

# **High Plains Drought Update**

## **May 21, 2015**

**Gary McManus**  
**State Climatologist**  
**Oklahoma Mesonet**  
**Oklahoma Climatological Survey**

The background of the slide is a close-up photograph of parched, cracked earth. The cracks are irregular and form 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**

**Whoops!**



**Texas County:  
Spring 2011**



**Cimarron County:  
January 2014**



**Cimarron County**  
**May 2014**



Buffalo, OK:  
May 2009



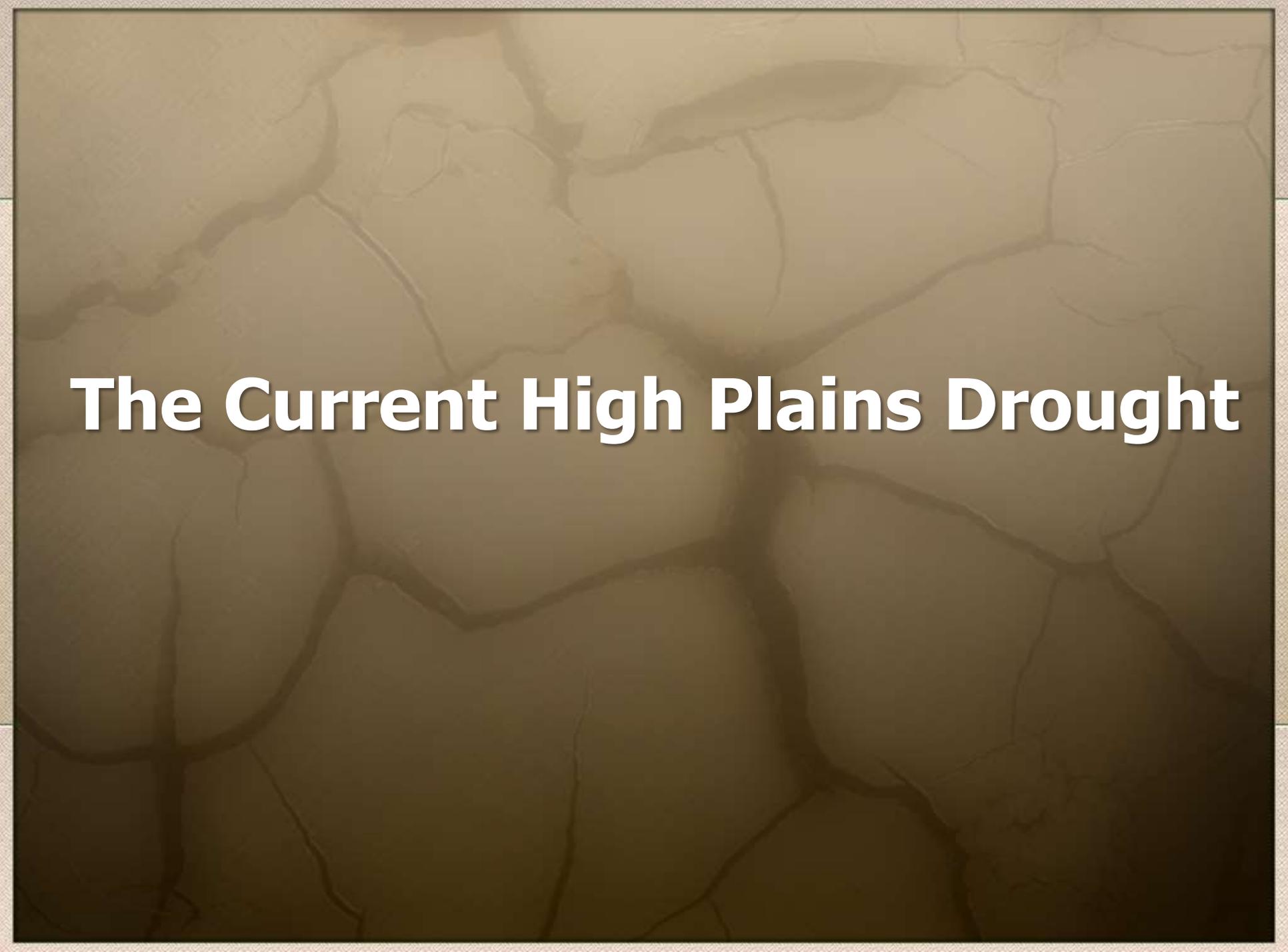
May 2011



Feb. 2015







# **The Current High Plains Drought**

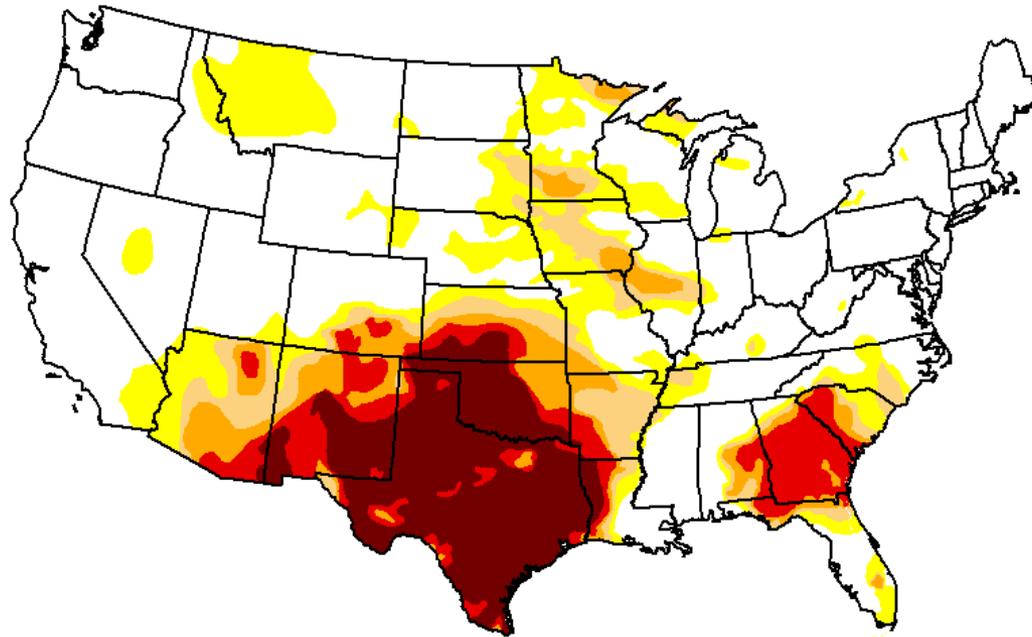
# **Synopsis of our 2010-15 drought**

- Drought “begins” October 2010
- Intensified through summer 2011
- Intermittent relief through early 2015, mostly in the east
- Hot climate to cool climate Feb. 2013
- Drought building again through mid-spring 2015
- El Nino intensifies April 2015
- Relief!

# The drought at its worst

## U.S. Drought Monitor CONUS

October 4, 2011  
(Released Thursday, Oct. 6, 2011)  
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:  
Richard Tinker  
CPC/NOAA/NWS/NCEP



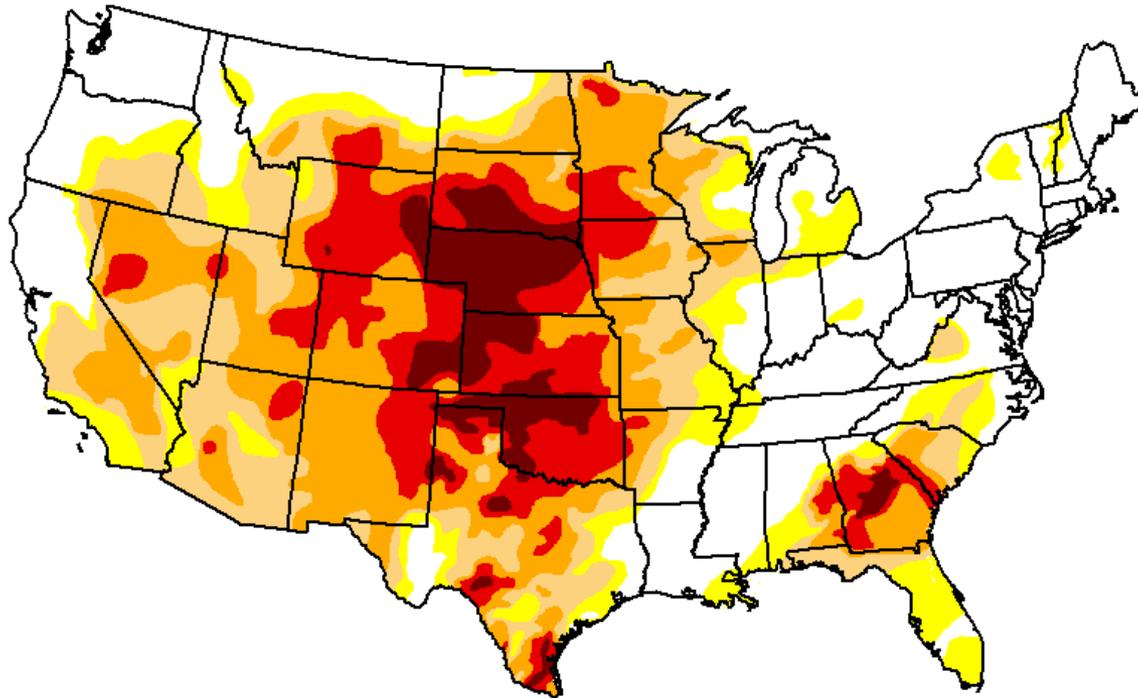
<http://droughtmonitor.unl.edu/>

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

# No picnic early 2013 either

## U.S. Drought Monitor CONUS

January 29, 2013  
(Released Thursday, Jan. 31, 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:  
Mark Svoboda  
National Drought Mitigation Center



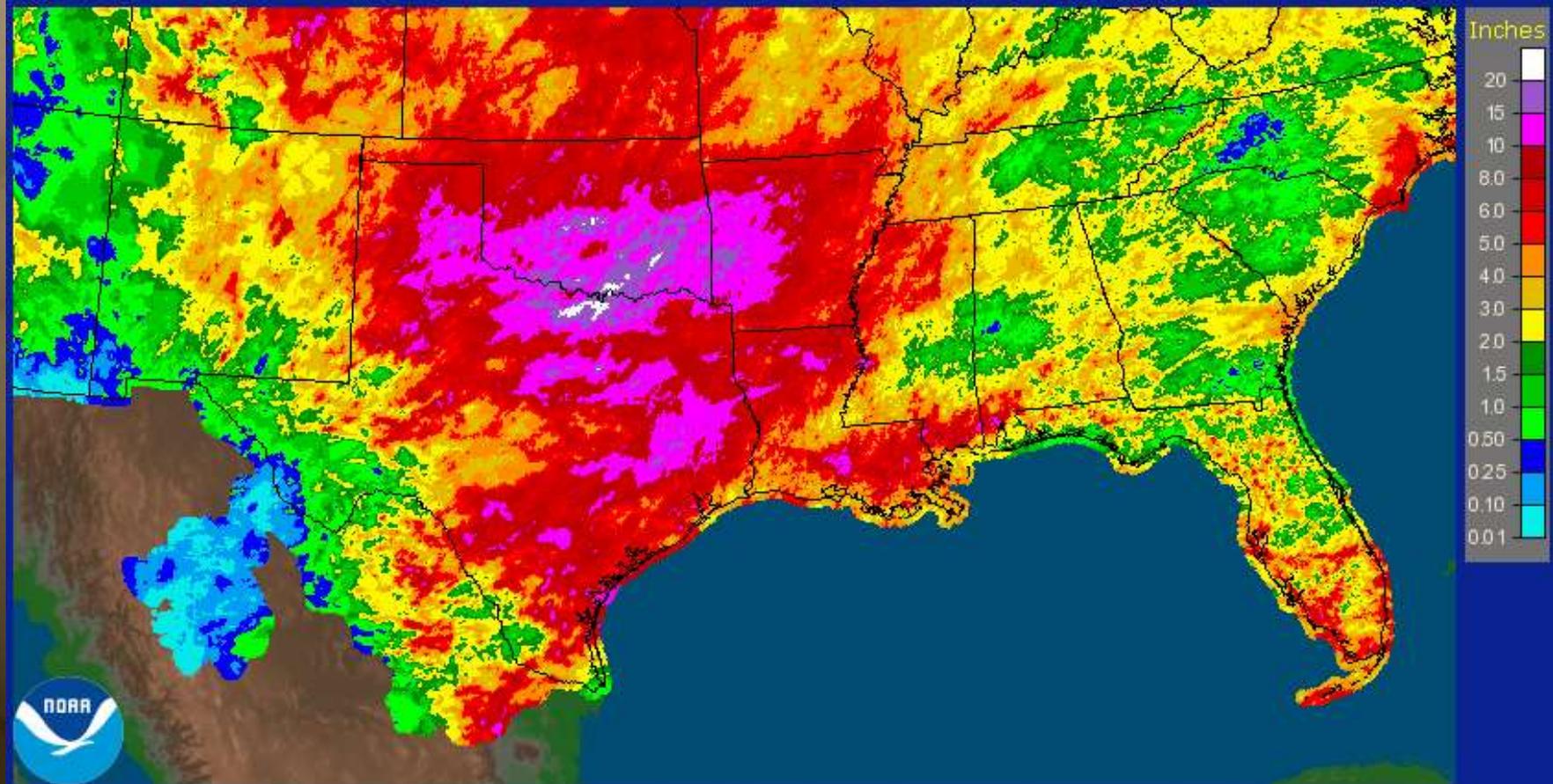
<http://droughtmonitor.unl.edu/>

The background of the slide is a textured, marbled paper in shades of brown and tan. The marbling pattern consists of irregular, vein-like shapes that create a complex, organic texture. The overall color palette is warm and earthy, ranging from light beige to dark chocolate brown.

**Fast Forward:  
Where are we now?**

# Last 30 days: Glub Glub!

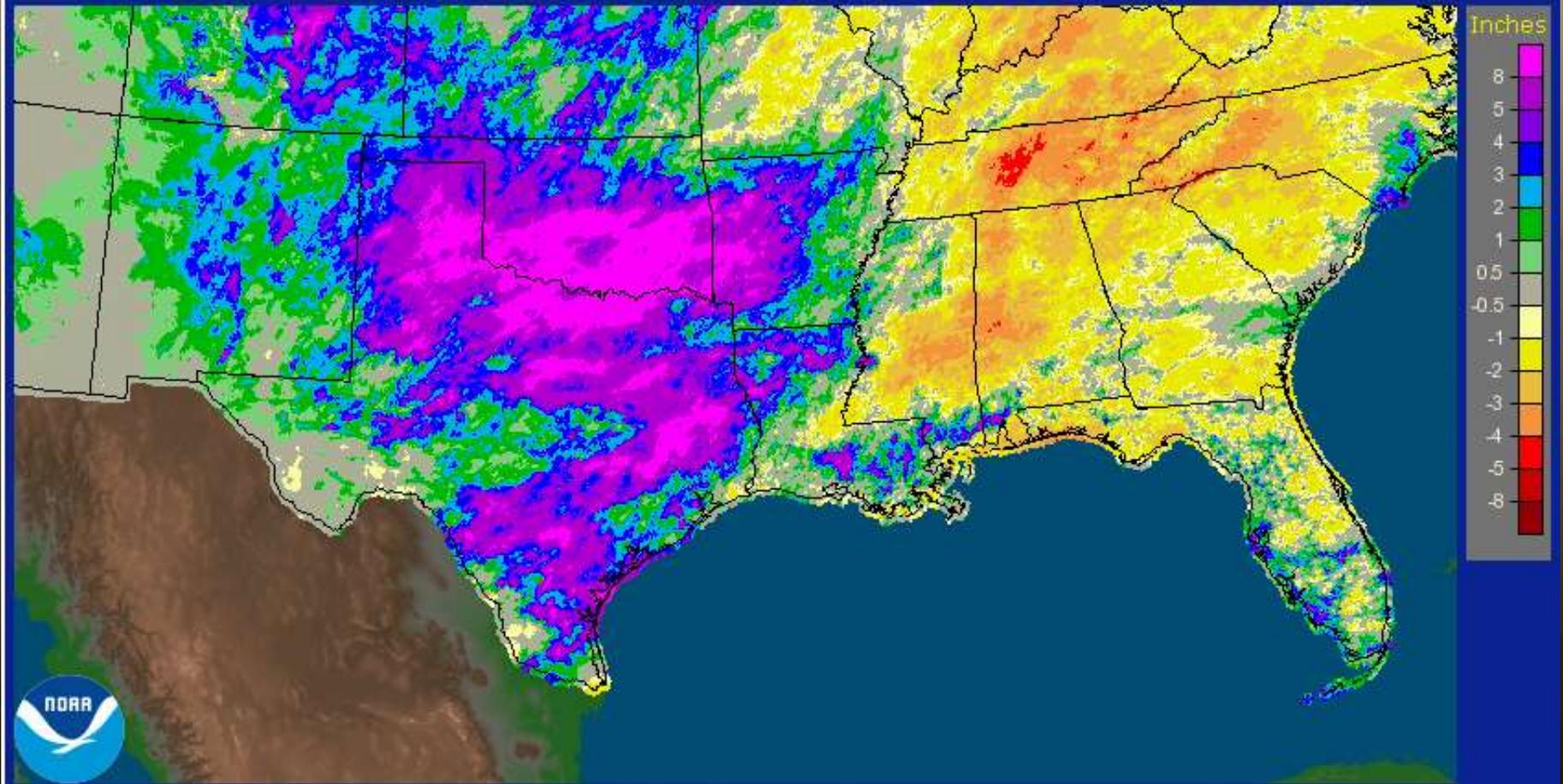
NWS Southern Region: Current 30-Day Observed Precipitation  
Valid at 5/20/2015 1200 UTC - Created 5/20/15 18:32 UTC



**5-15 inches across High Plains**

# Departure from Normal Rainfall

NWS Southern Region: Current 30-Day Departure from Normal Precipitation  
Valid at 5/20/2015 1200 UTC - Created 5/20/15 18:32 UTC

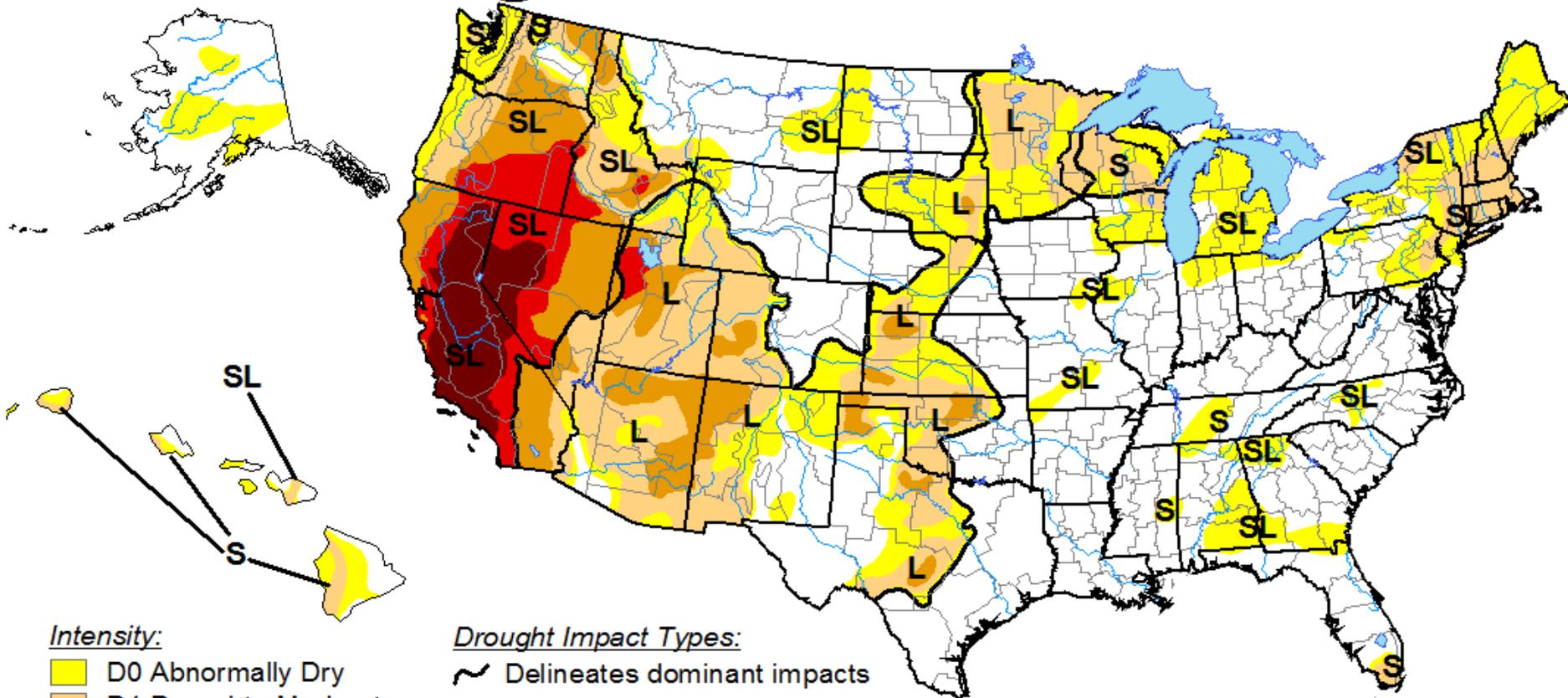


**2-8 inches above normal**

# U.S. Drought Monitor

May 19, 2015

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.*

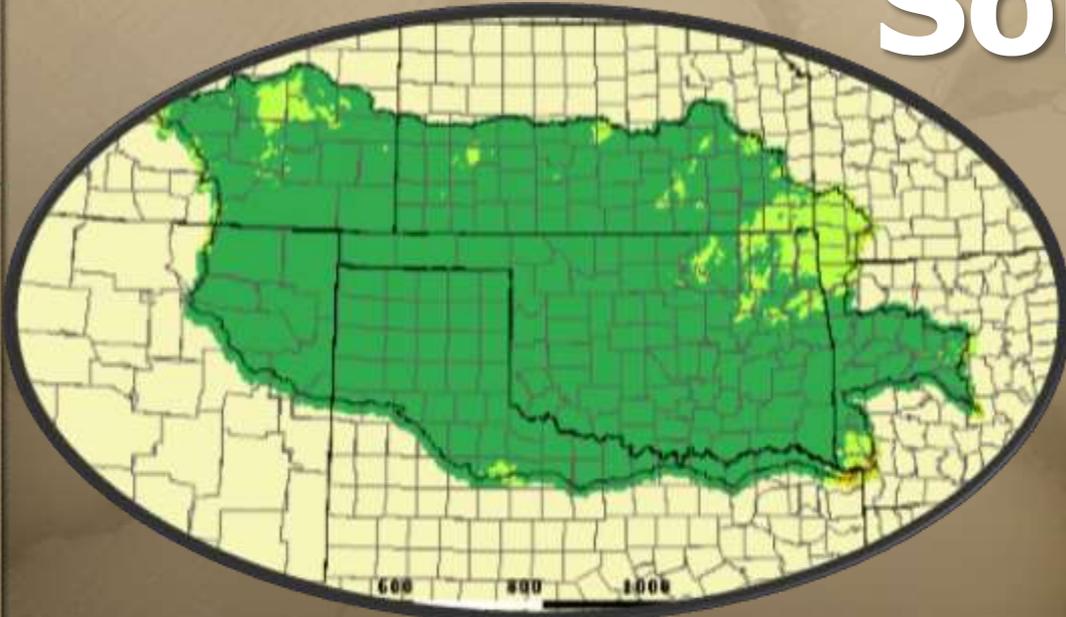
<http://droughtmonitor.unl.edu/>



**Released Thursday, May 21, 2015**  
**Author: Brad Rippey, U.S. Department of Agriculture**

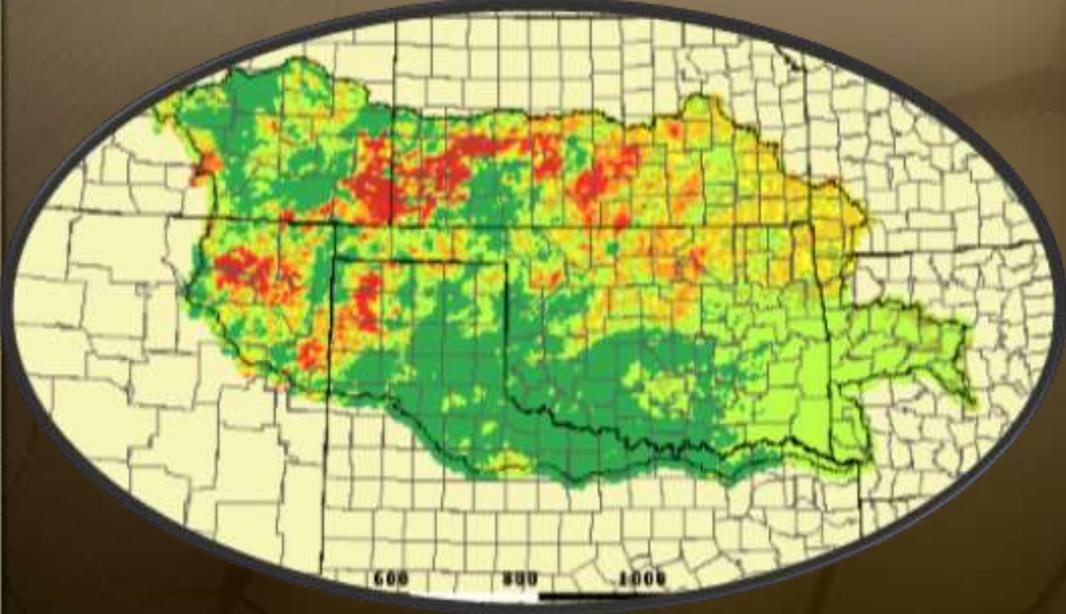
# Soil Moisture

## Upper Zone



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

## Lower Zone



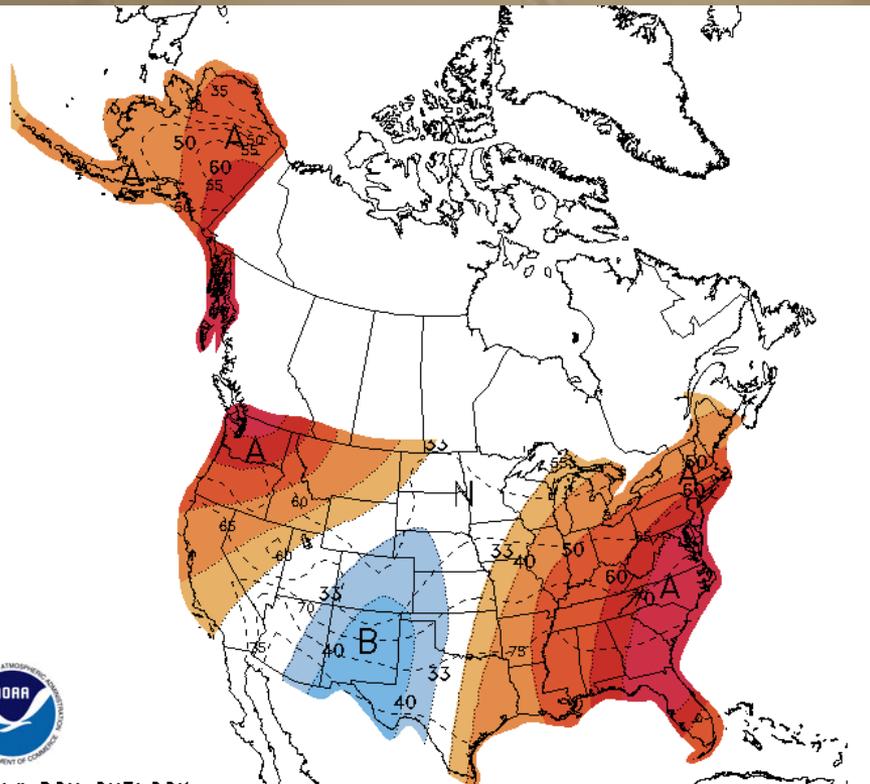
# Forecasts and Outlooks



# Medium-term Outlooks: May 27-June 2

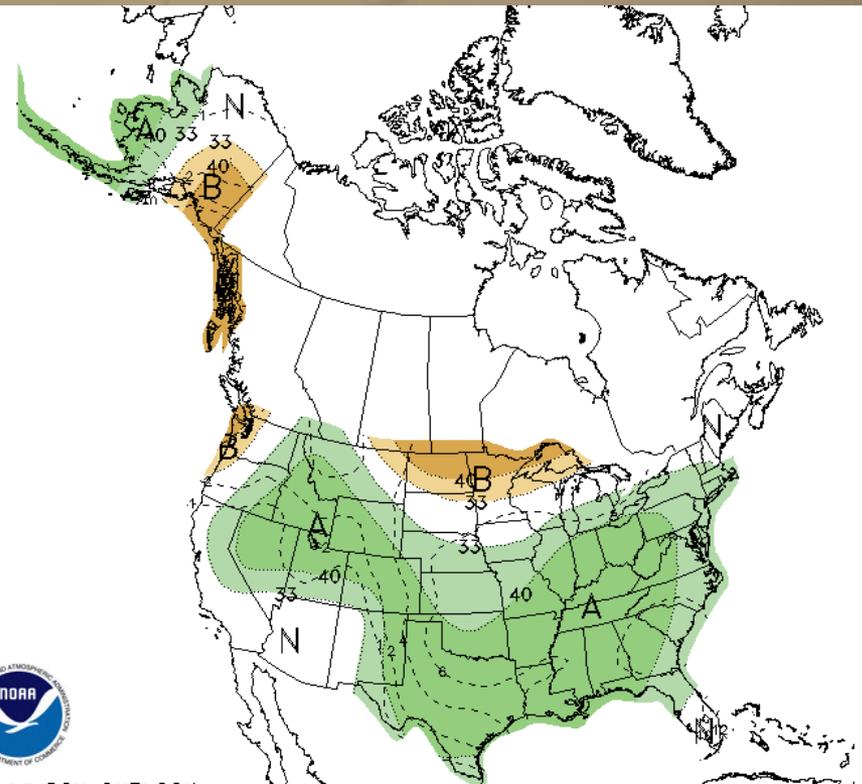
## Temperature

## Precipitation



8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 19 MAY 2015  
VALID MAY 27 - JUN 02, 2015

DASHED BLACK LINES ARE CLIMATOLOGY  
(DEG F) SHADED AREAS ARE FCST  
VALUES ABOVE (A) OR BELOW (B) NORMAL  
UNSHADED AREAS ARE NEAR-NORMAL



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 19 MAY 2015  
VALID MAY 27 - JUN 02, 2015

DASHED BLACK LINES ARE CLIMATOLOGY  
(TENTH OF INCHES) SHADED AREAS ARE FCST  
VALUES ABOVE (A) OR BELOW (B) NORMAL  
UNSHADED AREAS ARE NEAR-NORMAL

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%

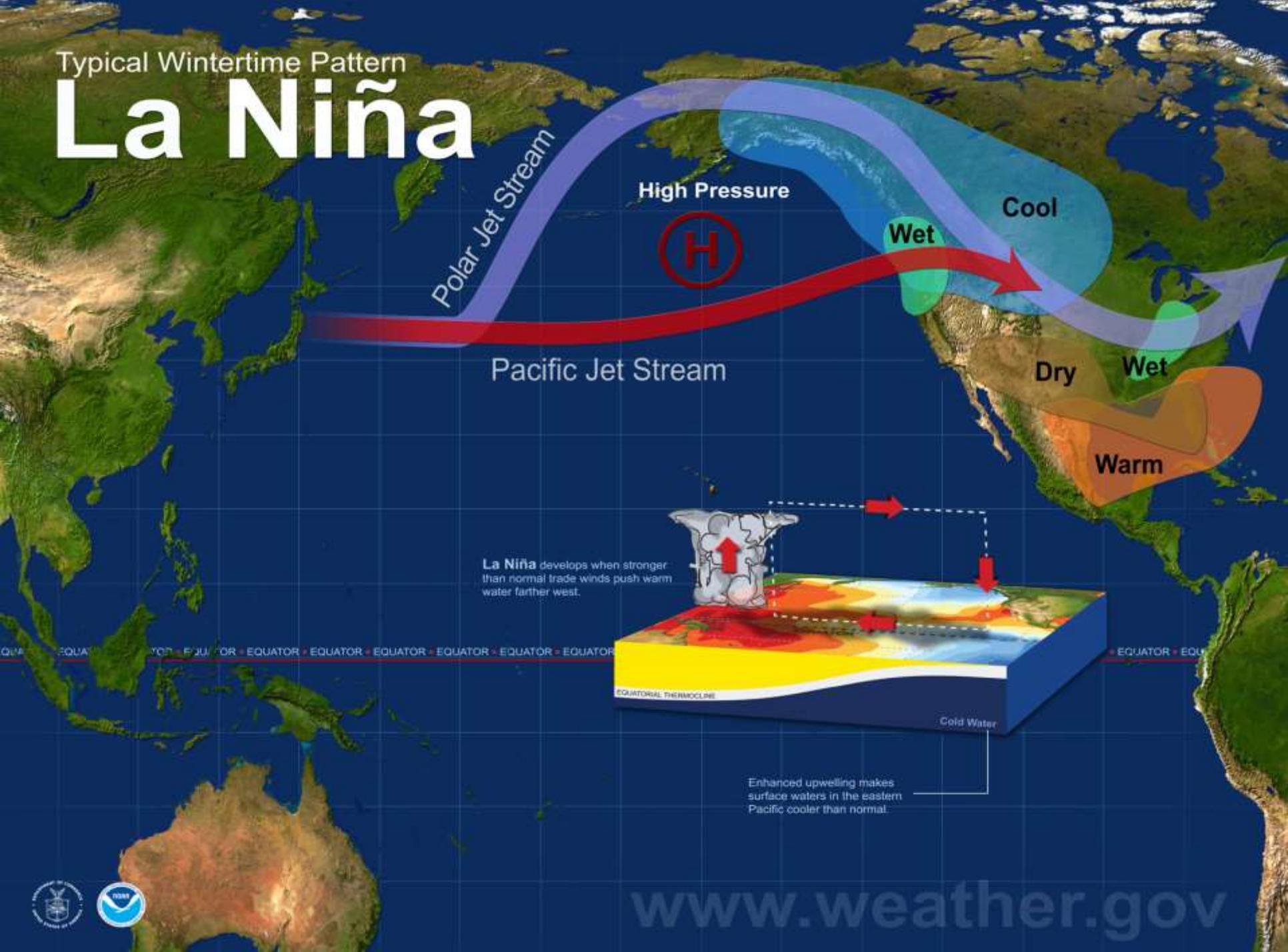
Probability of Below Normal Probability of Above

The background of the slide is a dark, brownish-green marbled pattern with irregular, vein-like shapes. The text "Oceanic Influences" is centered in a bold, white, sans-serif font.

# Oceanic Influences

Typical Wintertime Pattern

# La Niña

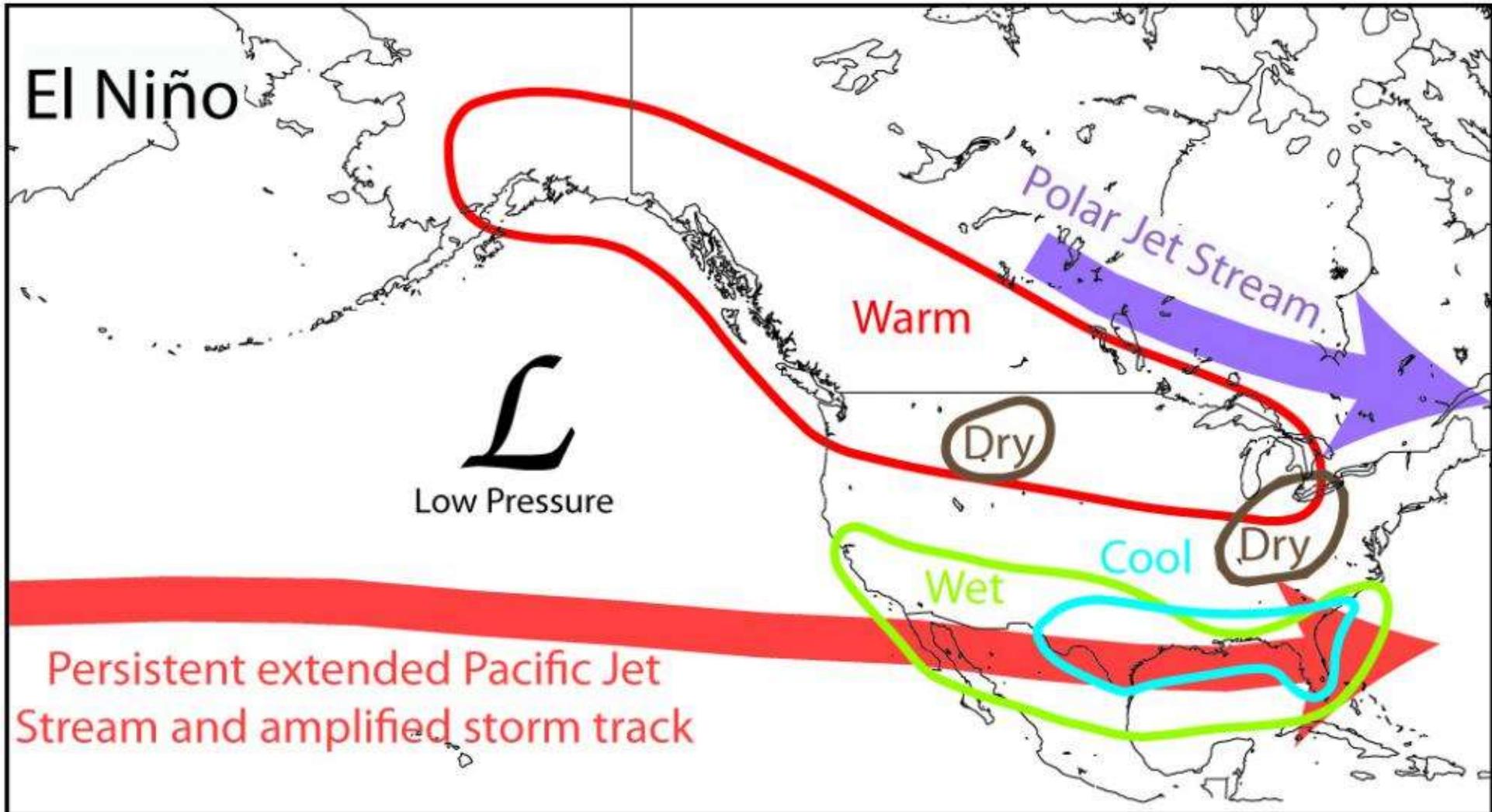


La Niña develops when stronger than normal trade winds push warm water farther west.

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



# El Niño



# Oceanic influences on our weather

- **ENSO (El Nino-Southern Oscillation)**

- **Varies every 1-3 years**
- **El Nino (cool and wet)**
- **La Nina (warm and dry)**

- **Pacific Decadal Oscillation (PDO)**

- **Varies every 20-30 years**
- **Cool phase (more La Ninas, drier)**
- **Warm phase (more El Ninos, wetter)**

- **Atlantic Decadal Oscillation (AMO)**

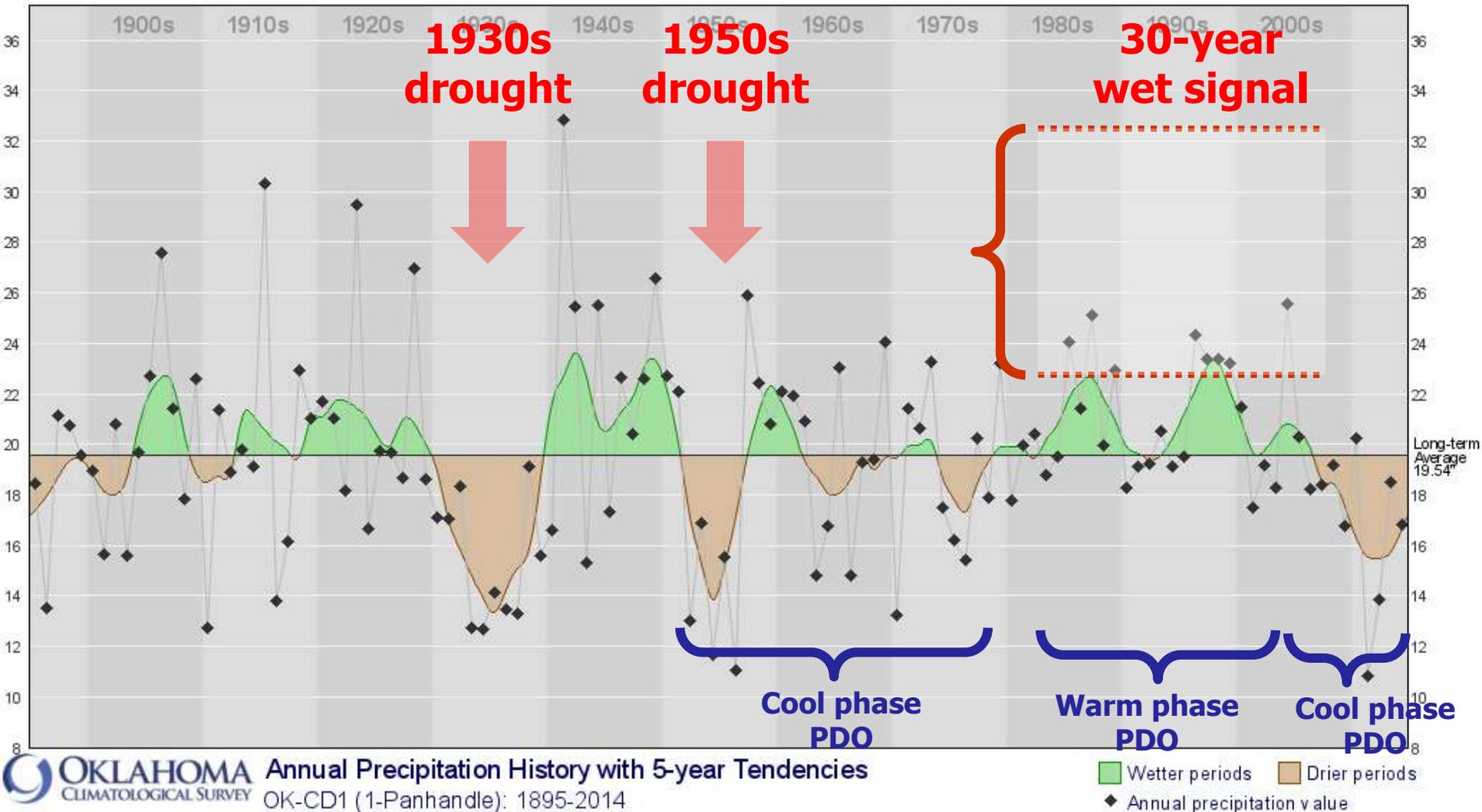
- **Varies every 20-40 years**
- **Warm phase (dry)**
- **Cool Phase (wet)**



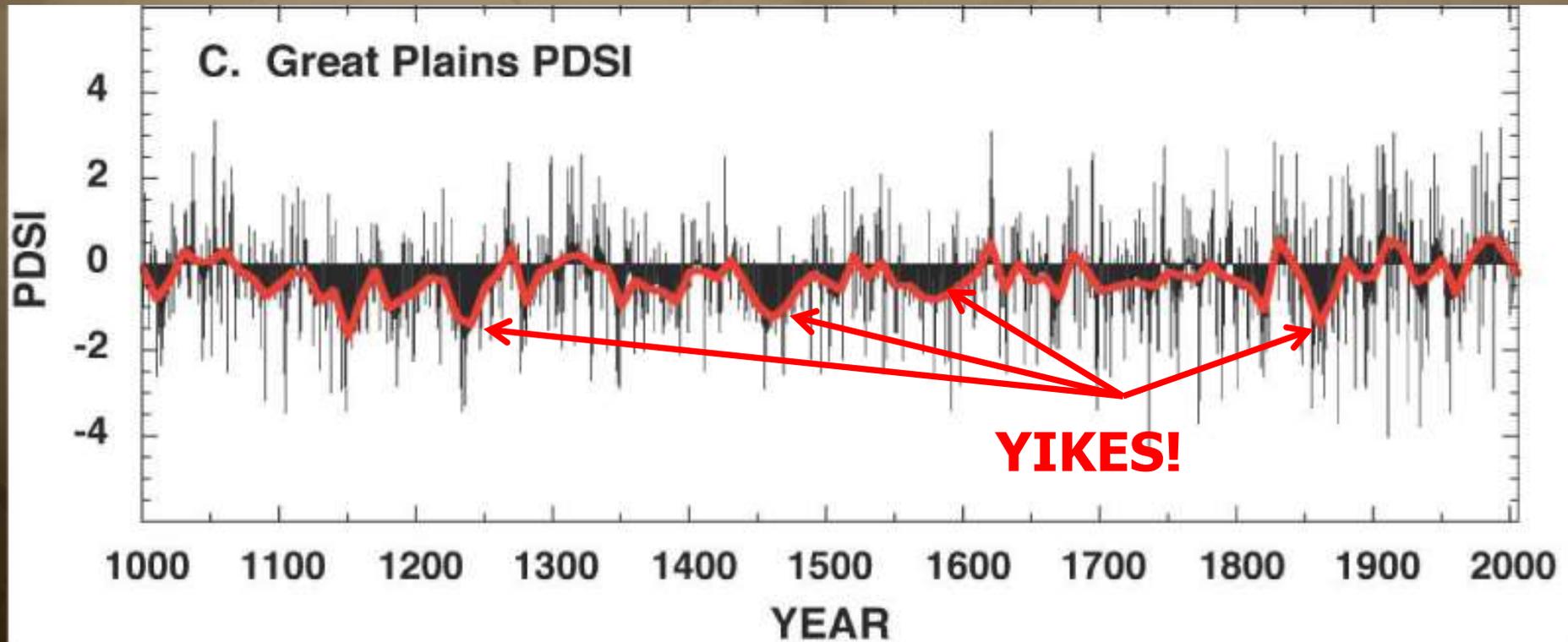
# **A Brief History of Drought**

# Big droughts are always lurking

## Statewide avg. rainfall (1895-2014)



# Recent droughts are infants!



# 2010-15 Drought: Final points

- Drought has taken a big hit
- Wettest part of year still to come for High Plains
- El Nino is “probably” helping, getting stronger for next fall/winter as well
- As with other droughts, we’ve been through periods of relief and intensification
- Ocean patterns are uncertain in long term
- We could very well be seeing the final nail in the coffin for the 2010-15 drought
- Have to remain vigilant for quick return

**Thank You!**

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