

2010-13 Southern Plains Drought Evolution
March 7, 2013

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Oklahoma Mesonet

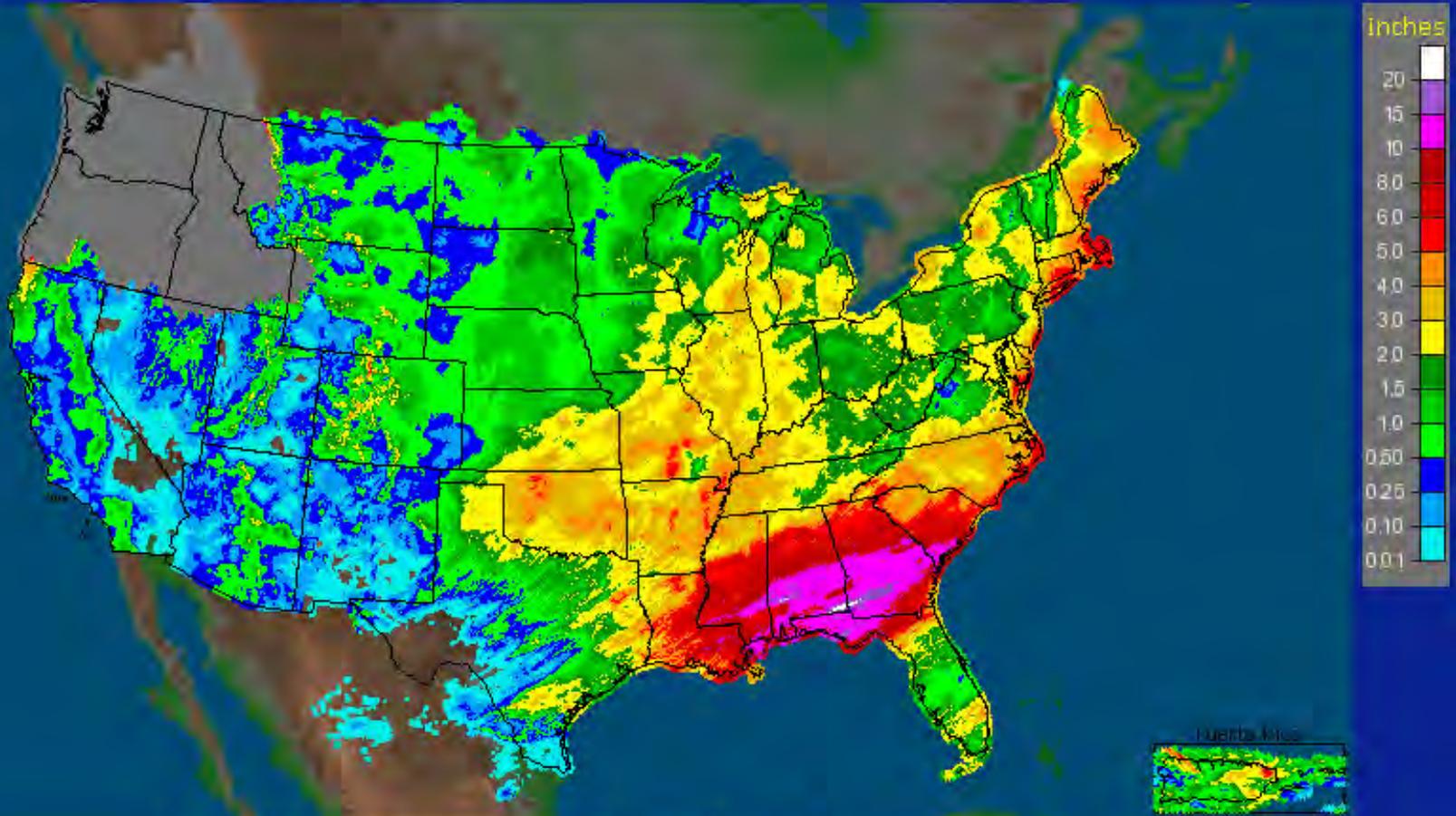
ALTERNATE TITLE:

**The OKLAHOMA, NEW MEXICO,
KANSAS, COLORADO, LOUISIANA
and Texas Drought of 2010-13**

Start with the good

Last 30 days: 2-6 inches across parts of S.P.

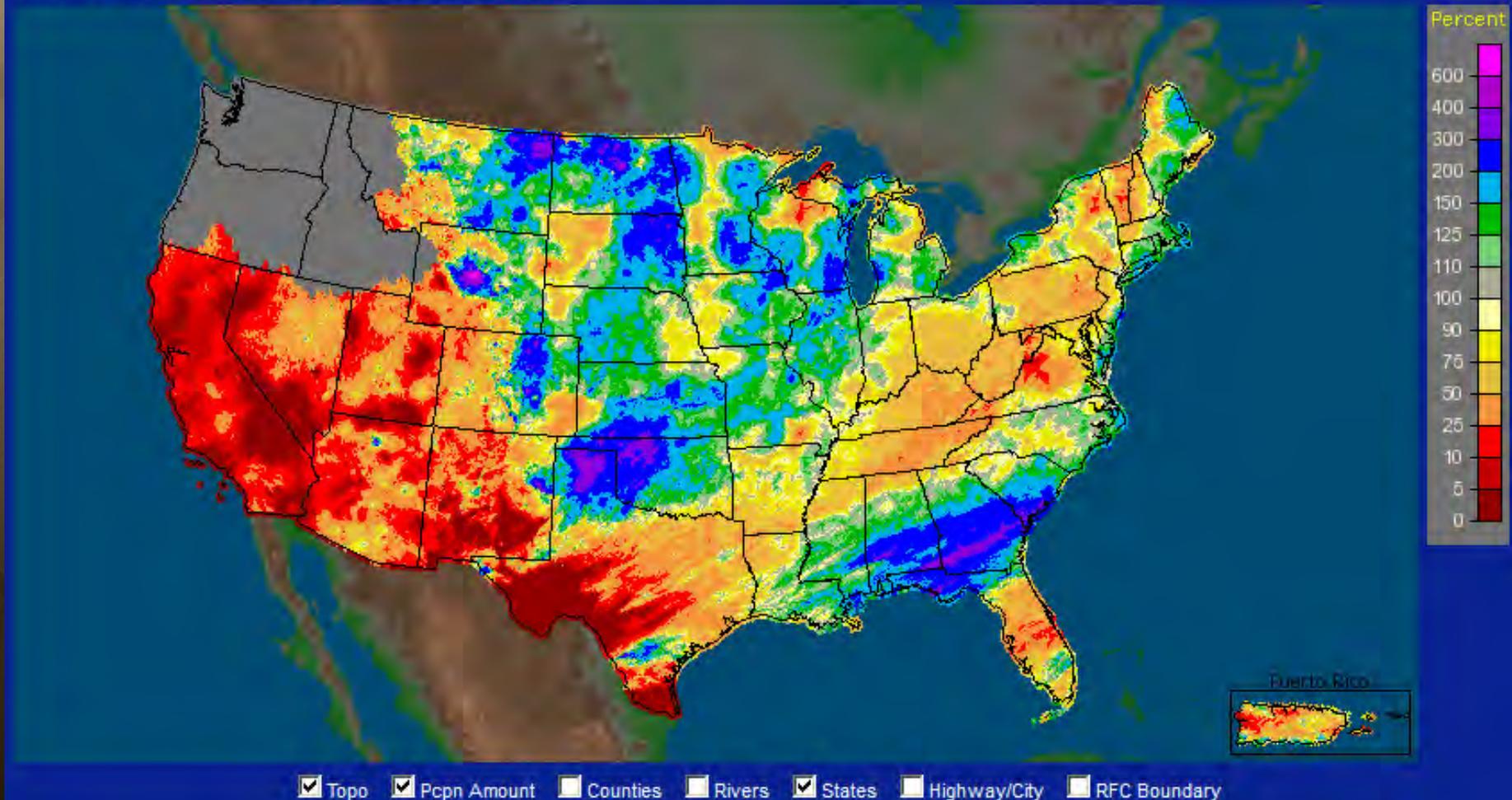
CONUS + Puerto Rico: Current 30-Day Observed Precipitation
Valid at 3/5/2013 1200 UTC - Created 3/5/13 23:38 UTC



Topo Pcpn Amount Counties Rivers States Highway/City RFC Boundary

150-400% of normal

CONUS + Puerto Rico: Current 30-Day Percent of Normal Precipitation
Valid at 3/5/2013 1200 UTC - Created 3/5/13 23:38 UTC

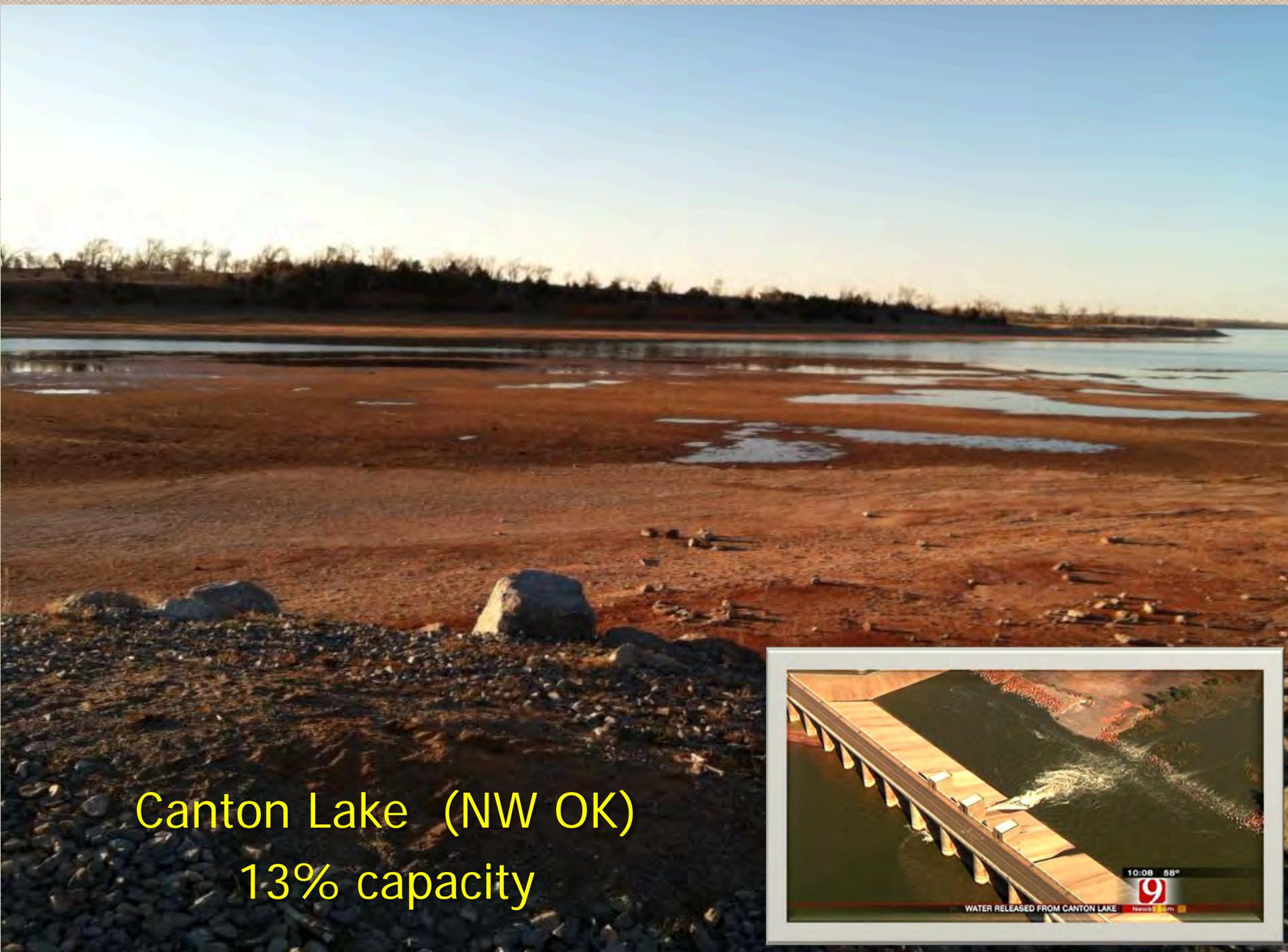


The background of the slide is a close-up photograph of parched, cracked earth. The cracks are irregular and deep, creating a network of polygonal shapes across the entire surface. The color is a range of browns, from light tan to dark chocolate, with a slight gradient from top to bottom.

Drought in Pictures

North of Guymon, OK: April 2011





Canton Lake (NW OK)
13% capacity



Buffalo, OK:
May 2009



May 2011



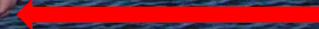
October 2012



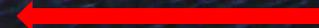
Yesterday



Not just a fish story!



2 feet long
15 lbs.



Yesterday



Canadian County
Aug. 2012



NW of Okarche

Nov. 2012



NW of Okarche

Nov. 2012



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.

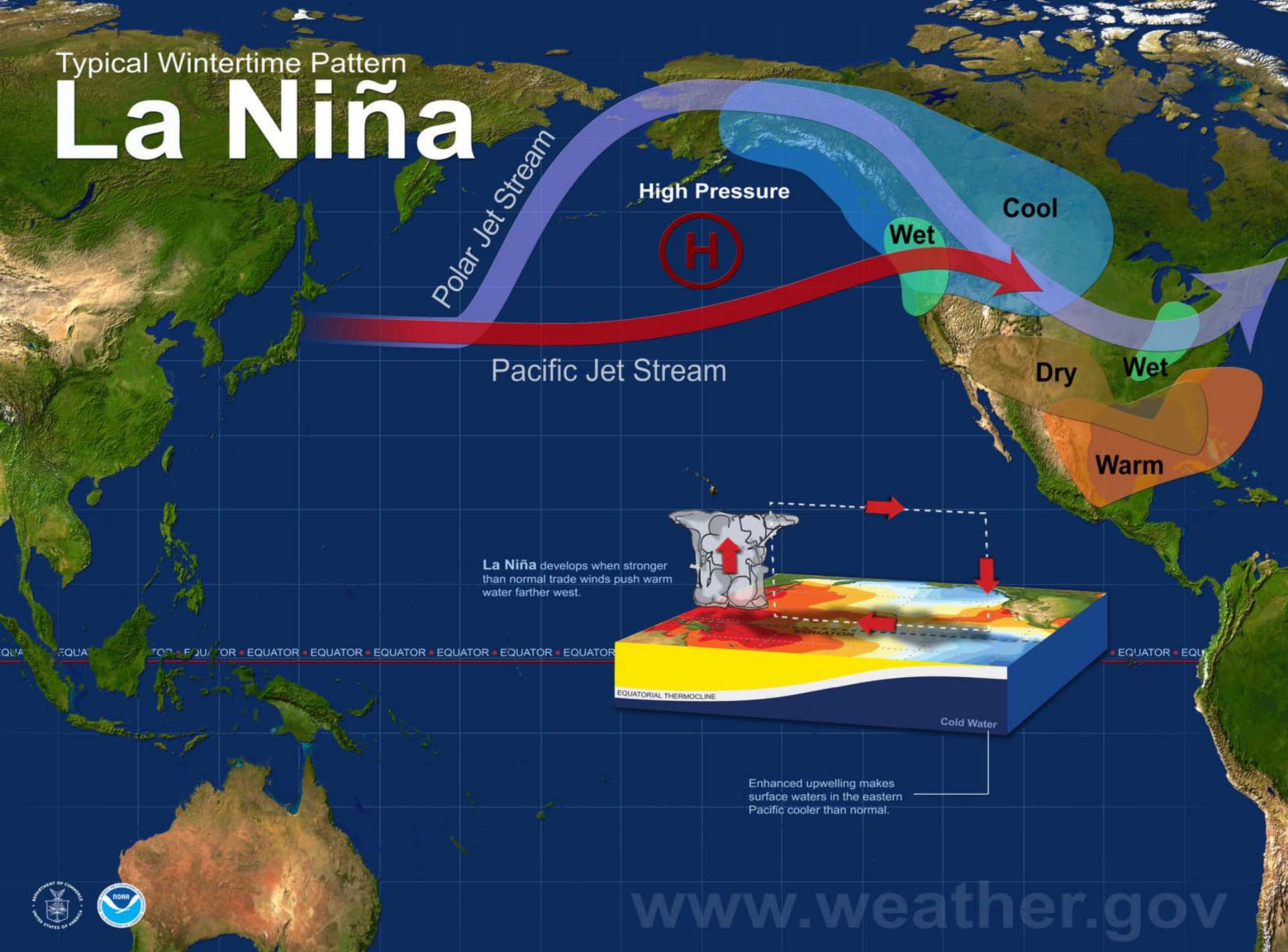
Our Current Drought

Our 2-Year+ Drought Cycle

- Drought "begins" October 2010
 - Flash drought summer 2010 didn't help
- Intensified through summer 2011
 - Almost entirely in Southern Plains
- Relief began for most October 2011
- Miraculous recovery through March 2012
- Warm winter and spring!
- Rainfall deficits again in April and May 2012
- **Driest May-December on record**
- 2012 - Warmest year on record
- Active cycle in 2013 brings improvements

Typical Wintertime Pattern

La Niña



High Pressure

H

Polar Jet Stream

Pacific Jet Stream

Wet

Cool

Dry

Wet

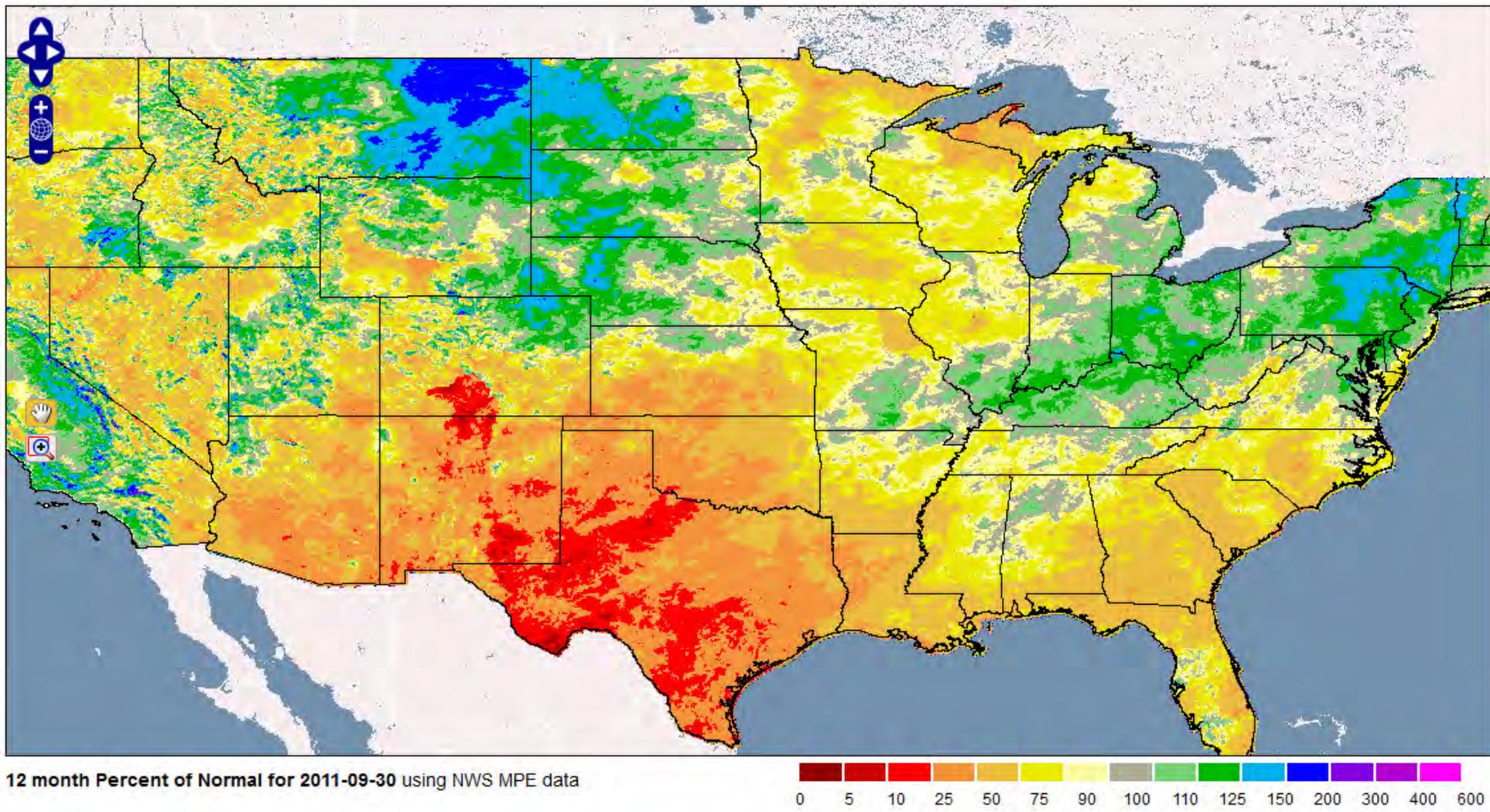
Warm

La Niña develops when stronger than normal trade winds push warm water farther west.

Enhanced upwelling makes surface waters in the eastern Pacific cooler than normal.



2010-11 Water Year Pct. of Normal

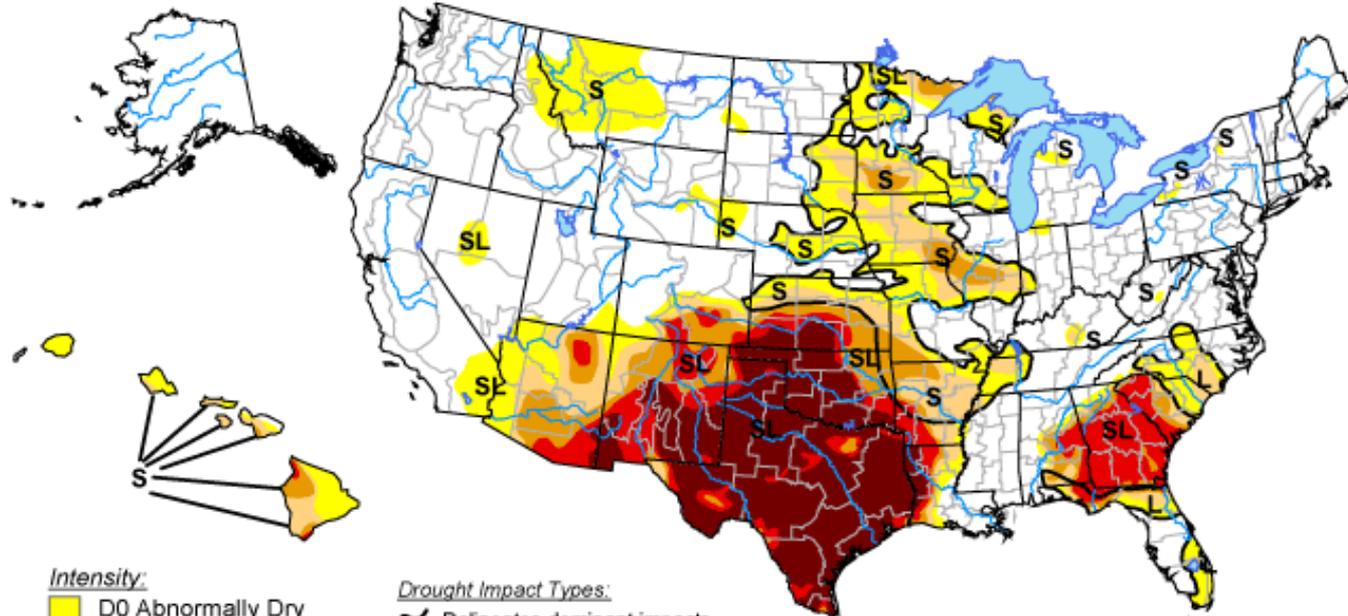


5-50% of normal in Southern Plains

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/>



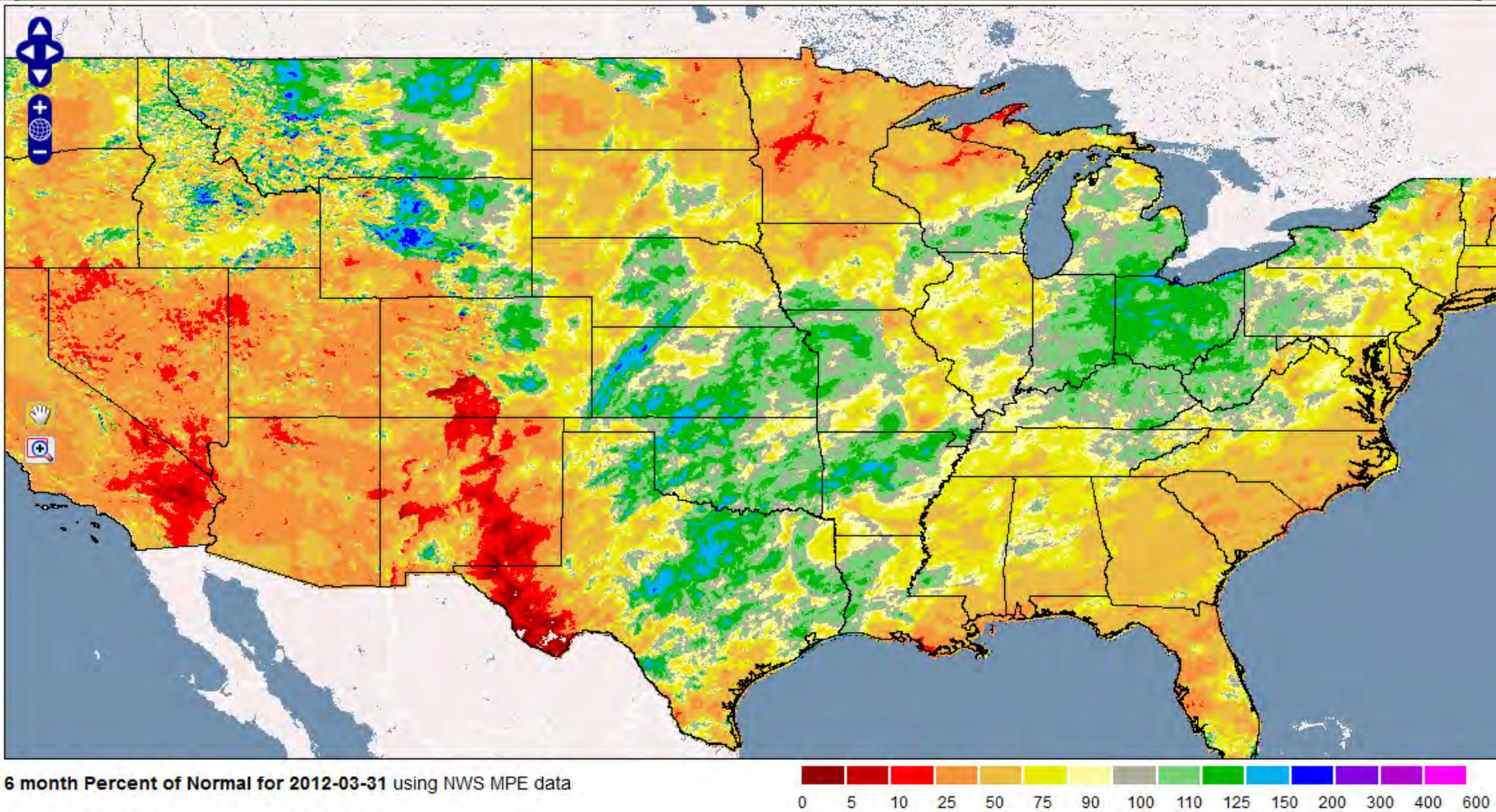
Released Thursday, October 6, 2011
Author: Rich Tinker, CPC/NCEP/NWS/NOAA

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

The background of the slide is a textured, brownish-gold color with a pattern of irregular, cracked lines, resembling aged parchment or dry earth. The text is centered in the middle of the slide.

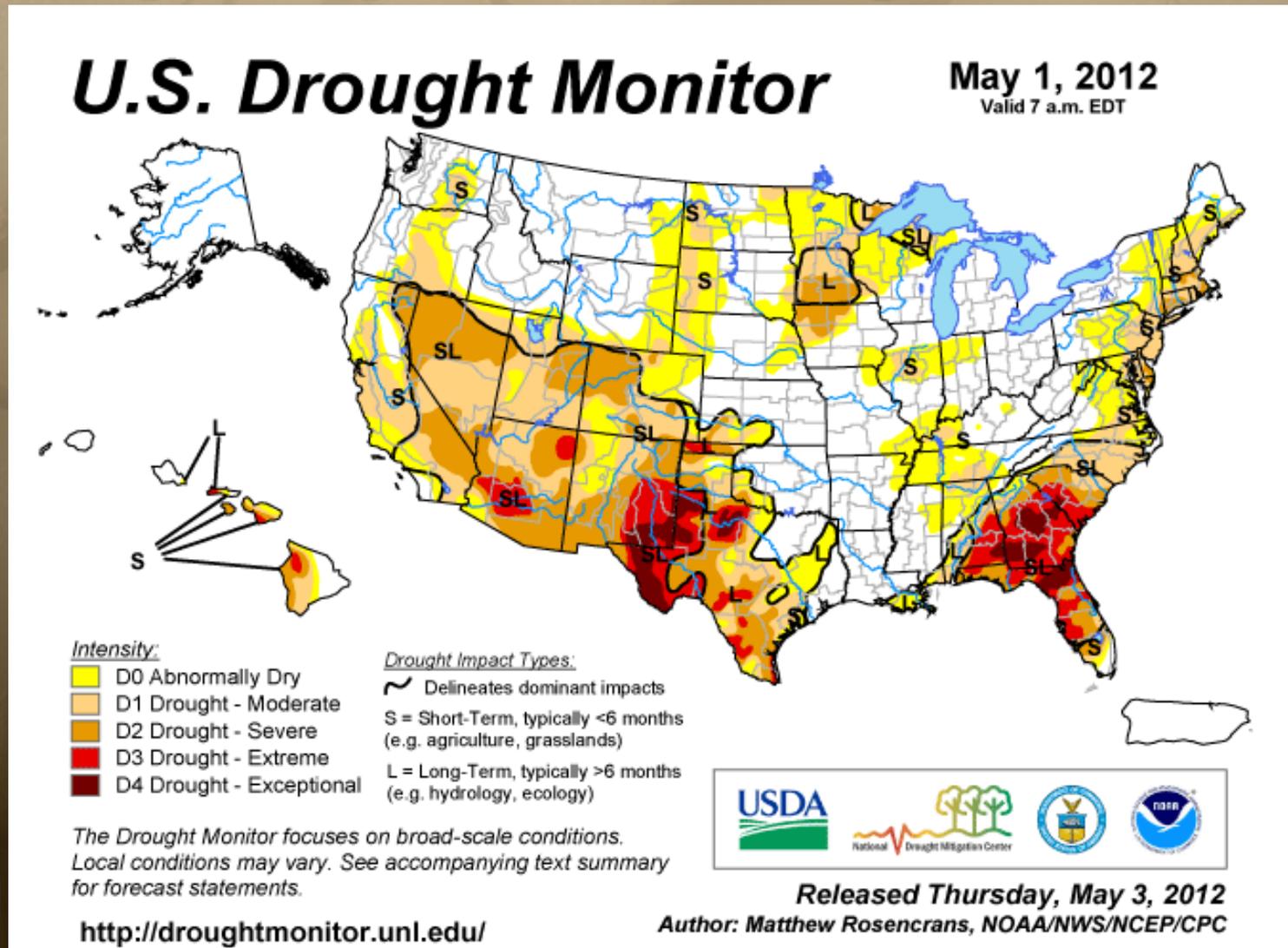
**Oct. 2011-March 2012:
Relief!**

October 2011-March 2012

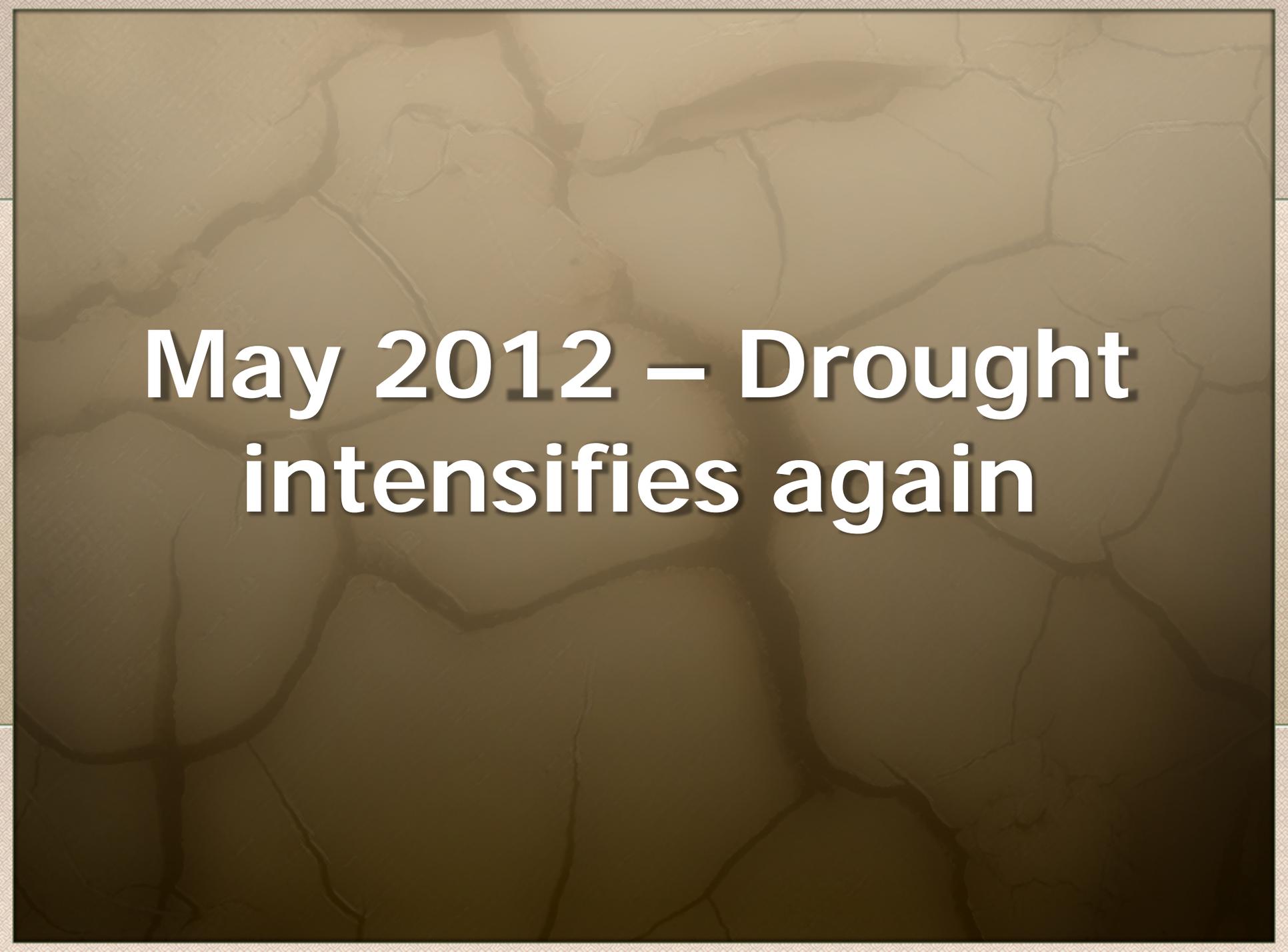


Above normal across much of SP

Early May, the drought's end?

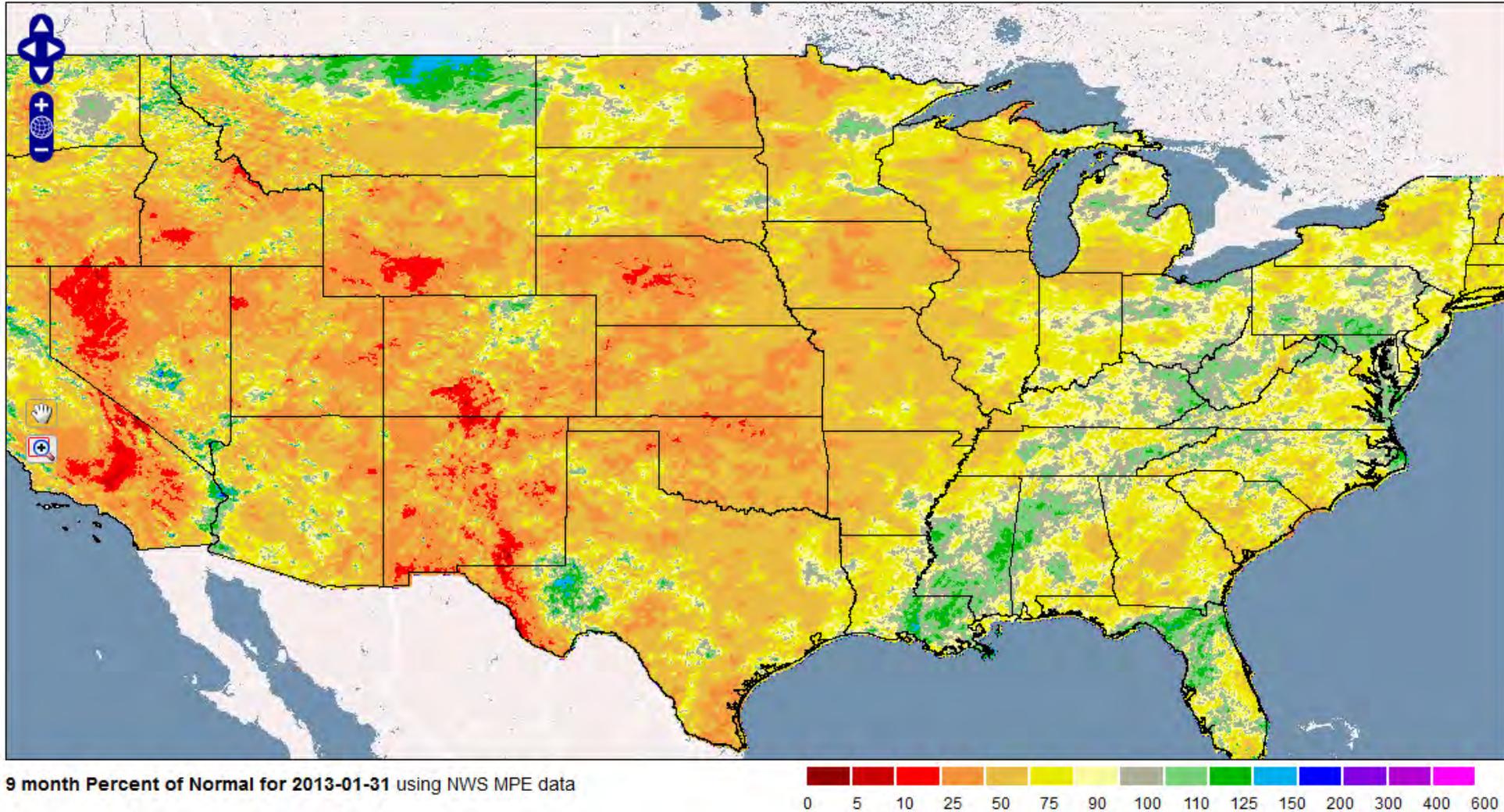


Drought to the west, drought free in the east



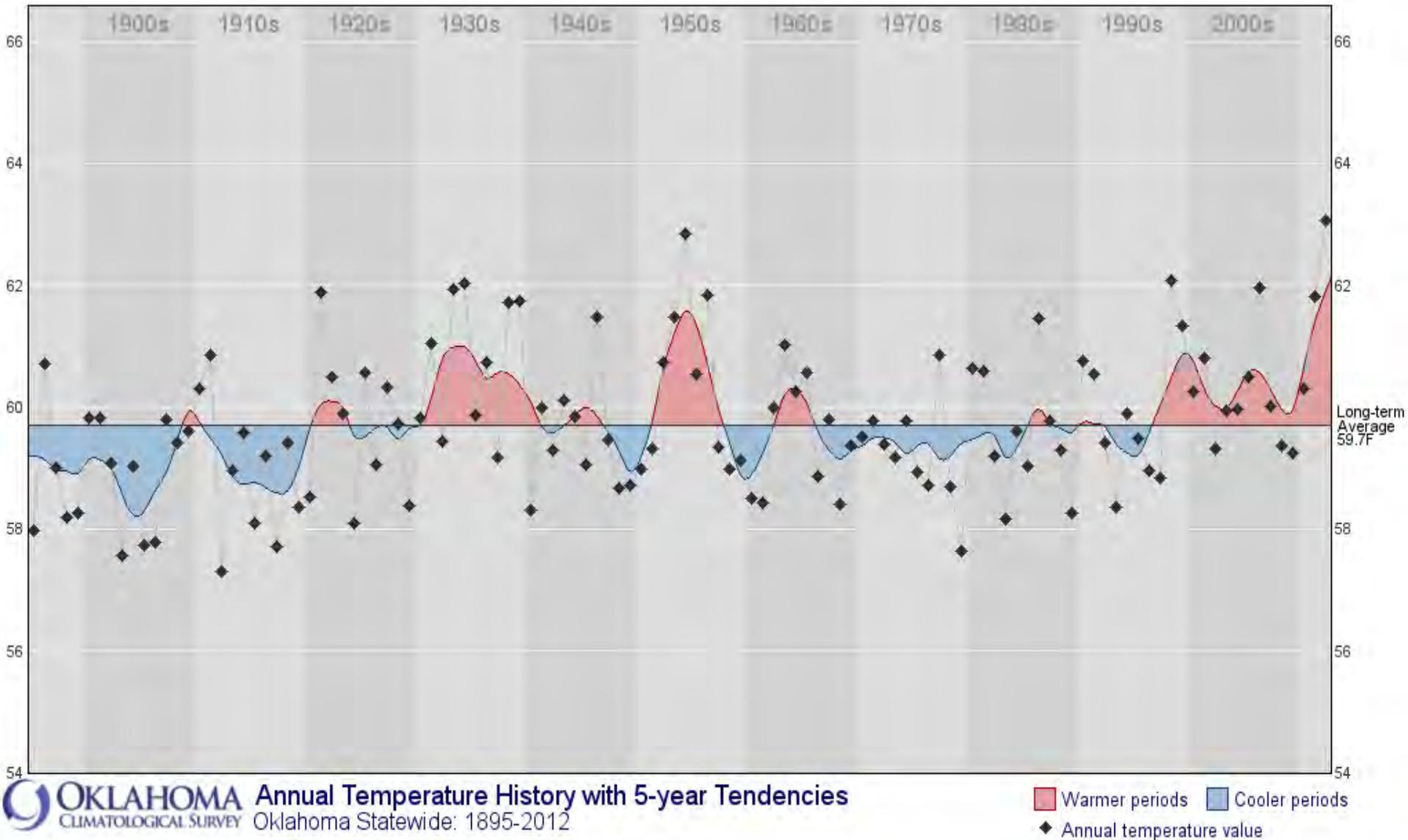
**May 2012 – Drought
intensifies again**

May 1- Jan. 31 rainfall totals

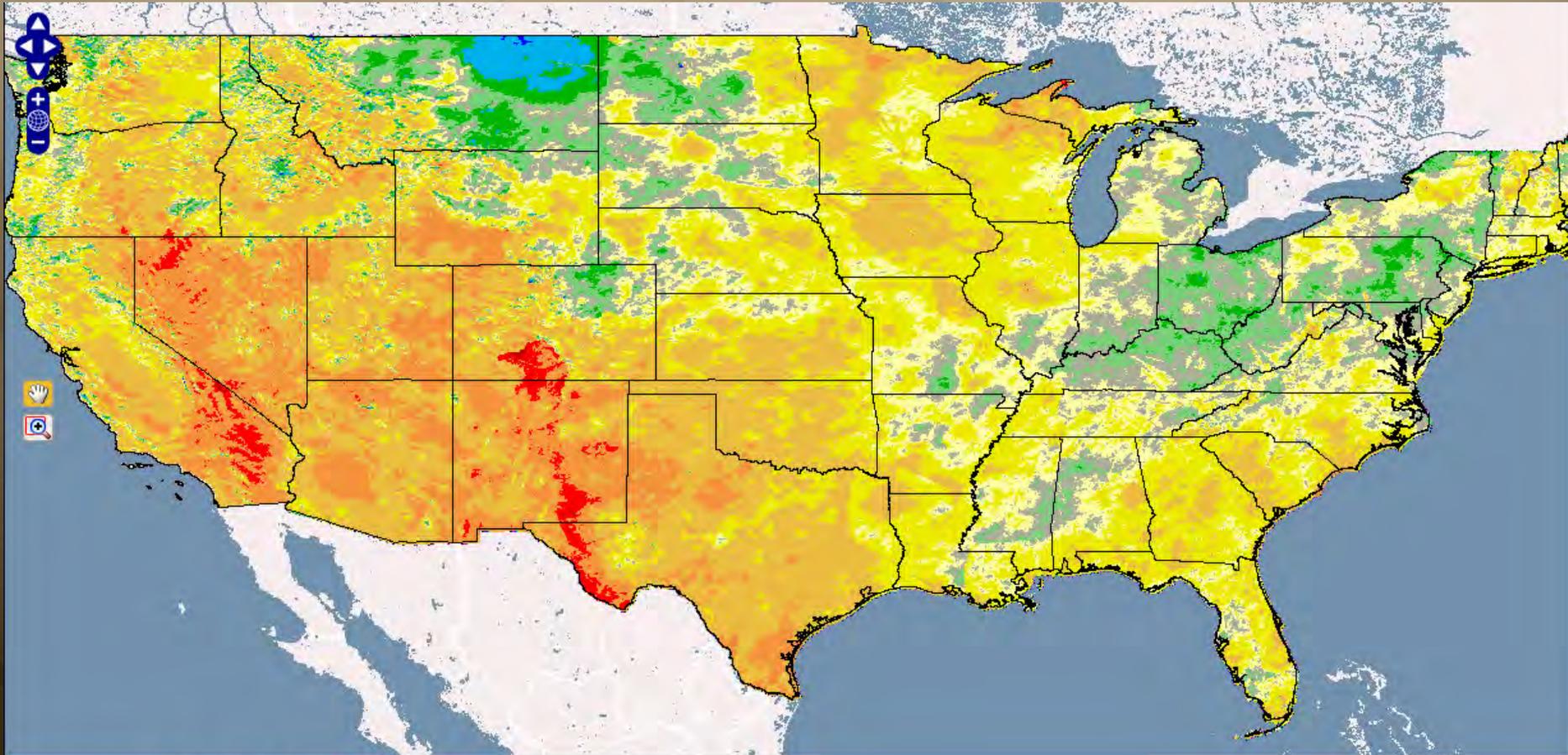


Most of country below normal!

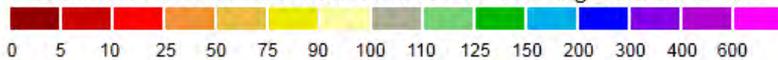
OK Annual Statewide Average Temperatures 2012 – Warmest year at 63 degrees



Last 24 months: 25-75 percent of normal

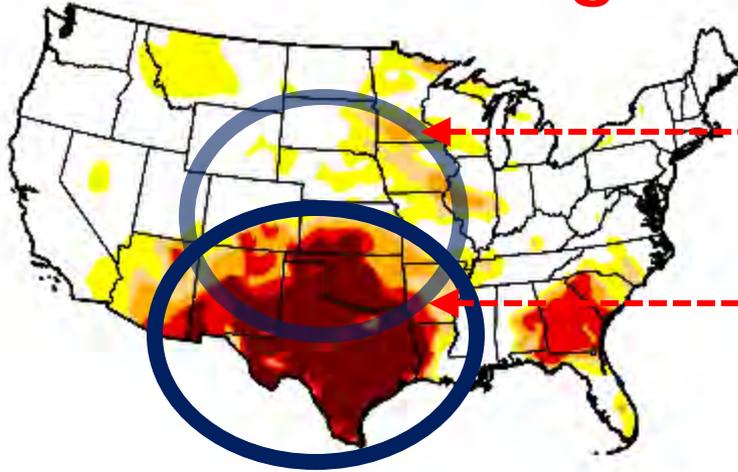


24 month Percent of Normal for 2013-03-05 using NWS MPE data

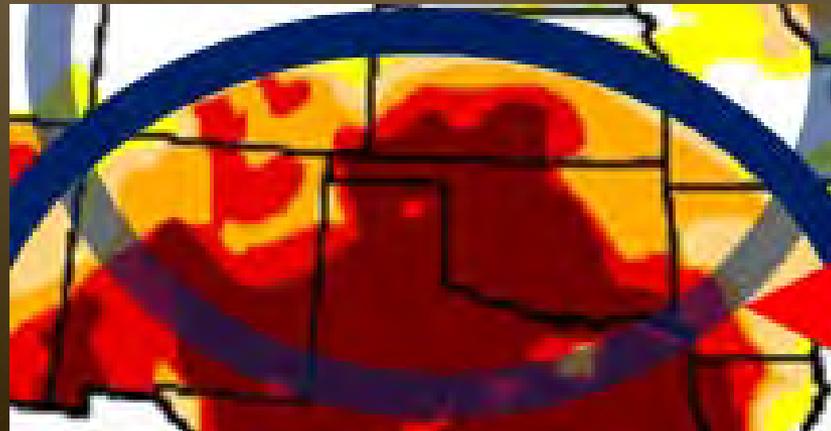
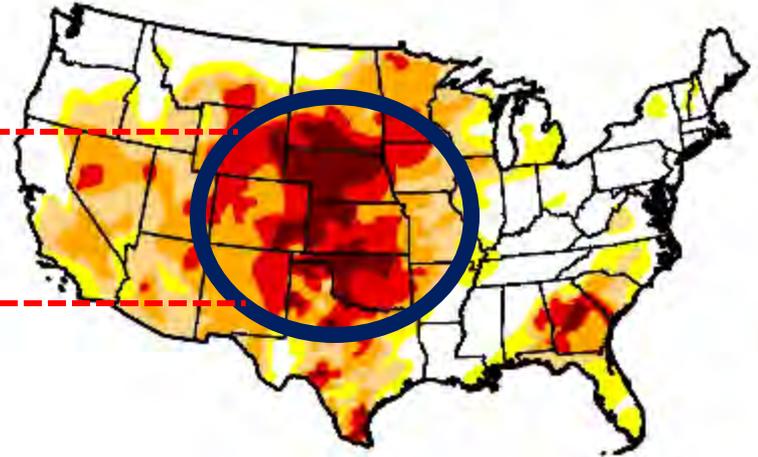


Common area of both droughts?

2010-11 drought



2012-13 drought



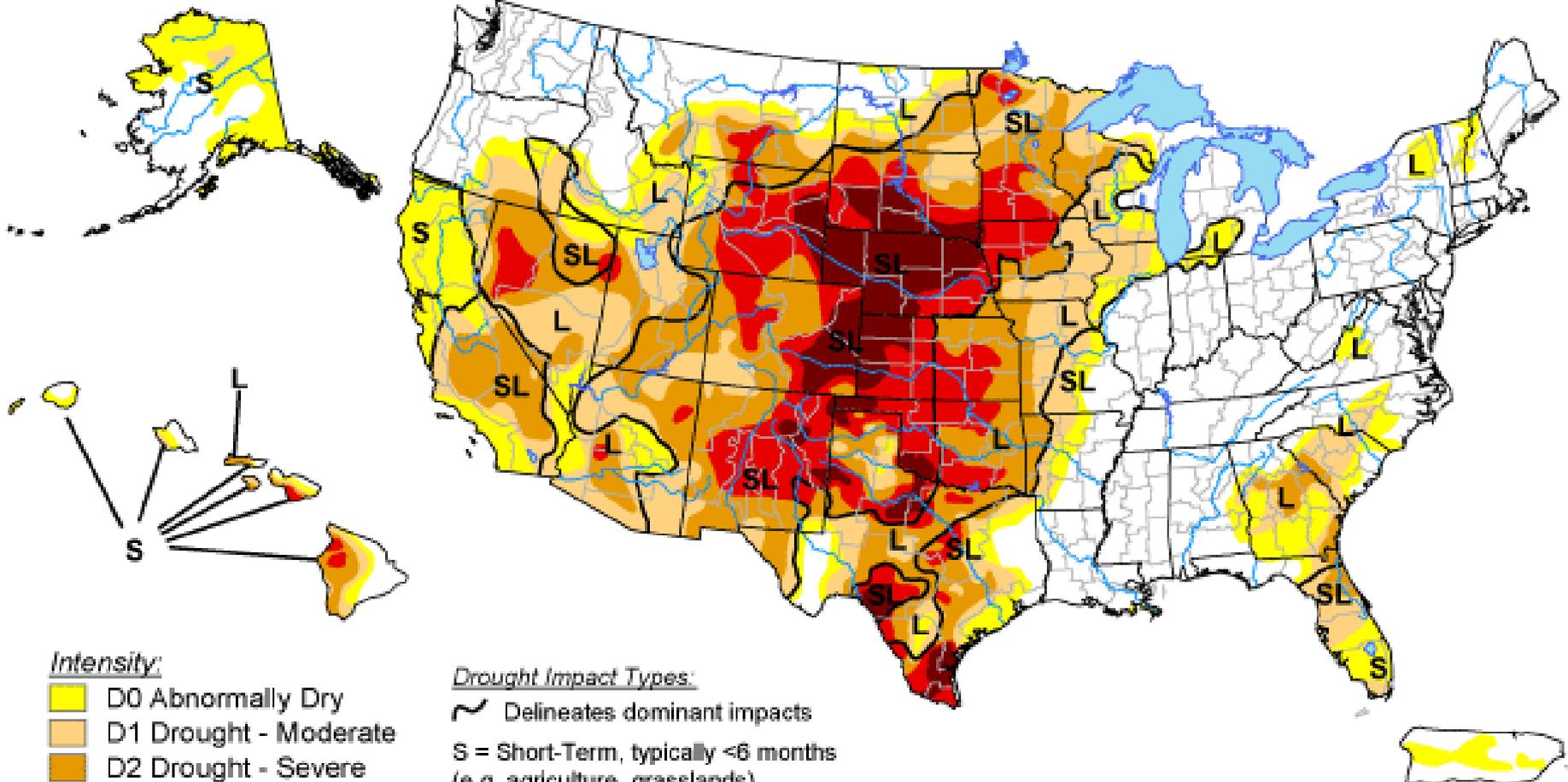
The background of the slide is a textured, brownish-gold color with a pattern of irregular, cracked lines, resembling aged parchment or stone. The text is centered in the upper half of the image.

Where are we now?

U.S. Drought Monitor

March 5, 2013

Valid 7 a.m. EST



Intensity:

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

Drought Impact Types:

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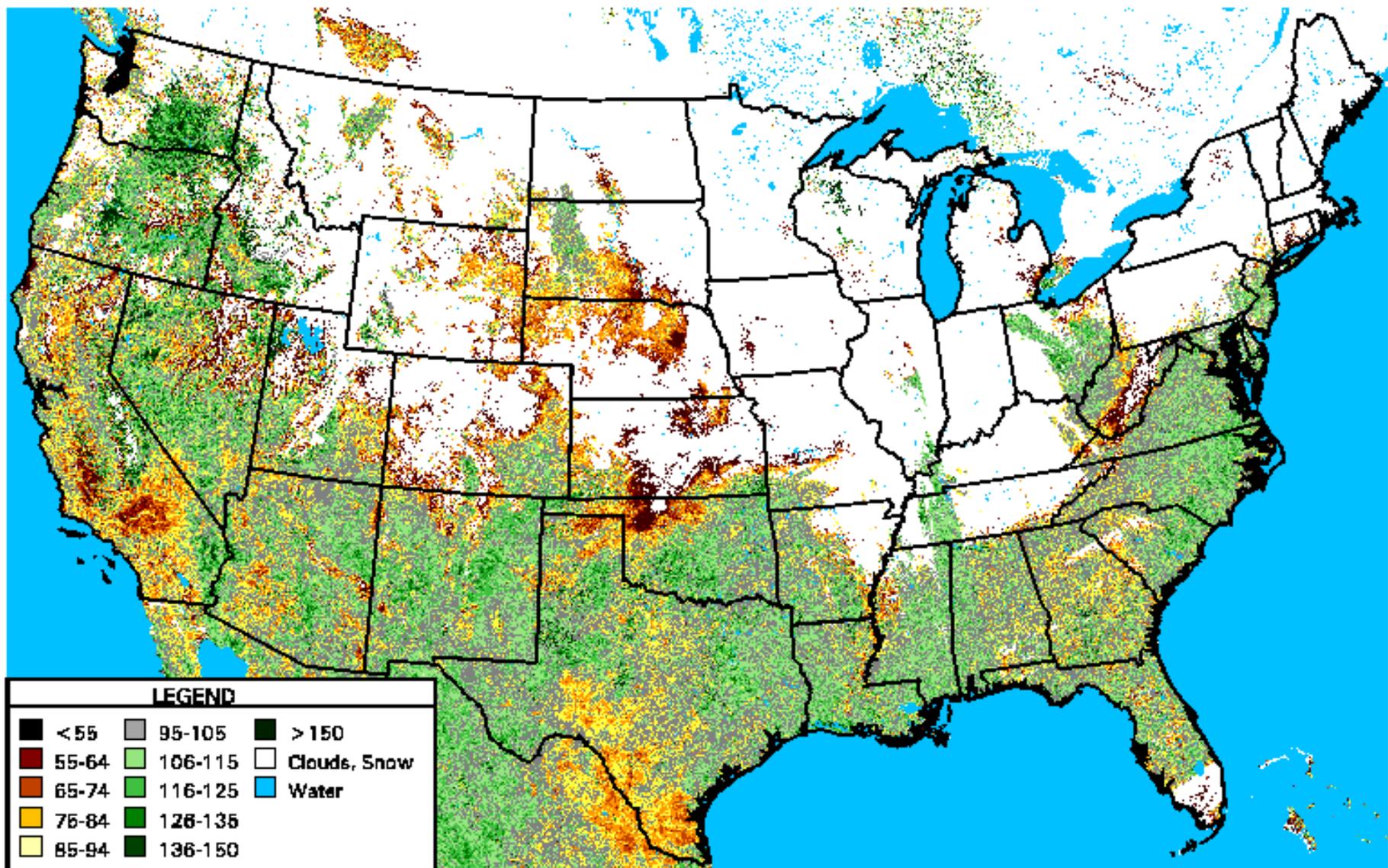


Released Thursday, March 7, 2013

Author: Matthew Rosenkrans, NOAA/NWS/NCEP/CPC

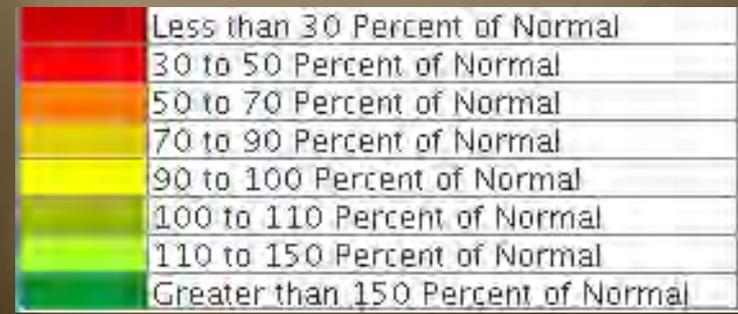
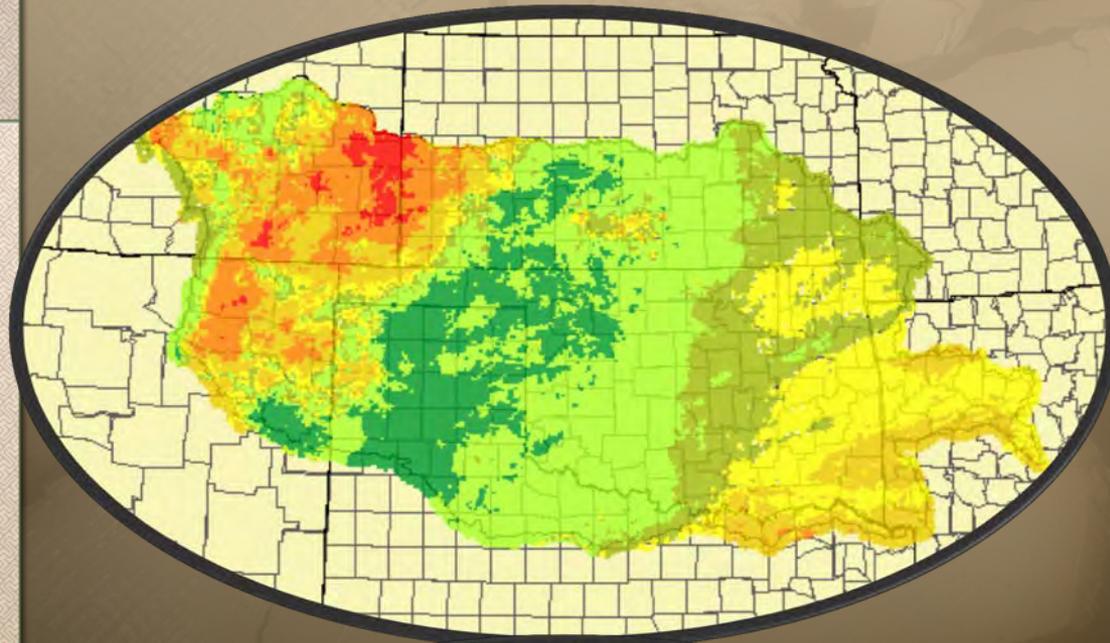
<http://droughtmonitor.unl.edu/>

Departure from Average Greenness: Feb 26 - Mar 04 2013

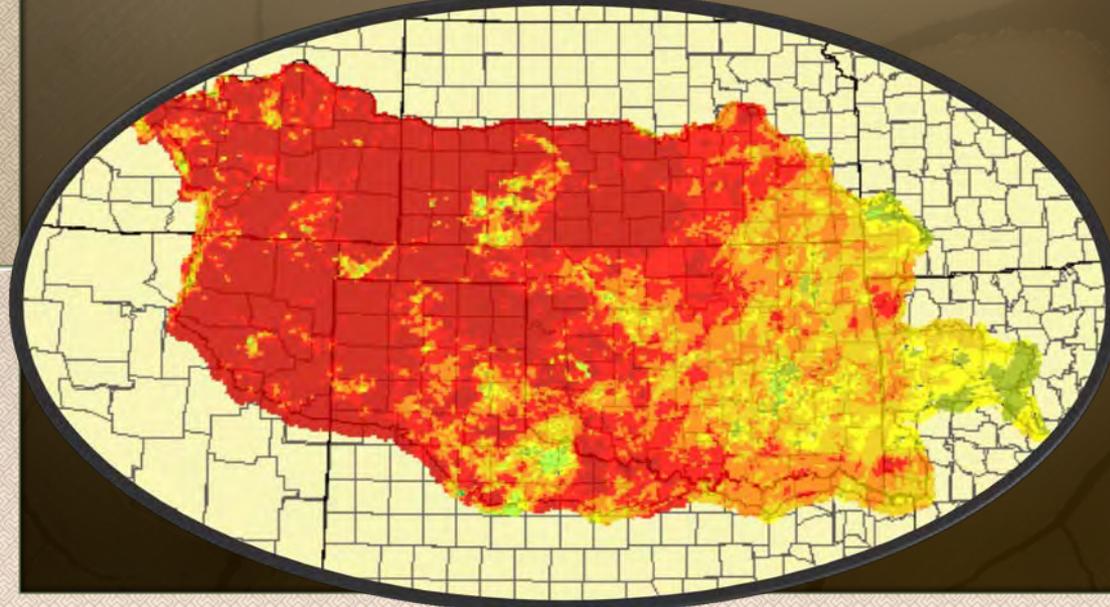


Soil Moisture

Upper Zone

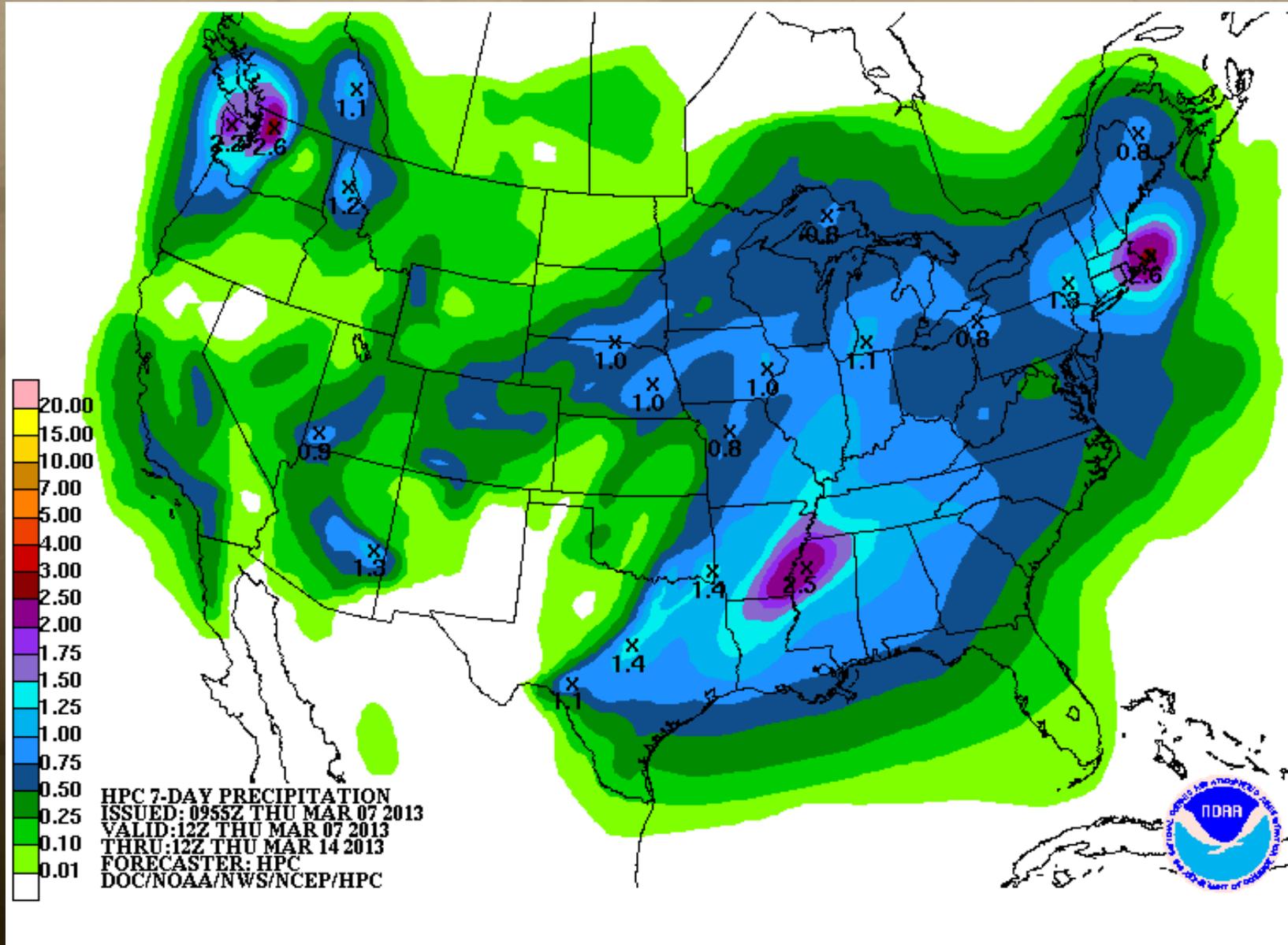


Lower Zone



Forecasts and Outlooks

Next Seven Days (thru Thur. a.m.)

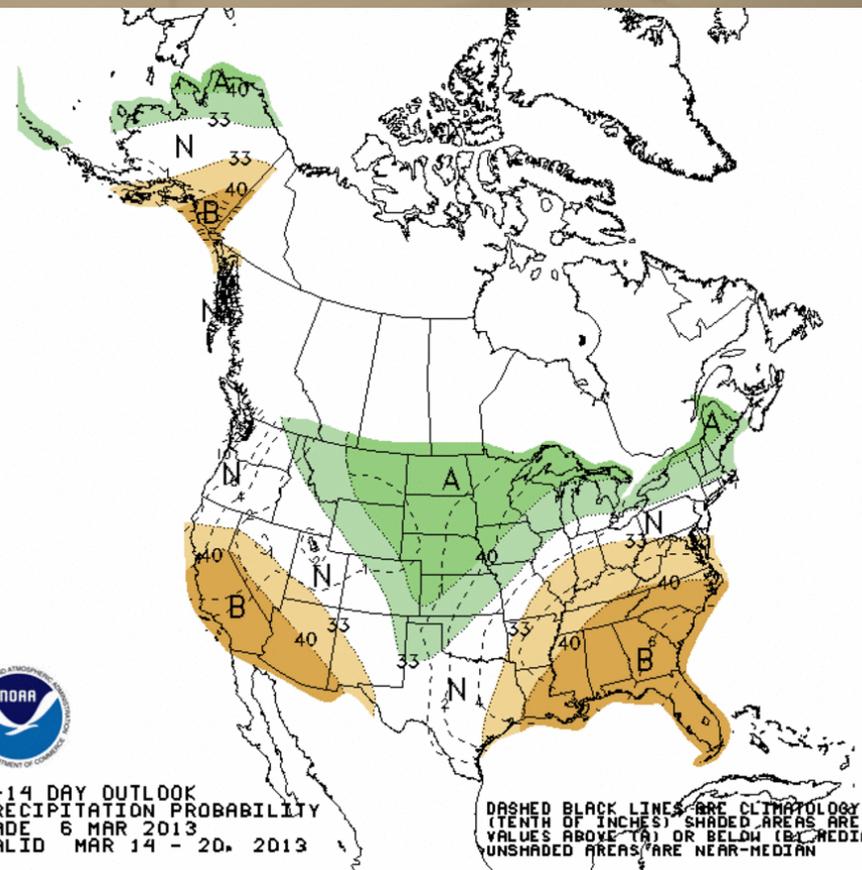
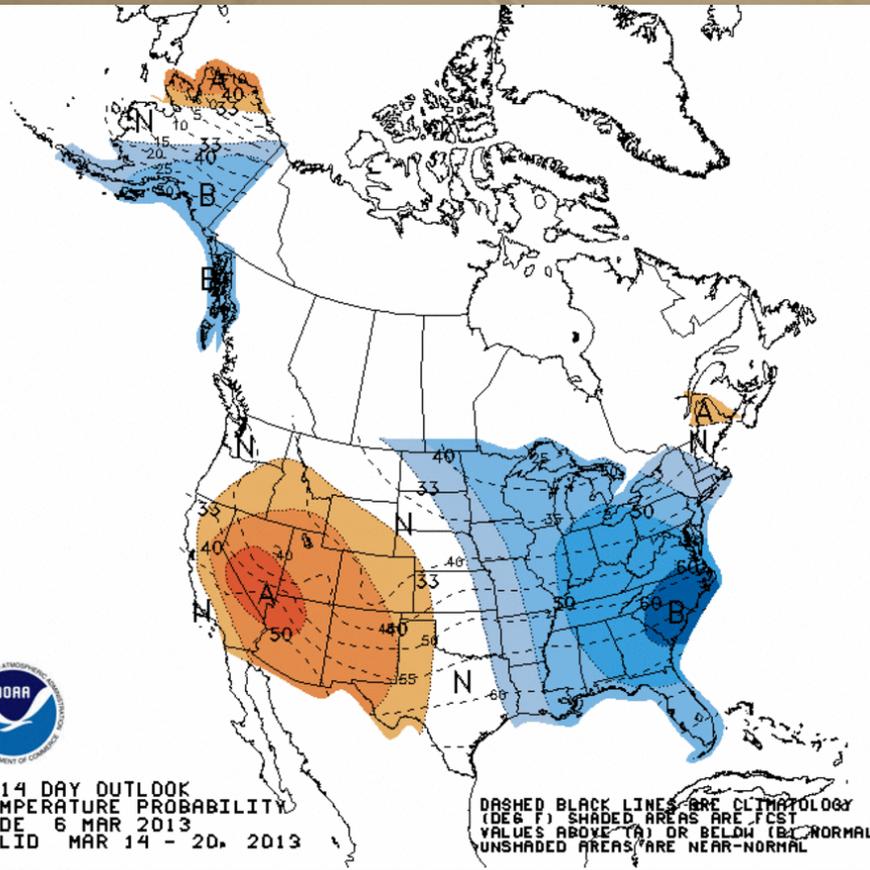


Medium-term Outlooks: March 14-20

More moisture chances?

Temperature

Precipitation



90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%

Probability of Below | Normal | Probability of Above

90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%

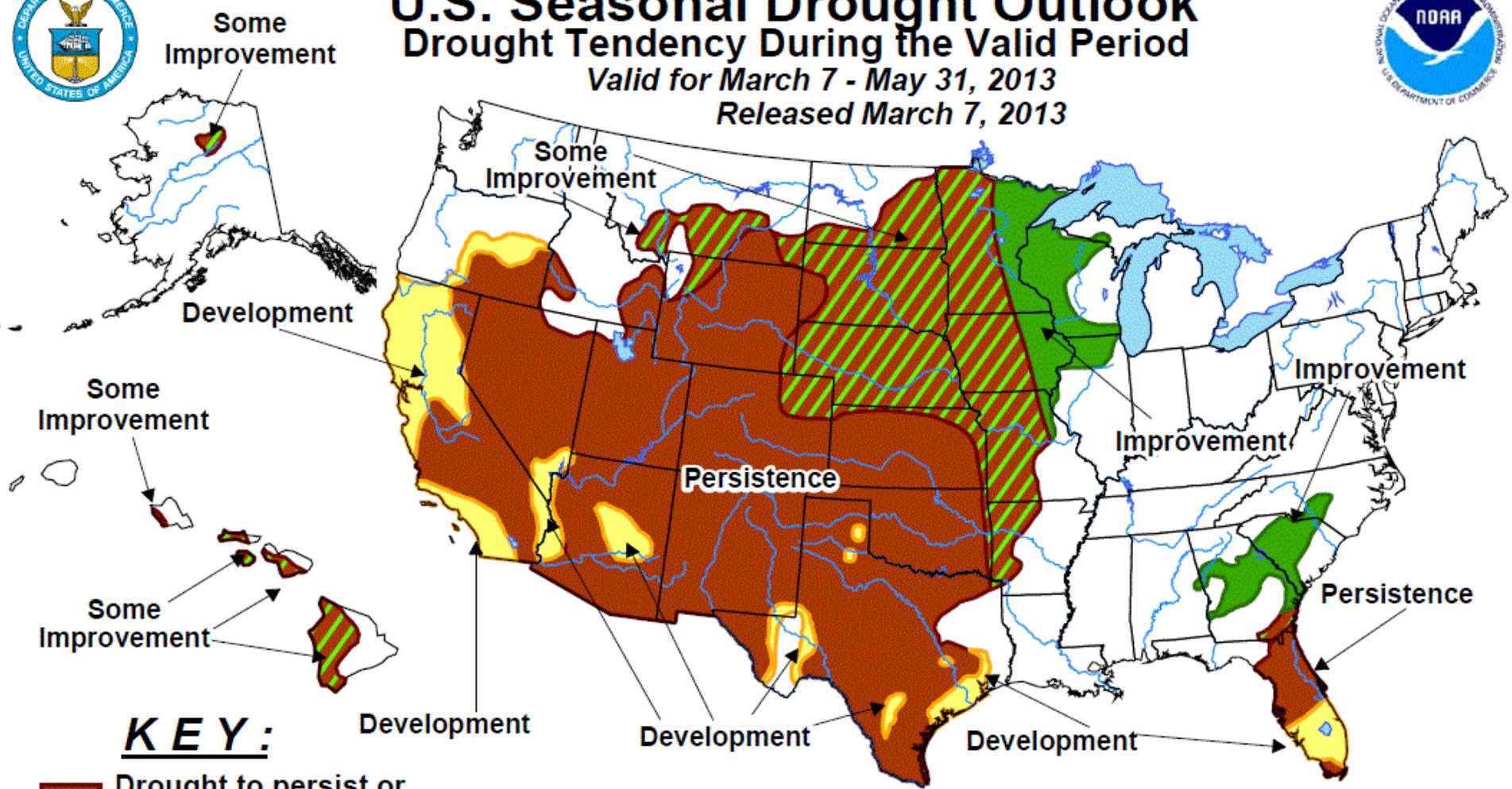
Probability of Below | Normal | Probability of Above



U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for March 7 - May 31, 2013
Released March 7, 2013



KEY:

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

No Drought Posted/Predicted 

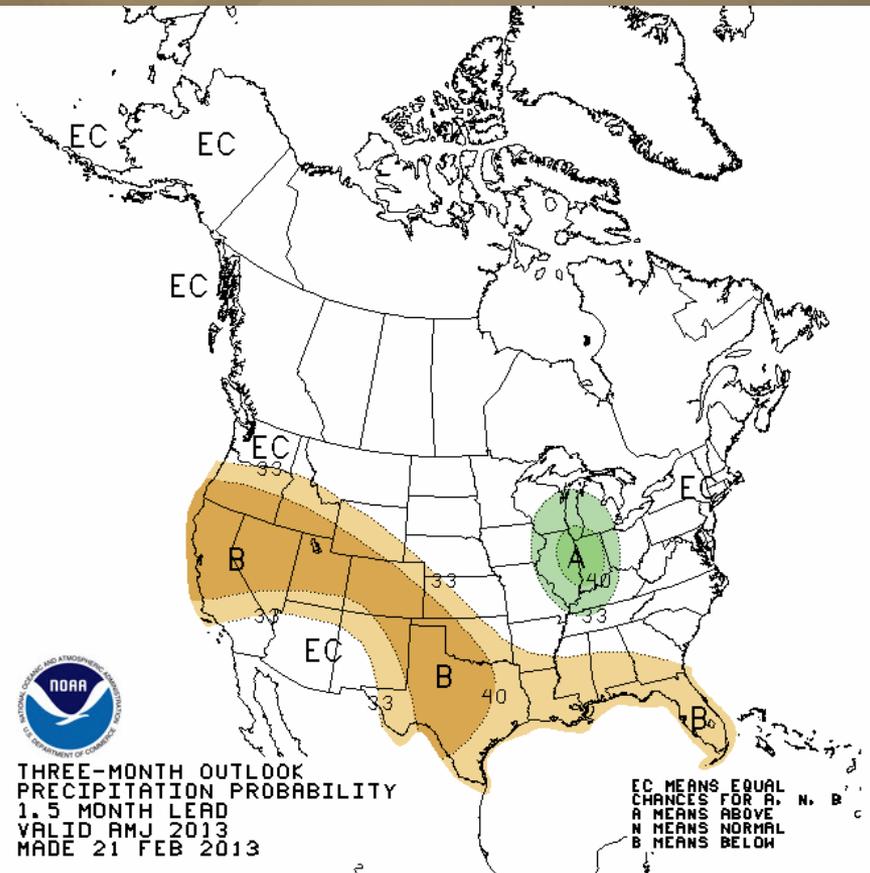
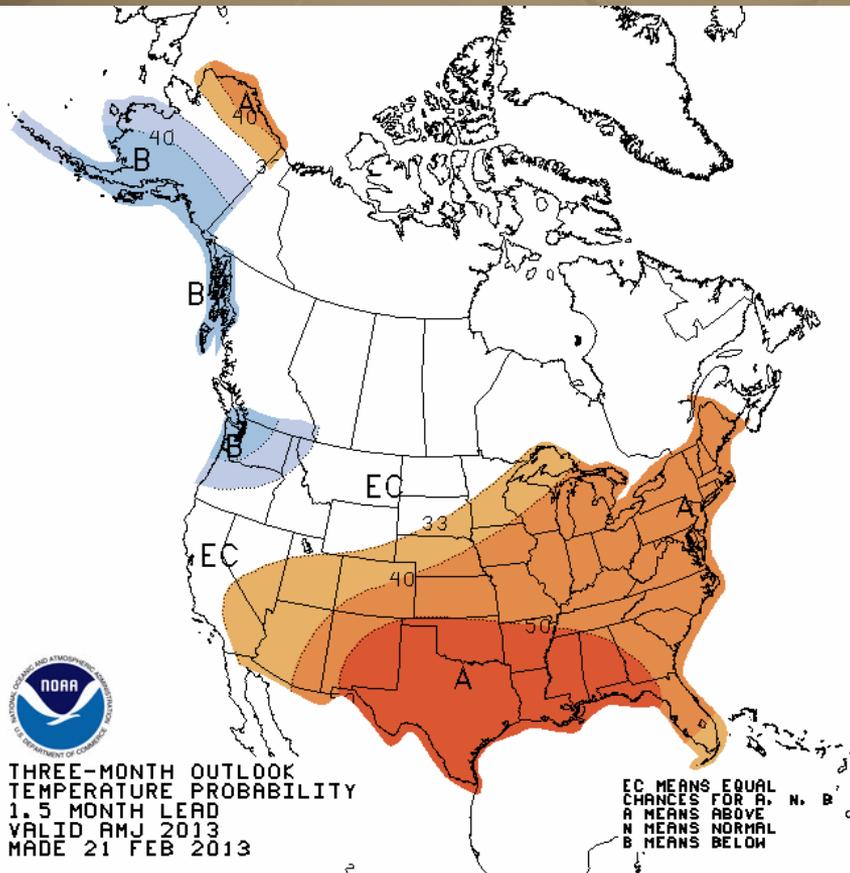
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- 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.

Spring rainy season (April-June)

A bit worrisome

Temperature

Precipitation





A Brief History of Drought

Extended period of drought susceptibility

1950-1974

Lots of La Nina's
Negative PDO
DRY!

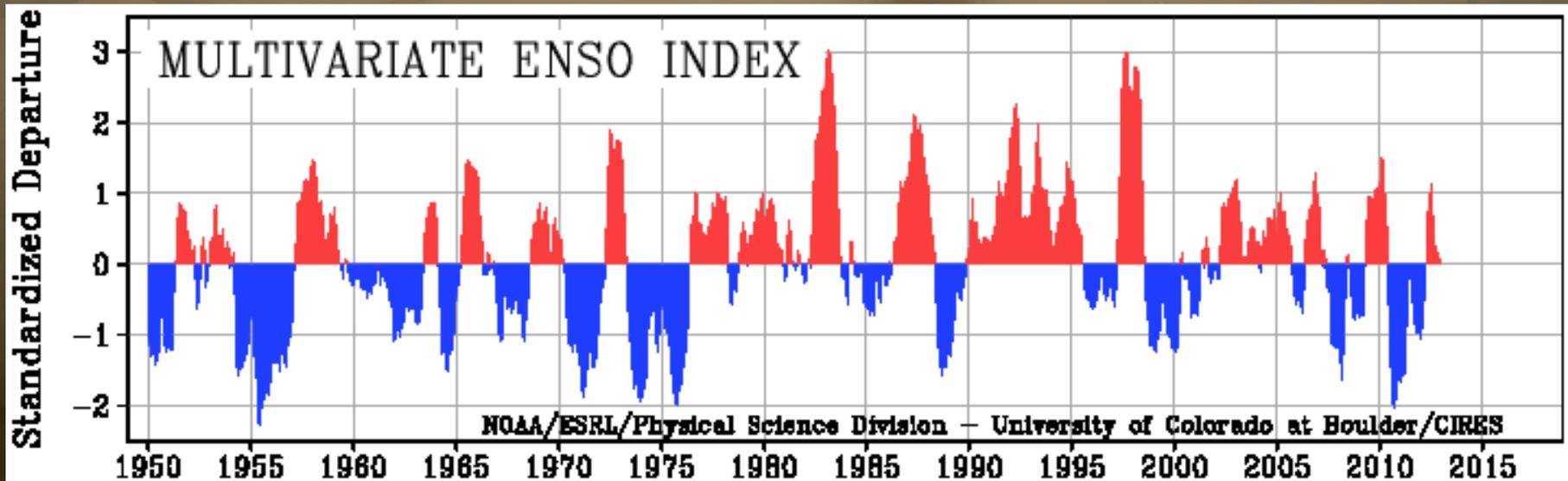


1975-2007

Mostly El Nino
Positive PDO
Unusually and
consistently wet!

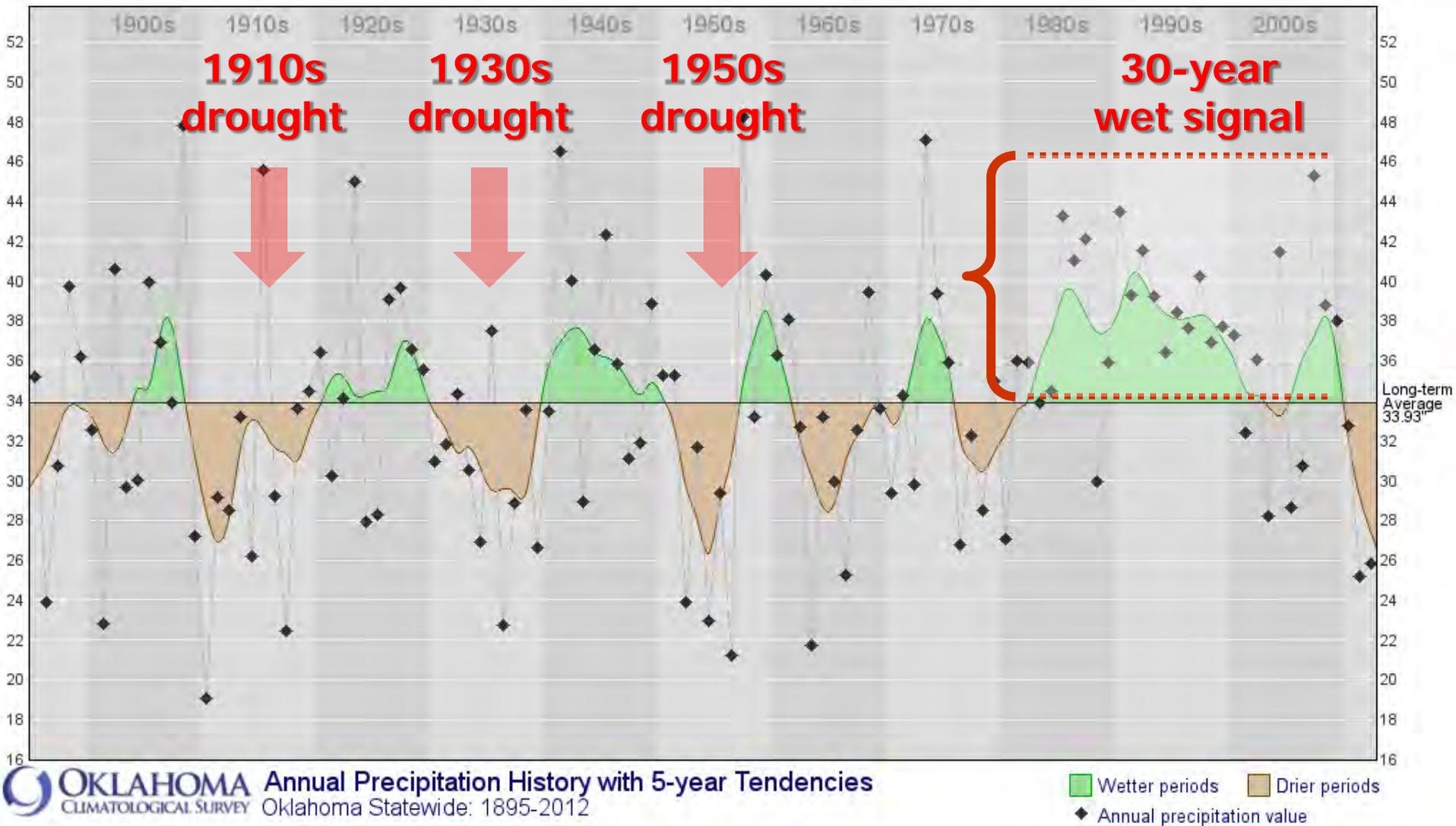


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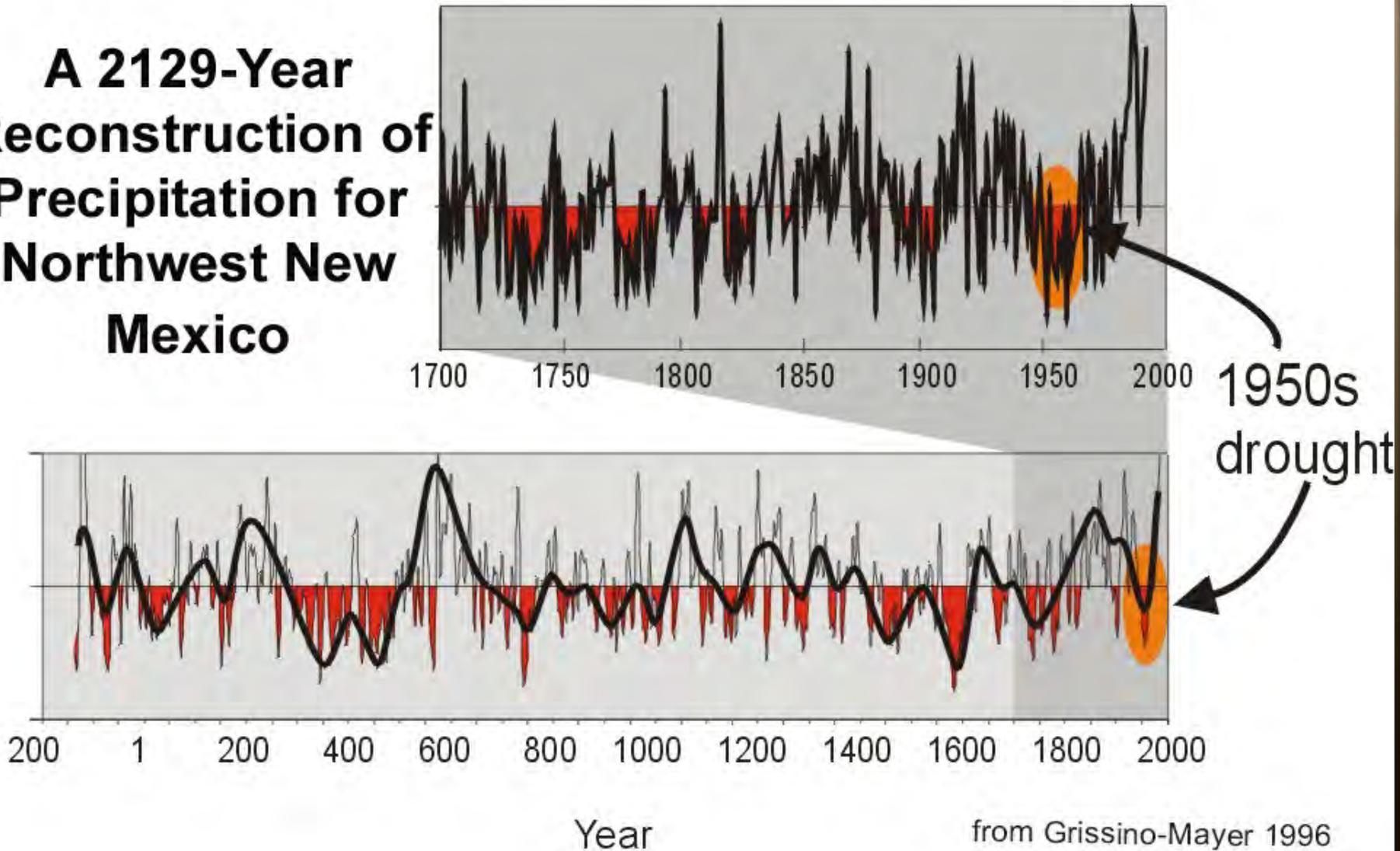
Big droughts are always lurking

Statewide avg. rainfall (1895-2012)

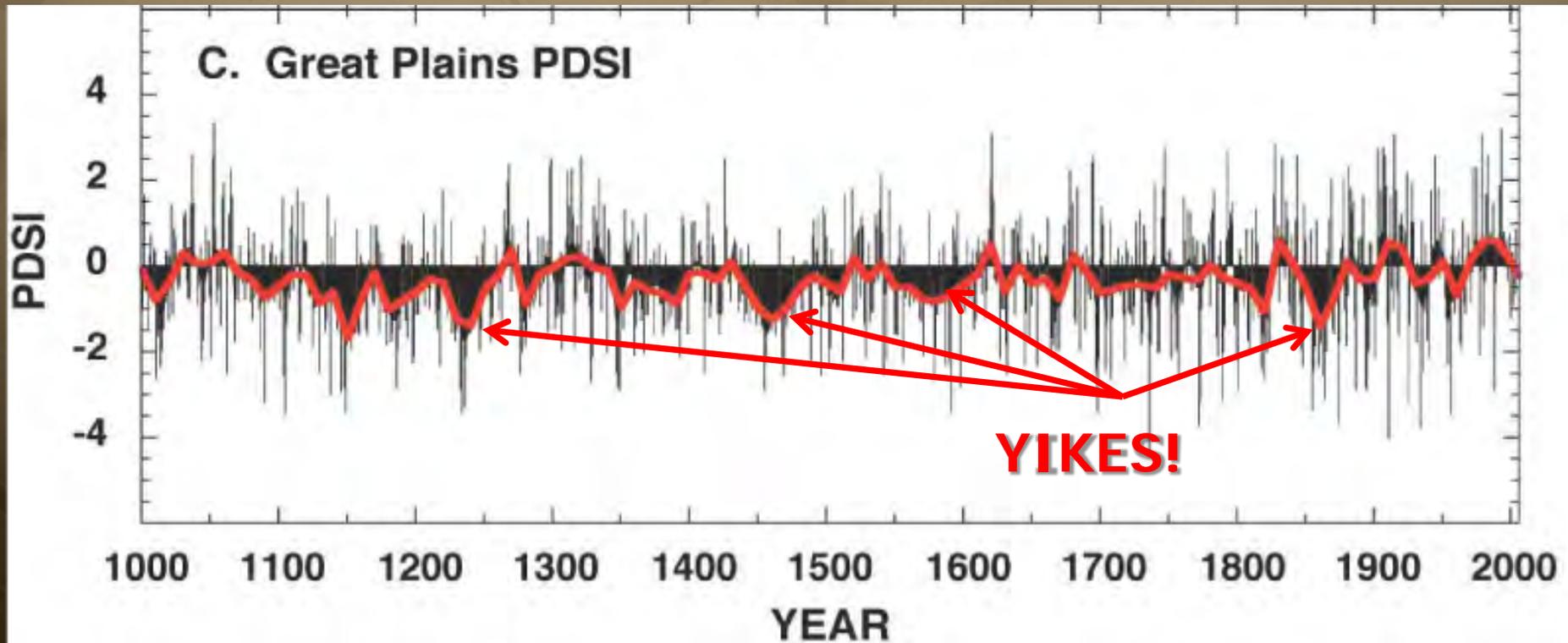


Mega-droughts dot our past

A 2129-Year Reconstruction of Precipitation for Northwest New Mexico



Recent droughts are infants!



2010-13 Drought: Final points

- We have a much better cushion entering spring
- Need period of active weather to continue
- Another swing-and-miss during spring and 3rd straight year of drought becomes likely
- Ocean patterns have not been favorable
- We might be in for a longer period of "drought susceptibility"
- It's what we don't know, usually
- **This drought will eventually end!**

Thank You!

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