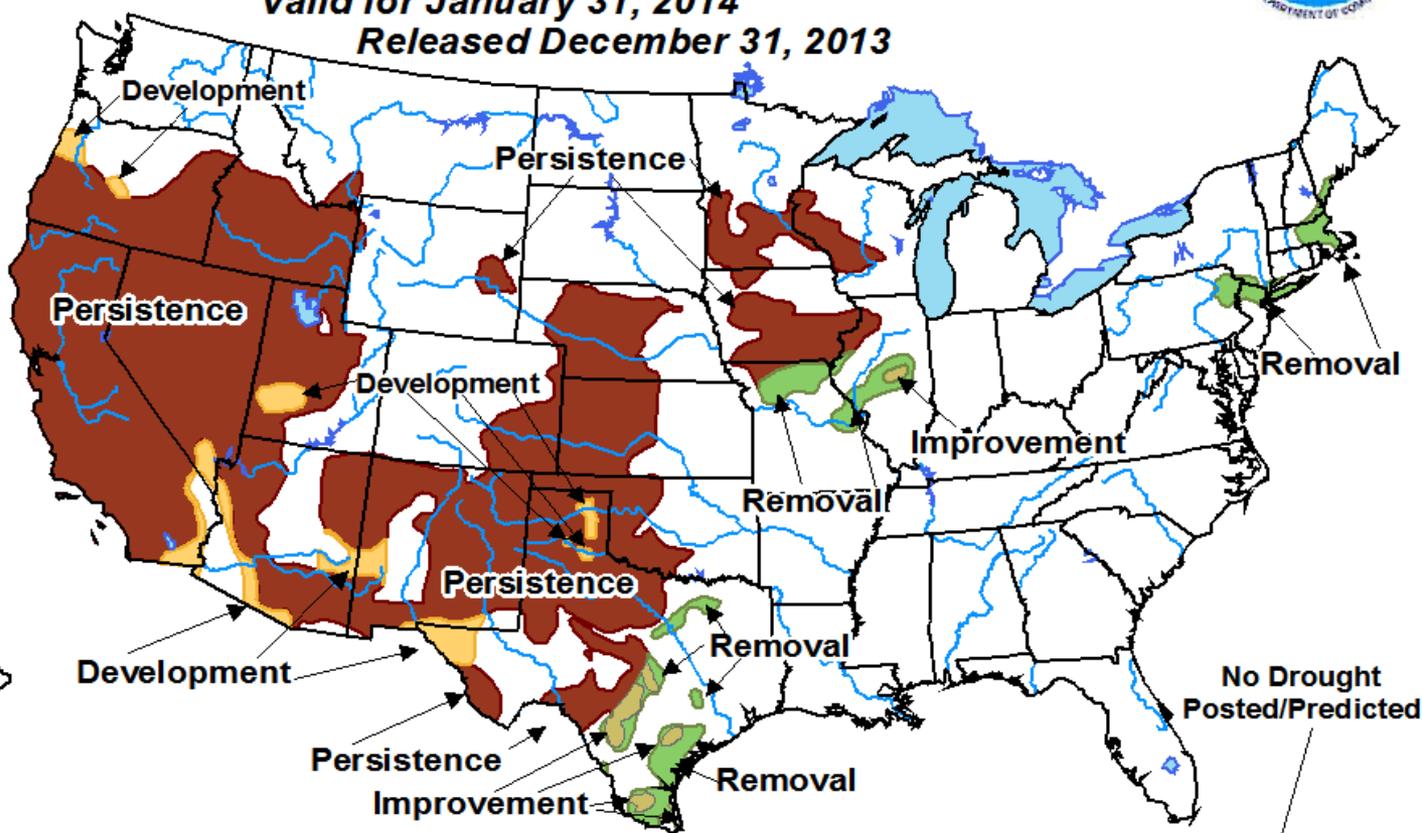
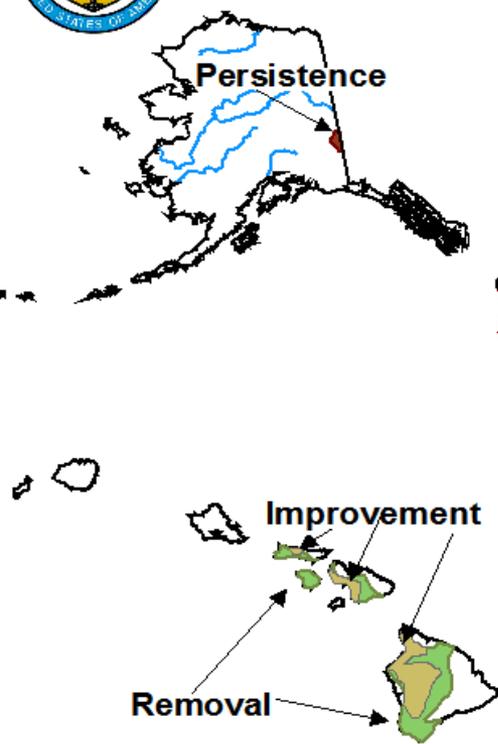
U.S. Monthly Drought Outlook

Drought Tendency During the Valid Period



Valid for January 31, 2014

Released December 31, 2013



KEY:

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

Author: Rich Tinker, Climate Prediction Center, NOAA

http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.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 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)

No Drought Posted/Predicted

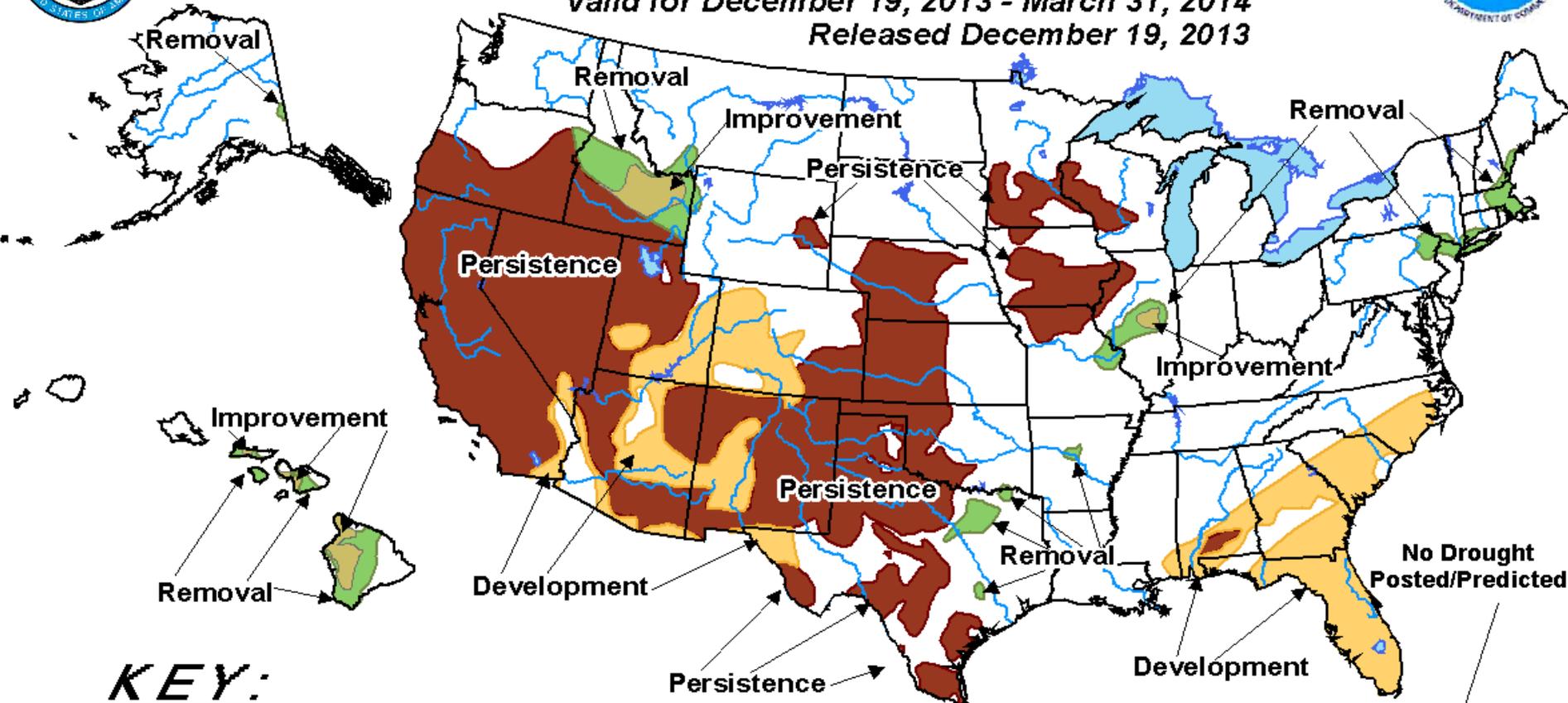


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for December 19, 2013 - March 31, 2014

Released December 19, 2013



KEY:

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

Author: Rich Tinker, 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 tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain.

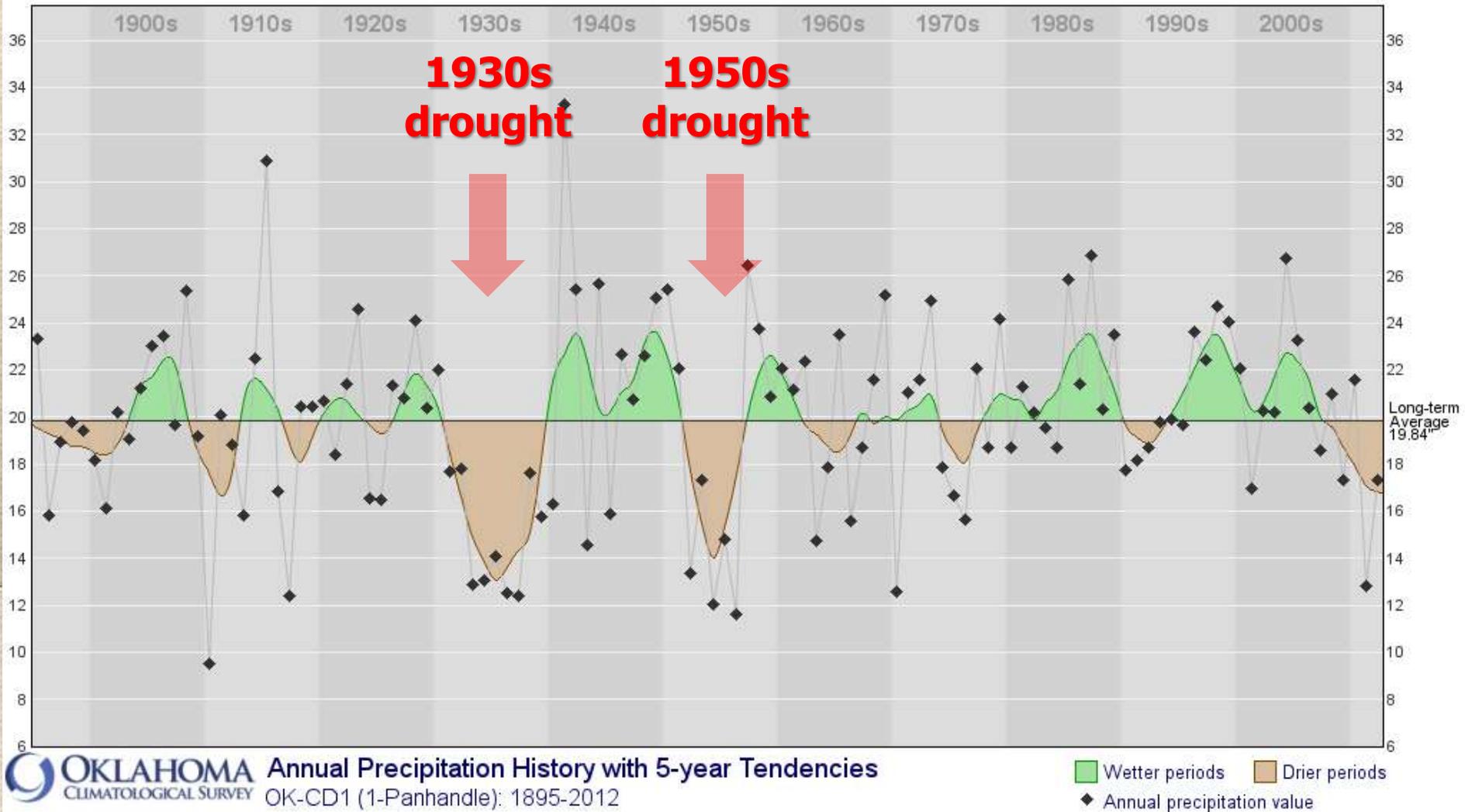
The Green areas imply drought removal by the end of the period (D0 or none)



A Brief History of Drought

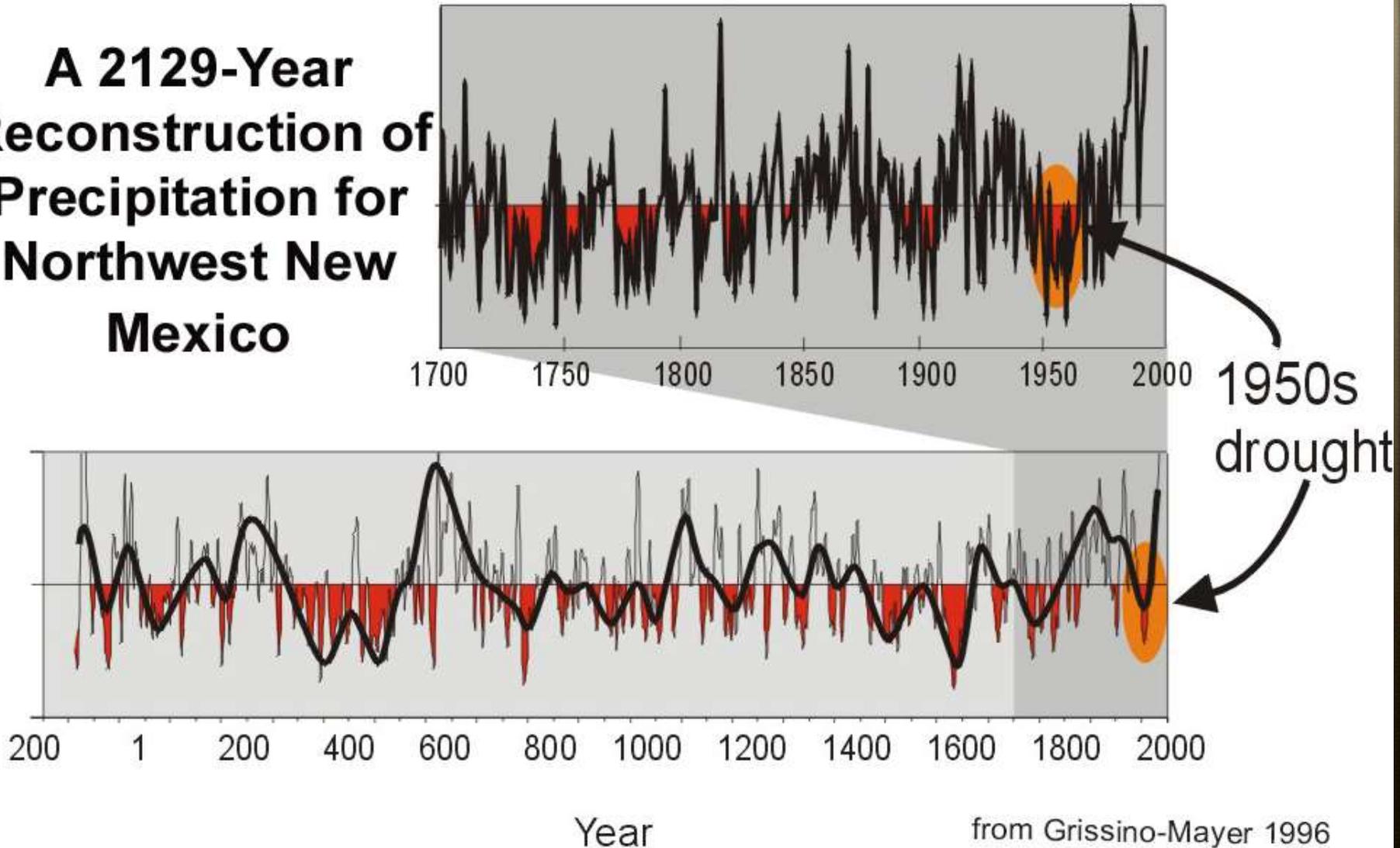
Big droughts are always lurking

OK Panhandle avg. rainfall (1895-2012)

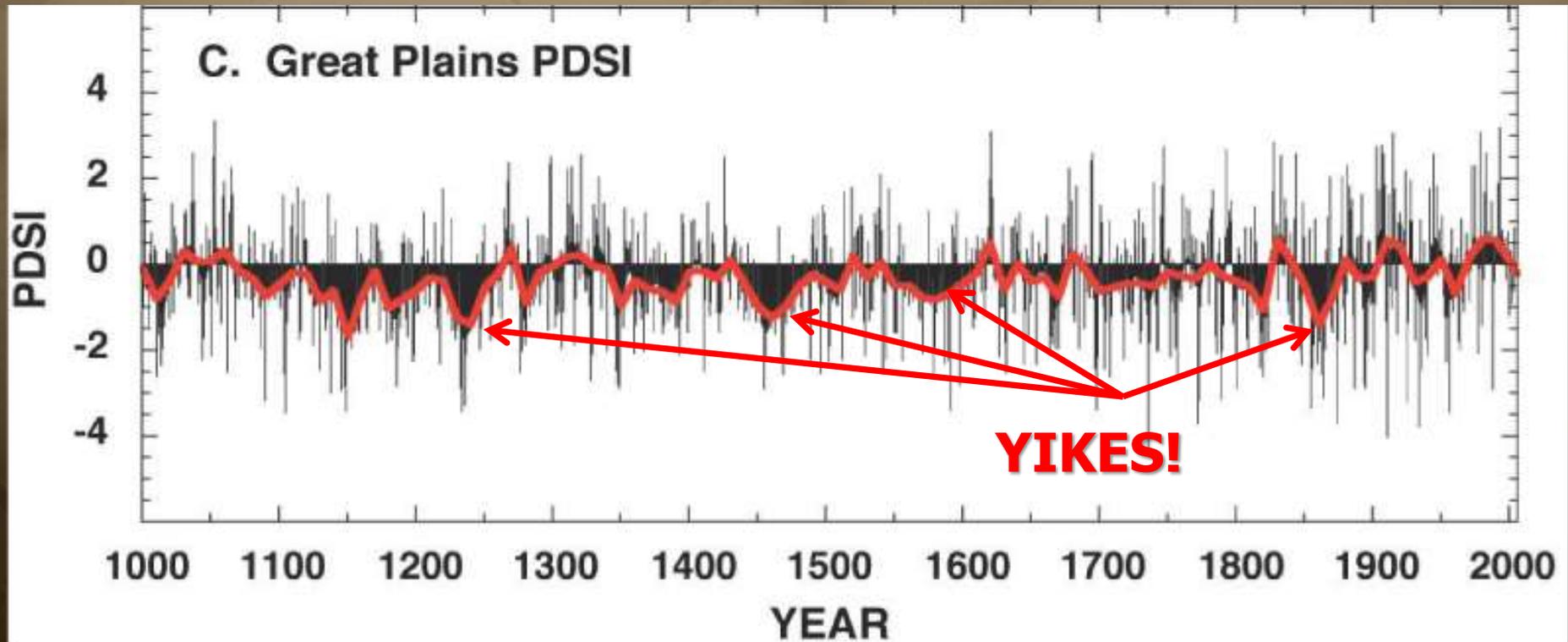


Mega-droughts dot our past

A 2129-Year Reconstruction of Precipitation for Northwest New Mexico



Recent droughts are infants!



2010-13 Drought: Final points

- Two drought episodes within a larger drought period
- Eastern areas are better
- Don't expect much drought relief . It's winter!
- As with other droughts, periods of relief and intensification
- Ocean patterns are unfavorable in the long term??
- We might be in for a longer period of "drought susceptibility"??
- Ask Klaus!
- This drought will eventually end!

Thank You!

Visit us at: <http://climate.ok.gov/>