1-2 Week Forecast and Outlook thru Winter 2006/2007

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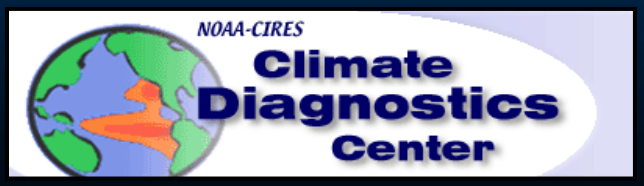
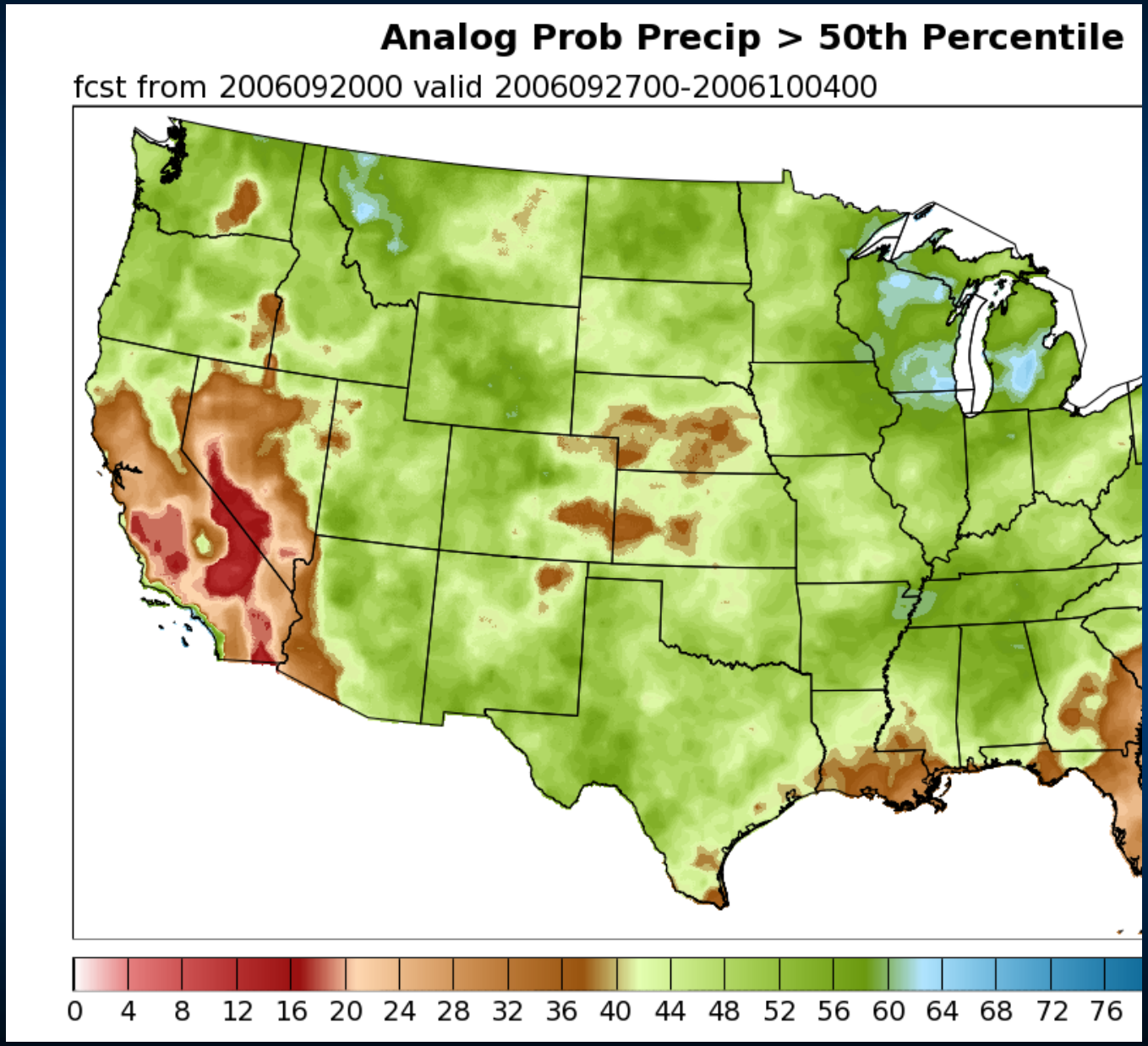
Colorado Water Availability Task Force
September 21, 2006



- **1-2 week forecasts into early Oct**
- **Status of tropical Pacific Ocean: El Niño returns !?!**
- **Analog forecasts for October-March**
- **Experimental forecast guidance (Klaus Wolter)**

1-2 Week Forecast

CDC precipitation forecast: Sept 27 - Oct 3



Over western Colorado, chances for wetter than normal conditions are slightly above 50%.

Over eastern Colorado, increased odds for drier than normal conditions.

Forecasts for Oct 2006 thru Mar 2007

Primary Factors Influencing CPC Seasonal Forecasts

1) El Nino / La Nina. What are Sea Surface Temperatures in the tropical Pacific Ocean?

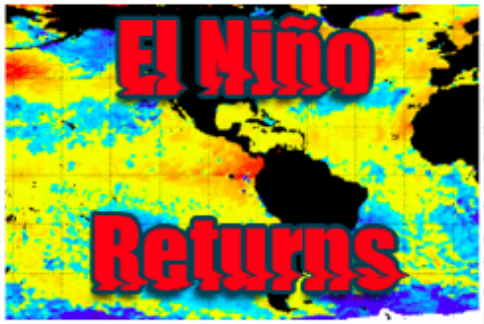
2) Observed Trends. How do Temp/Precip in last ~10 years compare with 30-Year Climate "Normals" (1971-2000)?

3) Tropical 30-60 Day Oscillation. Affects climate variability.

4) North Atlantic Oscillation (NAO).

“El Nino Makes a Comeback”

NOAA ISSUES UNSCHEDULED EL NIÑO ADVISORY
El Niño Makes a Comeback



Sept. 13, 2006 — Scientists at the NOAA Climate Prediction Center reported today that El Niño conditions have developed in the tropical Pacific and are likely to continue into early 2007. Ocean temperatures increased remarkably in the equatorial Pacific during the last two weeks. "Currently, weak El Niño conditions exist, but there is a potential for this event to strengthen into a moderate event by winter," said Vernon Kousky, NOAA's lead El Niño forecaster. **(Click NOAA satellite image for larger view of sea surface temperatures anomalies as of Sept. 11, 2006. Click here for high resolution version. Please credit "NOAA.")**

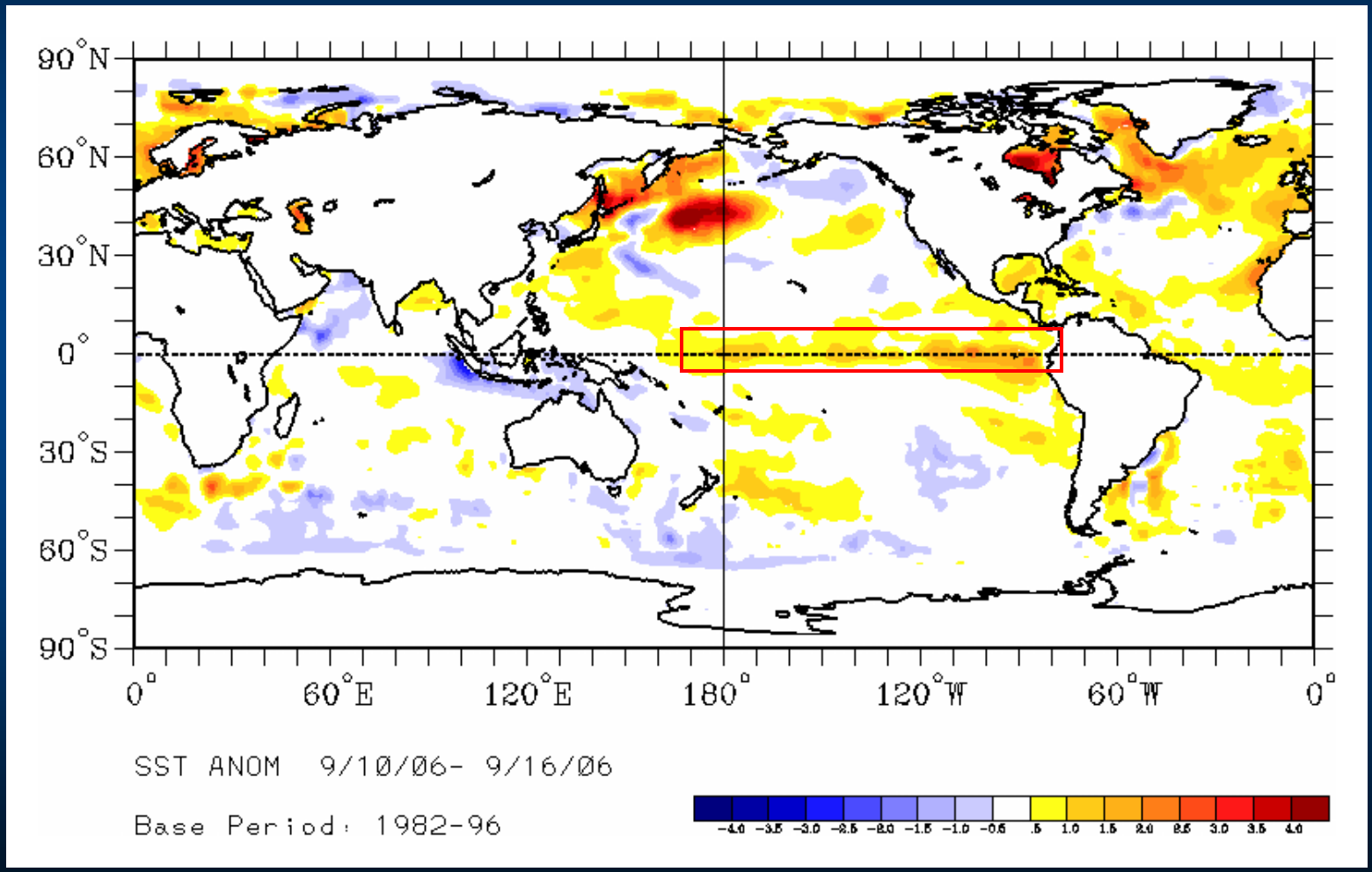
Some impacts from the developing El Niño are already evident in the pattern of tropical precipitation. During the last 30 days, drier-than-average conditions have been observed across all of Indonesia, Malaysia and most of the Philippines, which are usually the first areas to experience ENSO-related impacts. This dryness can be expected to continue, on average, for the remainder of 2006.

Also, the development of weak El Niño conditions helps explain why this Atlantic hurricane season has been less active than was previously expected. El Niño typically acts to suppress hurricane activity by increasing the vertical wind shear over the Caribbean Sea region. However, at this time the El Niño impacts on Atlantic hurricanes are small. "We are still in the peak months of the Atlantic hurricane season, and conditions remain generally conducive for hurricane formation," said Gerry Bell, NOAA's lead seasonal hurricane forecaster.

Typical El Niño effects are likely to develop over North America during the upcoming winter season. Those include warmer-than-average temperatures over western and central Canada, and over the western and northern United States. Wetter-than-average conditions are likely over portions of the U.S. Gulf Coast and Florida, while drier-than-average conditions can be expected in the Ohio Valley and the Pacific Northwest.

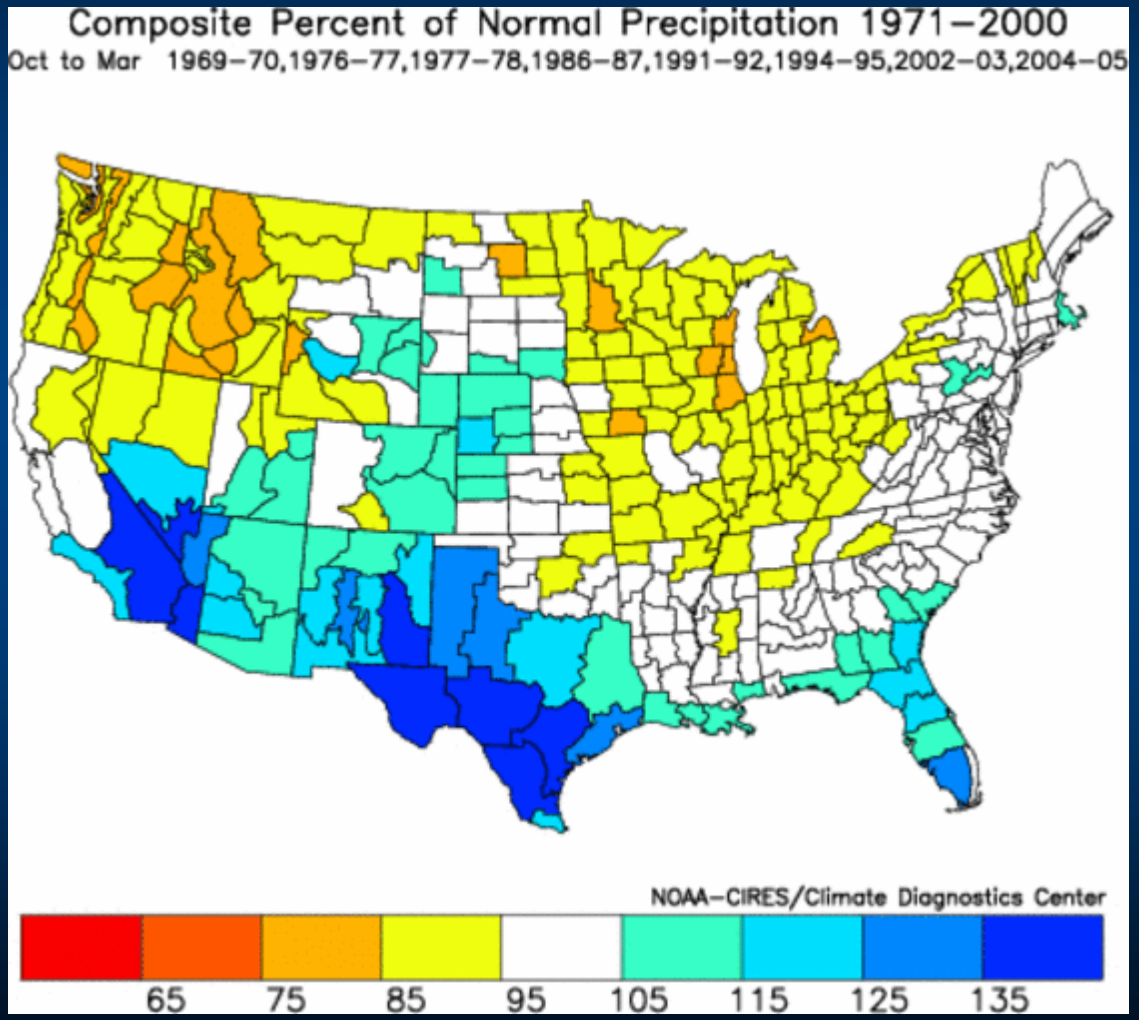
The term El Niño refers to the large-scale ocean-atmosphere climate phenomenon linked to a periodic warming in sea surface temperatures across the central and east-central equatorial Pacific (between approximately the date line and 120 degrees west). El Niño represents the warm phase of the El Niño/Southern Oscillation, or ENSO, cycle, and is sometimes referred to as a Pacific warm episode. El Niño originally referred to an annual warming of sea surface temperatures along the west coast of tropical South America.

Pacific Ocean Sea Surface Temperatures
one of the most useful predictors in long-range forecasting



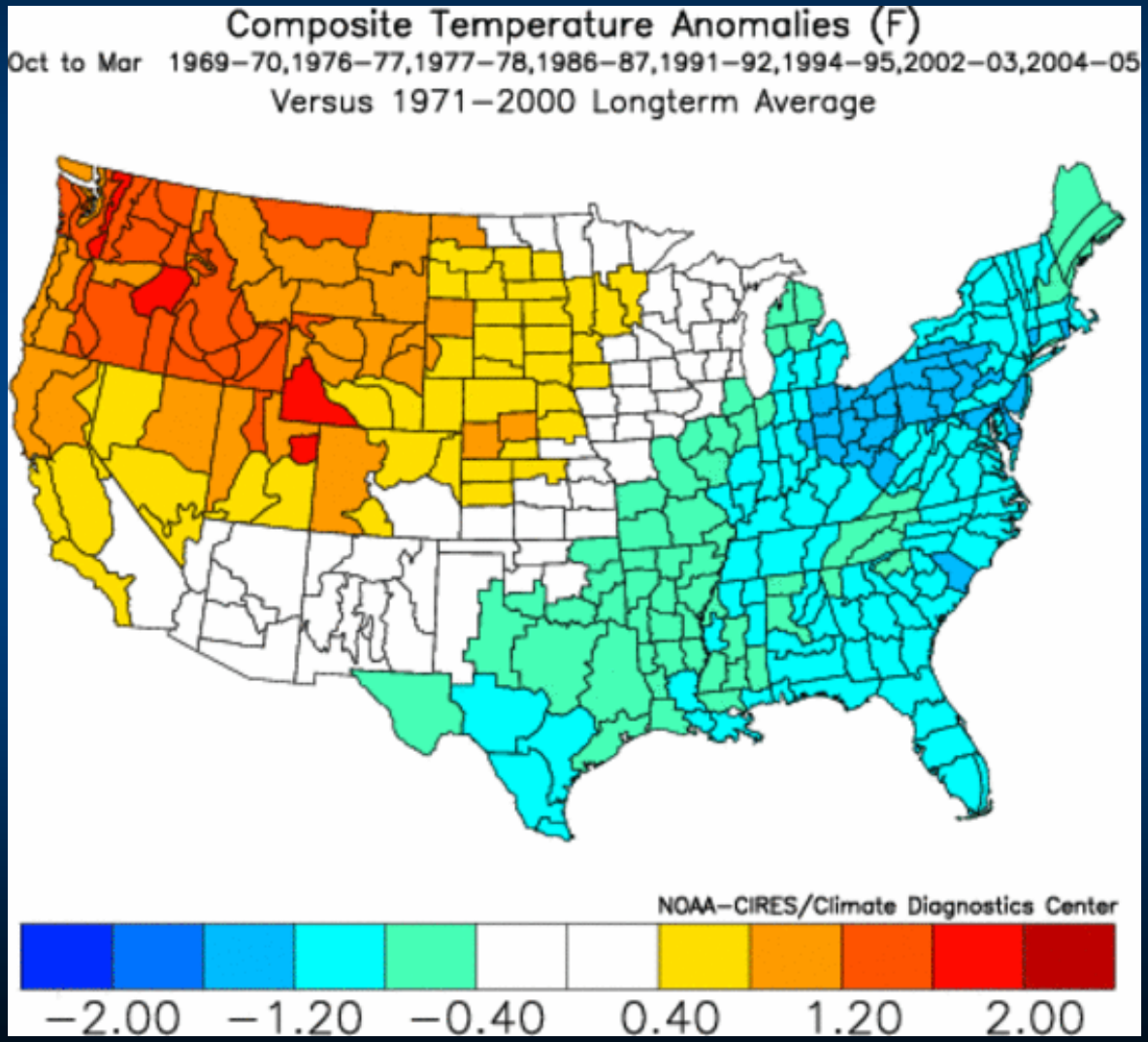
Oct-Mar Precip (% of Normal).

Composite of 8 weak-moderate El Nino events in the past.

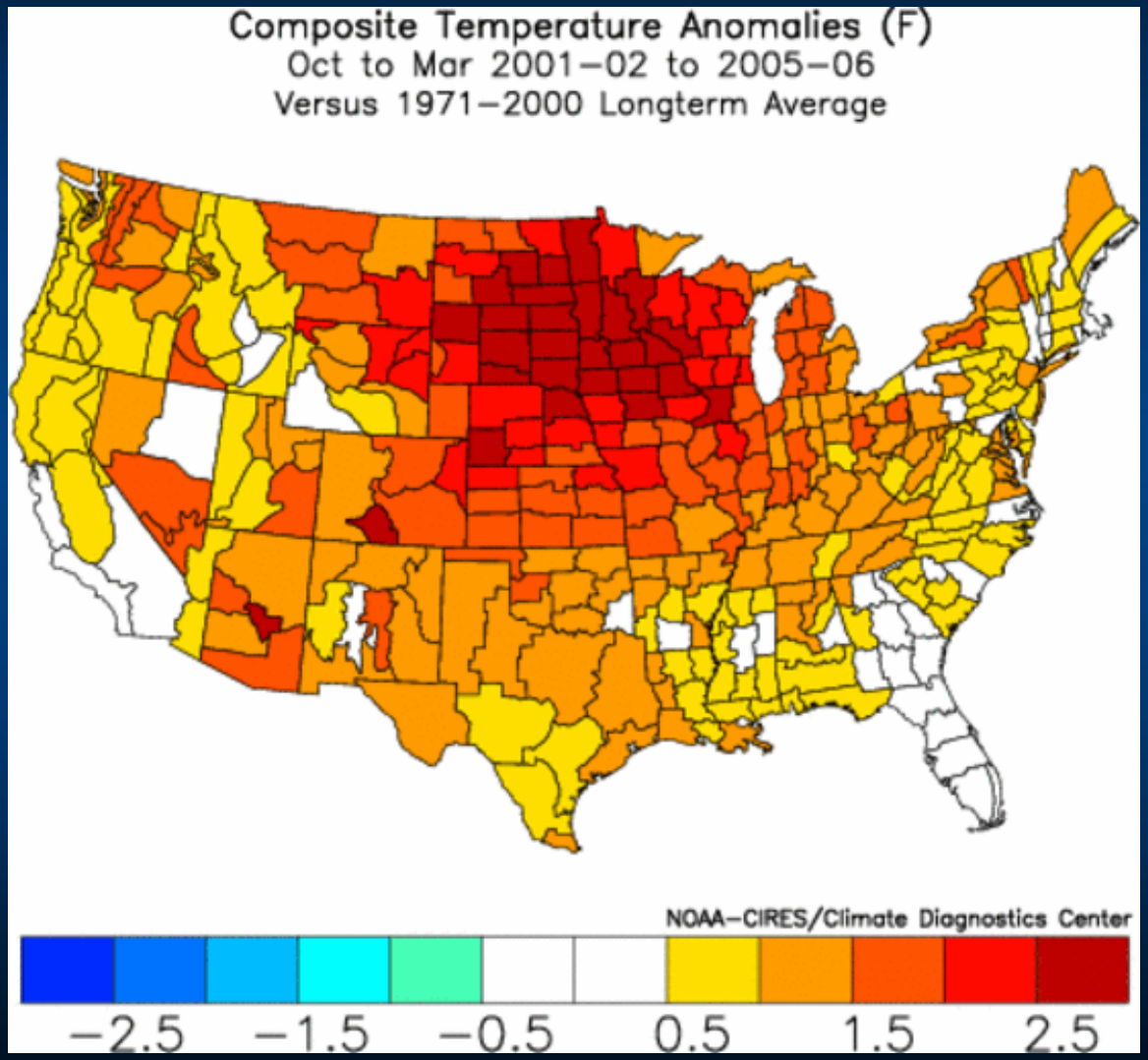


Oct-Mar Temp Anomalies.

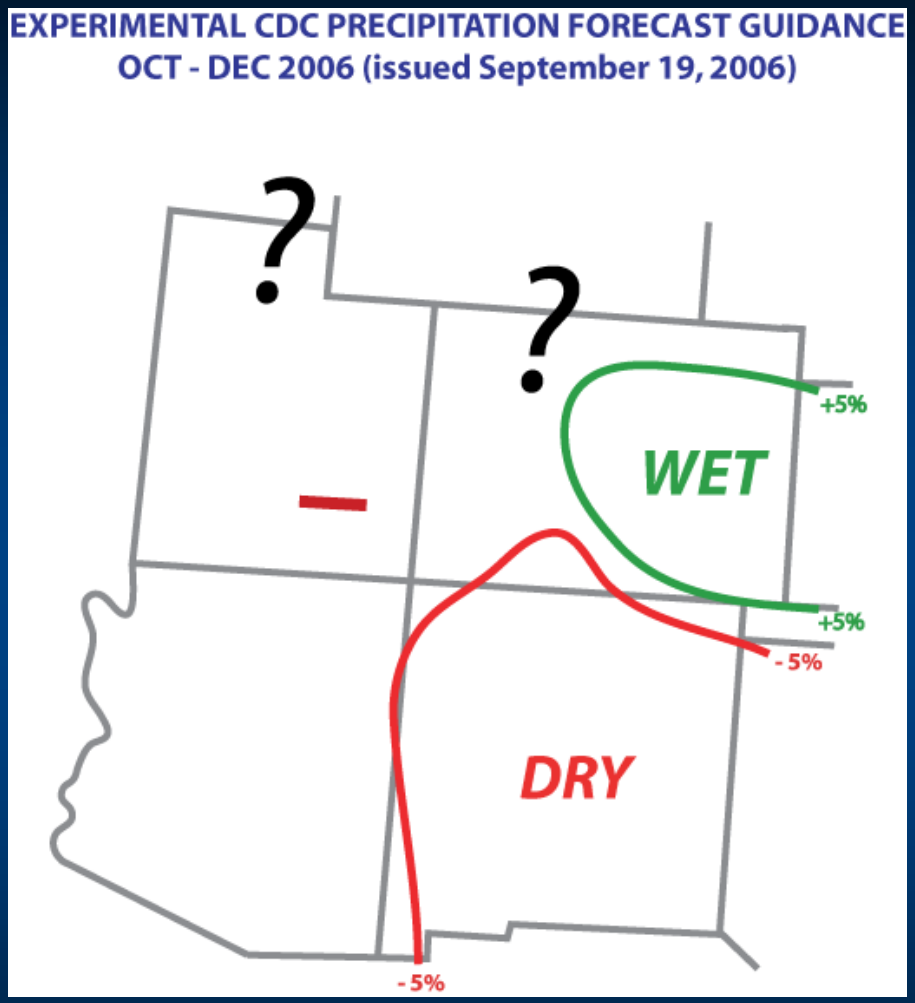
Composite of 8 weak-moderate El Nino events in the past.



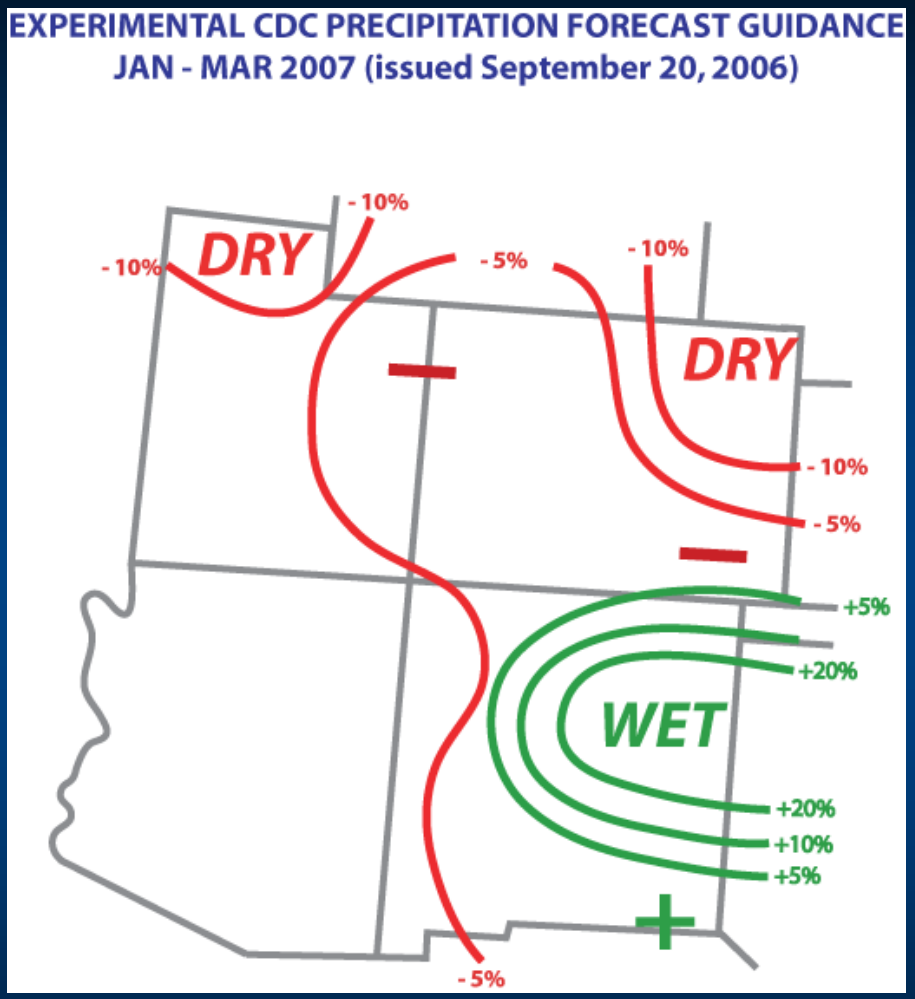
Recent warming trend over much of U.S.



Experimental CDC Forecasts (Klaus Wolter)



Oct-Dec



Jan-Mar

Source:**klaus.wolter@noaa.gov** ***http://www.cdc.noaa.gov/people/klaus.wolter/SWcasts/***

Summary

1. 1-2 week precipitation forecasts (28 Sept- 4 Oct) do not show a particularly strong signal over much of Colorado.

2. On Sept 13, NOAA issued an “El Nino Advisory”, as sea surface temperatures have recently increased in the tropical Pacific Ocean. Weak to moderate El Nino now expected to persist thru next spring. In the past, El Nino of this type have resulted in generally warmer than normal winters in much of Colorado with slightly wetter than normal conditions in eastern Colorado.

3. Klaus Wolter’s experimental forecast guidance: Oct-Dec precipitation forecast indicates increased odds of wetter than normal conditions for eastern Colorado. Jan-Mar forecast shows generally increased odds of drier than normal conditions over most of the state. Klaus cautions that Oct-Dec's best skill is in Ariz and northeastern CO where there is a weak signal at this time. JFM's skill is best in northern UT (dry), northeast NM (wet), and eastern CO (dry). The mountain forecast skill is very poor for this lead-time - much better for forecasts made in subsequent months (i.e., Oct or Nov).

The End

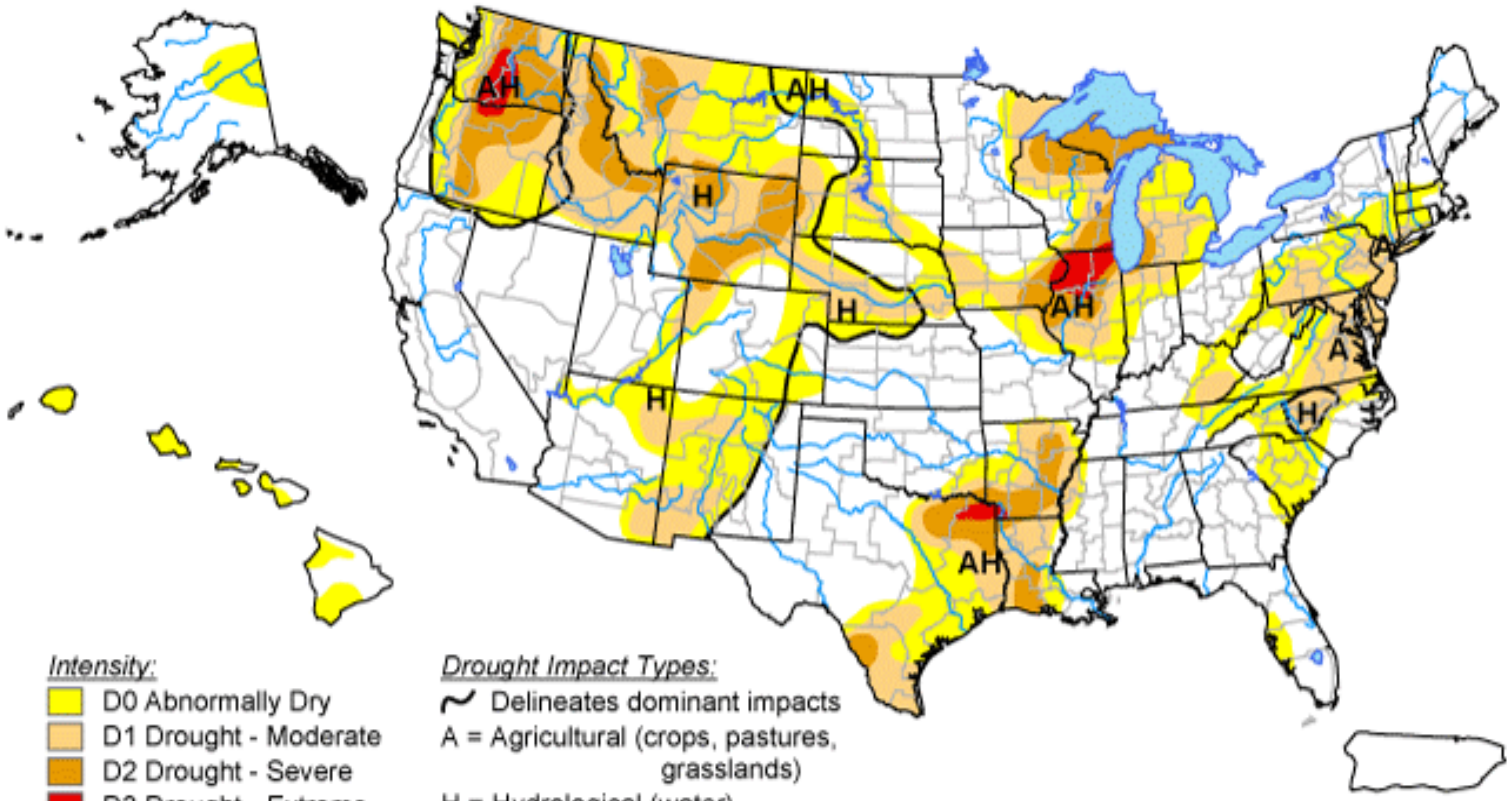
Gary.Bates@noaa.gov

Current Situation.

How did we get here?

U.S. Drought Monitor

September 20, 2005
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)
- (No type = Both impacts)

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

http://drought.unl.edu/dm

USDA National Drought Mitigation Center

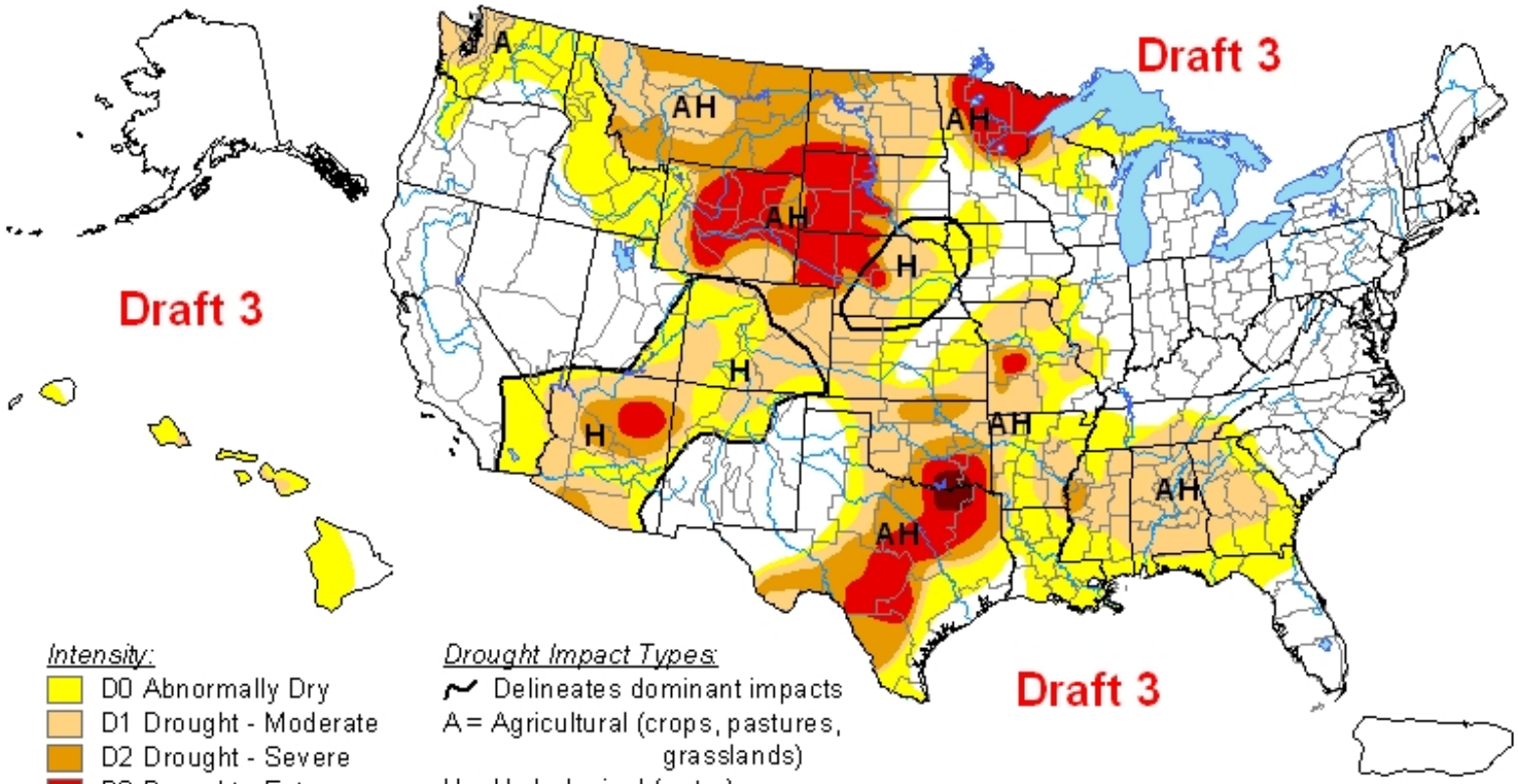
Released Thursday, September 22, 2005

Author: Douglas Le Comte, CPC/NOAA

NOAA

U.S. Drought Monitor

September 19, 2006
Valid 8 a.m. EDT



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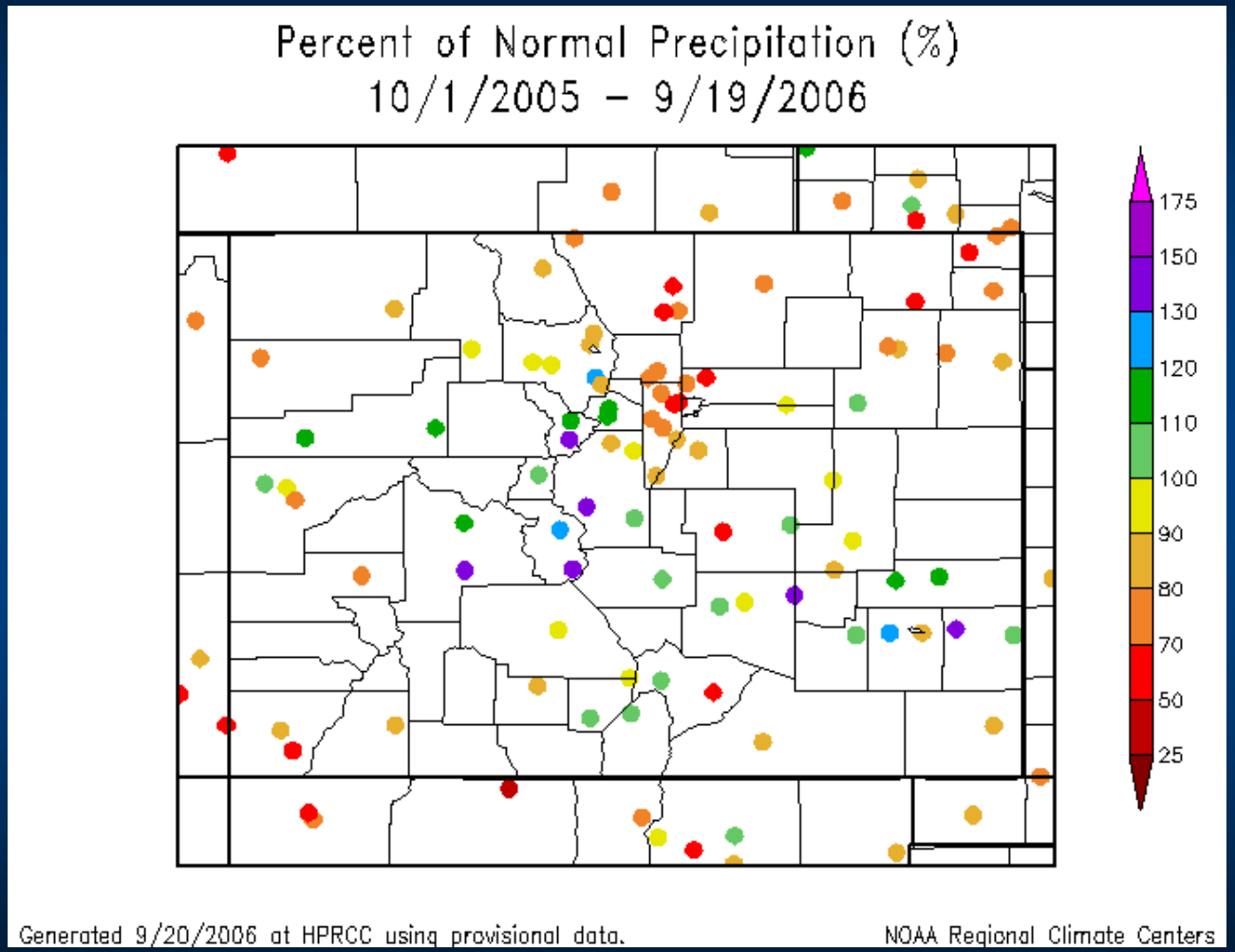
http://drought.unl.edu/dm

Released Thursday, September 21, 2006

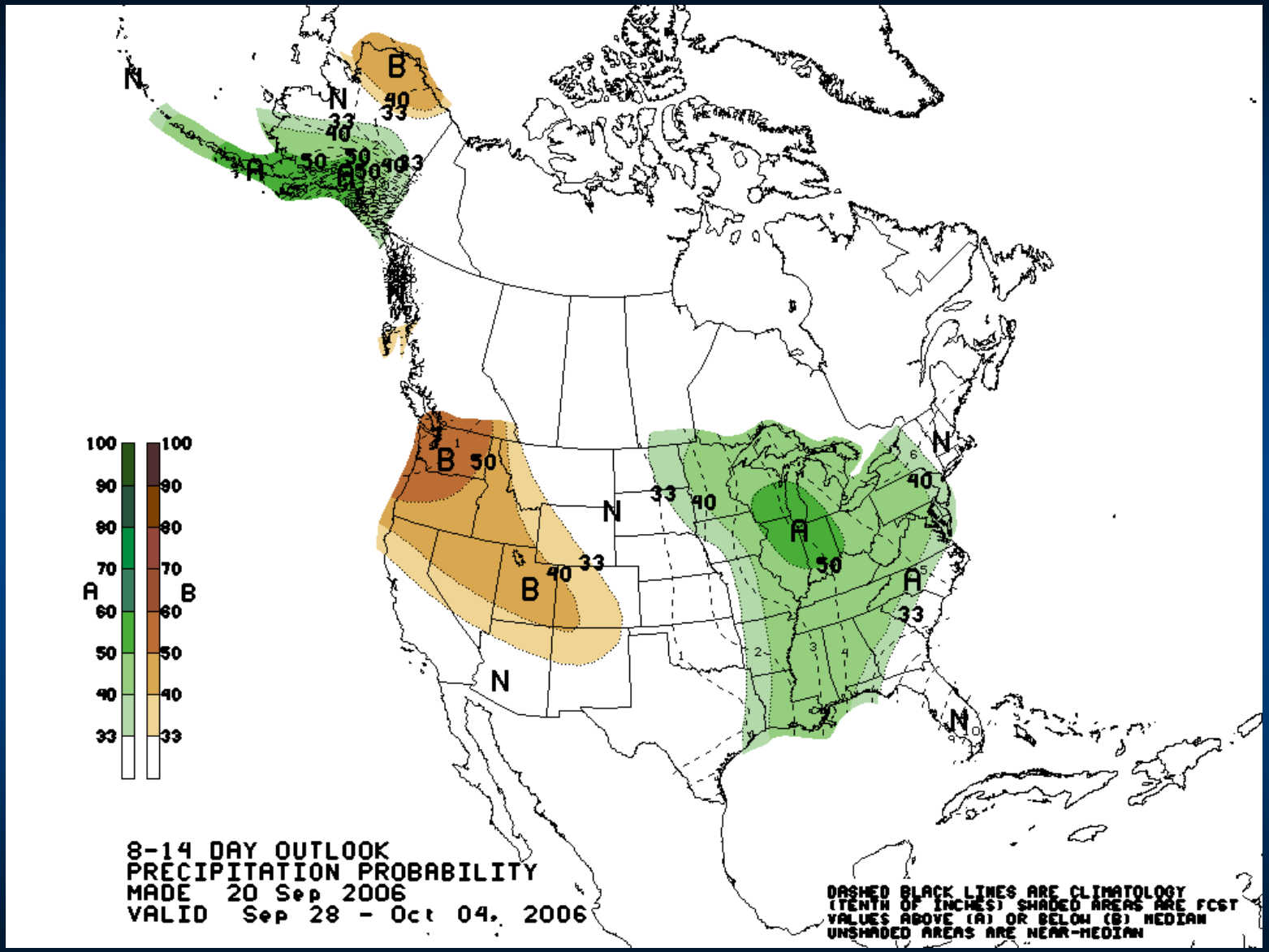
Author: Ned Guttman/Liz Love-Brotak, NOAA/NESDIS/NCDC

Oct 1, 2005 to present
Percent of Normal (%)



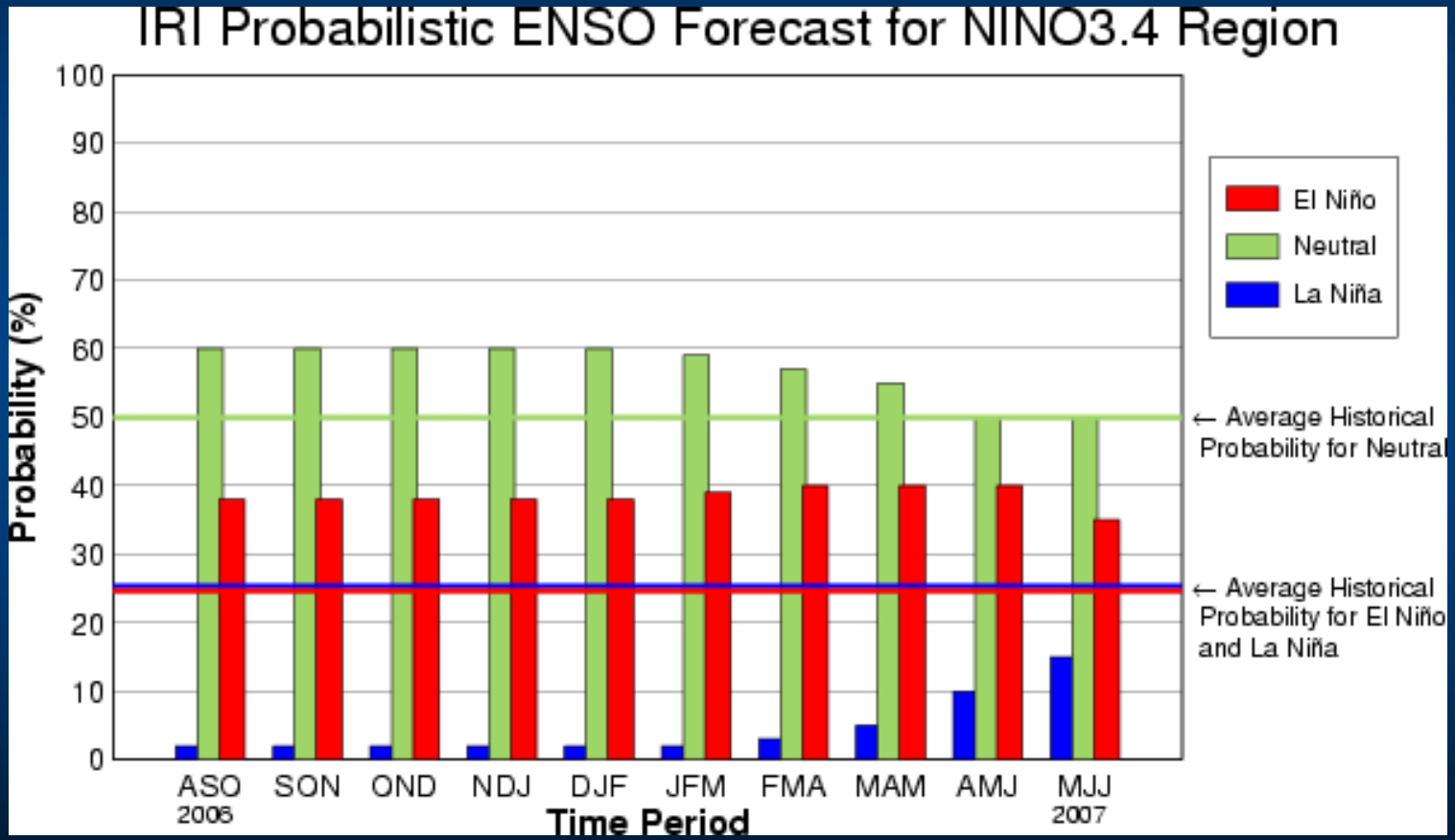
http://www.hprcc.unl.edu/products/current.html

NOAA 8-14 Day Forecast:



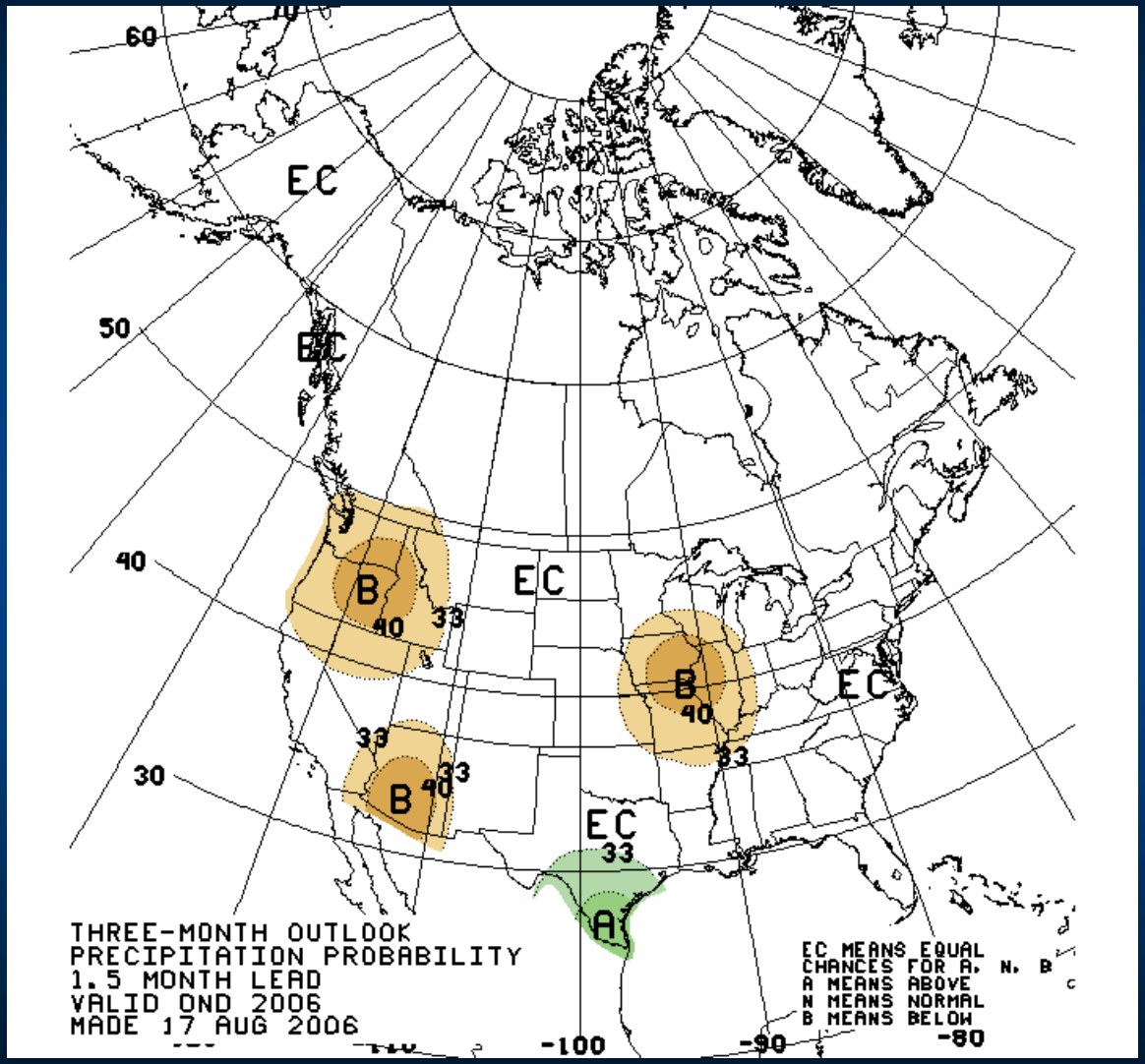
http://www.cpc.ncep.noaa.gov/

Improving chances for El Nino this winter…



NOAA Oct-Nov-Dec 2006 Precipitation Forecast

EC = Equal Chances of above or below (forecast = ???)



NOAA Oct-Nov-Dec 2006 Temperature Forecast

Increased likelihood of above normal temperatures